# Comal County Environmental Health
# OSSF Inspection Sheet

**Installer Name:** A&R **OSSF Installer #:** OS0038409

**1st Inspection Date:** 9/17/25 **2nd Inspection Date:** **3rd Inspection Date:**

**Inspector Name:** Corey Allen **Inspector Name:** **Inspector Name:**

**Permit#:** 118906 **Address:** 563 Oak Trail Dr

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

**Inspector Notes:**

# Comal County Environmental Health
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|---|---|---|---|---|---|---|---|
| 8 | SEPTIC TANK Tank(s) Clearly Marked SEPTIC TANK If SingleTank, 2Compartments Provided withBaffle SEPTIC TANK Inlet Flowline Greater than3" and " T " Provided on Inlet and OutletSEPTIC TANK Septic Tank(s) MeetMinimum Requirements | | 285.32(b)(1)<br>(E)285.91(2)285.32(b)(1)<br>(F)285.32(b)(1)(E)<br>(iii)285.32(b)(1)(E)(ii)<br>(II)285.32(b)(1)(E)(ii)<br>(I)285.32(b)(1)(E)<br>(i)285.32(b)(1)<br>(D)285.32(b)(1)(C)<br>(ii)285.32(b)(1)(C)<br>(i)285.32(b)(1)<br>(B)285.32(b)(1)<br>(A)285.32(b)(1)(E)(iv) | | | | |
| 9 | ALL TANKS Installed on 4" Sand Cushion/ Proper Backfill Used | x | 285.32(b)(1)(F)<br>285.32(b)(1)(G)<br>285.34(b) | | x | | |
| 10 | SEPTIC TANK Inspection / Clean Out Port & Risers Provided on Tanks Buried Greater than 12" Sealed and Capped | | 285.38(d) | | | | |
| 11 | SEPTIC TANK Secondary restraint system providedSEPTIC TANK Riser permanently fastened to lid or cast into tank SEPTIC TANK Riser cap protected against unauthorized intrusions | | 285.38(d)<br>285.38(e) | | | | |
| 12 | SEPTIC TANK Tank Volume Installed | | | | | | |
| 13 | PUMP TANK Volume Installed | | | | | | |
| 14 | AEROBIC TREATMENT UNIT Size Installed | x | | 600 | x | | |
| 15 | AEROBIC TREATMENT UNIT Manufacturer<br>AEROBIC TREATMENT UNIT Model Number | x<br>x | | Clearstream | x<br>x | | |
| 16 | DISPOSAL SYSTEM Absorptive | | 285.33(a)(4)<br>285.33(a)(1)<br>285.33(a)(2)<br>285.33(a)(3) | | | | |
| 17 | DISPOSAL SYSTEM Leaching Chamber | | 285.33(a)(1)<br>285.33(a)(3)<br>285.33(a)(4)<br>285.33(a)(2) | | | | |
| 18 | DISPOSAL SYSTEM Drip Irrigation | x | 285.33(c)(3)(A)-(F) | | x | | |

# Comal County Environmental Health
# OSSF Inspection Sheet

| No. | Description | Answer | Citations | Notes | 1st Insp. | 2nd Insp. | 3rd Insp. |
|---|---|---|---|---|---|---|---|
| 32 | EFFLUENT DISPOSAL SYSTEM Utilized Only by Single Family Dwelling<br>EFFLUENT DISPOSAL SYSTEM Topographic Slopes < 2.0%<br>EFFLUENT DISPOSAL SYSTEM Adequate Length of Drain Field ( 1000 Linear ft. for 2 bedrooms or Less & an additional 400 ft. for each additional bedroom )<br>EFFLUENT DISPOSAL SYSTEM Lateral Depth of 18 inches to 3 ft. & Vertical Separation of 1ft on bottom and 2 ft. to restrictive horizon and ground water respectfully<br>EFFLUENT DISPOSAL SYSTEM Lateral Drain Pipe (1.25 - 1.5" dia.) & Pipe Holes ( 3/16 - 1/4" dia. Hole Size ) 5 ft. Apart | | 285.33(b)(3)(A)<br>285.33(b)(3)(A)<br>285.33(b)(3)<br>(B)285.91(13)<br>285.33(b)(3)(D)<br>285.33(b)(3)(F) | | | | |
| 33 | AEROBIC TREATMENT UNIT Is Aerobic Unit Installed According to Approved Guidelines. | X | 285.32(c)(1) | | X | | |
| 34 | AEROBIC TREATMENT UNIT Inspection/Clean Out Port & Risers Provided<br>AEROBIC TREATMENT UNIT Secondary restraint system provided AEROBIC TREATMENT UNIT Riser permanently fastened to lid or cast into tank<br>AEROBIC TREATMENT UNIT Riser cap protected against unauthorized intrusions | X<br>X<br>X | | | X<br>X<br>X | | |
| 35 | AEROBIC TREATMENT UNIT Chlorinator Properly Installed with Chlorine Tablets in Place. | X | | | X | | |
| 36 | PUMP TANK Is the Pump Tank an approved concrete tank or other acceptable materials & construction<br>PUMP TANK Sampling Port Provided in the Treated Effluent Line<br>PUMP TANK Check Valve and/or Anti- Siphon Device Present When Required<br>PUMP TANK Audible and Visual High Water Alarm Installed on Separate Circuit From Pump | | | | | | |
| 37 | PUMP TANK Inspection/Clean Out Port & Risers Provided<br>PUMP TANK Secondary restraint system provided<br>PUMP TANK Riser permanently fastened to lid or cast into tank<br>PUMP TANK Riser cap protected against unauthorized intrusions | | | | | | |
| 38 | PUMP TANK Secondary restraint system provided | | | | | | |
| 39 | PUMP TANK Electrical Connections in Approved Junction Boxes / Wiring Buried | X | | | | | |

# Comal County Environmental Health
# OSSF Inspection Sheet

| No. | Description | Answer | Citations | Notes | 1st Insp. | 2nd Insp. | 3rd Insp. |
|---|---|---|---|---|---|---|---|
| 40 | APPLICATION AREA Distribution Pipe, Fitting, Sprinkler Heads & Valve Covers Color Coded Purple? | X | 285.33(d)(2)(G)(iii)(II) 285.33(d)(2)(G)(iii)(III) 285.33(d)(2)(G)(v) 285.33(d)(2)(G)(iii) 285.33(d)(2)(G)(iv) 285.33(d)(2)(G)(i) 285.33(d)(2)(G)(ii) 285.33(d)(2)(G)(iii)(I) | | | | |
| 41 | APPLICATION AREA Low Angle Nozzles Used / Pressure is as required<br>APPLICATION AREA Acceptable Area, nothing within 10 ft of sprinkler heads?<br>APPLICATION AREA The Landscape Plan is as Designed | X<br>X | 285.33(d)(2)(G) (i)285.33(d)(2) (A)285.33(d)(2)(F) | | | | |
| 42 | APPLICATION AREA Area Installed | X | | | | | |
| 43 | PUMP TANK Meets Minimum Reserve Capacity Requirements | | | | | | |
| 44 | PUMP TANK Material Type & Manufacturer | | | | | | |
| 45 | PUMP TANK Type/Size of Pump Installed | | | | | | |

COMAL COUNTY

ENGINEER'S OFFICE

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

| | |
|---|---|
| Permit Number: | 118906 |
| Issued This Date: | 09/10/2025 |
| This permit is hereby given to: | Casey Lynch |

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

563 OAK TRAIL DR
CANYON LAKE, TX 78133

| | |
|---|---|
| Subdivision: | Tanglewood Shores |
| Unit: | n/a |
| Lot: | 336 |
| Block: | n/a |
| Acreage: | 0.2300 |

APPROVED MINIMUM SIZES AS PER ATTACHED DESIGN

| | |
|---|---|
| Type of System: | Aerobic |
| | Drip Irrigation |

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

Call (830) 608-2090 to schedule inspections.

This is a remodel of permit 113048

**RECEIVED**
*By Kathy Griffin at 3:04 pm, Aug 05, 2025*

COMAL COUNTY
ENGINEER'S OFFICE

# OSSF DEVELOPMENT APPLICATION CHECKLIST

*Staff will complete shaded items*

| | | |
|---|---|---|
| | | 118906 |
| *Date Received* | *Initials* | *Permit Number* |

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

- [X] Completed Application for Permit for Authorization to Construct an On-Site Sewage Facility and License to Operate
- [X] Site/Soil Evaluation Completed by a Certified Site Evaluator or a Professional Engineer
- [X] 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.
- [X] Required Permit Fee - See Attached Fee Schedule
- [X] Copy of Recorded Deed
- [X] Surface Application/Aerobic Treatment System
  - [X] Recorded Certification of OSSF Requiring Maintenance/Affidavit to the Public
  - [X] Signed Maintenance Contract with Effective Date as Issuance of License to Operate

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

Signature of Applicant

Date

___ COMPLETE APPLICATION

Check No. _____ Receipt No._____

INCOMPLETE APPLICATION
___ (Missing Items Circled, Application Refeused)

Revised: September 2019

RECEIVED
By Kathy Griffin at 3:04 pm, Aug 05, 2025

COMAL COUNTY
ENGINEER'S OFFICE

# ON-SITE SEWAGE FACILITY APPLICATION

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

Remodel of permit 113408 which was not finalized due to outstanding inspection requirements. See permit 113408 inspection notes for details.

Date 08/04/2025 Permit Number 118906

## 1. APPLICANT / AGENT INFORMATION

| | | | |
|---|---|---|---|
| Owner Name | Casey Lynch | Agent Name | John J. Haag, P.E. |
| Mailing Address | 1572 Skyline Dr. | Agent Address | 15831 Secret Trails |
| City, State, Zip | Canyon Lake, Texas 78133 | City, State, Zip | San Antonio, Tx. 78247 |
| Phone # | 913-706-6951 | Phone # | 210-705-4268 |
| Email | cslynch@gmail.com | Email | jhaag@satx.rr.com |

## 2. LOCATION

Subdivision Name Tanglewood Shores Unit _____ Lot 336 Block _____

Survey Name / Abstract Number _____ Acreage 0.229

Address 563 Oak Trail Dr. City Canyon Lake State Tx. Zip 78133

## 3. TYPE OF DEVELOPMENT

☒ Single Family Residential

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

Number of Bedrooms 3

Indicate Sq Ft of Living Area 1280

☐ 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: $ 220000 (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

## 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 of Owner _____ Date 8/5/25


Revised January 2021

COMAL COUNTY
ENGINEER'S OFFICE

# ON-SITE SEWAGE FACILITY APPLICATION

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

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

System Description Proprietary aerobic treatment with drip disposal

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

Tank Size(s) (Gallons) Clearstream NC3T Absorption/Application Area (Sq Ft) 1200 min

Gallons Per Day (As Per TCEQ Table III) 240

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

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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.)

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

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

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

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

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

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

If yes, indicate the city: _____

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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.

JJ Haag, P.E.

Signature of Designer

08/04/2025

Date

THE COUNTY OF COMAL

202506024577 08/05/2025 01:16:02 PM 1/1

STATE OF TEXAS

**CERTIFICATION OF OSSF REQUIRING MAINTENANCE**

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

I

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

II

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

Legal Description: Lot 336, Tanglewood Shores

This property is owned by: Casey Lynch

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 system for a single-family residence shall either obtain a maintenance contract within 30 days or maintain the system personally.

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

WITNESS BY HAND(S) ON THIS 5 DAY OF August, 2025.

Casey Lynch (Owner)

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS 5 DAY OF August, 2025.

Notary Public, State of Texas

ELIZABETH PERCELL
Notary Public
State of Texas
ID # 12807634-8
My Comm. Expires 10/13/2025

Filed and Recorded
Official Public Records
Bobbie Koepp, County Clerk
Comal County, Texas
08/05/2025 01:16:02 PM
TERRI 1 Page(s)
202506024577

Bobbie Koepp

# 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**

**Permit/License Number** _____
**Customer** Casey Lynch
**Site Address** 563 Oak Trail Dr.
**City** Canyon Lake **Zip** 78133
**Mailing Address** 1572 Skyline Hills Dr. Canyon Lake, Tx. 78133
**County** Comal **Map #** _____
**Phone** 913-706-6951
**Email** cslynch@gmail.com

**I. General**: This Work for Hire Agreement (hereinafter referred to as "Agreement") is entered into by and between Casey Lynch (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 License to Operate 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 with in 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**:

_____ 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 "Indemnitees") 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.

RC



Customer's Initials

Contractor's Initials

**THIS INDEMNITIFCATION 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

Customer Signature

8/5/25
Date

CZ

Customer's Initials

RC

Contractor's Initials

# ON-SITE SEWAGE FACILITY (OSSF)
# SITE EVALUATION FORM

| **1. OWNER INFORMATION** | | | | |
|---|---|---|---|---|
| Property Owner's Full Legal Name: | | | | |
| **2. PROPERTY INFORMATION** | | | | |
| City: Canyon Lake | | Zip Code: 78133 | | |
| Legal Description: | | | | |
| Lot: 366 | Block: | Subdivision: Tanglewood Shores | Unit: | Phase: |
| If not located in subdivision: Survey: | | | | |
| | Abstract: | | Recorded (Vol/Pg): | |

| **3. SITE EVALUATION INFORMATION:** | |
|---|---|
| Name of Site Evaluator: John J. Haag | PE #: 90158 |
| Date Performed: 07/23/2025 | Proposed Excavation Depth: Surface |

**4. REQUIREMENTS:**

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

| Soil Profile Hole Number: 1 | | | | | |
|---|---|---|---|---|---|
| Depth (ft.) | Textural Class | Gravel Analysis | Drainage (Mottles/Water Table) | Restrictive Horizon | Observations |
| 0 | III | <30% | No | Yes | Type III to 6" then hand auger refusal |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |

# ON-SITE SEWAGE FACILITY (OSSF)
# SITE EVALUATION FORM

| Soil Profile Hole Number: 2 | | | | | |
|---|---|---|---|---|---|
| Depth (ft.) | Textural Class | Gravel Analysis | Drainage (Mottles/Water Table) | Restrictive Horizon | Observations |
| 0 | IV | <30% | No | Yes | Limestone @ surface |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |

**5. FEATURES OF SITE AREA:**

| | | |
|---|---|---|
| Presence of 100 year flood zone: | ☐ Yes | ☒ No |
| Presence of adjacent ponds, streams or water impoundments | ☐ Yes | ☒ No |
| Existing or proposed water well in nearby area | ☐ Yes | ☒ No |
| Organized sewage available to lot or tract | ☐ Yes | ☒ No |
| Recharge features within 150 feet | ☐ Yes | ☒ No (none found) |

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


08/23/2025

Haag Engineering Consultants, LLC
Firm: F-5789

# AEROBIC TREATMENT
# DRIP TUBING SYSTEM
# FOR:
# LOT 336, OAK TRAIL
# TANGLEWOOD SHORES

## SITE DESCRIPTION:

Located in Tanglewood Shores, Lot 336, the proposed system will serve at 3-bedroom, 1,280 s.f. residence situated with soils per the Site Evaluation report. An aerobic treatment plant utilizing drip irrigation was chosen as the most appropriate system to serve the conditions on this lot.

## PROPOSED SYSTEM:

A 3 or 4 inch SCH-40 pipe discharges from the residence into a Clearstream 600NC3T (600 gpd) aerobic treatment plant containing a 353 gallon pretreatment tank and a 724 gallon pump chamber. The pump chamber contains a Clearstream P-20 (or equivalent) submersible well pump. The well pump is activated by a time controller allowing the distribution ten times per day with a 7-minute run time with the float setting at min. 240 gallons. A high level audible and visual alarm will activate should the pump fail. Distribution is through a self-flushing 100 micron Arkal Disk filter then through a 1" SCH-40 manifold to a minimum 1200 sf drip tubing field with Netifim Bioline drip lines approximately two feet apart with 0.61 gph emitters set every two feet as per the attached schematic. A pressure regulator Model PMR35MF 35psi installed in the pump tank on the manifold to the field will maintain pressure at 35 psi. A 1" SCH-40 return line is installed to continuously flush the system by cycling a 1" ball valve. Solids caught in the disk filter are flushed each cycle back to the pump tank. Agricultural Products, Inc. (Model #VBK-1) 1" PVC vacuum breakers installed on the highest point on each manifold will prevent siphoning of effluent from higher to lower parts in the field. The field area shall be scarified and then built up so that a minimum of 12" of Type III soil is above any bedrock or type IV soils then the drip tubing shall be laid and capped with a minimum of 6" of Type II or Type III soil (NOT SAND). The field area shall be covered with Bermuda seeded erosion control mat or sodded with grass prior to system startup. The tank must have risers 2-inches minimum above finished grade on each opening with watertight caps that must be 65# or have a padlock or can only be removed with tools – all risers shall meet the minimum requirements of 30 TAC 285 effective July 6, 2023. A secondary plug, cap or suitable restraint must be provided below riser cap to prevent tank entry should the cap be damaged or removed.

## DESIGN SPECIFICATIONS:

Daily flow = Q=240 gpd
Pretreatment tank size: 400 gal
Plant size: Clearstream NC3T; 600 gpd (TCEQ approved)
Pump tank size: 724 galMin.
Reserve capacity after high level: 80 gal (1/3 day req'd)
Application rate: Ra=0.2 gal/sf
Total absorption area: Q/Ra = min. 1200 sf (1,360 sf actual)
Total linear feet of drip tubing: 680' Netifim Bioline drip tubing 0.61 gph
Pump requirement: 0.5 HP Clearstream P-20 (or equivalent)

## Calculation Outputs

### Total System Information

| | |
|---|---|
| Application Area Required (square feet) | 1,360 |
| Total Amount of Bioline® Required (feet) | 680 |
| Total Number of Emitters in the Dripfield | 340 |

### Zone Information

| | |
|---|---|
| Number of Zones | 1 |
| Amount of Bioline® Per Zone (feet) | 680 |
| Number of Emitters Per Zone | 340 |
| Minimum Number of Laterals Per Zone | 1 |
| Maximum Number of Laterals Per Zone | 11 |
| Number of Laterals That Will be Used | 3 |
| Maximum Length of Bioline® Laterals Based on Inlet Pressure | 391 |
| Flow Rate Per Zone (GPM) | 3.5 |
| Holding Capacity of Dripperline Per Zone (Gallons) | 9.0 |
| Additional Flow Requirement to Accommodate Flushing Velocity | 4.8 |

### Holding Capacity of Piping

| | |
|---|---|
| Holding Capacity (Gallons) of Supply Line & Supply & Flush Manifolds | 9.0 |
| Holding Capacity (Gallons per Zone) of Bioline | 9.0 |
| Holding Capacity (Gallons) of Supply Line, Manifolds and Dripperline | 18.0 |

### Head Loss Data - Dosing & Flushing Cycle

| | |
|---|---|
| Friction Loss per 100' (psi) in Supply Line & Manifolds | 1.7 |
| Velocity (fps) | 3.1 |
| Friction Loss in Supply Line & Supply Manifolds (psi) | 3.4 |
| Friction Loss in Supply Line & Supply Manifolds (Feet of Head) | 7.8 |
| Additional Pressure Required for Return Manifold and Piping to Tank (psi) | 1.7 |
| Additional Pressure Required for Return Manifold and Piping to Tank (Feet of Head) | 3.8 |
| TDH (Total Dynamic Head) in Feet of Head | 100.4 |

### Control Settings Information

| | |
|---|---|
| Total System Runtime Per Day (Minutes) | 69 |
| Total Runtime Per Zone Per Day (Minutes) | 69 |
| Total System Dosing Events Per Day | 10 |
| Runtime For Each Dose (Minutes) | 7 |
| Off Time Between Doses in the Same Zone (Hours to nearest 0.1) | 2.3 |

### Miscellaneous Information

| | |
|---|---|
| Dosing Volume Per Emitter Per Dose (gallons) | 0.07 |
| Inches Per Week of Dosing | 1.98 |
| Volume of a Single Dose (gallons) | 24.2 |

### Pump Selection

| | |
|---|---|
| Pump Flow Rating (GPM) | 8.3 |
| TDH (Total Dynamic Head in Feet of Head) | 100.4 |
| Pump Manufacturer | Franklin |
| Pump Model | 20XC1-05P4-2W115 |

## PIPE AND FITTINGS:

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

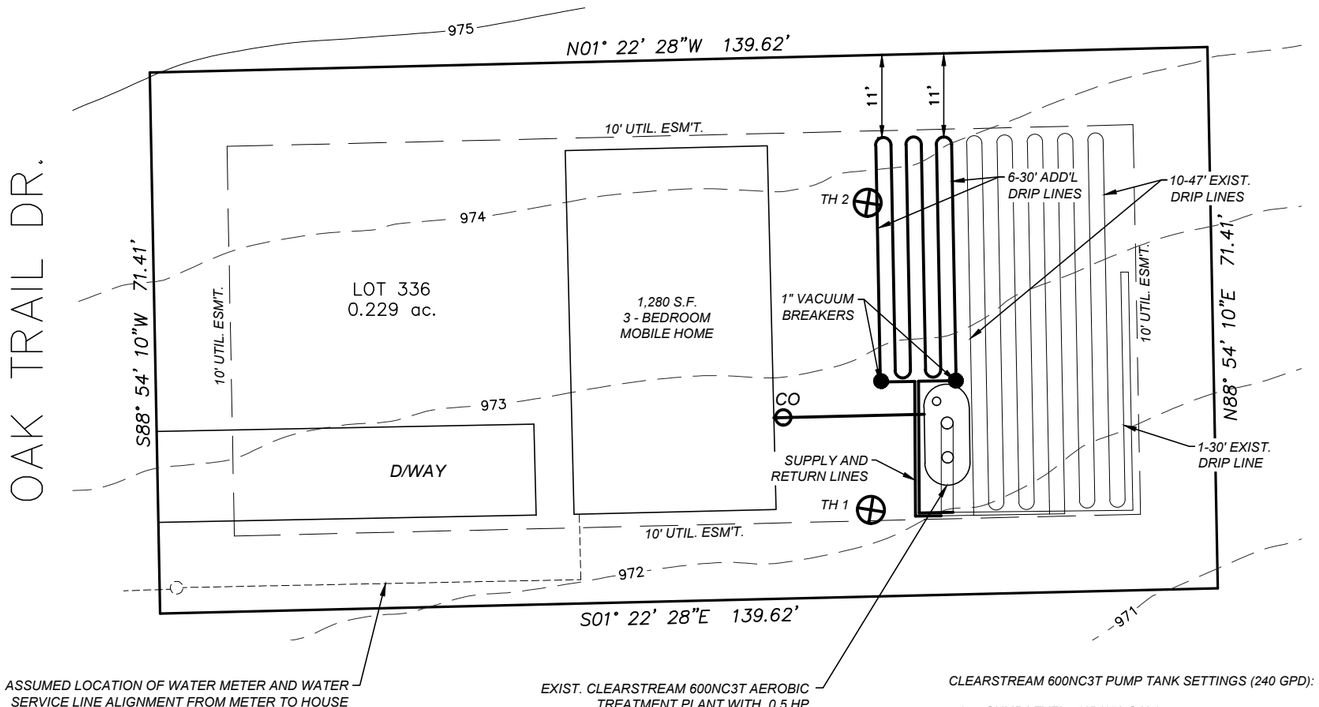
Designed in accordance with Chapter 285, Subchapter D, §285 and §285.40 Texas Commission on Environmental Quality (Revised March 2013).


08/04/2025

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

GENERAL NOTES:

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

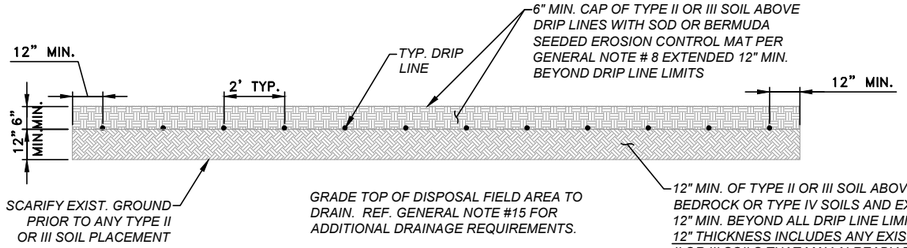



ASSUMED LOCATION OF WATER METER AND WATER SERVICE LINE ALIGNMENT FROM METER TO HOUSE AND INTERMITTENT USE RV . NOTE: WATER SERVICE LINE SHALL BE SLEEVED WITH SCH. 40 PVC WHEREVER IT IS 10' OR CLOSER TO PROPOSED OSSF DISPOSAL AREA LIMITS AND/OR ANY SYSTEM COMPONENT(S). EXCEEDS TAC 30 CHAPTER 290.44(e).

EXIST. CLEARSTREAM 600NC3T AEROBIC TREATMENT PLANT WITH 0.5 HP CLEARSTREAM P-20 OR EQUIVALENT PUMP.

CLEARSTREAM 600NC3T PUMP TANK SETTINGS (240 GPD):

1. SUMP LEVEL: 12" (152 GAL.)
2. WORKING LEVEL: 31" (399 GAL.)
3. ALARM LEVEL: 38" (493 GAL.)
4. MAX. LEVEL = 55" (217 GAL. RESERVE ABOVE ALARM LEVEL)




DRIP FIELD CROSS SECTION
SCALE: 1"=5'

ALL EXISTING OSSF SYSTEM COMPONENTS AND LOCATIONS ARE BASED ON THOSE SHOWN BY APPROVED OSSF PERMIT NO.: 113048 AND ARE ASSUMED TO BE CONSTRUCTED AT LOCATIONS PER THE AFOREMENTIONED PERMIT.

1" = 20'

STATE OF TEXAS
JOHN J. HAAG
90158
LICENSED
PROFESSIONAL ENGINEER

08/04/25

# OSSF LAYOUT PLAN
# LOT 336, OAK TRAIL DR.
# TANGLEWOOD SHORES
## COMAL COUNTY, TEXAS

ADD'L. NOTES:

1. DESIGN DAILY WASTEWATER FLOW = USE 240 GPD (WATER SAVING DEVICES WERE ASSUMED FOR SEPTIC SYSTEM DESIGN).
2. TOPOGRAPHIC DATA SOURCE: FEMA 2011 DATA
3. INSTALLER SHALL VERIFY ALL EASEMENTS, SETBACKS AND PROPERTY LINE BEARINGS AND DISTANCES PRIOR TO CONSTRUCTION.
4. ALL RISERS SHALL MEET THE MINIMUM REQUIREMENST OF 30 TAC 285 EFFECTIVE 07/06/2023

NOTE: OSSF IS NOT WITHIN THE EDWARDS AQUIFER RECHARGE ZONE OR FEMA 100 YEAR FLOODPLAIN.
SITE EVALUATION BY JOHN J. HAAG, P.E. ON 07/23/2025

DRAWN BY: JJH
CHECKED BY: JJH
DATE: 08/04/25
JOB NO. DMOSER25003

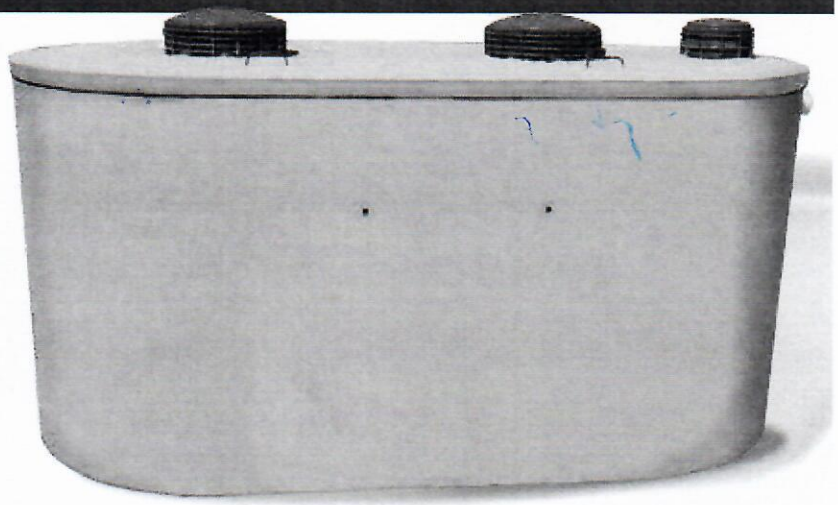
SHEET 1 OF 1

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

CLEARSTREAM®
WASTEWATER SYSTEMS, INC.

**MODELS**
**NC3-Series**

# NC3-Series Concrete



## SPECIFICATIONS

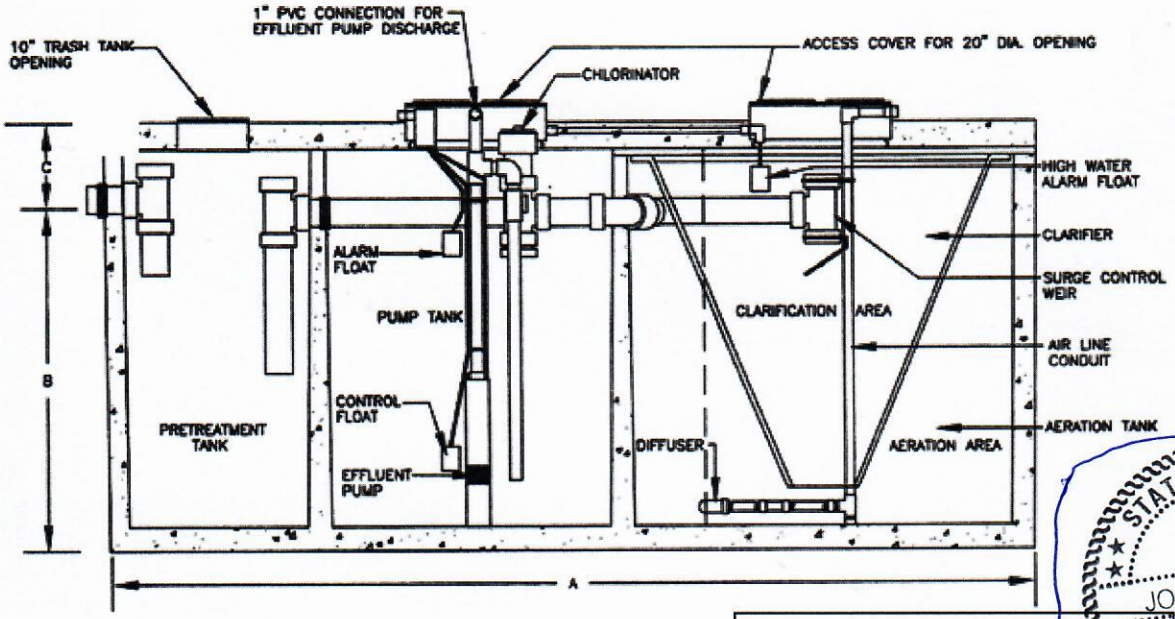
Treatment Capacity ____500 to 600 G.P.D.

BOD Loading _____ 1.25 to 1.5 lbs.

Aerator _____2.8 scfm

Control Panel _____ Raintight

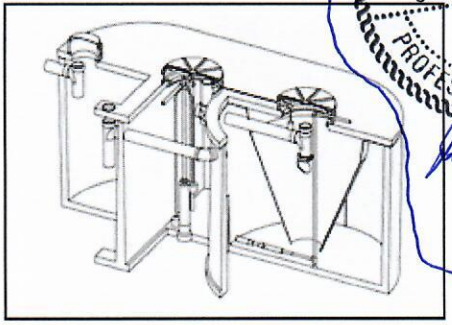
Electrical _____ 115V/60Hz




## DIMENSIONS

| MODEL | A | B | C | D |
|---|---|---|---|---|
| 500 NC3 | 12' 2" | 60" | 12" | 75" |
| 600 NC3 | 12' 7" | 60" | 12" | 82" |

U.S. Patent Numbers
5,221,470 · 5,770,081 · 5,785,854 · US 8,038,874 B2 · US 6,358,411 B1 · US 7,513,994 B2 · US 7,178,677 B1
Other Patents Pending



STATE OF TEXAS
JOHN J. HAAG
90158
LICENSED
PROFESSIONAL ENGINEER
07/19/22
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**www.clearstreamsystems.com**

NETAFIM™

# 1" SUPER/LONG MANUAL DISC FILTER

## INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

### FEATURES

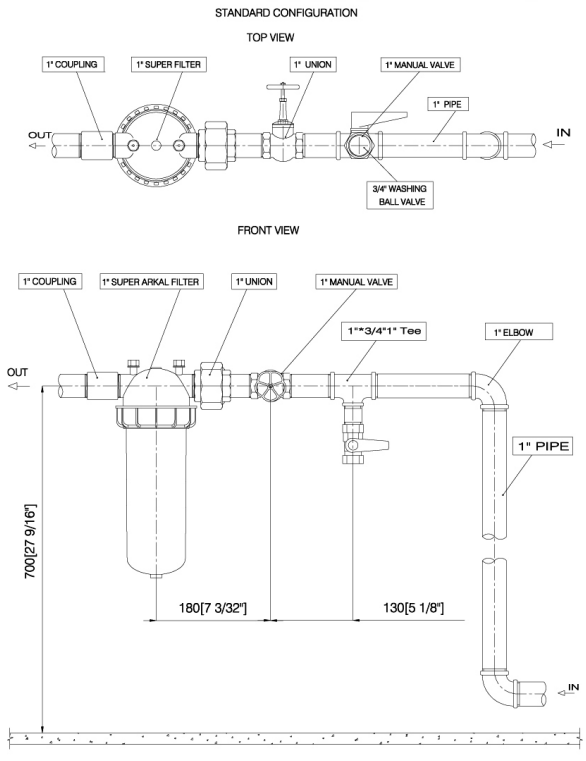
- A "T' shaped reinforced plastic filter with two 1" male connections.
- Filter element consists of grooved discs, mounted on a spine, forming a cylindrical filter element. The discs are compressed together by a spring located at the bottom of the filter cover.
- Screw-on filter cover.
- Resistant to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

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

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

### INSTALLATION

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




### MAINTENANCE AND CLEANING

DISMANTLING

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

CLEANING

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

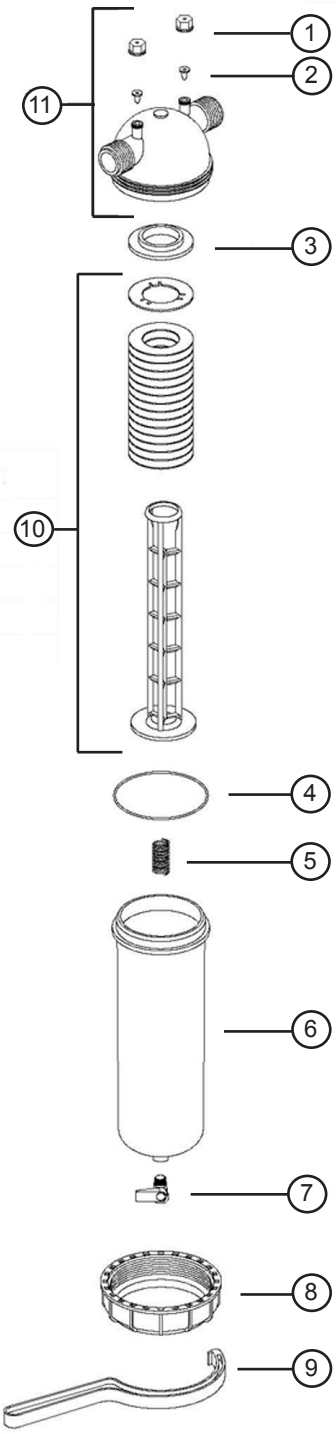
## MAINTENANCE AND CLEANING

ASSEMBLY

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

## WINTERIZATION

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




### PARTS BREAKDOWN - 1" SUPER/LONG FILTER

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

Substitute *** for proper mesh size.

### MATERIALS KEY

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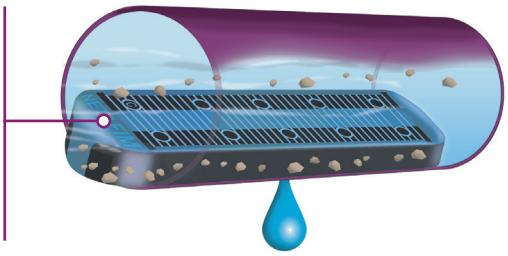
WASTEWATER DIVISION

# BIOLINE® DRIPLINE

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

### CROSS SECTION OF BIOLINE DRIPLINE

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



## PRODUCT ADVANTAGES

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

## APPLICATIONS

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

## SPECIFICATIONS

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

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

# BIOLINE DRIPLINE

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 3.0 fps FLUSH VELOCITY

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

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

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

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.5 fps FLUSH VELOCITY

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

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

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

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 2.0 fps FLUSH VELOCITY

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

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

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

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.5 fps FLUSH VELOCITY

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

| DRIPPER SPACING | | 12" | | | 18" | | | 24" | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DRIPPER FLOW RATE (GPH) | | 0.4 GPH | 0.6 GPH | 0.9 GPH | 0.4 GPH | 0.6 GPH | 0.9 GPH | 0.4 GPH | 0.6 GPH | 0.9 GPH |
| INLET PRESSURE | 15 | 201 | 171 | 140 | 275 | 235 | 194 | 337 | 289 | 241 |
| | 25 | 266 | 222 | 179 | 366 | 308 | 251 | 453 | 383 | 313 |
| | 35 | 316 | 262 | 210 | 437 | 365 | 295 | 543 | 455 | 369 |
| | 40 | 337 | 280 | 223 | 469 | 391 | 313 | 583 | 487 | 393 |
| | 45 | 358 | 296 | 235 | 497 | 413 | 331 | 619 | 517 | 415 |
| Flow per 100' (GPM / GPH) | | 0.67/40 | 1.02/61 | 1.53/92 | 0.44/26.67 | 0.68/41 | 1.02/61 | 0.34/20 | 0.51/31 | 0.77/46 |

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

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 1.0 fps FLUSH VELOCITY

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

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

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

## MAXIMUM LENGTH OF A SINGLE LATERAL WITH 0.5 fps FLUSH VELOCITY

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

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

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

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

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

COMAL COUNTY
ENGINEER'S OFFICE

Address: 563 OAK TRAIL DR

Legal Description: Tanglewood Shores, LOT 336

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:

# 118906.pdf Markup Summary 9-4-2025

Unchecked (1)

**Subject:** Line
**Page Label:** 2
**Checkmark:** Unchecked
**Author:** Brandon Mark Olvera
**Date:** 9/4/2025 12:01:10 PM
**Response:**

Provide the deed showing the owner and legal description of the property.


**195 David Jonas Dr, New Braunfels, Texas 78132**
**(830) 608-2090**

STC GF# 2681148 MW

**General Warranty Deed**

**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.**

Date: July 30, 2025

Grantor: Anthony Wayne Holden-McCarty, a single person

Grantee: Casey Lynch
1572 Skyline Hills Drive
Canyon Lake, Texas 78133

Consideration: Ten and No/100ths ($10.00) Dollars, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged and confessed.

Property (including any improvements): Lot 336, of TANGLEWOOD SHORES SUBDIVISION ON CANYON LAKE, an addition in Comal County, Texas, according to the map or plat thereof recorded in/under Volume 4, Page 63 of the Map and Plat Records of Comal County, Texas.

Reservations from Conveyance: None.

Exceptions to Conveyance and Warranty: Validly existing easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded and validly existing restrictions, reservations, covenants, conditions, oil and gas leases, mineral interests, and water interests outstanding in persons other than Grantor, and other instruments, other than conveyances of the surface fee estate, that affect the Property; validly existing rights of adjoining owners in any walls and fences situated on a common boundary; any discrepancies, conflicts, or shortages in area or boundary lines; any encroachments or overlapping of improvements; and taxes for the current year, which Grantee assumes and agrees to pay, and subsequent assessments for that and prior years due to change in land usage, ownership, or both, the payment of which Grantee assumes.

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

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

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

Anthony Wayne Holden-McCarty

THE STATE OF TEXAS §
§
COUNTY OF Comal § §

This instrument was acknowledged before me on this 30 day of July, 2025, by Anthony Wayne Holden-McCarty.

MELISSA WILLIAMS
Notary Public, State of Texas
My Comm. Exp. 09-10-2027
ID No. 12624958-5

Notary Public, State of Texas

After Recording Return To:
Casey Lynch
1572 Skyline Hills Drive
Canyon Lake, Texas 78133

**Filed and Recorded**
**Official Public Records**
**Bobbie Koepp, County Clerk**
**Comal County, Texas**
**07/31/2025 08:02:14 AM**
**MARY 2 Pages(s)**
**202506023726**

Bobbie Koepp