

**MATAGORDA COUNTY
INSTRUCTIONS & TERMS OF CONTRACT**

OPENING DATE:	BID NUMBER:	DATE ISSUED:	PAGE:	OF:
9/9/2024	24-0004	8/11/2024	1	16

INSTALL A SEPTIC SYSTEM LOCATED AT THE FOLLOWING LOCATION

Vanessa Mangum 2766 County Road 126 Van Vleck, Texas 77482

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 **Vanessa Mangum 2766 County Road 126 Van Vleck, Texas 77482**

\$ _____

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

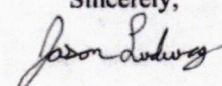
The existing septic is a conventional gravity system for an existing three-bedroom home. There were two 500-gallon tanks that were tied together. During the site visit there was significant ponding around the septic tanks. The system does not appear to be discharging to the field lines due to tank failure.

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.



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
 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:

COUNTY:

**MATAGORDA COUNTY
ENVIRONMENTAL HEALTH**

By: _____

By: _____

Name: _____

Name: _____

Title: _____

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 Alteration

Property Owner's Information

Name Vanessa Mangum
 Address 2766 CR 126
 City Van Vleck State Texas
 Zip Code 77482 Phone 979 479 7646

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 # 11245
 Legal Description: BURNETT & SOJOURNER AB 13 3.3570 AC (PLAT A)
 Street/Road Address 2766 CR 126
 County Matagorda City Van Vleck
 Zip Code 77482 Property Size _____
 Acreage 3.357

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

Additional Information _____

TOPOGRAPHY

Slope	Vegetation	Site Drainage	Reference Soil Survey Book
<input checked="" type="checkbox"/> Flat (under 2%)	<input checked="" type="checkbox"/> Grass/Brush	<input checked="" type="checkbox"/> Poor	<input type="checkbox"/> Seasonal water table
<input type="checkbox"/> Slight (under 4%)	<input type="checkbox"/> Lightly Wooded	<input type="checkbox"/> Adequate	<input type="checkbox"/> Water table (upper water shed) evident Depth: _____
<input type="checkbox"/> Severe (over 5%)	<input checked="" type="checkbox"/> Heavily Wooded	<input type="checkbox"/> Good	<input type="checkbox"/> Presence of adjacent ponds, streams, water impoundments

Comments/Observations: _____

WATER SUPPLY

Private Public Name of public water supplier _____

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 Surface Spray

Soil Boring Number <u>1</u>					
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		Clay	N/A	No Mottles	No
2	IV				
3					
4					
5					
6					

Soil Boring Number <u>2</u>					
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		Clay	N/A	No Mottles	No
2	IV				
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
 Signature of Certified Site Evaluator/PE & License #

5-22-24
 Date

Property Details

Account

Property ID:	11245	Geographic ID:	0013-0000-0176A0
Type:	Real	Zoning:	2A
Property Use:		Condo:	

Location

Situs Address:	2766 CR 126 OLD VAN VLECK RD VAN VLECK, TX 77482		
Map ID:	276V	Mapsco:	
Legal Description:	BURNETT & SOJOURNER AB 13 3.3570 AC (PLAT A)		
Abstract/Subdivision:	0013 - BURNETT & SOJOURNER		
Neighborhood:	V101L75F		

Owner

Owner ID:	128413
Name:	MANGUM VANESSA D ETAL

Agent:

Mailing Address:	HEIR OF MANGUM PEARL SAUCEDA ESTATE 2766 CR 276 VAN VLECK, TX 77482
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% Ownership:	100.0%
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Exemptions:	DP - DISABILITY HS - HOMESTEAD For privacy reasons not all exemptions are shown online.
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Property Values

Improvement Homesite Value:	\$0 (+)
Improvement Non-Homesite Value:	\$0 (+)
Land Homesite Value:	\$64,140 (+)
Land Non-Homesite Value:	\$0 (+)
Agricultural Market Valuation:	\$0 (+)
Market Value:	\$64,140 (=)
Agricultural Value Loss:	\$0 (-)

Appraised Value: \$64,140 (=)
Homestead Cap Loss: ② \$0 (-)

Assessed Value: \$64,140
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: MANGUM VANESSA D ETAL **%Ownership:** 100.0%

Entity	Description	Tax Rate	Market Value	Taxable Value	Estimated Tax	Freeze Ceiling
10	MATAGORDA COUNTY	0.359280	\$64,140	\$51,312	\$184.35	
25	VAN VLECK ISD	0.881890	\$64,140	\$13,421	\$118.36	
40	PORT OF BAY CITY	0.047540	\$64,140	\$51,312	\$24.39	
50	CONS & RECL DISTRICT	0.007040	\$64,140	\$51,312	\$3.61	
52	COASTAL PLAINS GROUNDWATER DIST	0.003520	\$64,140	\$64,140	\$2.26	
61	DRAINAGE DISTRICT #1	0.034470	\$64,140	\$51,312	\$17.69	
90	MATAGORDA CO HOSPITAL DISTRICT	0.263820	\$64,140	\$51,312	\$135.37	
CAD	County Appraisal District	0.000000	\$64,140	\$64,140	\$0.00	

Total Tax Rate: 1.597560

Estimated Taxes With Exemptions: \$486.03

Estimated Taxes Without Exemptions: \$1,024.67

National Flood Hazard Layer FIRMette

95°53'30"W 29°2'5"N



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, AE, AR
- 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 GENERAL STRUCTURES

- NO SCREEN
- Area of Minimal Flood Hazard Zone X
- Effective LOMRS
- Area of Undetermined Flood Hazard Zone X
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
- 17.5 Coastal Transect
- 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

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



0 250 500 1,000 1,500 2,000 Feet 1:6,000

95°52'52"W 29°1'34"N

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 5:43 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 unnumbered areas cannot be used for regulatory purposes.

Vanessa Mangum
2766 CR 126
Van Vleck, Texas

Disposal Area Required- 1,778 SF
Disposal Area Provided- 6,432 SF

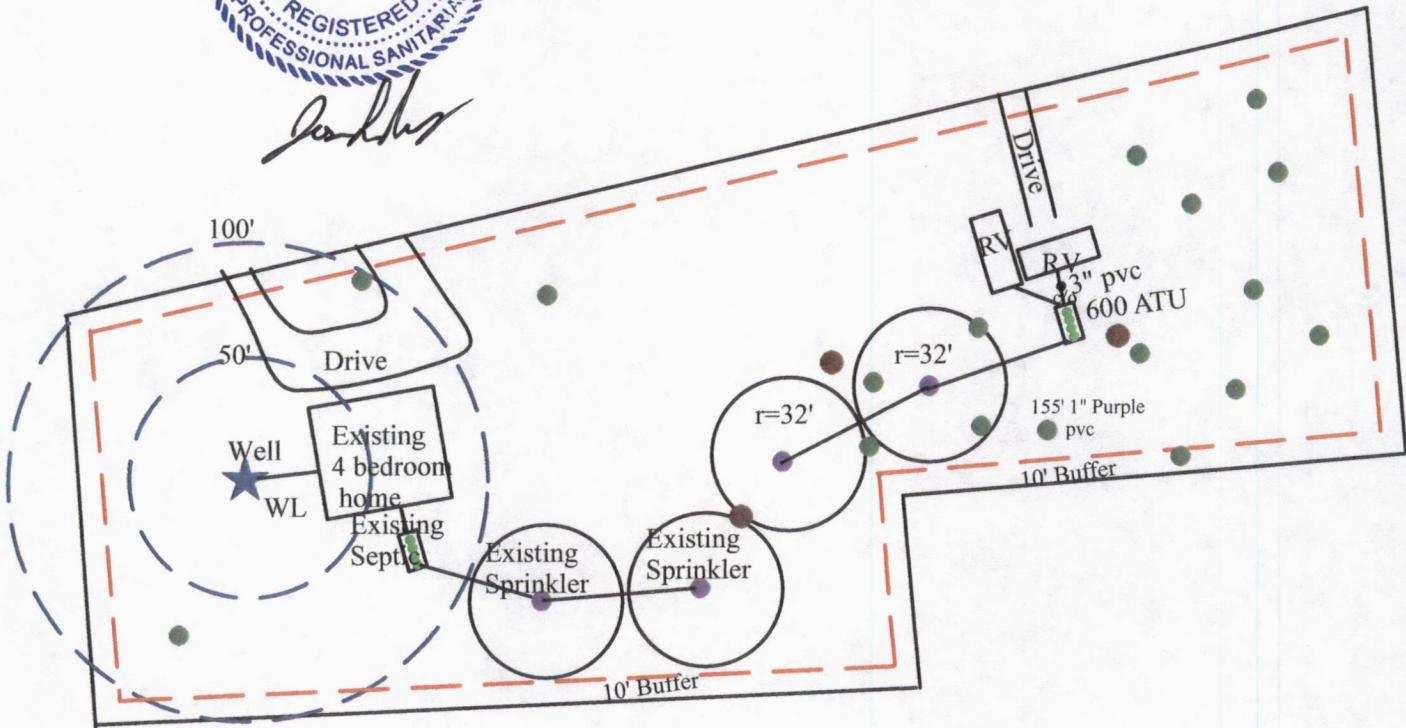
3.357 Acres

The property exhibits less than 3% slope across its entire area

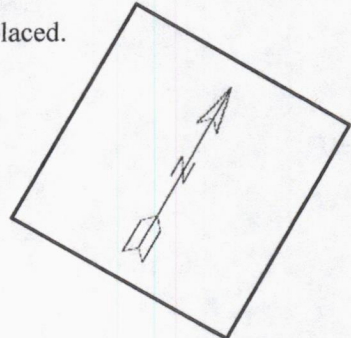
No public water wells within 150' of the property lines



Jason Ludwig



Note- New system is for the existing two RVs. The existing home system is not being replaced.



- = Soil Bore
- = Tree

100 Year Flood Plain- No
Scale 1"=80'

On-Site Sewage Facility Design Package

Vanessa Mangum

2766 CR 126

Van Vleck, Texas

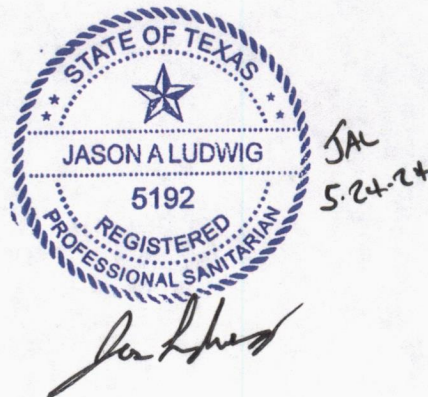
Designed by

Jason Ludwig

3744 CR 126

Van Vleck, Texas

Registered Professional Sanitarian RS5192



Septic System Design

Date: 5-24-24

Vanessa Mangum

2766 CR 126

Van Vleck, Texas

A. Wastewater Load

The OSSF will serve two existing RVs equipped with water saving devices. Wastewater load- 80 gallons per day total 40 gallons each.

B. Proposed Treatment Facility 30 TAC 285.91.2

NuWater 600 Aerobic Treatment Unit

353 Gallon Trash Tank

768 Gallon Pump tank

BOD rating- $\frac{80 \times 8.34 \times 600 \text{ mg/l}}{1,000,000} = .40 \text{ lbs BOD}$

Increased BOD rating from 300 mg/L to 600 mg/L for the RV

C. Chlorinator

Liquid Chlorinator is built into the ATU treatment system.

D. Surface Application Area

Qd/Ri- total Square Feet of Irrigation Area

$80 \text{ gpd} / .045 = 1,778 \text{ square feet of required irrigation area}$

E. Nozzle:

Use low angle Krain ProPlus or equivalent spray heads at 3.1 gpm.

Size application area to 2 spray heads (Full)= 6,432 square feet

2=#3 32R Nozzles

Spray Area: $32 \times 32 \times 3.14 = 3,216 \times 2 = 6,432 \text{ square feet}$

F. Pump Requirements:

2 Nozzles= 6.2 gpm

$1.55 \times 2.13 \times 1.2 + 5 = 8.96 + 93 = 101.96$ Total Dynamic Head in Feet

1" schedule 40 Purple pvc pipe for sprinkler system.

Total gallons per minute equal 6.2

½ horsepower pump capable of pumping 6.2 gallons per minute at 155'

Use 20 gpm, Franklin E Series or equivalent. 40 psi

G. 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 (27 Gallons required)

H. Time- ATU

ATU pump to be set to discharge spray between 24:00 and 05:00.

I. 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- **Pasture Grass and wooded**

There shall be no surface application area within ten feet of the sprinkler which would interfere with application of spray effluent.

The landscape shall be maintained by the owner to prevent sprinkler head interference, and uniform application of spray eluent.

The application shall be finished graded for positive drainage.

J. 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 surface application 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.
5. The chlorinator shall be maintained by the owner with an adequate amount, and proper type of chlorine

Disclaimer:

Any warranty of product(s) installed is those made by the manufacturer. The designer expressly disclaims all warranties, expressed or implied warranty of a particular purpose, and designer neither assumes nor authorizes any other person to assume for it any liability in connection with the design, installation, operation of the product. The permit holder assumes full responsibility of this system following final inspection approval by the permitting authority.

K. 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.

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.



Needville, TX
888-331-5871

Flotation Calculations

Model: B-550 & B-550NR

Description: NuWater 600 GPD Aerobic Treatment & Nitrogen Reduction Units

Given

Weight of Structure w/ Slab Top:	14,880 lbs.
Weight of Water:	62.4 pcf
Weight of Soil:	110 pcf
Volume of Structure at Flow Line:	Pretreatment Compartment = 353 gal. Aeration Compartment = 560 gal. Clarifier Compartment = 190 gal. Pump Compartment = 15" static volume 209 gal.

A. Weight of unit at operating condition "Down Forces":

- I. Structure Weight w/ Liquid: Unit weight + (total volume/7.48 gals/cu ft)x62.4 lb/ft³
14,880 lbs + (1312 /7.48)x62.4 = 25,825 lbs.
- II. Weight of soil: (2" overburden) (L x W x H) x 110 pcf
(13.67'x5.25'x2'/12) x 110 lb/ft³ = 1,316 lbs.
- III. Total Weight: Structure weight w/ Liquid + Total Soil Weight
25,825 lb + 1316 lb = 27,141 lbs.

B. Weight of water displacement "Up Forces": (L x W x H) x 62.4
(at 69" depth of bury) (5.25'x13.67'x5.75')x62.4 lb/ft³ = 25,750 lbs.

C. Factor of Safety (FS): Required FS: ≥1

Down Forces/Up Forces
27,141 / 25,750 = 1.05

When the FS = 1 the "down forces" will equal the "up force" and the structure will be in equilibrium.

When the FS is less than 1 the "up force" will be greater than the "down forces" and floating will occur.

X When the FS is greater than 1 the "up force" will be less than the "down forces" and floating will not occur.

Conclusion:

Total unit weight at operating condition "down Forces" of **27,141 lbs.** is greater than the weight of water displacement "up forces" **25,750 lbs.** therefore the upward forces causing flotation will not control.

Minimum burial depth:

For functional purposes the structure must be buried 2" below grade.

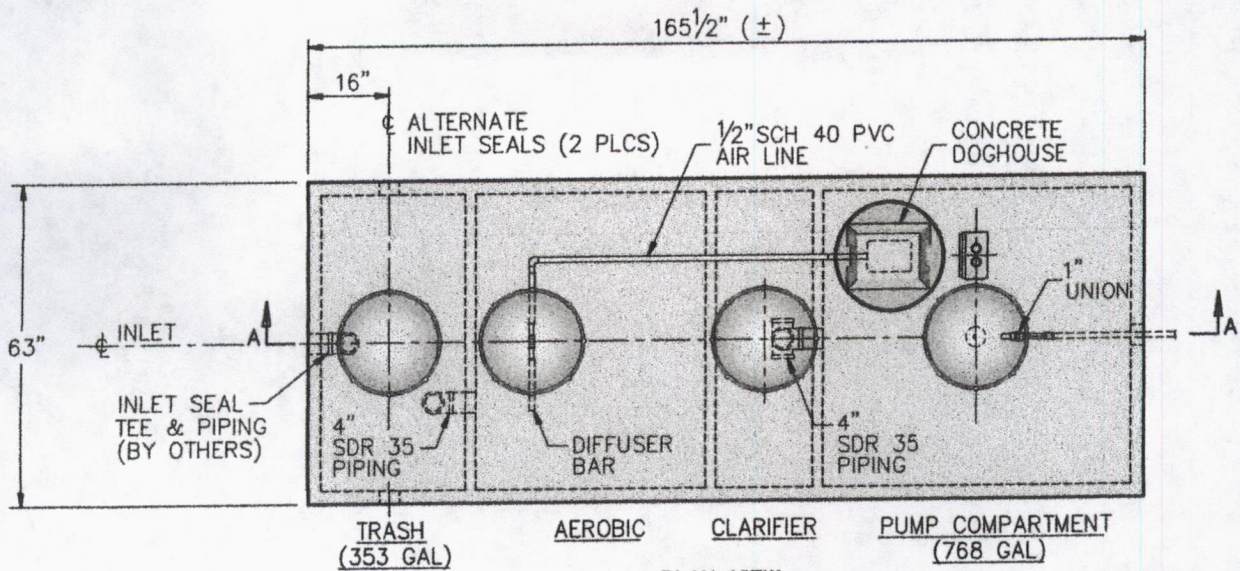
Approved By: _____

Date: _____

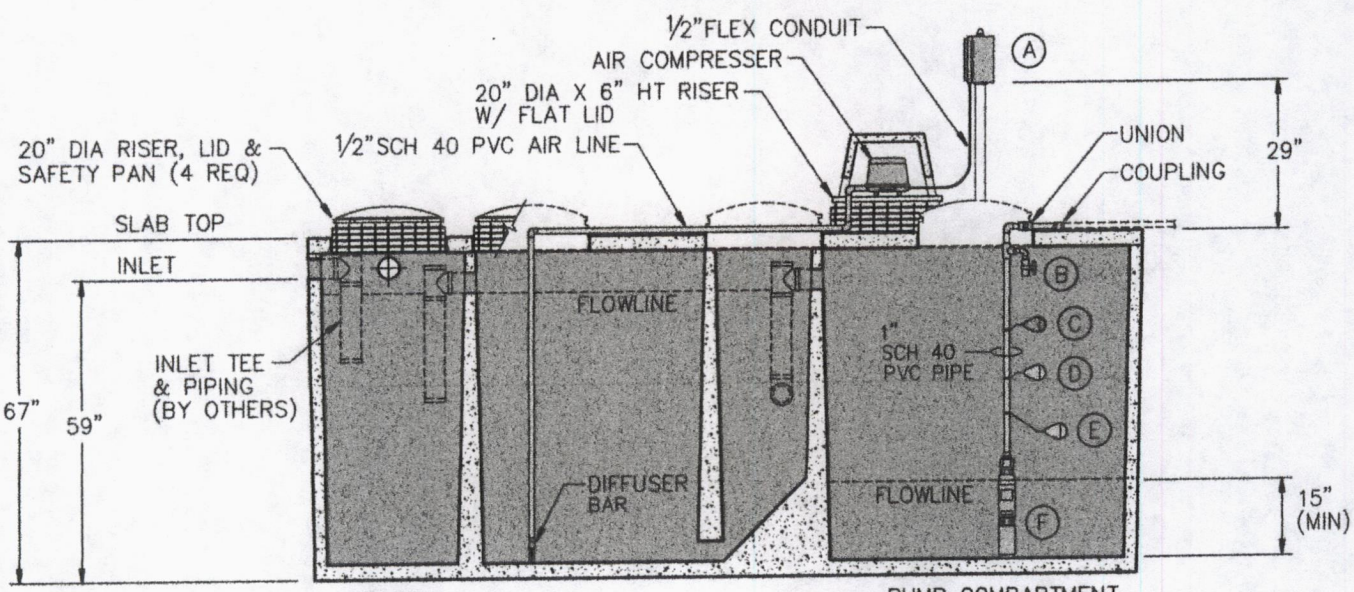
"Providing Concrete Environmental Solutions"

Seal:

Ronald L Berg
Engineering Services, LLC.
Texas Registered Firm No. F-1570



PLAN VIEW



SECTION A-A

GENERAL NOTES:

- DESIGN SHALL MEET OR EXCEED ASTM C-1227 SPECIFICATIONS
- 4000 PSI CONCRETE AT 28 DAYS
- ASTM A615, GRADE 60 REINFORCING
- TREATMENT CAPACITY: 600 GPD
- BOD LOADING: 1.5 LBS PER DAY

EQUIPMENT:

- TABLET OR LIQUID CHLORINATOR AVAILABLE
- ADDITIONAL RISERS AVAILABLE TO BRING ACCESS TO GRADE (NOT INCLUDED)

EQUIPMENT:

- (A) CONTROL PANEL W/ TIMER FOR NIGHT SPRAY APPLICATION (OPTIONAL DRIP DOSING PANEL AVAILABLE)
- (B) RELIEF VALVE
- (C) HIGH WATER ALARM FLOAT
- (D) PUMP OVERRIDE FLOAT
- (E) PUMP CONTROL FLOAT
- (F) 20 GPM 1/2 HIGH HEAD EFFLUENT PUMP

WEIGHT:

• 14,550 LBS

MINIMUM EXCAVATION DIMENSIONS:

- WIDTH - 76"
- LENGTH - 176"

BURIAL DEPTH:

• MAXIMUM BURIAL DEPTH TO BE 40" FROM SLAB TOP TO GRADE

* SEE FLOAT CONFIGURATION DRAWING FOR FLOAT SET-UP



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Needville, Texas, 77461
1-888-331-5871

"Providing Concrete Environmental Solutions"

NUWATER 600 GPD
ALL-IN-ONE
AEROBIC TREATMENT UNIT
MODEL: B-550 (ASSEMBLED)

NC-008-002

Scale: N.T.S.
* All Dimensions subject to allowable specification tolerances.

Date: 07/25/19

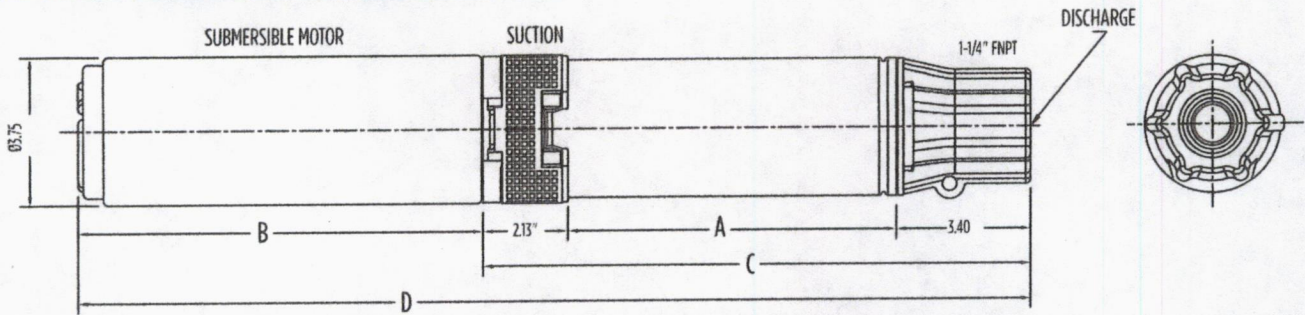
Rev Date: 10/24/22

Approved By: _____ Date: _____

Pump Curve Data Sheet

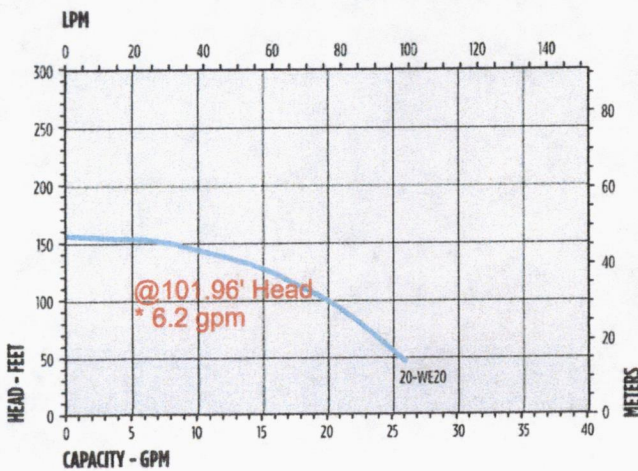
WE SERIES - 1/2 HP

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