

Bryan W. Shaw, Ph.D., *Chairman*
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 4, 2011

RECEIVED

NOV 15 2011

COUNTY ENGINEER

Mr. Lloyd A. Denton, Jr., President
SAUR 3351 No. 5, Ltd.
11 Lynn Batts Lane, Suite 100
San Antonio, Texas 78218

Re: Edwards Aquifer, Comal County

Name of Project: **Setterfeld Estates**; Located along the east right-of-way of FM 3351 north of Cibolo Creek; Fair Oaks Ranch, Texas

Type of Plan: Request for Approval of a **Water Pollution Abatement Plan (WPAP)**; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program San Antonio File No. 2992.00; Investigation No. 934219; Regulated Entity No. RN106162571

Dear Mr. Denton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Alamo Consulting Engineering & Surveying, Inc. on behalf of SAUR 3351 No. 5, Ltd. on June 17, 2011. Final review of the WPAP was completed after additional material was received on August 30, September 21, September 28, and September 29, 2011. As presented to the TCEQ, the Temporary Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are **hereby approved** subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

Background

The 262.04 acre site is located on the Edwards Aquifer Contributing Zone and Recharge Zone. Pursuant to Chapter 213 rules, the entire site was treated as if the entire site is located on the Recharge Zone.

Project Description

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210-490-3096 • FAX 210-545-4329

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • Internet address: www.tceq.state.tx.us

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The proposed residential project will have an area of approximately 262.04 acres. It will include the construction of a residential subdivision containing 213 residential lots, along with associated access drives, roadways, sidewalks, and utilities. The impervious cover will be 51.10 acres (19.50 percent). Project wastewater will be disposed of by conveyance to the existing Fair Oaks Utilities Plant owned by the City of Fair Oaks Park. In addition to the conveyance of wastewater to the recycling center, seven lots within Unit 1A will utilize on-site sewage facilities. According to a letter dated, September 28, 2011, signed by Mr. Robert Boyd, P.E., with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

Permanent Pollution Abatement Measures

This single-family residential project will not have more than 20 percent impervious cover.

Geology

According to the geologic assessment included with the application, majority of the site is located on the Lower Member of Glen Rose Formation and a smaller portion of the site is located on the Quaternary Alluvium. A main tributary to Cibolo Creek cuts through the lower southeast portion of the site. This tributary is mapped Edwards Aquifer Recharge Zone on the officially marked United States Geological Society (USGS) Edwards Aquifer zone maps. The geologic assessment identified a total of 30 geological and man-made features, of which, four man-made features (three water wells and a buried gas pipeline) and four geological features (one sinkhole, one inferred fault, and two zones of solution fractures) were assessed as sensitive. The San Antonio Regional Office site assessments, conducted on August 22 and August 24, 2011, revealed that the site was generally as described in the geologic assessment, however, one feature was discovered during the site assessment. The feature was described as a zone of solution fractures (S-31) and was assessed as not sensitive by the project geologist.

Natural buffers were proposed for the sinkhole (S-3) and two zones of solution fractures (S-11 and S-18). No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffers. The setback for feature S-3 will have a 200 foot buffer that will extend completely around the feature. The setbacks for features S-11 and S-18 will have a 50 foot buffer that will extend completely around the features. The odd shaped setbacks for the features are illustrated on the construction plans.

Special Conditions

1. Since this project will not have more than 20 percent impervious cover, an exemption from additional permanent BMPs is approved. If the percent impervious cover ever increases above 20 percent or the land use changes, the exemption for the whole site as described in the property boundaries required by §213.4(g), may no longer apply and the property owner must notify the appropriate regional office of these changes.

Standard Conditions

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality. COUNTY ENGINEER

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for

use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. Three wells exist on-site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

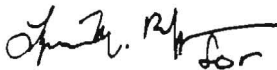
After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Mr. Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 490-3096.

Sincerely,



Mark R. Vickery, P.G., Executive Director
Texas Commission on Environmental Quality

MRV/JA/eg

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NOV 15 2011

COUNTY ENGINEER

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

cc: Mr. Paul Schroeder, P.E., Alamo Consulting Engineering & Surveying, Inc.
Mr. Thomas Hornseth, P.E., Comal County
The Honorable Dan Kasproicz, City of Fair Oaks Ranch
Mr. Karl J. Dreher, Edwards Aquifer Authority
Mr. George Wissmann, Trinity Glen Rose Groundwater Conservation District
TCEQ Central Records, Building F, MC 212

WPAP



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JAN 17 2012

COUNTY ENGINEER

ALAMO CONSULTING ENGINEERING AND SURVEYING, INC.

TEXAS REGISTERED ENGINEERING FIRM F-4490

140 HEIMER RD., STE. 617, SAN ANTONIO, TX 78232

PHONE: (210)828-0691

FAX: (210)824-3055

December 15, 2011

Mr. Lianxiang Du
T.C.E.Q.
14250 Judson Road
San Antonio, TX 78233-4480

RE: Setterfeld Estates
SCS, EAPD File No. 2992.01

RECEIVED TCEQ
SAN ANTONIO
REGION
2011 DEC 15 PM 4:50

Dear Mr. Du:

As per your fax of December 8, 2011 and our meeting on December 9, 2011, I have revised the force main calculations and the lift station pump design.

To assure 3fps of flow in the force main, the lift station pumps were revised to 275 gpm pumps. A "Duty Analysis" curve was produced for the force main vs. pump performance. This confirmed the pump selection.

Next the force main was analyzed for head loss at the design flow, including friction loss for fittings. The "Unibell Pipe Manual" was utilized to check the pipe design for Pressure Rating, Short Term design, and Cyclic Stress. Previous calculations used the pipe rating pressure of 150 psi as the operating pressure. The calculations have been revised using the operating pressure of 16 psi and the maximum pressure of 23 psi.

The AWWA Manual M23, Second Edition and the pipe rated pressure of 150 psi was utilized for thrust block calculation. The construction plans were updated to indicate the selected pump design, the addition of one air release valve at Station 12 + 80 and the thrust block sizing noted above.

If additional information is required, please contact this office.

Sincerely,
Alamo Consulting Engineering & Surveying, Inc.

Paul A. Schroeder, P.E., R.P.L.S.



CC: Mr. Laddie Denton, Saur 3351 # 5, Ltd.
Job # 200021.18

Doc:F:\Project\200000\200021.18\SCS\TCEQ 12-15-11 Response

REC
SAN
REG.
2011 DEC 29 PM 12

The lift station site is located out of the 100 year and 25 year flood plains as shown on sheet 4.14 and based on FEMA FIRM No. 48091C0355F and 48091C0190F.

The lift station design calculations are attached to this report. Based on this design the capacity of the lift station with the largest pump out of service is 275 gpm. The pumps to be used will be Flygt Modal NP-3102-MT-3-463, 5HP, 3 phase, 1745 rpm, with 35.3' TDH. The pump control system will be equipped with an electrical connection for a portable generator currently owned by Fair Oaks Ranch Utilities. The maximum dry weather pump cycle time is 26.4 minutes. The minimum velocity in the 6" force main is 3.06 fps. The maximum velocity is 6.12 fps.

The lift station site shall be enclosed in a 6' chain link fence topped with barbed wire.

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JAN 17 2012

COUNTY ENGINEER

Doc: F/PROJ/200000/200021.18/SCS/EDR LS

SETTERFELD ESTATES LIFT STATION
DESIGN CALCULATIONS FOR SELF PRIMING PUMPING STATION AND FORCE MAIN

NO. OF LUEs = 210 lots+ 20 church)=230

Used to determine average detention time in wet well

AVERAGE DRY WEATHER FLOW, (ADF):

ADF(GPD) = LUE's* (2.67*75 GPD) = GPD FLOW	250.00	200.00	50,000.00 GPD
ADF(GPM) = GPD / 1440 = GPM FLOW	50,000.00	1,440.00	34.72 GPM

Used to determining pipe size in collection system

PEAK DRY WEATHER FLOW (PDWF):

PEAKING FACTOR PF = 2.5

PDWF (GPD) = PF * ADF	2.50	50,000.00	125,000.00 GPD
PDWF (GPM) = PF * ADF	2.50	34.72	86.81 GPM

INFLOW / INFILTRATION FACTOR, I/I

I/I =DEVELOPMENT ACRES * 300/(LUE's/Acre)	167.00	238.57	39,841.43 GPD
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Used to determine lift station design capacity

PEAK WETWEATHER FLOW (PWF):

PWF (GPD) = PDWF (GPD) + I/I (GPD)	125,000.00	39,841.43	164,841.43 GPD
PWF (GPM) = PWF (GPD) / 1440	164,841.43	1,440.00	114 GPM

Used to determining max. detention time in wet well

MINIMUM DRY WEATHER FLOW (MDWF):

MDWF = (0.2 * (0.01440 * ADF)^.198) * ADF	0.236520	34.72	8.2125 GPM
			6.05

"DESIGN WET WELL"

MINIMUM PUMP REQUIREMENTS. For Hf etc. See Hazen-Williams Pipe Calculation sheets

Total Dynamic Head (TDH) = Hs + Hf	13.60	21.70	35.30 feet
Velocity in Force Main @ 3 to 6 fps			
Vfm = 0.4087099 * (Q / 6" ^ 2)	0.408710	7.4760	3.06 fps OK
Q = selected pump flow (selected 265gpm)	275.00	36.7842	
Force Main: diameter (6"), length 3,950'	3,950.00		
Hs = (0'+ station loss 13.6') = 13.6', Hf = 17.27'			
id of 6" PVC pipe = 6.065", 6" ^ 2 = 36.7842			
<u>Storage Requirements:</u>			
volume between "pump on" and "pump off (Vr)			
Vr (gals) = pump GPM * T/4 (6 min. < cycle time)	275.00	1.50	412.50 gallons
volume of storage (1 hr. min., 2 hrs. max.)			
Vs (gals) = ADF (GPD) * (1hr. min. / 24hrs.)	50,000.00	0.0417	2,083.33 G/hr
Vs (max.) = ADF (GPD) * (2hrs. max. / 24 hrs)	50,000.00	0.0833	4,166.67 G/2hr
Vs (cf) = Vs (gal.) / 7.481 (cf per gal)	2,083.33	7.4805	278.50 cf/hr
Vs (max.) for 2 hr outage	4,166.67	7.4805	557.00 cf/2hr

Dimensions of Storage facility: (pi) = 3.1416

select 10' wet well diameter: (10' dia.), d^2 = 100

depth = Vs (cf) / [3.1416*(10^2)]/4	278.50	78.5400	3.55 ft deep
depth (max.) for 2 hr outage	557.00	78.5400	7.09 ft deep

SETTERFELD ESTATES LIFT STATION
DESIGN CALCULATIONS FOR SELF PRIMING PUMPING STATION AND FORCE MAIN

CYCLE TIMES. Calculate detention times (Td) for Average Dry Weather Flow (ADF), Maximum Wet Weather Flow (PWF), and Maximum Dry Weather Flow (MDWF).

$$T_d = T_f + T_e$$

From influent calculations for collection system:

ADF = (Average Dry Weather Flow)	34.72 GPM
PDWF (Peak Dry Weather Flow)	86.81 GPM
PWF = (Peak Wet Weather Flow)	114.47 GPM
MDWF = (Minimum Dry Weather Flow)	8.2125 GPM

WHERE:

Tf = time to fill wet well in minutes = V_r / i

Te = time to empty wet well = $V_r / (Q - i)$

Vr = Required wet well volume 412.50 GPM

(i) = Flow into station for given condition

Q = capacity in gpm (Q for selected pump) 275.00 GPM

AVERAGE DETENTION TIME

Average Detention time (based of Average Dry Weather Daily Flow)

Tf = Vr / ADF (GPM)	412.50	34.72	11.88 minutes
Te = Vr / (Q - ADF)	412.50	240.28	1.72 minutes
Td (ADF) = Tf + Te			13.60 minutes

MAXIMUM DETENTION TIME

(based on Minimum Dry Weather Flow)

Tf = Vr / MDWF (GPM)	412.50	8.2125	50.23 minutes
Te = Vr / (Q - MDWF)	412.50	266.79	1.55 minutes
Td (MDWF) = Tf + Te			51.77 minutes

Discuss odor control if any of the detention times

exceeds 180 minutes. 102.00 <180 min.OK

Total Cycle Times:

Pump ON for Te (average dry weather daily flow)			1.72 minutes ON
Pump OFF for (2)(Tf) + Te	23.76	1.72	25.48 minutes OFF
Pump ON for Te (minimum dry weather daily flow)			1.55 minutes ON
Pump OFF for (2)(Tf) + Te	100.46	1.55	102.00 minutes OFF

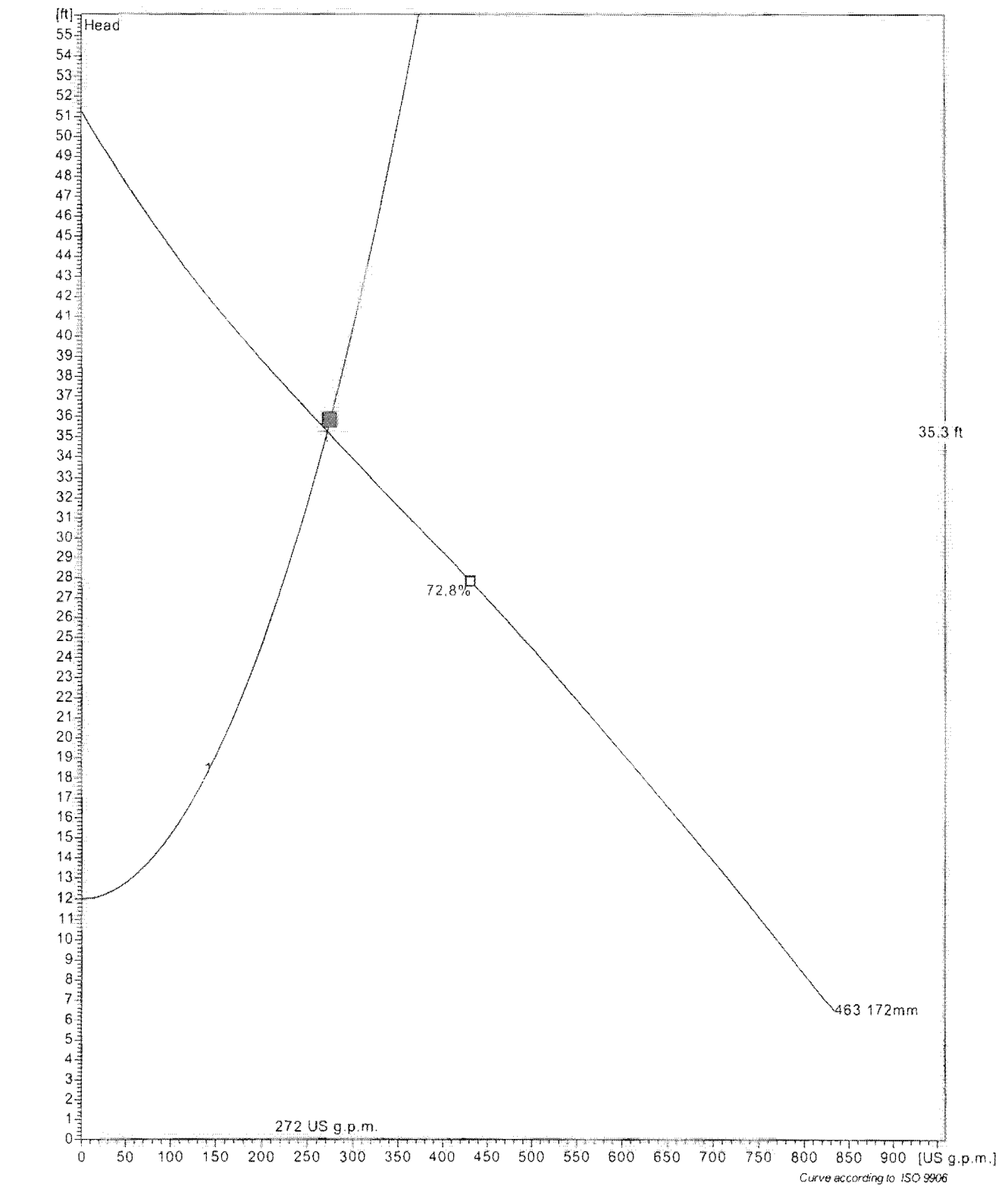
The pump is on for one pumping cycle of Te and off for 2 storage cycles of Tf plus one pumping cycle of Te because pumps alternate.

<p align="center">SETTERFELD ESTATES LIFT STATION</p> <p align="center">DESIGN CALCULATIONS FOR SELF PRIMING PUMPING STATION AND FORCE MAIN</p>
--

Number of Lots, Residential EDUs	250.00 LUE's
Population Equivalent (at 2.67 per LUE)	667.50 People
Average Daily Flows in GPM (ADF)	34.72 GPM
Peak Daily Flows in GPM (PDWF)	86.81 GPM
Volume of the Retention Chamber	557.00 cf
Static Head	13.60 feet
Head Loss in Force Main	21.70 feet
Total Dynamic Head	35.30 feet
The Selected Pump:	
	Flygt NP 3102, 5 Hp, 1745 RPM, 460V / 60Hz, 3 phase and 275 GPM
Total Detention Times:	
Cycle times for Maximum Dry Weather Flow	51.77 minutes
Cycle times for Average Dry Weather Flow	13.60 minutes
Total Cycle Times for Max. Dry Weather Flow:	
Pumping time ON	1.55 minutes
Pumping time OFF	102.00 minutes
Total Cycle Times for Avg. Dry Weather Flow:	
Pumping time ON	1.72 minutes
Pumping time OFF	25.48 minutes
Length of 6" Force main (4" PVC Pipe)	3,950.00 feet
Velocity Maintained in Force Main	3.06 cfs
Force Main Retention Time, INITIAL FLOWS	35.03 minutes
Force Main Retention Time, DESIGN FLOWS	29.05 minutes
Wet well buoyancy calculations.	

NP 3102 MT 3~ 463

Duty Analysis



Pumps running /System	Individual pump			Total					Specific energy	NPSH _r
	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd. eff.			
1	272 US g.p.m.	35.3 ft	3.69 hp	272 US g.p.m.	35.3 ft	3.69 hp	65.8 %	0.000237 kWh/imp g @ 41 ft		

Project
Setterfeld Estates L/S

Project ID
Fair Oaks Ranch

Created by
Barrie

Created on
2011-11-16

Last update
2011-11-16

NP 3102 MT 3~ 463



Performance curve

Pump

Outlet width
Inlet diameter
Impeller diameter
Number of blades
Throughlet diameter

3 15/16 inch
100 mm
6 3/4"
2

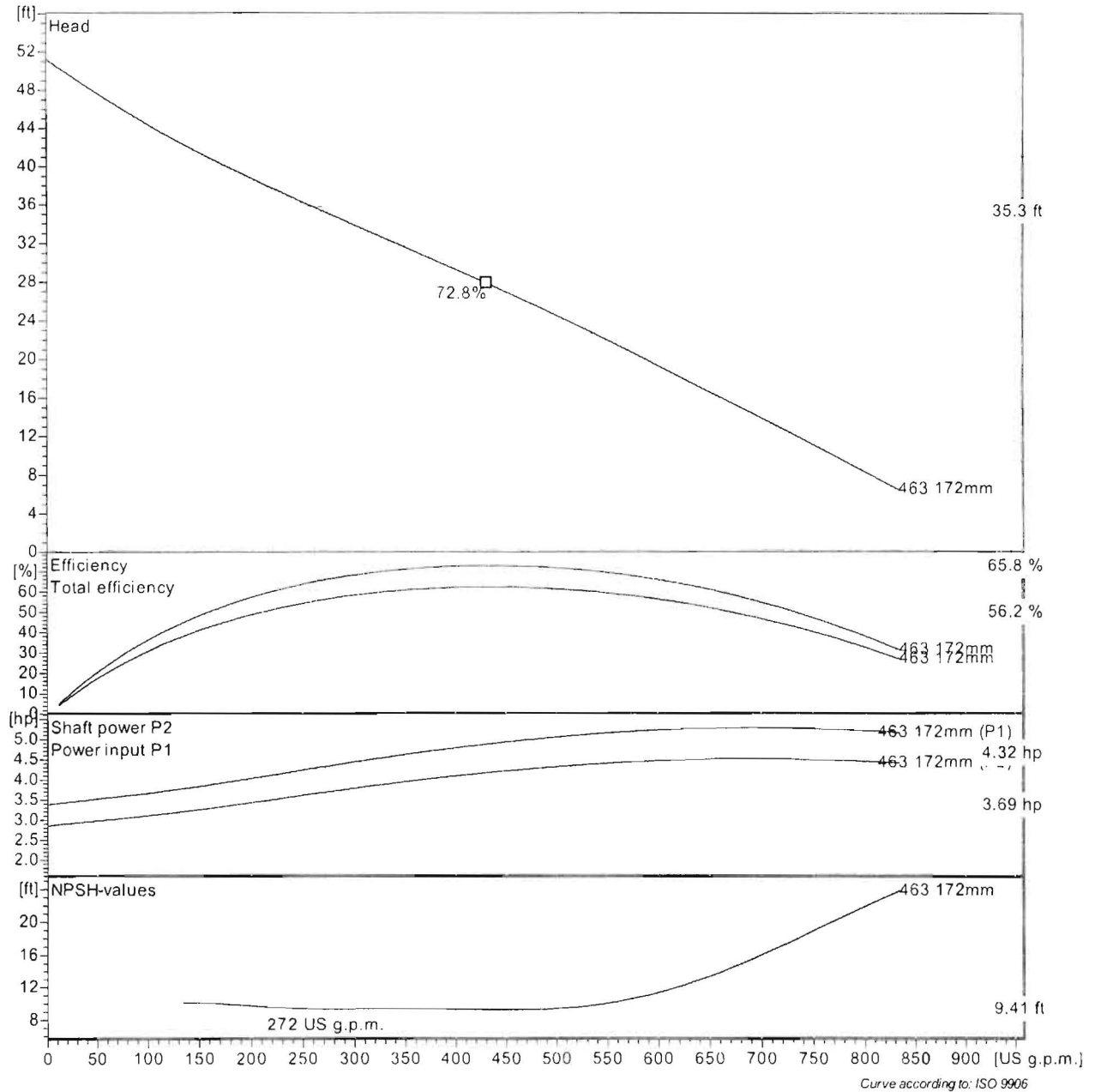
Motor

Motor #
Stator variant
Frequency
Rated voltage
Number of poles
Phases
Rated power
Rated current
Starting current
Rated speed

N3102.160 18-11-4AL-W 5hp
4
60 Hz
460 V
4
3~
5 hp
6.8 A
42 A
1745 rpm

Power factor
1/1 Load
3/4 Load
1/2 Load
Efficiency
1/1 Load
3/4 Load
1/2 Load

0.81
0.75
0.63
85.0 %
85.0 %
83.5 %



Duty point					Guarantee
Flow	Head	Shaft power	NPSHre	Hyd eff.	ISO_9906_Grade_2
275 US g.p.m.	35.8 ft	<3.8 hp		65.6 %	Yes

Project

Setterfeld Estates L/S

Project ID

Fair Oaks Ranch

Created by

Barrie

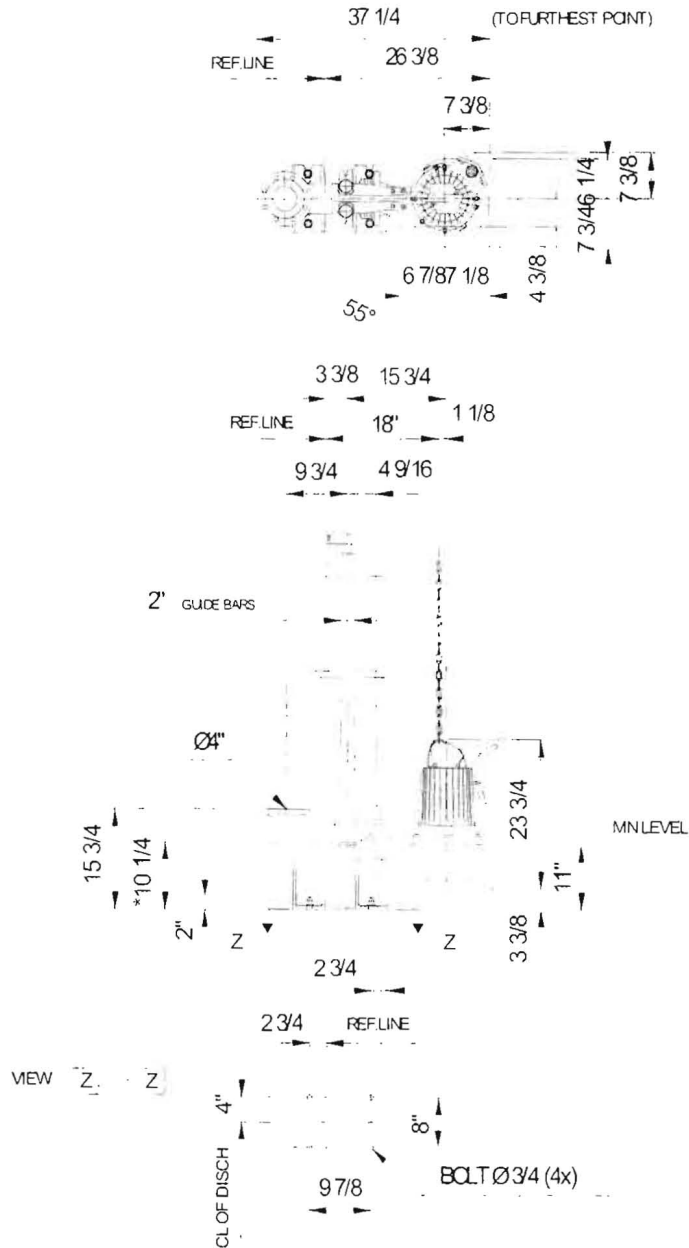
Created on

2011-11-16

Last update

2011-11-16

NP 3102 MT 3~ 463
Dimensional drawing



* DIMENSION TO ENDS OF GUIDE BARS

Weight (lbs)	
Pump	240
Disch	80

Dimensional dwg
NP 3102 MT
Ø4"
AUTOCAD
DRAWING
6602300
1

Setterfeld L.S. Force Main Design

6' PVC Force Main, SDR – 18, Class 150

$$Q = 275 \text{ gpm}, V = 3.06 \text{ fps}$$

From Unibell Chapter IX, Table 9.3

$$H_f = 0.5201 \text{ ft} / 100 \text{ ft.}$$

From Unibell Chapter IX, Table 9.1

$$H_f (6' \text{ gate valve}) = 4.04' : (2)(4.04) = 8.08'$$

$$6' 45^\circ \text{ elbow} = 8.09' : (17)(8.09) = 137.53'$$

$$6' 90^\circ \text{ elbow} = 15.02' : (5)(15.2) = \underline{76'}$$

$$H_f (\text{Total}) = 221.61'$$

$$\text{Length of Force Main} = 3950$$

$$\text{Equivalent Length} = 4,171.6 \approx 4,172 \text{ Ft.}$$

$$H_f = (4,172 \text{ ft})(0.5201 \text{ ft} / 100 \text{ ft}) = 21.70'$$

$$H_s = 1,250.6' - 1237' = 13.6'$$

$$\text{TDH} = 35.3'$$

Force Main Pipe Design Calculations

Pressure Rating

From Unibell Pipe Manual Chapter V, Table 5.5

$$PR(SDR - 18) = 235 \text{ psi} > 150 \text{ psi} \text{ OK}$$

Short Term Design

From Unibell Pipe Manual Chapter V, Table 5.9

$$STR(SDR - 18) = 300 \text{ psi}$$

$$\text{Eq. 5.16 } P_{\max} = P_{\text{op}} + \Delta V(P's)$$

From Table 5.8 $P's = 17.4 \text{ psi}$

$$\Delta V = 3.06$$

$$P_{\max} = 16 + (3.06)(17.4) = 69.2 < 300 \text{ psi} \text{ OK}$$

Cyclic Stress

From Chapter V, Eq. 5.18

$$C' = (55 \text{ cycles/day})(365 \text{ days/yr})(50 \text{ years}) = 1,003,750 \text{ cycle}$$

From Chapter V, Eq. 5.17 and Eq. 5.18

$$\text{Stress Average} = q(\text{avg}) = (P_{\max} + P_{\min})(DR - 1) / 4 = (23 + 0)(18 - 1) / 4 = 97.8 \text{ psi}$$

$$\text{Stress Amplitude} = q + (\text{amp}) = (P_{\max} - P_{\min})(DR - 1) / 4 = 97.8 \text{ psi}$$

From Chapter V, Figure 5.7 the Cycles failure is $9 \times 10^9 > 1.00 \times 10^6$ OK

From Chapter V, page 162

$$\begin{aligned} P_{\max} &= \text{Maximum Cyclic Pressure from controlled start-up/shut down.} \\ &= 23 \text{ psi} \end{aligned}$$

From PVC Pipe News, page 9

$$\begin{aligned} q(\text{avg}) &= (P_{\text{op}} / 2)(SDR - 1) \\ &= (14 / 2)(18 - 1) = 119 \text{ psi} \end{aligned}$$

$$\begin{aligned} q(\text{amp}) &= (P_{\text{amp}} / 2)(SDR - 1) \\ &= ((23 - 16) / 2)(18 - 1) = 238 \text{ psi} \end{aligned}$$

From Fig. 1

$$C = 3 \times 10^7 > 1 \times 10^6 ; \text{OK}$$

The cycles / day are based on full flow. Due to phased construction, full flow will not be achieved for 7 – 10 years.

Thrust Block Calculations

From AWWA Manual M23, Second Edition

Eq. 4-30 $T = 2PA \sin \Delta/2$
T = Resultant thrust force lb
P = Internal Pressure, PSI = 150 psi
A = Internal Area (pipe OD)
 Δ = Angle of Deflection

For 6" PVC, OD (from J-M Manual) = 6.275"

Depth to bottom of Thrust Block Ht = 5'

Fittings 45° and 90°

Soil = Sandy Clay

From Raba Kistner – equivalent fluid density – 240 lb/cf

Safety factor = 1.5

$$A = \pi D^2 / 4 = (3.14159)(6.275)^2 / 4 = 30.93 \text{ in}^2$$

$$T_{45} = 2(150)(30.93)(\sin (45/2)) = 3,551 \text{ lbs}$$

$$T_{90} = 2(150)(30.93)(\sin (90/2)) = 6,561 \text{ lbs}$$

$$S_b = \text{Soil bearing pressure} = (240 \text{ lb/cf})(5') = 1,200 \text{ lb/sf}$$

Eq. 4-11 $A = (T/S_b)(SF) =$

$$A_{45} = (3,551/1,200)(1.5) = 4.44 \text{ sf}$$

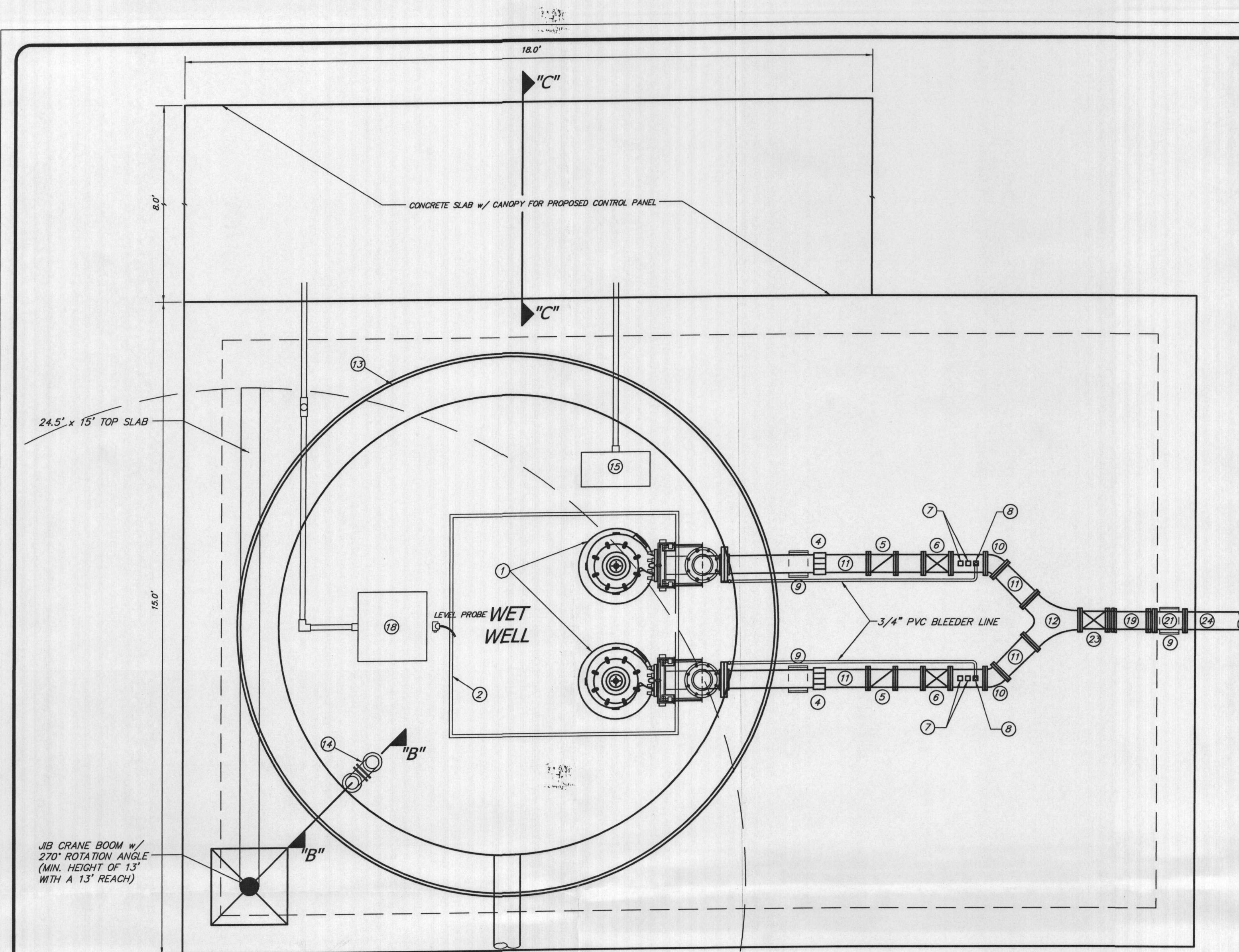
$$A_{90} = (6,561/1200)(1.5) = 8.20 \text{ sf}$$

$$A = L \times H, \quad H = 2L, \quad A = 2L^2$$

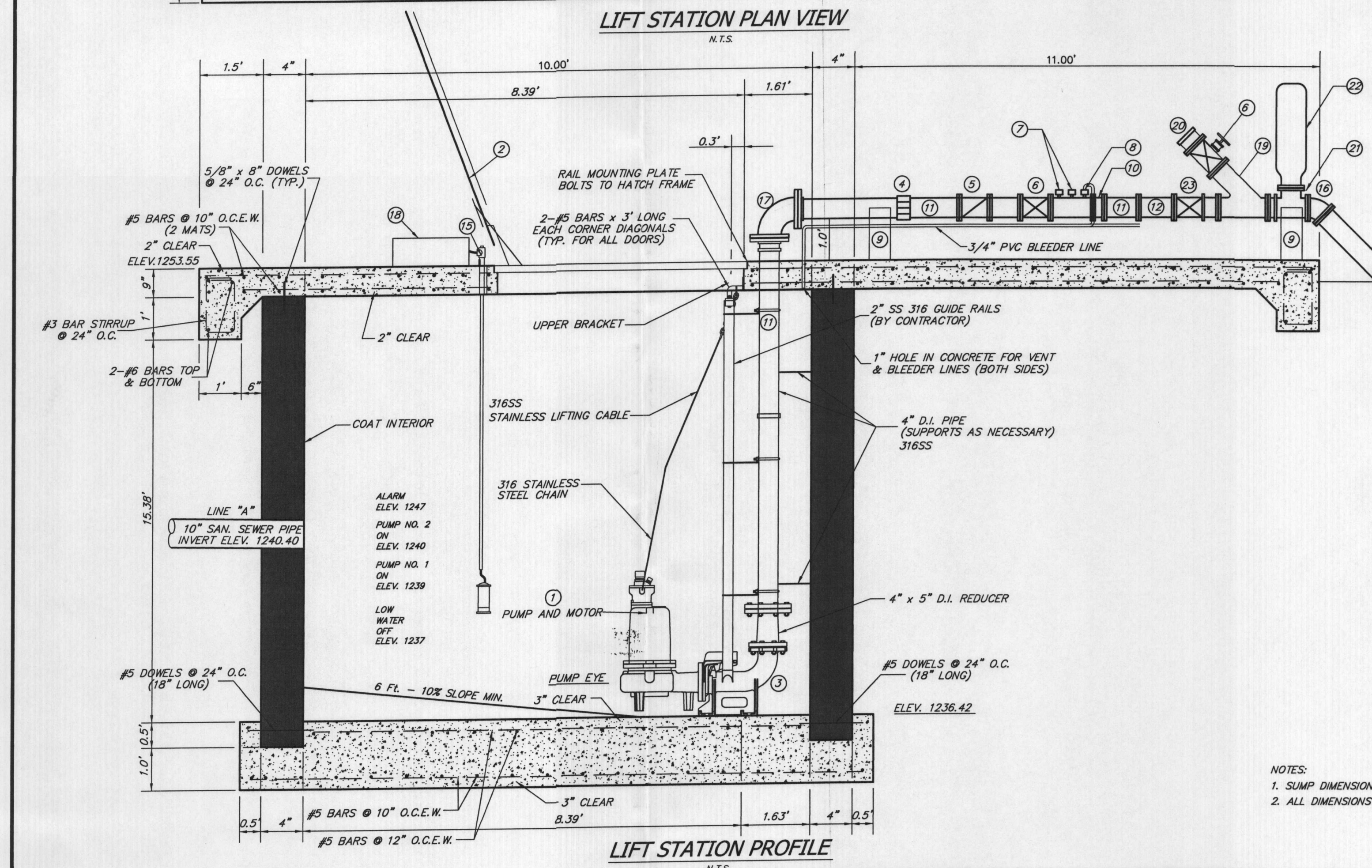
Required Thrust Block Area

$$A_{45} = 1.5 \times 3 = 4.50 \text{ sf}$$

$$A_{90} = 2.1 \times 4 = 8.4 \text{ sf}$$

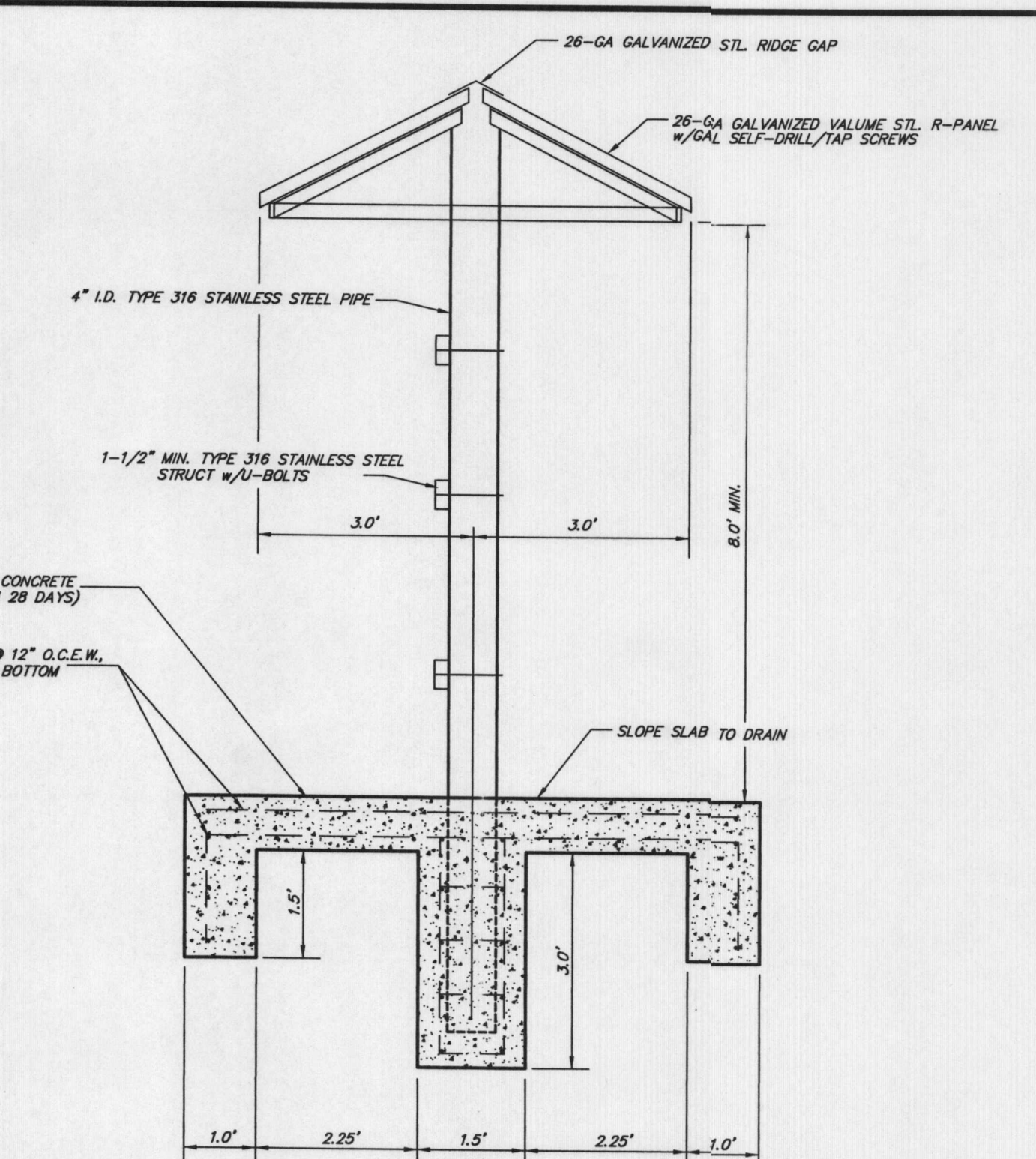


LIFT STATION PLAN VIEW
N.T.S.

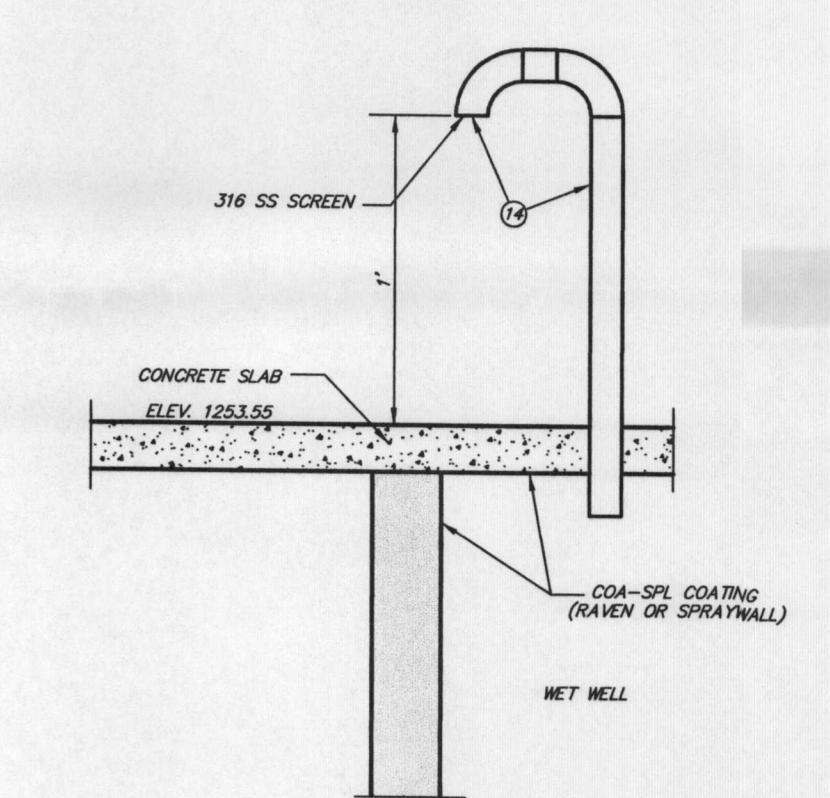


LIFT STATION PROFILE
N.T.S.

NOTES:
1. SUMP DIMENSIONS ARE FOR REFERENCE ONLY AND MAY VARY FOR APPLICATION.
2. ALL DIMENSIONS SHOWN ARE IN FEET.

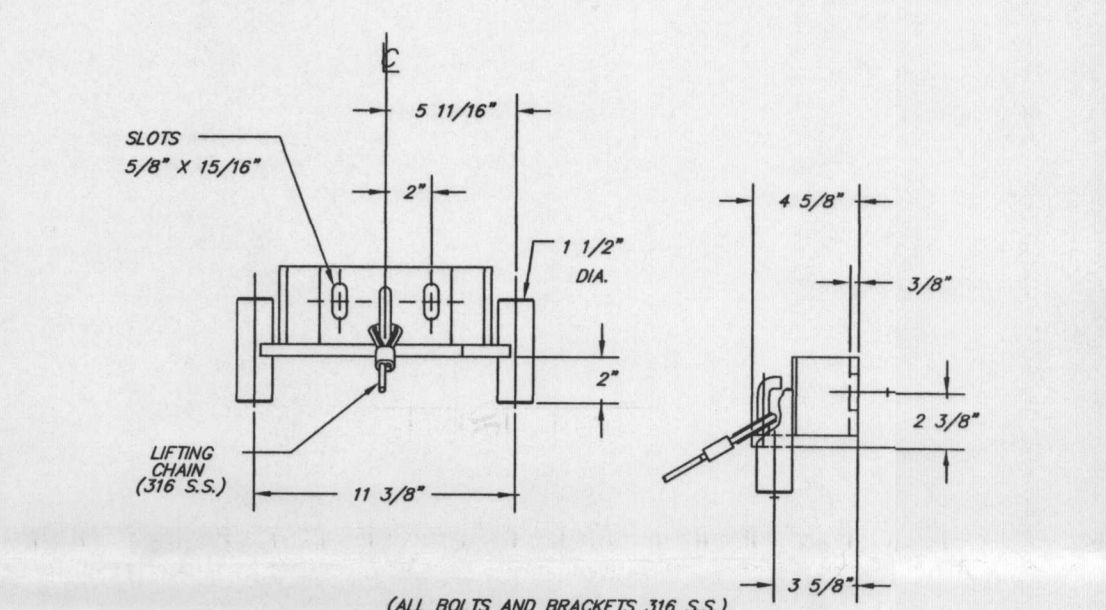


SECTION "C-C"
ELECTRICAL SERVICE RACK SIDE VIEW DETAIL
N.T.S.



SECTION "B-B"
N.T.S.

- LIFT STATION GENERAL NOTES:**
1. LINE INTERIOR OF WET WELL WITH A EPOXY COATING SYSTEM. APPROVED MANUFACTURERS ARE RAYNEX, TNEPEC, BELZONA, AND CARBINE. ALTERNATIVELY, A HIGH-DENSITY POLYETHYLENE (HDPE) AND POLYPROPYLENE COPOLYMER (PPR) THERMAL PLASTIC LINER INSTALLED AT THE FOUNDRY AS AN INTEGRAL PART OF THE CONCRETE CASTING PROCESS, AS MANUFACTURED BY AGRI SURE GRIP IS ALSO ACCEPTABLE.
 2. ALL LIFT STATION PIPING SHALL BE DUCTILE IRON PIPE (CLASS 50) WITH THRUST BLOCKS ON ALL UNDERGROUND BENDS.
 3. ALL LIFT STATION PIPING SHALL BE PROVIDED WITH PIPE SUPPORTS AT LOCATIONS SHOWN ON PLANS.
 4. BURIED FORCE MAIN SHALL BE SDR 26, FOUR INCH (4") C-900, CLASS 150 COMPRESSION JOINTS PVC (ASTM 2241) WITH THRUST BLOCKS AT ALL BENDS SHOWN ON PLANS.
 5. THE CONTRACTOR SHALL FURNISH AND INSTALL TWO (2) PUMPS, ALL PIPING, CONTROLS, ALARM SYSTEM, AND RELATED APPURTENANCES FOR ALL PUMPS. THE CONTRACTOR SHALL DO SO ACCORDING TO THE MANUFACTURERS AND PROJECT SPECIFICATIONS.
 6. THE CONTRACTOR SHALL INSTALL TWO (2) PLUG OUTLETS (115 VOLT WEATHERPROOF) AT CONTROL PANEL.
 7. POWER SERVICE TO CONTROL PANEL SHALL BE UNDERGROUND AND IN CONDUITS TO ACCOMMODATE THREE PHASE ELECTRICAL POWER.
 8. ALL WORK REQUIRED FOR THE LIFT STATION SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS. ALL MATERIALS, PUMPS, PIPING, CONTROLS, ETC. SHALL BE APPROVED. SUBMIT THREE (3) COPIES OF PRODUCT INFORMATION.
 9. PIPE AND FITTING WITHIN THE WET WELL, EXCEPT PVC AND SS316, SHALL RECEIVE AFTER INSTALLATION, TWO (2) COATS OF COAL TAR EPOXY PAINT. APPROVED MANUFACTURERS ARE TNEPEC, CARBOLINE, SHERWIN-WILLIAMS, AND M.A.B. PAINTS.
 10. ALL EXPOSED PIPE, VALVES, AND FITTING OUTSIDE THE WET WELL SHALL RECEIVE AFTER INSTALLATION, TWO-COAT EPOXY COATING SYSTEM SUITABLE FOR THE ENVIRONMENT, AND PAINTED WITH A FINISH COAT OF GRAY IN ACCORDANCE WITH FEDERAL STANDARD 26170. APPROVED MANUFACTURERS ARE TNEPEC, CARBOLINE, SHERWIN-WILLIAMS, PPG, AND M.A.B. PAINTS. THE PIPING AND EQUIPMENT NEEDS TO BE PAINTED/COATED GRAY IN ACCORDANCE WITH FEDERAL STANDARD 26170.
 11. APPROVED RESILIENT WEDGE GATE VALVE (F1x1) MANUFACTURERS INCLUDE CLOW F-6100, MUELLER A-2370, KENNEDY 4561/4701, AND AMERICAN FLOW CONTROL - SERIES 2500. VALVE SHOULD OPEN TO THE LEFT.
 12. APPROVED CHECK VALVE, SWING TYPE LEVEL AND WEIGHT (F1x1), MANUFACTURERS INCLUDE CLOW F-5345, MUELLER 2600-6-01, KENNEDY IBBM SWING CHECK VALVE, AND AMERICAN "50" LINE WITH WEIGHT AND LEVER.
 13. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF THREE FOOT (3') OF COVER FOR ALL FORCE MAINS. NO SEGMENT OF THE FORCE MAIN CAN HAVE ZERO SLOPES TO LIMIT THE ACCUMULATION OF GASES.
 14. AN AUDIO-VISUAL ALARM SYSTEM (RED FLASHING LIGHT AND HORN) SHALL BE PROVIDED FOR ALL LIFT STATIONS. THESE ALARM SYSTEMS SHOULD BE TELEMETTERED TO A FACILITY WHERE 24 HOUR ATTENDANCE IS AVAILABLE. THE ALARM SYSTEM SHALL BE ACTIVATED IN CASE OF POWER OUTAGE, PUMP FAILURE OR SPECIFIED HIGH WATER LEVEL.
 15. FENCING SHALL BE SIX FOOT (6'), HOT-DIPPED GALVANIZED CHAIN LINK, NO. 9 GAUGE, WOVEN IN TWO INCH (2") DIAMOND MESH, TOPPED WITH THREE (3) STRANDS OF 12 GAUGE BARBED WIRE.
 16. ANY QUESTIONS FROM THE CONTRACTOR SHALL BE DIRECTED TO THE ENGINEER AS SHOWN ON THE LOGO OF THESE PLANS.



UPPER BRACKET DETAIL
N.T.S.

- NOTES:**
1. ALL CONCRETE SHALL BE 6 SACK-4,000 PSI DESIGN. MAXIMUM WATER/CEMENT RATIO: 0.45
 2. ALL CONCRETE SHALL BE CURED A MINIMUM OF 7 DAYS. CURING SHALL CONSIST OF PLACEMENT NON-DISTURBANCE AND ONE OF THE FOLLOWING TREATMENTS OF EXPOSED SURFACES: A) FLOODING WITH WATER, B) BURLAP SACKS KEPT WET AT ALL TIMES, OR C) USE OF CURING COMPOUND.
 3. ALL CONCRETE EDGES SHALL BE ROUNDED OR CHAMFERED 1/2".
 4. ALL REBAR SHALL BE GRADE 60 AND TIED AT EACH JUNCTION. REBAR SPICES, IF REQUIRED, SHALL HAVE A MINIMUM OF 18" OVERLAP OR 40 BAR DIAMETER, WHICHEVER IS GREATER.
 5. EPOXY BONDING AGENT SHALL BE USED AT JOINT BETWEEN GROUT AND LOWER SLAB.
 6. PUMP CABLE TO BE CONTINUOUS FROM SUB. PUMPS TO CONTROL PANEL.
 7. A 2" WATER SERVICE AND HOSE BIB WITH PRESSURE/VACUUM BREAKER SHALL BE INSTALLED ON L.S. SITE.
 8. ALL BOLTS INSIDE WETWELL SHALL BE 316 STAINLESS STEEL.

EQUIPMENT LIST

- 1 PUMP & MOTOR
- 2 ALUMINUM DOOR & FRAME w/ BUMPER STOP (HALLIDAY W3C 70" x 70" OR EQUAL)
- 3 5" 90° D.I. BEND, FLANGED
- 4 4" FLEX COUPLING ADAPTOR
- 5 4" CHECK VALVE, SWING TYPE LEVEL AND WEIGHT (F1 x F1), MANUFACTURERS INCLUDE CLOW F-5345, MUELLER #2600-6-01, KENNEDY IBBM SWING CHECK VALVE AND AMERICAN "50" LINE WITH WEIGHT AND LEVER.
- 6 4" RESILIENT WEDGE GATE VALVE (F1x1) MANUFACTURERS INCLUDE CLOW F-6100, MUELLER A-2370, KENNEDY 4561/4701, AMERICAN FLOW CONTROL - SERIES 2500. VALVE SHOULD OPEN TO THE LEFT.
- 7 VACUUM & PRESSURE GAUGES
- 8 AUTO AIR VACUUM RELEASE VALVE w/ BLEEDER LINE
- 9 PIPE SUPPORT - TYPE 316 STAINLESS STEEL (SEE DETAILS)
- 10 4" 45° D.I. BEND, FLANGED
- 11 4" D.I. MAIN
- 12 6"x4"x4" D.I. REDUCING WYE
- 13 12" DIAMETER PRECAST C-478 CONCRETE CISTERN RINGS
- 14 4" SCHED. 40 PVC VENT w/16 MESH (316) STAINLESS STEEL INSECT SCREEN
- 15 CONTROLLER LIQUID LEVEL PROBE
- 16 6" 45° D.I. BEND, FLANGED
- 17 4" 90° D.I. BEND, FLANGED
- 18 HIGH LEVEL FLOAT SWITCH (REF. PAGE 4.16 FOR DETAILS)
- 19 6" x 6" x 4" LATERAL, D.I., FLANGED
- 20 4" QUICK CONNECT
- 21 6" x 6" x 4" D.I. REDUCING TEE, FLANGED
- 22 316 STAINLESS STEEL AIR CAN
- 23 6" RESILIENT WEDGE GATE VALVE (F1x1) MANUFACTURERS INCLUDE CLOW F-6100, MUELLER A-2370, KENNEDY 4561/4701, AMERICAN FLOW CONTROL - SERIES 2500. VALVE SHOULD OPEN TO THE LEFT.
- 24 6" D.I. MAIN

PUMP DATA

PROVIDE:

2 PUMPS - MODEL - NP-3102-MT-3-463 (to automatically alternate)	Flygt
Model:	Flygt
Electric Power Supply	3 Phase
HP:	2
RPM:	1,745

OPERATING CONDITIONS:

Pumping Rate:	275 GPM
Min. Cycle Time:	13.6 MIN.
Force Main:	3950 L.F. 6" PVC/D.I.
Total Dynamic Head	35.3 FT.

SEWER FLOW DATA

250 RESIDENTIAL HOMES =	50,000 GPD
TOTAL AVG. DAILY FLOW=	5,000 GPD
AVERAGE FLOW RATE =	34.7 GPM
PEAK FLOW RATE =	114 GPM

MISC. NOTES:

1. Contractor shall coordinate with the Fair Oaks Utilities regarding the exact location of the pump controls.
2. The contractor shall supply shop drawings of all pipe supports to the ENGINEER for approval.

PLAT No.

REVISED PER TCEQ REVIEW COMMENTS	DATE	DESCRIPTION
1	12/14/11	
2		
3		
4		
5		
6		

REVISIONS

PAUL A. SCHROEDER
LICENSED PROFESSIONAL ENGINEER

ALAMO
CONSULTING ENGINEERING
& SURVEYING, INC.

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0681 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TYPE F-4490 & TYPE S 10076-00

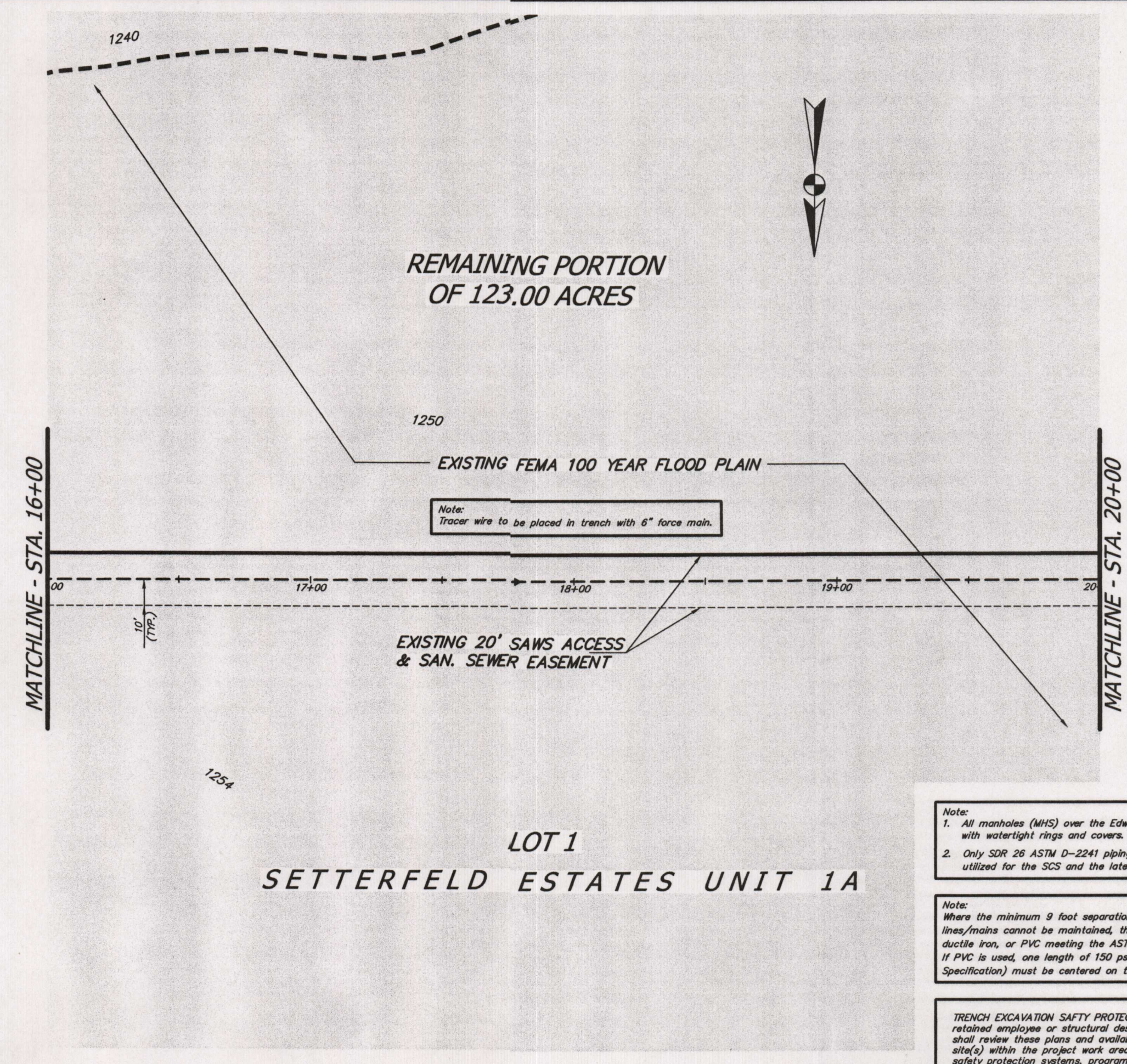
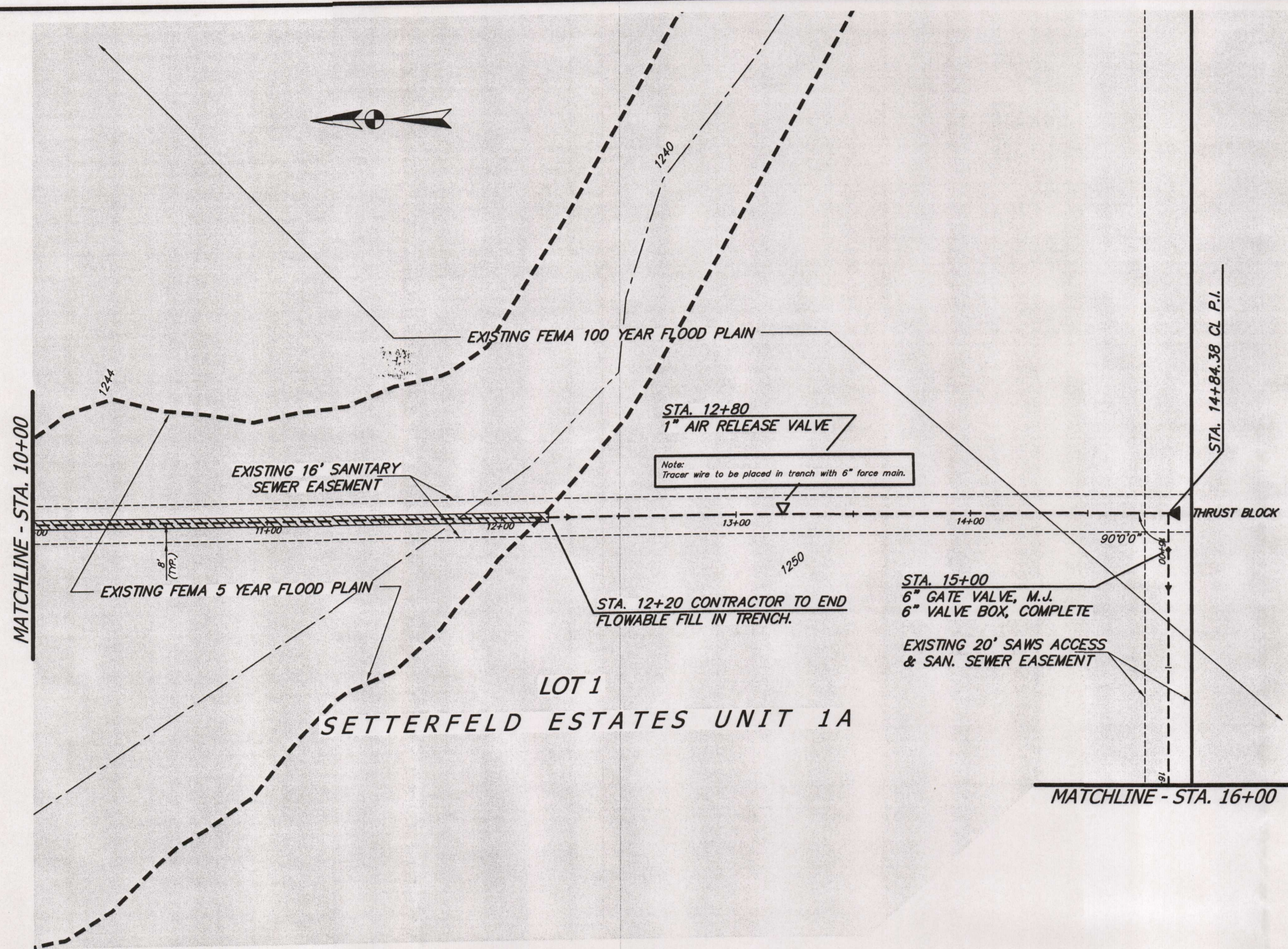
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JAN 17 2012
COUNTY ENGINEER

SETTERFIELD ESTATES UNIT 1
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

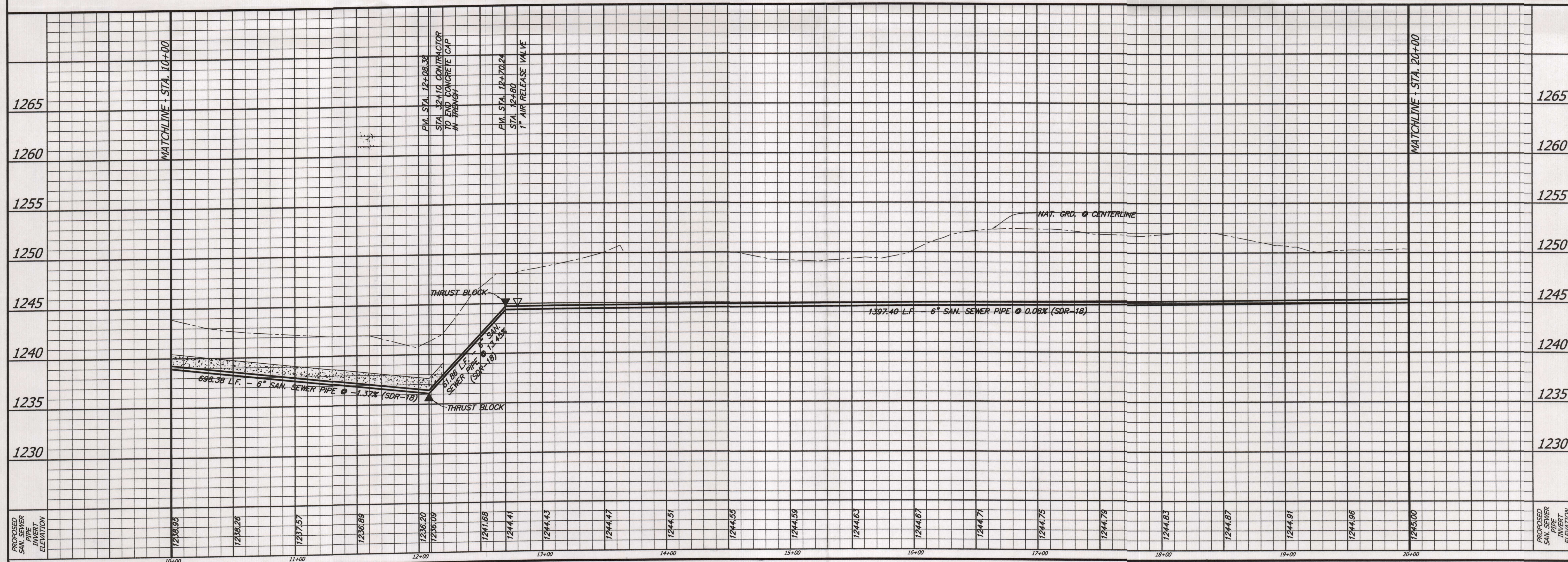
SANITARY SEWER LIFT STATION
SITE DETAILS

JOB NO.: 200021.18
HORIZ.: 1" = 10'
VERT.: N/A
DRAWN: G.C.M.
DESIGNED: G.C.M.
FILE: SAN SEWER P-P.dwg

PAGE: **4.15**



SAN. SEWER FORCE MAIN



REVISIONS		DATE	DESCRIPTION
1	11/01/11	REVIEWED PER TCEQ COMMENTS	
2	12/14/11	REVISED PER TCEQ COMMENTS	
3			
4			
5			
6			

12/14/11

ALAMO
CONSULTING ENGINEERING
& SURVEYING, INC.

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TBEF F-4480 & TBEIS 100076-00

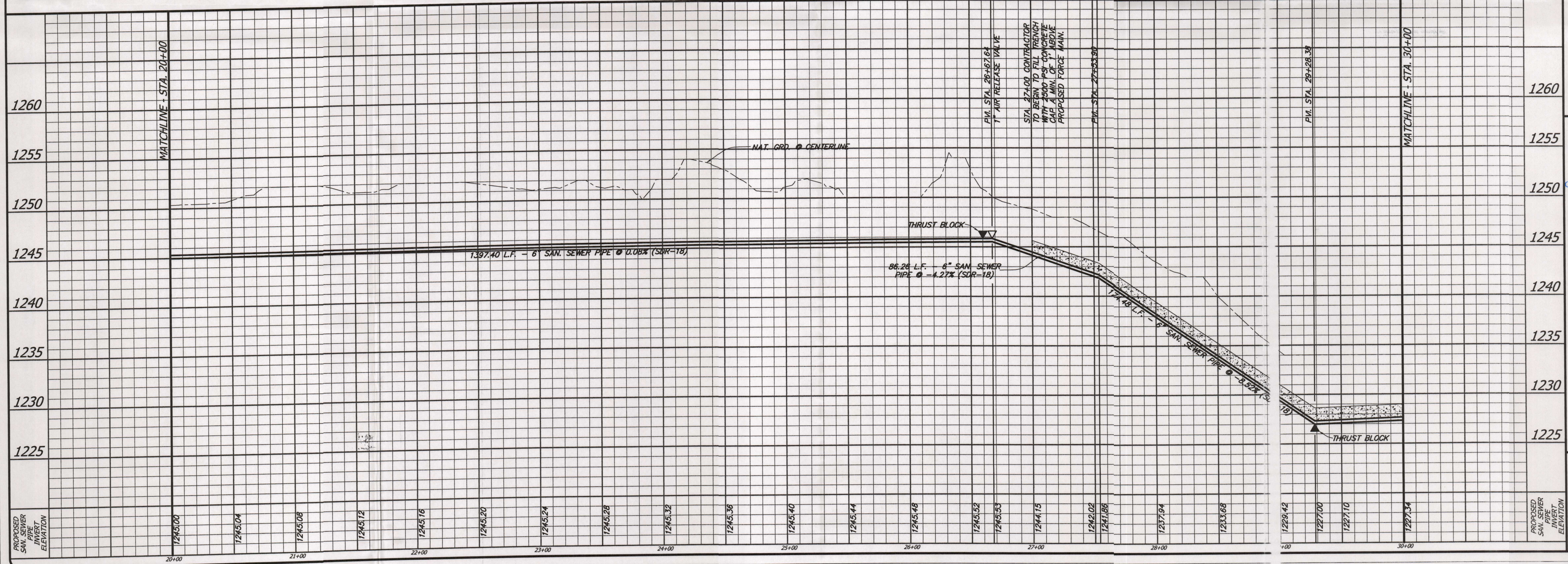
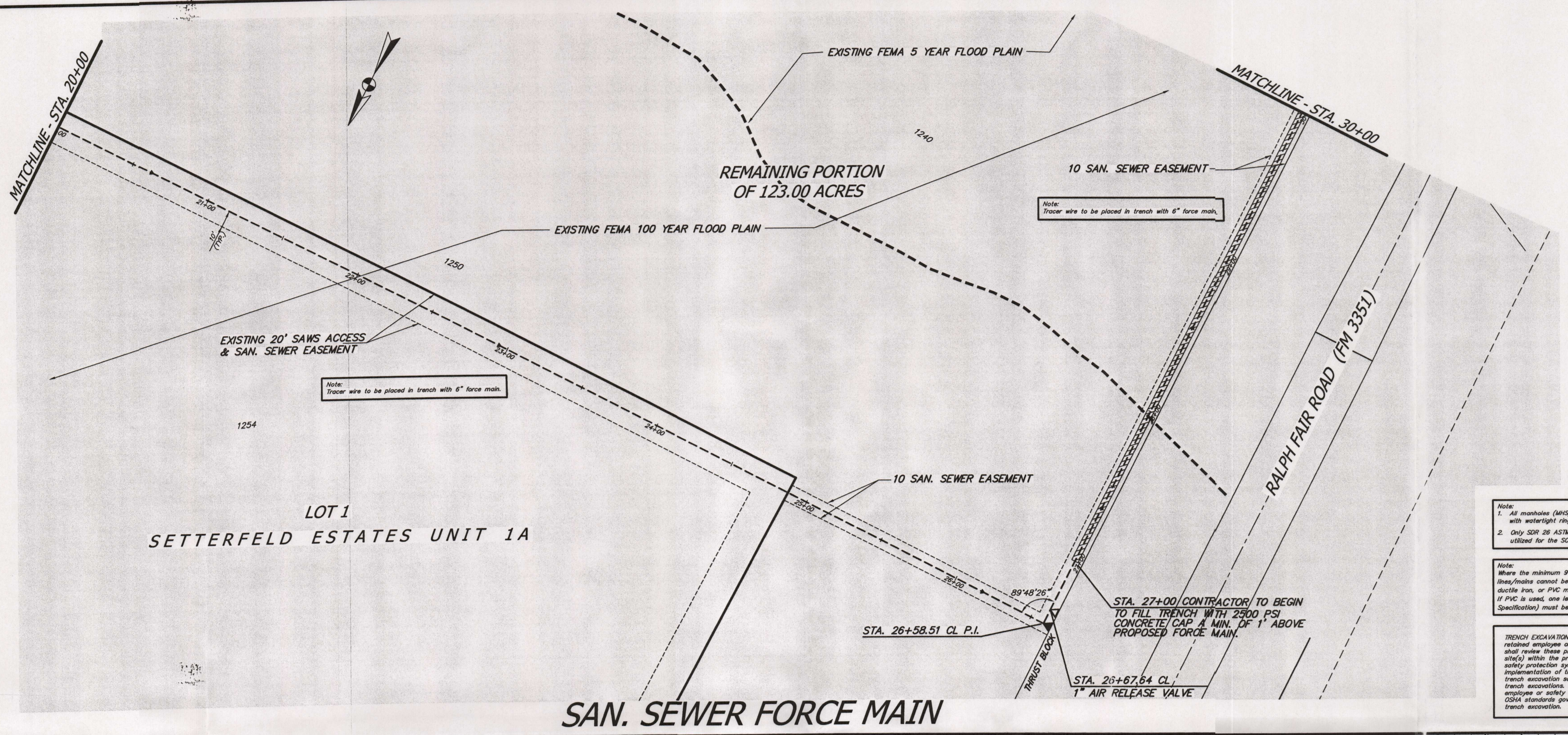
RECEIVED
JAN 17 2012
COUNTY ENGINEER

SETTERFELD ESTATES UNIT 1
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

**SANITARY SEWER FORCE MAIN
PLAN and PROFILE**
(STA. 10+00 to STA. 20+00)

JOB NO.: 200021.18
HORIZ.: 1" = 40'
VERT.: 1" = 5'
DRAWN: G.G.M.
DESIGNED: G.G.M.
FILE: SAN SEWER P-P.dwg

PAGE: **4.20**



PLAT No.

REVISED PER TCEQ REVIEW COMMENTS	DATE	DESCRIPTION
11/01/11		
12/14/11		

REVISIONS

LWD	GCM	APPROV

ACES CONSULTING ENGINEERING & SURVEYING, INC.

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
 PHONE: (210)828-0691 FAX: (210)824-3055
 FIRM REGISTRATION NUMBER: TPPE F-4480 & TPPLS 100076-00

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 COUNTY ENGINEER

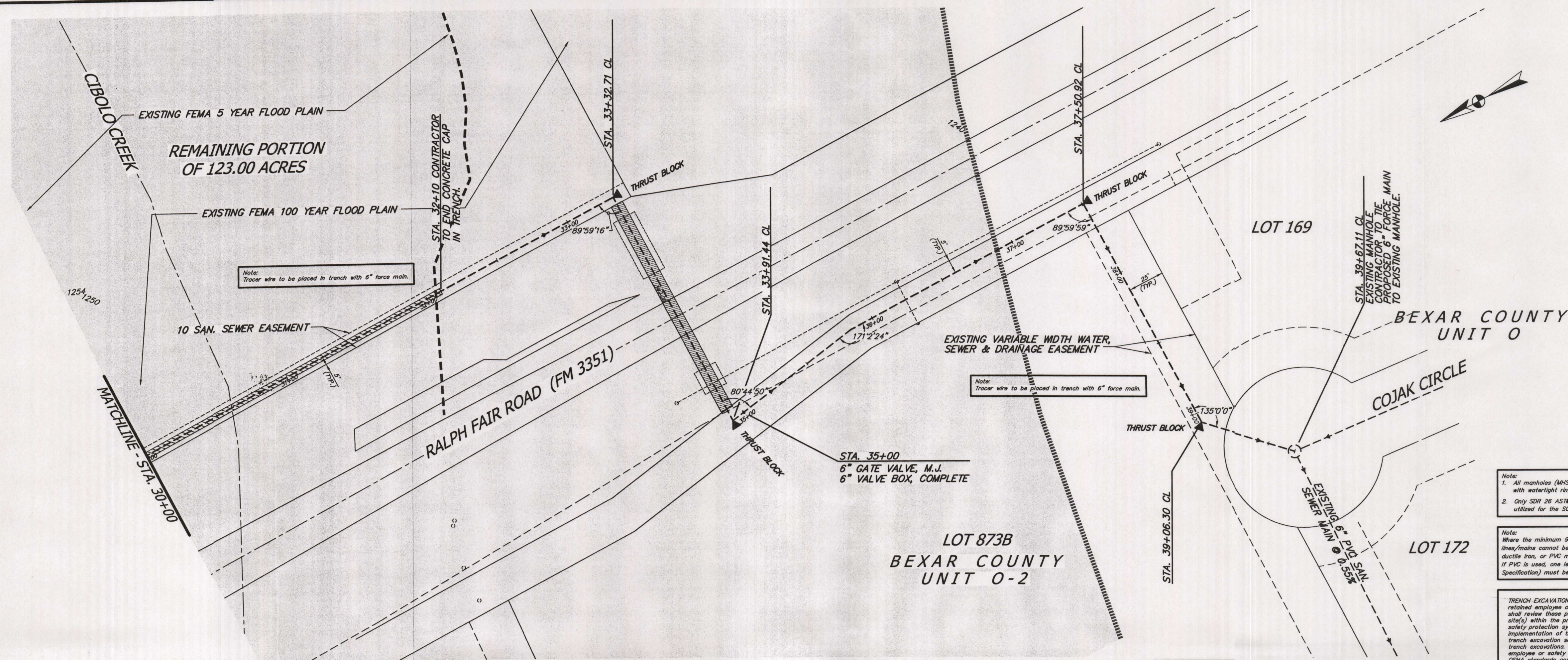
SETTERFELD ESTATES UNIT 1
 CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

SANITARY SEWER FORCE MAIN
PLAN and PROFILE
 (STA. 20+00 to STA. 30+00)

JOB NO: 200021.18
 HORIZ: 1" = 40'
 VERT: 1" = 10'
 DRAWN: G.G.M.
 DESIGNED: G.G.M.
 FILE: SAN SEWER P-P.dwg

4.21

PAGE:



SAN. SEWER FORCE MAIN

DENOTES AREA WITHIN RECHARGE ZONE

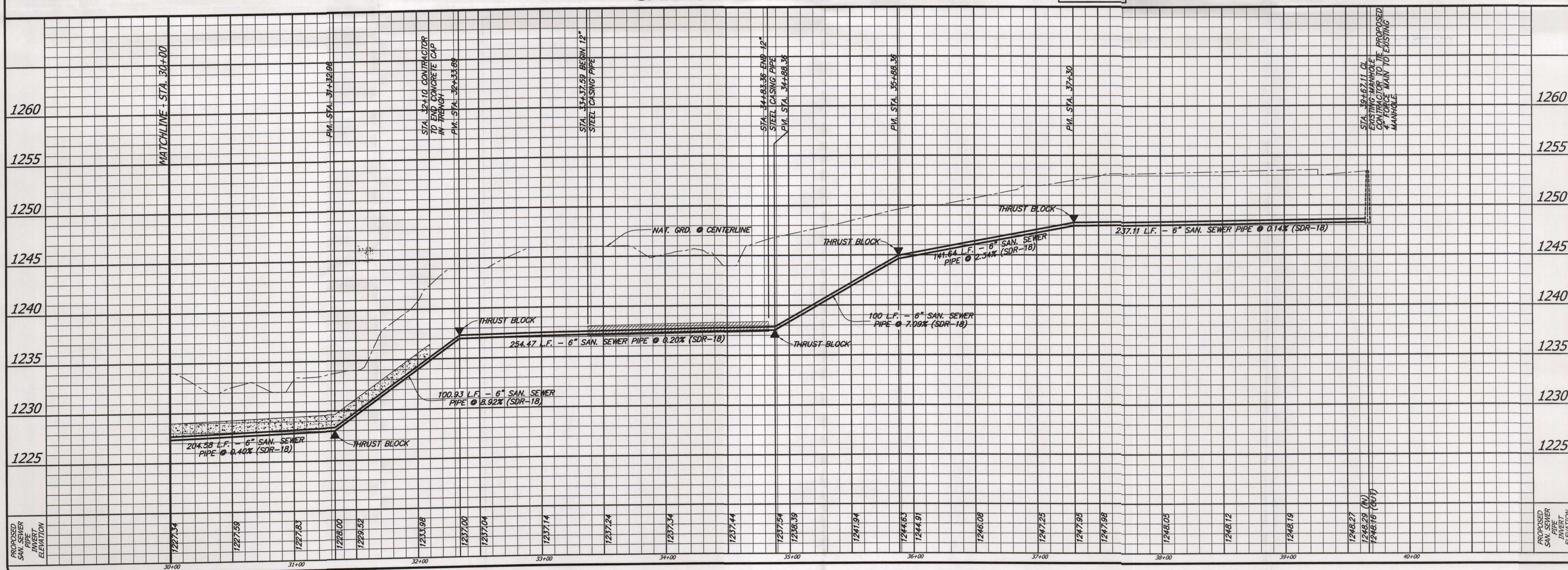
- ▲ THRUST BLOCK
- 45° BENDS - 1.5' x 3' = 4.5 S.F.
- 90° BENDS - 2.1' x 4' = 8.4 S.F.

- Note:
- All manholes (MHs) over the Edwards Recharge Zone (ERZ) must be watertight, with watertight rings and covers.
 - Only SDR 26 ASTM D-2241 piping and SDR 26 ASTM D-3139 joints are to be utilized for the SCS and the lateral stub-outs for this project.

Note:

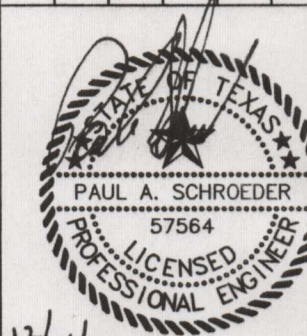
Where the minimum 9 foot separation distance between sewer lines and water lines/main cannot be maintained, the wastewater line shall be constructed of cast iron, ductile iron, or PVC meeting the ASTM specification for both pipes and joints of 150 psi. If PVC is used, one length of 150 psi sewer pipe (SDR-26, C-900, etc. ASTM/ANSI Specification) must be centered on the water lines.

TRENCH EXCAVATION SAFETY PROTECTION - Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement contractor's trench excavation safety protection systems, programs and/or procedures for the project described in the implementation of these systems, programs and/or procedures shall provide for adequate trench excavation safety protection that comply with or a minimum OSHA standards for trench excavations. Specifically, Contractor and/or contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.



PLAT No.

REVISIONS			REVISED PER TCEQ REVIEW COMMENTS		
NO.	DATE	DESCRIPTION	NO.	DATE	DESCRIPTION
1	11/01/11		1	11/01/11	
2	12/14/11		2	12/14/11	
3			3		
4			4		
5			5		
6			6		



ALAMO
ACES CONSULTING ENGINEERING
& SURVEYING, INC.

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PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TYPE P-4480 & TYPE S 100076-00

RECEIVED
JAN 17 2012
COUNTY ENGINEER

SETTERFELD ESTATES UNIT 1
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS
SANITARY SEWER FORCE MAIN
PLAN and PROFILE
(STA. 30+00 to STA. 39+67.11)

JOB NO: 200021.18
HORIZ.: 1" = 40'
VERT.: 1" = 5'
DESIGNED: GCM
FILE: SAN SEWER P-P.dwg
PAGE: 4.22

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 4, 2011

RECEIVED

NOV 15 2011

COUNTY ENGINEER

Mr. Lloyd A. Denton, Jr., President
SAUR 3351 No. 5, Ltd.
11 Lynn Batts Lane, Suite 100
San Antonio, Texas 78218

Re: Edwards Aquifer, Comal County

Name of Project: **Setterfeld Estates**; Located along the east right-of-way of FM 3351 north of Cibolo Creek; Fair Oaks Ranch, Texas

Type of Plan: Request for Approval of a **Water Pollution Abatement Plan (WPAP)**; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program San Antonio File No. 2992.00; Investigation No. 934219; Regulated Entity No. RN106162571

Dear Mr. Denton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Alamo Consulting Engineering & Surveying, Inc. on behalf of SAUR 3351 No. 5, Ltd. on June 17, 2011. Final review of the WPAP was completed after additional material was received on August 30, September 21, September 28, and September 29, 2011. As presented to the TCEQ, the Temporary Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are **hereby approved** subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

Background

The 262.04 acre site is located on the Edwards Aquifer Contributing Zone and Recharge Zone. Pursuant to Chapter 213 rules, the entire site was treated as if the entire site is located on the Recharge Zone.

Project Description

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210-490-3096 • FAX 210-545-4329

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • Internet address: www.tceq.state.tx.us

printed on recycled paper using soy-based ink

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality. COUNTY ENGINEER

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

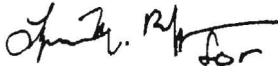
During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Mr. Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 490-3096.

Sincerely,



Mark R. Vickery, P.G., Executive Director
Texas Commission on Environmental Quality

MRV/JA/eg

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NOV 15 2011

COUNTY ENGINEER

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

cc: Mr. Paul Schroeder, P.E., Alamo Consulting Engineering & Surveying, Inc.
Mr. Thomas Hornseth, P.E., Comal County
The Honorable Dan Kasproicz, City of Fair Oaks Ranch
Mr. Karl J. Dreher, Edwards Aquifer Authority
Mr. George Wissmann, Trinity Glen Rose Groundwater Conservation District
TCEQ Central Records, Building F, MC 212



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NOV 01 2011

COUNTY ENGINEER

ALAMO CONSULTING ENGINEERING AND SURVEYING, INC.

TEXAS REGISTERED ENGINEERING FIRM F-4490

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232

PHONE: (210)828-0691

FAX: (210)824-3055

August 23, 2011

Javier Anguiano
TCEQ
14250 Judson Road
San Antonio, TX 78233-4480

Ref: **Setterfeld Estates**
EAPP No.: 2992.00

Dear Mr. Anguiano,

In response to your comments dated August 9, 2011:

- 1) Deeds were recently filed to consolidate the tracts under SAUR 3351 No. 5, Ltd. Ref Doc # 201106024453 through 201106024500.
- 2) A site assessment has been completed. The geologic chart has been updated to show feature S-31.
- 3) TCEQ-0584, Item 1 and TCEQ-0587, Item 7, attachment C, have been revised to indicate 213 residential lots. Additional lots will be numbered for green belts and open spaces as per comment 14 below.
- 4) Seven of the 213 lots will utilize OSSF's. The remaining 206 lots will be served by a future SCS. A request for an OSSF suitability letter has been submitted to Comal County. See attached copy. An approval letter will be forwarded upon receipt.
- 5) TCEQ-0602, Item 2, attachment A, has been modified to provide a comprehensive spill response plan.
- 6) TCEQ-0602, Item 3, attachment B, has been modified to add additional sources of contamination.

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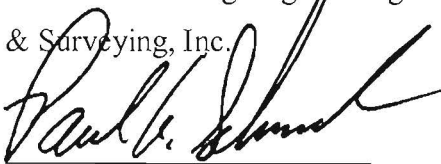
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SAN ANTONIO
REGION

- 7) TCEQ-0602, Item 9, Attachment F, has been modified.
- 8) TCEQ-0602, Item 17, and attachment J have been modified to address drought conditions.
- 9) TCEQ-0600, attachment D, has been modified to indicate that the sensitive features will be protected by a protective buffer area and channel discharges are non-erosive.
- 10) TCEQ-0600, Item 13, has been modified to address discharge waters and their treatment.
- 11) The residential lot layout has been revised to not contain the buffer zone for feature S-3. The buffer zone for feature S-11 is contained within the flood plain easement.
- 12) The site plan was modified to show the buffer for the sensitive feature to be in compliance with TCEQ TGM, section 5.1.2
- 13) The SWPPP notes on exhibit WPAP-2 has been modified to remove reference to a detention pond.
- 14) The location of the parks and open spaces have been labeled. The residential lots have been numbered. Disturbed areas are shaded on the site plan.
- 15) Details of the ESA and TWP, with notes as requested, have been added to Sheet WPAP-2.

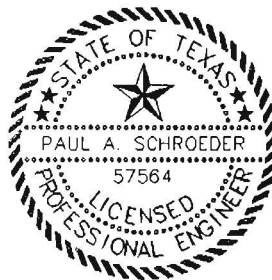
If additional information is required, please contact this office.

Sincerely,

Alamo Consulting Engineering
& Surveying, Inc.



Paul A. Schroeder P.E., R.P.L.S.



Cc: Laddie Denton, SAUR 3351 No. 5, Ltd.

Job # 200021.18

**Application for Licensing Authority Recommendation
for Private Sewerage Facilities for a Proposed Subdivision**

Date: AUGUST 17, 2011

Subdivision Name: SETTERFELD ESTATES UNIT 1A

Owner's Name: SAUR 3351 No. 5, LTD.

Address: 11 LYNN BATTS LANE, STE. 100 78218

Phone #: 210-828-6131

Fee Schedule:

5 or less tracts: \$20/tract

6 or more tracts: \$100 base fee + \$5/tract

Total Fee: \$ 135.00

Received by: _____

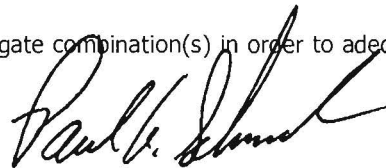
Make Check Payable to Comal County

☐ Not Applicable If this application is not applicable, please submit letter from professional engineer or registered sanitarian stating why it is not applicable. In addition, professional engineer or registered sanitarian must state if the proposed subdivision affects existing OSSF components.

According to TAC §285.4(c), persons proposing residential subdivisions, manufactured housing communities, multi-unit residential developments, business parks, or other similar structures that use OSSFs for sewage disposal shall submit planning materials, prepared by a professional engineer or professional sanitarian, for these developments to the permitting authority and receive approval prior to submitting an OSSF application:

- An overall site plan
- Topographic map
- 100-year floodplain map
- Soil survey
- Location of water wells
- Locations of easements as identified in TAC §285.91(10) (relating to Tables)
- A complete report detailing the types of OSSFs to be considered and their compatibility with area-wide drainage and groundwater
- A comprehensive drainage plan
- Edwards Aquifer requirements that are pertinent to the proposed OSSF
- If the proposed development includes restaurants or buildings with food service establishments, the planning materials must show adequate land area for doubling the land needed for the treatment units

Comal County also asks for an existing improvements sketch and gate combination(s) in order to adequately inspect the site for use of OSSFs for sewage disposal.



Applicant/Agent Signature
Engineer's

Date of Review (must be within 45 days of receipt): _____

☐ Approved

☐ Denied

Reason(s) for Denial: _____

Reviewer: _____, D.R.

*** Note: This sheet shall be first with all planning materials listed above following behind.**

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: SETTERFELD ESTATES													
LOCATION			FEATURE CHARACTERISTICS										EVALUATION		PHYSICAL SETTING				
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10	11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)		TOPOGRAPHY	
						X	Y	Z		10						<40	≥40	<1.6	≥1.6
S-1	29-45-20.36	98-37-09.33	MB	30	Kgr	0.5	0.5					X	19	49	X	X			HILLTOP
S-2	29-45-18.38	98-37-07.00	MB	30	Kgr	80	30	6				F,X	5	35	X	X			HILLTOP
S-3	29-45-08.17	98-37-09.50	SH	20	Kgr	800	650	7				F,V	20	40	X		X		DRAINAGE
S-4	29-45-09.90	98-37-08.17	MB	30	Kgr	3700	20					F	19	49	X		X		ALL
S-5	29-45-06.40	98-37-11.21	CD	5	Kgr	180	80	8				F	19	24	X		X		HILLSIDE
S-6	29-45-10.49	98-37-23.42	CD	5	Kgr	50	30	1				N	19	24	X		X		STREAM BED
S-7	29-45-09.11	98-37-21.34	CD	5	Kgr	30	20	1				N	19	24	X		X		STREAM BED
S-8	29-45-07.45	98-37-18.46	CD	5	Kgr	30	15	2				F	19	24	X		X		STREAM BED
S-9	29-45-06.58	98-37-18.04	CD	5	Kgr	30	15	2				F	19	24	X		X		STREAM BED
S-10	29-45-04.60	98-37-17.14	CD	5	Kgr	200	35	5				F	19	24	X		X		STREAM BED
S-11	29-45-03.69	98-37-16.78	SFZ	30	Kgr				NE-SW	10	2-3'	0.25"	C	20	60	X		X	STREAM BED
S-12	29-45-02.72	98-37-16.44	CD	5	Kgr	15	10	1.5				F,V	19	24	X		X		STREAM BED
S-13	29-45-02.23	98-37-16.29	CD	5	Kgr	15	10	1.5				F,V	19	24	X		X		STREAM BED
S-14	29-45-00.50	98-37-15.50	CD	5	Kgr	200	50	3				F,V	19	24	X		X		STREAM BED
S-15	29-44-58.49	98-37-14.45	CD	5	Kgr	15	10	2				F,V	19	24	X		X		STREAM BED
S-16	29-44-57.35	98-37-14.27	CD	5	Kgr	90	15	2.5				F,V	19	24	X		X		STREAM BED
S-17	29-44-56.09	98-37-14.86	CD	5	Kgr	5	5	2.5				N	19	24	X		X		STREAM BED
S-18	29-44-55.20	98-37-14.88	SFZ	30	Kgr				NE-SW	10	2-3'	0.25"	C	20	60	X		X	STREAM BED
S-19	29-44-52.05	98-37-14.22	CD	5	Qal	170	40	4				F	20	25	X		X		STREAM BED
S-20	29-44-47.46	98-37-11.41	CD	5	Qal	25	15	2				F	20	25	X		X		STREAM BED
S-21	29-44-41.94	98-37-05.20	CD	5	Qal	320	80	6				F	34	39	X		X		STREAM BED
S-22	29-44-55.26	98-37-21.57	CD	5	Kgr	110	60	6				F	19	24	X		X		HILLSIDE
S-23	29-45-05.25	98-37-04.24	CD	5	Kgr	150	100	5				F	34	39	X		X		HILLTOP
S-24	29-44-58.24	98-37-10.05	MB	30	Kgr	40	20	5				F,X	5	35	X		X		HILLSIDE
S-25	29-44-56.27	98-37-04.83	MB	30	Kgr	0.5	0.5					X	19	49	X	X			HILLTOP
S-26	29-44-55.47	98-37-06.67	MB	30	Kgr	40	20	5				F,X	5	35	X		X		HILLSIDE
S-27	29-44-55.50	98-37-06.57	MB	30	Kgr	0.5	0.5					X	19	49	X	X			HILLTOP
S-28	29-44-47.31	98-36-58.18	CD	5	Kgr	200	80	4				F,V	19	24	X		X		HILLSIDE
S-29	29-44-49.04	98-37-00.00	CD	5	Kgr	10	5	2				F	10	15	X		X		HILLSIDE
S-30	29-45-22.73	98-37-06.96	F	20	Kgr				NE-SW	10		F	20	50	X		X		HILLTOP
S-31	29-45-10.09	98-37-11.85	D	20	Kgr	5	50	1				F	19	39	X		X		HILLTOP

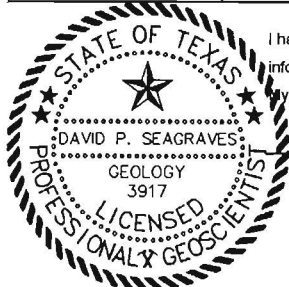
* DATUM:

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed



I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

David P. Seagraves

Date 08 - 29 - 11

Sheet 1 of 1

PROJECT DESCRIPTION

The project is to be developed as a single family residential neighborhood in multiple units on 262.04 acres of land. This project is to be built in multiple phases and will contain open space, parkland, walking trails, etc.

Unit-1A will contain 7 lots (all greater than 5 acres) which will be served by On Site Sewage Facilities. The remaining 206 lots will be serviced by a Sewage Collection System owned by Fair Oaks Ranch Utilities.

The project will be developed with less than 20 % impervious cover. The lot typical on the W.P.A.P. site plan indicates the impervious limitations for this project.

Water Pollution Abatement Plan Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b), Effective June 1, 1999

REGULATED ENTITY NAME: SETTERFELD ESTATES

REGULATED ENTITY INFORMATION

1. The type of project is:
☒ Residential: # of Lots: 213
☐ Residential: # of Living Unit Equivalents:
☐ Commercial
☐ Industrial
☐ Other:
2. Total site acreage (size of property): 262.04
3. Projected population: 580
4. The amount and type of impervious cover expected after construction are shown below:

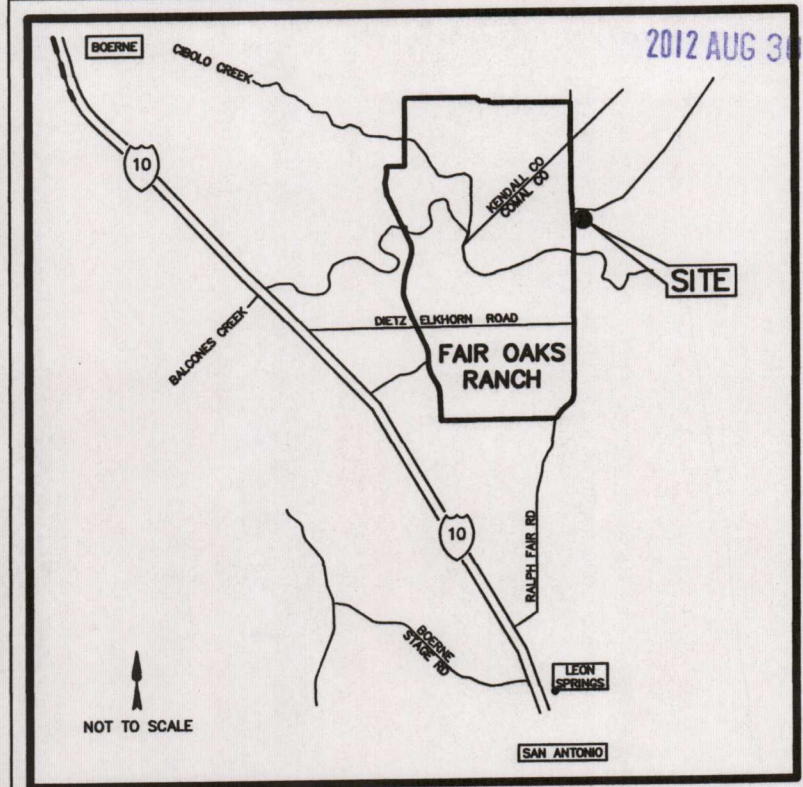
Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	925,366	÷ 43,560 =	21.24
Parking (Driveway, Sidewalks)	896,550	÷ 43,560 =	20.58
Other paved surfaces (Streets)	404,000	÷ 43,560 =	9.28
Total Impervious Cover	2,225,916	÷ 43,560 =	51.10
Total Impervious Cover ÷ Total Acreage x 100 =			19.5%

5. ☒ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY

Complete questions 7-12 if this application is exclusively for a road project.

7. Type of project: N/A
☐ TXDOT road project.
☐ County road or roads built to county specifications.
☐ City thoroughfare or roads to be dedicated to a municipality.
☐ Street or road providing access to private driveways.
8. Type of pavement or road surface to be used:
☐ Concrete N/A
☐ Asphaltic concrete pavement
☐ Other:



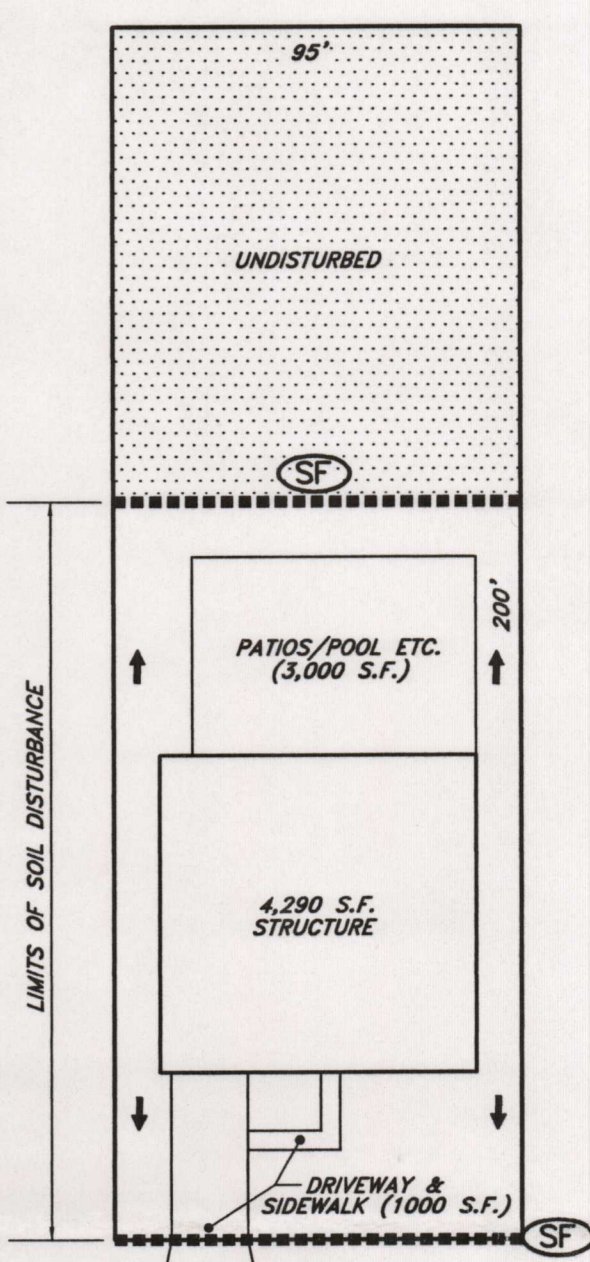
LOCATION MAP

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STABILIZATION PRACTICES

1. ALL DISTURBED AREAS WHERE CONSTRUCTION HAS BEEN COMPLETED, TEMPORARILY HALTED, OR NO FURTHER WORK IS PLANNED FOR 21 DAYS OR LONGER, SHALL BE STABILIZED WITHIN 14 DAYS OF THE LAST CONSTRUCTION ACTIVITIES.
2. PERMANENT CONTROL WILL BE ACHIEVED BY PERMANENTLY STABILIZING DISTURBED AREAS THROUGH SODDING OR SEEDING WITH STANDARD LAWN OR NATIVE GRASSES.



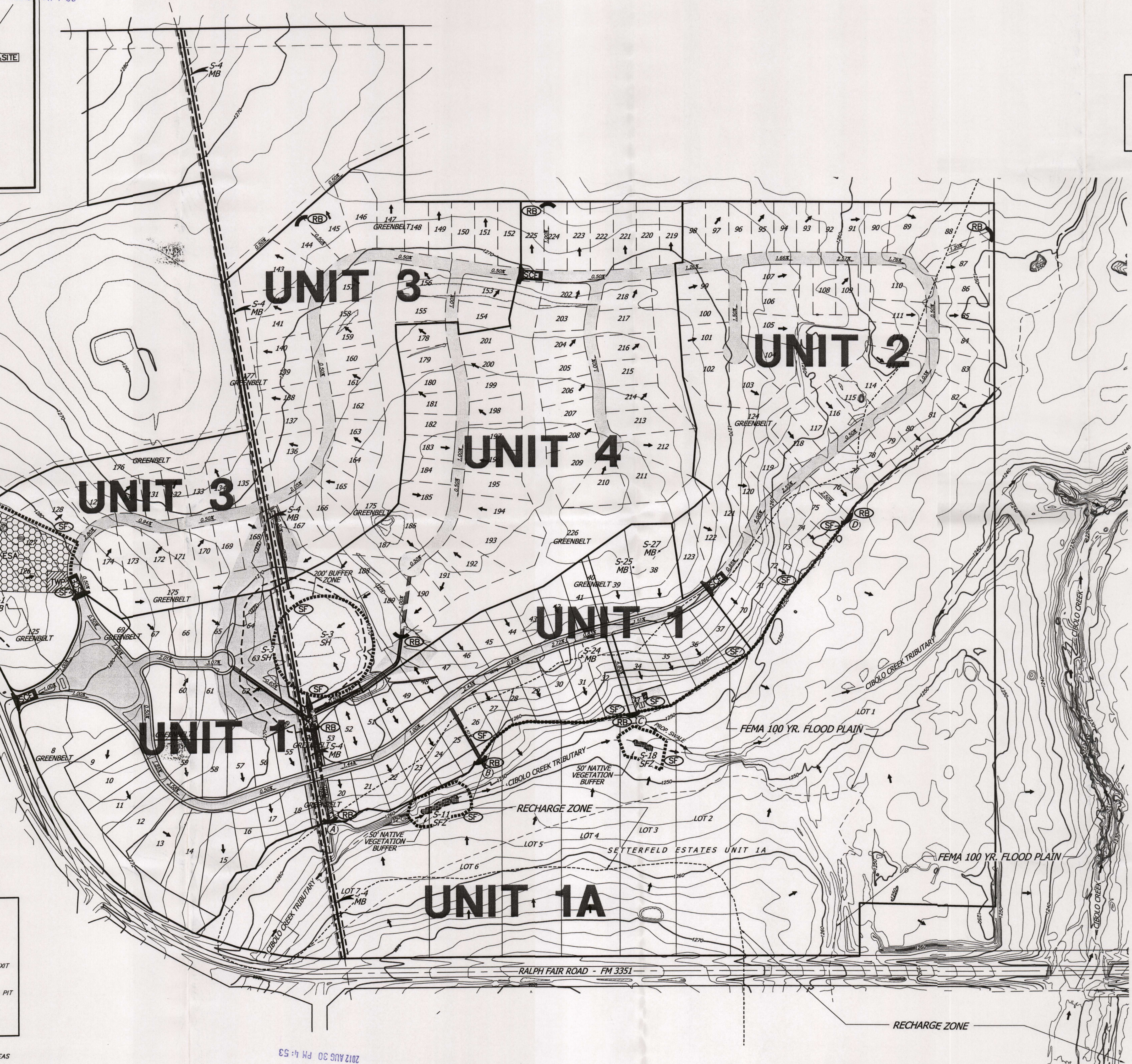
TYPICAL LOT LAYOUT

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COUNTY ENGINEER

- DISCHARGE LOCATIONS
- (A) - CHANNEL DISCHARGE POINTS
 - (B) - CHANNEL DISCHARGE POINTS
 - (C) - CHANNEL DISCHARGE POINTS
 - (D) - CHANNEL DISCHARGE POINTS

FEMA 100 YEAR FLOOD PLAIN IS PER:
FIRM: 48091C0355F - DATED 09-02-09
FIRM: 48091C0190F - DATED 09-02-09

- LEGEND
- TEMPORARY BEST MANAGEMENT PRACTICES (BMPs)
- (SF) SILT FENCE
 - (RB) ROCK BERM
 - (S) STABILIZED CONSTRUCTION EXIT
 - (TW) CONSTRUCTION TRUCK WASH PIT
 - (SA) EQUIPMENT STAGING AREA
- DENOTE LIMIT OF DISTURBED AREAS



PLAT No.

REVISIONS

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		

STATE OF TEXAS
FALL A. SCHROEDER
LICENSED PROFESSIONAL ENGINEER
06/10/11

ALAMO
ACES CONSULTING ENGINEERING & SURVEYING, INC.
140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TEPF F-4480 & TEPFIS 100076-00

SETTERFELD ESTATES
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

SW3P AND WATER POLLUTION ABATEMENT
SITE PLAN

JOB NO: 200021.18
HORIZ.: 1" = 200'
SCALE: N/A
DRAWN: GCM
DESIGNED: GCM
FILE: WPAP SITE PLAN.dwg
PAGE: WPAP-1

1.4.2 Temporary Construction Entrance/Exit

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment onto public rights-of-way. This practice should be used at all points of construction ingress and egress. Schematic diagrams of a construction entrance/exit are shown in Figure 1-24 and Figure 1-25.

Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected where access is not necessary. A rock stabilized construction entrance should be used at all designated access points.

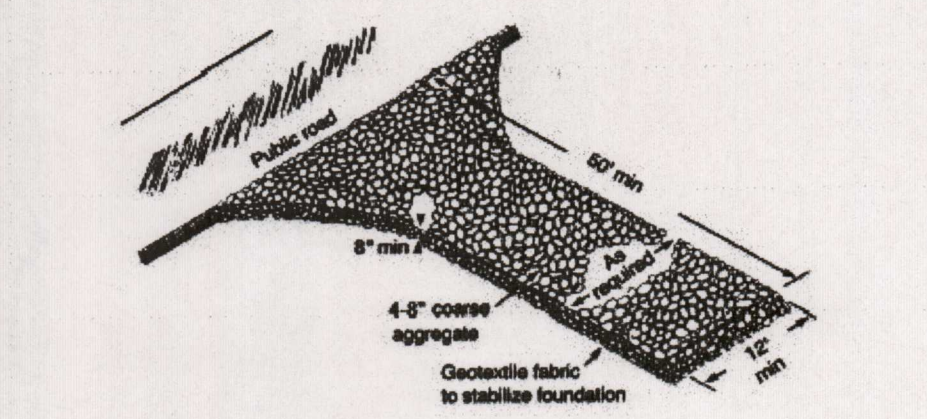


Figure 1-24 Schematic of Temporary Construction Entrance/Exit (after NC, 1993)

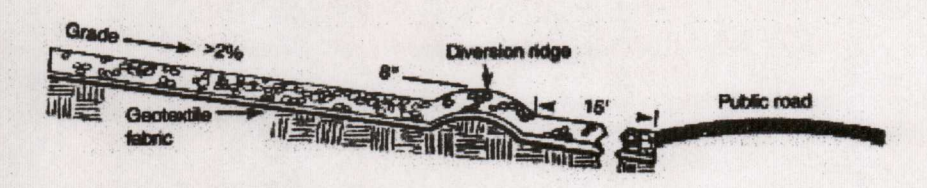


Figure 1-25 Cross-section of a Construction Entrance/Exit (NC, 1993)

Materials:

- The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
- The aggregate should be placed with a minimum thickness of 8 inches.
- The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd², a mullen burst rating of 140 lb/in², and an equivalent opening size greater than a number 50 sieve.
- If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

Installation: (North Carolina, 1993)

- Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
- The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.
- The construction entrance should be at least 50 feet long.
- If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.
- Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.
- Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
- Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
- Install pipe under pad as needed to maintain proper public road drainage.

Inspection and Maintenance Guidelines:

- The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
- When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
- When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

ESA - EQUIPMENT STAGING AREA

- Downstream perimeter shall be lined with silt fence at all times.
- Engage-Egress to this job site shall be stabilized construction exit.
- All equipment fueling and fluid changes shall be over an impervious surface.
- ESA shall not be located within 100 feet of a sensitive feature as identified in the Geologic Assessment.
- ESA shall not be located within 50 feet of a storm drain, open ditch or water bodies.

1.4.3 Silt Fence

A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond, allowing heavier solids to settle out. If not properly installed, silt fences are not likely to be effective. A schematic illustration of a silt fence is shown in Figure 1-26.

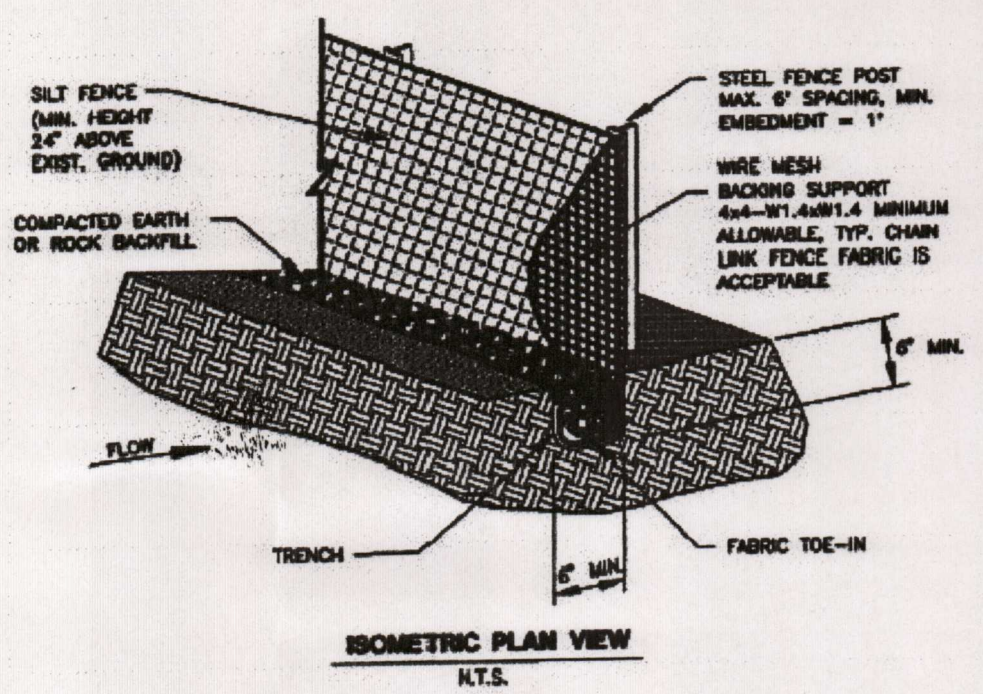


Figure 1-26 Schematic of a Silt Fence Installation (NCTCOG, 1993b)

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fence on the perimeter of the site or around drainage ways should not be moved at any time.

Materials:

- Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd², mullen burst strength exceeding 190 lb/in², ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.
- Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft², and Brinell hardness exceeding 140.
- Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

- Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1-foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.
- Lay out fencing down-slope of disturbed site so that the maximum drainage area is 1/4 acre/100 feet of fence.
- The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or other outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

- The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

- Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

Inspection and Maintenance Guidelines:

- Inspect all fencing weekly, and after any rainfall.
- Remove sediment when buildup reaches 6 inches.
- Replace any torn fabric or install a second line of fencing parallel to the torn section.
- Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
- When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

1.4.5 Rock Berms

The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures further up the watershed.

Materials:

- The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with short rings.
- Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

- Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.
- Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.
- Place the rock along the sheathing as shown in the diagram (Figure 1-28), to a height not less than 18".
- Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.
- Berm should be built along the contour at zero percent grade or as near as possible.
- The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

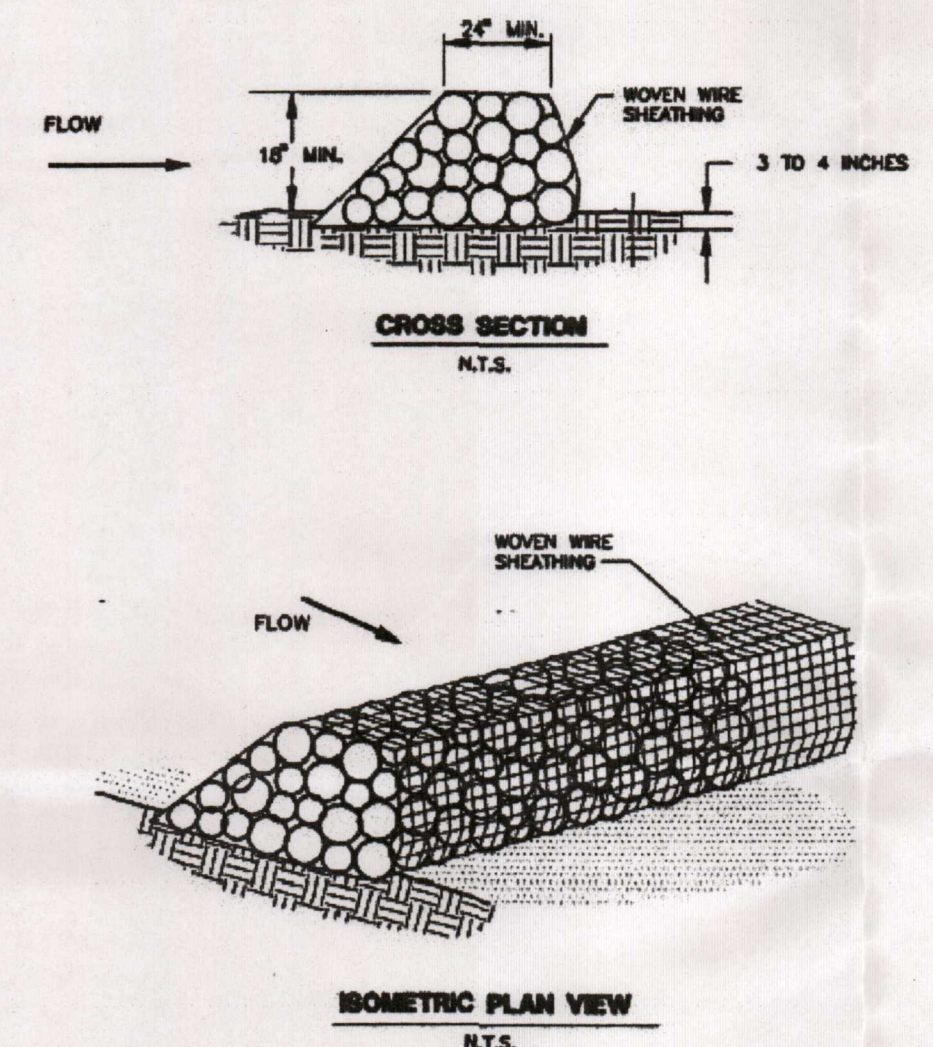


Figure 1-28 Schematic Diagram of a Rock Berm (NCTCOG, 1993)

Inspection and Maintenance Guidelines:

- Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.
- Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.
- Repair any loose wire sheathing.
- The berm should be reshaped as needed during inspection.
- The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
- The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

STORMWATER POLLUTION PREVENTION PLAN GENERAL NOTES

I. PERMITEE NOTICE

This Stormwater Pollution Prevention Plan (SWPPP) is prepared in accordance with the guidelines in the Federal Register, Volume 63, No. 126, dated Monday, July 6, 1998, pp. 38502-38505, "Part 19: Storm Water Pollution Plans".

In compliance with the above guidelines, the contractor shall post a notice (regarding the NPDES permit) on the construction site.

The Contractor and his subcontractors shall avoid the pollution of runoff water by adhering to the measures outlined in this "Plan". Contractor shall be held responsible for his actions and the actions of all of his subsequent subcontractors.

The Contractor shall provide the following Certification in writing to the Engineer prior to starting construction:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

II. SITE DESCRIPTION

The CONTRACTOR, the OWNER/DEVELOPER, and any other parties responsible for daily construction activities on the project site, shall EACH file a Notice of Intent (NOI) with the Environmental Protection Agency (EPA). This requirement is in compliance with the NPDES General Permit.

The above parties shall also file a "Notice of Termination" (NOT) with the EPA for the construction activities after the area disturbed by the proposed construction has been permanently stabilized. Refer to the supplemental EPA NPDES report prepared for this project for project description and additional contractor responsibilities.

III. STRUCTURAL PRACTICES

A. DIVERSION OF STORM WATER

Private driveways will be used along with concrete and earthen drainage channels to divert stormwater runoff through the project site and to direct this stormwater to discharge locations shown on the Stormwater Pollution Prevention Plan and noted in the Supplemental EPA NPDES Report.

The pollution abatement measures noted below have been designed with consideration given to the created drainage patterns and to the locations of concentrated stormwater runoff.

1.4.18 Concrete Washout Areas

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.

The following steps will help reduce stormwater pollution from concrete wastes;

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.

For onsite washout:

- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil in polyethylene sheathing and should be free of holes, tears, or other defects that compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

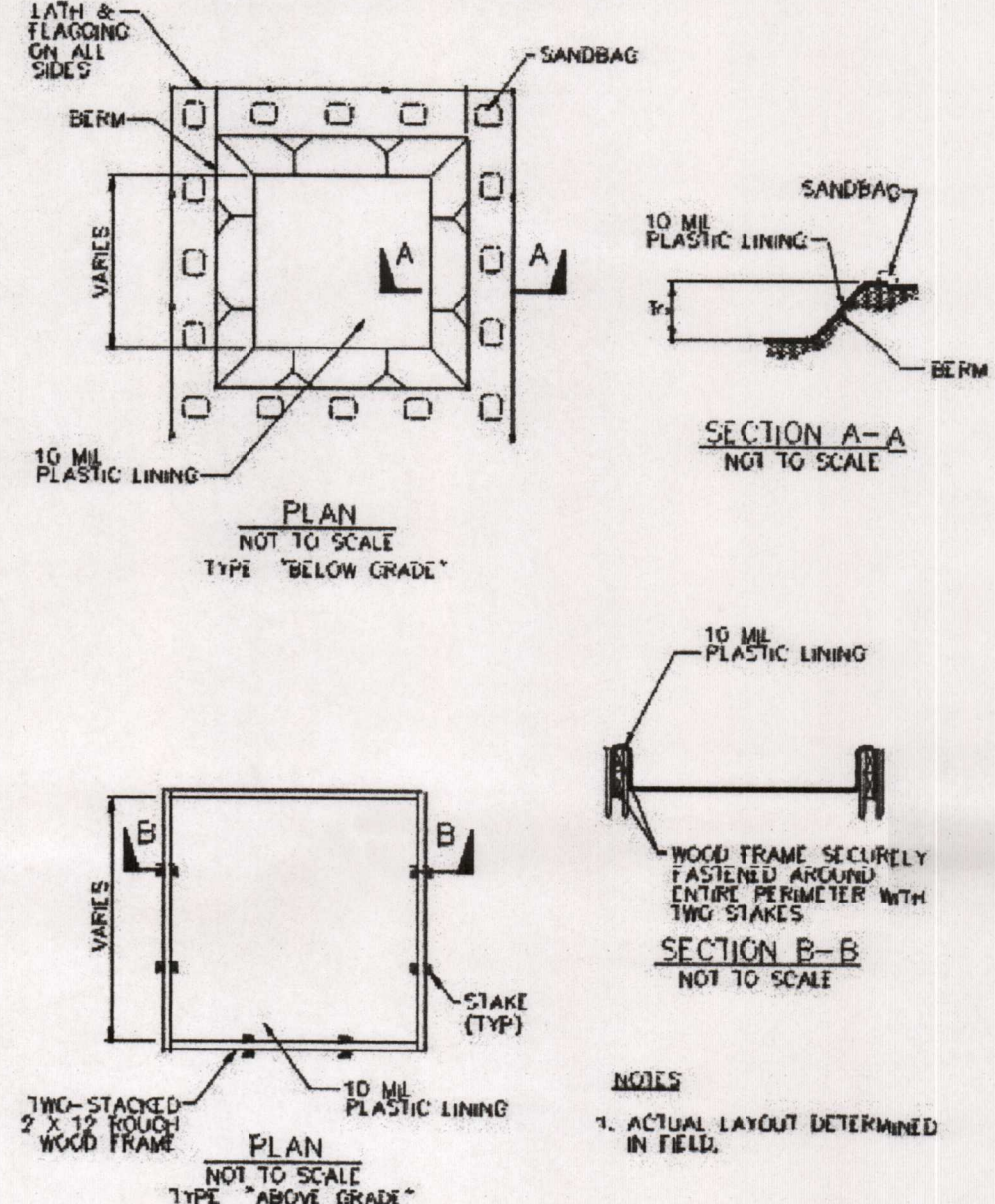


Figure 1-43 Schematics of Concrete Washout Areas

B. STORAGE OF STORM WATER

N/A

C. POST-CONSTRUCTION CONTROLS

As noted in Part II.D. of the Supplemental EPA NPDES Report, after construction and stabilization of soils, concentrations of suspended solids in the stormwater runoff from the site are expected to be approximately at pre-development levels. Therefore, no permanent pollution abatement measures are proposed as a part of this development.

D. CONTROLS USED TO PREVENT SOLID MATERIALS

Should the Temporary Pollution Abatement Measures described below fail to control the discharge of solid materials (including building materials) from with storm water runoff from the project site, it is the contractor's responsibility to enact additional control measures.

No discharge of solid materials from the project site is allowed.

E. OFFSITE TRACKING CONTROLS

Construction entrances, parking and staging areas, shall be stabilized with coarse aggregate or as otherwise directed.

The Stabilized Construction Entrance(s) shown on the improvement plans is (are) designed to control the tracking of sediments onto public roadways. The contractor shall maintain these entrances to ensure it's successful operation throughout the construction period.

Construction vehicles shall exclusively utilize these entrances to gain access to the project site.

F. COMPLIANCE WITH LOCAL AND STATE REGULATIONS

The contractor shall comply with all applicable Federal, State, and local stormwater pollution prevention control regulations for construction activities that this project may be within the jurisdiction of.

G. ON-SITE MATERIAL STORAGE

Construction materials shall be stored at a location that will facilitate the drainage of runoff from solid materials to the Temporary Pollution Abatement measures noted below. Where this is not feasible, the contractor is responsible for installing appropriate Temporary Pollution Abatement measures to control runoff from solid materials. The contractor is also responsible for retaining the Stormwater Pollution Prevention Plan accordingly and submitting the revised plan to the EPA, and the Engineer immediately.

H. OFFSITE AND SUPPORT ACTIVITIES

There will be no off-site dedicated support activities (e.g., asphalt/concrete plants) associated with this project.

No off-site storage of construction materials is allowed.

I. AREAS OF SOIL DISTURBANCE

Soil disturbances shall be minimized by exposing only the smallest practical area of land required for the construction activity and for the shortest practical period of time. Trenching and associated backfilling for utilities and storm drainage shall be coordinated to minimize the time period of the disturbance. Maximum practical use of native vegetation for erosion control will be used by leaving this vegetation in place until clearing is necessary.

IV. STABILIZATION PRACTICES

A. TEMPORARY POLLUTION ABATEMENT MEASURES

Temporary control of pollution, soil erosion and sedimentation in particular, for this project will be accomplished through the installation of structural barriers (rock berms and a sand filtration basin) to trap and filter silt from runoff waters.

The supplemental EPA NPDES report prepared for this project describes the criteria used in selecting these controls.

Temporary pollution abatement measures shall remain in place until the construction is complete vegetation upstream of the control measures has been re-established.

Texas Commission on Environmental Quality Water Pollution Abatement Plan General Construction Notes

- Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, and the name of the prime contractor and the name and telephone number of the contact person.
- All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
- If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. The regulated activities near the sensitive feature may not proceed until the TCEQ has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality.
- No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- Prior to commencement of construction, all temporary erosion and sedimentation (EAS) control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. Controls specified in the temporary storm water section of the approved Edwards Aquifer Protection Plan are required during construction. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized.
- If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
- Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake must be provided that can indicate when the sediment occupies 50% of the basin volume.
- Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).
- All spoils (excavated material) generated from the project site must be stored on-site with proper EAS controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.
- Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently ceased is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.
- The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
- The holder of any approved Edwards Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
 - any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - any development of land previously identified as undeveloped in the original water pollution abatement plan.

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Austin Regional Office
2800 S. IH 35, Suite 100
Austin, Texas 78704-5712
Phone (512) 339-3228
Fax (512) 339-3795

San Antonio Regional Office
14250 Judson Road
San Antonio, Texas 78233-4480
Phone (210) 490-3006
Fax (210) 545-4328

B. PERMANENT POLLUTION ABATEMENT MEASURES

Permanent control will be achieved by permanently stabilizing disturbed areas through sodding or seeding with standard lawn or native grasses.

The control measures specified on the "Stormwater Pollution Prevention Plan" for the site will be installed and maintained by the Contractor(s) during the entire time that construction is in progress. Once construction is complete, and until the N.O.T. is filed, the Contractor and/or the Owner/Developer, shall be responsible for the maintenance of the control measures. Upon filing of the N.O.T., the responsible party shall remove all temporary abatement control measures.

V. OTHER MISCELLANEOUS PRACTICES

A. MAINTENANCE PROCEDURES

During construction, all control measures, as well as general site conditions, shall be inspected at least once every fourteen (14) calendar days and within 24 hours following any 1/2 inch, or greater, rainfall.

Silt accumulations in excess of 12 inches, 50 % of the control measure capacity, or 1/4 of the height/depth of the control measure; whichever is less, shall be removed.

Any sediment in the drainage structures/culverts in excess of the previous criteria shall likewise be removed.

The removed silt shall be deposited within the Project limits at an approved location not subjected to concentrated runoff.

Any damaged or non-functioning control measure(s) shall be repaired immediately.

Until such time that the Construction Contract is 100% complete, the Contractor shall remain fully responsible for the maintenance of the erosion control measures installed for this Project.

Any silt fences or other erosion control barrier temporarily moved from its designated location to facilitate work shall be replaced at the end of each work day or if rain appears imminent.

Control measures shall be removed after the appropriate disturbed areas become stabilized.

The Contractor shall avoid the pollution of runoff water by using "best management practices" supplemental EPA NPDES report prepared for this project contains a partial list of acceptable management practices which the Contractor shall be expected to conform to.

In the period between completion of construction and filing of the N.O.T., all stabilized areas shall be inspected at least once every four (4) weeks.

B. INSPECTION OF CONTROL MEASURES

The Contractor shall designate a person(s) or entity to be responsible for the inspection of pollution prevention and erosion control measures for the subject site.

Reports of the weekly inspections shall be made recording the scope of the inspection, name of the inspector and date of the inspection, major observations related to the Plan's implementation, and the actions taken as a result of the inspection. A copy of each weekly report shall be immediately provided to the Engineer. As part of the Storm Water NPDES, the Contractor shall retain these reports for three (3) years after the N.O.T. for this Project is filed.

As a minimum, the inspector shall observe:

- disturbed areas for evidence of unchecked erosion;
- storage areas for evidence of, or potential for, leakage from stored materials;
- control measures to ensure that they are functioning correctly;
- stabilized construction sites for evidence of off-site sediment tracking;
- vehicle storage areas for signs of leaking equipment or spills;
- concrete truck rinse-out pit for signs of potential failure;
- discharge locations to ascertain whether control measures are effective;
- vehicle/equipment wash area for proper drainage and maintenance of sediment trap and wash equipment.

All deficiencies noted during the inspection will be documented and corrected within seven (7) calendar days following the inspection. Based upon the results of these inspections, the contractor shall be responsible for the maintenance of the control measures to provide more effective control.

C. NON-TEMPORARY DISCHARGES

Small discharges associated with activities such as pressure testing of newly-installed water system and sewer system facilities, water blasting curbs, and cleaning and testing activities for construction are expected. For such activities, the Contractor is hereby directed to use reasonable diligence to avoid causing unnecessary erosion. Any observed eroded areas shall be promptly corrected by Contractor.

PLAT No.

REVISIONS

DESCRIPTION

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NOV 01 2011
COUNTY ENGINEER

ALAMO CONSULTING ENGINEERING AND SURVEYING, INC.
TEXAS REGISTERED ENGINEERING FIRM F-4490
140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055

September 20, 2011

Javier Anguiano
TCEQ
14250 Judson Road
San Antonio, TX 78233-4480

Ref: **Setterfeld Estates**
EAPP No.: 2992.00

Dear Mr. Anguiano,

In response to your comments dated September 6, 2011:

- 1) TCEQ-0585 - Attached is the updated information on the additional feature found:
 - a. Geologic site map
 - b. Geologic assessment table
 - c. Narrative description of the features
- 2) TCEQ-0584 - Attached is a copy of the approval by Comal County of the application for use of OSSF's.
- 3) TCEQ-0600 - Attachment "D" has been revised. See attached.
- 4) TCEQ-0600 - Attachment "I" has been revised. See attached.
- 5) TCEQ-0600 - Attached is the language to be placed in the deed restriction to protect features S-11 and S-18.

RECEIVED TCEQ
SAN ANTONIO
REGION
2011 SEP 21 PM 3:39

Setterfeld Estates

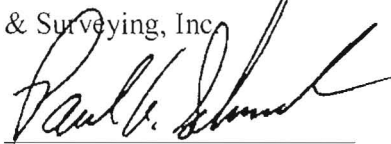
EAPP No.: 2992.00

Page 2

If additional information is required, please contact this office.

Sincerely,

Alamo Consulting Engineering
& Surveying, Inc.



Paul A. Schroeder P.E., R.P.L.S.



Cc: Laddie Denton, SAUR 3351 No. 5, Ltd.

Job # 200021.18

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: SETTERFELD ESTATES														
LOCATION			FEATURE CHARACTERISTICS											EVALUATION		PHYSICAL SETTING				
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10	11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	8	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)		TOPOGRAPHY	
						X	Y	Z		10							<40	>40	<1.6	>1.6
S-1	29-45-20.36	98-37-09.33	MB	30	Kgr	0.5	0.5						X	19	49	X	X		HILLTOP	
S-2	29-45-18.38	98-37-07.00	MB	30	Kgr	80	30	6					F,X	5	35	X	X		HILLTOP	
S-3	29-45-08.17	98-37-09.50	SH	20	Kgr	800	650	7					F,V	20	40	X	X		DRAINAGE	
S-4	29-45-09.90	98-37-08.17	MB	30	Kgr	3700	20						F	19	49	X	X		ALL	
S-5	29-45-06.40	98-37-11.21	CD	5	Kgr	180	80	8					F	19	24	X	X		HILLSIDE	
S-6	29-45-10.49	98-37-23.42	CD	5	Kgr	50	30	1					N	19	24	X	X		STREAM BED	
S-7	29-45-09.11	98-37-21.34	CD	5	Kgr	30	20	1					N	19	24	X	X		STREAM BED	
S-8	29-45-07.45	98-37-18.46	CD	5	Kgr	30	15	2					F	19	24	X	X		STREAM BED	
S-9	29-45-06.58	98-37-18.04	CD	5	Kgr	30	15	2					F	19	24	X	X		STREAM BED	
S-10	29-45-04.60	98-37-17.14	CD	5	Kgr	200	35	5					F	19	24	X	X		STREAM BED	
S-11	29-45-03.69	98-37-16.78	SFZ	30	Kgr				NE-SW	10	2-3'	0.25"	C	20	60	X	X		STREAM BED	
S-12	29-45-02.72	98-37-16.44	CD	5	Kgr	15	10	1.5					F,V	19	24	X	X		STREAM BED	
S-13	29-45-02.23	98-37-16.29	CD	5	Kgr	15	10	1.5					F,V	19	24	X	X		STREAM BED	
S-14	29-45-00.50	98-37-15.50	CD	5	Kgr	200	50	3					F,V	19	24	X	X		STREAM BED	
S-15	29-44-58.49	98-37-14.45	CD	5	Kgr	15	10	2					F,V	19	24	X	X		STREAM BED	
S-16	29-44-57.35	98-37-14.27	CD	5	Kgr	90	15	2.5					F,V	19	24	X	X		STREAM BED	
S-17	29-44-56.09	98-37-14.86	CD	5	Kgr	5	5	2.5					N	19	24	X	X		STREAM BED	
S-18	29-44-55.20	98-37-14.88	SFZ	30	Kgr				NE-SW	10	2-3'	0.25"	C	20	60	X	X		STREAM BED	
S-19	29-44-52.05	98-37-14.22	CD	5	Qal	170	40	4					F	20	25	X	X		STREAM BED	
S-20	29-44-47.46	98-37-11.41	CD	5	Qal	25	15	2					F	20	25	X	X		STREAM BED	
S-21	29-44-41.94	98-37-05.20	CD	5	Qal	320	80	6					F	34	39	X	X		STREAM BED	
S-22	29-44-55.26	98-37-21.57	CD	5	Kgr	110	60	6					F	19	24	X	X		HILLSIDE	
S-23	29-45-05.25	98-37-04.24	CD	5	Kgr	150	100	5					F	34	39	X	X		HILLTOP	
S-24	29-44-58.24	98-37-10.05	MB	30	Kgr	40	20	5					F,X	5	35	X	X		HILLSIDE	
S-25	29-44-56.27	98-37-04.83	MB	30	Kgr	0.5	0.5						X	19	49	X	X		HILLTOP	
S-26	29-44-55.47	98-37-06.67	MB	30	Kgr	40	20	5					F,X	5	35	X	X		HILLSIDE	
S-27	29-44-55.50	98-37-06.57	MB	30	Kgr	0.5	0.5						X	19	49	X	X		HILLTOP	
S-28	29-44-47.31	98-36-58.18	CD	5	Kgr	200	80	4					F,V	19	24	X	X		HILLSIDE	
S-29	29-44-49.04	98-37-00.00	CD	5	Kgr	10	5	2					F	10	15	X	X		HILLSIDE	
S-30	29-45-22.73	98-37-06.96	F	20	Kgr				NE-SW	10			F	20	50	X	X		HILLTOP	
S-31	29-45-10.09	98-37-11.85	SFZ	20	Kgr	15	0.5	1.5	350				N	19	39	X	X		HILLTOP	

* DATUM:

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY	
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed	

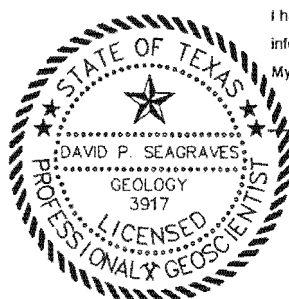
I have read, I understand, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

David P. Seagraves

Date 09 - 16 - 11

Sheet 1 of 1



- S-24 (MB) - On-site sewage facility type and age unknown. To be properly abandoned once sewer service is available.
- S-25 (MB) - Active water well. Age and completion data unknown. Future use is to be used for landscape irrigation.
- S-26 (MB) - On-site sewage facility type and age unknown. To be properly abandoned once sewer service is available.
- S-27 (MB) - Water well. Age and completion data unknown. To be properly plugged after water service is made available.
- S-28 (CD) - Man-made stock tank. Retains water per aerial photograph.
- S-29 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-30 (F) - Inferred fault with one exposed point within a low relief (4') road cut along the north side of FM 3351. Possible displacement of 2-3' was noted. This fault trace trends northeast-southwest. This is off-site by approximately 150' directly north of the site.
- S-31(SF) - Appears to be a discontinuous linear feature which contains several "solution enlarged fractures". Overall the feature is approximately 15 feet in length with the openings of the fractures being up to 0.5 feet wide. The deepest depth that could be ascertained is approximately 1.5 feet, whereas two of the fractures appear to be approximately 0.5 feet deep. Overall, these are narrow "slits" within the bedrock and are situated near a hilltop with a catchment area of less than 1.6 acres. In my initial assessment of the feature I thought that the feature type could possibly be classified as "other natural bedrock feature" ("O" with a point of assignment of "5") and with the probability of an intermediate infiltration rate the overall points assigned could be as high as 39. The enlarged fractures are within an intact limestone, although the openings are relatively large, it could not be ascertained if interconnectedness with the subsurface exists. My overall assessment of this feature is rated at 39 points, which is just shy of being sensitive. This feature should be monitored if there are any plans for construction or excavation adjacent to or on the feature.

Note:

The aerial photograph referenced in the above is on-line on "Google Maps". No date was noted, but it is apparent that the photograph was taken after a significant rain event.

There are a few areas within the upper pasture area that indicated water retention. These are lows within the "terraced contours" and were not assigned a feature identification number or type.



Comal County
OFFICE OF COMAL COUNTY ENGINEER

011

der, P.E.
ng Engineering & Surveying, Inc.
ad, Suite 617
TX 78232

Setterfield Estates Unit 1A within Comal County, Texas

Chroeder:

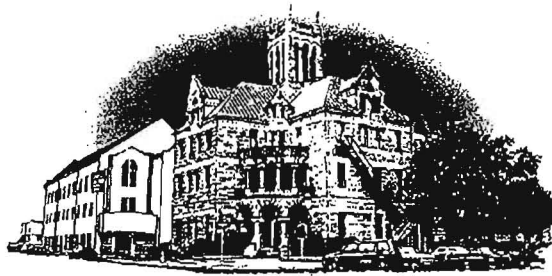
in receipt of your August 25, 2011 application for the referenced proposed subdivision.
receiving additional information on September 1, 2011, we have approved your application
(see attached).

S

Robert B.P.E.
Comal County Assistant Engineer

attachments a/s

cc: Scott Haag, Comal County Commissioner, Pres



Comal County
OFFICE OF COMAL COUNTY ENGINEER

September 12, 2011

Mr. Paul Schroeder, P.E.
Alamo Consulting Engineering & Surveying, Inc.
140 Heimer Road, Suite 617
San Antonio, TX 78232

Re: Setterfield Estates Unit 1A within Comal County, Texas

Dear Mr. Schroeder:

We are in receipt of your August 25, 2011 application for the referenced proposed subdivision. After receiving additional information on September 9, 2011, we have approved your application (please see attached).

Sincerely,

Robert Boyd, P.E.
Comal County Assistant Engineer

attachments a/s

cc: Scott Haag, Comal County Commissioner, Precinct 2

**Application for Licensing Authority Recommendation
for Private Sewerage Facilities for a Proposed Subdivision**

Date: AUGUST 17, 2011
Subdivision Name: SETTERFELD ESTATES UNIT 1A
Owner's Name: SAUR 3351 No. 5, LTD.
Address: 11 LYNN BATTS LANE, STE. 100 78218
Phone #: 210-828-6131

Fee Schedule:
5 or less tracts: \$20/tract
6 or more tracts: \$100 base fee + \$5/tract

Total Fee: \$ 135.00

Received by: _____

Make Check Payable to Comal County

Rec # 20807 CK# 0230

☐ Not Applicable If this application is not applicable, please submit letter from professional engineer or registered sanitarian stating why it is not applicable. In addition, professional engineer or registered sanitarian must state if the proposed subdivision affects existing OSSF components.

According to TAC §285.4(c), persons proposing residential subdivisions, manufactured housing communities, multi-unit residential developments, business parks, or other similar structures that use OSSFs for sewage disposal shall submit planning materials, prepared by a professional engineer or professional sanitarian, for these developments to the permitting authority and receive approval prior to submitting an OSSF application:

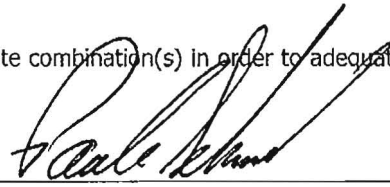
- An overall site plan ✓
- Topographic map ✓
- 100-year floodplain map ✓
- Soil survey ✓
- Location of water wells ✓
- Locations of easements as identified in TAC §285.91(10) (relating to Tables)
- A complete report detailing the types of OSSFs to be considered and their compatibility with area-wide drainage and groundwater
- A comprehensive drainage plan ✓
- Edwards Aquifer requirements that are pertinent to the proposed OSSF
- If the proposed development includes restaurants or buildings with food service establishments, the planning materials must show adequate land area for doubling the land needed for the treatment units

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AUG 25 2011

COUNTY ENGINEER

Comal County also asks for an existing Improvements sketch and gate combination(s) in order to adequately inspect the site for use of OSSFs for sewage disposal.



Applicant/Agent Signature

Engineer's

Date of Review (must be within 45 days of receipt): 9/12/11

☒ Approved

☐ Denied

Reason(s) for Denial: _____

Reviewer: , D.R.

*** Note: This sheet shall be first with all planning materials listed above following behind.**

6. **ATTACHMENT B - BMPs for Up-gradient Stormwater.**

If permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates up-gradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

There is surface water or groundwater that originates up-gradient from the site. Storm Water that is up-gradient of the site flowing through a natural stream bed which will remain in its natural condition to handle such flows.

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

If permanent BMPs or measures are not required to prevent pollution of surface water or Groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, an explanation is provided as **ATTACHMENT C** at the end of this form.

As shown on the "Typical Lot Layout" on the Site Plan, impervious cover for units 1 thru 4 will be limited as noted. Unit 1A utilizes lots larger than 5 acres and total impervious cover of 48,000 s.f. These limitations and the generous greenbelt areas result in a total impervious cover of less than 20%.

Stormwater runoff that originates on-site from the roof and sidewalks will flow over the grass area as sheet flow, not as concentrated flow. Flows leaving the site shall be restricted to a non-erosive velocity of less than six (6) feet per second.

8. **ATTACHMENT D - BMPs for Surface Streams.**

A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is provided at the end of this form. Each feature identified in the Geologic Assessment as "sensitive" or "possible sensitive" has been addressed.

With the exception of the gas pipeline, water wells and septic systems, the sensitive features identified in the geologic assessment have been protected by establishing protection buffer zones around said features. The sensitive features(S-3, S-11, and S-18) are protected by buffer zones. These buffer zones are noted in the deed restrictions. See attached excerpt.

10. **ATTACHMENT F - Construction Plans.**

There are no plans required for the permanent BMP of low density single family residential development.

13. **ATTACHMENT I - Measures for Minimizing Surface Stream Contamination.**

A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity which increase erosion that results in water quality degradation.

The way in which the surface water leaves the site and flow toward the stream will be a shallow sheet flow from the lots or through channels designed with velocity of less than six (6) feet per second. This low velocity will be non-erosive and therefore reduce sediment transport. Additionally, the channel release flow occurs across a native grass and is returned to sheet flow.

storage areas for evidence of, or the potential for, the improper storage of on-site materials;
general tidiness of the site - that trash and debris is routinely picked up and properly disposed of;
that control measures are in good working order and that they are functioning as intended;
that the stabilized exits are being used and are functioning such that tracking of sediment by vehicles is minimized to the extent practicable;
construction equipment for signs of vehicle drippings beyond the normal amount;
along the site perimeter, especially at points of concentrated discharge to ascertain whether the BMPs are effective.

The report shall be faxed or delivered to the Developer /Applicant and/or the Engineer within 24-hours of the inspection. All noted required repairs, maintenance, corrective actions shall be completed and re-inspected within seven calendar days of the original inspection. Based upon the results and recommendations of these inspections, the control measures may be modified where appropriate and practicable, on a case by case basis within the intent of the Plan and the governing regulations, to improve the control provided by the measures implemented.

17. **ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.**

A schedule of the interim and permanent soil stabilization practices for the site is attached at the end of this form.

A record of the major grading activities start date and when stabilization measures are initiated shall be documented in the same manner as prescribed for temporary abatement feature inspections.

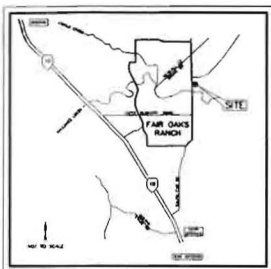
The "Stormwater Pollution Prevention Plan General Notes" state that disturbed areas where construction has been completed, temporary halted, or no further work is planned within the next 21 days, shall be temporarily stabilized within 14 days of the last activity by some form of seeding or mulching which will provide appropriate and effective results in reducing erosion of the disturbed areas to the extent that is practical.

The Plans instruct the General Contractor that as part of the final grading and site cleanup, all disturbed areas (where the soil is exposed and unprotected from erosion) are to be sodded, seeded, or mulched as appropriate (or as instructed elsewhere in the Plans by the Engineer) to provide effective results in preventing the erosion of these areas. The Contractor shall be responsible for maintaining the stabilization (such as continued water of sod or seeded grass until the grass becomes established) until responsibility can be assumed by the Owner or as stipulated by other construction documents.

Should drought conditions exist at the time of stabilization of exposed area, the contractor shall place geotextile blankets, matting, or hydromulch on the areas. Also, the silt fences and rock berms will remain in place until such time as the areas are stabilized.. All structural and non-structural controls will follow the inspection/maintenance schedule provided in TCEQ-0602 Attachment I.

Feature Protection

For the purpose of protection of underground water certain geologic features must be preserved. The sensitive geologic features, shown on the attached exhibit shall be protected by a buffer zone as shown. There shall be no construction within these easements that modifies the storm water run-off or creates additional impervious cover.



LOCATION MAP



FEMA 100 YEAR FLOOD PLAIN IS FROM
FIRM: AROH02055V - DATED 09-02-09
FIRM: AROH100190V - DATED 09-02-09

NOTE:
1. ALL EASEMENTS WILL COMPLY WITH TAC 2005 917(10)

SITE GEOLOGIC MAP - (LEGEND)
SITE GEOLOGICAL UNIT - Qal = QUATERNARY ALLUVIUM FLUVIAL TERRACE DEPOSITS
Kgr = GLEN ROSE FM. (LOWER)

REVISIONS

AT 4.1/0

SETTERFELD ESTATES UNIT 1A
CITY OF FAIR OAKS RANCH, TARRANT COUNTY TEXAS

200027.18
1:10,000



PLAT No.

REVISIONS

1		
2		
3		
4		
5		
6	DATE	DESCRIPTION

ACES
ALAMO
CONSULTING ENGINEERING
& SURVEYING, INC.

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TBPE F-4490 & TBPLS 100078-00

SETTERFELD ESTATES
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

SITE GEOLOGIC MAP

TCEQ-R13
SEP 21 2011
SAN ANTONIO

JOB NO: 200021.18

HORIZ.: $1'' = 200$

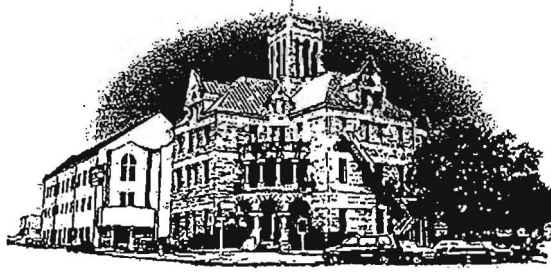
VERT.: N/A
DRAWN: G.G.M.
DESIGNED: G.G.M.

DESIGNED: G.G.M.

100

AGE: GEO-1

AGE: GEO-1



Comal County

OFFICE OF COMAL COUNTY ENGINEER

September 28, 2011

Mr. Paul Schroeder, P.E., R.P.L.S.
Alamo Consulting Engineering & Surveying, Inc.
140 Heimer Road, Suite 617
San Antonio, TX 78232

Re: Setterfeld Estates On-Site Sewage Facility Suitability Letter, within Comal County, Texas

Dear Mr. Schroeder:

In accordance with TAC §213.5(b)(4)(F)(ii), Comal County has found that the entire referenced site (except for areas listed below) is suitable for the use of private sewage facilities and will meet the special requirements for on-site sewage facilities located on the Edwards Aquifer recharge zone as specified in TAC §285.40-42 based on the following information submitted to our office on September 28, 2011:

- The Geologic Assessment, prepared by David Seagraves, P.G.
- The Water Pollution Abatement Plan, prepared by Alamo Consulting Engineering & Surveying, Inc.

Areas that are not Suitable

The Geologic Assessment identified 8 recharge features as sensitive. The Water Pollution Abatement Plan gave the following Permanent Pollution Abatement Measures to prevent pollutants from entering said features:

Feature ID	Latitude	Longitude	Feature Description	Permanent Pollution Abatement Measure
S-1	N 29°45'20.36"	W 98°37'9.33"	Active Water Well	None
S-3	N 29°45'8.17"	W 98°37'9.50"	Depression	150' Buffer
S-4	N 29°45'9.90"	W 98°37'8.17"	Gas Pipeline	None
S-11	N 29°45'3.69"	W 98°37'16.78"	Fracture	50' Native Vegetation Buffer
S-18	N 29°44'55.20"	W 98°37'14.88"	Fracture	50' Native Vegetation Buffer
S-25	N 29°44'56.27"	W 98°37'4.83"	Active Water Well	None
S-27	N 29°44'55.50"	W 98°37'6.57"	Water Well	None
S-30	N 29°45'22.73"	W 98°37'6.95"	Fault	None

In accordance with the Water Pollution Abatement Plan, the areas within the 50' buffers of features S-11 and S-18 are not suitable for the use of any aspect of an On-Site Sewage Facility. In addition, in accordance with TAC §285.91, Table X, Minimum Required Separation Distances for soil absorption

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SAN ANTONIO
REGION

2011 SEP 28 PM 4:20

Comal County

OFFICE OF COMAL COUNTY ENGINEER

Mr. Schroeder

September 27, 2011

Page 2

systems, unlined ET beds, surface application (edge of spray area), and drip irrigation disposal systems are not suitable within 150' of sensitive features S-3, S-11 and S-18. Also, in accordance with TAC §285.91, Table X, Minimum Required Separation Distances, Sensitive Features S-1, S-25, and S-27 have the following separation distances:

- Soil Absorption Systems, Unlined ET Beds, Surface Application (Edge of Spray Area), Drip Irrigation:..... 100'
- Tanks, Lined ET Beds:..... 50'
- Sewer Pipe with Watertight Joints:..... 20'

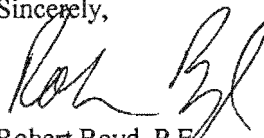
Moreover, according to TAC §285.41(b), Setterfeld Estates, the owner of the referenced site, must inform, in writing, each prospective purchaser, lessee, or renter of the following:

- All lots within Setterfeld Estates are subject to the terms and conditions of TAC §285.40-42;
- A Permit to Construct is required from Comal County before an OSSF can be constructed in Setterfeld Estates;
- A License to Operate is required from Comal County before an OSSF can be operated in Setterfeld Estates;
- That an application for a water pollution abatement plan, as defined in TAC §213, has been made, whether it has been approved, and if any restrictions or conditions have been placed on that approval; and
- Minimum separation distances, as outlined in Table 10 of TAC §285.91, from the sensitive recharge features listed above.

Furthermore, according to TAC §285.42(a), if any recharge feature, not listed above, is discovered during construction of an OSSF, all regulated activities near the feature shall be suspended immediately. The owner shall immediately notify the TCEQ San Antonio office of the discovery of the feature. All activities regulated under TAC §213 shall not proceed near the feature until Comal County, in conjunction with the TCEQ San Antonio office, has reviewed and approved a plan proposed to protect the feature, the structural integrity of the OSSF, and the water quality of the aquifer. The plan shall be sealed, signed, and dated by a professional engineer.

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,



Robert Boyd, P.E.
Comal County Assistant Engineer

cc: Scott Haag, Comal County Commissioner Precinct No. 2
Betty Lien, Comal County Subdivision Coordinator

Water Pollution Abatement Plan Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b), Effective June 1, 1999

REGULATED ENTITY NAME: SETTERFELD ESTATES

REGULATED ENTITY INFORMATION

1. The type of project is:
☒ Residential: # of Lots: 213
☐ Residential: # of Living Unit Equivalents:
☐ Commercial
☐ Industrial
☐ Other:
2. Total site acreage (size of property): 262.04
3. Projected population: 580
4. The amount and type of impervious cover expected after construction are shown below:

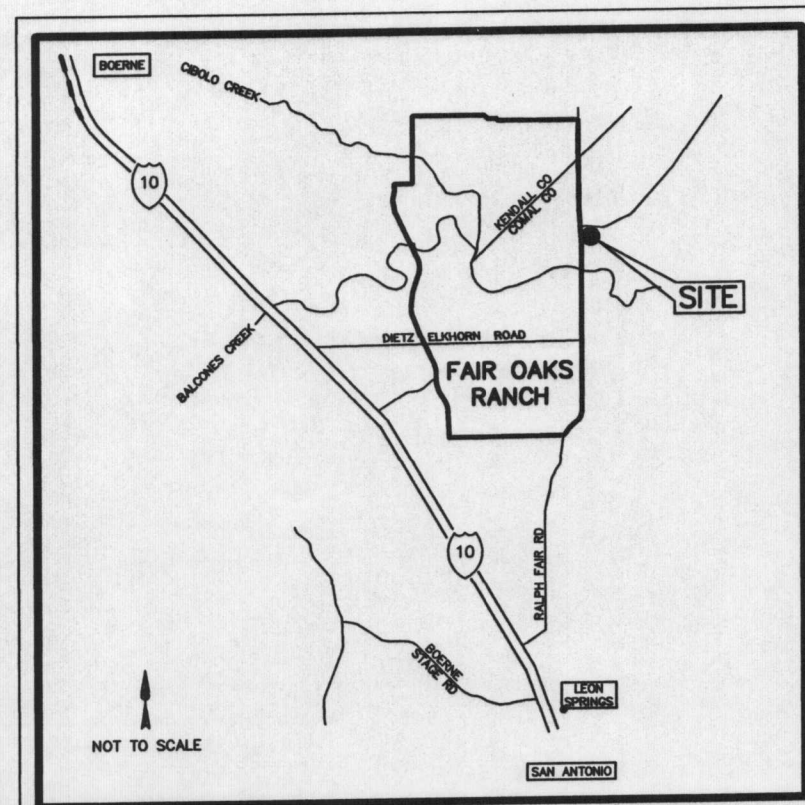
Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	925,366	÷ 43,560 =	21.24
Parking (Driveway, Sidewalks)	890,800	÷ 43,560 =	20.45
Other paved surfaces (Streets)	409,750	÷ 43,560 =	9.41
Total Impervious Cover	2,225,916	÷ 43,560 =	51.10
Total Impervious Cover ÷ Total Acreage x 100 =			19.5%

5. ☒ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY

Complete questions 7-12 if this application is exclusively for a road project.

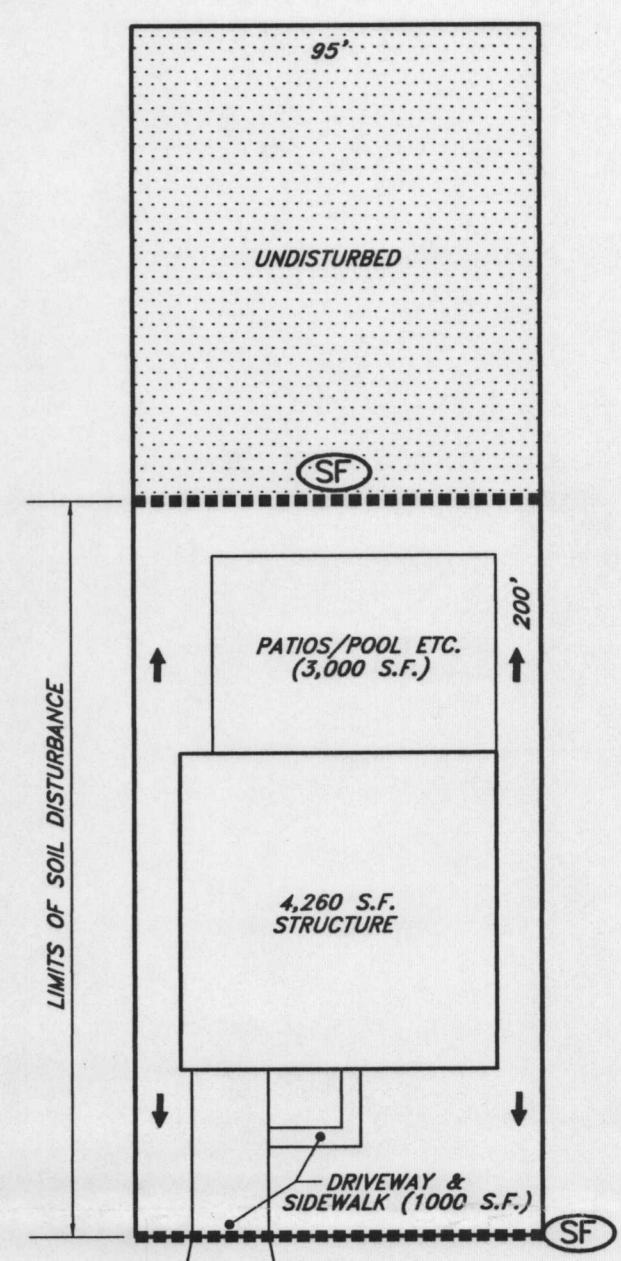
7. Type of project: N/A
☐ TXDOT road project.
☐ County road or roads built to county specifications.
☐ City thoroughfare or roads to be dedicated to a municipality.
☐ Street or road providing access to private driveways.
8. Type of pavement or road surface to be used:
☐ Concrete N/A
☐ Asphaltic concrete pavement
☐ Other:



LOCATION MAP

STABILIZATION PRACTICES

1. ALL DISTURBED AREAS WHERE CONSTRUCTION HAS BEEN COMPLETED, TEMPORARILY HALTED, OR NO FURTHER WORK IS PLANNED FOR 21 DAYS OR LONGER, SHALL BE STABILIZED WITHIN 14 DAYS OF THE LAST CONSTRUCTION ACTIVITIES.
2. PERMANENT CONTROL WILL BE ACHIEVED BY PERMANENTLY STABILIZING DISTURBED AREAS THROUGH SODDING OR SEEDING WITH STANDARD LAWN OR NATIVE GRASSES.



TYPICAL LOT LAYOUT

- #### DISCHARGE LOCATIONS
- (A) - CHANNEL DISCHARGE POINTS
 - (B) - CHANNEL DISCHARGE POINTS
 - (C) - CHANNEL DISCHARGE POINTS
 - (D) - CHANNEL DISCHARGE POINTS

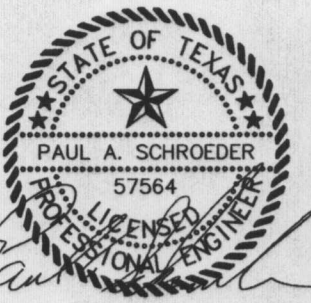
FEMA 100 YEAR FLOOD PLAIN IS PER:
FIRM: 48091C035SF - DATED 09-02-09
FIRM: 48091C0190F - DATED 09-02-09

- #### LEGEND
- TEMPORARY BEST MANAGEMENT PRACTICES (BMPs)
- (SF) SILT FENCE
 - (RB) ROCK BERM
 - (SCE) STABILIZED CONSTRUCTION EXIT
 - (TW) CONSTRUCTION TRUCK WASH PIT
 - (ESA) EQUIPMENT STAGING AREA
 - DENOTE LIMIT OF DISTURBED AREAS

PLAT No.

REVISIONS

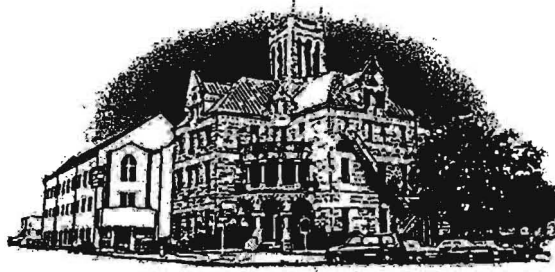
NO.	DATE	DESCRIPTION	APPROVED
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2			
3			
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ALAMO
CONSULTING ENGINEERING
& SURVEYING, INC.
140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TYPE F-4460 & TFPIS 10076-00

SETTERFELD ESTATES
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS
SW3P AND WATER POLLUTION ABATEMENT
SITE PLAN

JOB NO: 20002118
HORIZ: 1" = 200'
VERT: N/A
DRAWN: G.G.M.
DESIGNED: G.G.M.
FILE: WPAP SITE PLAN.dwg
PAGE: WPAP-1



Comal County
OFFICE OF COMAL COUNTY ENGINEER

June 24, 2011

Mr. Todd Jones
TCEQ
Water Section Work Leader
San Antonio Regional Office
14250 Judson Road
San Antonio, TX 78233-4480

Re: Setterfield Estates, within Comal County, Texas
EAPP File No.: 2992.00

Dear Mr. Jones:

We are in receipt of your letter dated June 20, 2011 for the referenced development. We did not issue a Suitability Letter for the referenced development as required by Attachment C of the WPAP Application.

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Robert Boyd, P.E.
Comal County Assistant Engineer

cc: Scott Haag, Comal County Commissioner, Precinct No. 2

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 20, 2011

RECEIVED

JUN 23 2011

COUNTY ENGINEER

Mr. Thomas H. Hornseth, P.E.
Comal County Engineer
195 David Jonas Drive
New Braunfels TX 78132-3710

Re: Edwards Aquifer, Comal County
PROJECT NAME: **Setterfield Estates**, located along east right-of-way of FM 3351 north of Cibolo Creek, Texas
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 2992.00

Dear Mr. Hornseth:

The referenced application is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities and underground water conservation districts for their comments prior to TCEQ approval.

Please forward your comments to this office by July 19, 2011.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact the San Antonio Region Office at (210) 490-3096.

Sincerely

A handwritten signature in blue ink, appearing to read "Todd Jones".

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

TCEQ-R13
JUN 17 2011
SAN ANTONIO

WATER POLLUTION ABATEMENT PLAN

FOR

**SETTERFELD ESTATES
CITY OF FAIR OAKS RANCH
COMAL COUNTY
JUNE, 2011**

RECEIVED

JUN 23 2011

COUNTY ENGINEER



6/10/11

SUBMITTED BY:



ALAMO CONSULTING ENGINEERING & SURVEYING, INC.
FIRM REGISTRATION NUMBER: TBPE F-4490 & TBPLS 100076-00
140 HEIMER ROAD, STE. 617 SAN ANTONIO, TEXAS 78232
PHONE: 828-0691

GENERAL INFORMATION FORM

General Information Form
For Regulated Activities on the
Edwards Aquifer Recharge and Transition Zones
and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B)
Effective June 1, 1999

TCEQ-R13
JUN 17 2001
SAN ANTONIO

REGULATED ENTITY NAME: SETTERFELD ESTATES
COUNTY: COMAL STREAM BASIN: CIBOLO CREEK

EDWARDS AQUIFER: ☒ RECHARGE ZONE
☒ TRANSITION ZONE

PLAN TYPE: ☒ WPAP ☐ AST ☐ EXCEPTION
☐ SCS ☐ UST ☐ MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: LLOYD A. DENTON, JR.
Entity: SAUR 3351 No. 5, LTD.
Mailing Address: 11 LYNN BATTS LANE, SUITE 100
City, State: SAN ANTONIO, TEXAS Zip: 78218
Telephone: 210-828-6131 FAX: 210-828-6137

Agent/Representative (If any):

Contact Person: PAUL A. SCHROEDER, P.E., R.P.L.S.
Entity: ALAMO CONSULTING ENGINEERING & SURVEYING, INC.
Mailing Address: 140 HEIMER ROAD, SUITE 617
City, State: SAN ANTONIO, TEXAS Zip: 78232
Telephone: 210-828-0691 FAX: 210-824-3055

2. ☒ This project is inside the city limits of FAIR OAKS RANCH.
☐ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
☐ This project is not located within any city's limits or ETJ.

3. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

ALONG THE EAST R.O.W. OF FM 3351, 1000' +/- NORTH OF THE CIBOLO CREEK,
IN COMAL COUNTY.

4. ☒ **ATTACHMENT A - ROAD MAP.** A road map showing directions to and the location of the project site is attached at the end of this form.
5. ☒ **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP.** A copy of the official 7 1/2 minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards

Recharge Zone is attached behind this sheet. The map(s) should clearly show:

- ☒ Project site.
- ☒ USGS Quadrangle Name(s).
- ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
- ☒ Drainage path from the project to the boundary of the Recharge Zone.

6. ☒ Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. **The TCEQ must be able to inspect the project site or the application will be returned.**
7. ☒ **ATTACHMENT C - PROJECT DESCRIPTION.** Attached at the end of this form is a detailed narrative description of the proposed project.
8. Existing project site conditions are noted below:
- ☐ Existing commercial site
 - ☐ Existing industrial site
 - ☐ Existing residential site
 - ☐ Existing paved and/or unpaved roads
 - ☐ Undeveloped (Cleared)
 - ☒ Undeveloped (Undisturbed/Uncleared)
 - ☐ Other: _____

PROHIBITED ACTIVITIES

9. ☒ I am aware that the following activities are prohibited on the **Recharge Zone** and are not proposed for this project:
- (1) waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
 - (2) new feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
 - (3) land disposal of Class I wastes, as defined in 30 TAC §335.1;
 - (4) the use of sewage holding tanks as parts of organized collection systems; and
 - (5) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
10. ☒ I am aware that the following activities are prohibited on the **Transition Zone** and are not proposed for this project:
- (1) waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
 - (2) land disposal of Class I wastes, as defined in 30 TAC §335.1; and
 - (3) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

ADMINISTRATIVE INFORMATION

11. The fee for the plan(s) is based on:

☒ For a Water Pollution Abatement Plan and Modifications, the total acreage of the site

where regulated activities will occur.

- ☐ For an Organized Sewage Collection System Plans and Modifications, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or an AST Facility Plan, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

12. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- ☐ TCEQ cashier
- ☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

13. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

14. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **GENERAL INFORMATION FORM** is hereby submitted for TCEQ review. The application was prepared by:

PAUL A. SCHROEDER, P.E., R.P.L.S.

Print Name of Customer/Agent



Signature of Customer/Agent



Date

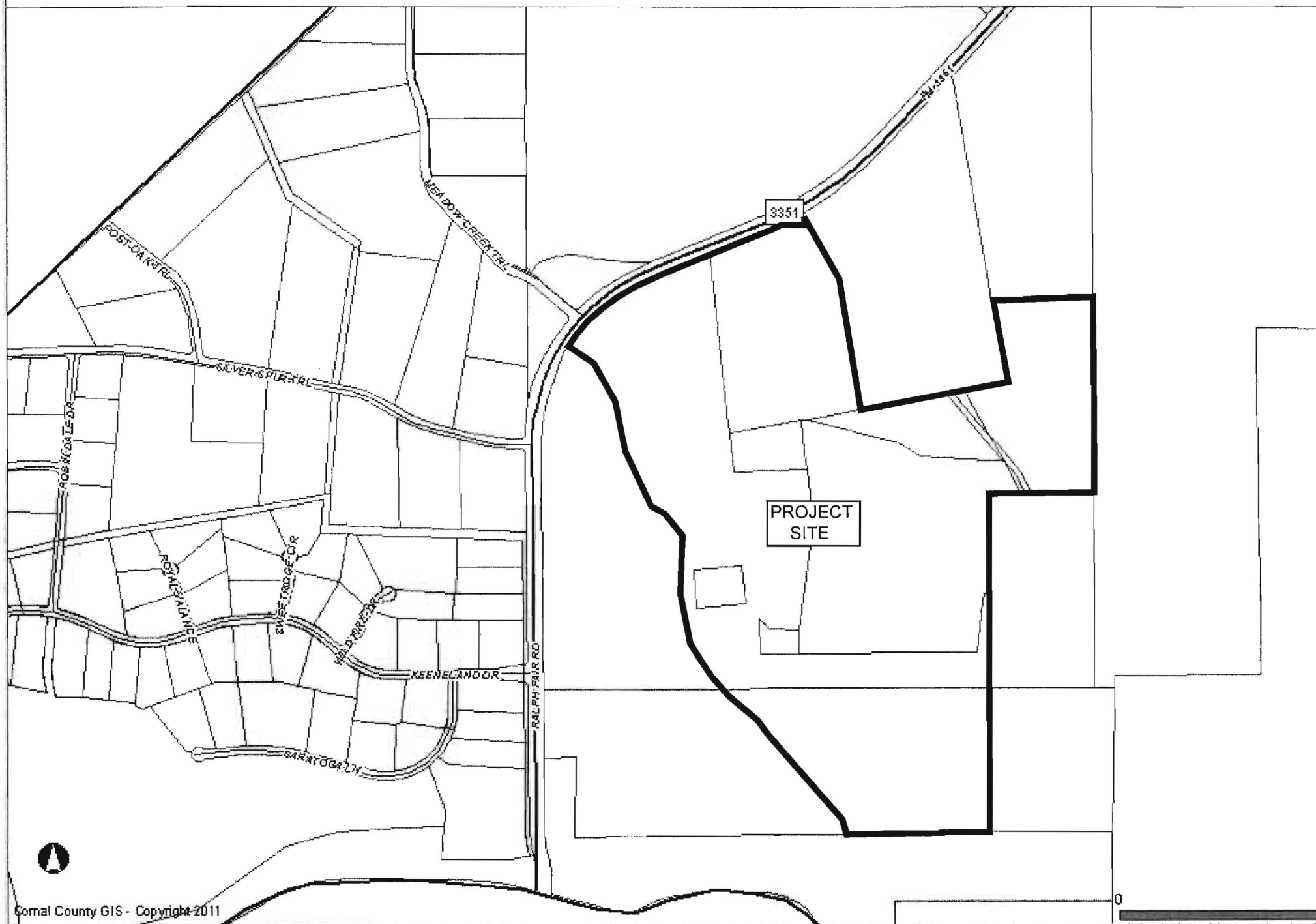
6/10/11

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

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.

ATTACHMENT "A"
ROAD MAP

LOCATION MAP



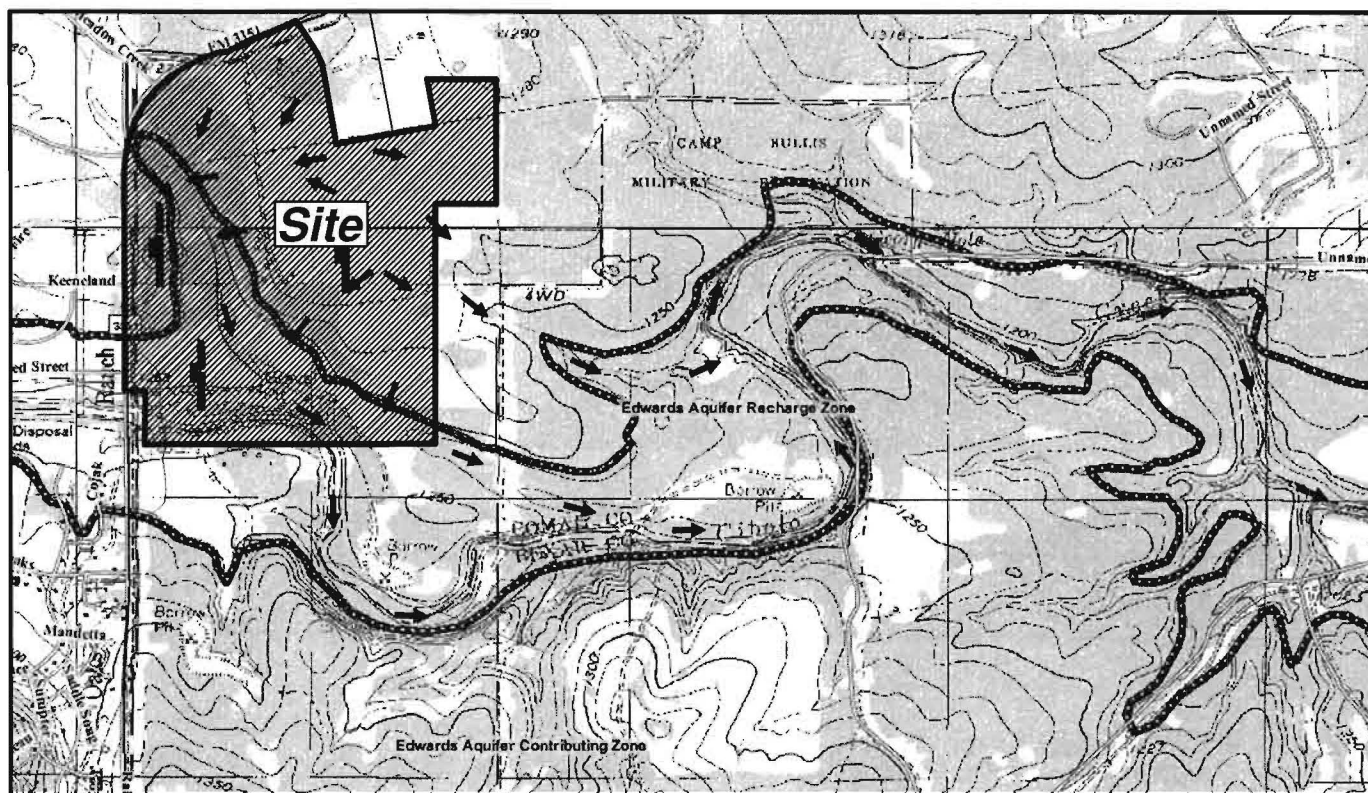
Cornal County GIS - Copyright 2011

**ATTACHMENT “B”
RECHARGE ZONE MAP**



SCALE: 1" = 2000'

NOTE:
CIBOLO CREEK CONTINUES TO FLOW ACCROSS THE RECHARGE
ZONE FOR APPROXIAMATELY 39 MILES AS SHOWN ON THE CAMP
BULLIS, BULVERDE AND SCHERTZ U.S.G.S. QUAD MAPS.



USGS - Camp Bullis, Tx. & Bergheim, Tx. Panels

**ATTACHMENT “C”
PROJECT DESCRIPTION**

PROJECT DESCRIPTION

The project is to be developed as a single family residential neighborhood in multiple units on 262.04 acres of land. This project is to be built in multiple phases and will contain open space, parkland, walking trails, etc.

Unit-1A will contain 7 lots (all greater than 5 hours) which will be served by On Site Sewage Facilities. The remaining 212 lots will be serviced by a Sewage Collection System owned by Fair Oaks Ranch Utilities.

The project will be developed with less than 20 % impervious cover. The lot typical on the W.P.A.P. site plan indicates the impervious limitations for this project.

GEOLOGICAL ASSESSMENT

Geologic Assessment
For Regulated Activities
on The Edwards Aquifer Recharge/transition Zones
and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

REGULATED ENTITY NAME: SETTERFELD ESTATES

TYPE OF PROJECT: ☒ WPAP ☐ AST ☐ SCS ☐ UST

LOCATION OF PROJECT: ☒ Recharge Zone ☐ Transition Zone ☐ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. ☒ Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**.
2. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (*Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986*). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
ANHALT CLAY	D	1-2'
GRUENE CLAY	D	1-2'
TARPLEY CLAY	D	1-2'
RUMPLE-COMFORT ASSOCIATION	D	1-2'
LEWISVILLE SILTY CLAY	B	2-3'

* Soil Group Definitions (Abbreviated)

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

3. ☒ A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.
4. ☒ A **NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY** is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.
5. ☒ Appropriate **SITE GEOLOGIC MAP(S)** are attached:

The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1" : 400'

Applicant's Site Plan Scale

Site Geologic Map Scale

Site Soils Map Scale (if more than 1 soil type)

1" = 200 '

1" = 200 '

1" = '

6. Method of collecting positional data:
☒ Global Positioning System (GPS) technology.
☐ Other method(s).
7. ☒ The project site is shown and labeled on the Site Geologic Map.
8. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
9. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
☐ Geologic or manmade features were not discovered on the project site during the field investigation.
10. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):
☒ There are 3 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☒ The wells are in use and comply with 16 TAC Chapter 76.
☐ There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

12. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

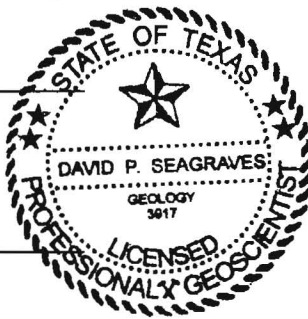
Date(s) Geologic Assessment was performed: JUNE 10, 2011
Date(s)

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

DAVID SEAGRAVES
Print Name of Geologist

1-830-438-3344
Telephone


Signature of Geologist



N/A
Fax

JUNE 10, 2011
Date

Representing: INDEPENDENT CONSULTANT
(Name of Company)

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

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.

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: SETTERFELD ESTATES														
LOCATION			FEATURE CHARACTERISTICS										EVALUATION		PHYSICAL SETTING					
1A	1B	1C	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	CL	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-1	29-45-20.36	98-37-09.33	MB	30	Kgr	0	5	0.5					X	19	49	X	X			HILLTOP
S-2	29-45-18.38	98-37-07.00	MB	30	Kgr	80	30	6					F,X	5	35	X		X		HILLTOP
S-3	29-45-08.17	98-37-09.50	SH	20	Kgr	800	650	7					F,V	20	40		X		X	DRAINAGE
S-4	29-45-09.90	98-37-08.17	MB	30	Kgr	3700	20						F	19	49		X		X	ALL
S-5	29-45-06.40	98-37-11.21	CD	5	Kgr	180	80	8					F	19	24	X			X	HILLSIDE
S-6	29-45-10.49	98-37-23.42	CD	5	Kgr	50	30	1					N	19	24	X			X	STREAM BED
S-7	29-45-09.11	98-37-21.34	CD	5	Kgr	30	20	1					N	19	24	X			X	STREAM BED
S-8	29-45-07.45	98-37-18.46	CD	5	Kgr	30	15	2					F	19	24	X			X	STREAM BED
S-9	29-45-06.58	98-37-18.04	CD	5	Kgr	30	15	2					F	19	24	X			X	STREAM BED
S-10	29-45-04.60	98-37-17.14	CD	5	Kgr	200	35	5					F	19	24	X			X	STREAM BED
S-11	29-45-03.69	98-37-16.78	SFZ	30	Kgr	150	40		NE-SW	10	2-3'	0.25"	C	20	60		X		X	STREAM BED
S-12	29-45-02.72	98-37-16.44	CD	5	Kgr	15	10	1.5					F,V	19	24	X			X	STREAM BED
S-13	29-45-02.23	98-37-16.29	CD	5	Kgr	15	10	1.5					F,V	19	24	X			X	STREAM BED
S-14	29-45-00.50	98-37-15.50	CD	5	Kgr	200	50	3					F,V	19	24	X			X	STREAM BED
S-15	29-44-58.49	98-37-14.45	CD	5	Kgr	15	10	2					F,V	19	24	X			X	STREAM BED
S-16	29-44-57.35	98-37-14.27	CD	5	Kgr	90	15	2.5					F,V	19	24	X			X	STREAM BED
S-17	29-44-56.09	98-37-14.86	CD	5	Kgr	5	5	2.5					N	19	24	X			X	STREAM BED
S-18	29-44-55.20	98-37-14.88	SFZ	30	Kgr	80	25		NE-SW	10	2-3'	0.25"	C	20	60		X		X	STREAM BED
S-19	29-44-52.05	98-37-14.22	CD	5	Qal	170	40	4					F	20	25	X			X	STREAM BED
S-20	29-44-47.46	98-37-11.41	CD	5	Qal	25	15	2					F	20	25	X			X	STREAM BED
S-21	29-44-41.94	98-37-05.20	CD	5	Qal	320	80	6					F	34	39	X			X	STREAM BED
S-22	29-44-55.26	98-37-21.57	CD	5	Kgr	110	60	6					F	19	24	X		X		HILLSIDE
S-23	29-45-05.25	98-37-04.24	CD	5	Kgr	150	100	5					F	34	39	X			X	HILLTOP
S-24	29-44-58.24	98-37-10.05	MB	30	Kgr	40	20	5					F,X	5	35	X		X		HILLSIDE
S-25	29-44-56.27	98-37-04.83	MB	30	Kgr	0.5	0.5						X	19	49		X	X		HILLTOP
S-26	29-44-55.47	98-37-06.67	MB	30	Kgr	40	20	5					F,X	5	35	X			X	HILLSIDE
S-27	29-44-55.50	98-37-06.57	MB	30	Kgr	0.5	0.5						X	19	49		X	X		HILLTOP
S-28	29-44-47.31	98-36-58.18	CD	5	Kgr	200	80	4					F,V	19	24	X			X	HILLSIDE
S-29	29-44-49.04	98-37-00.00	CD	5	Kgr	10	5	2					F	10	15	X			X	HILLSIDE
S-30	29-45-22.73	98-37-06.96	F	20	Kgr				NE-SW	10			F	20	50		X		X	HILLTOP

* DATUM:

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

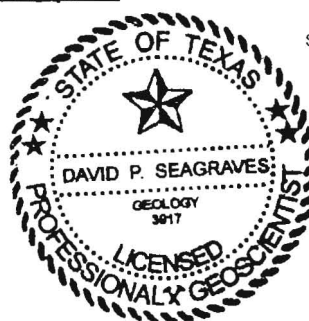
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213

David P. Seagraves

Date 6-10-2011

Sheet 1 of 1

TCEQ-0585-Table (Rev. 10-01-04)



SETTERFELD ESTATES

Narrative description:

- S-1 (MB) - Active water well. Age and completion data unknown. To be used for landscape irrigation.
- S-2 (MB) - Active on-site sewage facility. Standard type consists of a septic tank and standard sub-surface disposal drain field. To be properly abandoned once sewer service is available.
- S-3 (SH) - Large, nearly circular depression with internal surface drainage. Although clay filled, does not appear to retain water per aerial photograph.
- S-4 (MB) - Gas pipeline. First installed in 1967, relayed in 2008. Extends across the entire northern portion of the tract.
- S-5 (CD) - Man made stock tank. Clay lined, retains water per aerial photograph.
- S-6 (CD) - Possible velocity change in stream flow resulting in sediment deposition of course/fine material on exposed featureless limestone bedrock. Retains water per aerial photograph.
- S-7 (CD) - Possible velocity change in stream flow resulting in sediment deposition of course/fine material on exposed featureless limestone bedrock. Retains water per aerial photograph.
- S-8 (CD) - Possible scour, retains water per aerial photograph.
- S-9 (CD) - Possible scour, retains water per aerial photograph.
- S-10 (CD) - Man-made cut and fill, earthen dam at down stream limit. Bluff along east side contains exposed glen rose fm. Medium to massive beds of limestone, a main seam at the base is exposed. Retains water per photograph.
- S-11 (SFZ) - Main fractures trend NE - SW and are perpendicular to the south flow path. Fractures are spaced approximately 2-3 feet apart. The aperture of the fractures are up to 2-3 inches wide and contain a coarse to fine infilling with most containing grass growth. Offset fractures are spaced as close as 1.5 feet apart and are primarily sealed. Does not appear to retain water.
- S-12 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-13 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-14 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-15 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-16 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-17 (CD) - Possible scour within fines, base of feature is a featureless exposed limestone. Retains water per aerial photograph.
- S-18 (SFZ) - Main fractures trend NE - SW and are perpendicular to the south flow path. Fractures are spaced approximately 2-3 feet apart. The aperture of the fractures are up to 2-3 inches wide and contain a coarse to fine infilling with most containing grass growth. Offset fractures are spaced as close as 1.5 feet apart and are primarily sealed. Does not appear to retain water.
- S-19 (CD) - Partially man-made, slight earthen dam at the downstream limit. Retains water as per aerial photograph.
- S-20 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-21 (CD) - Man-made earthen dam at the down stream limit. Retains water as per aerial photograph.
- S-22 (CD) - Man-made stock tank clay filled. Retains water per aerial photograph.
- S-23 (CD) - Man-made stock tank clay filled. Does not retain water per aerial photograph.

- S-24 (MB) - On-site sewage facility type and age unknown. To be properly abandoned once sewer service is available.
- S-25 (MB) - Active water well. Age and completion data unknown. Future use is to be used for landscape irrigation.
- S-26 (MB) - On-site sewage facility type and age unknown. To be properly abandoned once sewer service is available.
- S-27 (MB) - Water well. Age and completion data unknown. To be properly plugged after water service is made available.
- S-28 (CD) - Man-made stock tank. Retains water per aerial photograph.
- S-29 (CD) - Possible scour within fines, retains water per aerial photograph.
- S-30 (F) - Inferred fault with one exposed point within a low relief (4') road cut along the north side of FM 3351. Possible displacement of 2-3' was noted. This fault trace trends northeast-southwest. This is off-site by approximately 150' directly north of the site.

Note:

The aerial photograph referenced in the above is on-line on "Google Maps". No date was noted, but it is apparent that the photograph was taken after a significant rain event.

There are a few areas within the upper pasture area that indicated water retention. These are lows within the "terraced contours" and were not assigned a feature identification number or type.

SETTERFELD ESTATES

300 Acres - Comal County

F.M. 3351 - Ralph Fair Road

Site Specific Stratigraphic Column

Alluvium (Qal): Upwards to 15-20 feet thick: consists of clays, silts, sands and gravel within terrace deposits along the Cibolo Creek. Exposed along the south-western and southern portion of the site. Unconformably overlies the Glen Rose Formation.

Glen Rose Formation (Kgr): The lower member is approximately 250 feet thick; consists of medium to massive bedded limestone with some widely interspersed marl seams. Very few exposures at the site due to an extensive soil cover.

SETTERFELD ESTATES

300 Acres - Comal County

F.M. 3351 - Ralph Fair Road

Site Specific Geology

The on-site geological units consist of the Lower Member of the Glen Rose Formation (Kgr) and Alluvium (Qal). These units were identified by field investigation and also referenced by the following sources: U.S.G.S. Water-Resources Investigation Report 94-4117 (Comal County) and the Geologic Map of the New Braunfels, Texas 30 x 60 Minute Quadrangle (B.E.G. Miscellaneous Map No. 39 - Scale 1: 100,000).

The Lower Member of the Glen Rose Formation underlies a large portion of the site (approximately 85 percent or greater) and is the underlying geologic unit for all of the residential lots. Exposures of the Glen Rose are limited due to an extensive soil cover. Two notable exposures are within the cutbank of S-10 and S-19 in which medium to massive beds of limestone are evident. Also within these cutbanks are thinner seams of marl. Similar observations can be partially observed in the stock tanks S-5 and S-22. Some other minor exposures can be found at grade and within the unnamed tributary. These exposures are small in extent and some vugginess is evident. This appears to be solution weathering as the downward extent of the vugs is limited to the surface and near surface. The two solution Fracture zones S-11 and S-18 appear to be just that; solution enlarged fractures or jointing.

Feature S-3 is the most dominant feature at the site. This is an apparent sinkhole, elliptical in shape and fairly large in extent (approximately 700 feet along the long axis). S-3 is clay filled but does not appear to have a very slow infiltration rate.

The Alluvium (Qal) is exposed along the south west to south central portion of the site. The extent of the Alluvium is approximately 50 percent of the proposed Unit 1A. This geologic unit is soil covered and are terrace deposits along the northern portion of the Cibolo Creek. Coarser material (sands and gravel) are present at depth.

Overall, surface conditions at the site appear to have the capacity to impede fluid movement into the subsurface.

SETTERFELD ESTATES

300 Acres - Comal County

F.M. 3351 - Ralph Fair Road

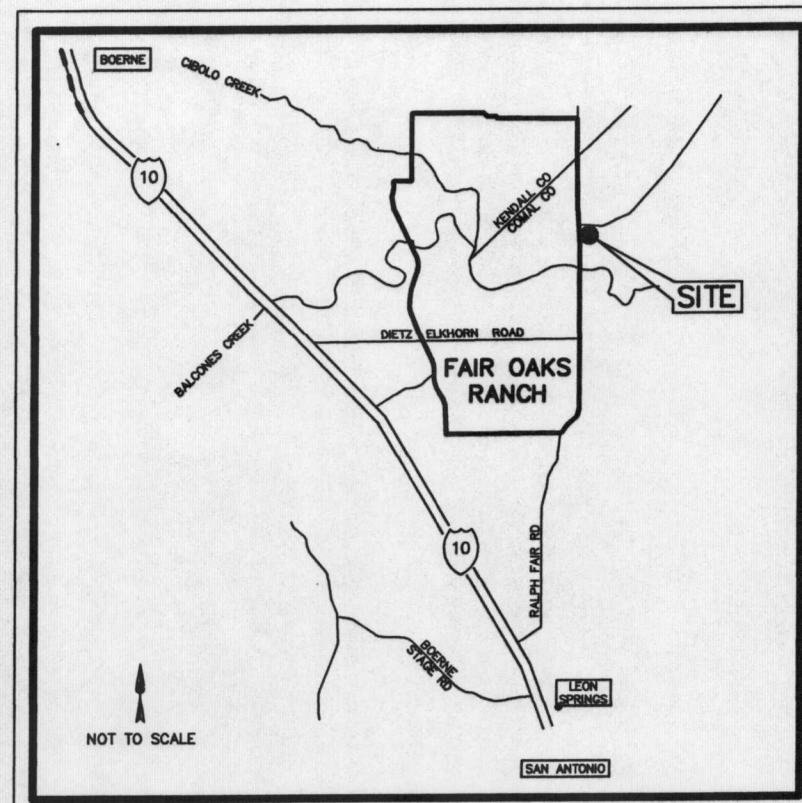
Soil Units

The on site soil units for the proposed units to be developed (Unit: 1, 1A, part of 2, 3, & 4) consist of the (TaB) Tarpley clay; (AnA-B) Anhalt clay; (RUD) Rumple association; (CrD) Comfort rock complex and the Gruene clay (GrC). The soil units were identified by field investigation and referenced by the S.C.S. Soil Survey of Comal County (1984). The aforementioned soils are within Soil Group "D" as referenced by the S.D.S. Hydrologic Soil Groups - Technical Release No. 55, Appendix A, and are defined as soils having a very slow infiltration rate when thoroughly wetted.

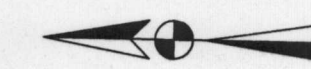
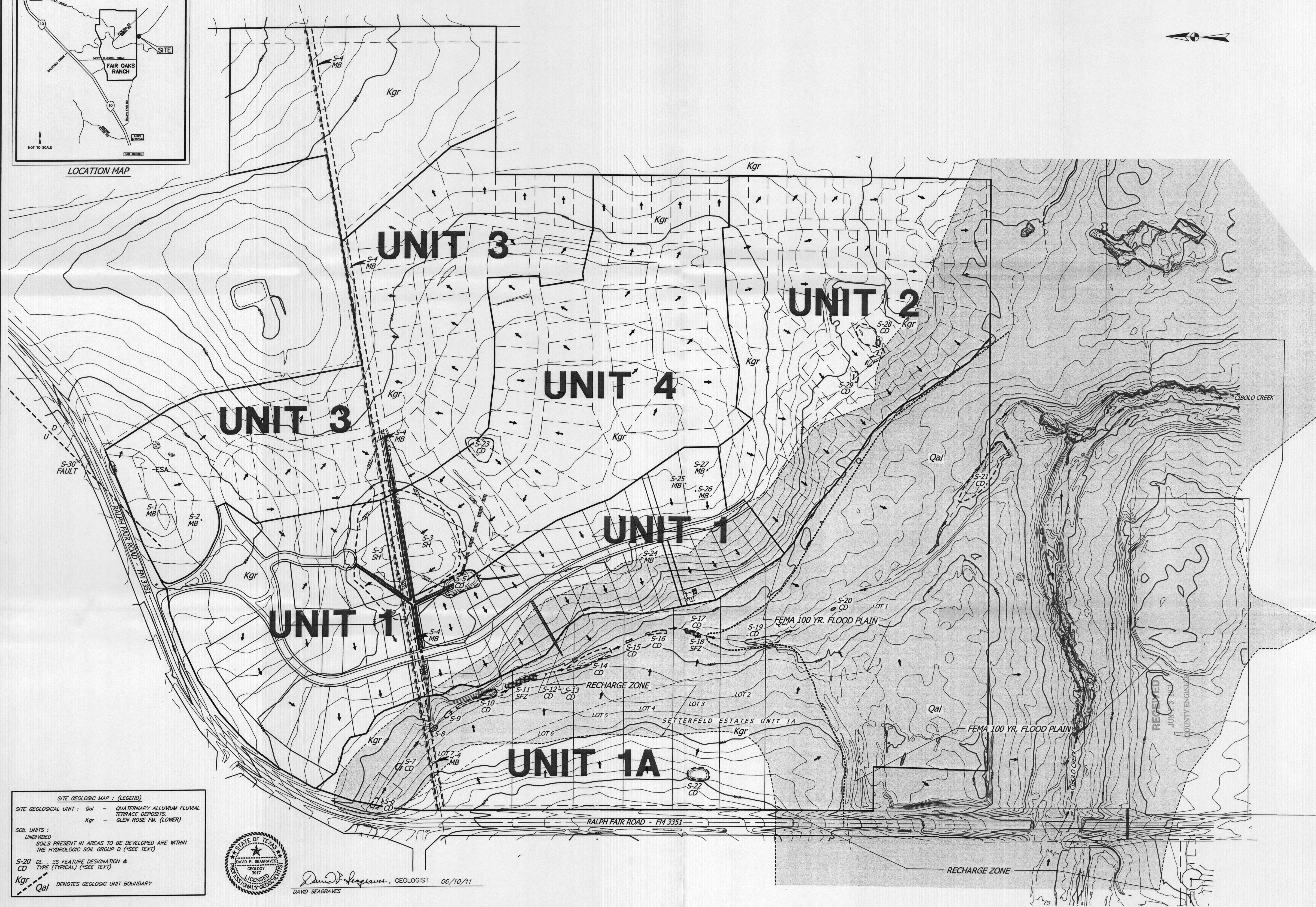
All of the above mentioned soils are on average at least 1-2 feet thick and overlie the Glen Rose Formation. These soils are primarily clayey to very clayey with some gravel fragments in the form of chert and limestone. The soil color range is from gray-brown, brown to reddish-brown. During field investigation most of the site exhibited widespread clay cracks at the surface due to the recent drought conditions in our area. These soils contain a very good and extensive grass cover. The site also supports a moderate to dense tree cover with the exception of the pastures.

One other additional soil to mention is the Lewisville silty clay (Leb) which is present is approximately 50 percent of Unit 2. The Lewisville overlies the Alluvium (Qal) Formation and is within Soil Group "B" and is defined as soils having a moderate infiltration rate when thoroughly wetted. The Lewisville silty clay is a grayish-brown silty clay and can range upwards to several feet thick or thicker. It is somewhat transitional with the underlying Alluvium. Based upon field investigation it appears that the Lewisville is more a Soil Group "C" soil due to a higher clay content at the site.

Overall, due to its extensive cover, and thickness of the clay type soil at the site, it appears to have the capacity to impede fluid movement into the subsurface.



LOCATION MAP



SITE GEOLOGIC MAP : (LEGEND)
SITE GEOLOGICAL UNIT : Qal - QUATERNARY ALLUVIUM FLUVIAL TERRACE DEPOSITS
Kgr - GLEN ROSE FM. (LOWER)
SOIL UNITS :
UNDIVIDED
SOILS PRESENT IN AREAS TO BE DEVELOPED ARE WITHIN THE HYDROLOGIC SOIL GROUP D (*SEE TEXT)
S-20 DL - S FEATURE DESIGNATION & TYPE (TYPICAL) (*SEE TEXT)
Kgr Qal - DENOTES GEOLOGIC UNIT BOUNDARY



David P. Seagraves, GEOLOGIST 06/10/11
DAVID SEAGRAVES

PLAT No.

REVISIONS	DATE	DESCRIPTION	APPROV
1			
2			
3			
4			
5			
6			

ALAMO
CONSULTING ENGINEERING
& SURVEYING, INC.

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TBPE F-4490 & TBPS 100079-00

SETTERFELD ESTATES
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

SITE GEOLOGIC MAP

JOB NO: 200021.18
HORIZ.: 1" = 200'
VERT.: N/A
DRAWN: G.G.M.
DESIGNED: G.G.M.
FILE: WMAP GEOLOGIC SITE PLAT.dwg

PAGE: GEO-1

**WATER POLLUTION ABATEMENT PLAN
APPLICATION**

Water Pollution Abatement Plan Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b), Effective June 1, 1999

REGULATED ENTITY NAME: SETTERFELD ESTATES

REGULATED ENTITY INFORMATION

1. The type of project is:
☒ Residential: # of Lots: 217
☐ Residential: # of Living Unit Equivalents:
☐ Commercial
☐ Industrial
☐ Other:
2. Total site acreage (size of property): 262.04
3. Projected population: 580
4. The amount and type of impervious cover expected after construction are shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	925,366	÷ 43,560 =	21.24
Parking (Driveway, Sidewalks)	896,550	÷ 43,560 =	20.58
Other paved surfaces (Streets)	404,000	÷ 43,560 =	9.28
Total Impervious Cover	2,225,916	÷ 43,560 =	51.10
Total Impervious Cover ÷ Total Acreage x 100 =			19.5%

5. ☐ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY

Complete questions 7-12 if this application is exclusively for a road project.

7. Type of project: N/A
☐ TXDOT road project.
☐ County road or roads built to county specifications.
☐ City thoroughfare or roads to be dedicated to a municipality.
☐ Street or road providing access to private driveways.
8. Type of pavement or road surface to be used:
☐ Concrete N/A
☐ Asphaltic concrete pavement
☐ Other:

9. Length of Right of Way (R.O.W.): _____ feet. N/A
 Width of R.O.W.: _____ feet.
 $L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$
10. Length of pavement area: _____ feet. N/A
 Width of pavement area: _____ feet.
 $L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres.}$
 Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 = \text{_____ \%}$ impervious cover.
11. N/A A rest stop will be included in this project.
 _____ A rest stop will **not** be included in this project.
12. N/A Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

13. X **ATTACHMENT B - Volume and Character of Stormwater.** A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is provided at the end of this form. The estimates of stormwater runoff quality and quantity should be based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

14. The character and volume of wastewater is shown below:

100% Domestic	<u>42,050</u> gallons/day
____% Industrial	_____ gallons/day
____% Commingled	_____ gallons/day

TOTAL 42,050 gallons/day
15. Wastewater will be disposed of by:
X **On-Site Sewage Facility (OSSF/Septic Tank):**
 _____ **ATTACHMENT C - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater. The appropriate licensing authority's (authorized agent) written approval is provided at the end of this form. It states that the land is suitable for the use of an on-site sewage facility or identifies areas that are not suitable.
X Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.
X **Sewage Collection System (Sewer Lines):**
 _____ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
X Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.
 _____ The SCS was previously submitted on _____.

- ☐ The SCS was submitted with this application.
☒ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

The sewage collection system will convey the wastewater to the Fair Oaks Utilities Plant (name) Treatment Plant. The treatment facility is:

- ☒ existing.
☐ proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

SITE PLAN REQUIREMENTS

Items 17 through 27 must be included on the Site Plan.

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 200'.

18. 100-year floodplain boundaries
☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☐ No part of the project site is located within the 100-year floodplain.

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s):

FEMA FIRM MAP PANEL NUMBERS:

48091C0355F – DATED SEPTEMBER 2, 2009

48091C0190F – DATED SEPTEMBER 2, 2009

19. ☐ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.
☒ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
☒ There are 3 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)
☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☒ The wells are in use and comply with 16 TAC §76.
☐ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:
☒ All **sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☐ No **sensitive** geologic or manmade features were identified in the Geologic Assessment.
☐ **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained at the end of this form.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

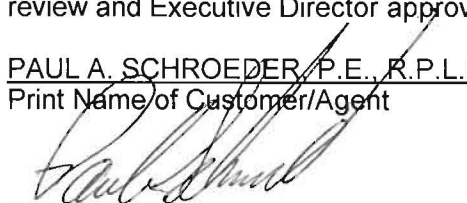
23. X Areas of soil disturbance and areas which will not be disturbed.
24. X Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. X Locations where soil stabilization practices are expected to occur.
26. X Surface waters (including wetlands).
27. X Locations where stormwater discharges to surface water or sensitive features.
— There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

28. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
29. X Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **WATER POLLUTION ABATEMENT PLAN APPLICATION FORM** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

PAUL A. SCHROEDER, P.E., R.P.L.S.
Print Name of Customer/Agent


Signature of Customer/Agent

06/10/11
Date



5. **ATTACHMENT A - Factors Affecting Water Quality.**

A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.

This Project is not anticipated to have any factors that could affect surface water and groundwater quality other than the normal hydrocarbons, typically present on streets and fertilizers, pesticides, and other miscellaneous use chemicals which are typically present in single family residential lawns.

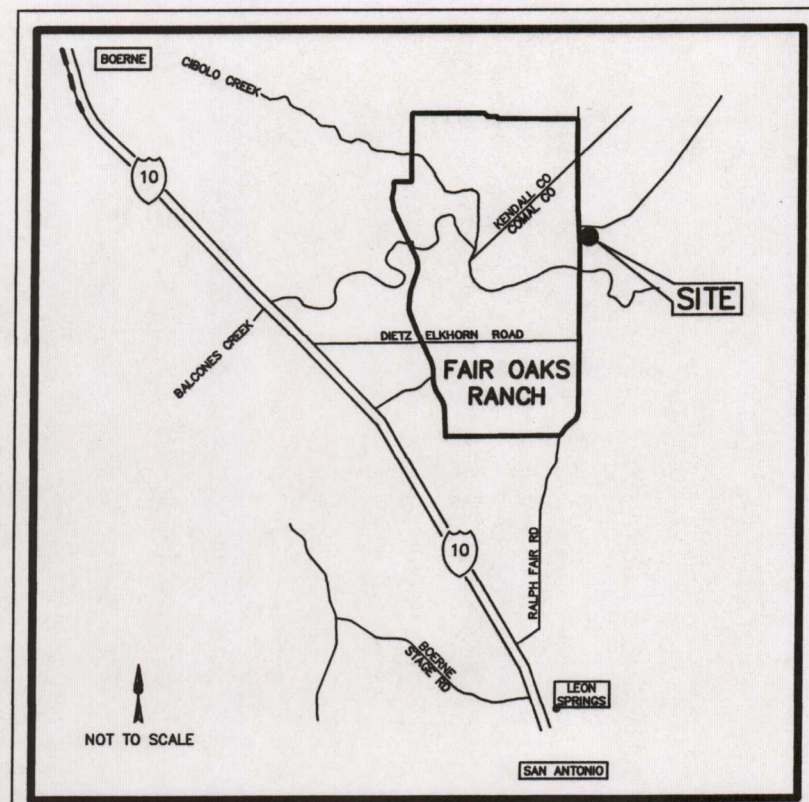
13. **ATTACHMENT B - Volume and Character of Stormwater.**

A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is provided at the end of this form. The estimates of stormwater runoff quality and quantity should be based on area and type of impervious cover. Include the runoff coefficient of the site for both preconstruction and post-construction conditions.

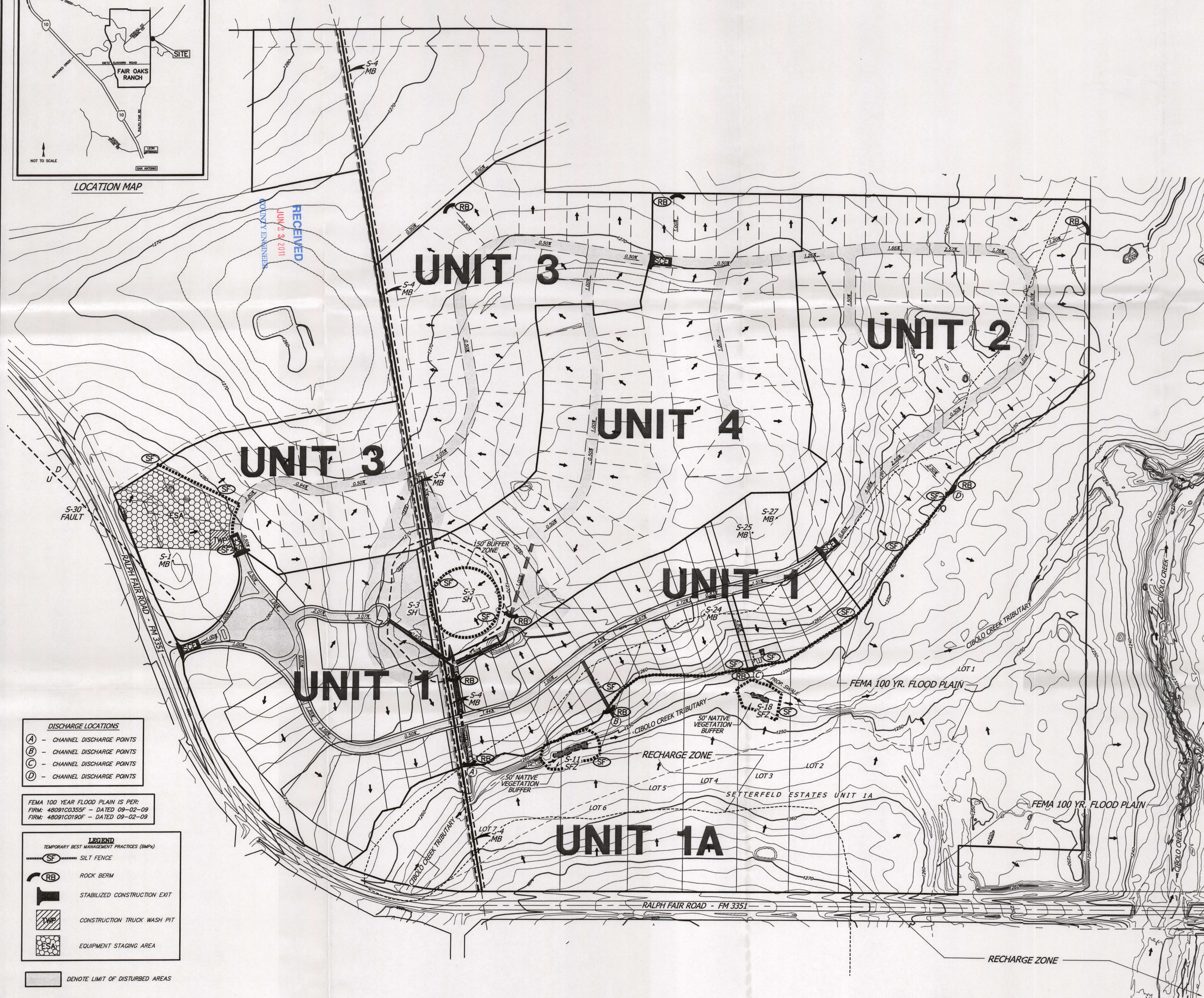
This Project is exclusively for the development of a multi-unit residential subdivision. As such it will have stormwater runoff from roofs, patios, and sidewalks onto the grass areas. Runoff from the yards, typically remaining in sheet flow, will eventually make it's way to streets, which will convey the stormwater to a discharge point to then flow across the native grassed park areas.

Storm water runoff quantity for the existing conditions will typically have a runoff factor (c-value) of 0.45. Post development for Units 1 through 4 will have a $c = 0.57 - 0.60$. Therefore post development runoff will be approximately 10 % greater than pre-development.

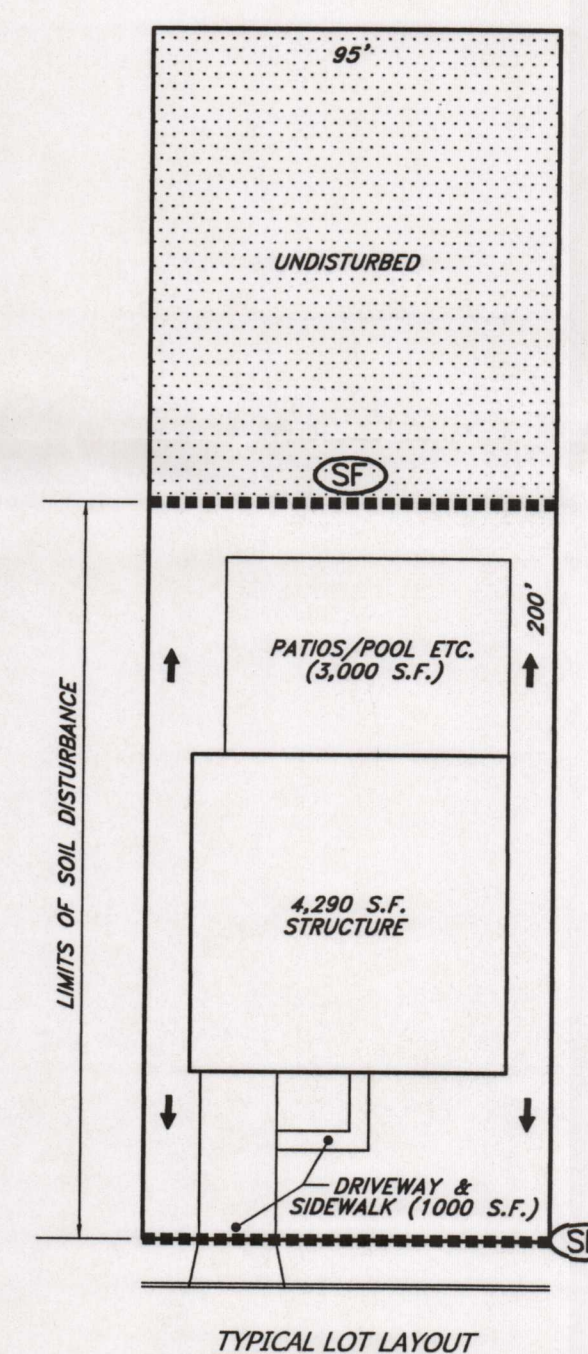
SITE PLAN



LOCATION MAP



- STABILIZATION PRACTICES**
1. ALL DISTURBED AREAS WHERE CONSTRUCTION HAS BEEN COMPLETED, TEMPORARILY HALTED, OR NO FURTHER WORK IS PLANNED FOR 21 DAYS OR LONGER, SHALL BE STABILIZED WITHIN 14 DAYS OF THE LAST CONSTRUCTION ACTIVITIES.
 2. PERMANENT CONTROL WILL BE ACHIEVED BY PERMANENTLY STABILIZING DISTURBED AREAS THROUGH SODDING OR SEEDING WITH STANDARD LAWN OR NATIVE GRASSES.



TYPICAL LOT LAYOUT

- DISCHARGE LOCATIONS**
- (A) - CHANNEL DISCHARGE POINTS
 - (B) - CHANNEL DISCHARGE POINTS
 - (C) - CHANNEL DISCHARGE POINTS
 - (D) - CHANNEL DISCHARGE POINTS

FEMA 100 YEAR FLOOD PLAIN IS PER:
FIRM: 48091C03355F - DATED 08-02-09
FIRM: 48091C0190F - DATED 08-02-09

- LEGEND**
- TEMPORARY BEST MANAGEMENT PRACTICES (BMPs)
- (SF) SILT FENCE
 - (RB) ROCK BERM
 - (TWP) STABILIZED CONSTRUCTION EXIT
 - (TWP) CONSTRUCTION TRUCK WASH PIT
 - (ESA) EQUIPMENT STAGING AREA
 - () DENOTE LIMIT OF DISTURBED AREAS

PLAT No.

REVISIONS

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		

STATE OF TEXAS
PAUL A. SCHROEDER
06/10/11

ALAMO
CONSULTING ENGINEERING
& SURVEYING, INC.

140 HEIMER RD., STE. 617, SAN ANTONIO, TX. 78232
PHONE: (210)828-0691 FAX: (210)824-3055
FIRM REGISTRATION NUMBER: TEPF F-4480 & TEP215 100076-00

SETTERFELD ESTATES
CITY OF FAIR OAKS RANCH, COMAL COUNTY, TEXAS

SW3P AND WATER POLLUTION ABATEMENT
SITE PLAN

JOB NO: 200021.18
HORIZ: 1" = 200'
VERT: N/A
DRAWN: G.G.M.
DESIGNED: G.G.M.
FILE: WPAP SITE PLAN.dwg
PAGE: WPAP-1

TEMPORARY STORMWATER SECTION

Temporary Stormwater Section
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

REGULATED ENTITY NAME: SETTERFELD ESTATES

POTENTIAL SOURCES OF CONTAMINATION

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:
 - ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.
 - ☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
 - ☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Storage Tank Facility Plan** application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
 - ☒ Fuels and hazardous substances will not be stored on-site.
2. ☒ **ATTACHMENT A - Spill Response Actions.** A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form.
3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
4. ☒ **ATTACHMENT B - Potential Sources of Contamination.** Describe in an attachment at the end of this form any other activities or processes which may be a potential source of contamination.
 - ☐ There are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

5. ☒ **ATTACHMENT C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is provided at the end of this form. For each activity described, an estimate of the total area of the site to be disturbed by each activity is given.
6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: CIBOLO CREEK

TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. **All structural BMPs must be shown on the site plan.**

7. ☒ **ATTACHMENT D - Temporary Best Management Practices and Measures.** A description of the TBMPs and measures that will be used during and after construction are provided at the end of this form. For each activity listed in the sequence of construction, include appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- ☒ TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information has been provided in the attachment at the end of this form
- a. A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
 - b. A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
 - c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - d. A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8. The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
- ☐ **ATTACHMENT E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is provided at the end of this form. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
- ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. ☒ **ATTACHMENT F - Structural Practices.** Describe the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site. Placement of structural practices in floodplains has been avoided.
10. ☒ **ATTACHMENT G - Drainage Area Map.** A drainage area map is provided at the end of this form to support the following requirements.

- ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
- ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be

used.

— For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

X There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

11. N/A **ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.**

Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.

12. X **ATTACHMENT I - Inspection and Maintenance for BMPs.** A plan for the inspection of temporary BMPs and measures and for their timely maintenance, repairs, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and recordkeeping practices is included in the plan.

13. X All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. X If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. X Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. X Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

SOIL STABILIZATION PRACTICES

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. X **ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached at the end of this form.

18. X Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

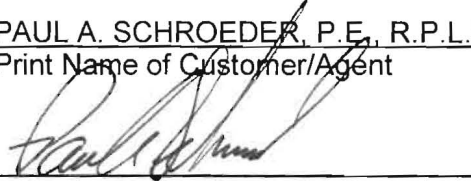
19. X Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

ADMINISTRATIVE INFORMATION

20. X All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
21. X If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
22. X Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **TEMPORARY STORMWATER SECTION** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

PAUL A. SCHROEDER, P.E., R.P.L.S.
Print Name of Customer/Agent


Signature of Customer/Agent

6/10/11
Date



2.

ATTACHMENT A - Spill Response Actions.

A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form.

All hydrocarbons, or other hazardous substances, used during construction are typically present in only relatively small quantities. As such, it is anticipated that any spill would normally not be of a reportable magnitude. Any small spill that may occur would likely be released directly onto the ground and immediately absorbed by the soil. Thus the potential for any spilled hydrocarbons, or other hazardous substances, to travel to a significant recharge feature, or to a drainageway, is minimal, or does not exist. The Contractor is instructed in the General Notes of the Storm Water Pollution Prevention Plan to immediately remove and properly dispose of any and all soil that does become contaminated. Should a spill of reportable magnitude occur, the TCEQ shall be notified.

3.

ATTACHMENT B - Potential Sources of Contamination.

Potential sources of contamination will be limited to disturbed soils and hydrocarbons typically associated with residential road construction.

5.

ATTACHMENT C - Sequence of Major Activities.

A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is provided at the end of this form. For each activity described, an estimate of the total area of the site to be disturbed by each activity is given.

Typically the sequence of major soil disturbing activities during construction are:

- A) Implementation of initial pollution prevention and erosion control measures.*
- B) Clearing of surface vegetation to be removed.*
- C) Grading of streets to subgrade.*
- D) Construction of sanitary sewers and water mains.*
- E) Installation of utilities (electric, gas, telephone, cable TV, etc.)*
- F) Re-grading of utility areas and fill as required.*
- G) Construction drainage facilities.*
- H) Placement of base, curbs and asphalt.*
- I) Final grading, and placement of topsoil as needed.*
- J) Re-establish vegetation.*
- K) Removal of temporary prevention measures.*
- L) New home construction.*

Estimated total acreage to be disturbed by each major activity.

	<u>Onsite</u>	<u>Offsite</u>
Streets	17.4	0
Sanitary Sewer	1.0	1.5
Water	0.75	0
Utilities	1.0	0
Drainage Channels	2.0	0
New Homes	178.00	0

It is estimated that the total acreage of the site to be disturbed by this activity = 200 acres.

7.

ATTACHMENT D - Temporary Best Management Practices and

Measures. A description of the TBMPs and measures that will be used during and after construction are provided at the end of this form. For each activity listed in the sequence of construction, include appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

(a). Storm water up gradient from the street construction will be collected in the street and directed to discharge points where it will be filtered by rock berms. There will be no excavation within the 100 year flood plain. There is no excavation within the path of the Cibolo Creek Tributary.

(b). To prevent pollution of surface water and ground water by storm water runoff from the site, the downstream perimeter of the disturbed areas are lined with silt fence and the discharge points from the street excavation are filtered by silt fence and rock berms.

(c). The perimeter silt fence will prevent pollutants in the storm water runoff from entering surface streams, or the aquifer. The silt fence and rock berms will prevent pollutants in storm water from entering the sensitive features.

(d). The use of silt fence and rock berms will filter possible pollutants from the storm water, yet allow the filtered flows to continue to the identified non-man-made sensitive features. If additional features are encountered during construction, work in the area of the feature will be halted, the feature will be protected by silt fence and TCEQ will be notified for determining of further action. See TCEQ Note 3, page WPAP-2 of construction plans.

9.

ATTACHMENT F - Structural Practices.

Describe the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site. Placement of structural practices in flood plains has been avoided.

Due to the nature of drainage for this site, there will be no flow from areas outside of the property site that will flow accross disturb areas and, therefore, the only runoff in the disturbed areas shall be that which occurs on site.

11.

ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.

Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided a the end of this form.

There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time, therefore, temporary sediment ponds or basins are not required for this Project.

12.

ATTACHMENT I - Inspection and Maintenance for BMPs.

A plan for the inspection of temporary BMPs and measures and for their timely maintenance, repair, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and record keeping practices is included in the plan.

Reference Sections A. "Maintenance" and B. "Inspection of Control Measures" of the "Stormwater Pollution Prevention Plan General Notes".

The project's General Contractor shall designate a person, or entity, to be responsible for the inspection of all project 'stormwater pollution prevention' (temporary BMPs) measures whether on-site or off-site. Inspections shall occur at least once every seven calendar days or within 24-hours after any 1/2 inch or greater rainfall. Written documentation of the inspections in the form of reports shall be made and shall include all appropriate information such as:

*date of inspection;
recommended or required actions to repair/maintain measures, or to resolve observed deficiencies;
satisfactory completion of any actions noted in previous inspection reports;
recommended changes to the Plan for the implementation of measures.*

As a minimum the inspector shall observe the following:

*disturbed areas for evidence of unchecked erosion;
storage areas for evidence of, or the potential for, the improper storage of on-site materials;
general tidiness of the site - that trash and debris is routinely picked up and properly disposed of;
that control measures are in good working order and that they are functioning as intended;
that the stabilized exits are being used and are functioning such that tracking of sediment by vehicles is minimized to the extent practicable;
construction equipment for signs of vehicle drippings beyond the normal amount;
along the site perimeter, especially at points of concentrated discharge to ascertain whether the BMPs are effective.*

The report shall be faxed or delivered to the Developer /Applicant and/or the Engineer within 24-hours of the inspection. All noted required repairs, maintenance, corrective actions shall be completed and re-inspected within seven calendar days of the original inspection. Based upon the results and recommendations of these inspections, the control measures may be modified where appropriate and practicable, on a case by case basis within the intent of the Plan and the governing regulations, to improve the control provided by the measures implemented.

17.

ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.

A schedule of the interim and permanent soil stabilization practices for the site is attached at the end of this form.

A record of the major grading activities start date and when stabilization measures are initiated shall be documented in the same manner as prescribed for temporary abatement feature inspections.

The "Stormwater Pollution Prevention Plan General Notes" state that disturbed areas where construction has been completed, temporary halted, or no further work is planned within the next 21 days, shall be temporarily stabilized within 14 days of the last activity by some form of seeding or mulching which will provide appropriate and effective results in reducing erosion of the disturbed areas to the extent that is practical.

The Plans instruct the General Contractor that as part of the final grading and site cleanup, all disturbed areas (where the soil is exposed and unprotected from erosion) are to be sodded, seeded, or mulched as appropriate (or as instructed elsewhere in the Plans by the Engineer) to provide effective results in preventing the erosion of these areas. The Contractor shall be responsible for maintaining the stabilization (such as continued water of sod or seeded grass until the grass becomes established) until responsibility can be assumed by the Owner or as stipulated by other construction documents.

PERMANENT STORMWATER SECTION

Permanent Stormwater Section
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b)(4)(C), (D)(li), (E), and (5), Effective June 1, 1999

REGULATED ENTITY NAME: SETTERFELD ESTATES

Permanent best management practices (BMPs) and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is provided below:

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.
4. ☒ Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

☒ This site will be used for low density single-family residential development and has 20% or less impervious cover.
☐ This site will be used for low density single-family residential development but has more than 20% impervious cover.
☐ This site will not be used for low density single-family residential development.
5. ☒ The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

- **ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.
- This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
- X This site will not be used for multi-family residential developments, schools, or small business sites.

6. **ATTACHMENT B - BMPs for Upgradient Stormwater.**

- A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is identified as **ATTACHMENT B** at the end of this form.
- If no surface water, groundwater or stormwater originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.
- X If permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

- A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is identified as **ATTACHMENT C** at the end of this form.
- X If permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, an explanation is provided as **ATTACHMENT C** at the end of this form.

8. X **ATTACHMENT D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is provided at the end of this form. Each feature identified in the Geologic Assessment as "sensitive" has been addressed.

9. X The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

- X The permanent sealing of or diversion of flow from a naturally-occurring "sensitive" or "possibly sensitive" feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed for any naturally-occurring "sensitive" or "possibly sensitive" features on this site.

- **ATTACHMENT E - Request to Seal Features.** A request to seal a naturally-occurring "sensitive" or "possibly sensitive" feature, that includes a justification as to why no reasonable and practicable alternative exists, is found at the end of this form. A request and justification has been provided for each feature.

10. N/A **ATTACHMENT F - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and measures are provided at the end of this form. Design Calculations, TCEQ

Construction Notes, all man-made or naturally occurring geologic features, all proposed structural measures, and appropriate details must be shown on the construction plans.

11. N/A **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.
12. N/A The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
— Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.
— **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.
13. X **ATTACHMENT I - Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is provided at the end of this form. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity which increase erosion that results in water quality degradation.

Responsibility for maintenance of permanent BMPs and measures after construction is complete.

14. X The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
15. X A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **PERMANENT STORMWATER SECTION** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

PAUL A. SCHROEDER, P.E., R.P.L.S.

Print Name of Customer/Agent



Signature of Customer/Agent

6/10/11

Date



6. **ATTACHMENT B - BMPs for Up-gradient Stormwater.**

If permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates up-gradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

There is surface water or groundwater that originates up-gradient from the site. Storm Water that is up-gradient of the site flowing through a natural stream bed which will remain in its natural condition to handle such flows.

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

If permanent BMPs or measures are not required to prevent pollution of surface water or Groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, an explanation is provided as **ATTACHMENT C** at the end of this form.

As shown on the "Typical Lot Layout" on the Site Plan, impervious cover for units 1 thru 4 will be limited as noted. Unit 1A utilizes lots larger than 5 acres and total impervious cover of 48,000 s.f. These limitations and the generous greenbelt areas result in a total impervious cover of less than 20%.

Stormwater runoff that originates on-site from the roof and sidewalks will flow over the grass area as sheet flow, not as concentrated flow. Flows leaving the site shall be restricted to a non-erosive velocity of less than six (6) feet per second.

8. **ATTACHMENT D - BMPs for Surface Streams.**

A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is provided at the end of this form. Each feature identified in the Geologic Assessment as "sensitive" or "possible sensitive" has been addressed.

With the exception of the gas pipeline, water wells and septic systems, the sensitive features identified in the geologic assessment have been protected by placement of silt fences and/or rock berms up-gradient from said features.

10. **ATTACHMENT E - Construction Plans.**

There are no plans required for the permanent BMP of low density single family residential development.

13. **ATTACHMENT I - Measures for Minimizing Surface Stream Contamination.**

A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity which increase erosion that results in water quality degradation.

The way in which the surface water leaves the site and flow toward the stream will remain unchanged. The flow occurs as shallow sheet flow or at a non-erosive velocity of less than six (6) feet per second. Additionally, this stream flow occurs across a native grass.

AGENT AUTHORIZATION FORM

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I LLOYD A. DENTON, JR.
Print Name

PRESIDENT
Title - Owner/President/Other

of SAUR 3351 No. 5, LTD.
Corporation/Partnership/Entity Name

have authorized PAUL A. SCHROEDER, P.E., R.P.L.S.
Print Name of Agent/Engineer

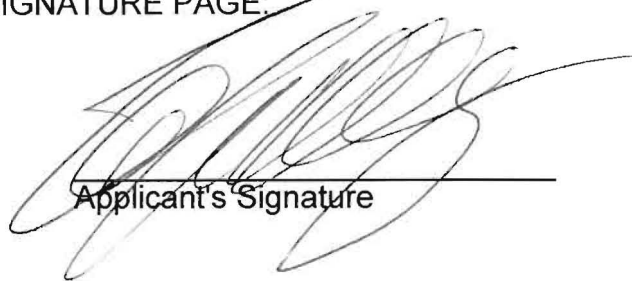
of ALAMO CONSULTING ENGINEERING & SURVEYING, INC.
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:


Applicant's Signature

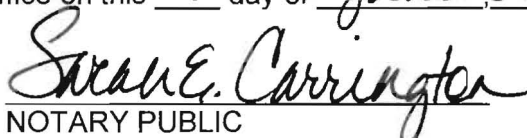
06.01.11
Date

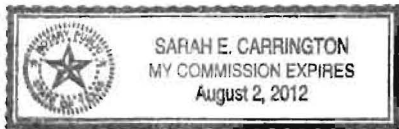
THE STATE OF TEXAS §

County of BEXAR §

BEFORE ME, the undersigned authority, on this day personally appeared Lloyd A. Denton Jr. known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 1 day of June, 2011.


NOTARY PUBLIC



Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

APPLICATION FEE FORM

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Form

NAME OF PROPOSED REGULATED ENTITY: SETTERFELD ESTATES
REGULATED ENTITY LOCATION: ALONG THE EAST R.O.W. OF FM 3351, 1000' +/- NORTH OF CIBOLOLO CREEK IN COMAL COUNTY, TEXAS.
NAME OF CUSTOMER: SAUR 3351 No. 5, LTD.
CONTACT PERSON: LLOYD A. DENTON, JR. PHONE: 210-828-6131
(Please Print)

Customer Reference Number (if issued): CN _____ (nine digits)

Regulated Entity Reference Number (if issued): RN _____ (nine digits)

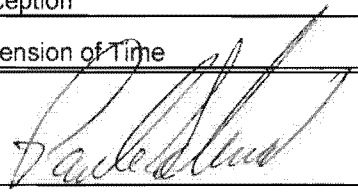
Austin Regional Office (3373) ☐ Hays ☐ Travis ☐ Williamson
San Antonio Regional Office (3362) ☒ Bexar ☐ Comal ☐ Medina ☐ Kinney ☐ Uvalde

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to (Check One):

- | | |
|--|---|
| <input type="checkbox"/> Austin Regional Office | <input checked="" type="checkbox"/> San Antonio Regional Office |
| <input type="checkbox"/> Mailed to TCEQ:
TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088 | <input type="checkbox"/> Overnight Delivery to TCEQ:
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347 |

Site Location (Check All That Apply): ☐ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	262.04 Acres	\$8,000.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$


Signature

6/6/14
Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

SAUR 3351 NO. 5, LTD.
11 LYNN BATTS LANE, SUITE 100
SAN ANTONIO, TEXAS 78218
(210) 828-6131

FROST NATIONAL BANK
SAN ANTONIO, TEXAS
CHECK NO.

0214

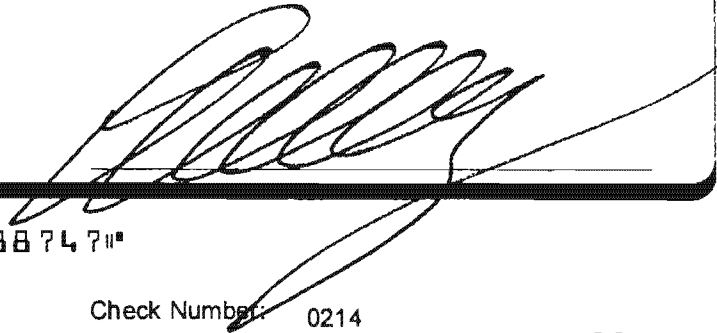
30-9/114001

DATE
Jun 2, 2011

CHECK AMOUNT
\$8,000.00

PAY Eight Thousand and 00/100 Dollars

TO THE TCEQ
ORDER
OF



⑈0214⑈

⑆114000093⑆ 010488747⑈

SAUR 3351 NO. 5, LTD. -
TCEQ

Check Number: 0214
Check Date: Jun 2, 2011
Check Amount: \$8,000.00

0214

Invoice	Date	Discount Taken	Amount Paid	Quantity	Description
060111 WPAP	6/1/11		8,000.00		WPAP fee

TCEQ CORE DATA FORM



TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided)	
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application)	
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other
2. Attachments Describe Any Attachments: (ex. Title V Application, Waste Transporter Application, etc.)	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3. Customer Reference Number (if issued)	4. Regulated Entity Reference Number (if issued)
CN	RN

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
6. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check only one of the following:	
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator	
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other: _____	
7. General Customer Information	
<input checked="" type="checkbox"/> New Customer <input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State) <input type="checkbox"/> No Change**	
**If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.	
8. Type of Customer:	
<input type="checkbox"/> Corporation <input type="checkbox"/> Individual <input type="checkbox"/> Sole Proprietorship- D.B.A	
<input type="checkbox"/> City Government <input type="checkbox"/> County Government <input type="checkbox"/> Federal Government <input type="checkbox"/> State Government	
<input type="checkbox"/> Other Government <input type="checkbox"/> General Partnership <input checked="" type="checkbox"/> Limited Partnership <input type="checkbox"/> Other: _____	
9. Customer Legal Name (If an individual, print last name first: ex: Doe, John) If new Customer, enter previous Customer below End Date:	
SAUR 3351 No. 5, LTD.	
10. Mailing Address:	
11 LYNN BATTS LANE, SUITE 100	
City SAN ANTONIO State TX ZIP 78218 ZIP + 4	
11. Country Mailing Information (if outside USA)	
12. E-Mail Address (if applicable)	
N/A IAN@BITTERBLUE.COM	
13. Telephone Number	
(210) 828-6131	
14. Extension or Code	
15. Fax Number (if applicable)	
(210) 828-6137	
16. Federal Tax ID (9 digits)	
260372735	
17. TX State Franchise Tax ID (11 digits)	
18. DUNS Number (if applicable)	
19. TX SOS Filing Number (if applicable)	
800784885	
20. Number of Employees	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher	
21. Independently Owned and Operated?	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

SECTION III: Regulated Entity Information

22. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information <input type="checkbox"/> No Change** (See below)	
**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.	
23. Regulated Entity Name (name of the site where the regulated action is taking place)	
SETTERFELD ESTATES	

24. Street Address of the Regulated Entity: (No P.O. Boxes)							
	City		State		ZIP		ZIP + 4
25. Mailing Address:	11 LYNN BATTS LANE, SUITE 100						
	City	SAN ANTONIO	State	TX	ZIP	78218	ZIP + 4
26. E-Mail Address:	N/A						
27. Telephone Number	28. Extension or Code		29. Fax Number (if applicable)				
() -N/A			() -N/A				
30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)			33. Secondary NAICS Code (5 or 6 digits)		
1521	6552	236115					
34. What is the Primary Business of this entity? (Please do not repeat the SIC or NAICS description.)							
RESIDENTIAL SUBDIVISION							

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	ALONG THE EAST R.O.W. OF FM 3351, 1000' +/- NORTH OF CIBOLO CREEK IN COMAL COUNTY, TEXAS.						
36. Nearest City	County		State		Nearest ZIP Code		
FAIR OAKS RANCH	COMAL		TX		78015		
37. Latitude (N) In Decimal:	29.7494171		38. Longitude (W) In Decimal:	098.6190573			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
29	44	57.90	098	37	08.60		

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Industrial Hazardous Waste	<input type="checkbox"/> Municipal Solid Waste
<input type="checkbox"/> New Source Review – Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge
<input type="checkbox"/> Stormwater	<input type="checkbox"/> Title V – Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

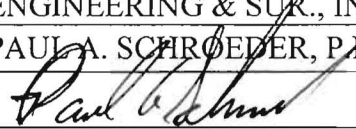
SECTION IV: Preparer Information

40. Name:	PAUL A. SCHROEDER, P.E., R.P.L.S.		41. Title:	DIR. OF ENG./PRESIDENT	
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
(210) 828-0691	N/A	(210) 824-3055	PAS-ACES-SA.COM		

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	ALAMO CONSULTING ENGINEERING & SUR., INC.		Job Title:	DIR. OF ENG./PRESIDENT	
Name (In Print):	PAUL A. SCHROEDER, P.E., R.P.L.S.			Phone:	(210) 828-0691
Signature:				Date:	6/10/11