

## Olvera,Brandon

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**From:** Olvera,Brandon  
**Sent:** Thursday, June 27, 2024 10:57 AM  
**To:** Greg Johnson; joannah.pickett@trinity.edu  
**Cc:** Mike Batey  
**Subject:** 117586

Property Owner/Agent,

Our office will be conducting a site visit on 06-28-2024. No other deficiencies.

Thank You,

| **Brandon Olvera** | **Designated Representative OS0034792** | Comal County | [www.cceo.org](http://www.cceo.org) |  
| 195 David Jonas Dr, New Braunfels, TX-78132 | **t:** 830-608-2090 | **f:** 830-608-2078 | **e:**  
[olverb@co.comal.tx.us](mailto:olverb@co.comal.tx.us) |



**COMAL COUNTY**  
ENGINEER'S OFFICE

**OSSF DEVELOPMENT APPLICATION  
CHECKLIST**

*Staff will complete shaded items*

		117586
<i>Date Received</i>	<i>Initials</i>	<i>Permit Number</i>

**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 - See Attached Fee Schedule
- 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

06/14/2024

\_\_\_\_\_  
Date

___ COMPLETE APPLICATION Check No. _____ Receipt No. _____
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INCOMPLETE APPLICATION (Missing Items Circled, Application Refused)
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COMAL COUNTY  
ENGINEERS OFFICE

ON-SITE SEWAGE FACILITY APPLICATION

195 DAVID JONAS DR  
NEW BRAUNFELS, TX 78132  
(830) 608-2090

117586

Date June 2, 2023

Permit Number \_\_\_\_\_

1. APPLICANT / AGENT INFORMATION

Owner Name CHRISTOPHER & JOANNAH PICKETT  
Mailing Address 577 SERENE WOODS CIRCLE  
City, State, Zip CANYON LAKE TEXAS 78133  
Phone # 703-772-5587  
Email joannah.pickett@trinity.edu

Agent Name GREG JOHNSON, P.E.  
Agent Address 170 HOLLOW OAK  
City, State, Zip NEW BRAUNFELS TEXAS 78132  
Phone # 830-905-2778  
Email gregjohnsonpe@yahoo.com

2. LOCATION

Subdivision Name SUNSET TERRACE DEVELOPMENT Unit \_\_\_\_\_ Lot 20 Block \_\_\_\_\_  
Survey Name / Abstract Number \_\_\_\_\_ Acreage \_\_\_\_\_  
Address 577 SERENE WOODS CIRCLE City CANYON LAKE State TX Zip 78133

3. TYPE OF DEVELOPMENT

Single Family Residential  
Type of Construction (House, Mobile, RV, Etc.) HOUSE  
Number of Bedrooms 6  
Indicate Sq Ft of Living Area 2560

Non-Single Family Residential  
(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: \$ 300,000 (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  Rainwater Collection

4. SIGNATURE OF OWNER

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. I certify that I am the property owner or I possess the appropriate land rights necessary to make the permitted improvements on said property.  
- 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]  
Signature of Owner

6/14/23  
Date



ON-SITE SEWAGE FACILITY APPLICATION

Planning Materials & Site Evaluation as Required Completed By \_\_\_\_\_

System Description PROPRIETARY; AEROBIC TREATMENT AND DRIP TUBING

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

Tank Size(s) (Gallons) AERIES D840 Absorption/Application Area (Sq Ft) 3500

Gallons Per Day (As Per TCEQ Table 111) 420

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

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.)

Is there at least one acre per single family dwelling as per 285.40(c)(1)?  Yes  No

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

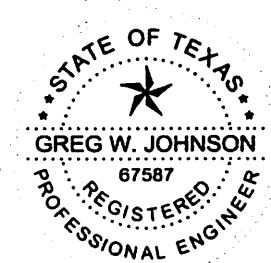
(if yes, the P.E. or R.S. shall certify that the OSSF design complies with all provisions of the existing CZP.)

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 UP has been approved by the appropriate reg

Is this property within an incorporated city?  Yes  No

If yes, indicate the city: \_\_\_\_\_



FIRM #2585

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]  
Signature of Designer

JUNE 9, 2024  
Date

**AFFIDAVIT**

**THE COUNTY OF COMAL  
STATE OF TEXAS**

**CERTIFICATION OF OSSF REQUIRING MAINTENANCE**

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

**I**

The Texas Health and Safety Code, Chapter 366 authorizes the Texas Commission on Environmental Quality (TCEQ) to regulate on-site sewage facilities (OSSFs). Additionally, the Texas Water Code (TWC), § 5.012 and § 5.013, gives the commission 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 commission, 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 commission 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 commission of the suitability of this OSSF, nor does it constitute any guarantee by the commission 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):

UNIT/PHASE/SECTION \_\_\_\_\_ BLOCK 20 LOT SUNSET TERRACE DEVELOPMENT SUBDIVISION \_\_\_\_\_

IF NOT IN SUBDIVISION: \_\_\_\_\_ ACREAGE \_\_\_\_\_ SURVEY \_\_\_\_\_

The property is owned by (insert owner's full name): JOANNAH PICKETT & CHRISTOPHER PICKETT

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

Upon sale or transfer of the above-described property, the permit for the OSSF shall be transferred to the buyer or new owner. A copy of the planning materials for the OSSF can be obtained from the Comal County Engineer's Office.

WITNESS BY HAND(S) ON THIS 1<sup>st</sup> DAY OF September, 2023

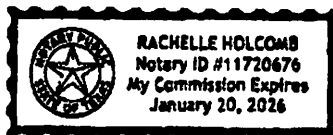
*Joannah S. Pickett*  
Owner(s) signature(s)

Joannah S Pickett.  
Owner (s) Printed name (s)

Joannah S. Pickett SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 1<sup>st</sup> DAY OF  
September, 2023

*RHLCombs*  
Notary Public Signature

Filed and Recorded  
Official Public Records  
Bobbie Koopp, County Clerk  
Comal County, Texas  
09/06/2023 08:12:00 AM  
TERRI 1 Pages(s)  
202306028566



*Bobbie Koopp*





## WASTEWATER TREATMENT SYSTEM MAINTENANCE CONTRACT

Customer

Residential

Initial Contract

Christopher &amp; Joannah Pickett



Site Address

Agency

577 Serene Woods Circle, Canyon Lake, TX 78133

Comal County

Email

Phone

Permit Number

joannah.pickett@trinity.edu

(703) 772-5587

System Details

Treatment: Aerobic Drip Emitters / System: Aeris Aerobics 800 Max GPD

## AGREEMENT

### I. General:

This work for hire agreement (hereinafter referred to as "Agreement") is entered into by and between the Client and Luna Environmental, LLC (hereinafter referred to as "Contractor"), located at 4222 FM 482 New Braunfels, Texas 78132. By this agreement, Contractor agrees to render services, as described herein, and Client agrees to fulfill his/her/their responsibilities under the agreement as described herein.

### II. Dates:

This agreement is for an initial 2-year maintenance contract and begins once the License to Operate (LTO) has been issued.

### III. Services by Contractor:

1. Inspect and perform routine maintenance on the On-Site Sewage Facility ("OSSF") in compliance with code, regulations, and/or rules of the Texas Commission on Environmental Quality ("TCEQ") and county in which the OSSF is located and the manufacturer's requirements, at a frequency of approximately once every four (4) months for residential properties, or once every one (1) month for commercial properties.
2. Inspection, adjustment, and servicing of the mechanical, electrical, and other components to ensure proper functioning. This includes inspecting control panels, air pumps, air filters, diffusers, floats, and spray heads.
3. Effluent Inspection will include the following: effluent quality (color, turbidity, overflow, and odor), testing effluent chlorine and pH levels, when necessary, alarm function, filters, operation of effluent pump and chlorinator. Unless otherwise agreed to, Contractor does not provide chlorine. BOD and TSS annually on commercial accounts, additional charges apply.
4. Notify Client of any repairs needed to keep OSSF in proper working condition and up to regulatory standards. Items under warranty may be repaired while the technician is on-site. Additional charges may apply for labor and service calls. Repair quotes of non-warranty items must be approved by Client before work is performed.
5. 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.
6. Visit site within 48 hours of a service request.
7. Provide Customer Support line at 855-560-9909.



**IV. Client Responsibilities:**

1. Maintain Chlorinator and proper chlorine supply, unless otherwise specified.
2. Provide all necessary lawn or yard maintenance and remove all obstructions, including dogs and other animals as needed to allow the OSSF to function properly and the Contractor easy and safe access to all parts of
3. Immediately notify Contractor of any alarms or system problems.
4. Have tanks pumped out as directed by manufacturer, typically every 3 years.
5. Be available by text, phone, or in person when the Contractor is on site in case of required repair approvals or questions.
6. Maintain site drainage to prevent adverse effects on OSSF.
7. Promptly pay Contractor's bills, fees, and invoices in full.

**V. Access By Contractor:**

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 repairs and services described herein.

**VI. Termination of This Agreement:**

Either party may terminate this agreement with 30 days' written notice in the event of the other party's substantive failure to perform in accordance with this agreement without fault of the terminating party. If this agreement is terminated, the Contractor will notify the appropriate regulatory authority.

**VII. Limitation of Liability:**

In no event shall the 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 the direct damages exceed payments by the Client under this agreement.

**VIII. Payment Terms:**

The fee for this agreement only covers the services described herein. This fee does not cover equipment or labor for non-warranty repairs, labor for warranty repairs, or service charges resulting from unscheduled, Client requested trips to the Client's OSSF. Payments not received within 30 days from the date of invoicing will be subject to a \$30.00 late penalty and or a 1.5% monthly carrying charge, whichever is greater. By signing this contract, the Client authorizes the Contractor to remove any parts which were installed but not paid for at the end of 30 days. The Client is still responsible for any labor costs associated with the installation and removal of said parts. All invoices are due upon receipt by Client.

**IX. Severability:**

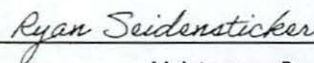
If any provision of this agreement shall be held to be invalid or unenforceable for any reason the remaining provisions shall continue to be held valid and enforceable. If a court finds that any provision of this agreement is invalid or unenforceable, by limiting such provision it would become valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

Christopher & Joannah Pickett

Luna Environmental / Ryan Seidensticker

DocuSigned by: Customer Name  


Maintenance Provider Name

 License # MP0001708

Customer Signature

Maintenance Provider Signature

Additional Comments / Special Terms

## ON-SITE SEWERAGE FACILITY SOIL EVALUATION REPORT INFORMATION

Date Soil Survey Performed: June 08, 2023

Site Location: SUNSET TERRACE DEVELOPMENT, LOT 20

Proposed Excavation Depth: N/A

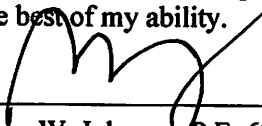
**Requirements:**

- At least two soil excavations must be performed on the site, at opposite ends of the proposed disposal area.
- Locations of soil boring or dug pits must be shown on the site drawing.
- For subsurface disposal, soil evaluations must be performed to a depth of at least two feet below the proposed excavation depth. For surface disposal, the surface horizon must be evaluated.
- Describe each soil horizon and identify any restrictive features on the form. Indicate depths where features appear.

SOIL BORING NUMBER <u>        </u> SURFACE EVALUATION						
Depth (Feet)	Texture Class	Soil Texture	Gravel Analysis	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
0	<b>III</b>	<b>CLAY LOAM</b>	<b>N/A</b>	<b>NONE OBSERVED</b>	<b>LIMESTONE @ 6"</b>	<b>BROWN</b>
6"						
1						
2						
3						
4						
5						

SOIL BORING NUMBER <u>        </u> SURFACE EVALUATION						
Depth (Feet)	Texture Class	Soil Texture	Gravel Analysis	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
0	<b>SAME</b>		<b>AS</b>		<b>ABOVE</b>	
0						
1						
2						
3						
4						
5						

I certify that the findings of this report are based on my field observations and are accurate to the best of my ability.

  
 \_\_\_\_\_  
 Greg W. Johnson, P.E. 67587-F2585, S.E. 11561

06/08/2023  
 \_\_\_\_\_  
 Date



**OSSF SOIL EVALUATION REPORT INFORMATION**

Date: June 09, 2023

**Applicant Information:**

Name: CHRISTOPHER & JOANNAH PICKETT  
Address: 577 SERENE WOOD CIRCLE  
City: CANYON LAKE State: TEXAS  
Zip Code: 78133 Phone: (703) 772-5587

**Site Evaluator Information:**

Name: Greg W. Johnson, P.E., R.S. S.E. 11561  
Address: 170 Hollow Oak  
City: New Braunfels State: Texas  
Zip Code: 78132 Phone & Fax (830)905-2778

**Property Location:**


SUNSET TERRACE  
Lot 20 Unit \_\_\_ Blk \_\_\_ Subd. DEVELOPMENT  
Street Address: 577 SERENE WOOD CIRCLE  
City: CANYON LAKE Zip Code: 78133  
Additional Info.: \_\_\_\_\_  
\_\_\_\_\_

**Installer Information:**

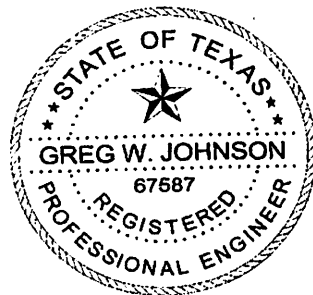
Name: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_  
Zip Code: \_\_\_\_\_ Phone \_\_\_\_\_

**Topography:** Slope within proposed disposal area: 6 %  
Presence of 100 yr. Flood Zone: YES \_\_\_ NO X  
Existing or proposed water well in nearby area. YES \_\_\_ NO X  
Presence of adjacent ponds, streams, water impoundments YES \_\_\_ NO X  
Presence of upper water shed YES \_\_\_ NO X  
Organized sewage service available to lot YES \_\_\_ NO X

I HAVE PERFORMED A THOROUGH INVESTIGATION BEING A REGISTERED PROFESSIONAL ENGINEER AND SITE EVALUATOR IN ACCORDANCE WITH CHAPTER 285, SUBCHAPTER D, §285.30, & §285.40 (REGARDING RECHARGE FEATURES), TEXAS COMMISSION OF ENVIRONMENTAL QUALITY (EFFECTIVE DECEMBER 29, 2016).

  
GREG W. JOHNSON, P.E. 67587 - S.E. 11561

06/09/23  
DATE



**FIRM #2585**

**AEROBIC TREATMENT  
DRIP TUBING SYSTEM  
DESIGNED FOR:  
CHRISTOPHER & JOANNE PICKETT  
577 SERENE WOODS CIRCLE  
CANYON LAKE, TEXAS 78133**

**SITE DESCRIPTION:**

Located in Sunset Terrace Development, Lot 20, at 577 Serene Woods Circle, the septic system will serve a remodeled six bedroom residence (2560sf.) situated in an area with shallow Type III soil as described in the Soil Evaluation Report. Native grasses, oak, and Mountain Cedar trees were found throughout this property. 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 Aeries Model D-840 gpd aerobic plant containing a 552-gallon pretreatment tank, an aerobic treatment plant, and a 916-gallon pump chamber containing a (0.5 HP FPS E-Series-20FE05P4-2W115) well pump. The well pump is activated by a time controller allowing the distribution ten times per day with an 6 minute run time with float setting at 420 gallons. A high level audible and visual alarm will activate should the pump fail. Distribution is through a self flushing 100 micron disc filter then through a 1" SCH-40 manifold to a 3500 sf. drip tubing field, with *Netifim Bioline* drip lines set approximately two feet apart with *0.61 gph* emitters set every two feet, as per the attached schematic. A pressure regulator Model PMR30MF installed in the pump tank on the manifold to the field will maintain pressure at 30 psi. One inch vacuum breakers will be installed at the highest point in the pressure and return manifold. A 1" SCH-40 return line is installed to periodically flush the system by cycling a 1" ball valve. Solids caught in the disc filter are flushed each cycle back to the trash tank. Vacuum breakers installed at the highest point on each manifold will prevent siphoning of effluent from higher to lower parts of the field. Prior to installing drip tubing the entire field area will be scarified and built up with 6" of a Type II or III soil. Drip tubing laid and be capped with 6" of Type II or Type III soil (*NOT SAND*). The field area will be sodded with a hearty grass prior to system startup.

**Tanks must have at grade risers on each opening with watertight caps that must be at least 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, in compliance with Chapter §285.38.**

**DESIGN SPECIFICATIONS:**

Daily waste flow: 6 BR (2560 sf.)@ 420 gpd (Table III)

Pretreatment tank size: 552 Gal

Plant Size: Aeries D840 gpd (TCEQ Approved)

Pump tank size: 916 Gal

Reserve capacity after High Level: 140 Gal (1/3 day Req'd)

Application Rate: Ra = 0.2 gal/sf

Total absorption area: Q/Ra = 420 GPD/0.20 = 2100 sf. (Actual 3500 sf.)

Total linear feet drip tubing: 1750' *Netifim Bioline* drip tubing .61 GPH

Pump requirement: 875 emitters @ .61 gph @ 20 psi = 8.896 gpm

Pump Requirement (cont.): (0.5 HP FPS E-Series-20FE05P4-2W115)

MINIMUM SCOUR VELOCITY (MSV) > 2 FPS

IN DRIP TUBING W/ NOM. DIA. 0.55" ID

$$MSV = 2 \text{ FPS } (\pi d^2 / 4) * 7.48 \text{ gal/cf} * 60 \text{ sec/min}$$

$$MSV = 2(3.14159((.55/12)^2)/4)*7.48*60$$

$$MSV = 1.5 \text{ gpm PER LINE} * 5 \text{ LINES} = 7.5 \text{ GPM MIN FLOW RATE}$$

IN RETURN MANIFOLD W/ NOM. DIA 1.049" ID

$$MSV = 2 \text{ FPS } (\pi d^2 / 4) * 7.48 \text{ gal/cf} * 60 \text{ sec/min}$$


$$MSV = 2(3.14159((1.049/12)^2)/4)*7.48*60$$

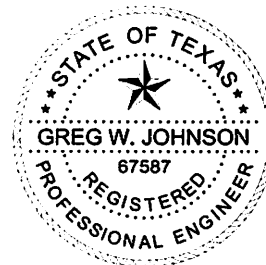
$$MSV = 5.4 \text{ GPM}$$

**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, §285.30 and §285.40 Texas Commission On Environmental Quality. (Effective December 29, 2016)

 06/09/2013  
\_\_\_\_\_  
Greg W. Johnson, P.E. No. 67587 F# 2585  
170 Hollow Oak  
New Braunfels, Texas 78132  
830/905-2778



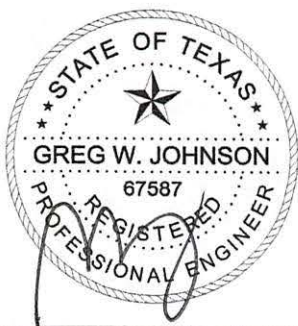
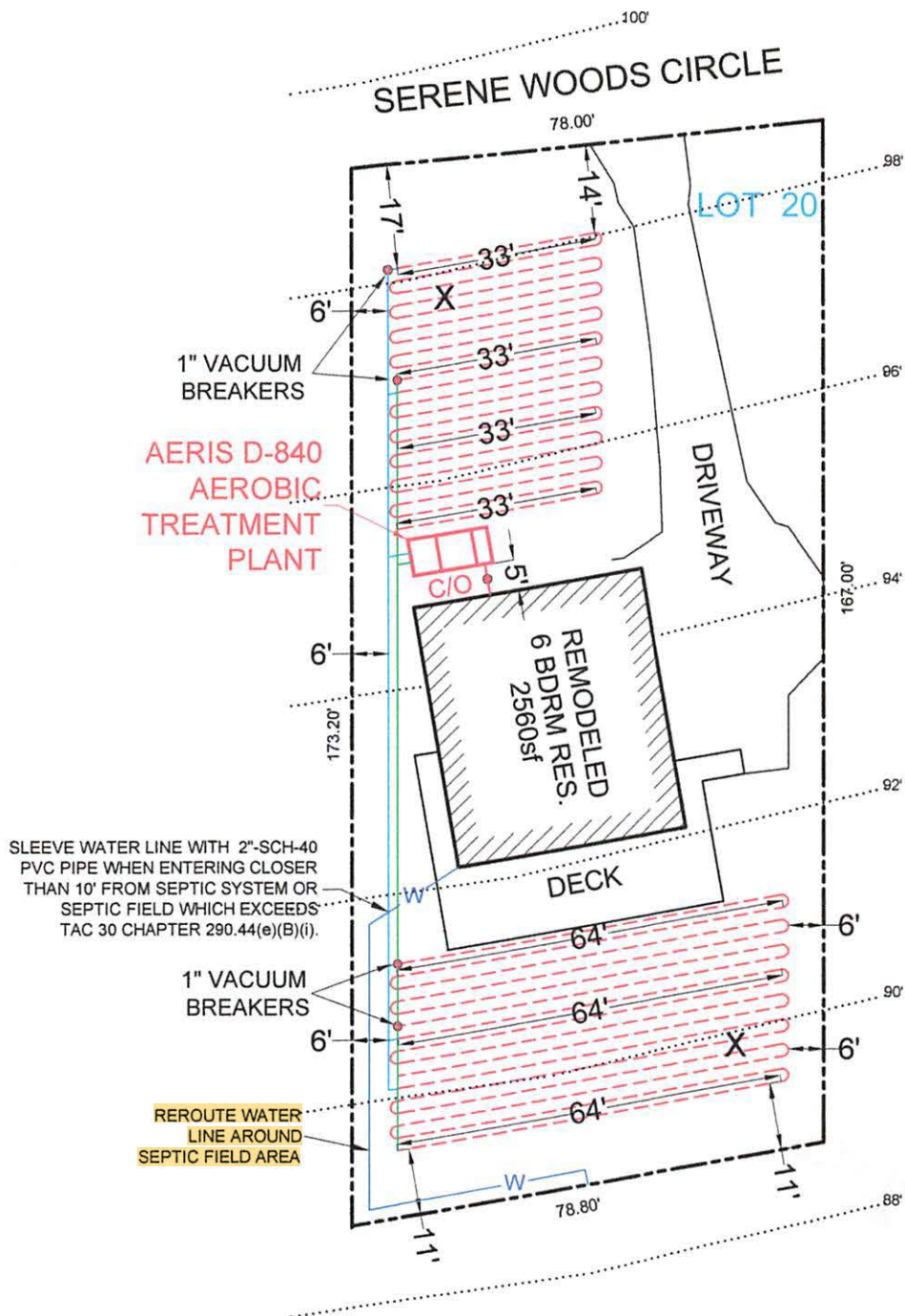


NOTE:  
 EXISTING SEPTIC  
 TANK TO BE  
 PUMPED, CRUSHED  
 AND BACK FILLED.  
 EXISTING SEPTIC  
 SYSTEM TO BE  
 ABANDONED

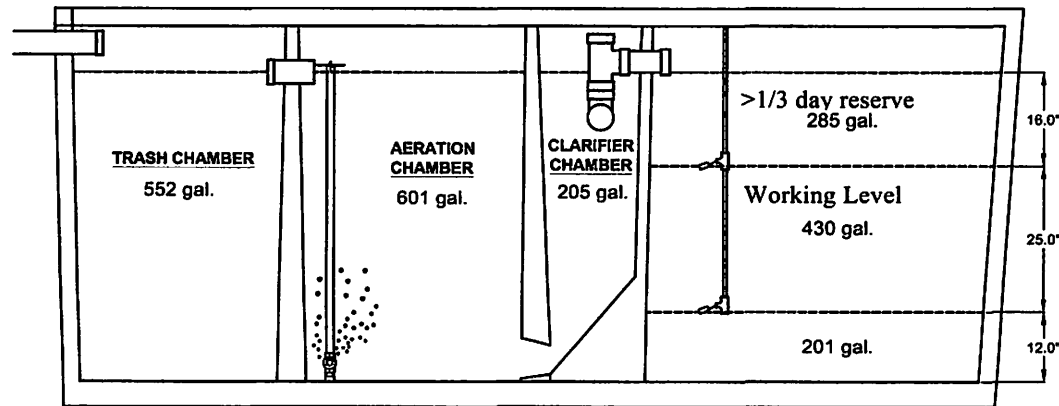
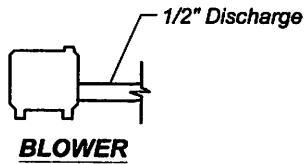
INSTALL 3500sf OF  
 FIELD USING 1750'  
 OF DRIP TUBING.  
 THERE SHALL BE  
 NO PARKING,  
 DRIVING OR  
 STORAGE ON THE  
 SEPTIC FIELD AT  
 ANY TIME FOR ANY  
 REASON.

\*USE TWO WAY  
 CLEAN OUT  
 \*\*USE SCH-40 OR  
 SDR-26 TO TANK

X= TEST HOLE

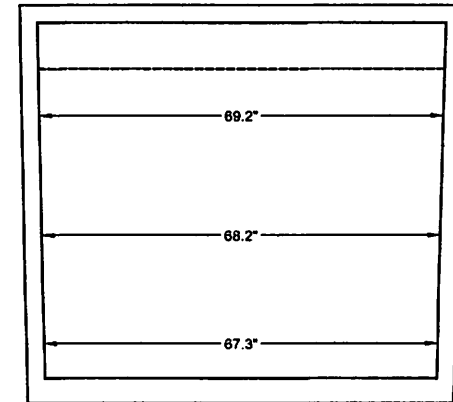


OWNER: CHRISTOPHER & JOANNAH PICKETT		DRAWN BY: EJS III	
STREET ADDRESS: 577 SERENE WOOD CIRCLE			
LEGAL DESC: SUNSET TERRACE DEVELOPMENT	UNIT/SECTION/PHASE:	BLOCK:	LOT: 20
PREPARED BY: GREG W. JOHNSON, P.E. F#002585	SCALE: 1"=30'	DATE: 6/9/2023	REVISED:



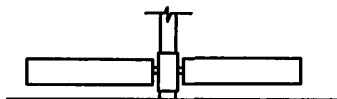
**SIDE SECTION VIEW**

SCALE: 1" = 3/8"



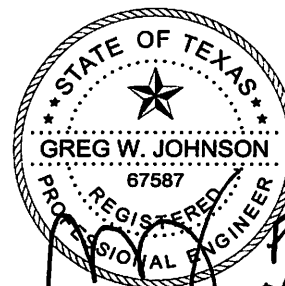
**END SECTION VIEW**

SCALE: 1" = 3/8"



**Diffuser Detail**

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



*Handwritten signature and date:*  
F2585  
06/9/2023

Title: **Model D-840  
Night Time Pumping**

Company Name: **Aeris Aerobics**

Date: **5-8-2014**

# Arkal 1" Super Filter

Catalog No. 1102 0 \_ \_ \_

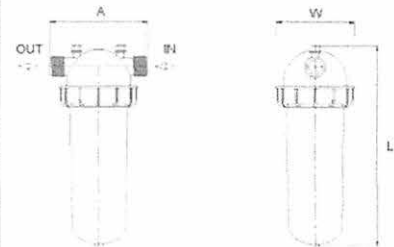
## Features

- ♦ A "T" shaped filter with two 1" male threads.
- ♦ A "T" volume filter for in-line installation on 1" pipelines.
- ♦ The filter prevents clogging due to its enlarged filtering area that collects sediments and particles.
- ♦ Manufactured entirely from fiber reinforced plastic.
- ♦ A cylindrical column of grooved discs constitutes the filter element.
- ♦ Spring keeps the discs compressed.
- ♦ Screw-on filter cover.
- ♦ Filter discs are available in various filtration grades.



## Technical Data

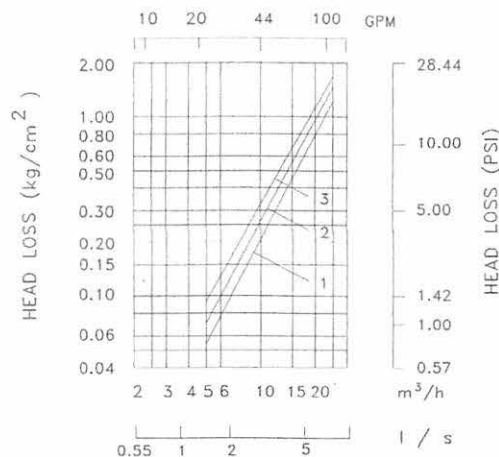
Inlet/outlet diameter	1" BSPT (male)	1" NPT (male)
	25.0 mm – nominal diameter	
	33.6 mm – pipe diameter (O. D.)	
Maximum pressure	10 atm	145 psi
Maximum flow rate	8 m <sup>3</sup> /h (1.7 l/sec)	35 gpm
General filtration area	500 cm <sup>2</sup>	77.5 in <sup>2</sup>
Filtration volume	600 cm <sup>3</sup>	37 in <sup>3</sup>
Filter length L	340 mm	13 13/32"
Filter width W	130 mm	5 3/32"
Distance between end connections A	158 mm	6 7/32"
Weight	1.420 kg	3.13 lbs.
Maximum temperature	70° C	158 °F
pH	5-11	5-11



## Filtration Grades

- Blue (400 micron / 40 mesh)
- Yellow (200 micron / 80 mesh)
- Red (130 micron / 120 mesh)
- Black (100 micron / 140 mesh)
- Green (55 micron)

## Head Loss Chart





# PMR-MF

## PRESSURE-MASTER REGULATOR - MEDIUM FLOW

### Specifications

The pressure regulator shall be capable of operating at a constant, factory preset, non-adjustable outlet pressure of 6, 10, 12, 15, 20, 25, 30, 35, 40, 50, or 60 PSI (0.41, 0.69, 0.83, 1.03, 1.38, 1.72, 2.07, 2.41, 2.76, 3.45, or 4.14 bar) with a flow range between:

- 4 - 16 GPM (909 - 3634 L/hr) for 6 - 10 PSI models or
- 2 - 20 GPM (454 - 4542 L/hr) for 12 - 60 PSI models.

The pressure regulator shall maintain the nominal pressure at a minimum of 5 PSI (0.34 bar) above model inlet pressure and a maximum of 80 PSI (5.52 bar) above nominal model pressure\*. Refer to the PRU performance curve to establish specific outlet pressures based on relative inlet pressure and flow rate. Always install downstream from all shut off valves. Recommended for outdoor use only. Not NSF certified.

All pressure regulator models shall be equipped with one of these inlet-x-outlet configurations:

#### Inlet

- 3/4-inch Female National Pipe Thread (FNPT)
- 1-inch Female National Pipe Thread (FNPT)
- 1-inch Female British Standard Pipe Thread (FBSPT)

#### Outlet

- 3/4-inch Female National Pipe Thread (FNPT)
- 1-inch Female National Pipe Thread (FNPT)
- 1-inch Female British Standard Pipe Thread (FBSPT)

The upper housing, lower housing, and internal molded parts shall be of engineering-grade thermoplastics with internal elastomeric seals and a reinforced elastomeric diaphragm. Regulation shall be accomplished by a fixed stainless steel compression spring, which shall be enclosed in a chamber isolated from the normal water passage.

Outlet pressure and flow shall be clearly marked on each regulator.

The pressure regulator shall carry a two-year manufacturer's warranty on materials, workmanship, and performance. Each pressure regulator shall be water tested for accuracy before departing the manufacturing facility.

The pressure regulator shall be manufactured by Senninger Irrigation in Clermont, Florida. Senninger is a Hunter Industries Company.

### Physical

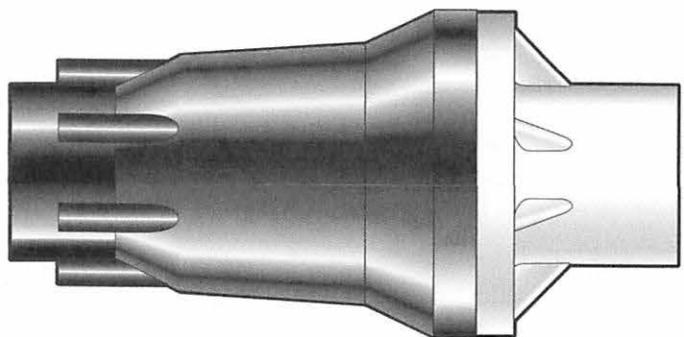
#### 3/4" FNPT x 3/4" FNPT model (shown on right)

- Overall Length 5.2 inches (13.1 cm)
- Overall Width 2.5 inches (6.4 cm)

#### 1" FNPT x 1" FNPT model

#### 1" FBSPT x 1" FBSPT model

- Overall Length 5.8 inches (14.6 cm)
- Overall Width 2.5 inches (6.4 cm)



\* Please consult factory for applications outside of recommended guidelines.



# PMR-MF

## PRESSURE-MASTER REGULATOR - MEDIUM FLOW

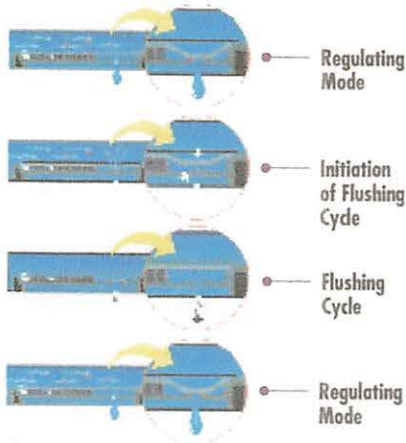
### Model Numbers

Model #	Flow Range	Preset Operating Pressure	Maximum Inlet Pressure
PMR-6 MF	4 - 16 GPM (909 - 3634 L/hr)	6 PSI (0.41 bar)	80 psi (5.51 bar)
PMR-10 MF	4 - 16 GPM (909 - 3634 L/hr)	10 PSI (0.69 bar)	90 psi (6.20 bar)
PMR-12 MF	2 - 20 GPM (454 - 4542 L/hr)	12 PSI (0.83 bar)	90 psi (6.20 bar)
PMR-15 MF	2 - 20 GPM (454 - 4542 L/hr)	15 PSI (1.03 bar)	95 psi (6.55 bar)
PMR-20 MF	2 - 20 GPM (454 - 4542 L/hr)	20 PSI (1.38 bar)	100 psi (6.89 bar)
PMR-25 MF	2 - 20 GPM (454 - 4542 L/hr)	25 PSI (1.72 bar)	105 psi (7.24 bar)
PMR-30 MF	2 - 20 GPM (454 - 4542 L/hr)	30 PSI (2.07 bar)	110 psi (7.58 bar)
PMR-35 MF	2 - 20 GPM (454 - 4542 L/hr)	35 PSI (2.41 bar)	115 psi (7.93 bar)
PMR-40 MF	2 - 20 GPM (454 - 4542 L/hr)	40 PSI (2.76 bar)	120 psi (8.27 bar)
PMR-50 MF	2 - 20 GPM (454 - 4542 L/hr)	50 PSI (3.45 bar)	130 psi (8.96 bar)
PMR-60 MF	2 - 20 GPM (454 - 4542 L/hr)	60 PSI (4.14 bar)	140 psi (9.65 bar)



# Bioline® Dripperline

## Pressure Compensating Dripperline for Wastewater



Bioline's Self-Cleaning, Pressure Compensating Dripper is a fully self-contained unit molded to the interior wall of the dripper tubing.

As shown at left, Bioline is continuously self-cleaning during operation, not just at the beginning and end of a cycle. The result is dependable, clog free operation, year after year.



### Product Advantages

#### The Proven Performer

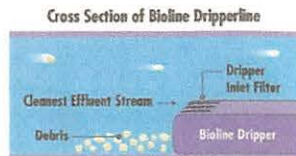
- Tens of millions of feet used in wastewater today.
- Bioline is permitted in every state allowing drip disposal.
- Backed by the largest, most quality-driven manufacturer of drip products in the U.S.
- Preferred choice of major wastewater designers and regulators.
- Proven track record of success for many years of hard use in wastewater applications.

#### Quality Manufacturing with Specifications Designed to Meet Your Needs

- Pressure compensating drippers assure the highest application uniformity - even on sloped or rolling terrain.
- Excellent uniformity with runs of 400 feet or more - reducing installation costs.
- Highest quality-control standards in the industry: Cv of 0.25 (coefficient of manufacturer's variation).
- A selection of flows and spacings to satisfy the designer's demand for almost any application rate.

#### Long-Term Reliability

- Protection against plugging:
  - Dripper inlet raised 0.27" above wall of tubing to prevent sediment from entering dripper.
  - Drippers impregnated with Vinyzene to prevent buildup of microbial slime.
  - Unique self-flushing mechanism passes small particles before they can build up.



#### Root Safe

- A physical barrier on each Bioline dripper helps prevent root intrusion.
- Protection never wears out - never depletes - releases nothing to the environment.
- Working reliably for up to 15 years in subsurface wastewater installations.
- Additional security of chemical root inhibition with Techfilter - supplies Trifluralin to the entire system, effectively inhibiting root growth to the dripper outlets.



### Applications

- For domestic strength wastewater disposal.
- Installed following a treatment process.
- Can be successfully used on straight septic effluent with proper design, filtration and operation.
- Suitable for reuse applications using municipally treated effluent designated for irrigation water.

### Specifications

Wall thickness (mil): 45\*

Nominal flow rates (GPH): .4, .6, .9\*

Common spacings: 12", 18", 24"\*

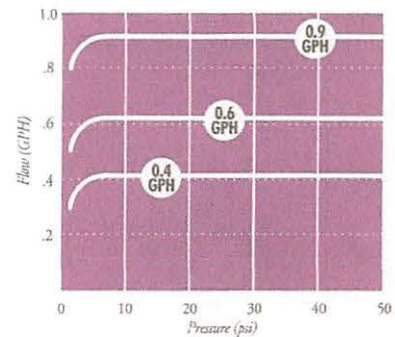
Recommended filtration: 120 mesh

Inside diameter: .570\*

Color: Purple tubing indicates non-potable source

\*Additional flows, spacings, and pipe sizes available by request. Please contact Netafim USA Customer Service for details.

BIOLINE Flow Rate vs. Pressure



#### NETAFIM USA

5470 E. Home Ave. • Fresno, CA 93727

888.638.2346 • 559.453.6800

FAX 800.695.4753

[www.netafimusa.com](http://www.netafimusa.com)



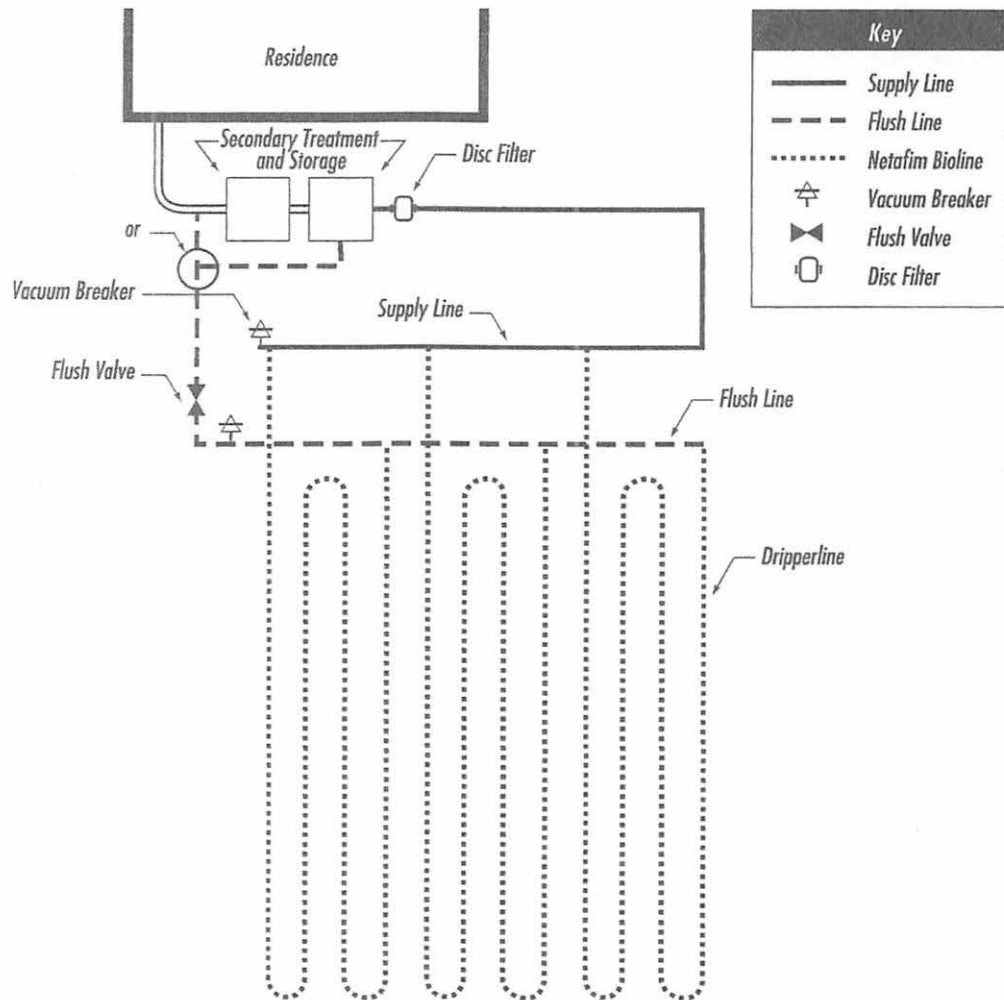
# NETAFIM WASTEWATER DISPERSAL SYSTEM DESIGN GUIDE

## SAMPLE DESIGNS

### SINGLE TRENCH LAYOUT

Rectangular field with supply and flush manifold on same side and in same trench;

- Locate supply and flush manifold in same trench
- Dripperlines are looped at the end opposite the supply and flush manifolds
- The longest Bioline length should not exceed 400 ft. Drip fields 200 ft. in length might loop the Bioline once; drip dispersal fields under 100 ft. might be looped twice, as illustrated



DATE  
9/02/97

PERMIT#  
78217

**CCEO  
COPY**



**Comal County**  
OFFICE OF ENVIRONMENTAL HEALTH

**LICENSE TO OPERATE A PRIVATE SEWAGE FACILITY**

OWNER(L) Thorn	FIRST James	DEVELOPMENT Sunset Terrace	STREET 577 Serene Woods Circle
UNIT	BLOCK	LOT 20	ACRES/TRACT

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 Natural Resource Conservation Commission.

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.

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. It may be transferred by the holder to a succeeding owner, provided the facility has not been remodeled and is functioning properly.

THE FACILITY IS LICENSED FOR

<input checked="" type="checkbox"/> SINGLE FAMILY RESIDENCE	TOTAL SQUARE FEET OF DWELLING 1500
<input type="checkbox"/> INSTITUTION	TYPE OF BUSINESS/INSTITUTION

THE FACILITY CONSISTS OF

SYSTEM TYPE Non Standard	SYSTEM DESCRIPTION Septic Tank & Low Pressure Dosing	
GALLON TANK 750 & 500	SQUARE FEET ABSORPTION AREA 1125	SWITCHING VALVE?YES/N No

SPECIAL CONDITIONS

INSPECTOR <i>P. Kriss</i>	COMAL COUNTY ENGINEER <i>[Signature]</i> 9-17-97
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\*REMODEL

COMAL COUNTY

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

DATE 7/7/97 PERMIT# 782171
PROPERTY OWNER'S NAME: JAMES THORN PHONE# 344-0997

CCCEO COPY

ADDRESS 11615 RAINDROP DR SAN ANTONIO, TX 78216

RECEIVED JUL 07 1997

DESCRIPTION OF PROPERTY: SUBDIVISION SUNSET TERRACE ENVIRONMENTAL HEALTH
STREET NAME 577 SERENE WOODS CIRCLE UNIT LOT 20 BLK
IF NOT IN A SUBDIVISION GIVE NAME OF ROAD/HWY ACREAGE

LOCATION/DIRECTIONS/MAP TO PROPERTY IS ATTACHED? PROOF OF OWNERSHIP ATTACHED?

PROPERTY LOCATED OVER EDWARDS RECHARGE ZONE? NO IF YES, SITE EVALUATION & PLANNING MATERIALS MUST BE COMPLETED BY A REGISTERED SANITARIAN OR PROFESSIONAL ENGINEER

TYPE OF DEVELOPMENT: SINGLE FAMILY RESIDENCE 1500 TOTAL SQ. FT. OF DWELLING 225 GPD (TABLE III)
COMMERCIAL TYPE OF BUSINESS/INSTITUTION
NUMBER OF OCCUPANTS GPD (TABLE III)

SITES GENERATING MORE THAN 5000 GALLONS PER DAY ARE REQUIRED TO OBTAIN PERMITTING THROUGH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

SOURCE OF WATER PUBLIC PRIVATE

PLANNING MATERIALS & SITE EVALUATION AS REQUIRED COMPLETED BY GREG W. JOHNSON P.E.

SIZE OF SEPTIC SYSTEM REQUIRED BASED ON PLANNING MATERIALS & SITE EVALUATION:

SYSTEM TYPE (TABLE IX) NON-STANDARD
SYSTEM DESCRIPTION (TABLE IX) SEPTIC TANK & LOW PRESSURE DOSING

TANK SIZE 750 + 500 GPM GALLONS (DUAL TANK) ABSORPTION AREA 1125 SQUARE FEET

ARE WATER SAVING DEVICES BEING UTILIZED? YES NO

INSTALLER NAME & LICENSE# Walker

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 ALSO UNDERSTAND THAT A PERMIT OF AUTHORIZATION TO CONSTRUCT WILL NOT BE ISSUED UNTIL THE FLOOD PLAIN ADMINISTRATOR HAS APPROVED AND RELEASED THE DEVELOPMENT PERMIT FOR THIS PROPERTY.

SIGNATURE OF OWNER OR APPOINTED AGENT 170 Hollow Oak N.B. TX 78132 905-2778
IF SIGNED BY AGENT GIVE ADDRESS & PHONE#

OFFICE USE ONLY

DATE LTO ISSUED 9/18/97 DATE RECORDED IN SUMMARY SHEET 10/6/97

SIZES AS OF FINAL INSPECTION
750 + 500 TANK
1125 TOTAL SQ. FT. ABSORPTION AREA

DESIGNATED AGENT FOR COMAL COUNTY P. Kriss / JMT DATE OF FINAL INSPECTION 2 Sep 97

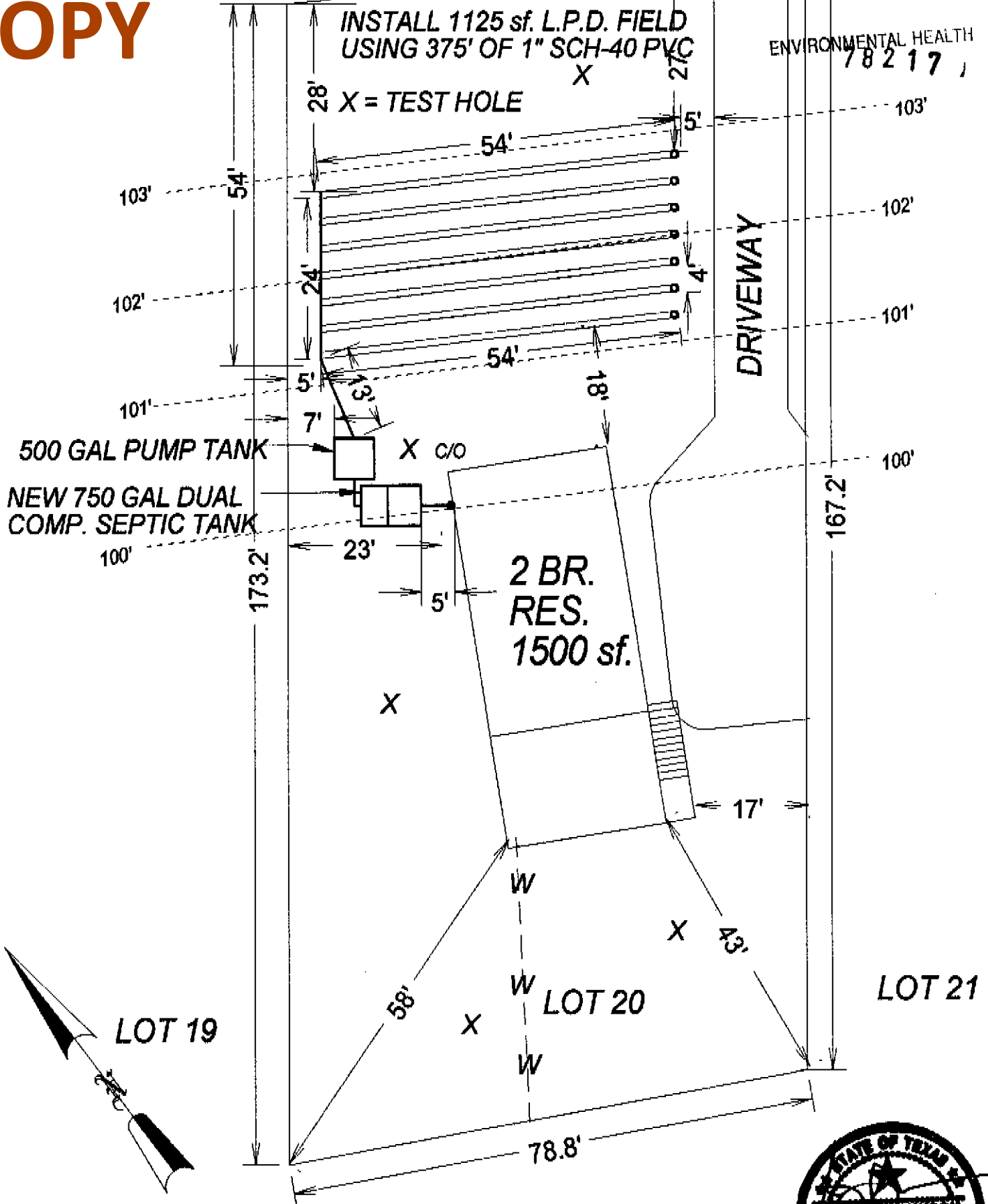
**CCEO  
COPY**

**577 SERENE WOOD CIRCLE**

RECEIVED

JUL 07 1997

ENVIRONMENTAL HEALTH  
78217



SCALE: 1"=20'





ORDERS 10/31 11/30/20 NF NB

**NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.**

**GENERAL WARRANTY DEED WITH VENDOR'S LIEN**

THE STATE OF TEXAS                §  
   §        KNOW ALL BY THESE PRESENTS: THAT  
COUNTY OF COMAL                §

PATRICIA A. KETCHUM, A SINGLE WOMAN ("Grantor"), whose mailing address is 508 Old Anitoch Rd, Smithville, TX 78957

\_\_\_\_\_, for and in consideration of the sum of TEN AND NO/100 DOLLARS (\$10.00) cash and other good and valuable consideration to Grantor in hand paid by JOANNAH PICKETT AND CHRISTOPHER PICKETT, WIFE AND HUSBAND ("Grantee"), whose mailing address is 336 Alta Ave, San Antonio, TX 78209

\_\_\_\_\_, and in consideration of a Note of even date executed by Grantee and payable to the order of QUICKEN LOANS, LLC ("Lender") in the principal amount of \$280,000.00, which Note is secured by a first and superior vendor's lien and superior title retained in this Deed in favor of QUICKEN LOANS, LLC and by a first-lien Deed of Trust of even date from Grantee to ANDREA K. MAGERS, Trustee, the receipt and sufficiency of which consideration is hereby acknowledged and confessed, has GRANTED, SOLD AND CONVEYED, and by these presents does GRANT, SELL AND CONVEY unto Grantee, the following real property, together with all improvements thereon (the "Property"):

**LOT 20, SUNSET TERRACE DEVELOPMENT, COMAL COUNTY, TEXAS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 3, PAGE 16, MAP AND PLAT RECORDS, COMAL COUNTY, TEXAS.**

**TO HAVE AND TO HOLD** the Property, together with all and singular the rights and appurtenances thereto in any way belonging unto the said Grantee, their heirs, successors and assigns forever; and Grantor does hereby bind Grantor, their heirs, executors and administrators to **WARRANT AND FOREVER DEFEND** all and singular the Property unto the said Grantee, their heirs, successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof, provided, however, that this conveyance is made by Grantor and accepted by Grantee subject to (i) to the liens securing payment of ad valorem taxes for the current and all subsequent years; and (ii) easements, liens, reservations, covenants, conditions, and restrictions of record in Comal County, Texas, or visible or apparent on the ground to the extent the foregoing affect the Property. By acceptance of this Deed, Grantee assumes and agrees to perform all of the obligations of Grantor under said easements, reservations, covenants, conditions and restrictions, and agrees to pay and indemnifies and agrees to hold Grantor harmless from and against all ad valorem taxes relating to the Property, for the current and all subsequent years.

The vendor's lien against and superior title to the Property are retained for the benefit of Lender, its successors and assigns, and transferred and assigned to Lender, its successors and assigns, until each Note described is fully paid according to its terms, at which time this Deed will become absolute.

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

EXECUTED AS OF the date set forth in the acknowledgement herein, EFFECTIVE for all purposes as of the 20th day of November, 2020.

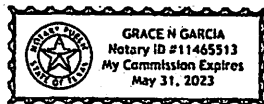
GRANTOR:

  
PATRICIA A. KETCHUM

ACKNOWLEDGEMENT

STATE OF TEXAS §  
  §  
COUNTY OF Comal §

Before me, a Notary Public, on the 20<sup>th</sup> day of November, 2020, personally appeared PATRICIA A. KETCHUM, who acknowledged that she did sign the foregoing instrument, and acknowledged to me that she executed the same for the uses and purposes and consideration therein expressed.



  
Notary Public, State of Texas

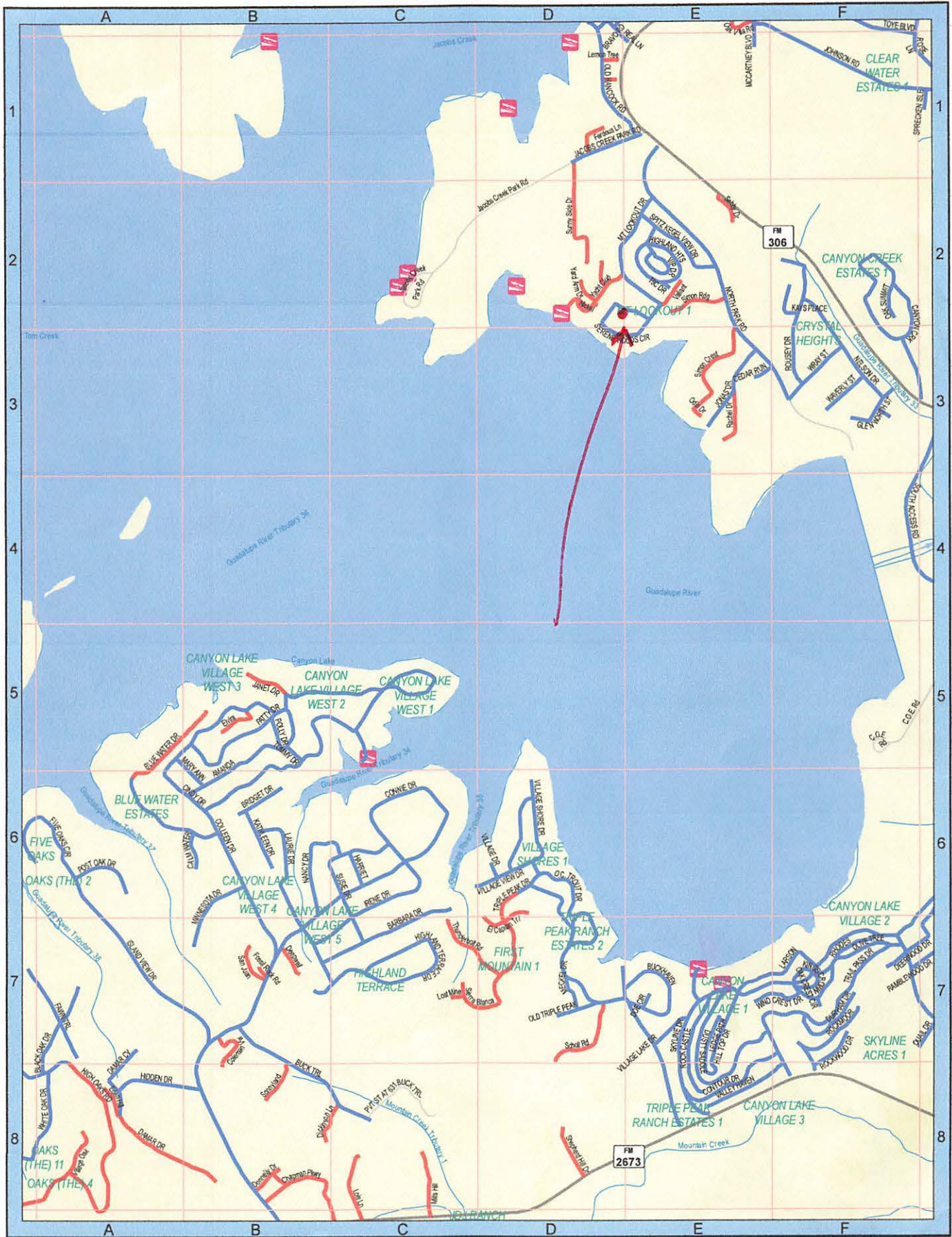
PREPARED IN THE LAW OFFICE OF:

The Hay Legal Group PLLC  
611 W. 5<sup>th</sup> Street, Suite 300  
Austin, Texas 78701

Filed and Recorded  
Official Public Records  
Bobbie Koepf, County Clerk  
Comal County, Texas  
11/23/2020 08:02:55 AM  
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*Bobbie Koepf*



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