

OSS_055-052_PA_20180830_AUTHORIZATION
Texas Commission on Environmental Quality
Investigation Report

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Customer: US NATIONAL PARK SERVICE
Customer Number: CN600386379

Regulated Entity Name: GMNP PINE SPRINGS
Regulated Entity Number: RN102878543

Investigation # 1513799
Investigator: MARIE GOMEZ
Conducted: 08/30/2018 -- 08/30/2018
Program(s): ON SITE SEWAGE FACILITY
Incident Numbers
Site Classification COMMERCIAL
No Industry Code Assigned
Investigation Type: Compliance Invest File Review
Location: CULBERSON
Additional ID(s): 055052

Address: ,
, ,
Local Unit: REGION 06 - EL PASO
Activity Type(s): OSSFNGPNRE - OSSF Non-Grant Plan Review

Principal(s):

Role	Name
RESPONDENT	US NATIONAL PARK SERVICE

Contact(s):

Role	Title	Name	Phone
REGULATED ENTITY MAIL CONTACT	SUPERINTENDENT	MR ERIC BRUNNEMANN	Office (915) 828-3269
PARTICIPATED IN		MR JAMES MCCAINE	Work (512) 239-4777
PARTICIPATED IN	ASSOCIATE ENGINEER	MR RAYMOND SALAZAR	Work (915) 533-4600

Other Staff Member(s):

Role	Name
QA Reviewer	ARTURO LEYVA
Investigator	ARTURO LEYVA
Supervisor	KENT WAGGONER

Associated Check List

<u>Checklist Name</u>	<u>Unit Name</u>
OSSF INSTALLATION - STANDARD SYSTEM INVESTIGATION	1

Investigation Comments:

INTRODUCTION

On August 30, 2018, Ms. Marie Gomez, Environmental Investigator with the Texas Commission on Environmental Quality (TCEQ) El Paso Region Office, reviewed a revised application for the proposed-On Site Sewage Facility (OSSF) at 400 Pine Canyon, Salt Flat (Culberson County), Texas. The application was assigned OSSF Permit #055052.

Contact Information

Property Owner: Guadalupe Mountains National Park
Mailing Address: 400 Pine Canyon Salt Flat, Texas 79847
911 Site Address: 400 Pine Canyon, Salt Flat, TX 79847
Phone: (915) 828-3251
Designer/Site Evaluator: Bernardo Olague, Lol Engineers (#81628)

DAILY NARRATIVE

On August 28, 2018, the investigator received a revised application for the proposed OSSF at the Guadalupe Mountains National Park. The application was hand delivered by Mr. Raymond Salazar from Frank X Spencer & Associates, Inc.

On August 29, 2018, the investigator and Mr. Arturo Leyva Environmental Investigator with the Texas Commission on Environmental Quality reviewed the application. On August 30, 2018, the investigator contacted Mr. Salazar to clarify a couple of discrepancies in the application, along with several deficiencies that were identified within the application, and one request from the investigator the day of final inspection. The two items that were clarified were:

1. The plans indicate that a 5,000-gal tank would be installed; the application proposed a 5,042-gal tank.
2. The drainfield had several discrepancies within the application and plans; required area is 16,800 sf. The Q Determination form indicated the 16,800 sf, plans indicated 17,592 sf, and the application indicated a proposed area of 17,600 sf.

In addition, the investigator contacted Mr. James McCain, Program Support Administration Section for TCEQ. The investigator, needed verification that the proposed drawings for sloping requirements were being met within this application. Mr. McCain advised the investigator that the drawings submitted with the application would meet TCEQ sloping requirements.

On September 5, 2018, the investigator received an e-mail from Mr. Salazar confirming the overdesign of the tank and drainfield. As per Mr. Salazar a 5,042-gallon tank will be installed, and the drainfield area will be 17,600 sq. ft.

The deficiencies on the application were as follows:

Item 1: Failure to design an OSSF system as per §285.8(4) the peak flow, calculated using either actual water use data or the data from §285.91(3) of this title, for each individual system is less than 5,000 gpd.

Item 2: Failure to design an OSSF system as per §285.8(5) the systems are used only for disposal of sewage produced on the tract of land where the systems are located.

Item 3: The baffle on the tank specs does not meet the requirements as per §285.32 (b)(1)(C)(i) as shown on Appendix Figure §285.90(6).

Item 4: Due to the 4.4% slope, the panels need to be installed on contours and using spillovers as shown in attached Figure 5. The plans for the sloping appear that it would saturate the lower trench before the upper trench was full. Thus, leading to failure.

In addition, due to the tank being a cast in place tank, a request to have the contractor conduct a leak test was made by the investigator. The leak test shall take place at the time of the final authorization inspection.

On September 05, 2018, the investigator received an e-mail from Mr. Salazar concerning the deficiencies.

Item 1: Mr. Salazar, contacted Tim Putnam, Project manager from Ridgeway Valley Enterprises Inc. about TxDOT needing their own separate waste water system in place first before cap is set. Mr. Salazar is waiting on a response from Mr. Putman to see what TxDOT's plan of action.

Item 2: Failure to design an OSSF system as per §285.8(5) the systems are used only for disposal of sewage produced on the tract of land where the systems are located.

Item 3: The baffle opening will be raised 1 foot higher and this will meet range of depth between 25% to 50% as required by TCEQ.

Item 4: Page 4 of 9 of design drawings shows an exaggerated detail of proposed leaching chambers with a 4.4% profile. It is shown on bottom right corner of page and titled "Cross Section B." To more accurately illustrate this detail, a close up of drawing is provided on page 7 of 9 on bottom left corner. It is titled "Serial Distribution System on Sloping Terrain Detail" and shows PVC pipe with bent angles and raised invert to control flow. This drawing does meet TCEQ sloping requirements.

Frank X Spencer & Associates, Inc. will add a note to the design drawings addressed to the contractor. The note will inform the contractor that the tank needs to pass a leak test at time of final inspection.

On September 11, 2018, the investigator contacted Mr. Salazar via telephone to discuss one more discrepancy within the application. The revised application indicates that ten (10) of the facilities went from less than 2,500 sf (as indicated on the first application) to less than 1,500 sf. The investigator informed Mr. Salazar that documentation would have to be provided to indicate the correct square footage of these facilities. Specifically, unit numbers 5, 10, 12, 13, 14, 15, 16, 18, 19 and 21 on the Q Determination form provided with the application.

On September 20, 2018, the investigator received via e-mail documentation from Mr. Salazar confirming the square footage for the units in question. However, two other units need to be added to the proposed system. The gallons per day (gpd) will change due to these two units being added. One of the units that needs to be added is unit 23; the Visiting Center (VC). The information provided states that the VC receives 1,200 visitors per day. The proposed system will exceed the allowable 5,000 gpd.

Although, a new Q Determination form was submitted to the investigator it was not used in the General Information System below because the data provided does not correspond with the application being submitted.

Reviewer Comment: The proposed OSSF cannot be authorized by Chapter 285 and may require a permit under Chapter 205 or Chapter 305 of this title (relating to General Permits for Waste Discharges or Consolidated Permits).

Recommended Corrective Action: Obtain permit under Chapter 205 or Chapter 305 of this title (relating to General Permits for Waste Discharges or Consolidated Permits).

Background

After initial review, it was determined that in order to process this application additional information was required. On December 15, 2017, a Notice of Deficiency letter was sent to Mr. Eric Brunnemann, Superintendent of Guadalupe National Park informing him of the following

Item 1: Failure to provide a responsible official on the application as per Health and Safety Code §366.053 (Item No. 9 on the application). In addition, the second application that was submitted on December 8, 2017 was not signed. This needs to be signed by the owner of the OSSF or location. In addition, the application does not include what this OSSF will be facilitating; application should state type of facility (residential commercial) Items No. 8 and No. 9.

Item 2: Failure to provide a licensed installer as per Health and Safety Code §366.053 (Item No. 11 on the application) Ridgway Valley Enterprises does not hold a OSSF license with TCEQ.

Item 4: Failure to provide % of slope as per §285.33 (b)(1)(G). Drainfields on irregular terrain. Where the ground slope is greater than 15% but less than 30%, a multiple line drainfield may be constructed along descending contours as shown in §285.90(5) of this title. An overflow line shall be provided from the upper excavations to the lower excavations. The overflow line shall be constructed from solid pipe with an SDR of 35 or stronger, and the excavation carrying the overflow pipe shall be backfilled with soil only.

Item 5: Failure to submit a complete site evaluation as per §285.30 (a). At the time of the application the TCEQ Site Evaluation and Planning Materials were not complete. The soil analysis that was submitted was not summarized according to the TCEQ table in §285.91. The geotechnical study that was submitted indicates Class III (Silty Loam), however the Q determination form that was submitted indicates Class II (Sandy Loam).

Item 6: Failure to provide septic tank minimum liquid capacity as per §285.91 Table III. At the time of the application, a one double compartment 5,000-gallon custom septic tank was being proposed; which does not meet TCEQ septic tank minimum liquid capacity rules and regulations.

GENERAL SYSTEM INFORMATION

GMNP PINE SPRINGS -

8/30/2018 Inv. # - 1513799

Page 4 of 4

The proposed system is designed to accommodate family dwellings located in Salt Flat (Culberson County), Texas.
Total Flow (Q): 4,200 gdp; OSSF to be designed for 4,200 gdp

For Q greater than 1,100 gdp the minimum septic tank volume must be $\text{Volume} = 1,750 + 0.75Q$

Tank Volume = $1,750 + 0.75Q = 4,900$ gallons

The application for the proposed OSSF consist of one double compartment 5,042-gallon custom septic tank.

The site evaluation indicates the soil class at the property of this site is Class II (Sandy Loam) that has a long-term application rate (Ra) of 0.25 gallons per absorptive area square feet (SF) per day.

Absorptive Area Required (AAreq): $\text{Flow (Q)} / \text{Application Rate (Ra)}$

AAreq = $4,200 \text{ gdp} / 0.25 \text{ gallons per absorptive area SF per day} = 16,800 \text{ square feet}$

Lf = $(0.6 \times 16,800 \text{ square feet}) / 5 \text{ feet} = 2,016 \text{ linear feet}$

2,016 linear feet / 4-foot leaching chambers = 504 required leaching chambers

Conclusion

A Closed Incomplete OSSF Application Letter will be issued to the facility. The proposed OSSF cannot be authorized by Chapter 285 and may require a permit under Chapter 205 or Chapter 305 of this title (relating to General Permits for Waste Discharges or Consolidated Permits).

No Violations Associated to this Investigation

Signed



Environmental Investigator

Date

10/5/18

Signed



Supervisor

Date

10/8/18

Attachments: (in order of final report submittal)

___ Enforcement Action Request (EAR)

☒ Letter to Facility (specify type): Final

___ Investigation Report

___ Sample Analysis Results

___ Manifests

___ Notice of Registration

___ Maps, Plans, Sketches

___ Photographs

___ Correspondence from the facility

☒ Other (specify):

See Electronic Attachments

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 5, 2018

Mr. Eric Brunnemann, Superintendent
Guadalupe Mountains National Park
400 Pine Canyon
Salt Flat, TX 79847

Re: On-site Sewage Facilities (OSSF) Permit Application
Located at: 400 Pine Canyon, Salt Flat, Culberson County, Texas
OSSF Permit Application Number 055052
Compliance Investigation File Review Number 1513799

Dear Mr. Brunnemann:

We have received your information regarding an on-site sewage facility to be constructed in Culberson County, Texas. After review, it was determined that the proposed OSSF cannot be authorized under 30 TAC Chapter 285 and may require a permit under Chapter 205 or Chapter 305 of this title (relating to General Permits for Waste Discharges or Consolidated Permits). Therefore, we are closing your file. If you wish to continue this project, you will need to submit a new application, fee, and planning materials for a system authorized under Chapter 285.

If you have any questions, or if we may be of assistance to you, please contact Ms. Marie Gomez in the El Paso Region Office at (915) 834-4952.

Sincerely,

A handwritten signature in black ink that reads "Kent Waggoner".

Kent Waggoner, P.G.
Section Manager
El Paso Regional Office
Texas Commission on Environmental Quality

KW/mg

cc: Raymond M. Salazar
Associate Engineer
FXSA, Inc.
1130 Montana
El Paso, TX 79902

Q DETERMINATION

Note: GPD Per Unit were obtained using TCEQ Chapter 285.91, Table III

PINE SPRINGS NATIONAL PARK SERVICES SYSTEM

MANUFACTURER OF SEPTIC SYSTEM: INFILTRATOR SYSTEMS INC. (Quick4 Chambers, Ezflow, Septic Tanks and Risers in Texas)

Quick4 High Capacity Nominal Chamber Dimensions: 34"Wx48"Lx18"H, 62 gallons/per chamber

Formula used for the length required: $L = 0.6A/(W+2)$; where L is excavation length in feet, A is absorptive area, and W is excavation width in feet

Land Owner: Guadalupe Mountains National Park Services

Designer: Daniel Avila, P.E.

PROJECT: FXSA E1819EP

Reviewed by: Victor Enciso, P.E.

TCEQ 285.91 Table VI, and LOI Geotechnical Engineering Study
Soil Classification II

TCEQ CH 285.91, Table I	
SOIL CLASS	Ra (SF)
Ia	>0.50
Ib	0.38
II	Ra = 0.25
III	0.2
IV	0.1

The required absorptive area shall be calculated by the following formula (TCEQ Ch 285.91 Table I)	
$A = Q/Ra$	
$A = (3728 \text{ GPD}) / (0.25 \text{ GPD/ft}^2)$	
A =	14912 ft ²

Where: A = Absorptive Area (ft²)
Q = Wastewater Usage Rate (GPD)
Ra = Long Term Application (GPD/ft²)

MINIMUM REQUIRED NUMBER OF CHAMBERS	
According to Infiltrator Systems, Inc., Design and Installation Manual for Quick4 Chambers ..., page 4:	
$L = 0.6A/(W+2)$	
$L = (0.6 \times 14912 \text{ ft}^2) / (3 \text{ ft} + 2 \text{ ft})$	
L =	1789 ft
No of Chambers = $L / 4 \text{ ft}$	
No of Chambers = $1789 \text{ ft} / 4 \text{ ft}$	
No of Chambers	447

Where: L = Excavation Length (ft)
A = Absorptive area (ft²)
W = Excavation Width (ft)

Note: For Quick4 High Capacity Chambers W = 3 ft
4 ft is used to divide L, because it is the prefabricated individual chamber lengths

TCEQ CH 285.91 Table II	
Septic Tank Minimum Liquid Capacity	
5 For Q greater than or equal to 1001 gal/day:	
$V = 1,750 + 0.75Q$	
$V = 1,750 \text{ gal} + 0.75 \text{ day}(3728 \text{ gal/day})$	
V =	4546 Gal

Where: V = Minimum Volume of Septic Tank (Gallons)
Q = Applicable Wastewater Usage Rate (gal/day)

SYSTEM USAGE RATE		
TCEQ CH 285.91, Table III	UNIT #	(GAL/DAY)
Office w/ max 14 occupants	1	56
Office w/ max 4 occupants	2	16
Recreation Center w/ max 30 occupants	3	120
Res. Less than 1,500 SF	4	180
Res. Less than 1,500 SF	5	180
Res. Less than 1,500 SF	6	180
Res. Less than 1,500 SF	7	180
Res. Less than 1,500 SF	8	180
Res. Less than 1,500 SF	9	180
Res. Less than 2,500 SF	10	240
Res. Less than 1,500 SF	11	180
Res. Less than 2,500 SF	12	240
Office w/ max 8 occupants	13	32
Res. Less than 2,500 SF	14	240
Res. Less than 2,500 SF	15	240
Res. Less than 2,500 SF	16	240
Res. Less than 1,500 SF	17	180
Res. Less than 2,500 SF	18	240
Res. Less than 2,500 SF	19	240
Office w/ max 8 occupants	20	32
Res. Less than 2,500 SF	21	240
Office w/ max 8 occupants	22	32
Visitor Center/lead Quarters w/ max 20 occupants	23	80

Total Q =	3728	GPD
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Maria Gomez

From: Val Call <val_call@nps.gov>
Sent: Thursday, September 20, 2018 9:19 AM
To: Raymond M. Salazar
Subject: Re: [EXTERNAL] Visitor Center/ Headquarters Facility

Raymond,
Yes the VC/HQ uses the same sewer line, it is the start of the system.
Thanks,

Sent from my iPhone

On Sep 20, 2018, at 8:41 AM, Raymond M. Salazar [REDACTED] wrote:

Val,

Do you know if the visitor center/headquarters building is using the same sewer line as the resident homes and other offices? Since it's kind of far away from the homes and offices I wasn't sure.

<image001.jpg>

Maria Gomez

From: Call, Val <val_call@nps.gov>
Sent: Monday, September 17, 2018 4:08 PM
To: Raymond M. Salazar
Cc: Gabriel Reveles; Carlos Mendoza; Nancy Lopez
Subject: Re: [EXTERNAL] Square Footage on Existing Park Housing

Follow Up Flag: Follow up
Flag Status: Flagged

Raymond,

Yes, they have water saving toilets and wash sinks with electronic shut offs.

Office # 22 would generally have a Max of 8 occupants

Visitor Center/ Headquarters have approximately a Max of 20 occupants in the offices and a Max of 1,200 Visitors a day.

Let me know if you have any other questions.

Thank you,

On Mon, Sep 17, 2018 at 3:37 PM Raymond M. Salazar <[REDACTED]> wrote:

Val,

The updated drawings and list work for us very well. We will be including the additional office (#22) and visitor center (#23) into our volume calculations. By any chance do you know if the offices and visitors centers have water saving devices installed in them? Would you also be able to give us an approximation of the maximum number of occupants there are at a given time for the offices and visitors center?

From: Call, Val <val_call@nps.gov>
Sent: Monday, September 17, 2018 2:37 PM
To: Raymond M. Salazar <[REDACTED]>
Cc: Gabriel Reveles <[REDACTED]>; Carlos Mendoza <[REDACTED]>; Nancy Lopez <[REDACTED]>
Subject: Re: [EXTERNAL] Square Footage on Existing Park Housing

Raymond,



Texas Commission on Environmental Quality
APPLICATION FOR ON-SITE SEWAGE FACILITY
NEW CONSTRUCTION

6
TCEQ REGION NUMBER

El Paso
COUNTY OF INSTALLATION

TCEQ USE ONLY

APPLICATION NO.

DATE RECEIVED

AMOUNT

National Park Services - FXSA P.#: E1619EP

1. PROPERTY OWNER'S NAME: Guadalupe Mountains National Park
(Last) (First) (Middle)
2. CURRENT MAILING ADDRESS: 400 Pine Canyon, Salt Flat, Texas 79847
3. HOME PHONE NO.: (915) 828-3251 OTHER or FAX NO.: (915) 828-3269
4. 911 SITE ADDRESS: 400 Pine Canyon, Salt Flat, Texas 79847
5. PROPERTY LEGAL DESCRIPTION: Pine Springs National Park Services (Visiting Center & Campground)
Acreage: 510.3 Plat Date: N/A Subdivision name (if applicable): N/A
PLEASE ATTACH VERIFICATION OF LEGAL DESCRIPTION SUCH AS A COPY OF: DEED, PLAT MAP, SURVEY, OR OTHER DOCUMENTATION CONTAINING LEGAL DESCRIPTION
6. DIRECTIONS TO SITE: From El Paso, TX: Take HWY 62/180 East for approx. 113 miles; Turn East at Pine Springs onto Park View Lane; You have arrived to destination.
7. SOURCE OF WATER: ☒ Private Well ☐ Public Water Supply _____
(Name of Supplier)
8. SINGLE FAMILY RESIDENCE: No. of Bedrooms: Varies (1 to 3) Living Area (ft²): 1,500
9. COMMERCIAL/INSTITUTIONAL (other than single-family residence) TYPE: Offices for Pine Springs Services
BUSINESS / INSTITUTION NAME: Guadalupe Mountains National Park, Pine Springs
RESPONSIBLE OFFICIAL: Eric Brunneman, N.P.S. Superintendent NO. OF EMPLOYEES/UNITS: 21 Units (See page 9 attached to Application)
10. SITE EVALUATOR: Bernardo Olague, LOI Engineers LICENSE NO. 81628
PHONE NO.: (915) 781-1532 OTHER or FAX NO.: (915) 781-1190
MAILING ADDRESS: 2101 E. Missouri Ave. CITY: El Paso STATE: Texas ZIP: 79903
11. INSTALLER: John A McCollum LICENSE NO.: OS0033789
PHONE NO.: (970) 249-9453 OTHER or FAX NO.: (970) 249-9589 (Fax)
MAILING ADDRESS: 175 Merchant Dr. CITY: Montrose STATE: Colorado ZIP: 81401

I certify that the above statements are true and correct to the best of my knowledge. Authorization is hereby given to the Texas Commission on Environmental Quality to enter upon the above described property for the purpose of soil/site evaluation and investigation of an on-site sewage facility.

SIGNATURE OF OWNER: Eric Brunneman DATE: 08.12.2018

This application may be executed in separate and multiple counterparts, which together shall constitute a single instrument. Any executed signature on this agreement may be transmitted by digital or electronic transmission, including but not limited to facsimile transmission and electronic mail. Any signature affixed to this application shall constitute an original signature for all purposes.

Texas Commission on Environmental Quality

ON-SITE SEWAGE FACILITY
TECHNICAL INFORMATION FOR PERMIT

PROFESSIONAL DESIGN REQUIRED?: ☒ Yes ☐ No If yes, professional design attached: ☒ Yes ☐ No

Designer Name: Frank X Spencer, PE, RPLS., FXSA, Inc. License Type and No. 41152

Phone No. (915) 533-4600 Other or Fax No. (915) 533-4673

Mailing Address: 1130 Montana Ave. City: El Paso State: Texas Zip: 79902

I. TYPE AND SIZE OF PIPING FROM: (EXAMPLE: 4" SCH 40 PVC)

Stub out to treatment tank: 6" SDR 26 PVC

Treatment tank to disposal system: 8" SDR 26 PVC

II. DAILY WASTEWATER USAGE RATE: Q= 4,200 (gallons/day) Pine Springs National Park Services

Water Saving Devices: ☐ Yes ☒ No

III. TREATMENT UNIT(S): ☒ Septic Tank ☐ Aerobic Unit

A. Tank Dimensions: 8'-4" x 18'-0"

• Liquid Depth (bottom of tank to outlet): 6'-0"

• Size Proposed: 5,042 (gal) •

Manufacturer: N/A (Not a precast tank)

• Material/Model #: N/A (Not a precast tank, will be cast-in-place concrete septic tank with liquid volume capacity of 5,042 Gallons)

• Pretreatment Tank: ☐ Yes SIZE: _____ (gal) ☒ No ☒ NA

• Pump/Lift Tank: ☐ Yes SIZE: _____ (gal) ☒ No ☒ NA

B. OTHER ☒ Yes ☐ No If yes, please attach description. ←

Cast-in-place concrete septic tank,
per TCEQ specifications (285.32).
See attached plans.

IV. DISPOSAL SYSTEM:

Disposal Type: Leaching Field

Manufacturer and Model: Infiltrator Systems, Inc., Quick 4 Plus High Capacity Chambers

Area Proposed: 17,600 square feet Pine Springs National Park Services

V. ADDITIONAL INFORMATION:

NOTE - THIS INFORMATION MUST BE ATTACHED FOR REVIEW TO BE COMPLETED.

(A) Soil/Site evaluation (B) Planning materials (If Applicable)

**DO NOT BEGIN CONSTRUCTION PRIOR TO OBTAINING AUTHORIZATION TO CONSTRUCT.
UNAUTHORIZED CONSTRUCTION CAN RESULT IN CIVIL AND/OR ADMINISTRATIVE
PENALTIES.**

SIGNATURE OF INSTALLER OR DESIGNER: John McCall DATE: 8-24-18

If you have questions on how to fill out this form or about the on-site sewage facility program, please contact us at your local regional office or at 512/239-3799. Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

This application may be executed in separate and multiple counterparts, which together shall constitute a single instrument. Any executed signature on this agreement may be transmitted by digital or electronic transmission, including but not limited to facsimile transmission and electronic mail. Any signature affixed to this application shall constitute an original signature for all purposes.

Q DETERMINATION

Note: GPD Per Unit were obtained using TCEQ Chapter 285.91, Table III

PINE SPRINGS NATIONAL PARK SERVICES SYSTEM

MANUFACTURER OF SEPTIC SYSTEM: INFILTRATOR SYSTEMS INC. (QUICK4 Chambers, Ezflow, Septic Tanks and Risers in Texas)

Quick4 High Capacity Nominal Chamber Dimensions: 34"Wx48"Lx16"H, 62 gallons/per chamber

Formula used for the length required: $L = 0.6A/(W+2)$; where L is excavation length in feet, A is absorptive area, and W is excavation width in feet

Land Owner: Guadalupe Mountains National Park Services

Designer: Daniel Avila, P.E.

PROJECT: FXSA E1619EP

Reviewed by: Victor Enciso, P.E.

TCEQ 285.91 Table VI, and LOI Geotechnical Engineering Study
Soil Classification II

TCEQ CH 285.91, Table I	
SOIL CLASS	Ra (SF)
Ia	>0.50
Ib	0.38
II	Ra = 0.25
III	0.2
IV	0.1

The required absorptive area shall be calculated by the following formula (TCEQ Ch 285.91 Table I)	
$A = Q/Ra$	
$A = (4200 \text{ GPD}) / (0.25 \text{ GPD/ft}^2)$	
A=	16800 ft ²

Where: A = Absorptive Area (ft²)
Q = Wastewater Usage Rate (GPD)
Ra = Long Term Application (GPD/ft²)

MINIMUM REQUIRED NUMBER OF CHAMBERS	
According to Infiltrator Systems, Inc., Design and Installation Manual for Quick4 Chambers..., page 4:	
$L = 0.6A/(W+2)$	
$L = (0.6 \times 16800 \text{ ft}^2) / (3 \text{ ft} + 2 \text{ ft})$	
L=	2016 ft
$\text{No of Chambers} = L / 4 \text{ ft}$	
$\text{No of Chambers} = 2016 \text{ ft} / 4 \text{ ft}$	
No of Chambers	504

Where: L = Excavation Length (ft)
A = Absorptive area (ft²)
W = Excavation Width (ft)
Note: For Quick4 High Capacity Chambers W = 3 ft
4 ft is used to divide L, because it is the prefabricated individual chamber lengths

TCEQ CH 285.91 Table II	
Septic Tank Minimum Liquid Capacity	
5. For Q greater than or equal to 1001 gal/day:	
$V = 1,750 + 0.75Q$	
$V = 1,750 \text{ gal} + 0.75 \text{ day}(4,200 \text{ gal/day})$	
V=	4900 Gal

Where: V = Minimum Volume of Septic Tank (Gallons)
Q = Applicable Wastewater Usage Rate (gal/day)

TCEQ CH 285.91, Table III	SYSTEM USAGE RATE	
	UNIT #	(GAL/DAY)
Office w/ max 14 occupants	1	70
Office w/ max 8 occupants	2	40
Office w/ max 8 occupants	3	40
Res. Less than 1,500 SF	4	225
Res. Less than 1,500 SF	5	225
Res. Less than 1,500 SF	6	225
Res. Less than 1,500 SF	7	225
Res. Less than 1,500 SF	8	225
Res. Less than 1,500 SF	9	225
Res. Less than 1,500 SF	10	225
Res. Less than 1,500 SF	11	225
Res. Less than 1,500 SF	12	225
Res. Less than 1,500 SF	13	225
Res. Less than 1,500 SF	14	225
Res. Less than 1,500 SF	15	225
Res. Less than 1,500 SF	16	225
Res. Less than 1,500 SF	17	225
Res. Less than 1,500 SF	18	225
Res. Less than 1,500 SF	19	225
Res. Less than 1,500 SF	20	225
Res. Less than 1,500 SF	21	225

Total Q =	4200	GPD
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Frank X. Spencer & Associates, Inc.
Consulting Civil Engineers & Surveyors

1130 Montana Ave.
El Paso, Texas 79902
Ph: (915) 533.4600 • F: (915) 533.4673
www.fxsa.com • elpaso@fxsa.com

SEND VIA:

☒ DELIVERY
☐ PICK-UP

☐ REGULAR MAIL
☐ OVER NIGHT

LETTER OF TRANSMITTAL

DATE: 8/28/2018

TO: TCEQ
401 Franklin Ave.
Suite 560
El Paso, Tx 79901

ATTN: OSSF'S APPLICATION

RE: APPLICATION FOR ON-SITE SEWAGE FACILITY NEW CONSTRUCTION
GUADALUPE MOUNTAINS NATIONAL PARK -REPLACE MAIN WASTEWATER SYSTEM
E1619EP-REPLACE MAIN WASTEWATER SYSTEM

WE ARE SENDING YOU:

- ☐ SHOP DRAWINGS
- ☒ ORIGINAL DRAWINGS
- ☒ PRINTS
- ☐ SPECIFICATIONS
- ☒ REPORTS
- ☒ AS NOTED

THESE ARE TRANSMITTED:

- ☒ AS REQUESTED
- ☒ FOR YOUR USE
- ☒ FOR REVIEW & COMMENT
- ☐ RETURN FOR CORRECTIONS
- ☒ FOR YOUR APPROVAL
- ☐ REVISE & RESUBMIT

QUANTITY	NUMBER	DESCRIPTION
1 Set	2 Sheets	Application form TCEQ-0235 -Signed
1 Set	2 Sheets	Signed TCEQ Site Evaluation Plan
1 Set	3 Sheets	Log of Test Boring No B-4, B-5, and B-6 (Extracted from File No. LOI 16-184 11/12/2016)
1 Set	1 Sheet	Q Determination Calculations
1 Set	1 Sheet	Map of Residential Houses and Offices
1 Set	9 Sheets	Signed and Seal Set of Plans (22X34)

REMARKS:

DISTRIBUTION:

PREPARED BY:

RECEIVED BY:

Raymond Salazar

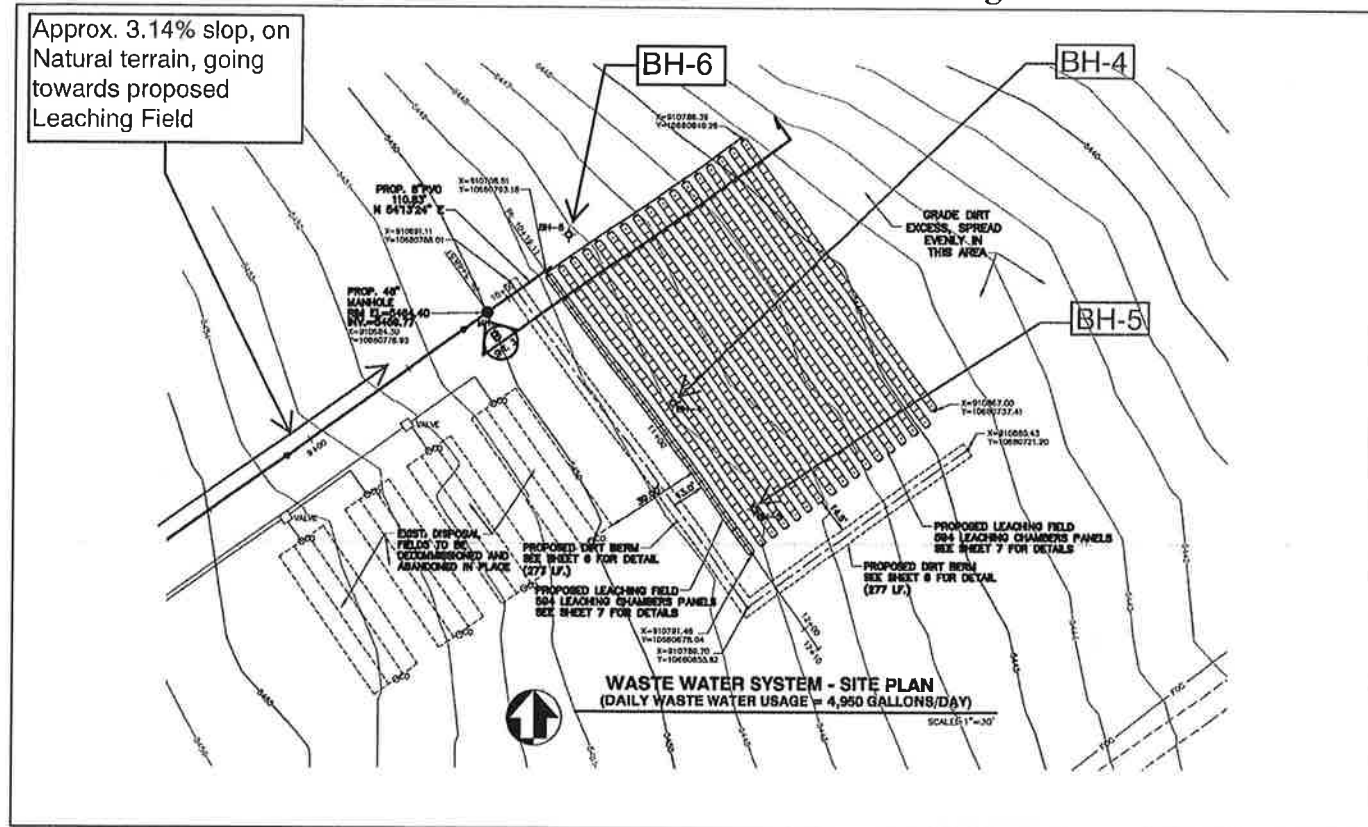


RCVD BY
RCVD Date

[Signature]
8/28/18

Soil Boring/Backhoe Pit Number <u>B-5</u>						
Depth (Feet)	Soil Class	Gravel Analysis	Restrictive Horizon	Groundwater	Topography	Flood Hazard
0	 II	↑ Round to Subangular ↓	↑ Not encountered at this depth ↓	↑ Not encountered at this depth ↓	↑ Natural terrain at approximately 3.14% slope ↓	↑ No flooding potential ↓
1	 II					
2	 II					
3	 II	↓ Silty Sand ↓	↓	↓	↓	↓
4	Prop. depth for Leaching Field... II					
5	 II					
6	 II					
7	 II					

Schematic of Lot or Tract / Site Drawing



Scale: 1 inch = 50 feet/or appropriate

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

Signature: _____

(Site Evaluator)

Date: 12/14/2017

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SITE EVALUATION AND PLANNING MATERIALS FOR AN ON-SITE SEWAGE FACILITY

**The following information must be submitted with the design package for review by the TCEQ.
Failure to include or address all of the following items may result in approval delays.**

Application No. 055052

Applicant/Site Information		Site Evaluator Information	
Name	Guadalupe Mountains National Park, Pine Springs National Park Services	Name	Bernardino Olague, P.E., LOI Engineers, Inc.
Address	400 Pine Canyon	Address	2101 E. Missouri Avenue, Suite B
City, State, Zip	Salt Flat, Texas, 79847	City, State, Zip	El Paso, Texas, 79903
Phone No.	(915) 828-3251	Phone No.	(915) 781-1532
County	Culberson	License No.	81628

Additional information:

SITE EVALUATION: A minimum of two soil borings or backhoe pits must be excavated at opposite ends of the proposed disposal area. The borings or pits must be excavated to a depth of two feet below the proposed excavation, or to a restrictive horizon, whichever is less. The boring or pit locations must be indicated. This report shall include a groundwater evaluation, a surface drainage analysis, and all applicable minimum separation requirements.

PLANNING MATERIALS: The proposed treatment and disposal system shall be prepared based on the site evaluation. The submittal requirements must include the following details.

- A scale drawing of the on-site sewage facility, showing all structures served.
- Submittals prepared by a professional engineer or professional sanitarian must be sealed, dated, and signed.
- Proposed designs must comply with all separation distances identified in Table X.
- A sectional view of the tanks, including pump tanks, and excavations must be submitted.

Soil Boring/Backhoe Pit Number <u>B-4</u>						
Depth (Feet)	Soil Class	Gravel Analysis	Restrictive Horizon	Groundwater	Topography	Flood Hazard
0	 II	↑	↑	↑	↑	↑
1	 II					
2	 II					
3	 II	Round to Subangular				
4	Prop. depth for Leaching Field... II	↓	Not encountered at this depth	Not encountered at this depth	Natural terrain at approximately 3.14% slope	No flooding potential
5	 II	↓				
6	 II	Silty Sand				
7	 II	↓				

LOG OF TEST BORING No. B-4

Project name: Pine Springs Wastewater System

File No.: LOI16-184

Boring location: SEE SHEET A-1

Surface elevation: N/A

Date drilled: October 26, 2016



Elevation and Depth (Ft.)	Samples	Soil symbols	Soil Description	USCS symbol	Moisture content, %	Minus #200 sieve, %	Liquid limit	Plastic limit	Plasticity index	SPT N-Value	
										Blows per foot (N)	CURVE
0			GRAVEL, fine gravel, silty, light-gray, very dense, moist to dry	GM						+50	
										45	
5			SAND, fine grained, silty, brown, very dense, dry	SM						+50	
			- medium dense		5					27	
10			- dense							46	
			Termination depth at 11.5 feet								
15											
20											
25											
30											

Groundwater Table Data

Depth	Date	Time
N/A	N/A	N/A

Sample Type

- ☐ Auger cutting
- ☐ 2" O.D. split spoon
- ☒ 3" O.D. split tube
- ☐ Thin-walled Shelby tube

Rig type: CME-75

Boring type: HSA

Logger: LM

Sheet No. A-5

LOG OF TEST BORING No. B-5

Project name: Pine Springs Wastewater System

File No.: LOI16-184

Boring location: SEE SHEET A-1

Surface elevation: N/A

Date drilled: October 26, 2016



Elevation and Depth (Ft.)	Samples	Soil symbols	Soil Description	USCS symbol	Moisture content, %	Minus #200 sieve, %	Liquid limit	Plastic limit	Plasticity index	SPT N-Value	
										Blows per foot (N)	CURVE
0			GRAVEL, fine gravel, silty, light-gray, dense, dry	GM	2	17.2				45	
			SAND, fine grained, silty, brown, dense, dry	SM						45	
5										45	
			GRAVEL, fine gravel, silty, light-gray, dense, dry	GM						45	
10					2					45	
			Termination depth at 11.5 feet								
15											
20											
25											
30											

Groundwater Table Data

Depth	Date	Time
N/A	N/A	N/A

Sample Type

- ☐ Auger cutting
- ☒ 2" O.D. split spoon
- ☒ 3" O.D. split tube
- ☒ Thin-walled Shelby tube

Rig type: CME-75

Boring type: HSA

Logger: LM

Sheet No. A-6

LOG OF TEST BORING No. B-6

Project name: Pine Springs Wastewater System

File No.: LOI16-184

Boring location: SEE SHEET A-1

Surface elevation: N/A

Date drilled: October 26, 2016



ENGINEERS

Elevation and Depth (Ft.)	Samples	Soil symbols	Soil Description	USCS symbol	Moisture content, %	Minus #200 sieve, %	Liquid limit	Plastic limit	Plasticity index	SPT N-Value	
										Blows per foot (N)	CURVE
0			SAND, fine grained, silty, brown, dense, dry	SM						+50	
			-dense							45	
5			SAND, fine grained, clayey, light-gray, dense, moist to dry	SC	4					45	
										45	
										45	
10			CLAY, lean, very stiff, light-gray, moist	CL	18		27	16	11	17	
			Termination depth at 11.5 feet								
15											
20											
25											
30											

Groundwater Table Data

Depth	Date	Time
N/A	N/A	N/A

Sample Type

- ☐ Auger cutting
- ☒ 2" O.D. split spoon
- ☒ 3" O.D. split tube
- ☒ Thin-walled Shelby tube

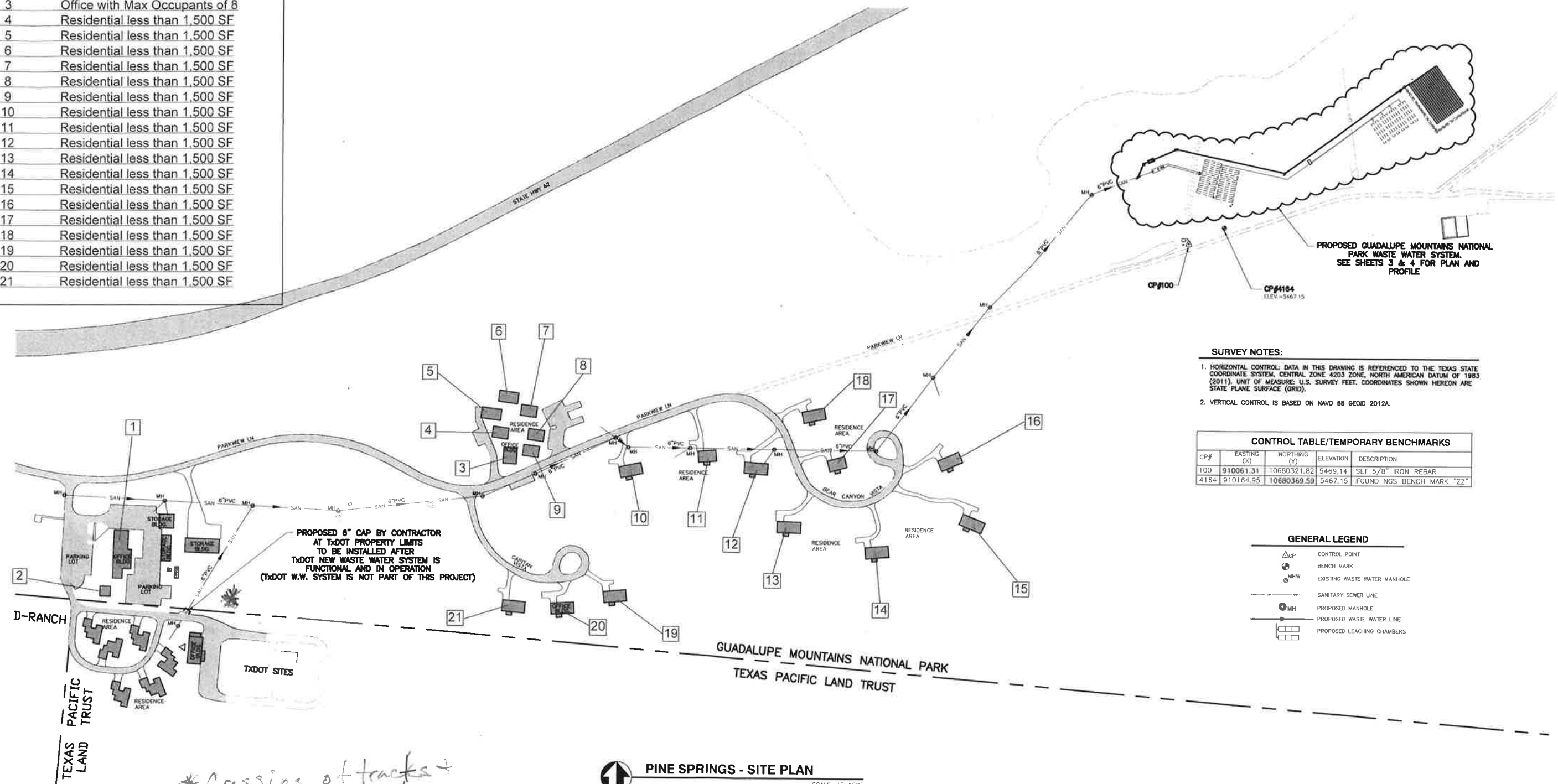
Rig type: CME-75

Boring type: HSA

Logger: LM

Sheet No. A-7

Unit No.	Unit Description
1	Office with Max Occupants of 14
2	Office with Max Occupants of 8
3	Office with Max Occupants of 8
4	Residential less than 1,500 SF
5	Residential less than 1,500 SF
6	Residential less than 1,500 SF
7	Residential less than 1,500 SF
8	Residential less than 1,500 SF
9	Residential less than 1,500 SF
10	Residential less than 1,500 SF
11	Residential less than 1,500 SF
12	Residential less than 1,500 SF
13	Residential less than 1,500 SF
14	Residential less than 1,500 SF
15	Residential less than 1,500 SF
16	Residential less than 1,500 SF
17	Residential less than 1,500 SF
18	Residential less than 1,500 SF
19	Residential less than 1,500 SF
20	Residential less than 1,500 SF
21	Residential less than 1,500 SF



SURVEY NOTES:

1. HORIZONTAL CONTROL: DATA IN THIS DRAWING IS REFERENCED TO THE TEXAS STATE COORDINATE SYSTEM, CENTRAL ZONE 4203 ZONE, NORTH AMERICAN DATUM OF 1983 (2011). UNIT OF MEASURE: U.S. SURVEY FEET. COORDINATES SHOWN HEREON ARE STATE PLANE SURFACE (GRID).
2. VERTICAL CONTROL IS BASED ON NAVD 88 GEOID 2012A.

CONTROL TABLE/TEMPORARY BENCHMARKS				
CP#	EASTING (X)	NORTHING (Y)	ELEVATION	DESCRIPTION
100	910061.31	10680321.82	5469.14	SET 5/8" IRON REBAR
4164	910164.95	10680369.59	5467.15	FOUND NGS BENCH MARK "ZZ"

GENERAL LEGEND

-  CONTROL POINT
 BENCH MARK
 EXISTING WASTE WATER MANHOLE
 SANITARY SEWER LINE
 PROPOSED MANHOLE
 PROPOSED WASTE WATER LINE
 PROPOSED LEACHING CHAMBERS

GENERAL NOTES:

1. TxDOT IS IN THE PROCESS OF DESIGNING AND OBTAINING A PERMIT FROM TCED FOR THEIR OWN SEPARATE SYSTEM INSIDE TxDOT PROPERTY. THE NATIONAL PARK WILL COORDINATE THE APPROPRIATE TIME OF DISCONNECTING TxDOT FROM THE EXISTING SYSTEM.

* Crossing of tracks +
over 5,000 gpd

PINE SPRINGS - SITE PLAN

SCALE: 1"=150'



PLANS PREPARED BY:

FRANK X. SPENCER & ASSOCIATES, INC.
Consulting Civil Engineers & Surveyors
(TBPE# F-3584, TBPL# 100490-00)
1130 MONTANA AVE
EL PASO, TX 79902
Ph: (915) 533-4600
Fax: (915) 533-4673

DATE: MAY, 2018

CHECKED: VHE DESIGNED: GR. CM

PINE SPRINGS SITE PLAN



TITLE OF PROJECT	
REPLACE MAIN WASTEWATER SYSTEM	

LOCATION WITHIN PARK

PINE SPRINGS

NAME OF PARK
GUADALUPE MTNS. NATIONAL PARK
REGION COUNTY STATE
SOUTHWEST CULBERSON TEXAS

DRAWING NO.
166
132217

MIS/PKG NO.
JMO 173168

SHEET
2 OF 9

Q DETERMINATION

Note: GPD Per Unit were obtained using TCEQ Chapter 285.91, Table III

PINE SPRINGS NATIONAL PARK SERVICES SYSTEM

MANUFACTURER OF SEPTIC SYSTEM: INFILTRATOR SYSTEMS INC. (QUICK4 Chambers, Ezflow, Septic Tanks and Risers in Texas)

Quick4 High Capacity Nominal Chamber Dimensions: 34"Wx48"Lx16"H, 62 gallons/per chamber

Formula used for the length required: $L = 0.6A/(W+2)$; where L is excavation length in feet, A is absorptive area, and W is excavation width in feet

Land Owner: Guadalupe Mountains National Park Services

Designer: Daniel Avila, P.E.

PROJECT: FXSA E1619EP

Reviewed by: Victor Enciso, P.E.

TCEQ 285.91 Table VI, and LOI Geotechnical Engineering Study
Soil Classification II

TCEQ CH 285.91, Table I	
SOIL CLASS	Ra (SF)
Ia	>0.50
Ib	0.38
II	Ra = 0.25
III	0.2
IV	0.1

Gallons Per Absorptive Area (SF) Per Day

The required absorptive area shall be calculated by the following formula (TCEQ Ch 285.91 Table I)	
$A = Q/Ra$	
$A = (3728 \text{ GPD}) / (0.25 \text{ GPD/ft}^2)$	
A=	14912 ft ²

Where: A = Absorptive Area (ft²)
Q = Wastewater Usage Rate (GPD)
Ra = Long Term Application (GPD/ft²)

MINIMUM REQUIRED NUMBER OF CHAMBERS	
According to Infiltrator Systems, Inc., Design and Installation Manual for Quick4 Chambers..., page 4:	
$L = 0.6A/(W+2)$	
$L = (0.6 \times 14912 \text{ ft}^2) / (3 \text{ ft} + 2 \text{ ft})$	
L=	1789 ft
No of Chambers = L / 4 ft	
No of Chambers = 1789 ft / 4 ft	
No of Chambers	447

Where: L = Excavation Length (ft)
A = Absorptive area (ft²)
W = Excavation Width (ft)

Note: For Quick4 High Capacity Chambers W = 3 ft
4 ft is used to divide L, because it is the prefabricated individual chanber lengths

TCEQ CH 285.91 Table II	
Septic Tank Minimum Liquid Capacity	
5. For Q greater than or equal to 1001 gal/day:	
$V = 1,750 + 0.75Q$	
$V = 1,750 \text{ gal} + 0.75 \text{ day}(3728 \text{ gal/day})$	
V=	4546 Gal

Where: V = Minimum Volume of Septic Tank (Gallons)
Q = Applicable Wastewater Usage Rate (gal/day)

TCEQ CH 285.91, Table III	SYSTEM USAGE RATE	
	UNIT #	(GAL/DAY)
Office w/ max 14 occupants	1	56
Office w/ max 4 occupants	2	16
Recreation Center w/ max 30 occupants	3	120
Res. Less than 1,500 SF	4	180
Res. Less than 1,500 SF	5	180
Res. Less than 1,500 SF	6	180
Res. Less than 1,500 SF	7	180
Res. Less than 1,500 SF	8	180
Res. Less than 1,500 SF	9	180
Res. Less than 2,500 SF	10	240
Res. Less than 1,500 SF	11	180
Res. Less than 2,500 SF	12	240
Office w/ max 8 occupants	13	32
Res. Less than 2,500 SF	14	240
Res. Less than 2,500 SF	15	240
Res. Less than 2,500 SF	16	240
Res. Less than 1,500 SF	17	180
Res. Less than 2,500 SF	18	240
Res. Less than 2,500 SF	19	240
Office w/ max 8 occupants	20	32
Res. Less than 2,500 SF	21	240
Office w/ max 8 occupants	22	32
Visitor Center/Head Quarters w/ max 20 occupants	23	80

Total Q = 3728 GPD

Maria Gomez

From: Val Call <val_call@nps.gov>
Sent: Thursday, September 20, 2018 9:19 AM
To: Raymond M. Salazar
Subject: Re: [EXTERNAL] Visitor Center/ Headquarters Facility

Raymond,
Yes the VC/HQ uses the same sewer line, it is the start of the system.
Thanks,

Sent from my iPhone

On Sep 20, 2018, at 8:41 AM, Raymond M. Salazar [REDACTED] > wrote:

Val,

Do you know if the visitor center/headquarters building is using the same sewer line as the resident homes and other offices? Since it's kind of far away from the homes and offices I wasn't sure.

<image001.jpg>

Maria Gomez

From: Call, Val <val_call@nps.gov>
Sent: Monday, September 17, 2018 4:08 PM
To: Raymond M. Salazar
Cc: Gabriel Reveles; Carlos Mendoza; Nancy Lopez
Subject: Re: [EXTERNAL] Square Footage on Existing Park Housing

Follow Up Flag: Follow up
Flag Status: Flagged

Raymond,

Yes, they have water saving toilets and wash sinks with electronic shut offs.

Office # 22 would generally have a Max of 8 occupants

Visitor Center/ Headquarters have approximately a Max of 20 occupants in the offices and a Max of 1,200 Visitors a day.

Let me know if you have any other questions.

Thank you,

On Mon, Sep 17, 2018 at 3:37 PM Raymond M. Salazar [REDACTED] > wrote:

Val,

The updated drawings and list work for us very well. We will be including the additional office (#22) and visitor center (#23) into our volume calculations. By any chance do you know if the offices and visitors centers have water saving devices installed in them? Would you also be able to give us an approximation of the maximum number of occupants there are at a given time for the offices and visitors center?

From: Call, Val <val_call@nps.gov>
Sent: Monday, September 17, 2018 2:37 PM
To: Raymond M. Salazar [REDACTED]
Cc: Gabriel Reveles [REDACTED]; Carlos Mendoza [REDACTED]; Nancy Lopez [REDACTED]
Subject: Re: [EXTERNAL] Square Footage on Existing Park Housing

Raymond,