Comal County

OFFICE OF COMAL COUNTY ENGINEER

License to Operate On-Site Sewage Treatment and Disposal Facility

Issued This Date: **04/08/2019** Permit Number: **108708**

Location Description: 1272 MOUNTAIN VIEW DR
CANYON LAKE, TX 78133

Subdivision:	Canyon Lake Shores
Unit:	5
Lot:	722
Block:	
Acreage:	

Type of System: Aerobic
Drip Irrigation

Issued to: Sunny Circle, LLC

This license is authorization for the owner to operate and maintain a private facility at the location described in accordance to the rules and regulations for on-site sewerage facilities of Comal County, Texas, and the Texas Commission on Environmental Quality.

The license grants permission to operate the facility. It does not guarantee successful operation. It is the responsibility of the owner to maintain and operate the facility in a satisfactory manner.

Alterations to this permit including, but not limited to:

- Increase in the square feet of living area
- Increase in the number of bedrooms
- A change of use (i.e. residential to commercial)
- Relocation of system components (including the relocation of spray heads)
- Installation of landscaping
- Adding new structures to the system

may require a new permit. **It is the responsibility of the owner to apply for a new permit, if applicable.**

Inspection and licensing of a facility indicates only that the facility meets certain minimum requirements. It does not impede any governmental entity in taking the proper steps to prevent or control pollution, to abate nuisance, or to protect the public health.

This license to operate is valid for an indefinite period. The holder may transfer it to a succeeding owner, provided the facility has not been remodeled and is functioning properly.

Licensing Authority
Comal County Environmental Health

ENVIRONMENTAL HEALTH INSPECTOR

OS0007722

ENVIRONMENTAL HEALTH COORDINATOR

OS0034322

12:15 PM

Comal County Environmental Health
OSSF Inspection Sheet

Installer Name: David Winters OSSF Installer #: OS0005924

1st Inspection Date: 2.22.19 2nd Inspection Date: 4.8.19 3rd Inspection Date:

Inspector Name: S. Helmke Inspector Name: anerea f. Inspector Name:

Permit#: 108708 Address: 1272 Mtn View Dr - C.L. Shores

No.	Description	Anwser	Citations	Notes	1st Insp.	2nd Insp.	3rd Insp.
1	SITE AND SOIL CONDITIONS & SETBACK DISTANCES Site and Soil Conditions Consistent with Submitted Planning Materials	✓	285.31(a) 285.30(b)(1)(A)(iv) 285.30(b)(1)(A)(v) 285.30(b)(1)(A)(iii) 285.30(b)(1)(A)(ii) 285.30(b)(1)(A)(I)		2.22.19		
2	SITE AND SOIL CONDITIONS & SETBACK DISTANCES Setback Distances Meet Minimum Standards	✓	285.91(10) 285.30(b)(4) 285.31(d)				
3	SEWER PIPE Proper Type Pipe from Structure to Disposal System (Cast Iron, Ductile Iron, Sch. 40, SDR 26)	✓	285.32(a)(1)				
4	SEWER PIPE Slope from the Sewer to the Tank at least 1/8 Inch Per Foot	✓	285.32(a)(3)				
5	SEWER PIPE Two Way Sanitary - Type Cleanout Properly Installed (Add. C/O Every 100' &/or 90 degree bends)	✓	285.32(a)(5)				
6	PRETREATMENT Installed (if required) TCEQ Approved List PRETREATMENT Septic Tank(s) Meet Minimum Requirements		285.32(b)(1)(G)285.32(b)(1)(E)(iii) 285.32(b)(1)(E)(iv) 285.32(b)(1)(F) 285.32(b)(1)(B) 285.32(b)(1)(C)(i) 285.32(b)(1)(C)(ii) 285.32(b)(1)(D) 285.32(b)(1)(E) 285.32(b)(1)(A) 285.32(b)(1)(E)(ii)(II) 285.32(b)(1)(E)(i) 285.32(b)(1)(E)(ii)(I)				
7	PRETREATMENT Grease Interceptors if required for commercial		285.34(d)				

2.22.19 - SH

tank set. level - operational
c/o not connected to tank - need to check fall - do not cover

ready for sod

4.8.19

covered

Comal County Environmental Health
OSSF Inspection Sheet

No.	Description	Anwser	Citations	Notes	1st Insp.	2nd Insp.	3rd Insp.
8	SEPTIC TANK Tank(s) Clearly Marked SEPTIC TANK If SingleTank, 2 Compartments Provided with Baffle SEPTIC TANK Inlet Flowline Greater than 3" and " T " Provided on Inlet and Outlet SEPTIC TANK Septic Tank(s) Meet Minimum Requirements	✓	285.32(b)(1)(E) 285.91(2) 285.32(b)(1)(F) 285.32(b)(1)(E)(iii) 285.32(b)(1)(E)(ii)(II) 285.32(b)(1)(E)(ii)(I) 285.32(b)(1)(E)(i) 285.32(b)(1)(D) 285.32(b)(1)(C)(ii) 285.32(b)(1)(C)(i) 285.32(b)(1)(B) 285.32(b)(1)(A) 285.32(b)(1)(E)(iv)		2.22.19		
9	ALL TANKS Installed on 4" Sand Cushion/ Proper Backfill Used	✓	285.32(b)(1)(F) 285.32(b)(1)(G) 285.34(b)				
10	SEPTIC TANK Inspection / Clean Out Port & Risers Provided on Tanks Buried Greater than 12" Sealed and Capped	✓	285.38(d)				
11	SEPTIC TANK Secondary restraint system provided SEPTIC TANK Riser permanently fastened to lid or cast into tank SEPTIC TANK Riser cap protected against unauthorized intrusions	✓	285.38(d) 285.38(e)				
12	SEPTIC TANK Tank Volume Installed	✓					
13	PUMP TANK Volume Installed	✓					
14	AEROBIC TREATMENT UNIT Size Installed	✓		500			
15	AEROBIC TREATMENT UNIT Manufacturer AEROBIC TREATMENT UNIT Model Number	✓		Aeris			
16	DISPOSAL SYSTEM Absorptive		285.33(a)(4) 285.33(a)(1) 285.33(a)(2) 285.33(a)(3)				
17	DISPOSAL SYSTEM Leaching Chamber		285.33(a)(1) 285.33(a)(3) 285.33(a)(4) 285.33(a)(2)				
18	DISPOSAL SYSTEM Evapo-transpirative		285.33(a)(3) 285.33(a)(4) 285.33(a)(1) 285.33(a)(2)				

Comal County Environmental Health
OSSF Inspection Sheet

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20	DISPOSAL SYSTEM Soil Substitution		285.33(d)(4)				
21	DISPOSAL SYSTEM Pumped Effluent		285.33(a)(4) 285.33(a)(3) 285.33(a)(1)				
22	DISPOSAL SYSTEM Gravelless Pipe		285.33(a)(3) 285.33(a)(2) 285.33(a)(4) 285.33(a)(1)				
23	DISPOSAL SYSTEM Mound		285.33(a)(3) 285.33(a)(1) 285.33(a)(2) 285.33(a)(4)				
24	DISPOSAL SYSTEM Other (describe) (Approved Design)		285.33(d)(6) 285.33(c)(4)				
25	DRAINFIELD Absorptive Drainline 3" PVC or 4" PVC					✓	
26	DRAINFIELD Area Installed	✓		1200	2.22.19	✓	
27	DRAINFIELD Level to within 1 inch per 25 feet and within 3 inches over entire excavation		285.33(b)(1)(A)(v)				
28	DRAINFIELD Excavation Width DRAINFIELD Excavation Depth DRAINFIELD Excavation Separation DRAINFIELD Depth of Porous Media DRAINFIELD Type of Porous Media						
29	DRAINFIELD Pipe and Gravel - Geotextile Fabric in Place		285.33(b)(1)(E)				
30	DRAINFIELD Leaching Chambers DRAINFIELD Chambers - Open End Plates w/Splash Plate, Inspection Port & Closed End Plates in Place (per manufacturers spec.)		285.33(c)(2)				
31	LOW PRESSURE DISPOSAL SYSTEM Adequate Trench Length & Width, and Adequate Separation Distance between Trenches		285.33(d)(1)(C)(i)				

Comal County Environmental Health
OSSF Inspection Sheet

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33	**AEROBIC TREATMENT UNIT Is Aerobic Unit Installed According to Approved Guidelines.**		**285.32(c)(1)**				
34	**AEROBIC TREATMENT UNIT Inspection/Clean Out Port & Risers Provided** **AEROBIC TREATMENT UNIT Secondary restraint system provided AEROBIC TREATMENT UNIT Riser permanently fastened to lid or cast into tank** **AEROBIC TREATMENT UNIT Riser cap protected against unauthorized intrusions**						
35	**AEROBIC TREATMENT UNIT Chlorinator Properly Installed with Chlorine Tablets in Place.**	✓			2.22.19		
36	PUMP TANK Is the Pump Tank an approved concrete tank or other acceptable materials & construction PUMP TANK Sampling Port Provided in the Treated Effluent Line PUMP TANK Check Valve and/or Anti- Siphon Device Present When Required PUMP TANK Audible and Visual High Water Alarm Installed on Separate Circuit From Pump						
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Comal County Environmental Health
OSSF Inspection Sheet

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OSSF Inspection Sheet

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42	APPLICATION AREA Area Installed	✓				✓	
43	PUMP TANK Meets Minimum Reserve Capacity Requirements						
44	PUMP TANK Material Type & Manufacturer						
45	PUMP TANK Type/Size of Pump Installed						

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1st Inspection Date: 2.22.19 2nd Inspection Date: _____ 3rd Inspection Date: _____

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Permit#: 109708 Address: 1272 Mtn View Dr - C.L. Shores

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44	PUMP TANK Material Type & Manufacturer						
45	PUMP TANK Type/Size of Pump Installed						

Comal County

OFFICE OF COMAL COUNTY ENGINEER

Permit of Authorization to Construct an On-Site Sewage Facility
Permit Valid For One Year From Date Issued

Permit Number: 108708

Issued This Date: 02/06/2019

This permit is hereby given to: Sunny Circle, LLC

To start construction of a private, on-site sewage facility located at:

1272 MOUNTAIN VIEW DR
CANYON LAKE, TX 78133

Subdivision: Canyon Lake Shores
Unit: 5
Lot: 722
Block:
Acreage:

APPROVED MINIMUM SIZES AS PER ATTACHED DESIGN

Type of System: Aerobic
Drip Irrigation

This permit gives permission for the construction of the above referenced on-site facility to commence. Installation must be completed by an installer holding a valid registration card from the Texas Commission on Environmental Quality (TCEQ). Installation and inspection must comply with current TCEQ and Comal County requirements.

Call (830) 608-2090 to schedule inspections.

* * * COMAL COUNTY OFFICE OF ENVIRONMENTAL HEALTH * * *

APPLICATION FOR PERMIT FOR AUTHORIZATION TO CONSTRUCT AN ON-SITE SEWAGE FACILITY AND LICENSE TO OPERATE

Date 01/25/19 Permit # 108708

Owner Name	Sunny Circle, LLC, a Texas Limited Liability Company	Agent Name	John J. Haag, P.E.
Mailing Address	156 Canyon Bend	Agent Address	15831 Secret Trail
City, State, Zip	Canyon Lake, Texas 78133	City, State, Zip	San Antonio, Tx. 78247
Phone #	830-776-0248	Phone #	210-705-4268
Email	lcsunnycircle@gmail.com	Email	jhaag@satx.rr.com

All correspondence should be sent to: ☐ Owner ☐ Agent ☒ Both Method: ☐ Mail ☒ Email

Subdivision Name Canyon Lake Shores Unit 5 Lot 722 Block

Acreage/Legal 0.1722

Street Name/Address 1272 Mountain View City Canyon Lake Zip 78133

Type of Development:

☒ Single Family Residential

Type of Construction (House, Mobile, RV, Etc.) House

Number of Bedrooms 3

Indicate Sq Ft of Living Area 1154

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COUNTY ENGINEER

☐ Commercial or Institutional Facility

(Planning materials must show adequate land area for doubling the required land needed for treatment units and disposal area)

Type of Facility

Offices, Factories, Churches, Schools, Parks, Etc. - Indicate Number Of Occupants

Restaurants, Lounges, Theaters - Indicate Number of Seats

Hotel, Motel, Hospital, Nursing Home - Indicate Number of Beds

Travel Trailer/RV Parks - Indicate Number of Spaces

Miscellaneous

Estimated Cost of Construction: $ 135,000 (Structure Only)

Is any portion of the proposed OSSF located in the United States Army Corps of Engineers (USACE) flowage easement?

☐ Yes ☒ No (If yes, owner must provide approval from USACE for proposed OSSF improvements within the USACE flowage easement)

Source of Water ☒ Public ☐ Private Well

Are Water Saving Devices Being Utilized Within the Residence? ☒ Yes ☐ No

By signing this application, I certify that:

- The completed application and all additional information submitted does not contain any false information and does not conceal any material facts.
- Authorization is hereby given to the permitting authority and designated agents to enter upon the above described property for the purpose of site/soil evaluation and inspection of private sewage facilities..
- I understand that a permit of authorization to construct will not be issued until the Floodplain Administrator has performed the reviews required by the Comal County Flood Damage Prevention Order.
- I affirmatively consent to the online posting/public release of my e-mail address associated with this permit application, as applicable.

Signature of Owner

Date 01/28/2019

195 David Jonas Dr., New Braunfels, Texas 78132-3760 (830) 608-2090 Fax (830) 608-2078

* * * COMAL COUNTY OFFICE OF ENVIRONMENTAL HEALTH * * *

APPLICATION FOR PERMIT FOR AUTHORIZATION TO CONSTRUCT AN ON-SITE SEWAGE FACILITY AND LICENSE TO OPERATE

Planning Materials & Site Evaluation as Required Completed By John J. Haag, P.E.

System Description Proprietary aerobic treatment with drip system disposal

Size of Septic System Required Based on Planning Materials & Soil Evaluation

Tank Size(s) (Gallons) Aeris D-500-M (500 gpd) Absorption/Application Area (Sq Ft) 1200 min.

Gallons Per Day (As Per TCEQ Table III) 240 gpd

(Sites generating more than 5000 gallons per day are required to obtain a permit through TCEQ.)

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JAN 30 2019

COUNTY ENGINEER

Is the property located over the Edwards Recharge Zone? ☐ Yes ☒ No

(If yes, the planning materials must be completed by a Registered Sanitarian (R.S.) or Professional Engineer (P.E.))

Is there an existing TCEQ approved WPAP for the property? ☐ Yes ☒ No

(If yes, the R.S. or P.E. shall certify that the OSSF design complies with all provisions of the existing WPAP.)

If there is no existing WPAP, does the proposed development activity require a TCEQ approved WPAP? ☐ Yes ☒ No

(If yes, the R.S. or P.E. shall certify that the OSSF design will comply with all provisions of the proposed WPAP. A Permit to Construct will not be issued for the proposed OSSF until the proposed WPAP has been approved by the appropriate regional office.)

Is the property located over the Edwards Contributing Zone? ☒ Yes ☐ No

Is there an existing TCEQ approval CZP for the property? ☐ Yes ☒ No

(If yes, the P.E. or R.S. shall certify that the OSSF design complies with all provisions of the existing CZP.)

If there is no existing CZP, does the proposed development activity require a TCEQ approved CZP? ☐ Yes ☒ No

(If yes, the R.S. or P.E. shall certify that the OSSF design will comply with all provisions of the proposed CZP. A Permit to Construct will not be issued for the proposed OSSF until the CZP has been approved by the appropriate regional office.)

Is this property within an incorporated city? ☐ Yes ☒ No

If yes, indicate the city: _____

By signing this application, I certify that:
- The information provided above is true and correct to the best of my knowledge.
- I affirmatively consent to the online posting/public release of my e-mail address associated with this permit application, as applicable.

Signature of Designer _____ Date _____

195 David Jonas Dr., New Braunfels, Texas 78132-3760 (830) 608-2090 Fax (830) 608-2078

(3)
1/CS

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THE COUNTY OF COMAL

STATE OF TEXAS

CERTIFICATION OF OSSF REQUIRING MAINTENANCE

According to Texas Commission on Environmental Quality (TCEQ) Rules for On- Site Sewage Facilities, this document is filed in the Deed Records of Comal County, Texas.

I

The Texas Health and Safety Code, Chapter 366 authorizes the TCEQ to regulate on-site sewage facilities (OSSFs). Additionally, the Texas Water Code (TWC), § 5.012 and § 5.013, gives the TCEQ primary responsibility for implementing the laws of the State of Texas relating to water and adopting rules necessary to carry out its powers and duties under the TWC. The TCEQ, under the authority of the TWC and the Texas Health and Safety Code, requires owner's to provide notice to the public that certain types of OSSFs are located on specific pieces of property. To achieve this notice, the TCEQ requires a recorded affidavit. Additionally, the owner must provide proof of the recording to the OSSF permitting authority. This recorded affidavit is not a representation or warranty by the TCEQ of the suitability of this OSSF, nor does it constitute any guarantee by the TCEQ that the appropriate OSSF was installed.

II

An OSSF requiring a maintenance contract, according to 30 Texas Administrative Code §285.91(12) will be installed on the property described as (insert legal description):

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COUNTY ENGINEER

Legal Description: Lot 722, Canyon Lake Shores, Unit 5

This property is owned by: Sunny Circle, LLC

This OSSF must be covered by a continuous maintenance contract for the first two years. After the initial two-year service period, the owner of an aerobic system for a single family residence shall either obtain a maintenance contract within 30 days or maintain the system personally.

The owner will, upon any sale or transfer of the above-described property, request a transfer of the permit for the OSSF to the buyer or new owner. A copy of the planning materials for the OSSF can be obtained from Comal County.

WITNESS BY HAND(S) ON THIS 28TH DAY OF January, 2019.

Owner Signature
Lester Collinsworth, dba Sunny Circle, LLC

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 28TH DAY OF January, 2019.

ANNETTE BROUSSARD
Notary Public, State of Texas
Comm. Expires 08-24-2021
Notary ID 125410606

Annette Broussard
Notary Public, State of Texas

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
01/30/2019 03:26:26 PM
TERRI 1 Page(s)
201906003310

Bobbie Koepp

DAVID WINTERS SEPTICS, LLC
PO BOX 195
SPRING BRANCH, TX 78070
830-935-2477 OFFICE
830-935-2477 FAX
winters3@gvtc.com

Routine Maintenance and Inspection Agreement

This Work-for-Hire Agreement (hereafter referred to as this "Agreement") is entered into, by, and between Sunny Circle, LLC (referred to as "Client") and David Winters Septic's, LLC, Inc. (hereafter referred to as "Contractor") located at Lot 722, Canyon Lake Shores, Unit 5 Date beginning on LTO and contract ending _____
By this agreement the Contractor agrees to render professional service, as described herein, and the Client agrees to fulfill the terms of this Agreement as described herein.

This agreement will provide for all required inspections, testing, and service for your Aerobic Treatment System. The policy will include the following:

1. Three (3) inspections per year/service calls (at least one every four months), for a total of six (6) over the two-year period, including inspection, adjustment, and servicing of the mechanical, electrical and other applicable component parts to ensure proper function. This includes inspecting control panel, air pumps, air filters, diffuser operation, and replacing or repairing any component not found to be functioning correctly. Any alarm situations affecting the proper function of the Aerobic process will be addressed within a 48-hour time frame. After the initial agreement expires, repair work on warranty parts does not include labor prices. Repair work on non-warranty parts will include prices for labor and parts. The prices will be quoted before work is performed.

2. An effluent quality inspection consisting of a visual check of color, turbidity, scum overflow and examination for odors. A test for chlorine residual and pH will be taken and reported as necessary.

3 If any improper operation is observed, which cannot be corrected at the time of the service visit, you will be notified immediately in writing of the conditions and estimated date of correction.

4. The Client is responsible for the chlorine tablets; they must be filled before or during the service visit.

5. Any additional visits, inspections or sample collection required by specific Municipalities, Water/River Authorities, and County Agencies the TCEQ or any other authorized regulatory agency in your jurisdiction will be covered by this policy.

At the conclusion of the initial service policy, our company will make available, for purchase on an annual basis, a continuing service policy cover NORMAL inspection, maintenance and repair.

The Homeowners Manual must be strictly followed or warranties are subject invalidation. Pumping of sludge build up is not covered by this policy and will result in additional charges.

This agreement does not cover any labor or parts for items which must be replaced due to acts of God, i.e., lightning strikes, high winds, flooding, freezing.

This agreement DOES NOT COVER materials or parts which must be replaced due to misuse or abuse of the system. These include but are not limited to: Sewage flows exceeding the recommended daily hydraulic design capabilities, Disposal of Non-Biodegradable materials, such as chemicals, grease or oil, sanitary napkins, tampons, baby wipes, disposable diapers, Clogs in the line between the house and the tank.

This agreement DOES NOT COVER LABOR OR PARTS for out- of- warranty items.

ACCESS BY CONTRACTOR
The contractor or anyone authorized by the contractor may enter the property at reasonable times without prior notice for the purpose of service described above.

PAYMENT AGREEMENT
The client will pay compensation to the contractor for the services in the amount of _____. This compensation shall be payable in one lump sum payment upon acceptance of this agreement. Payments not received within 30 days of the above described due date will be subject to a $25.00 late penalty.

TERMINATION OF THIS AGREEMENT
Either party may terminate this agreement within 10 days of written notice in the event of substantial failure to perform in accordance with its terms by other party without fault of the terminating party. If this agreement is terminated, the contractor will immediately notify the appropriate health authority.

LIMIT OF LIABILTY
The Contractor will not be liable for indirect, consequential, incidental or punitive damages, whether in contract or any other theory. In no event shall the Contractor's liability for direct damages exceed the price for the services described in this agreement.

Permit # _____

The effective date of this initial maintenance agreement shall be the date the license to operate is issued.

Client	**Contractor**
Sunny Circle, LLC	David Winters Septic's, LLC, Inc.
Name	
156 Canyon Bend	P.O. Box 195
Address	
Canyon Lake, Texas 78133	Spring Branch, Texas 780170
City/State/Zip Code	
830-776-0248	Office 830-935-2477 Fax 830-935-2477
Phone Number	
	David Winters
Signature of Client	Signature of Contractor

ON-SITE SEWAGE FACILITY (OSSF)
SITE EVALUATION FORM

1. OWNER INFORMATION
Property Owner's Full Legal Name: Sunny Circle, LLC

2. PROPERTY INFORMATION				
City: Canyon Lake			Zip Code: 78133	
Legal Description:				
Lot: 722	Block:	Subdivision: Canyon Lake Shores	Unit: 5	Phase:
If not located in subdivision: Survey:				
	Abstract:		Recorded (Vol/Pg):	

3. SITE EVALUATION INFORMATION:	
Name of Site Evaluator: John J. Haag	PE #: 90158
Date Performed: 12/19/18	Proposed Excavation Depth: Surface

4. REQUIREMENTS:

- At least two soil evaluations must be performed on the site at opposite ends of the proposed disposal area. Locations of soil evaluations must be shown on the application site drawing or designer's site drawing.
- For subsurface disposal, soil evaluations must be performed to a depth of at least 2 feet below the proposed excavation depth. For surface disposal, the surface horizon must be evaluated.

Soil Profile Hole Number: 1					
Depth (ft.)	Textural Class	Gravel Analysis	Drainage (Mottles/Water Table)	Restrictive Horizon	Observations
0	III	<30%	No	Yes	Type III to 24" then limestone
1					
2					
3					
4					
5					

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ON-SITE SEWAGE FACILITY (OSSF)
SITE EVALUATION FORM

Soil Profile Hole Number: 2					
Depth (ft.)	Textural Class	Gravel Analysis	Drainage (Mottles/Water Table)	Restrictive Horizon	Observations
0	III	<30%	No	Yes	Type III to 10" then limestone
1					
2					
3					
4					
5					

5. FEATURES OF SITE AREA:

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Presence of 100 year flood zone:	☐ Yes	☒ No
Presence of adjacent ponds, streams or water impoundments	☐ Yes	☒ No
Existing or proposed water well in nearby area	☐ Yes	☒ No
Organized sewage available to lot or tract	☐ Yes	☒ No
Recharge features within 150 feet	☐ Yes	☒ No

6. I certify that the above statements are true and correct and are based on my own field observations.

STATE OF TEXAS
JOHN J. HAAG
90158
LICENSED PROFESSIONAL ENGINEER

01/30/19

Haag Engineering Consultants, Inc.
Firm: F-5789

AEROBIC TREATMENT
DRIP TUBING SYSTEM
FOR:
LOT 722
CANYON LAKE SHORES UNIT 5

SITE DESCRIPTION:

Located in Canyon Lake Shores Unit 5, lot 722 the proposed system will serve at 3 bedroom, 1154 s.f. residence situated with soils per the Site Evaluation report. An aerobic treatment plant utilizing drip irrigation was chosen as the most appropriate system to serve the conditions on this lot.

PROPOSED SYSTEM:

A 3 or 4 inch SCH-40 pipe discharges from the residence into a Aeris D-500-M (500 gpd) aerobic treatment plant containing a 568 gallon pretreatment tank and a 763 gallon pump chamber. The pump chamber contains a 0.5 HP Franklin C1-Series-20XC1-05P4-2W115 submersible well pump. The well pump is activated by a time controller allowing the distribution ten times per day with an 8 minute run time with the float setting at min. 240 gallons. A high level audible and visual alarm will activate should the pump fail. Distribution is through a self-flushing 100 micron Arkal Disk filter then through a 1" SCH-40 manifold to a minimum 1200 sf drip tubing field with Netifim Bioline drip lines approximately two feet apart with 0.61 gph emitters set every two feet as per the attached schematic. A pressure regulator Model PMR30MF 30psi installed in the pump tank on the manifold to the field will maintain pressure at 30 psi. A 1" SCH-40 return line is installed to periodically flush the system by cycling a 1" ball valve. Solids caught in the spin filter are flushed each cycle back to the trash tank. Agricultural Products, Inc. (Model #VBK-1) 1" PVC vacuum breakers installed on the highest point on each manifold will prevent siphoning of effluent from higher to lower parts in the field. Field area will be scarified and then built up so that approximately 12" of Type II or III soil is above any bedrock or type IV soils then the drip tubing will be laid and capped with approximately 6" of Type II or Type III soil (NOT SAND). The field area will be sodded with grass prior to system startup. Tank must have at grade risers on each opening with watertight caps that must be 65# or have a padlock or can only be removed with tools. A secondary plug, cap or suitable restraint must be provided below riser cap to prevent tank entry should the cap be damaged or removed.

DESIGN SPECIFICATIONS:

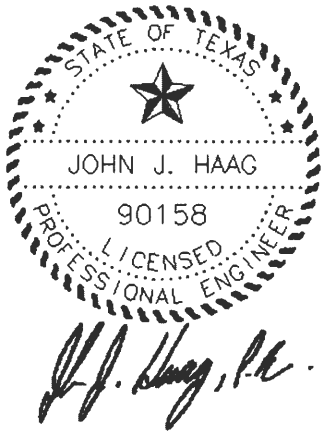
Daily flow = Q=240 gpd
Pretreatment tank size: 400 gal
Plant size: Aeris D-500-M; 500 gpd (TCEQ approved)
Pump tank size: 763 gal
Min. Reserve capacity after high level: 80 gal (1/3 day req'd)
Application rate: Ra=0.2 gal/sf
Total absorption area: Q/Ra = min. 1200 sf (1288 sf actual)
Total linear feet of drip tubing: 661' Netifim Bioline drip tubing 0.61 gph
Pump requirement: 322 emitters @ 0.61 gph @ 30 psi = 3.27 gpm
Pump requirement (cont.): 0.5 HP Franklin C1-Series-20AC1-05P4-2W115

MINIMUM SCOUR VELOCITY (MSV) >2 fps
In drip tubing with nom. dia. 0.57" ID
MSV = 2 fps (pi*d^2)/4*7.48 gal/cf*60 sec/min
MSV = 2(3.14159(.57/12)^2)/4)*7.48*60
MSV = 1.59 gpm/line * 2 lines = 3.18 gpm min. flow rate
In return manifold with nom. Dia. 1.049" ID
MSV = 2 fps (pi*d^2)/4*7.48 gal/cf*60 sec/min
MSV = 2(3.14159(1.049/12)^2)/4)*7.48*60
MSV = 5.4 gpm

PIPE AND FITTINGS:

All pipes and fittings in this drip tubing system shall be 1" schedule 40 pvc. All joints shall be sealed with approved solvent type pvc cement. Clipper type cutters are recommended to prevent pvc burrs during cutting of pipes causing possible plugging.

Designed in accordance with Chapter 285, Subchapter D, §285 and §285.40 Texas Commission on Environmental Quality (Revised March 2013).

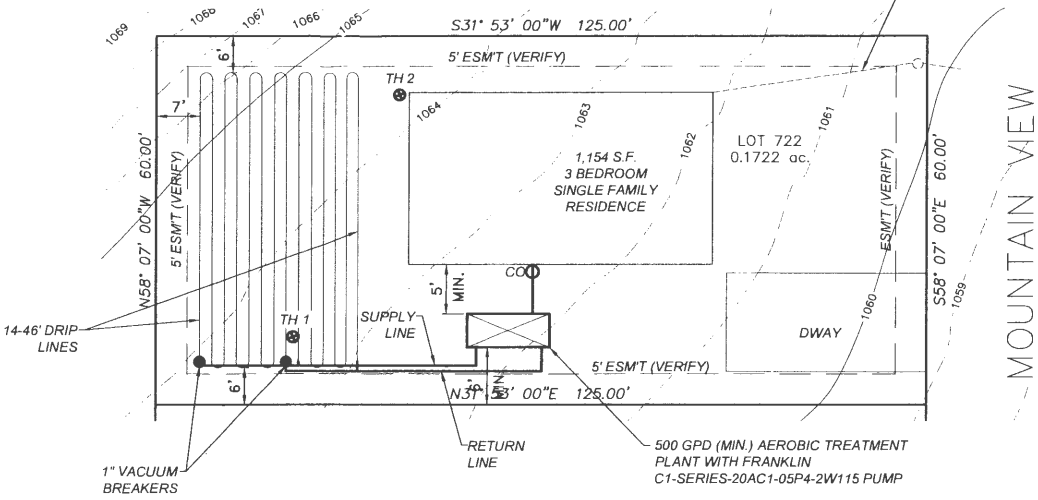


01/30/19

Haag Engineering Consultants, Inc.
Firm No.: F-5786

GENERAL NOTES:

1 NO VEHICULAR TRAFFIC IS ALLOWED ON ANY PORTION OF THE DISPOSAL SYSTEM UNLESS THE DESIGN SPECIFIES OTHERWISE.
2 PIPE ALIGNMENT TO THE DISPOSAL BEDS MAY BE ALTERED AS REQUIRED. ANY CHANGE FROM THE PLANS MUST BE APPROVED BY THE ENGINEER AND THE APPROPRIATE GOVERNMENTAL AGENCY(IES).
3 CONTRACTOR SHALL PROTECT TREES WHICH ARE NOT IN THE EXCAVATED CONSTRUCTION AREAS. CONTRACTOR SHALL MINIMIZE ROOT DAMAGE AND REASONABLY ADHERE TO THE DESIGN.
4 CONTRACTOR IS RESPONSIBLE FOR VERIFYING A MINIMUM OF 1/4" PER FOOT OF FALL FROM THE BUILDING TO THE SEPTIC TANK.
5 NOT AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED OVER THE DISPOSAL AREAS. ANY WATERING IN THESE AREAS SHALL BE DONE BY HAND AND ONLY WHEN REQUIRED TO MAINTAIN GRASS COVER.
6 ALL CONSTRUCTION SHALL CONFORM TO THE RULES AND REGULATIONS OF THE APPROPRIATE AUTHORITY - TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AND ANY APPLICABLE LOCAL BUILDING AND SAFETY CODES.
7 CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE CONSTRUCTION OF THIS SYSTEM.
8 THE DRIP FIELD SHALL BE VEGETATED WITH EITHER ST. AUGUSTINE OR BERMUDA SOD.
9 FIELDS MUST BE MOWED AT REGULAR INTERVALS. FAILURE TO PROPERLY MAINTAIN VEGETATIVE COVER MAY RESULT IN SYSTEM FAILURE AND SHALL BE THE RESPONSIBILITY OF THE OWNER.
10 ALL PIPES SHALL BE SCHEDULE 40 PVC OR APPROVED EQUAL, UNLESS NOTED OTHERWISE. ALL JOINTS SHALL BE CLEANED WITH THE APPROPRIATE SOLVENT AND GLUED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
11 ALL POTABLE WATER LINES SHALL BE A MINIMUM OF 10 FEET FROM ANY DISPOSAL SYSTEM OR SEWERAGE PIPE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF WATER LINES LESS THAN 10 FEET FROM THE DISPOSAL AREA.
12 HIGH WATER ALARM SHALL BE LOCATED IN A NOTICEABLE LOCATION. THE ALARM SHALL BE A VISUAL AND AUDIBLE ALARM AND WIRED ON A SEPARATE CIRCUIT FROM THE PUMPS. ALL EXTERIOR CONTROLS AND CONNECTIONS SHALL BE ENCLOSED IN A WEATHER-PROOF HOUSING. ELECTRICAL CONSTRUCTION SHALL COMPLY WITH ALL LOCAL ELECTRICAL AND BUILDING CODES.
13 NO EXCAVATION IS PERMITTED NEAR THE DISPOSAL FIELDS THAT WILL RESULT IN THE NONCOMPLIANCE OF APPLICABLE SETBACKS STATED IN THE RULES AND REGULATIONS OF THE APPROPRIATE AUTHORITY.
14 ONLY GOOD QUALITY SANDY LOAM SHALL BE APPLIED OVER THE DISPOSAL FIELDS. CLAY LOAM IS UNACCEPTABLE AND WILL CAUSE SYSTEM FAILURE. SANDY LOAM SHALL BE DEFINED AS SHOWN IN TABLE VI (USDA SOIL TEXTURAL CLASSIFICATIONS) OF THE RULES AND REGULATIONS OF THE TCEQ. THE INSTALLER IS RESPONSIBLE FOR VERIFYING THE QUALITY OF EACH LOAD OF LOAM PLACED ON THE SYSTEM.
15 STORM WATER (RAINFALL RUNOFF) SHOULD NOT BE ALLOWED TO FLOW OVER THE DISPOSAL FIELDS OR THE TANKS. DIVERSION BERMS, SWALES AND/OR RAIN GUTTERS SHOULD BE INSTALLED AS NECESSARY TO PREVENT SUCH RUNOFF.
16 THE CONTRACTOR IS RESPONSIBLE FOR STAKING AND VERIFYING THE GRADES PRIOR TO EXCAVATION. ANY DISCREPANCIES OF MORE THAN 6 INCHES SHALL BE REPORTED TO THE ENGINEER PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOT DEVIATE FROM THESE PLANS WITHOUT THE WRITTEN CONSENT OF THE APPROPRIATE AUTHORITY AND THE ENGINEER.
17 WATER SOFTENER AND/OR AIR CONDITIONING DRAIN LINES SHALL NOT BE CONNECTED TO THE SEPTIC TANK.
18 CONTRACTOR SHALL REPORT TO THE ENGINEER ANY ELEVATION DIFFERENCES GREATER THAN 4 FEET BETWEEN THE HIGHEST AND LOWEST TRENCH IN THE FIELD. THIS SHOULD BE CHECKED PRIOR TO INSTALLING THE LATERALS AND MANIFOLD.
19 THIS DISPOSAL SYSTEM HAS BEEN DESIGNED TO OPERATE PROPERLY AT SPECIFICATIONS NOTED IN THESE PLANS. ALTERATIONS TO THE SYSTEM BY THE OWNER, INCLUDING BUT NOT LIMITED TO LANDSCAPING, DRAINAGE, BUILDING AND/OR WATER USAGE, MAY CAUSE PREMATURE FAILURE AND SHALL BE THE SOLE RESPONSIBILITY OF THE OWNER.
20 CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PLUMBING FIXTURES ARE CONNECTED TO THE DESIGNATED SEPTIC TANK(S). LOW FLOW TOILETS (1.6 GAL), SHOWERHEADS AND FAUCETS SHALL BE USED IN THE STRUCTURES.
21 CONTRACTOR SHALL BE RESPONSIBLE FOR JOBSITE SAFETY AND PROTECTION OF THE PUBLIC FROM INJURY DURING CONSTRUCTION. THE OWNER SHALL BE RESPONSIBLE FOR THE PREVENTION OF PERSONAL INJURY TO ANYONE ON OR NEAR THE DISPOSAL SYSTEM.
22 CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL TANKS HAVE ADEQUATE STRENGTH AND INTEGRITY TO PERFORM SATISFACTORILY AS SHOWN ON THESE PLANS.
23 THE WASTEWATER FLOW TO THE SEPTIC SYSTEM SHALL NOT EXCEED THE DESIGN FLOW SHOWN ON THIS PLAN.



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ADD'L NOTES

1 DESIGN DAILY WASTEWATER FLOW = 240 GPD (WATER SAVING DEVICES WERE ASSUMED FOR SEPTIC SYSTEM DESIGN)
2 TOPOGRAPHIC DATA SOURCE: FEMA 2011 DATA
3 INSTALLER SHALL VERIFY ALL EASEMENTS, SETBACKS AND PROPERTY LINE BEARINGS AND DISTANCES PRIOR TO CONSTRUCTION

1" = 20'

STATE OF TEXAS
JOHN J. HAAG
90158
LICENSED
PROFESSIONAL ENGINEER

01/30/19

OSSF LAYOUT
LOT 722, MOUNTAIN VIEW
CANYON LAKE SHORES, UNIT 5
CANYON LAKE, TEXAS

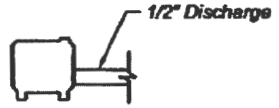
NOTE: OSSF IS NOT WITHIN THE EDWARDS AQUIFER RECHARGE ZONE OR FEMA 100 YEAR FLOODPLAIN.

SITE EVALUATION BY JOHN J. HAAG, P.E. ON 12/19/18

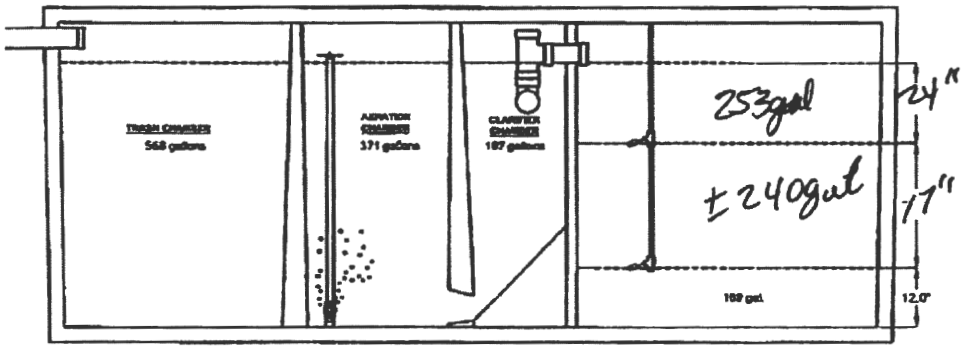
DRAWN BY:	JJH
CHECKED BY:	JJH
DATE:	01/30/19
JOB NO.	SUNNY18026

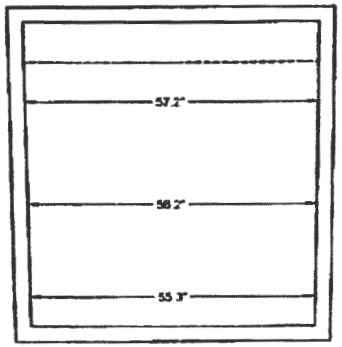
SHEET 1 OF 1

HAAG ENGINEERING CONSULTANTS
15831 SECRET TRAILS
SAN ANTONIO, TEXAS 78247
FIRM: F-5789
TEL: (210) 705-4268
FAX: (210) 855-8383



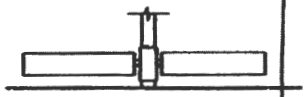
BLOWER





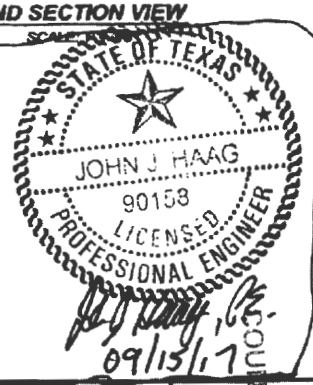
SIDE SECTION VIEW
SCALE: 1" = 3/8 "

END SECTION VIEW
SCALE:



DIFFUSER DETAIL
2 - 250 mm
Max flow per diffuser
= 55 liters/minute

Pump float settings for 240 gpd design flow and min. 80 gal reserve:
Pump off position: 12 inches above tank bottom (169 gal)
Pump on position: 29 inches above tank bottom (411 gal)
Alarm on position: 36 inches above tank bottom (510 gal)
253 gal reserve capacity at approx. 53 inches above tank bottom



Title:	Company Name:	Date:
Model D-500-M Night Time Pumping	Aeris Aerobics	5-6-2015

C1 SERIES
CISTERN PUMPS

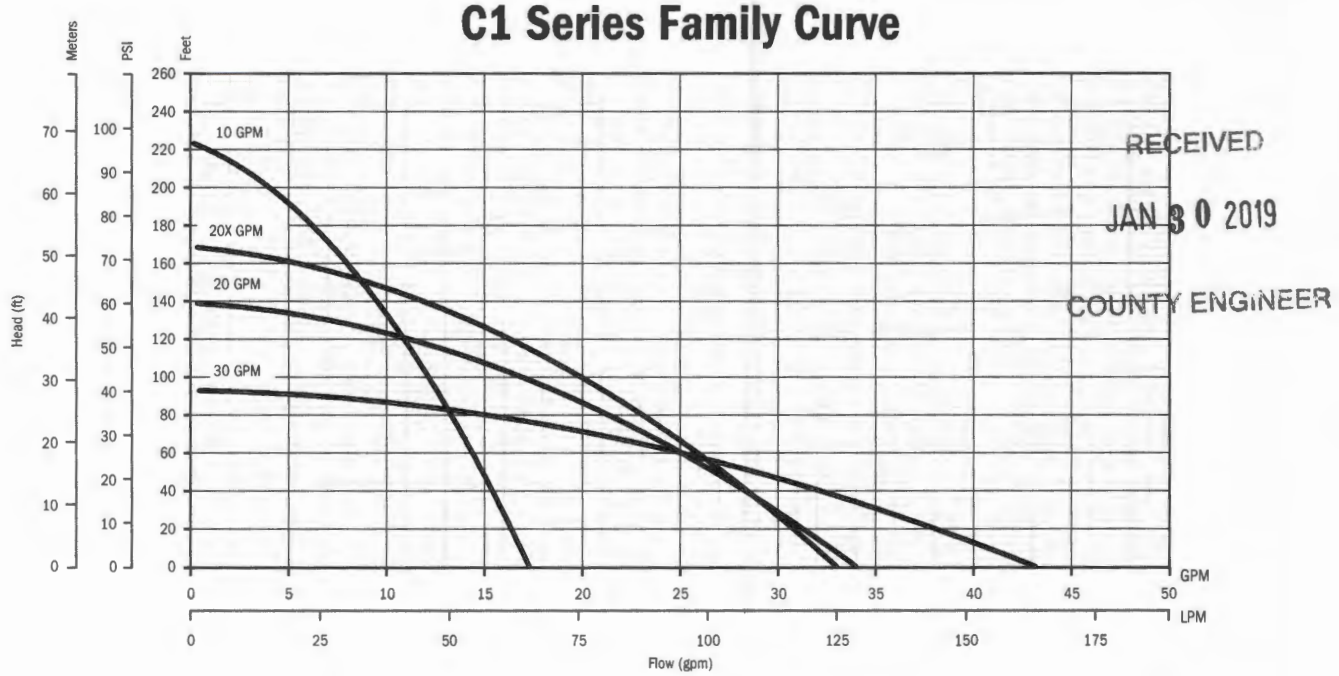
Designed for use in gray water / filtered effluent service applications, the C1 Series cistern pump provides high performance and long life in less than ideal water conditions. The C1 Series pump is able to pass solids up to 1/8" without having a negative effect on the internal hydraulic components.

The pump's unique bottom suction design allows for maximum fluid drawdown without compromising durability or overall life, and it does not require the use of a flow induction sleeve. Intended specifically for use in a cistern or tank, C1 Series pumps are suitable for use in agricultural, residential, and commercial installations.

Franklin Electric

franklinwater.com

C1 Series Family Curve



FEATURES

- Supplied with a removable 5" base for secure and reliable mounting
- Bottom suction design
- Robust thermoplastic discharge head design resists breakage during installation and operation
- Single shell housing design provides a compact unit while ensuring cool and quiet operation
- Hydraulic components molded from high quality engineered thermoplastics
- Optimized hydraulic design allows for increased performance and decreased power usage
- All metal components are made of high grade stainless steel for corrosion resistance
- Available with a high quality 115 V or 230 V, ½ hp motor
- Fluid flows of 10, 20, and 30 gpm, with a max shut-off pressure of over 100 psi
- Heavy duty 600 V 10 foot SJOOW jacketed lead

APPLICATIONS

- Gray water pumping
- Filtered effluent service water pumping
- Water reclamation projects such as pumping from rain catchment basins
- Aeration and other foundation or pond applications
- Agriculture and livestock water pumping

ORDERING INFORMATION

C1 Series Pumps							
GPM	HP	Volts	Stage	Model No.	Order No.	Length (in)	Weight (lbs)
10	1/2	115	7	10C1-05P4-2W115	90301005	26	17
		230	7	10C1-05P4-2W230	90301010	26	17
20		115	5	20C1-05P4-2W115	90302005	25	16
		230	5	20C1-05P4-2W230	90302010	25	16
20X		115	6	20XC1-05P4-2W115	90302015	26	17
		230	6	20XC1-05P4-2W230	90302020	26	17
30		115	4	30C1-05P4-2W115	90303005	25	16
		230	4	30C1-05P4-2W230	90303010	25	16

Note: All units have 10 foot long SJOOW leads.

NETAFIM™

1" SUPER/LONG MANUAL DISC FILTER

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

FEATURES

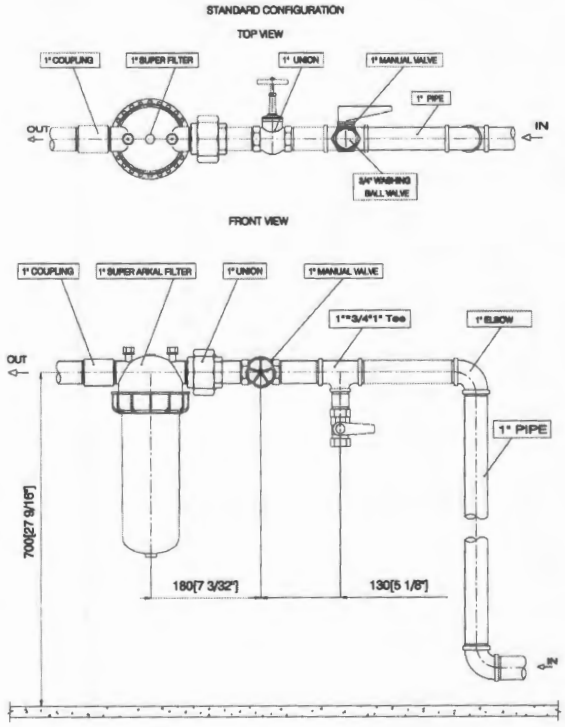
- A "T' shaped reinforced plastic filter with two 1" male connections.
- Filter element consists of grooved discs, mounted on a spine, forming a cylindrical filter element. The discs are compressed together by a spring located at the bottom of the filter cover.
- Screw-on filter cover.
- Resistant to chemicals and liquid fertilizers.
- Available filtration grades: 040, 080, 120, 140 and 200.

TECHNICAL DATA	
FLOW RANGE	10 - 35 GPM
MAXIMUM PRESSURE	140 psi
FILTERING SURFACE AREA	78 sq. in.
FILTERING VOLUME	36 cu. in.
LENGTH	13 13/32"
WIDTH	6 7/32"
WEIGHT	3.11 lbs.
DISTANCE BETWEEN ENDS	6 7/32"
INLET/OUTLET DIAMETER	1" Male
MAXIMUM TEMPERATURE	158° F
pH	5 - 11

MESH/MICRON		
MESH	MICRON	DISC COLOR
040	400	Blue
080	200	Yellow
120	130	Red
140	115	Black
200	55	Green

INSTALLATION

1. Filter can be installed either vertically or horizontally.
2. Use Teflon tape on filter threads - Do Not Use Pipe Dope.
3. Ensure correct inlet/outlet direction.
4. When connecting filter to pipe, do not overtighten.
5. Never use spanners for tighening the filter cover.



MAINTENANCE AND CLEANING

DISMANTLING

1. Ensure system is turned off and no pressure remains in the pipeline.
2. Unscrew cover from the filter body.
3. Pull out entire filter element.

CLEANING

1. Move tightening ring to end of spine and flush discs with pressurized water.
2. If discs are not clean after flushing with water:
   a. If the discs have an accumulation of algae in the grooves, soak the discs and spine in a small bucket of Clorox bleach for one hour and then reflush with fresh water.
   b. If the discs have an accumulation of iron in the grooves, soak the discs and spine in a small bucket of 10% Muriatic Acid for one hour and then reflush with fresh water. Muriatic Acid can be purchased at any pool supply store.

NETAFIM™

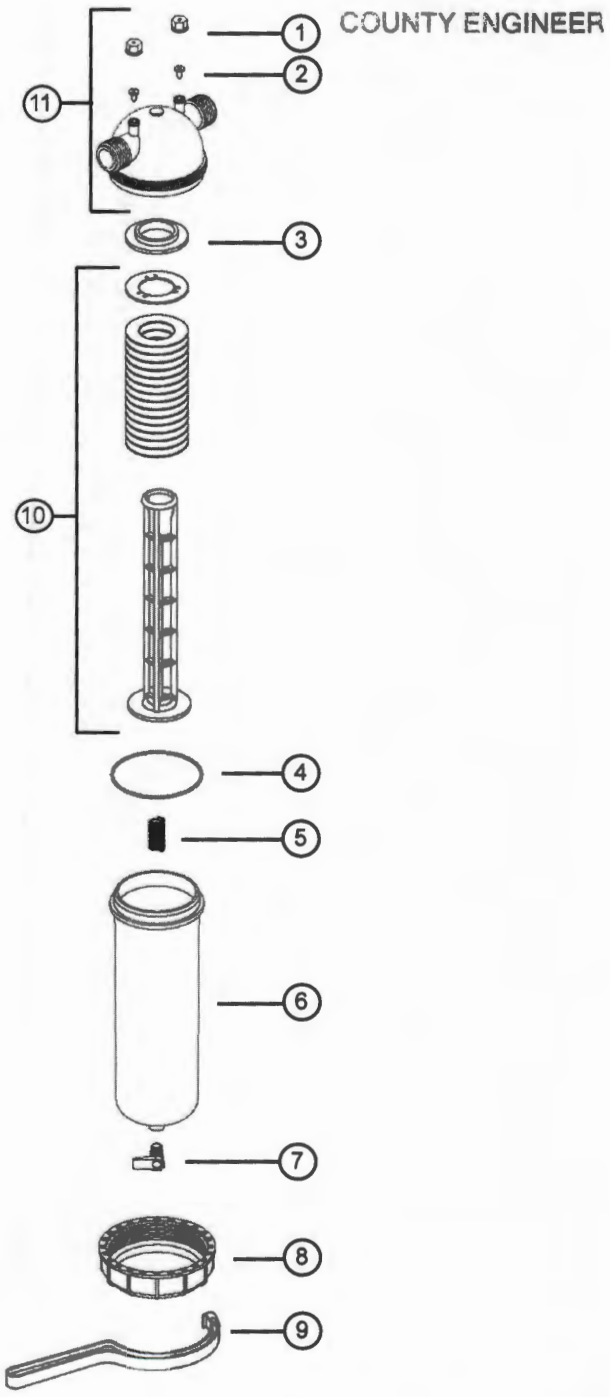
MAINTENANCE AND CLEANING

ASSEMBLY

1. Verify that spring is in place inside the filter cover.
2. Insert filter element and make sure it is seated correctly.
3. Replace cover.
4. Tighten filter cover securely by turning the fixing nut clockwise and do not overtighten.

WINTERIZATION

Drain all the water from the filter to avoid cracking due to freezing.



PARTS BREAKDOWN - 1" SUPER/LONG FILTER

KEY	MODEL NUMBER	DESCRIPTION	MATERIALS
1	SEE # 11	GAUGE PORT NUT	R.PP
2	SEE # 11	GAUGE PORT SEAL	EPDM
3	-	FILTER ADAPTER RING	R.PA
4	25AP531140	COVER O RING	NR
5	25AP50440011	COMPRESSION SPRING	SS
6	25AP23113	FILTER COVER	R.PA
7	-	1/4" TAP (OPTIONAL)	BRASS
8	25AP231131	FIXING NUT	R.PA
9	25AP131199	FILTER WRENCH	R.PA
10	25AP21121-***	RING SET WITH SPINE	PP
11	25AP25000101	FILTER BODY COMPLETE	-

Substitute *** for proper mesh size.

MATERIALS KEY

CODE	MATERIAL
SS	STAINLESS STEEL
PP	POLYPROPYLENE
NR	NITRILE RUBBER
R.PP	REINFORCED POLYPROPYLENE
R.PA	REINFORCED POLYAMIDE
EPDM	ETH. PROPY. RUBBER

NETAFIM™
GROW MORE WITH LESS

5470 E. Home Ave.
Fresno, CA 93727
888.638.2346 • 559.453.6800
FAX 800.695.4753
www.netafimusa.com

NETAFIM™

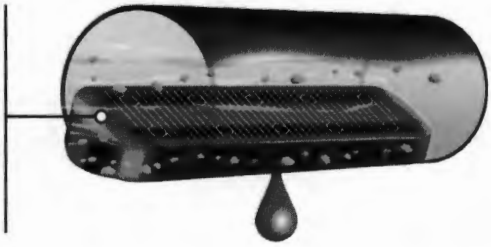
WASTEWATER DIVISION

BIOLINE® DRIPLINE

THE WORLD'S MOST ADVANCED CONTINUOUS SELF-CLEANING, PRESSURE COMPENSATING DRIPLINE SPECIFICALLY DESIGNED FOR WASTEWATER

CROSS SECTION OF BIOLINE DRIPLINE

Bioline dripper inlets are positioned in the center of flow where water is the cleanest



PRODUCT ADVANTAGES

- Pressure compensation - all drippers deliver equal flow, even on sloped or rolling terrain.
- Unique flow path - Turbonet technology provides more control of water and a high resistance to clogging.
- Continuous self-flushing dripper design - flushes debris, as it is detected - throughout operation, not just at the beginning or end of a cycle. Ensures uninterrupted dripper operation.
- Single hole dripper outlet from tubing:
  - Better protection against root intrusion
  - Allows the dripline to be used in subsurface applications without need for chemical protection
- Drippers capture water flow from the center of the tubing - ensures that only the cleanest flow enters the dripper.
- Built-in physical root barrier - drippers are protected from root intrusion without the need for chemical protection. Water exits dripper in one location while exiting the tubing in another.
- Three dripper flow rates - provides the broadest range of flow rates available. Allows the designer to match the dripline to any soil or slope condition.
- Bioline tubing is completely wrapped in purple - easily identifying it for non-potable use, regardless of how the tubing is installed.
- Anti-bacterial-impregnated drippers - prevents buildup of microbial slime.
- Can be used subsurface - Bioline can be installed on-surface, under cover or subsurface.
- No special storage requirements - does not degrade if stored outdoors.
- Techfilter compatible - an optional level of protection, provides a limited lifetime warranty against root intrusion.

APPLICATIONS

- Typically installed following a treatment process
- Can be used with domestic septic tank effluent with proper design, filtration and operation
- Reuse applications including municipally treated effluent designated for irrigation and other disinfected and non-disinfected water sources.

SPECIFICATIONS

- Dripper flow rates: 0.4, 0.6 or 0.9 GPH
- Dripper spacings: 12", 18" or 24" dripper spacings and blank tubing
- Pressure compensation range: 7 to 58 psi (stainless steel clamps recommended above 50 psi)
- Maximum recommended system pressure: 50 psi
- Tubing diameter: 0.66" OD, 0.57" ID
- Tubing color: Purple color indicates non-potable
- Coil lengths: 500' or 1,000' (Blank tubing in 250')
- Recommended filtration: 120 mesh
- Bending radius: 7"
- UV resistant
- Tubing material: Linear low-density polyethylene

Additional spacing and pipe sizes available by special order. Please contact Netafim USA Customer Service for details.

BIOLINE DRIPLINE

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 3.0 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 2.3 GPM REQUIRED PER LATERAL TO ACHIEVE 3 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	102	94	84	136	127	113	161	151	137
	25	151	136	118	203	184	161	245	223	197
	35	193	171	146	260	232	200	315	283	245
	40	211	186	158	286	254	218	347	311	267
	45	228	200	169	310	274	233	377	335	287
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 3 fps flushing/scouring velocity

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.5 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 1.2 GPM REQUIRED PER LATERAL TO ACHIEVE 1.5 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	201	171	140	275	235	194	337	289	241
	25	266	222	179	366	308	251	453	383	313
	35	316	262	210	437	365	295	543	455	369
	40	337	280	223	469	391	313	583	487	393
	45	358	298	235	497	413	331	619	517	415
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 1.5 fps flushing/scouring velocity

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.5 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 2.0 GPM REQUIRED PER LATERAL TO ACHIEVE 2.5 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	128	115	100	172	155	136	205	187	165
	25	183	161	137	248	220	188	301	268	231
	35	228	198	166	310	272	229	379	333	283
	40	248	214	178	338	295	247	413	362	305
	45	266	229	190	364	316	263	447	389	327
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 2.5 fps flushing/scouring velocity

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.0 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 0.8 GPM REQUIRED PER LATERAL TO ACHIEVE 1.0 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	248	205	163	344	285	228	427	355	285
	25	315	258	203	440	361	286	549	453	359
	35	367	299	234	513	419	331	643	527	417
	40	389	316	248	545	445	350	683	559	441
	45	409	332	260	574	468	367	721	589	463
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 1 fps flushing/scouring velocity

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.0 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 1.6 GPM REQUIRED PER LATERAL TO ACHIEVE 2.0 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	161	141	119	217	191	164	263	233	201
	25	221	190	157	302	261	218	369	321	270
	35	269	229	187	370	316	260	455	391	324
	40	290	246	200	399	340	278	493	421	347
	45	310	261	212	427	362	296	527	449	369
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 2 fps flushing/scouring velocity

MAXIMUM LENGTH OF A SINGLE LATERAL WITH 0.5 fps FLUSH VELOCITY

ADDITIONAL FLOW OF 0.4 GPM REQUIRED PER LATERAL TO ACHIEVE 0.5 fps

DRIPPER SPACING		12"			18"			24"		
DRIPPER FLOW RATE (GPH)		0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH	0.4 GPH	0.6 GPH	0.9 GPH
INLET PRESSURE	15	301	242	188	422	341	265	531	429	335
	25	369	296	228	520	418	323	655	527	409
	35	421	337	260	595	476	368	749	603	467
	40	443	354	273	626	501	387	790	635	491
	45	464	371	285	656	524	404	829	665	513
Flow per 100' (GPM / GPH)		0.67/40	1.02/61	1.53/92	0.44/26.67	0.68/41	1.02/61	0.34/20	0.51/31	0.77/46

Lateral lengths are based on flows allowing for a 0.5 fps flushing/scouring velocity

Netafim recommends flushing velocities capable of breaking free any accumulated bioslimes and debris in the piping network.

Notes:
1. Refer to local regulations for information on flushing velocities that may be written into codes.
2. Netafim does not endorse a specific flushing velocity.
3. Flushing velocities should be determined based on regulations, quality of effluent, and type of flushing control.
4. Using a flushing velocity less than 1 fps does not provide turbulent flow as defined by Reynolds Number.
5. Higher flushing velocities provide more aggressive flushing.

2/cs
1738
CV/DWB

General Warranty Deed

Date: August 24, 2018

Grantor: Wystan W. Dalton and Gail A. Dalton

Grantor's Mailing Address:

2105 Runyan Ave. Artesia NM 88210

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JAN 30 2019
COUNTY ENGINEER

Grantee: Sunny Circle, LLC, a Texas Limited Liability Company

Grantee's Mailing Address:

156 Canyon Bend, Canyon Lake, Texas 78133

Consideration:

Cash and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged.

Property (including any improvements):

Lots 719, 720, 721, 722, 723, and 724, Canyon Lake Shores, Unit No. 5, as shown by map or plat of said subdivision recorded in Volume 1, Page 49, of the Plat Records of Comal County, Texas

Reservations from Conveyance: None

Exceptions to Conveyance and Warranty:

Validly existing easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded and validly existing instruments, other than conveyances of the surface fee estate, that affect the Property; and taxes for 2018, which Grantee assumes and agrees to pay, but not subsequent assessments for that and prior years due to change in land usage, ownership, or both, the payment of which Grantor assumes.

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim

the same or any part thereof, except as to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty.

When the context requires, singular nouns and pronouns include the plural.

Wystan W. Dalton

Gail A. Dalton

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JAN 30 2019

COUNTY ENGINEER

STATE OF New Mexico)

COUNTY OF Eddy)

This instrument was acknowledged before me on August 24th, 2018, by Wystan W. Dalton.

Official Seal
JACK H. WHITE III
Notary Public
State of New Mexico
My Commission Expires 4/4/21

Notary Public, State of New Mexico

STATE OF TEXAS)

COUNTY OF COMAL)

This instrument was acknowledged before me on August 28, 2018, by Gail A. Dalton.

B.A. BLASCHKE
My Notary ID # 6109420
Expires March 11, 2022

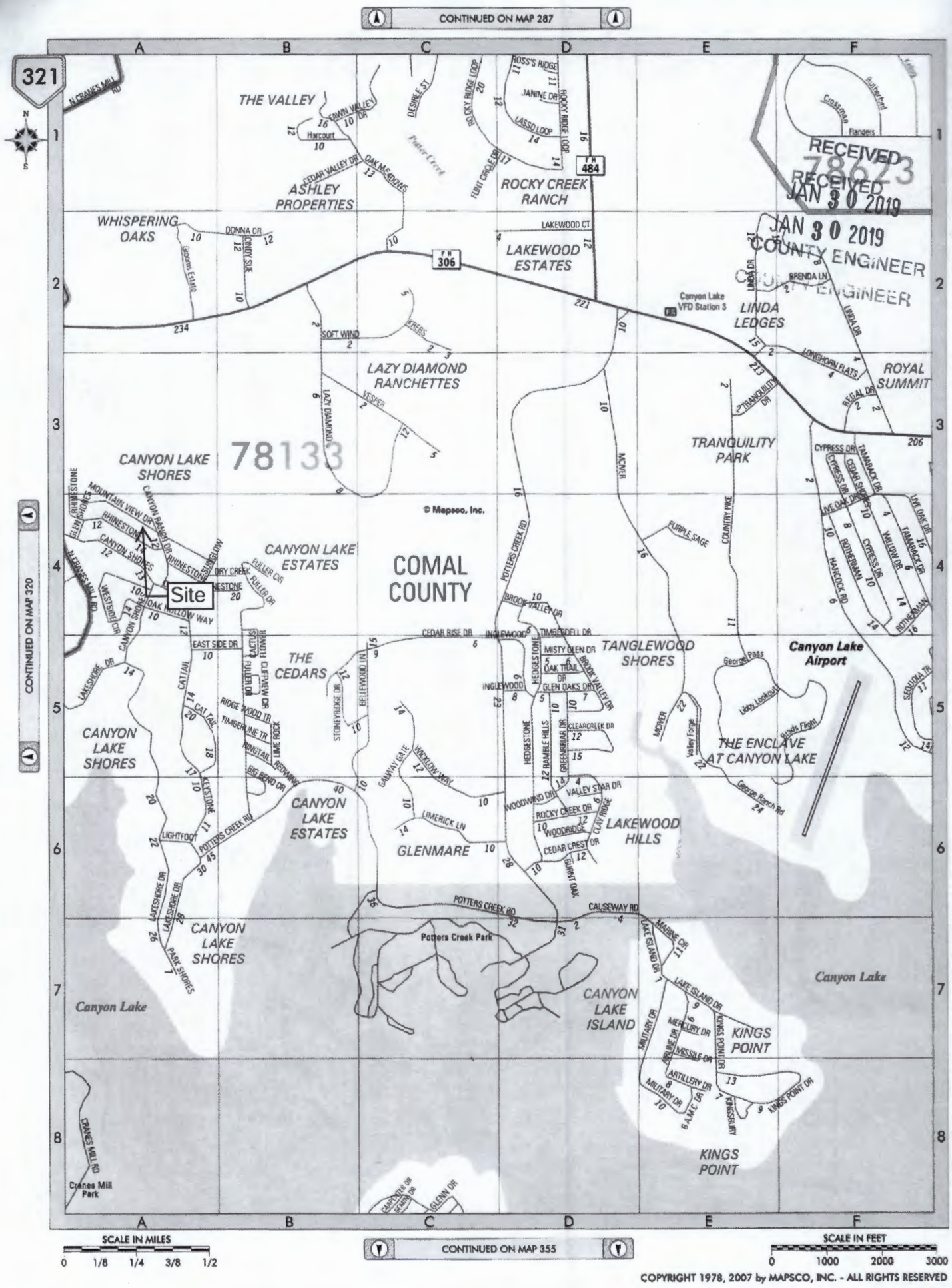
Notary Public, State of Texas

PREPARED IN THE OFFICE OF:

DWAIN W BLASCHKE
P.O. Box 1744
Canyon Lake, TX 78133
Tel: (830) 964-4442
Fax: (830) 964-4426

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
08/31/2018 11:46:38 AM
CSCHUL 2 Page(s)
201806034335

Bobbie Koepp



COUNTY OF COMAL **COUNTY ENGINEER'S OFFICE**

OSSF DEVELOPMENT APPLICATION CHECKLIST

RECEIVED

JAN 30 2019

COUNTY ENGINEER

Staff will complete shaded

items Date Received *Initials*

JAN 30 2019

Permit Number

1212 Mountain View

Instructions:

Place a check mark next to all items that apply. For items that do not apply, place "N/A". This OSSF Development Application Checklist **must** accompany the completed application.

OSSF Permit

- ✓ Completed Application for Permit for Authorization to Construct an On-Site Sewage Facility and License to Operate
- ✓ Site/Soil Evaluation Completed by a Certified Site Evaluator or a Professional Engineer
- ✓ Planning Materials of the OSSF as Required by the TCEQ Rules for OSSF Chapter 285. Planning Materials shall consist of a scaled design and all system specifications.
- ✓ Required Permit Fee
- ✓ Copy of Recorded Deed
- ✓ Surface Application/Aerobic Treatment System
  - ✓ Recorded Certification of OSSF Requiring Maintenance/Affidavit to the Public
  - ✓ Signed Maintenance Contract with Effective Date as Issuance of License to Operate

I affirm that I have provided all information required for my OSSF Development Application and that this application constitutes a completed OSSF Development Application.

Signature of Applicant

Date

____COMPLETE APPLICATION

Check No._____ Receipt No. _____

____INCOMPLETE APPLICATION

(Missing Items Circled, Application Refused)

Revised: January 2015

PAUL SWOYER SEPTIC SUPPLY & SERVICE
23011 FM 306
CANYON LAKE, TX 78133

MP#0001708
CHRISTOPHER RYAN SEIDENSTICKER

PROPERTY LEGAL DESCRIPTION:

Customer: Greyson Kremer
Site Address: 1272 Mountain View Drive
City/State: Canyon Lake, TX **Zip:** 78133
County: Comal **Permit#:** 108708
Phone Number: 832-314-3281
E-mail: greyson.kremer@gmail.com

I. General: This On-Site Sewage Facility Service Agreement (hereinafter referred to as "Agreement") is entered into by and between Greyson Kremer, (hereinafter referred to as "Client") and PS Supply & Service LLC. (hereinafter referred to as "Contractor"). By this agreement, Contractor agrees to render services, as described herein (the "Services"), and the client agrees to fulfill his/her/their responsibilities under this agreement herein.

II. Effective Dates: This agreement commences on the date of License to Operate is issued for [redacted]

Date of License to Operate: 11/14/2022 Last Date of Service: 11/14/2024

III. Services by Contractor: Contractor will provide the following Services:

1. Inspect and perform routine maintenance on the On-Site Sewage Facility ("OSSF") in compliance with the code, regulations, and/or rules of the Texas Commission on Environmental Quality ("TCEQ") and county in which the OSSF is located (the "County") and the manufacturer's requirements, at a frequency of approximately once every four (4) months.

2. Report to the appropriate regulatory authority and to Client, as required by the State of Texas' on-site rules and, if required, TCEQ or County rules. All findings must be reported to the appropriate regulatory authority within 14 days.

3. Notify Client and repair any components of the OSSF that are found to be in need of repair during the inspection. If warranty, you just do it. If not, Client will be responsible. Repairs will be made so brought up to compliance and bill forward.

4. Visit site in response to Client's request for unscheduled service within two business days from the date of Contractor's actual receipt of Client's request. Unscheduled service visits are not included in the fee agreement herein and will be billed to the client in addition to fees under this Agreement.

5. Provide notification of arrival to site to the Client or to site personnel. Additionally, Contractor will leave written notification of the visit at the site or with site personnel upon completion of inspection, and forward such notice to the appropriate regulatory authority within fourteen (14) days.

IV. Payment(s): Client shall pay to Contractor 0.00, for the Services describe herein (the "Inspection and Routine Maintenance Fee"), excepting those described in Section III (4), or Section IX, herein. The Fee does not include equipment, parts or labor supplied for anything beyond routine inspection and routine maintenance. Payments for such additional services are due at the time services are provided or rendered. Payments not received within thirty (30) days from the due date will be subject the greater of a $20.00 late penalty or 1.5% carrying charge on the original balance for each month or portion thereof a balance in past due. If for any reason such charges are found to be usurious by a court of competent jurisdiction, such charges shall be reduced to the maximum allowable by law. By signing this contract, Client authorizes Contractor to remove any parts installed, but not paid in full at the end of the thirty (30) days. Client agrees to pay for any labor cost associated with the installation and the reasonable cost of removal of said parts.

DS

Client: GK Contractor: RS

V. Client's Responsibilities: Client is responsible for each and all of the following:

1. To maintain chlorinator and provide proper chlorine supply, if OSSF is so equipped.
2. To provide all necessary yard or lawn maintenance and removal of obstacles as needed to allow the OSSF to function properly, and to allow Contractor ready access to all parts of the OSSF.
3. To maintain a current license to operate, and abide by the conditions and limitations of that license and all requirements for on-site sewage facilities from the State and local regulatory agency.
4. To maintain the OSSF in accordance with manufacturer's recommendations.
5. To immediately notify Contractor and Agency of any and all problems with, the OSSF, including failure thereof.
6. Upon receipt of any written notification of required services from Contractor, to contact Contractor and authorize the required service. If Client elects a different contractor to perform the required service, Client is responsible for ensuring the substitute contractor holds the proper license (Installer II) and is certified by the manufacturer. Additionally, Client shall be responsible for ensuring proper notification is given to the appropriate regulatory authority, as required by the State and/or local regulatory authority rules.
7. To provide Contractor with water usage records, upon request, for evaluation by Contractor of the OSSF performance.
8. To pay required sampling charges for samples collected for testing (e.g. Biological Oxygen Demand/Total Suspended Solids ("BOD/TSS") that may be required on the OSSF.
9. To prevent backwash from water treatment or water conditioning equipment to enter the OSSF.
10. To provide, at Client's expense, for pumping of tanks as needed.
11. To maintain site drainage sufficient to prevent adverse effects on the OSSF.
12. To promptly and fully pay Contractor's bills, fees, or invoices as described herein.

VI. Access by Contractor: Client agrees to allow Contractor, or personnel authorized by the Contractor, to enter the property at reasonable times without prior notice for the purpose of performing the Services described herein. Such entry shall include access to the OSSF electrical and physical components, including tanks, by means of manways or risers for the purpose of evaluations required by the manufacturer, and/or regulatory authority rules. If such manways or risers are not in place, Client shall allow and be responsible for payment of required excavation, including labor and materials, necessary to allow access to the OSSF or any required components. Such excavation shall be billed at the rate of $75.00 per hour for labor, plus materials billed at list price. Contractor shall make only those efforts reasonable under the circumstances to replace excavated soil.

VII. Application or Transfer of Payment: The fees paid for this agreement may transfer to any subsequent owner(s) of the property on which the OSSF is located. The subsequent owner(s) must sign a similar agreement authorizing Contractor to perform the above-described Services, and accepting Client's responsibilities. The replacement Agreement must be signed and received within 30 days of transfer of ownership. Contractor will apply all funds received from Client first to any past due obligations arising from this Agreement including late charges, return check charges, and charges for repairs or services not paid within 30 days of invoicing. The consumption of the payment in this manner may lead to termination of the agreement by Contractor

VIII. Termination of Agreement: This agreement may be terminated by either party with 30 days written notice. If this agreement is so terminated by Client, Contractor shall be paid at the rate of $75.00 per hour for any worked performed or required, but not yet paid. If terminated by Contractor, all amounts outstanding shall be due within thirty days of termination. The party terminating will immediately notify the other party, the equipment manufacturer, and the regulatory agency of the termination.

IX. Limitation of Liability: In no event shall Contractor be liable for indirect, consequential, incidental or punitive damages, whether in contract, tort, or any other theory of liability. In no event shall the Contractor's liability for direct damages exceed payments by the Client under this Agreement.

X. Severability and Reformation: If any provision in this Agreement shall be held to be invalid or unenforceable for any reason, it shall be reformed to the minimum extent necessary to effect the intent of the Parties. If any provision is such that it cannot reasonably be reformed, it shall be struck from this Agreement and the remaining provisions shall continue to be valid and enforceable.

XI. Performance of Agreement: Commencement of performance by Contractor under this agreement is contingent on the following conditions: (1) Contractor receiving a fully executed original copy of this agreement. (2) Contractor receiving payment in full of the fee(s) described herein. If the above conditions are not met, then Contractor is from any obligation to perform any portion of this agreement.

XII. Modification. This Agreement may not be changed or modified except by an instrument in writing, signed by both Contractor and Client.

XIII. Waiver. Except as otherwise noted in this Agreement, the waiver by other party of a breach of any provision of this Agreement shall not operate or be construed as a continuing waiver or as a consent to or waiver of any subsequent breach hereof.

Client: DS GK

Contractor: RS

XIV. **Headings**. The Article and Section headings in this Agreement are for the convenience of reference only and do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

XV. **GOVERNING LAW AND CHOICE OF VENUE**. EACH OF THE PARTIES HERETO HEREBY CONSENTS TO THE EXCLUSIVE JURISDICTION OF THE COURTS OF THE STATE OF TEXAS, COUNTY OF COMAL, AND TO THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS – SAN ANTONIO DIVISION, AS WELL AS TO THE JURISDICTION OF ALL COURTS TO WHICH AN APPEAL MAY BE TAKEN FROM SUCH COURTS, FOR THE PURPOSE OF ANY SUIT, ACTION, OR OTHER PROCEEDING ARISING OUT OF, OR IN CONNECTION WITH, THIS AGREEMENT OR ANY OF THE TRANSACTIONS CONTEMPLATED HEREBY, INCLUDING, WITHOUT LIMITATION, ANY PROCEEDING RELATING TO ANCILLARY MEASURES IN AID OF ARBITRATION, PROVISIONAL REMEDIES AND INTERIM RELIEF, OR ANY PROCEEDING TO ENFORCE ANY ARBITRAL DECISION OR AWARD. EACH PARTY HERETO EXPRESSLY WAIVES ANY AND ALL RIGHTS TO BRING ANY SUIT, ACTION, OR OTHER PROCEEDING IN OR BEFORE ANY COURT OR TRIBUNAL OTHER THAN COURTS OF THE STATE OF TEXAS, COUNTY OF COMAL, AND COVENANTS THAT IT SHALL NOT SEEK IN ANY MANNER TO PROSECUTE OR DEFEND ANY DISPUTE OTHER THAN AS SET FORTH IN THIS ARTICLE XVI OR TO CHALLENGE OR SET ASIDE ANY DECISION, AWARD, OR JUDGMENT OBTAINED IN ACCORDANCE WITH THE PROVISIONS HEREOF. EACH OF THE PARTIES HERETO HEREBY EXPRESSLY WAIVES ANY AND ALL OBJECTIONS IT MAY HAVE TO VENUE, INCLUDING, WITHOUT LIMITATION, THE INCONVENIENCE OF SUCH FORUM, IN ANY OF SUCH COURTS.

XVI. **JURY TRIAL WAIVER. THE PARTIES HEREBY UNCONDITIONALLY WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY AND ALL CLAIMS OR CAUSES OF ACTION ARISING FROM OR RELATING TO THEIR RELATIONSHIP. THE PARTIES ACKNOWLEDGE THAT A RIGHT TO A JURY IS A CONSTITUTIONAL RIGHT, THAT THEY HAVE HAD AN OPPORTUNITY TO CONSULT WITH INDEPENDENT COUNSEL, AND THAT THIS JURY WAIVER HAS BEEN ENTERED INTO KNOWINGLY AND VOLUNTARILY BY ALL PARTIES TO THIS AGREEMENT. IN THE EVENT OF LITIGATION, THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO A TRIAL BY THE COURT.**

Approved by Contractor: _____ MP#0001708
CHRISTOPHER RYAN SEIDENSTICKER

DocuSigned by:

Approved by Client: Greyson Kremer
8528F5C1CEFB475...

XVII. **Reservation of Rights**. Contractor reserves all rights not specifically granted herein.

XVIII. **Counterparts**. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original but all of which together will constitute one and the same instrument.

XIX. **Counsel**. Contractor has previously recommended that Client engage counsel to assist him/her/it in reviewing this Agreement and all other matters relating to it. Contractor and Client shall each bear his/her/its own costs and expenses in connection with the negotiation and documentation of this Agreement.

XX. **Entire Agreement:** This agreement contains the entire agreement of the parties, and there are no promises or conditions in any other agreement, oral or written. The Parties expressly disclaim reliance on any prior statements, oral or written, by either party not expressly provided for herein.

DS

Client: _____ Contractor: _____

Luna Environmental
4222 FM 482
New Braunfels, TX 78132

(830) 312-8776
sherrie@lunaenvironmental.com

Printed:8/25/2023

Permit: 108708

Site: 1272 Mountain View Dr, Canyon Lake, TX 78133
Main Phone: 8323143281

Greyson Kremer
1272 Mountain View Dr
Canyon Lake, TX 78133

Agency: Comal County
County: Comal County
Subdivision: Canyon Lake Shores

System Info: MFG: Brand: Aeris
Treatment Type: Aerobic
Disposal Type: Drip Emitters
Customer ID: 6652
Insp ID: 31918

Visit Details <-------->

Visit Date: 8/24/2023
Scheduled Date: 7/14/2023
Entered On: 8/25/2023
Entered By: Nicole Loria
Contract Starts: 11/14/2022
Contract Ends: 11/14/2024
GPS Lat: 29.927472 GPS Long: -98.286636
Customer Emailed: 8/25/2023

Visit Results

Service Type: Scheduled Inspection
Count: Inspection 2 of 6
Method: Grab
Technician: Not Assigned
Provider: Luna Environmental, LLC
License #
Expires
☑ Service Completed

Aerators: Operational
Filters: Operational
Irrigation Pumps: Operational
Disinfection Device: Operational

Sludge Level Tank 1: 2
Sludge Level Tank 2: N/A
Sludge Level Tank 3: 4
Sludge Level Tank 4: 2

Tank Lid / Riser: Secured
Insp. Port / Plug: Secured

Electric Circuits: Operational
Distribution System: Operational
Drip/Sprayfield Veg: Operational

Alarm: Operational

PSI Pressure: 1.9

Comments

- Scum on pretreatment 0 - Cleaned drip filter & backflushed drip field - Technician Secured the Tank Lid and/or Riser prior to leaving location. - Inspection Port Plug was noted as Secured prior to leaving. - Copy emailed to the customer on 8/25/2023.

PS Septic Supply & Service
23011 FM 306
Canyon Lake, TX 78133

Phone: (830) 850-0080
Fax: (830) 935-4932

Printed:4/10/2023 Insp ID #:27295 Permit #: **108708**

To: Greyson Kremer
1272 Mountain View Dr
Canyon Lake, TX 78133

Main Phone: (832) 314-3281
Work:
Cell Phone:
Alt Cell:
Customer ID: 5253
Contract Dates: 11/14/2022 - 11/14/2024
Scheduled Date: 3/14/2023 Inspection 1 of 6

Agency: Comal County
County: Comal County
Mfg / Brand: - Aeris
Treatment Type: Aerobic
Disposal: Drip Emitters

Sub: Canyon Lake Shores

GPS Coordinates: Latitude: 29.927472 Longitude: -98.286636

Service Type: Scheduled Inspection
Visit Date: 4/7/2023
Method: Grab
Technician: David Anastasi
Maint. Provider: Ryan Seidensticker

☑ This counts as a type of "Scheduled Inspection"
Entered By: Julie Feibelman

Aerators: Operational
Filters: Operational
Irrigation Pumps: Operational
Disinfection Device: Operational

Sludge Levels
For Tank 1: 12
For Tank 2: NA
For Tank 3: 22
For Tank 4: 1

Electric Circuits: Operational
Distribution System: Operational
Sprayfield Veg: Operational

Alarm: Operational

Tank Lid / Riser: Secured
Insp. Port / Plug: Secured

Comments

☑ **Service Completed**

- Scum on pretreatment-.5 - - Cleaned drip filter and backflushed drip field - Technician Secured the Tank Lid and/or Riser prior to leaving location. - Inspection Port Plug was noted as Secured prior to leaving.

Site: 1272 Mountain View Dr, Canyon Lake, TX 78133

Provider: *Christopher Ryan Seidensticker*
PS Septic Supply & Service
License Info: MP0001708 Expires: