**MATAGORDA COUNTY**
**INSTRUCTIONS & TERMS OF CONTRACT**

| OPENING DATE: | BID NUMBER: | DATE ISSUED: | PAGE: | OF: |
|---|---|---|---|---|
| 9/9/2024 | 24-0001 | 8/11/2024 | 1 | 18 |

## INSTALL A SEPTIC SYSTEM LOCATED AT THE FOLLOWING LOCATION

**Gloria McRae 773 Riverside Drive Palacios, Texas 77465**

Sealed bids shall be submitted to:

Matagorda County Auditor's Office
Matagorda County CMOB Room 208
2200 7th Street
Bay City, Texas 77414

**NOT LATER THAN: 11:00 A.M. MONDAY, September, 9 2024**

ALL BIDS RECEIVED MUST BE IN THE **COUNTY AUDITOR'S OFFICE** BY TIME STATED ABOVE.

MATAGORDA COUNTY RESERVES THE RIGHT TO ACCEPT ANY BID DEEMED ADVANTAGEOUS TO MATAGORDA COUNTY OR TO REJECT ANY AND ALL BIDS.

IT IS THE INTENT OF THESE SPECIFICATIONS TO ADEQUATELY DESCRIBE THE ITEM AS REQUIRED BY CERTAIN MATAGORDA COUNTY FACILITIES IN SUFFICIENT DETAIL TO SECURE COMPETENT BID. IT IS NOT THE INTENTION OF THESE SPECIFICATIONS TO ELIMINATE ANY BIDDER AND SHOULD SUCH WORDS APPEAR, THE BIDDER WOULD MAKE SPECIAL MENTION OF THIS FACT IN HIS BID.

CLEARLY MARK ALL BID ENVELOPES WITH **BID NUMBER** AND/OR TITLE
BIDS **MUST** BE SUBMITTED ON COUNTY BID FORM.

NAME OF CONTRACTING COMPANY

CONTACT PERSONS TYPED NAME | TITLE | PHONE #

COMPLETE MAILING ADDRESS | CITY AND STATE | ZIP CODE

SIGNATURE | DATE

SIGNER'S TYPED NAME | TITLE

**Bid Specifications:**

MATAGORDA COUNTY requires all work to be completed no later than March 11, 2025.

MATAGORDA COUNTY ENVIRONMENTAL HEALTH DIRECTOR will select qualified bidder based on price and availability of bidder to complete job.

**SEE ATTACHED SEPTIC SYSTEM DESIGN SPECIFICATIONS**

**BID FORM**

Amount of Bid for **Gloria McRae 773 Riverside Drive Palacios, Texas 77465**

$_____

The undersigned Bidder hereby declares that he has carefully examined the area and will substantially complete the work on which he has bid within_____consecutive calendar days.

**Sure'Nuff Septic Services**
3744 County Road 126 Van Vleck, Texas 77482

Matagorda County Environmental Health

2200 7th St

Bay City, Texas 77414

This letter is to inform Matagorda County Environmental Health Department of the as found conditions of the following septic systems:

Gloria McRae-773 Riverside Drive Palacios, Texas

The existing septic is a conventional gravity system on a single wide trailer. There was just one single 500-gallon tank for the system. There only appeared to be a single discharge line. There were no issues with the system during the site visit, however there were signs of previous tank overflow during higher water use periods. The single 500-gallon tank is undersized for a two-bedroom home.

Jeffery McDonald-4201 CR 126 Van Vleck, Texas

The system that was designed is for the existing barn that has been converted into a home not the existing home. The system is a pumped effluent. There were two 500-gallon tanks that were tied together. There were signs of previous ponding and overflow at the system during the site visit. The existing system is not large enough to support a 3-bedroom home without causing ponding.

Lenora Reyna-460 Winding Way N. Bay City, Texas

The existing septic is a conventional gravity system for an existing three-bedroom home. There were two 500-gallon tanks that were tied together. During the site visit there was significant ponding around the septic tanks. The system does not appear to be discharging to the field lines due to tank failure.

Vanessa Mangum-2766 CR 126 Van Vleck, Texas

The existing septic is a single metal tank for two existing RV's. During the site visit there did not appear to be any field lines for the system. There were indications of previous tank overflow during higher water use periods.

If there any questions, please contact Jason Ludwig at (979) 557-3017 or at surenuffseptic@outlook.com.

979-557-3017

Sure'Nuff Septic Services

Van Vleck,Tx

Sincerely,

Jason Ludwig

# MATAGORDA COUNTY ENVIRONMENTAL HEALTH

First Floor 2200 7th Street
Bay City, Texas 77414
979-244-2717
Fax 979-244-1967

**Lisa Krobot, Director**

- Food Service & Sanitation
- Animal Control
- Floodplain Management
- Radiological Control
- Solid Waste Management

July 1, 2024

RE: 2023 SETH GRANT

In reference to the grant that the County received from Southeast Texas Housing, our office has chosen 4 septic systems to possibly be installed after the Septic Installers have had the opportunity to bid on the installations per the designs.

When our office receives complaints, (some from neighbors to the site location that is having issues, or sometimes the person having the issue contacts an installer) the inspectors go out to the site, either red tagging if property owner is not home or possibly talking to them. If the property owner will come into compliance on their own we handle the situation in that manner if not they are written a 30 day letter as required by the state and they are given the opportunity to come into compliance, if no response these are turned over to the County Attorney. These 4 property owners have not been turned over to the County Attorney as we are working on getting new systems for them. Hopefully, these can be obtained because if our office does have to turn these over as we have previous septic cases the cases are not going to court because they can't decide which court needs to handle these, those courts being Justice of the Peace Courts, County Court and District Court. If they don't get installed these will more than likely stay as they are and this Grant is a great opportunity to take care of some of failed systems out in the county.

Attached is a letter from the Designer that designed these 4 systems to be bid on. He has already been paid by the county for the designs out of the SETH Grant Funds.

Lisa Krobot

# Matagorda County Environmental Health

CONSTRUCTION CONTRACT

This Construction Contract ("Contract") is made effective the _____day of _____ 2024, by and between MATAGORDA COUNTY ENVIRONMENTAL HEALTH, a Texas political subdivision department ("County"), and _____, a Texas corporation (the "Contractor"). This Contract relates to the construction of a new septic system on the Eligible Home described below pursuant to the terms of the attached Contract Documents (Exhibit A) dated _____ 2024 by and between County and Contractor, to which reference is hereby made for all purposes.

Eligible Home: _____

Eligible Owner: _____

Contract Price: $_____

Estimated Completion Date: _____

Completion Date: _____

Description of Work: Installation of an Septic System as per Septic System site evaluation and design by Jason Ludwig with Sure' Nuff Septic Services

☐ Installation includes a 2-year maintenance agreement. (If checked)

*Territory of Contract.* Contractor is granted the sole and exclusive right and privilege for the location listed above and shall furnish all personnel, labor, equipment, trucks and all other items necessary to perform all of the work called for as described in the contract documents.

*Term.* The term of this agreement is from execution to the completion of the installation of the septic and delivery of the affidavit of completion to the County.

*Amendments.* All provisions of the contract documents shall be strictly complied with and conformed to by the Contractor, and no amendment to this Contract shall be made except upon the written consent of the parties.

*Force Majeure.* The Contractor shall not be liable for the failure to wholly and timely perform his duties if such failure is caused by for majeure. "Force majeure" means a delay encountered by the Contractor in the performance of its obligations under this contract which is caused by an event beyond the reasonable control of the contractor. Without limiting the generality of the foregoing, "Force Majeure" shall include the following types of events: acts of God or public enemy; acts of governmental or regulatory authorities, fires, floods, epidemics or serious accidents, unusually severe weather conditions, strikes, lockouts or other labor disputes; and defaults by subcontractors.

*Independent Contractor*. In performing the personal services included in this Agreement, Contractor shall be an independent contractor and not an employee of the County or any department of the County. It is expressly understood and agreed that Contractor is an independent contractor and not an employee of the County or any department of the County. Employee-related deductions such as withholding taxes and/or Social Security taxes shall not be deducted from the fees paid to Contractor, and Contractor shall not be considered the agent, the servant, or the employee of County for any purpose whatsoever. In addition, Contractor recognizes that it will not be eligible for unemployment compensation upon termination of this Contract. The County shall not direct or supervise Contractor as to the manner, means, and method in which Contractor performs the services but shall look to Contractor for results only.

*No Agency Relationship.* Nothing express or implied in this Agreement is intended to establish, nor shall anything establish, an agency relationship between the Covered Entity and Business Associate, and their respective successors or assigns.

*Immunity.* The County specifically reserves any claim it may have to sovereign, qualified, or official immunity as a defense to any action arising in conjunction with this Agreement.

*Appropriation*. All Payments or expenditures made by the County under this Agreement are subject to the County's appropriation of funds for such payments or expenditures to be paid in the budget year for which they are made.

*Governing Law.* The Contractor and County agree that the laws, rules and regulations of the State of Texas shall govern in any matter relating to this Agreement.

*Certificate of Interested Parties.* Contractor understands that before work can be performed and a contract executed, Contractor must complete all steps necessary under H.B. 1295.

*Debtors.* Contractor stipulates that he is not a debtor of the County and that "debt" includes delinquent taxes, fines, fees, and delinquencies arising from written agreements with the county. If the County finds that Contractor, at any time during the contract period, is a debtor of the County, the County may cancel the contract.

*Law and Venue.* This contract is governed by the laws of the State of Texas and venue is proper in Matagorda County.

*Termination.* In the event Contractor breaches or fails to perform or observe any of the terms or conditions herein, and fails to cure such breach or default within fourteen (14) days of the County giving written notice of breach, then the County may terminate the Contractor's rights under this Agreement and seek equitable or legal remedies. Any notice permitted or required to be given to the County hereunder may be given by hand delivery, registered or certified United States mail, postage prepaid, return receipt requested. addressed to the address of Contractor above.

*Affidavit of Completion.* Upon completion of the work, the Contractor shall submit an Affidavit of Completion and Indemnity. Matagorda County will inspect the work and, if the work is satisfactory, shall make payment to Contractor at its next scheduled payment of bills (Matagorda County processes bills for payment twice monthly).

**EXECUTED THIS THE _ _ _ _ _DAY OF _____ _____, 2024.**

**CONTRACTOR:**

_____

By:_____

Name:_____

Title:_____

**COUNTY:**

**MATAGORDA COUNTY**

**ENVIRONMENTAL HEALTH**

By:_____

Name:_____

Title:_____

**Matagorda County Environmental Health**
**Affidavit of Completion and Indemnity**

Date: _____

Contract:

Date: _____
Owner: _____
Contractor:
911 Address:

Affiant on oath swears that the following statements are true:

1. Affiant is authorized to make this Affidavit on behalf of Contractor.

2. The total charge for work is $_____

3. The work required by the contract has been substantially completed in accordance with the requirements of the contract, the manufacturer's specification {if any) that are attached to the Affidavit, and the Contract Documents between Matagorda County Environmental Health ("County") and Contractor referred to in the contract.

4. Contractor has paid each of Contractor's subcontractors, laborers, and material men in full for all labor and materials provided to Contractor for the work.

5. This Affidavit is made to induce Owner to accept the work as completed and to induce County to pay Contractor for the work.

6. Contractor acknowledges that upon receipt of the above-referenced sum, it will have been paid in full for the work and hereby releases and waived any liens which contractor may be entitled against the Property.

7. Contractor warrants the truth of this Affidavit and agrees to indemnify and hold Owner and Matagorda County, together with all persons associated therewith, harmless from all losses, damages, judgments, and expenses that any or all of them suffer, incur, or pay because and part of this Affidavit is not true or completely correct.

CONTRACTOR:

_____

By:_____
Name: _____
Title: _____

# On-Site Sewage Facility Soil and Site Evaluation

Date Performed: 5-22-24

New Installation [ ] Replacement [X] Alteration [ ]

**Property Owner's Information**

Name Gloria McRae
Address 773 Riverside Drive
City Palacios State Texas
Zip Code 77465 Phone 979 429 6788

**Certified Site Evaluator/PE Information**

Name Jason Ludwig
Company Sure'Nuff Septic Services
Address 3744 CR 126
City Van Vleck State Texas
Zip Code 77482 Phone 979 557 3017
TCEQ Registration Number OS0037012 RS 5192

**Property Description**

CAD # 47538
Legal Description:
Street/Road Address 773 Riverside Drive
County Matagorda City Palacios
Zip Code 77465 Property Size
Acreage .3977
Additional Information

**Installer Information**

Name Jason Ludwig
Company Sure'Nuff Septic Services
Address 3744 CR 126
City Van Vleck State Texas
Zip Code 77482 Phone 979 557 3017
TCEQ Registration Number OS0036858

## TOPOGRAPHY

| Slope | Vegetation | Site Drainage | Reference Soil Survey Book |
|---|---|---|---|
| [X] Flat (under 2%) | [X] Grass/Brush | [X] Poor | [ ] Seasonal water table |
| [ ] Slight (under 4%) | [X] Lightly Wooded | [ ] Adequate | [ ] Water table (upper water shed) evident |
| [ ] Severe (over 5%) | | | Depth: |
| [ ] Gullies/erosion | [ ] Heavily Wooded | [ ] Good | [ ] Presence of adjacent ponds, streams, water impoundments |

Comments/Observations:

## WATER SUPPLY

Private [ ] Public [X] Name of public water supplier TRES PALACIOS

For on-site water well:

Is water well less than 100 feet from drainfield? NO
*If yes, attach documentation, i.e. well log or driller affidavit, that well is pressure cemented or grouted to required depth.

Neighboring wells within 100 feet of property line? NO
*If neighboring wells exist they must be shown on the design.

Water saving devices Yes

[ ] Water softener [ ] Reverse osmosis system [ ] Other:

## SOIL EVALUATION

Requirements:

- At least two soil evaluations 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 drawing.
- For subsurface disposal, soil evaluations must be performed to a depth of at least two feet below the proposed trench depth. For surface disposal, the surface horizon must be evaluated.
- Please describe each soil horizon and identify any restrictive features in the space provided below. Draw lines at the appropriate depth.

Proposed Trench Depth Drip

Soil Boring Number 1

| Depth (Feet) | Textural Class | Soil Texture And Color | Gravel Analysis For Class II and III | Drainage (Mottles/Water Table) indicate color of mottling | Restrictive Horizon |
|---|---|---|---|---|---|
| 0 | IV | Clay | N/A | No Mottles | No |
| 1 | IV | Clay | N/A | No Mottles | No |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

Soil Boring Number 2

| Depth (Feet) | Textural Class | Soil Texture And Color | Gravel Analysis For Class II and III | Drainage (Mottles/Water Table) indicate color of mottling | Restrictive Horizon |
|---|---|---|---|---|---|
| 0 | IV | Clay | N/A | No Mottles | No |
| 1 | IV | Clay | N/A | No Mottles | No |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

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

Jason Ludwig/ Jason Ludwig RS 5192 SEOS0037012 — 5-22-24

Signature of Certified Site Evaluator/PE & License # — Date

## Property Details

**Account**

| | | | |
|---|---|---|---|
| **Property ID:** | 47538 | **Geographic ID:** | 4361-0000-063600 |
| **Type:** | Real | **Zoning:** | 1 |
| **Property Use:** | | **Condo:** | |

**Location**

| | |
|---|---|
| **Situs Address:** | 773 RIVERSIDE DR PALACIOS, TX 77465 |
| **Map ID:** | 516 **Mapsco:** |
| **Legal Description:** | TRES PALACIOS OAKS HIGH MEADOW SEC LOTS 636 & 637 |
| **Abstract/Subdivision:** | 4361 - TRES PALACIOS OAKS S/D |
| **Neighborhood:** | P140M85F |

**Owner**

| | |
|---|---|
| **Owner ID:** | 217132 |
| **Name:** | MCRAE GLORIA |
| **Agent:** | |
| **Mailing Address:** | 773 RIVERSIDE DR<br>PALACIOS, TX 77465 |
| **% Ownership:** | 100.0% |
| **Exemptions:** | HS - HOMESTEAD<br>For privacy reasons not all exemptions are shown online. |

## Property Values

| | |
|---|---|
| **Improvement Homesite Value:** | $24,050 (+) |
| **Improvement Non-Homesite Value:** | $0 (+) |
| **Land Homesite Value:** | $34,250 (+) |
| **Land Non-Homesite Value:** | $0 (+) |
| **Agricultural Market Valuation:** | $0 (+) |
| **Market Value:** | $58,300 (=) |
| **Agricultural Value Loss:** | $0 (-) |
| **Appraised Value:** | $58,300 (=) |

**Homestead Cap Loss:** $44,814 (-)

**Assessed Value:** $13,486

**Ag Use Value:** $0

All information contained herein, is considered in the public domain and is distributed without warranty of any kind, implied, expressed or statutory. The Matagorda County Appraisal District makes no claims, promises or guarantees about the accuracy, completeness, or adequacy of this information and expressly disclaims liability for any errors and omissions.

Current year values are preliminary. Prior year data is informational only and does not necessarily replicate the values certified to the tax office.

## Property Taxing Jurisdiction

**Owner:** MCRAE GLORIA **%Ownership:** 100.0%

| Entity | Description | Tax Rate | Market Value | Taxable Value | Estimated Tax | Freeze Ceiling |
|---|---|---|---|---|---|---|
| 10 | MATAGORDA COUNTY | 0.359280 | $58,300 | $0 | $0.00 | |
| 23 | PALACIOS ISD | 0.989510 | $58,300 | $0 | $0.00 | $0.00 |
| 41 | NAVIGATION DIST. #1 | 0.009350 | $58,300 | $0 | $0.00 | |
| 51 | PALACIOS SEAWALL COMM | 0.016350 | $58,300 | $0 | $0.00 | |
| 52 | COASTAL PLAINS GROUNDWATER DIST | 0.003520 | $58,300 | $13,486 | $0.47 | |
| 63 | DRAINAGE DISTRICT #3 | 0.022030 | $58,300 | $0 | $0.00 | |
| 90 | MATAGORDA CO HOSPITAL DISTRICT | 0.263820 | $58,300 | $0 | $0.00 | |
| CAD | County Appraisal District | 0.000000 | $58,300 | $13,486 | $0.00 | |

**Total Tax Rate:** 1.663860

**Estimated Taxes With Exemptions:** $0.47

**Estimated Taxes Without Exemptions:** $970.02

# National Flood Hazard Layer FIRMette

FEMA

96°8'48"W 28°50'14"N


96°8'11"W 28°49'43"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

*Basemap Imagery Source: USGS National Map 2023*

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

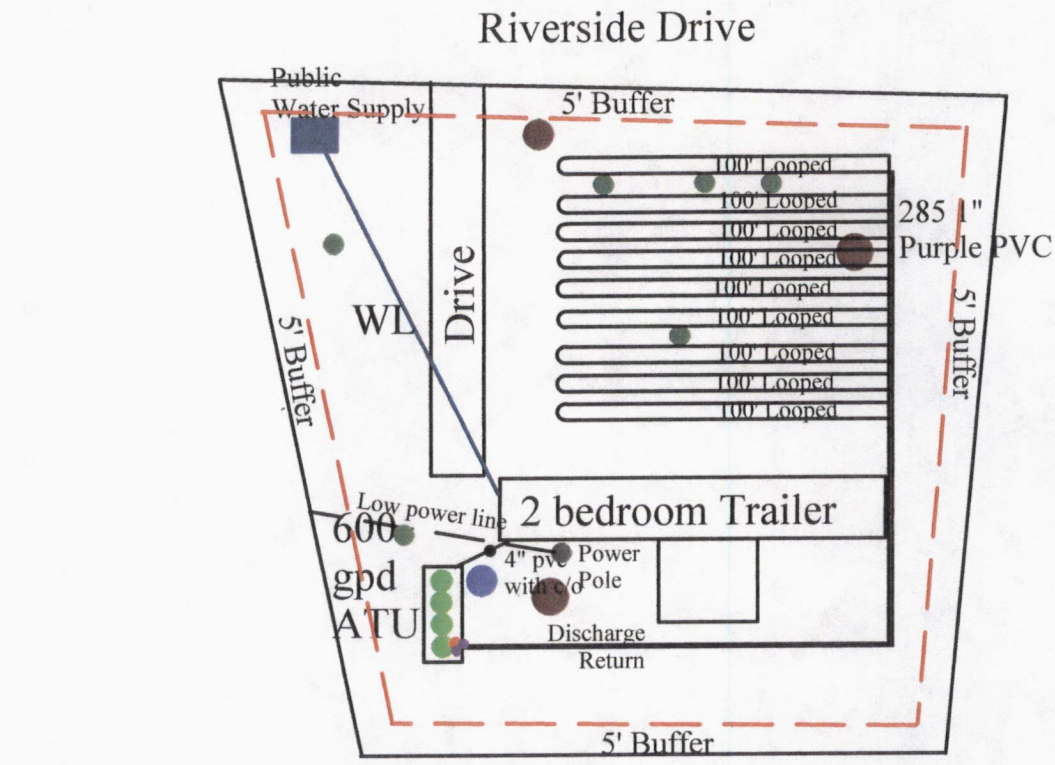
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/21/2024 at 5:08 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

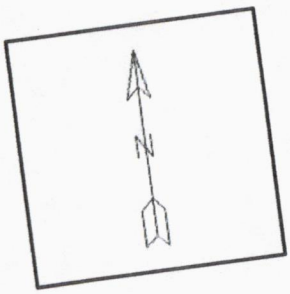
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Gloria McRae
773 Riverside Drive
Palacios, Texsa
.3977 Acre

100 Year Flood Plain- No
Scale 1"=30'

Disposal Area Required- 1,800 SF
Disposal Area Provided- 1,800 SF



STATE OF TEXAS
JASON A LUDWIG
5192
REGISTERED PROFESSIONAL SANITARIAN
JAL 5-22-24

Note: Existing septic to be properly abandonded

● = vacuum breaker ● = soil bore
● = clean out ● = Existing Septic Tank
● = tree ● = filter

# On-Site Sewage Facility Design Package

Gloria McRae

773 Riverside Drive

Palacios, Texas

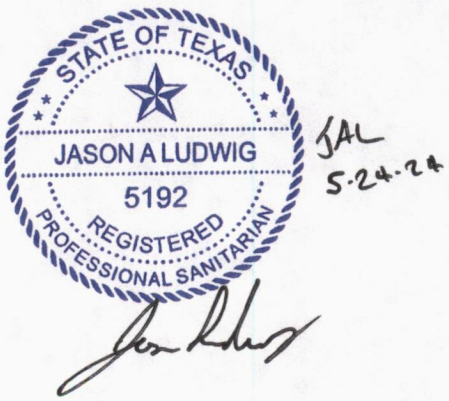
Designed by

Jason Ludwig

3744 CR 126

Van Vleck, Texas

Registered Professional Sanitarian RS5192



Septic System Design

Date:5-24-24

Gloria McRae

773 Riverside Drive

Palacios, Texas

**Wastewater Load**

The OSSF will serve an existing 2-bedroom home with less than 2,500 square feet of living area equipped with water saving devices. Wastewater load- 180 gallons per day total.

**A. Proposed Treatment Facility 30 TAC 285.91.2**

NuWater 600 Aerobic Treatment Unit

353 Gallon Trash Tank

768 Gallon Pump tank

BOD rating- $\frac{180 \times 8.34 \times 300 \text{ mg/l}}{1{,}000{,}000}$ = .45 lbs BOD

**B. Filter Specifications**

1" with flow volume of 20 gallons per minute

100-micron filter (disc or screen) placed in the pump discharge.

1 filter per drainfield.

Alarms-Audible and visual alarms for aerator and pump

**C. Drip Distribution Field**

The drip field will use purple 1" schedule 40 PVC headers with ½ inch drip lines on two-foot centers with ½ ich connectors to the drip line. Two vacuum breakers shall be installed at appropriate locations on the pump discharge line and the return flush line.

**D. Design Specifications**

Soil Type=Class IV Soil

Minimum Length of Tubing for 2-bedroom home with less than 2,500 square feet- 180 gpd - 900 lineal feet

**Provided** -0.1 ra -900 lineal feet of ½" drip tubing on 1" schedule 40 pvc headers.

Number of Emitters- 900/2=450 emitters

Emitter Flow Rate- .6 gph @ 20 psi

Flow Rate per hour = 270 GPH (4.5 GPM)

Vacuum Breaker = 2 per zone

Timer= Required (on 7 minutes, off 3 hours 53 minutes)

Gallons per dose=31.5 gallons (6 cycles)

Disinfection= Not Required

Depth of Installation= 6-8 inches

The drip field will consist of 285' of 1" Purple Schedule 40 PVC (return and discharge headers)

The system shall return effluent that is not discharged during pumping to the discharge tank.

**E. Pump Tank**

768 Gallon Pump Tank Volume – 53" inlet

Pump Float Settings from bottom of the tank:

| | |
|---|---|
| Pump | 15 inches, 217 gallons residual |
| Pump On | 15 inches (400 gallons) level override float |
| Alarm On | 35 inches |
| Reserve | 151 gallons (60 Gallons required) |

**F. Pump Requirements:**

Flow= 4.5 gpm

2.85 x 3.63 x 1.2 +5 =17.41 +93= 110.41 Total Dynamic Head in Feet

1" schedule 40 Purple pvc pipe for Discharge and Return Lines.

Total gallons per minute equal 4.5

½ horsepower pump capable of pumping 4.5 gallons per minute at 285'

Use 20 gpm, Franklin E Series or equivalent.

**G. Landscape Plan**

The site should have existing cover or be seeded, covered with so, or landscape with grasses, evergreen shrubs, bushes, or other vegetation that is approved. Surface application effluent should not be applied to soils used to produce fruits, vegetables, or other crops for human consumption. The vegetation shall be capable of growth, prior to system startup.

Type of cover at site- **Grass and wooded.**

The application shall be finished graded for positive drainage.

.

**K. Notes and Additional Specification Requirements**

If discrepancies exist between the design and actual site conditions, the installer shall notify the designer and the local permitting authority prior to construction.

Construction materials and methods shall be pursuant to county and state rules unless specially noted on this design and approved by the local permitting authority.

The installer is responsible for reviewing the design criteria for construction.

Deviations from the design will invalidate the final design.

Other:

1. Water Softener must not drain into aerobic treatment unit.
2. Surface improvements shall not be allowed in the drip field area.
3. The aerobic treatment unit shall not be used for disposal of cigarette butts, personal hygiene products, and other trash.
4. Condensate from air conditions, ice machines, coolers, should be diverted out of the system or allowed for initial design considerations.

L. **Floodplain- Special Considerations**

**Design system in 100-year floodplain - No**

If "IN" the 100-year floodplain.

Although the septic system is not in a regulated floodway, special consideration should be adhered to when installing this system.

Place all electrical components above the 100-year floodplain.

After placement of tank, all compartments are to be filled to operational levels immediately to prevent floating in the event of flooding.

Even though the velocities if floodwater in this area will be minimal or high, at least 10" of cover must be placed over septic tank to resist erosion and damage to the system.

Watertight lids shall be installed over every manhole and opening to resist infiltration of floodwaters.

The aerobic treatment unit will not float with all compartments at proper operating levels per the manufacturer.


# MANUAL DISC FILTERS

## APPLICATIONS

- Residential
- Commercial
- Municipal
- Institutional

## SPECIFICATIONS

- Maximum pressure:
  ¾", 1", 1 ½": 140 psi
  2" Dual Lite: 115 psi
  2" Dual HP: 174 psi
- Flow range:
  ¾" - 1 to 17 GPM
  1" - 5 to 26 GPM
  1 ½" - 10 to 35 GPM
  1 ½" Long - 10 to 52 GPM
  2" Dual Lite - 40 to 110 GPM
  2" Dual HP - 40 to 120 GPM

## MATERIALS

- Filter body and cover: reinforced polyamide
- Disc rings: polypropylene
- O-Rings: EPDM rubber
- Clamps: stainless steel

## FEATURES & BENEFITS

**DISC FILTER DESIGN**

Collects debris along the depth of the discs, not just at the surface like screen filters. Disc helps filtration with calcium build up.

**100% THERMOPLASTIC DISCS**

Corrosion resistant. Disc screens prevents element collapsing.

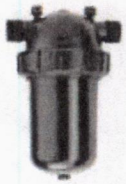
**REPLACEMENT FILTER RINGS AVAILABLE**

Color-coded for easy mesh identification.

**EXTRA LARGE FILTRATION CAPACITY**

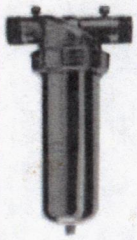
Requires less cleaning.

**3/4" FILTER**



**1" FILTER**

**1 1/2" FILTER**



**1 1/2" LONG FILTER**

**2" DUAL LITE FILTER**

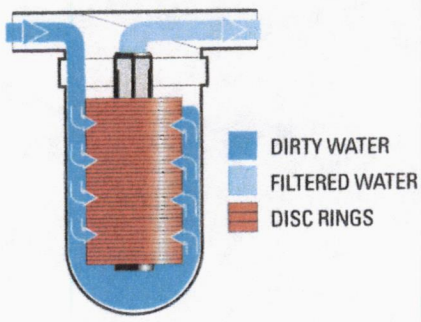
**2" DUAL HP FILTER**

**DISC FILTER TECHNOLOGY**

Grooves in the disc rings criss-cross to form a network that traps debris between and on the outside of the discs.

**HOW IT WORKS**

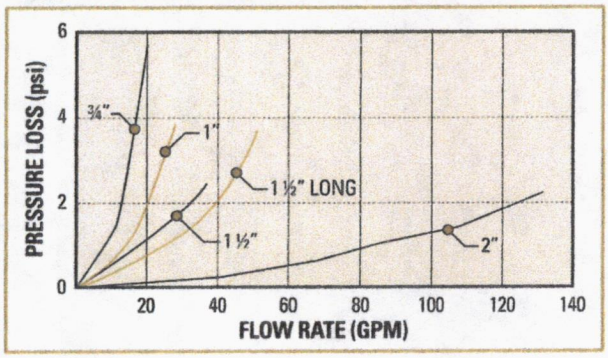
As dirty water is pumped into the filter, and pressure increases, the water compresses the disc rings together tightly. The water is then forced to flow through the grooves of the disc rings, where debris is trapped, releasing only clean water to the irrigation system.



## DISC FILTER RINGS

| YELLOW | RED | BLACK | GREEN |
|---|---|---|---|
| 80 MESH<br>200 MICRON | 120 MESH<br>130 MICRON | 140 MESH<br>115 MICRON | 200 MESH<br>55 MICRON<br>(2" ONLY) |

## FLOW RATE VS. PRESSURE LOSS




## FLOW RATE VS. PRESSURE LOSS

| FLOW RATE (GPM) | PRESSURE LOSS (psi) | | | | | |
|---|---|---|---|---|---|---|
| | 3/4" | 1" | 1 1/2" | 1 1/2" LONG | 2" DUAL LITE | 2" DUAL HP |
| 5 | 0.60 | 0.25 | | | | |
| 10 | 2.50 | 0.60 | | | | |
| 13 | 3.40 | 1.34 | | | | |
| 17 | 5.87 | 2.10 | | | | |
| 22 | | 3.24 | 1.10 | | | |
| 26 | | | 1.30 | 1.50 | | |
| 31 | | | 1.70 | 2.10 | | |
| 35 | | | 2.30 | 2.50 | | |
| 44 | | | | 4.20 | 0.30 | 0.30 |
| 66 | | | | | 0.63 | 0.63 |
| 88 | | | | | 1.03 | 1.03 |
| 110 | | | | | 1.47 | 1.47 |

Losses shown are for filters with 140 mesh.

**LEGEND**

- River, ditch, lake or reservoir water
- Well water containing sand only
- Municipal supply

## DIMENSIONS & WEIGHT

| SIZE | LENGTH | WIDTH | WEIGHT (LBS) |
|---|---|---|---|
| 3/4" | 5 22/32" | 7 15/32" | .66 |
| 1" | 9 11/32" | 6 7/32" | 2.2 |
| 1 1/2" | 10 5/8" | 7 7/8" | 2.4 |
| 1 1/2" LONG | 14 1/2" | 7 7/8" | 3.3 |
| 2" DUAL LITE | 16 5/16" | 10 1/4" | 6.6 |
| 2" DUAL HP | 14 3/4" | 10 1/4" | 11 |

## ORDERING INFORMATION

| FILTER SIZE | MESH | DISC FILTER MODEL NUMBER | REPLACEMENT FILTER RINGS MODEL NUMBER |
|---|---|---|---|
| 3/4" | 40 | DF075-040 | DFR075040 |
| | 80 | DF075-080 | DFR075080 |
| | 120 | DF075-120 | DFR075120 |
| | 140 | DF075-140 | DFR075140 |
| 1" | 40 | DF100-040 | DFR150040* |
| | 80 | DF100-080 | DFR150080* |
| | 120 | DF100-120 | DFR150120* |
| | 140 | DF100-140 | DFR150140* |
| 1 1/2" | 40 | DF150-040 | DFR150040* |
| | 80 | DF150-080 | DFR150080* |
| | 120 | DF150-120 | DFR150120* |
| | 140 | DF150-140 | DFR150140* |
| 1 1/2" LONG | 40 | DF150S-040 | DFR150L040* |
| | 80 | DF150S-080 | DFR150L080* |
| | 120 | DF150S-120 | DFR150L120* |
| | 140 | DF150S-140 | DFR150L140* |
| 2" DUAL LITE | 40 | DF2DL-040 | DFR200040 |
| | 80 | DF2DL-080 | DFR200080 |
| | 120 | DF2DL-120 | DFR200120 |
| | 140 | DF2DL-140 | DFR200140 |
| | 200 | DF2DL-200 | DFR200200 |
| 2" DUAL HP | 40 | DF200-040 | DFR200040 |
| | 80 | DF200-080 | DFR200080 |
| | 120 | DF200-120 | DFR200120 |
| | 140 | DF200-140 | DFR200140 |
| | 200 | DF200-200 | DFR200200 |

* Ring set and filter spine.
140 Mesh: Standard for LVCZ Kit.

NETAFIM™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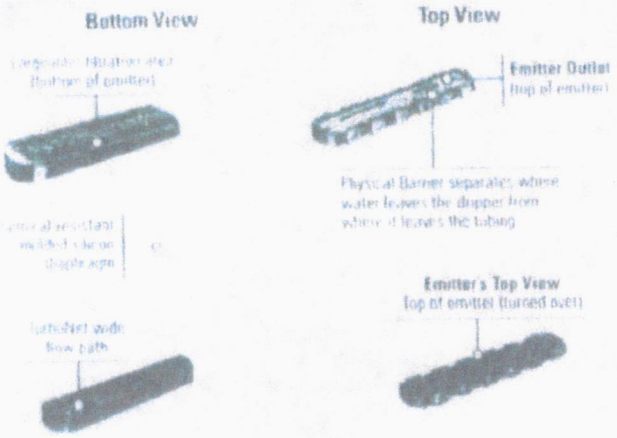
## EXPLODED VIEW OF BIOLINE EMITTER



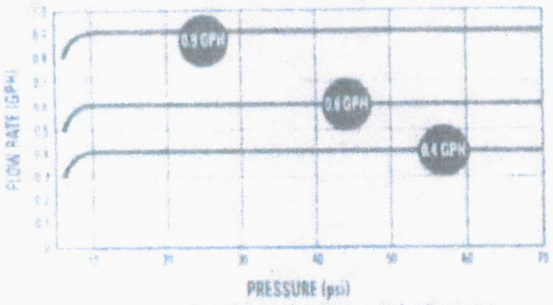

## BIOLINE EMITTER OPERATION

Bioline® dripperline emitters are pressure compensating - delivering the water uniformly into the soil for further treatment or for reuse by the landscape. These unique emitters allow the tubing to be installed on flat topography or steep slopes.

Bioline emitters are protected against microbial slime. Each emitter is impregnated with an antimicrobial agent to resist biological build-up.

Netafim emitters are 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.

## DRIPPER FLOW RATE VS. PRESSURE

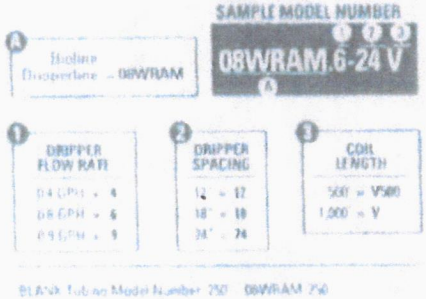



Between 5 and 7 psi, the dripper functions as a turbulent flow emitter, ensuring that the nominal design flow is not exceeded at system start-up.

## FLOW PER 100 FEET

| DRIPPER SPACING | 0.4 GPH DRIPPER | | 0.6 GPH DRIPPER | | 0.9 GPH DRIPPER | |
|---|---|---|---|---|---|---|
| | GPH | GPM | GPH | GPM | GPH | GPM |
| 12" | 40.0 | 0.67 | 61.0 | 1.02 | 92.0 | 1.53 |
| 18" | 26.7 | 0.44 | 41.0 | 0.68 | 61.0 | 1.02 |
| 24" | 20.0 | 0.34 | 31.0 | 0.51 | 46.0 | 0.77 |

## SPECIFYING INFORMATION




BLANK Tubing Model Number 250 - 08WRAM 250

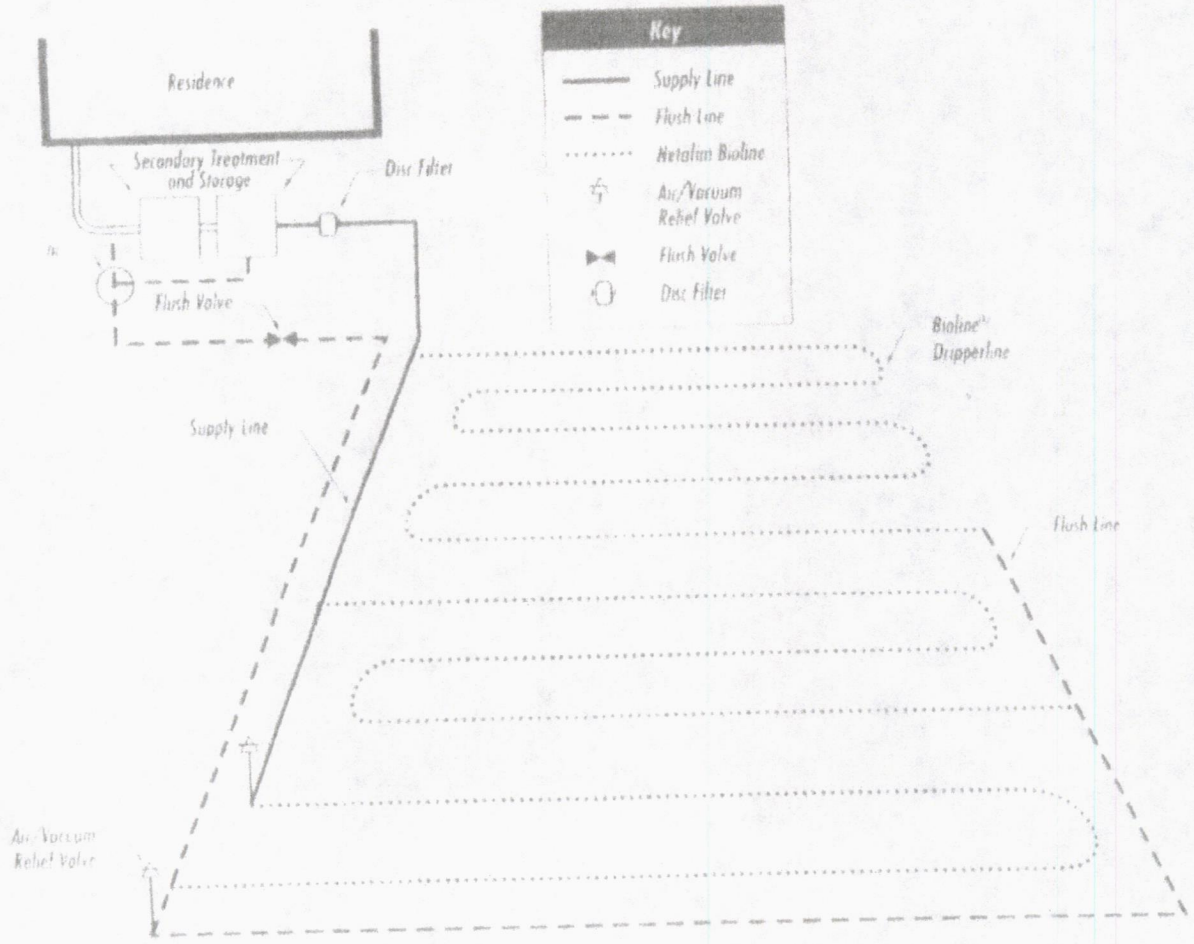
## ORDERING INFORMATION

| FLOW RATE | DRIPPER SPACING | COIL LENGTH | MODEL NUMBER |
|---|---|---|---|
| 0.4 GPH | 12" | 1,000 | 08WRAM 4-12V |
| | | 500 | 08WRAM 4-12V500 |
| 0.4 GPH | 18" | 1,000 | 08WRAM 4-18V |
| | | 500 | 08WRAM 4-18V500 |
| 0.4 GPH | 24" | 1,000 | 08WRAM 4-24V |
| | | 500 | 08WRAM 4-24V500 |
| 0.6 GPH | 12" | 1,000 | 08WRAM 6-12V |
| | | 500 | 08WRAM 6-12V500 |
| 0.6 GPH | 18" | 1,000 | 08WRAM 6-18V |
| | | 500 | 08WRAM 6-18V500 |
| 0.6 GPH | 24" | 1,000 | 08WRAM 6-24V |
| | | 500 | 08WRAM 6-24V500 |
| 0.9 GPH | 12" | 1,000 | 08WRAM 9-12V |
| | | 500 | 08WRAM 9-12V500 |
| 0.9 GPH | 18" | 1,000 | 08WRAM 9-18V |
| | | 500 | 08WRAM 9-18V500 |
| 0.9 GPH | 24" | 1,000 | 08WRAM 9-24V |
| | | 500 | 08WRAM 9-24V500 |
| Blank Tubing 17mm | | 250 | 08WRAM 250 |

### IRREGULAR FIELD SHAPE LAYOUT

Triangular field with looping and varied positioning of flush manifolds

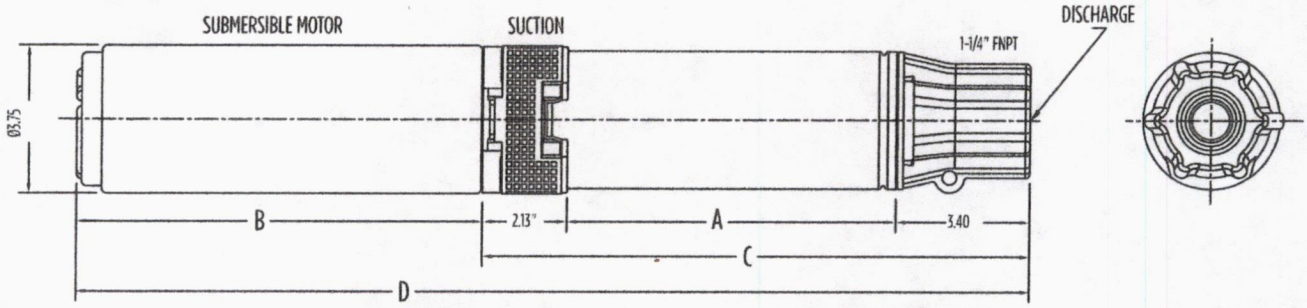
- Used when site limitations dictate unequal dripperline length with respect to dispersal field length
- Loop the Bioline® to increase lateral length and reduce the number of connections
- Keep the Bioline laterals as close to the same length as possible to provide for an equal field flush
- The flush manifold may be located on the same or opposite side of the supply manifold
- As pictured, it may be necessary to make one or more distal end connections to the flush line on an opposing side in order to balance dripperline lateral lengths and to limit the number of connections



# Pump Curve Data Sheet

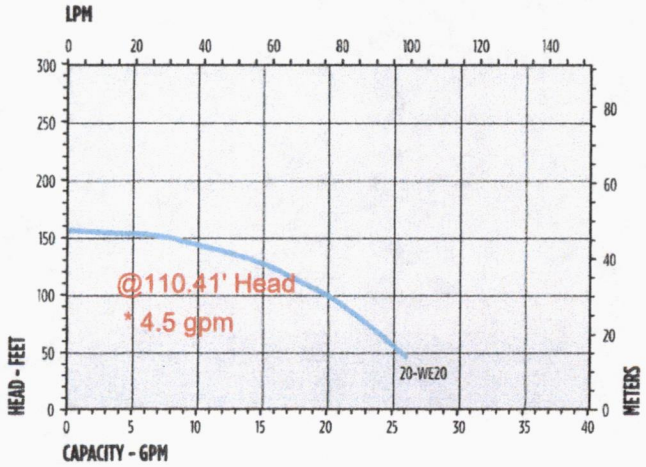
## WE SERIES - 1/2 HP

### ENGINEERING DATA




| Model | A | B | C | D |
|---|---|---|---|---|
| 2-Wire 10 gpm | 7" 17.78 cm | 9.38" 23.83 cm | 12.53" 31.83 cm | 21.91" 55.65 cm |
| ✓ 2-Wire 20 gpm | 9" 22.86 cm | 9.38" 23.83 cm | 14.53" 36.91 cm | 23.91" 60.73 cm |
| 2-Wire 30 gpm | 6.5" 16.51 cm | 9.38" 23.83 cm | 12.03" 30.56 cm | 21.41" 54.38 cm |

### PERFORMANCE DATA




### CONSTRUCTION

| | |
|---|---|
| **Motor Housing** | Stainless steel |
| **Impeller Material** | Celcon |
| **Diffuser** | Glass-filled PPO |
| **Power Cord** | 10' SJOW |
| **Check Valve** | Celcon |
| **Fasteners** | Stainless steel |
| **Shaft** | Stainless steel |
| **Bearings** | PEEK |
| **Discharge** | Glass-filled polypropylene |