

**Preliminary Field Check For Drip Systems**



# COMAL COUNTY

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ENGINEER'S OFFICE

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RE: ***642 Lakebreeze Dr.  
Canyon Lake Hills 6  
Lot 2347R***

Dear Property Owner & Agent,

Thank you for your submission. We have reviewed the planning materials for the referenced permit application, and unfortunately, they are insufficient. To proceed with processing this permit, we require the following:

1. 285.91(10) There is a 5 ft separation distance from tanks and foundations.
2. Revise accordingly and resubmit.

If you have any questions, you can email me or call the office.

Thank You,

| **Brandon Olvera** | **Designated Representative OS0034792** |

| Comal County | [www.cceo.org](http://www.cceo.org) | 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*

|                      |                 |                      |
|----------------------|-----------------|----------------------|
|                      |                 | 118432               |
| <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

02/27/2025

Date

|  |
|--|
| <input type="checkbox"/> COMPLETE APPLICATION<br>Check No. _____ Receipt No. _____ |
|--|

|  |
|--|
| <input type="checkbox"/> INCOMPLETE APPLICATION<br>(Missing Items Circled, Application Refeused) |
|--|



COMAL COUNTY  
ENGINEER'S OFFICE

# ON-SITE SEWAGE FACILITY APPLICATION

195 DAVID JONAS DR  
NEW BRAUNFELS, TX 78132  
(830) 608-2090  
WWW.CCEO.ORG

Date February 21, 2025

Permit Number 118432

## 1. APPLICANT / AGENT INFORMATION

|                  |  |                  |                                  |
|------------------|--|------------------|----------------------------------|
| Owner Name       | <u>VINCENT A. ARNOLD &amp; WILLA M. ARNOLD</u> | Agent Name       | <u>GREG JOHNSON, P.E.</u>        |
| Mailing Address  | <u>20450 HUEBNER ROAD APT: 11310</u>           | Agent Address    | <u>170 HOLLOW OAK</u>            |
| City, State, Zip | <u>SAN ANTONIO TEXAS 78258</u>                 | City, State, Zip | <u>NEW BRAUNFELS TEXAS 78132</u> |
| Phone #          | <u>830-832-1683</u>                            | Phone #          | <u>830-905-2778</u>              |
| Email            | <u>vwarnold11310@gmail.com</u>                 | Email            | <u>gregjohnsonpe@yahoo.com</u>   |

## 2. LOCATION

Subdivision Name CANYON LAKE HILLS Unit 6 Lot 2347R Block

Survey Name / Abstract Number  Acreage

Address 642 LAKEBREEZE DRIVE City CANYON LAKE State TX Zip 78133

## 3. TYPE OF DEVELOPMENT

Single Family Residential

Type of Construction (House, Mobile, RV, Etc.) EXISTING HOUSE & RV (INTERMITTENT USE)

Number of Bedrooms 4

Indicate Sq Ft of Living Area 3100

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: \$ EXISTING (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.

Vincent Arnold Willa M Arnold  
Signature of Owner

2/25/2025  
Date



ON-SITE SEWAGE FACILITY APPLICATION

Planning Materials & Site Evaluation as Required Completed By GREG W. JOHNSON, P.E.

System Description PROPRIETARY; AEROBIC TREATMENT AND DRIP TUBING

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

Tank Size(s) (Gallons) NUWATER B-550-PC Absorption/Application Area (Sq Ft) 2400

Gallons Per Day (As Per TCEQ Table 111) 340

(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

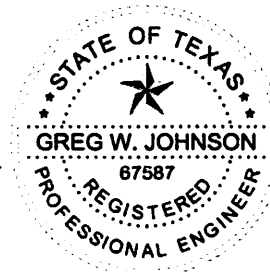
(if yes, the P.E. or R.S. shall certify that the OSSF design complies with all provisions of the existing CZP.)

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 of Designer

February 24, 2025  
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):

6 UNIT/PHASE/SECTION \_\_\_\_\_ BLOCK 2347R LOT \_\_\_\_\_ CANYON LAKE HILLS \_\_\_\_\_ SUBDIVISION

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

The property is owned by (insert owner's full name): VINCENT A. ARNOLD & WILLA M. ARNOLD

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 25<sup>TH</sup> DAY OF February, 2025

[Signature]  
[Signature]  
Owner(s) signature(s)

VINCENT A. ARNOLD  
WILLA M. ARNOLD  
Owner (s) Printed name (s)

VINCENT A. & WILLA M. ARNOLD SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 25<sup>TH</sup> DAY OF

February, 2025  
[Signature]  
Notary Public Signature



Filed and Recorded  
Official Public Records  
Bobbie Koepf, County Clerk  
Comal County, Texas  
02/27/2025 08:36:13 AM  
TERRI 1 Page(s)  
202506005445

[Signature]  
Bobbie Koepf

WASTEWATER TREATMENT FACILITY MONITORING AGREEMENT

Regulatory Authority COMAL  
Block Creek Aerobic Services, LLC  
444 A Old Hwy #9  
Comfort, TX 78013  
Off. (830) 995-3189  
Fax. (830) 995-4051  
CANYON LAKE HILLS, UNIT 6, LOT 2374R

Permit/License Number \_\_\_\_\_  
Customer VINCENT A. & WILLA M. ARNOLD  
Site Address 642 LAKEBREEZE DR  
City CANYON LAKE Zip 78133 <sup>11316</sup>  
Mailing Address 20450 HUEBNER RD APT 340, S.A. 78258  
County COMAL Map # CCEO PG 29/D3  
Phone 830-832-1683  
Email vwarnold11310@gmail.com

**I. General:** This Work for Hire Agreement (hereinafter referred to as "Agreement") is entered into by and between VINCENT A. & WILLA M. ARNOLD (hereinafter referred to as "Customer") and Block Creek Aerobic Services, LLC. By this agreement, Block Creek Aerobic Services, LLC and its employees (hereinafter inclusively referred to as "Contractor") agree to render services at the site address stated above, as described herein, and the Customer agrees to fulfill his/her/their responsibilities, as described herein.

**II. Effective Date:**

This Agreement commences on LTO and ends on \_\_\_\_\_ for a total of two (2) years (initial agreement) or one (1) year (thereafter). If this is an initial agreement (new installation), the Customer shall notify the Contractor within two (2) business days of the system's first use to establish the date of commencement. If no notification is received by Contractor within ninety (90) days after completion of installation or where county authority mandates, the date of commencement will be the date the "License to operate" (Notice of Approval) was issued by the permitting authority. This agreement may or may not commence at the same time as any warranty period of installed equipment, but in no case shall it extend the specified warranty.

**III. Termination of Agreement:**

This Agreement may be terminated by either party for any reason, including for example, substantial failure of either party to perform in accordance with the terms of this Agreement, without fault or liability of the terminating party. The terminating party must provide written notice to the non-terminating party thirty (30) days prior to the termination of this Agreement. If this Agreement is terminated, Contractor will be paid at the rate of \$75.00 per hour for any work performed and for which compensation has not been received. After the deduction of all outstanding charges, any remaining monies from prepayment for services will be refunded to customer within thirty (30) days of termination of this Agreement. Either party terminating this Agreement for any reason, including non-renewal, shall notify in writing the equipment manufacturer and the appropriate regulatory agency a minimum of thirty (30) days prior to the date of such termination. Nonpayment of any kind shall be considered breach of contract and a termination of contract.

**IV. Services:**

Contractor will:

- a. Inspect and perform routine upkeep on the On-Site Sewage Facility (hereinafter referred to as OSSF) as recommended by the treatment system manufacturer, and required by state and/or local regulation, for a total of three visits to site per year. The list of items checked at each visit shall be the: control panel, Electrical circuits, timer, Aeration including compressor and diffusers, CFM/PSI measured, lids safety pans, pump, compressor, sludge levels, and anything else required as per the manufacturer.
- b. Provide a written record of visits to the site by means of an inspection tag attached to or contained in the control panel.
- c. Repair or replace, if Contractor has the necessary materials at site, any component of the OSSF found to be failing or inoperative during the course of a routine monitoring visit. If such services are not covered by warranty, and the service(s) cost less than \$100.00, Customer hereby authorizes Contractor to perform the service(s) and bill Customer for said service(s). When service costs are greater than \$100.00, or if contractor does not have the necessary supplies at the site, Contractor will notify Customer of the required service(s) and the associated cost(s). Customer must notify Contractor of arrangements to affect repair of system within two (2) business days after said notification.
- d. Provide sample collection and laboratory testing of TSS and BOD on a yearly basis (commercial systems only).
- e. Forward copies of this Agreement and all reports to the regulatory agency and the Customer.
- f. Visit site in response to Customer's request for unscheduled services within forty-eight (48) hours of the date of notification (weekends and holidays excluded) of said request. Unless otherwise covered by warranty, costs for such unscheduled responses will be billed to Customer.

**V. Disinfection:**

van wma

RC

Customer's Initials



Contractor's Initials

\_\_\_\_ Not required; X required. The responsibility to maintain the disinfection device(s) and provide any necessary chemicals is that of the Customer.

**VI. Electronic Monitoring:**

Electronic Monitoring is not included in this Agreement.

**VII. Performance of Agreement:**

Commencement of performance by Contractor under this Agreement is contingent on the following conditions:

a. If this is an initial Agreement (new installation):

I. Contractor's receipt of a fully executed original copy or facsimile of this agreement and all documentation requested by Contractor.

If the above conditions are not met, Contractor is not obligated to perform any portion of this Agreement.

**VIII. Customer's Responsibilities:**

The customer is responsible for each and all of the following:

a. Provide all necessary yard or lawn maintenance and removal of all obstacles, including but not limited to dogs and other animals, vehicles, trees, brush, trash, or debris, as needed to allow the OSSF to function properly, and to allow Contractor safe and easy access to all parts of the OSSF.

b. Protect equipment from physical damage including but not limited to that damage caused by insects.

c. Maintain a current license to operate, and abide by the conditions and limitations of that license, and all requirements for and OSSF from the State and/or local regulatory agency, whichever requirements are more stringent, as well as the proprietary system's manufacturer recommendations.

d. Notify Contactor immediately of any and all alarms, and/or any and all problems with, including failure of, the OSSF.

e. Provide, upon request by Contractor, water usage records for the OSSF so that the Contractor can perform a proper evaluation of the performance of the OSSF.

f. Allow for samples at both the inlet and outlet of the OSSF to be obtained by Contractor for the purpose of evaluating the OSSF's performance. If these samples are taken to a laboratory for testing, with the exception of the service provided under Section IV (d) above, Customer agrees to pay Contractor for the sample collection and transportation, portal to portal, at a rate of \$35.00 per hour, plus the associated fees for laboratory testing.

g. Prevent the backwash or flushing of water treatment or conditioning equipment from entering the OSSF.

h. Prevent the condensation from air conditioning or refrigeration units, or the drains of icemakers, from hydraulically overloading the aerobic treatment units. Drain lines may discharge into the surface application pump tank if approved by system designer.

i. Provide for pumping and cleaning of tanks and treatment units, when and as recommended by Contactor, at Customer's expense.

j. Maintain site drainage to prevent adverse effects on the OSSF.

k. Pay promptly and fully, all Contractor's fees, bills, or invoices as described herein.

**IX. Access by Contractor:**

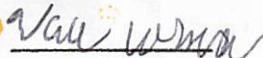
Contractor is hereby granted an easement to the OSSF for the purpose of performing services described herein. Contractor may enter the property during Contractor's normal business hours and/or other reasonable hours without prior notice to Customer to perform the Services and/or repairs described herein. Contractor shall have access to the OSSF electrical and physical components. Tanks and treatment units shall be accessible by means of man ways, or risers and removable covers, for the purpose of evaluation as required by State and/or local rules and the proprietary system manufacturer. It is Customers responsibility to keep lids exposed and accessible at all times.

**X. Limit of Liability:**

Contractor shall not be held liable for any incidental, consequential, or special damages, or for economic loss due to expense, or for loss of profits or income, or loss of use to Customer, whether in contract tort or any other theory. In no event shall Contractor be liable in an amount exceeding the total Fee for Services amount paid by Customer under this Agreement.

**XI. Indemnification:**

Customer (whether one or more) shall and does hereby agree to indemnify, hold harmless and defend Contractor and each of its successors, assigns, heirs, legal representatives, devisees, employees, agents and/or counsel (collectively "Indemnites") from and against any and all liabilities, claims, damages, losses, liens, causes of action, suits, fines, judgments and other expenses (including, but not limited to, attorneys' fees and expenses and costs of investigation), of any kind, nature or description, (hereinafter collectively referred to as "Liabilities") arising out of, caused by, or resulting, in whole or in part, from this Agreement.



Customer's Initials



RC

Contractor's Initials



**THIS INDEMNIFICATION APPLIES EVEN IF SUCH LIABILITIES ARE CAUSED BY THE CONCURRENT OR CONTRIBUTORY NEGLIGENCE OR BY THE STRICT LIABILITY OF ANY INDEMNITEE.**

Customer hereby waives its right of recourse as to any Indemnitee when Indemnification applies, and Customer shall require its insurer(s) to waive its/their right of subrogation to the extent such action is required to render such waiver of subrogation effective. Customer shall be subrogated to Indemnitees with respect to all rights Indemnitees may have against third parties with respect to matters as to which Customer provides indemnity and/or defense to Indemnitees. No Indemnification is provided to Indemnitees when the liability or loss results from (1) the sole responsibility of such Indemnitee; or, (2) the willful misconduct of such Indemnitee. Upon irrevocable acceptance of this Indemnification obligation, Customer, in its sole discretion, shall select and pay counsel to defend Indemnitees of and from any action that is subject to this Indemnification provision. Indemnitees hereby covenant not to compromise or settle any claim or cause of action for which Customer has provided Indemnification without the consent of Customer.

**XII. Severability:**

If any provision of the "Proposal and Contract" shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of the "Agreement" is invalid or unenforceable, but that 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.

**XIII. Fee for Services:**

The Fee for Services does not include any fees for equipment, material, labor necessary for non-warranty repairs, unscheduled inspections, or Customer requested visits to the site.

**XIV. Payment:**

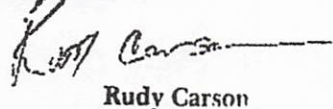
Full payment is due upon execution of this Agreement (Required of new Customer). For any other service(s) or repair(s) provided by Contractor the Customer shall pay the invoice(s) for said service(s) or repair(s) within thirty (30) days of the invoice date. The Contractor shall mail all invoices on the date of invoice. All payments not received within thirty (30) days from the invoice date will be subject to a \$29.00 late penalty and a 1.5% per month carrying charge, as well as any reasonable attorney's fees, and all collection and court costs incurred by Contractor in collection of unpaid debt(s). Contractor may terminate contract at any time for nonpayment for services. Any check returned to Contractor for any reason will be assessed a \$30.00 return check fee.

**XV. Application or Transfer of payment:**

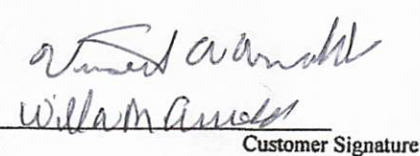
The fees paid for this agreement may be transferred to subsequent property owner(s); however, this Agreement is not transferable. Customer shall advise the subsequent property owner(s) of the State requirement that they sign a replacement agreement authorizing Contractor to perform the herein described Services, and accepting Customer's Responsibilities. This replacement Agreement must be signed and received in Contractor's offices within ten (10) business days of date of transfer of property ownership. Contractor will apply all funds received from Customer first to any past due obligation arising from this Agreement including late fees or penalties, return check fees, and/or charges for services or repairs not paid within thirty (30) days of invoice date. Any remaining monies shall be applied to the funding of the replacement Agreement. The consumption of funds in this manner may cause a reduction in the termination date of effective coverage per this Agreement. See Section IV.

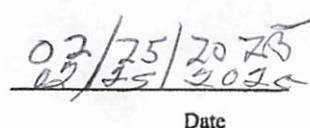
**XVI. Entire Agreement:**

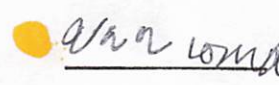
This agreement contains the entire Agreement of the parties, and there are no other conditions in any other agreement, oral or written.

  
Rudy Carson

Block Creek Aerobic Services, LLC,  
Contractor  
MP# 0002036

  
William Arnold  
Customer Signature

  
Date



Customer's Initials



RC

Contractor's Initials

**ON-SITE SEWERAGE FACILITY  
SOIL EVALUATION REPORT INFORMATION**

Date Soil Survey Performed: February 21, 2025

Site Location: CANYON LAKE HILLS, UNIT 6, LOT 2347R

Proposed Excavation Depth: N/A

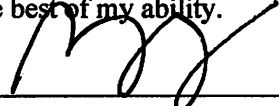
**Requirements:**

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 <u>        </u> |               |              |                 |                                |                     |              |
|---|---------------|--------------|-----------------|--------------------------------|---------------------|--------------|
| Depth (Feet)  | Texture Class | Soil Texture | Gravel Analysis | Drainage (Mottles/Water Table) | Restrictive Horizon | Observations |
| 0   | III           | CLAY LOAM    | N/A             | NONE OBSERVED                  | LIMESTONE @ 8"      | BROWN        |
| 1   |               |              |                 |                                |                     |              |
| 2   |               |              |                 |                                |                     |              |
| 3   |               |              |                 |                                |                     |              |
| 4   |               |              |                 |                                |                     |              |
| 5   |               |              |                 |                                |                     |              |

| SOIL BORING NUMBER <u>        </u> SURFACE EVALUATION <u>        </u> |               |              |                 |                                |                     |              |
|---|---------------|--------------|-----------------|--------------------------------|---------------------|--------------|
| Depth (Feet)  | Texture Class | Soil Texture | Gravel Analysis | Drainage (Mottles/Water Table) | Restrictive Horizon | Observations |
| 0   | SAME          |              | AS              |                                | ABOVE               |              |
| 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

02/21/25  
 \_\_\_\_\_  
 Date

**OSSF SOIL EVALUATION REPORT INFORMATION**

Date: February 24, 2025

**Applicant Information:**

Name: VINCENT A. & WILLA M. ARNOLD  
 Address: 20450 HUEBNER ROAD APT. : //310  
 City: SAN ANTONIO State: TEXAS  
 Zip Code: 78258 Phone: (830) 832-1683

**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:**

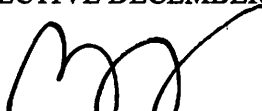
Lot 2347R Unit 6 Blk      Subd. CANYON LAKE HILLS  
 Street Address: 642 LAKEBREEZE DRIVE  
 City: CANYON LAKE Zip Code: 78133  
 Additional Info.: \_\_\_\_\_

**Installer Information:**

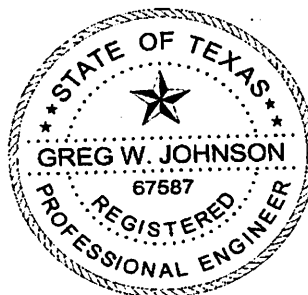
Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_  
 Zip Code: \_\_\_\_\_ Phone \_\_\_\_\_

**Topography:** Slope within proposed disposal area: 10 %  
 Presence of 100 yr. Flood Zone: YES  NO   
 Existing or proposed water well in nearby area: YES  NO  >50' (PRESSURE CEMENTED WELL)  
 Presence of adjacent ponds, streams, water impoundments: YES  NO  >75' to LAKE  
 Presence of upper water shed: YES  NO   
 Organized sewage service available to lot: YES  NO

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

02/24/25  
 \_\_\_\_\_  
 DATE



**FIRM #2585**

**DRIP TUBING SYSTEM**  
DESIGNED FOR:  
VINCENT A. & WILLA M. ARNOLD  
20450 HUEBNER ROAD, APT 11316  
SAN ANTONIO, TX 78258

**SITE DESCRIPTION:**

Located in Canyon Lake Hills, Unit 6, Lot 2347R, at 642 Lakebreeze Drive, this septic will serve an existing four bedroom residence (1643 sf) and intermittent use RV in an area with shallow Type-III soil as described in the Soil 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 inch SCH-40 pipe discharges from the residence and RV to a new Nu Water B550-400PT, 600 gpd aerobic treatment plant containing a 353 gal. pretreatment chamber and a 768 gal. pump chamber. The effluent after processing gravity feeds into the pump chamber. The pump chamber contains a 0.5 HP FPS E-Series-20FE05P4-2W115 . The well pump is activated by mercury floats and a timer set to cycle eight times per day with a ten minute run time with a tank operating level from 50-70 gallons. A high level audible and visual alarm will activate should the pump fail. Distribution is through a self flushing 100 micron Arkal Disc filter then through a 1" SCH-40 manifold to a 2400 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 PMR40MF installed in the pump tank on the manifold to the field will maintain pressure at 40 psi. A 1" SCH-40 return line is installed to continuously flush the system to the pump tank by throttling a 1" ball valve. Solids caught in the Arkal disc filter are flushed each cycle back to the trash tank. Agricultural Products, Inc. (Model #VBK-1) 1" PVC 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 site must be scarified and built up with 4" of Type II or III soil. **(A minimum of 12" of soil is required between rock/tank and drip tubing.)** Drip tubing will be laid and the entire field area will be capped with 6" of loamy soil (Type 2 or 3- **NOT SAND**). The field area will be sodded with a hearty grass such as Bermuda, St. Augustine, etc. prior to system startup. **Risers are required on tank inspection ports as per 30 TAC 285.38 (9/1/2023). This includes access limitation (<65lbs lid or hardware secured lid), inspection and cleanout ports shall have risers over the port openings which extend to a minimum of two inches above grade. A secondary plug, cap, or other suitable restraint system shall be provided below the riser cap to prevent tank entry if the cap is unknowingly damaged or removed.**

**DESIGN SPECIFICATIONS:**

Q = 340 gpd Design Rate - 4 bedroom (3100 sf) & RV (Intermittent use) (Table III)  
Pretreatment tank size: 353 Gal  
Plant Size: Nu Water B550-400PT, 600 gpd (TCEQ Approved)  
Pump tank size: 768 Gal  
Reserve capacity after High Level: 120 gal. (>1/3 day usage)

Application Rate:  $R_a = 0.2 \text{ gal/sf}$   
Total absorption area:  $Q/R_a = 340 \text{ GPD}/0.2 = 1700 \text{ sf}$  (Actual 2400 sf)  
Total linear feet drip tubing: 1200' *Netifim Bioline* drip tubing .61 GPH  
Pump requirement: 600emitters @ 0.61 gph @ 30 psi = 6.1 gpm  
Pump: 0.5 HP FPS E-Series-20FE05P4-2W115 or equivalent.  
Dosing volume: 50-70 gal.  
Pump Tank Calculations: 768 Gal (14.5 gal/in.)  
Volume below working level = 11" = 160 gal  
Working level = 360 gal = 25"  
Reserve Requirement = 1/3 day = 120 gal. = 8.5"

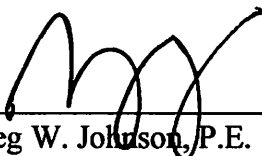
MINIMUM SCOUR VELOCITY (MSV) > 2 FPS  
IN DRIP TUBING W/ NOM. DIA. 0.55" ID  
 $MSV = 2 \text{ FPS} (\pi d^2)/4 * 7.48 \text{ gal/cf} * 60 \text{ sec/min}$   
 $MSV = 2(3.14159((.55/12)^2)/4) * 7.48 * 60$   
 $MSV = 1.5 \text{ gpm} \times 4 = 6 \text{ gpm MIN FLOW RATE}$

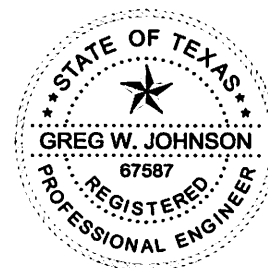
IN RETURN MANIFOLD W/ NOM. DIA 1.049" ID  
 $MSV = 2 \text{ FPS} (\pi d^2)/4 * 7.48 \text{ gal/cf} * 60 \text{ sec/min}$   
 $MSV = 2(3.14159((1.049/12)^2)/4) * 7.48 * 60$   
 $MSV = 5.4 \text{ GPM}$

**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. Drip tubing 0.61 gph drip tubing to be used in field. The manifold trench should be kept shallow to prevent interconnection of the trenches.

Designed in accordance with Chapter 285, Subchapter D, §285.30 and §285.40 Texas Commission on Environmental Quality (Effective December 29, 2016)

 02/24/25  
\_\_\_\_\_  
Greg W. Johnson, P.E. No. 67587, F#2585  
170 Hollow Oak  
New Braunfels, Texas 78132 - 830/905-2778



INSTALL 2400sf OF FIELD USING 1200' 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

NUWATER  
 B 550 PC  
 AEROBIC  
 TREATMENT  
 PLANT

LAKEBREEZE DRIVE

PRESSURE  
 CEMENTED  
 WELL

SLEEVE SEPTIC LINE WITH  
 SCH-40 WITHIN 5' AND UNDER  
 DRIVEWAY.

SLEEVE WATER LINE WITH 2"-SCH-40  
 PVC PIPE WHEN ENTERING CLOSER  
 THAN 10' FROM SEPTIC SYSTEM OR  
 SEPTIC FIELD WHICH EXCEEDS  
 TAC 30 CHAPTER 290.44(e)(B)(i).

RV BARN with  
 INTERMITTENT  
 USE  
 (40 GPD)

27.50'

48.94'

R50'

9.40'

734.63'

DRIVEWAY

CARPORT

100'

98'

96'

94'

92'

90'

153.80'

6'

6'

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6'

EXISTING  
 4 BDRM RES.  
 3100sf

RV DROP

CORP 948 LINE

FLOOD ZONE "A"

FLOOD ZONE "A"

LOT 2347R

NOTE:  
 A = VACUUM BREAKERS

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



|   |                       |                   |            |
|---|-----------------------|-------------------|------------|
| OWNER: VINCENT A. & WILLA M. ARNOLD         |                       | DRAWN BY: EJS III |            |
| STREET ADDRESS: 642 LAKEBREEZE DRIVE        |                       |                   |            |
| LEGAL DESC: CANYON LAKE HILLS               | UNIT/SECTION/PHASE: 6 | BLOCK:            | LOT: 2347R |
| PREPARED BY: GREG W. JOHNSON, P.E. F#002585 | SCALE: 1"=40'         | DATE: 2/24/2025   | REVISED:   |

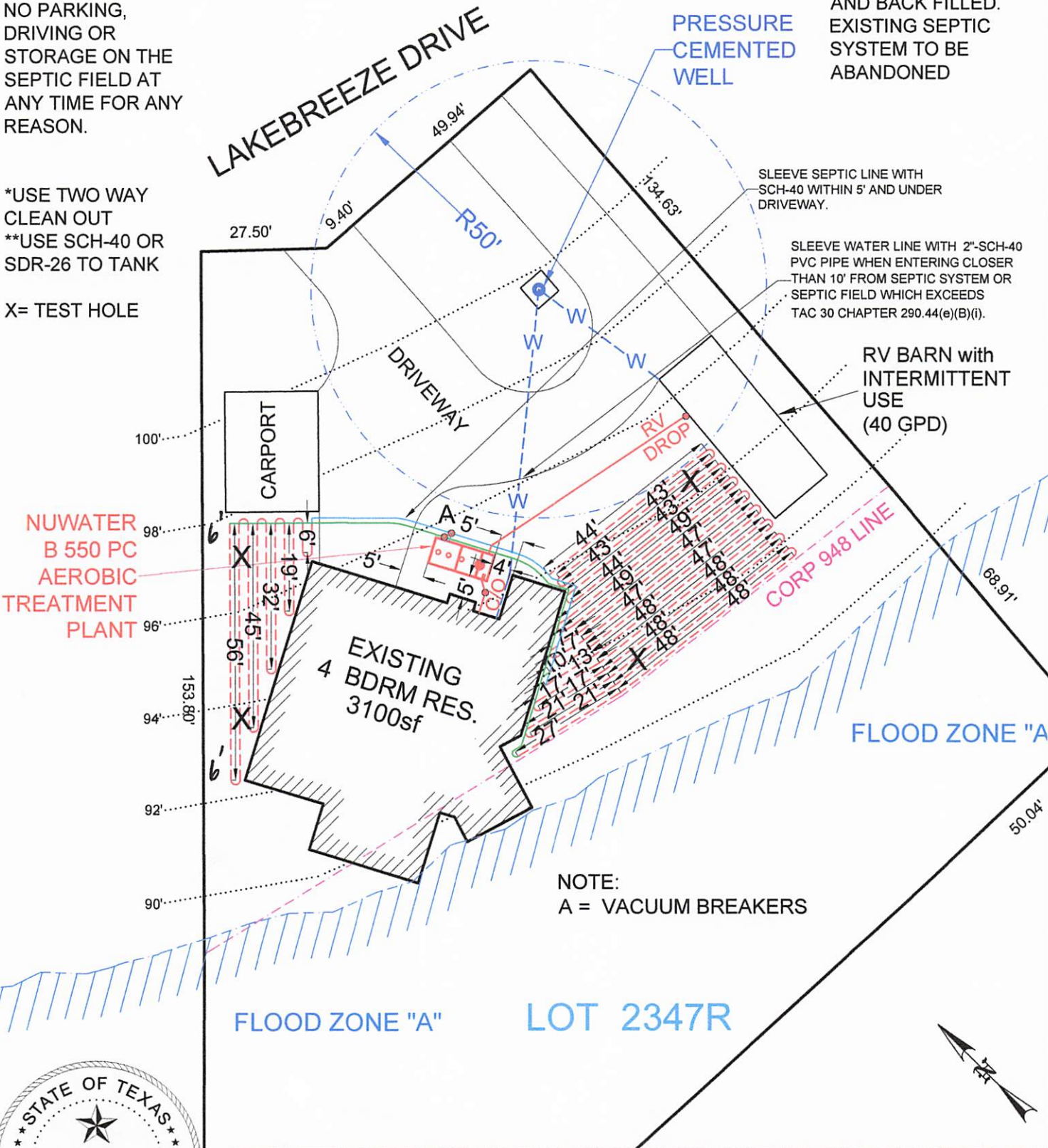


INSTALL 2400sf OF FIELD USING 1200' OF DRIP TUBING. THERE SHALL BE NO PARKING, DRIVING OR STORAGE ON THE SEPTIC FIELD AT ANY TIME FOR ANY REASON.

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

X= TEST HOLE

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



|   |                       |                   |            |
|---|-----------------------|-------------------|------------|
| OWNER: VINCENT A. & WILLA M. ARNOLD         |                       | DRAWN BY: EJS III |            |
| STREET ADDRESS: 642 LAKEBREEZE DRIVE        |                       |                   |            |
| LEGAL DESC: CANYON LAKE HILLS               | UNIT/SECTION/PHASE: 6 | BLOCK:            | LOT: 2347R |
| PREPARED BY: GREG W. JOHNSON, P.E. F#002585 | SCALE: 1"=30'         | DATE: 2/24/2025   | REVISED:   |

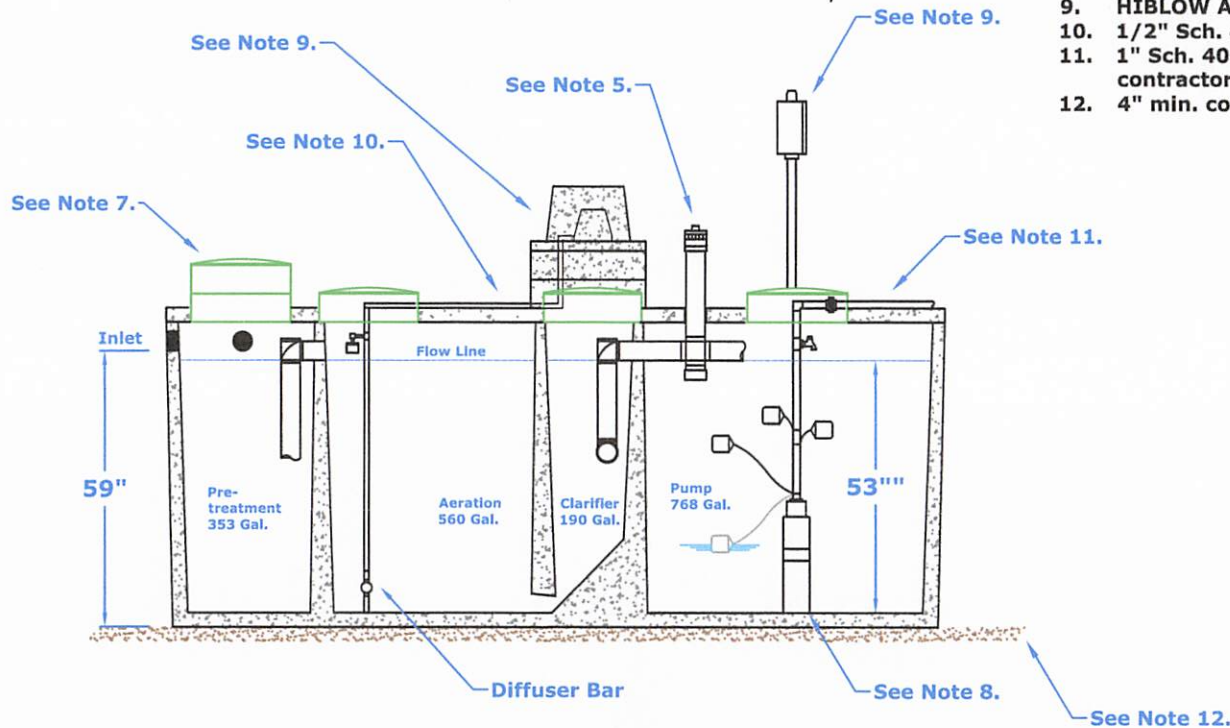
# Assembly Details

OSSF



## GENERAL NOTES:

1. Plant structure material to be precast concrete and steel.
2. Maximum burial depth is 30" from slab top to grade.
3. Weight = 14,900 lbs.
4. Treatment capacity is 600 GPD. Pump compartment set-up for a 360 GPD Flow Rate (4 bedroom, < 4,000 sq/ft living area). Please specify for additional set-up requirements. BOD Loading = 1.62 lbs. per day.
5. Standard tablet chlorinator or Optional Liquid chlorinator. NSF approved chlorinators (tablet & liquid) available.
6. Bio-Robix B-550 Control Center w/ Timer for night spray application. Optional Micro Dose (min/sec) timer available for drip applications. Electrical Requirement to be 115 Volts, 60 Hz, Single Phase, 30 AMP, Grounded Receptacle.
7. 20" Ø access riser w/ lid (Typical 4). Optional extension risers available.
8. 20 GPM 1/2 HP, high head effluent pump.
9. HIBLOW Air Compressor w/ concrete housing.
10. 1/2" Sch. 40 PVC Air Line (Max. 50 Lft from Plant).
11. 1" Sch. 40 PVC pipe to distribution system provided by contractor.
12. 4" min. compacted sand or gravel pad by Contractor



### DIMENSIONS:

Outside Height: 67"  
 Outside Width: 63"  
 Outside Length: 164"

### MINIMUM EXCAVATION DIMENSIONS:

Width: 76"  
 Length: 176"

**NuWater B-550 (600 GPD)  
 Aerobic Treatment Plant (Assembled)**

**Model: B-550-PC-400PT**

March, 2012 - Rev 1  
 By: A.S.

**Scale:**  
 \* All Dimensions subject to allowable specification tolerances.

Dwg. #: ADV-B550-3



Advantage Wastewater Solutions LLC  
 444 A Old Hwy No 9  
 Comfort, TX 78013  
 830-995-3189  
 fax 830-995-4051



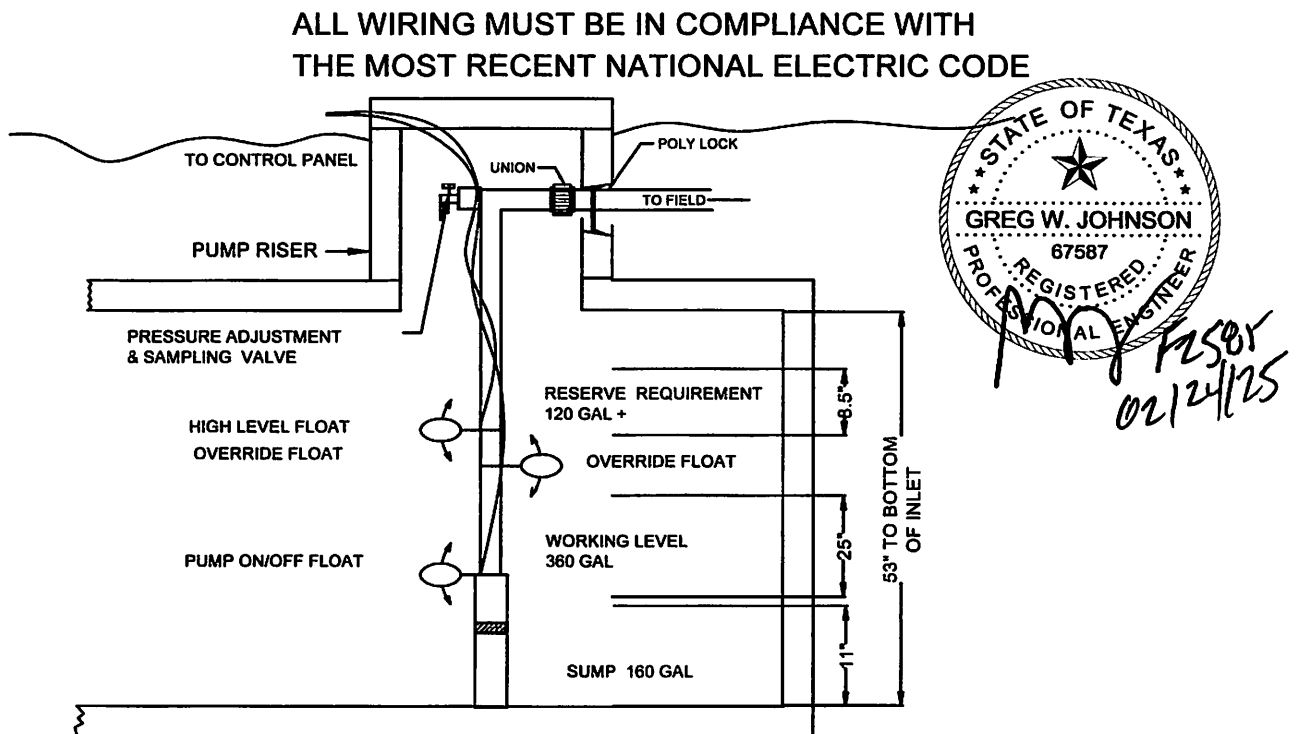
## TANK NOTES:

Tanks must be set to allow a minimum of 1/8" per foot fall from the residence.

Tightlines to the tank shall be SCH-40 PVC.

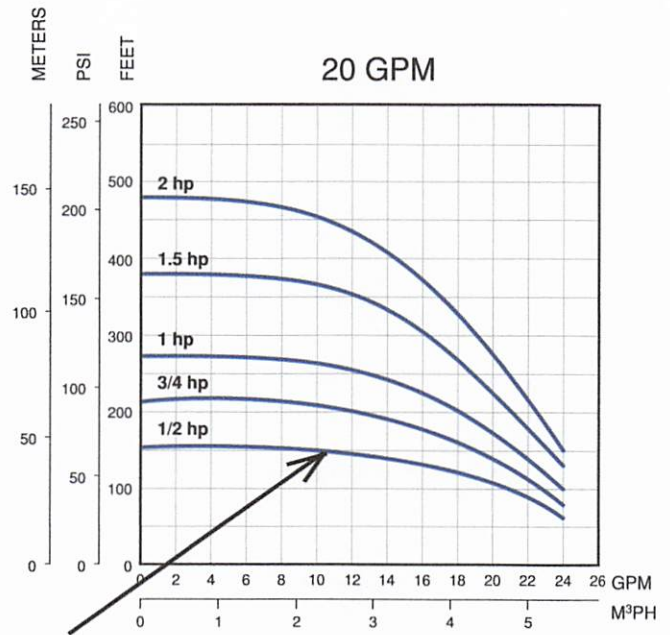
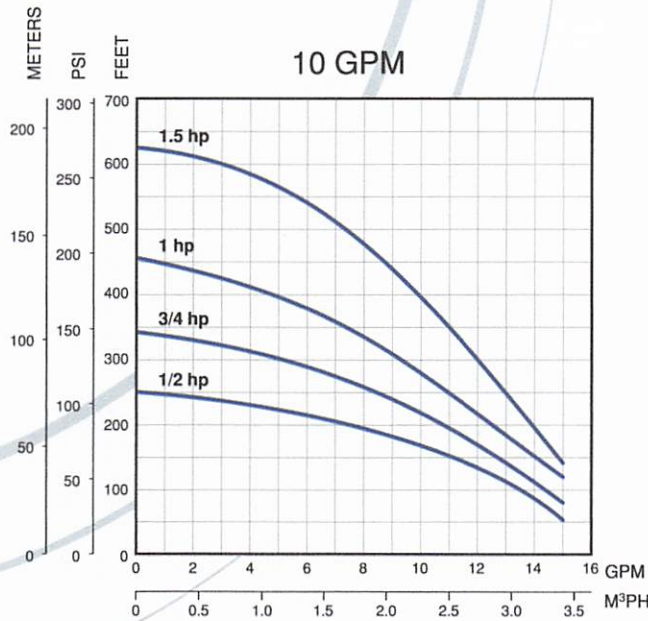
A two way sanitary tee is required between residence and tank.

A minimum of 4" of sand, sandy loam, clay loam free of rock shall be placed under and around tanks



**TYPICAL PUMP TANK CONFIGURATION  
NU-WATER 550PC -400PT 768 GAL PUMP TANK**

## Thermoplastic Performance



## Thermoplastic Units Ordering Information

### 1/2 - 1.5 HP Single-Phase Units

| Order No. | Model          | GPM | HP  | Volt | Wire | Wt. |
|-----------|----------------|-----|-----|------|------|-----|
| 94741005  | 10FE05P4-2W115 | 10  | 1/2 | 115  | 2    | 24  |
| 94741010  | 10FE05P4-2W230 | 10  | 1/2 | 230  | 2    | 24  |
| 94741015  | 10FE07P4-2W230 | 10  | 3/4 | 230  | 2    | 28  |
| 94741020  | 10FE1P4-2W230  | 10  | 1   | 230  | 2    | 31  |
| 94741025  | 10FE15P4-2W230 | 10  | 1.5 | 230  | 2    | 46  |
| 94742005  | 20FE05P4-2W115 | 20  | 1/2 | 115  | 2    | 25  |
| 94742010  | 20FE05P4-2W230 | 20  | 1/2 | 230  | 2    | 25  |
| 94742015  | 20FE07P4-2W230 | 20  | 3/4 | 230  | 2    | 28  |
| 94742020  | 20FE1P4-2W230  | 20  | 1   | 230  | 2    | 31  |
| 94742025  | 20FE15P4-2W230 | 20  | 1.5 | 230  | 2    | 40  |

### Thermoplastic 1/2 - 2 HP Pump Ends

| Order No. | Model       | GPM | HP  | Volt | Wire | Wt. |
|-----------|-------------|-----|-----|------|------|-----|
| 94751005  | 10FE05P4-PE | 10  | 1/2 | N/A  | N/A  | 6   |
| 94751010  | 10FE07P4-PE | 10  | 3/4 | N/A  | N/A  | 7   |
| 94751015  | 10FE1P4-PE  | 10  | 1   | N/A  | N/A  | 8   |
| 94751020  | 10FE15P4-PE | 10  | 1.5 | N/A  | N/A  | 12  |
| 94752005  | 20FE05P4-PE | 20  | 1/2 | N/A  | N/A  | 6   |
| 94752010  | 20FE07P4-PE | 20  | 3/4 | N/A  | N/A  | 7   |
| 94752015  | 20FE1P4-PE  | 20  | 1   | N/A  | N/A  | 8   |
| 94752020  | 20FE15P4-PE | 20  | 1.5 | N/A  | N/A  | 10  |
| 94752025  | 20FE2P4-PE  | 20  | 2   | N/A  | N/A  | 11  |

# Arkal 1" Super Filter

Catalog No. 1102 0 \_ \_ \_

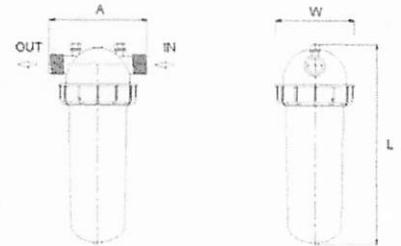
## Features

- ◆ 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

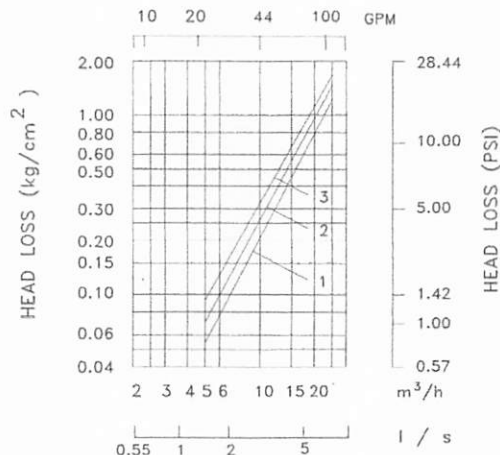
| Inlet/outlet diameter              | 1" BSPT (male)                  | 1" NPT (male)        |
|------------------------------------|---------------------------------|----------------------|
|                                    | 25.0 mm – nominal diameter      |                      |
|                                    | 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:

| <b>Inlet</b>                                       | <b>Outlet</b>                                      |
|--|--|
| 3/4-inch Female National Pipe Thread (FNPT)        | 3/4-inch Female National Pipe Thread (FNPT)        |
| 1-inch Female National Pipe Thread (FNPT)          | 1-inch Female National Pipe Thread (FNPT)          |
| 1-inch Female British Standard Pipe Thread (FBSPT) | 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

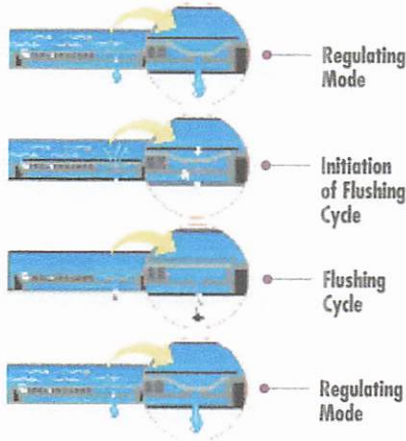
### Model Numbers

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

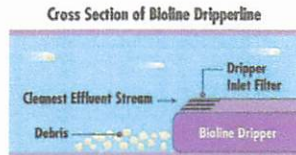
- Tens of millions of feet used in wastewater today.
- Bioline is permitted in every state allowing drip disposal.
- Backed by the largest, most quality-driven manufacturer of drip products in the U.S.
- Preferred choice of major wastewater designers and regulators.
- Proven track record of success for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

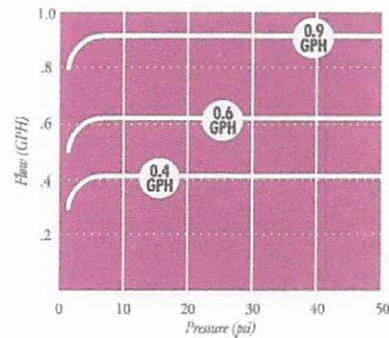
Recommended filtration: 120 mesh

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)

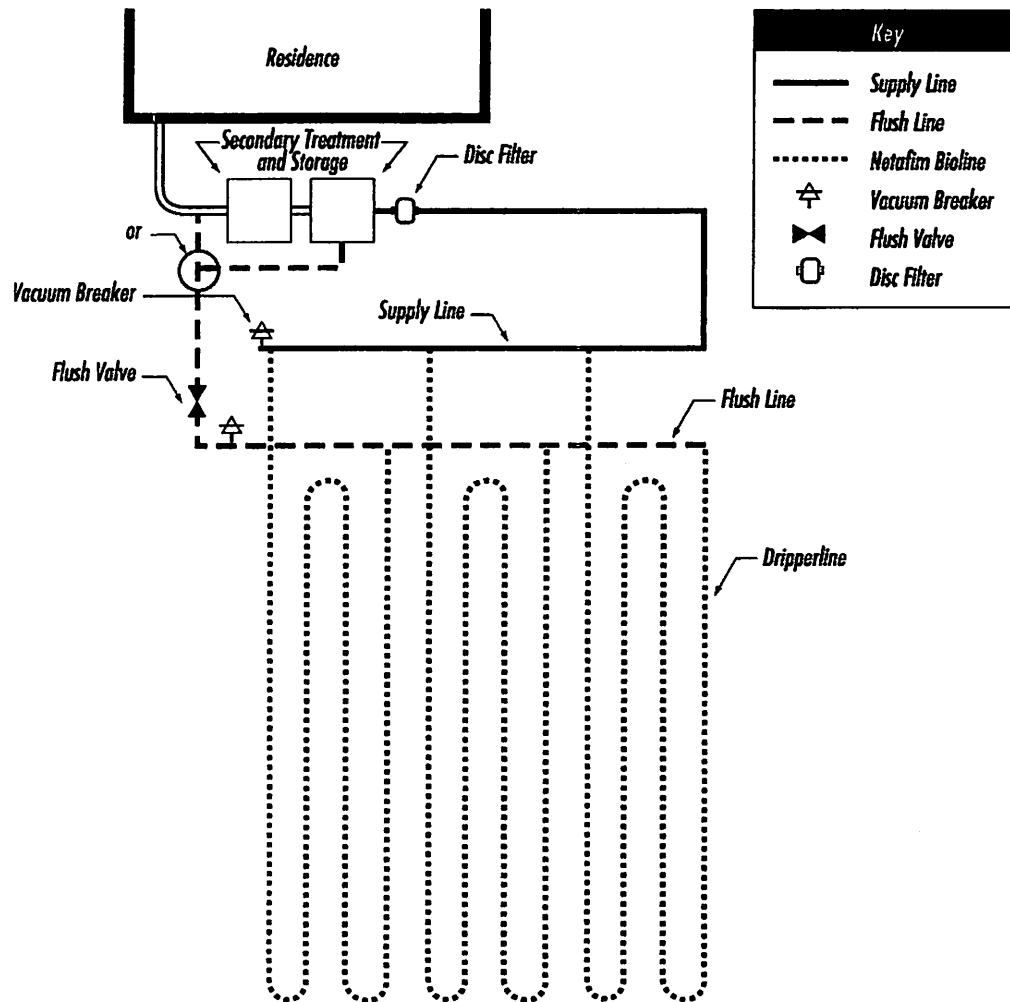
# NETAFIM WASTEWATER DISPERSAL SYSTEM DESIGN GUIDE

## 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



### STATE OF TEXAS WELL REPORT for Tracking #46860

|                        |   |                        |                |
|------------------------|---|------------------------|----------------|
| Owner:                 | Vincent A Arnold                              | Owner Well #:          | No Data        |
| Address:               | 642 Lake Breeze Dr.<br>Canyon Lake , TX 78133 | Grid #:                | 68-14-3        |
| Well Location:         | 642 Lake Breeze Dr.<br>same , TX 78133        | Latitude:              | 29° 51' 08" N  |
| Well County:           | Comal   | Longitude:             | 098° 15' 36" W |
| Elevation:             | No Data                                       | GPS Brand Used:        | Eagle Explorer |
| Type of Work: New Well |   | Proposed Use: Domestic |                |

Drilling Date: Started: 9/22/2004  
Completed: 9/28/2004

Diameter of Hole: Diameter: 8 in From Surface To 247 ft

Drilling Method: Air Rotary

Borehole Completion: Other: (No Data)

Annular Seal Data: 1st Interval: From 0 ft to 180 ft with 20 (#sacks and material)  
2nd Interval: No Data  
3rd Interval: No Data  
Method Used: pressure cemented  
Cemented By: driller  
Distance to Septic Field or other Concentrated Contamination: 100 ft  
Distance to Property Line: 50 ft  
Method of Verification: visual  
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: 120 ft. below land surface on 9/28/2004  
Artesian flow: No Data

Packers: rubber 180

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: Submersible  
Depth to pump bowl: 200 ft

Well Tests: Jetted  
Yield: 50 GPM with (No Data) ft drawdown after 1 hour

Water Quality: Type of Water: lower Glenrose  
Depth of Strata: 200-220 ft.  
Chemical Analysis Made: No  
Did the driller knowingly penetrate any strata which contained undesirable constituents: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.



Company Information: **Martinez Water Well  
1146 Crown Dr.  
Bulverde , TX 78163**

Driller License Number: **2872**

Licensed Well Driller Signature: **Jose V Martinez**

Registered Driller Apprentice Signature: **No Data**

Apprentice Registration Number: **No Data**

Comments: **No Data**

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**IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY**

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner of the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking #46860) on your written request.

**Texas Department of Licensing & Regulation  
P.O. Box 12157  
Austin, TX 78711  
(512) 463-7880**

**DESC. & COLOR OF FORMATION MATERIAL**

From (ft) To (ft) Description  
**0-20 tan lime 20-140 Lt.gray lime few shale st.140-180  
 tan lime 180-200 lt.gray lime 200-220 Lt.gray lime few  
 intermitten frac. 220- 247 lt.gray lime**

**CASING, BLANK PIPE & WELL SCREEN DATA**

Dia. New/Used Type Setting From/To  
**4 1/2 new plastic 0-200 blank  
 200-247 screen**

Doc# 9906029020

OWNER: Vincent A. Arnold and wife Willa M. Arnold  
OWNER'S ADDRESS (including County): 642 Lake Breeze Canyon Lake TX 78133-4019  
Comal County

LEGAL DESCRIPTION OF PROPERTY:

RECEIVED

OCT 18 1999

4  
C

NAME OF RECORDED SUBDIVISION PLAT AND UNIT NUMBER, if any:

COUNTY ENGINEER

Canyon Lake Hills, Unit 6  
COMAL COUNTY MAP AND PLAT RECORDS VOLUME 2, PAGE 39  
LOTS OR TRACTS TO BE COMBINED: 2347 and 2348  
RESULTING LOT NUMBER: 2347 R

The signatures affixed below will certify that the owner of the described property does hereby amend the plat of the property so as to combine the referenced lots or tracts into a single lot or tract. The property owner acknowledges that this Amendment to Plat will not dissolve or alter any existing easements or other property interests that may exist within the boundaries of this property and that obtaining releases or permission from any owner or beneficiary of easements or other property interests affected by this process shall be the responsibility of the property owner. The owner also certifies that any and all lienholders have acknowledged this Amendment to Plat as per the attached Lienholder's Acknowledgment(s), if applicable.

*Vincent A. Arnold*  
(OWNER'S SIGNATURE)

*Willa M. Arnold*  
(OWNER'S SIGNATURE)

VINCENT A. ARNOLD  
(NAME PRINTED)

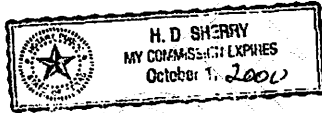
Willa M. Arnold  
(NAME PRINTED)

STATE OF TEXAS §  
COUNTY OF Comal §

SWORN TO AND SUBSCRIBED before me by VINCENT A ARNOLD & WILLA M.

Arnold on the 16 day of Oct, 1999

(SEAL)



*H. D. Sherry*  
NOTARY PUBLIC

APPROVED BY COMMISSIONERS' COURT ON  
THE 28 DAY OF October, 1999.

*Danny Schul*  
COUNTY JUDGE

ATTEST:

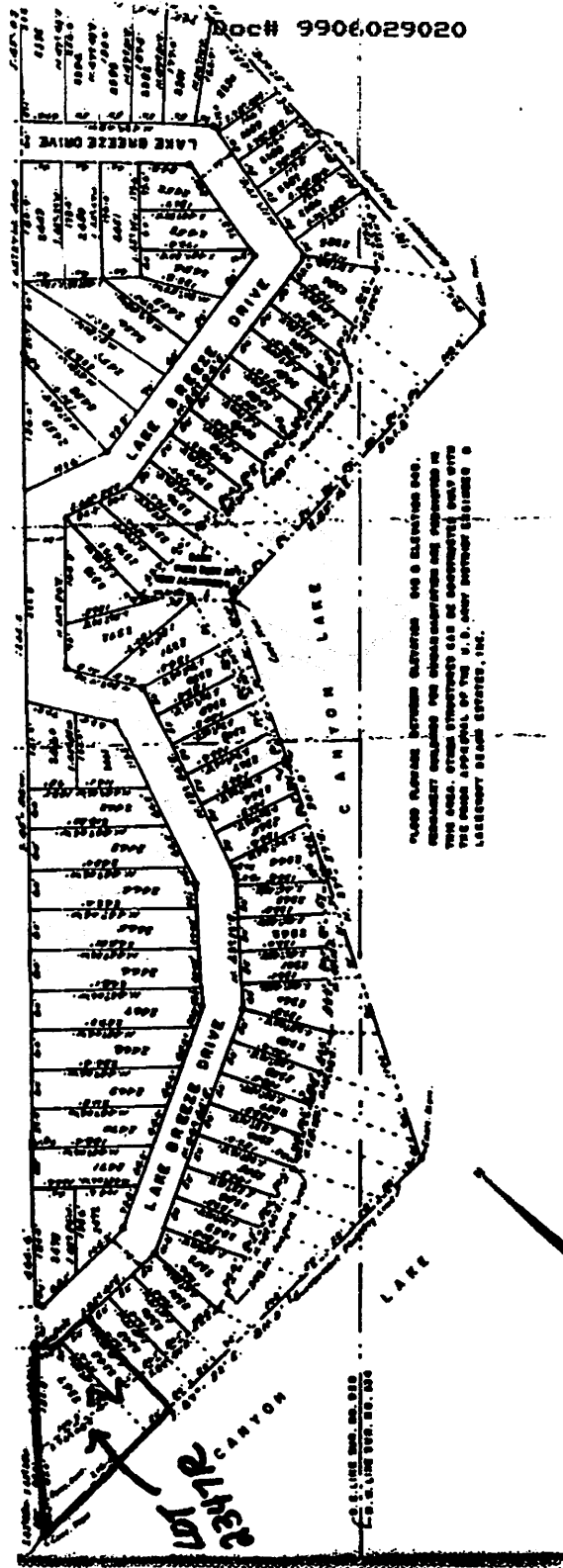
*Joy Streater*  
COUNTY CLERK

FOR RECORDING PURPOSES ONLY

Doc# 9906029020  
# Pages 4  
10/28/99 12:17:14 PM  
Filed & Recorded in  
Official Records of  
COMAL COUNTY  
JOY STREATER  
COUNTY CLERK  
Fees \$50.00

**CANYON LAKE HILLS,  
 UNIT NO. 6,  
 COMBINING LOTS 2347 and 2348  
 INTO LOT 2347R**

**Vol. 2, Pg. 39**



Prepared by the State Bar of Texas for use by lawyers only. Reviewed  
1-1-76. Revised to include grantee's address (art. 6626, RCS) 1-1-82.

IRENE S. NUNN  
COUNTY CLERK COMAL COUNTY

215078

BY Charles Holtz

# 7.00 lbs.

**WARRANTY DEED WITH VENDOR'S LIEN**

THE STATE OF TEXAS  
COUNTY OF COMAL

} KNOW ALL MEN BY THESE PRESENTS:

That we, JAMES E. DAVIS and wife, LAVERNE DAVIS,

of the County of Bexar and State of Texas for and in  
consideration of the sum of TEN AND NO/100-----  
----- DOLLARS

and other valuable consideration to the undersigned paid by the grantee herein named, the receipt of which

is hereby acknowledged, and the further consideration of the execution and delivery by grantees  
of their one certain promissory note of even date herewith, in the principal  
sum of SEVENTEEN THOUSAND AND NO/100 Dollars (\$17,000), payable to the order  
of grantors in monthly installments and bearing interest as therein provided,  
containing the usual clauses providing for acceleration of maturity and for  
attorney's fees,

the payment of which note is secured by the vendor's lien herein retained, and is additionally secured by a deed  
of trust of even date herewith to C. N. CLAY TOWNSEND Trustee,  
have GRANTED, SOLD AND CONVEYED, and by these presents do GRANT, SELL AND CONVEY unto  
VINCENT A. ARNOLD and wife, WILLA M. ARNOLD,  
of the County of Bexar and State of Texas, all of the following described real  
property in Comal County, Texas, to-wit:

At 2:33 PM 1982

Lot Number Two Thousand Three Hundred Forty-Seven (2347), CANYON LAKE HILLS, UNIT NO. 6, in Comal County, Texas, according to plat thereof recorded in Volume 2, page 39, Map and Plat Records of Comal County, Texas.

This conveyance is made and accepted subject to any and all conditions and restrictions, if any, relating to the hereinabove described property, to the extent, and only to the extent, that the same may still be in force and effect, shown of record in the office of the County Clerk of Comal County, Texas.

TO HAVE AND TO HOLD the above described premises, together with all and singular the rights and appurtenances thereto in anywise belonging unto the said grantees . their heirs and assigns forever; and we do hereby bind ourselves, our heirs, executors and administrators to WARRANT AND FOREVER DEFEND all and singular the said premises unto the said grantees . their heirs and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

But it is expressly agreed that the VENDOR'S LIEN, as well as the Superior Title in and to the above described premises, is retained against the above described property, premises and improvements until the above described note and all interest thereon are fully paid according to the face, tenor, effect and reading thereof, when this Deed shall become absolute.

EXECUTED this 20th day of August, A. D. 1982.

*James E. Davis*  
JAMES E. DAVIS

*Laverne Davis*  
LAVERNE DAVIS

Mailing address of each grantee:

Name: VINCENT A. ARNOLD  
Address: 8418 Crooked Sky  
San Antonio, Texas 78250

Name: WILLA M. ARNOLD  
Address: 8418 Crooked Sky  
San Antonio, Texas 78250

(Acknowledgment)

STATE OF TEXAS }  
COUNTY OF

This instrument was acknowledged before me on the 22<sup>ND</sup> day of August, 19 82.  
by JAMES E. DAVIS and wife, LAVERNE DAVIS.

My commission expires: 4/12/86

*Normie Dawson*  
Notary Public, State of Texas  
Notary's printed name:

(Acknowledgment)

STATE OF TEXAS }  
COUNTY OF

This instrument was acknowledged before me on the \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_  
by \_\_\_\_\_

My commission expires: \_\_\_\_\_

Notary Public, State of Texas  
Notary's printed name:

(Acknowledgment)

STATE OF TEXAS }  
COUNTY OF

This instrument was acknowledged before me on the \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_  
by \_\_\_\_\_

My commission expires: \_\_\_\_\_

Notary Public, State of Texas  
Notary's printed name:

(Corporate Acknowledgment)

STATE OF TEXAS }  
COUNTY OF

This instrument was acknowledged before me on the \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_  
by \_\_\_\_\_  
of \_\_\_\_\_  
a \_\_\_\_\_ corporation, on behalf of said corporation.

My commission expires: \_\_\_\_\_

Notary Public, State of Texas  
Notary's printed name:

AFTER RECORDING RETURN TO:

USLIFE Title Company of Comal County  
217 E. Mill Street  
New Braunfels, Texas 78130  
#7.00 #2407

0928 0575

427467

RELEASE OF LIEN

FILED FOR RECORD

93 DEC -8 PM 12: 39

JUDY S. TATE  
COUNTY CLERK, COMAL COUNTY

THE STATE OF TEXAS )  
COUNTY OF COMAL )

KNOW ALL MEN BY THESE PRESENTS:

BY: *[Signature]*  
11/29/93

THAT the undersigned of the County of Bexar, State of Texas, the legal and equitable owner and holder of one certain promissory note in the original principal sum of TWENTY SIX THOUSAND AND NO/100 DOLLARS (\$26,000.00), more fully described in a Deed of Trust recorded in Volume 653, Pages 625-256, of the Official Public Records in Comal County, Texas; said note being secured by said Deed of Trust and a Vendor's Lien retained in a Deed dated October 21, 1988 from the undersigned to VINCENT A. ARNOLD and wife, WILLA M. ARNOLD, 642 Lake Breeze, Canyon Lake, Comal County, Texas against the following described real property in Comal County, Texas to-wit:

LOT TWO THOUSAND THREE HUNDRED FORTY EIGHT (2348), CANYON LAKE HILLS, UNIT NO. 6, Comal County, Texas, according to plat recorded in Volume 2, Page 39, Map and Plat Records of Comal County, Texas.

for and in consideration of the full and final payment of all indebtedness secured by the aforesaid lien, the receipt of which is hereby acknowledged, has RELEASED AND DISCHARGED, and by these presents hereby RELEASES AND DISCHARGES the above described property from all liens held by the undersigned securing said indebtedness.

EXECUTED this 29th day of November, 1993.

COMINA, INC.

BY: *[Signature]*  
G. L. Shaw, Vice President

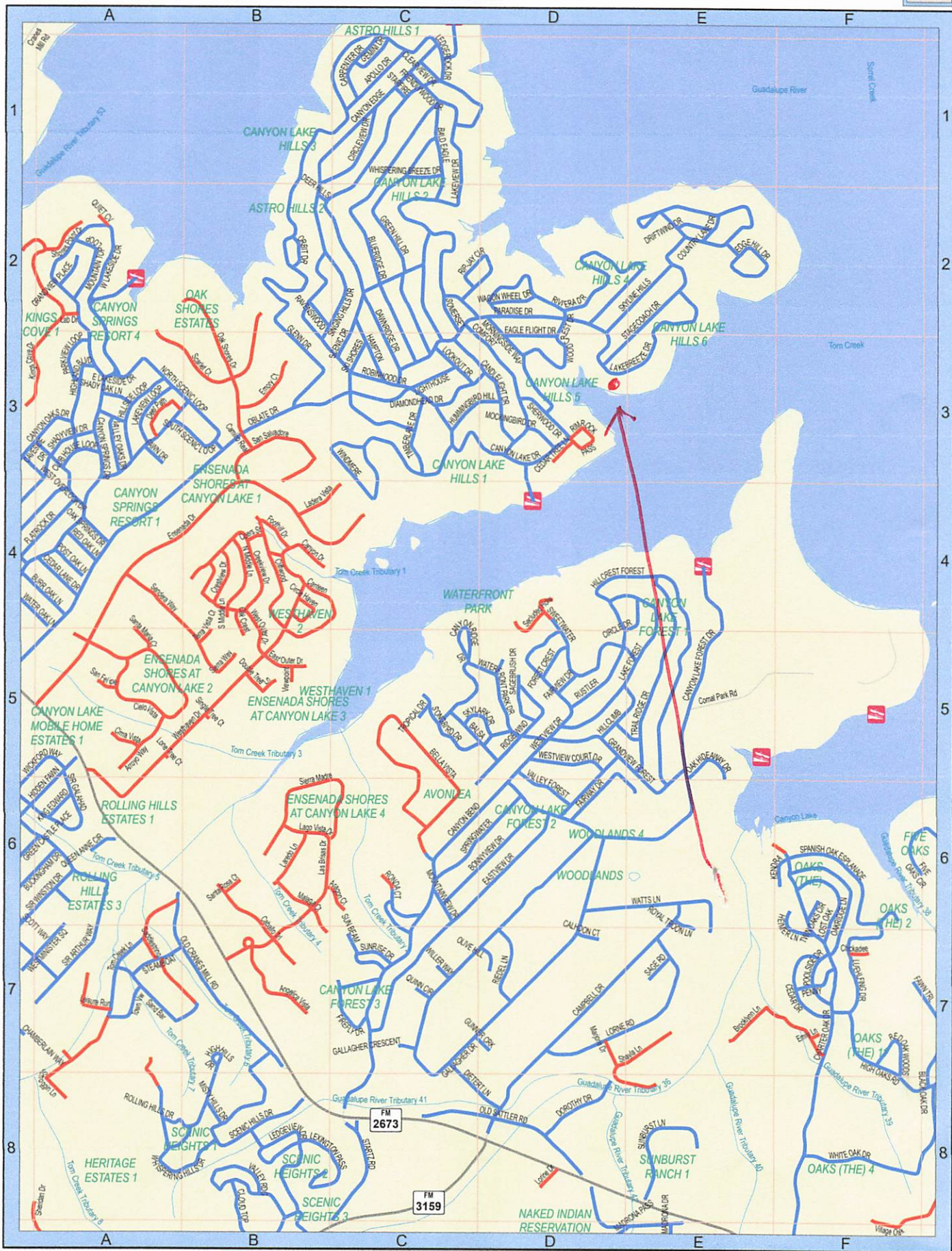
THE STATE OF TEXAS )  
COUNTY OF BEXAR )

BEFORE ME, the undersigned authority, on this day personally appeared G. L. Shaw, Vice President of COMINA, INC., a Texas corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that she executed the same for the purposes and consideration therein expressed in the capacity therein stated, and as the act and deed of said corporation.

EXECUTED the 29th day of November, 1993.

BY: *[Signature]*  
Linda Harris, Notary Public in and for Bexar Co., Tx.





SEE PAGE 30

