Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 11, 2015

RECEIVED
DEC 23 2015
COUNTY ENGINEER

Mr. Daniel Clawson II
Continental Homes of Texas, L.P.
210 West Hutchison Street
San Marcos, Texas 78666

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Manor Creek Subdivision; Located on the north side of State Highway 46, approximately 2 miles west of the intersection of Loop 337 and State Highway 46; New Braunfels, Texas

TYPE OF PLAN: Request for Modification of an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Regulated Entity No. RN105801568; Investigation No. 1255265; Additional ID No. 13-15060902

Dear Mr. Clawson:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Modification for the above-referenced project submitted to the San Antonio Regional Office by HMT Engineering & Surveying on behalf of Continental Homes of Texas, L.P. on June 9, 2015. Final review of the WPAP was completed after additional material was received on September 30, 2015, November 10, 2015, and December 1, 2015. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected 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 Manor Creek Subdivision (formerly known as Tschirhart Ranch) was originally approved by letter dated April 4, 2006 for a single family residential development on 252.038 acres. The project proposed to develop 343 lots, roads, and utilities. The impervious cover was 50.29 acres (19.95 percent) and a less than 20 percent impervious cover exemption from installing permanent BMPs was approved.

The plan was subsequently modified by letter dated April 8, 2010. That project proposed to increase the overall site area by 15 acres, dedicate 0.123 acres of the site to TxDOT, and construct 340 single family residential lots, roads, and utilities on 266.92 acres. The impervious cover was increased from 50.29 acres to 53.141 acres (19.91 percent). Since the total impervious cover remained below 20 percent an exemption from installing permanent BMPs was approved.

A separate WPAP for a community center within the Manor Creek Subdivision was approved by letter dated May 4, 2010. The commercial project included the construction of a community pool, restroom facility, storage building, parking, and associated utilities on a 1.08 acre site. The impervious cover was 0.318 acres (29.4 percent). One sedimentation/filtration basin and engineered vegetative filter strips were constructed to provide permanent stormwater treatment.

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 171.169 acres. It will include the construction of 164 single-family residential lots, roads, and associated utilities within Units 1, 2, and 3. The impervious cover will be 34.067 acres (19.90 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by New Braunfels Utilities. Residential development within Units 4, 5 and 6 will be separated from the site and submitted with a new WPAP application.

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, the site is located on the Cyclic and Marine and Leached and Collapsed members of the Edwards Person Formation. The report identified 76 features (13 sensitive and 63 non-sensitive) within the site limits. The San Antonio Regional Office did not conduct a site assessment.

Sensitive Features

Natural buffers were proposed for 13 sensitive geologic features. According to FEMA maps, the features are shown near or within Zone A of the 100-year flood plain along Blieders Creek. All of the sensitive features except S-89 are shown surrounded with rock berms. Feature S-89 is shown in a "no disturbance" area delineated on the site plan for the WPAP. No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffers.

Setback distances and buffer areas were generally based on the drainage areas for each of the sensitive features being protected.

The setbacks for the sensitive features are described in the following table.

Identification No.	Buffer Description
S-15	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-21	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-25	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-35	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-38	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-61	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-63	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-70	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-71	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-81	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-85	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-89	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west
S-93	50 ft north, 50 ft. south, 50 ft. east, 50 ft. west

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated April 4, 2006, and April 8, 2010.

II. 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.

III. The temporary rock berms installed around sensitive features must remain in place until final stabilization of the site has been achieved and appropriately documented. The rock berms shall be inspected and maintained in operable condition and in accordance with the approved maintenance schedule provided in the application.

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.

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. No 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 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.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Alex Grant of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4035

Sincerely,

Lynn Bumguardner, Water Section Manager
San Antonio Region Office
Texas Commission on Environmental Quality

LB/AG/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Chris Van Heerde, P.E., HMT Engineering & Surveying
Mr. Garry Ford, Jr., P.E., City of New Braunfels
Mr. Tom Hornseth, P.E., Comal County
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 21

RECEIVED
NOV 16 2015
COUNTY ENGINEER

Manor Creek Subdivision

A distinguished project by:

Continental Homes of Texas, L.P. dba DR Horton

Water Pollution Abatement Plan Report



New Braunfels, Texas
Submittal November 2015

TCEQ R-13 2015 NOV 10 08:12

Prepared by:

HMT
ENGINEERING & SURVEYING

410 N. Seguin Ave.
New Braunfels, TX 78130
HMTNB.COM
830.625.8555 • FAX: 830.625.8556
TBPE FIRM F-10961

HMT
ENGINEERING & SURVEYING

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the effected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Manor Creek Subdivision						**2. Regulated Entity No.:**104801568			
3. Customer Name: Continental Homes of Texas, L.P. dba DR Horton						**4. Customer No.:** 602550360			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			171.169
9. Application Fee:	$8,000		**10. Permanent BMP(s):**			N/A			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Comal		**14. Watershed:**			Bleiders Creek			

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	___
Region (1 req.)	___	___	___
County(ies)	___	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	X	___	___	___
Region (1 req.)	___	X	___	___	___
County(ies)	___	X	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	_X_Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge _X_New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.	
Chris Van Heerde. C.F.M.. P.E. Print Name of Customer/Authorized Agent	
Chris Van Heerde, PE Signature of Customer/Authorized Agent	11/6/2015 Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

General Information Form

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 11/6/15

Signature of Customer/Agent:

Chris Van Heerde, PE

Project Information

1. Regulated Entity Name: Manor Creek Subdivision
2. County: Comal
3. Stream Basin: Bleiders Creek
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☒ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

Contact Person: Daniel Clawson II
Entity: Continental Homes of Texas, L.P.
Mailing Address: 210 West Hutchison Street
City, State: San Marcos, Texas Zip: 78666
Telephone: 512-418-6104 FAX: 800-581-2588
Email Address: dclawson@drhorton.com

8. Agent/Representative (If any):

Contact Person: Chris Van Heerde, C.F.M., P.E.
Entity: HMT Engineering & Surveying
Mailing Address: 410 N. Sequin Avenue
City, State: New Braunfels, Texas Zip: 78130
Telephone: 830-625-8555 FAX: 830-625-8556
Email Address: chrisvh@hmtnb.com

9. Project Location:

☒ The project site is located inside the city limits of New Braunfels.
☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
☐ The project site is not located within any city's limits or ETJ.

10. ☒ 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.

Beginning at TCEQ San Antonio regional office, head south on Judson Road towards Villa Camino, turn left onto I-35 Frontage Road, take the ramp on the left onto I-35 North. Take exit 184 toward TX-337 Loop/Farm to Market Rd 482/Rueckle Rd, merge onto I-35 Frontage Road, and turn left onto TX-337 Loop N/S Rueckle Rd. Turn left onto TX-46E/State Spur 453/N Walnut Ave, and then turn right onto Hamburg Avenue to enter the Manor Creek Subdivision.

11. ☒ **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

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

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** 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.

☐ Survey staking will be completed by this date: _____

14. ☒ **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

☒ Area of the site
☒ Offsite areas
☒ Impervious cover
☒ Permanent BMP(s)
☒ Proposed site use
☒ Site history
☒ Previous development
☒ Area(s) to be demolished

15. 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

16. ☒ 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).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ 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

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

☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, 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.

19. ☒ 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)

20. ☒ 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.

21. ☒ 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.

GENERAL INFORMATION FORM
ATTACHMENT C
Project Description

The proposed Manor Creek Subdivision project (previously titled Tschirhart Ranch Subdivision) is located on Hamburg Avenue, New Braunfels, Texas. The subdivision is within the New Braunfels city limits. The total subdivision site covers a total of 267.03 acres and divided into 6 Units. Manor Creek Units 1-3 have been completed and contain 164 lots on 171.169 acres. Manor Creek Unit 2A is a separate WPAP for the Amenity Center which contains 1 lot and 1.081 Acres. Construction of homes within Unit 3 is currently on going; however, all street and drainage improvements are currently complete. When fully developed Unit 1, 2B, and 3 will have 32.66 acres of impervious cover, or 19.20%. Manor Creek Subdivision Units 4-6 represent the remainder of the land owned by Continental Homes of Texas, L.P. in this development which totals 94.78 acres and is currently undeveloped. There is no existing impervious cover on the 94.78 acres of Units 4-6, with the proposed conditions the impervious cover increases to be 36.02 acres or 38.00% at the full development of the site.

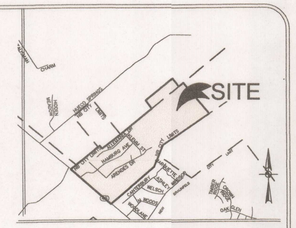
The impervious cover that has been and is planned to be constructed for Manor Creek Units 4-6 will exceed the maximum 20% impervious cover allowed under the current WPAP. Therefore, Units 4-6 will have permanent BMPs to treat the impervious cover from these units. There are platted lots within Unit 4, 5, and 6 that will contribute open space to the remaining 20% Impervious Cover WPAP for Manor Creek Subdivision Units 1, 2B, and 3. These areas include Lot 200 in Unit 6 (15.04 Acres), Lot 201 in Unit 4 (68.86 Acres), and Lot 202 in Unit 4 (2.65 Acres). Exhibit C1 shows the areas included in this WPAP, the areas in the less than 20% Impervious Cover WPAP, and the Manor Creek Amenity Center (Unit 2A) which has a sand basin as the Permanent BMP and remains unchanged.

AMENDED WPAP MASTER PLAN
FOR
MANOR CREEK SUBDIVISION

SCALE: 1"=200'

LEGEND:
- U.E. = UTILITY EASEMENT
- D.E. = DRAINAGE EASEMENT
- L.E. = LANDSCAPE EASEMENT
- S.S.E. = SANITARY SEWER EASEMENT
- R.O.W. = RIGHT-OF-WAY
- M.P.R.C.C.T. = MAP AND PLAT RECORDS, COMAL COUNTY, TEXAS
- O.P.R.C.C.T. = OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS
- D.R.C.C.T. = DEED RECORDS, COMAL COUNTY, TEXAS
- (XX) = ZONING TYPE
- XXXX = LANDUSE
- XX" W = EXISTING WATER LINE
- XX" SS = EXISTING SEWER LINE
- E = OVERHEAD ELECTRIC LINE

LOCATION MAP
SCALE: NTS



20.402 ACRE TRACT
ALICE SCHWANZ
DOC. NO. 200906011153
O.P.R.C.C.T.

20.402 ACRE TRACT
DORA HUMMEL
DOC. NO. 200906011152
O.P.R.C.C.T.

20.402 ACRE TRACT
ALICE SCHWANZ
DOC. NO. 200906011155
O.P.R.C.C.T.

NEW BRAUNFELS CITY LIMITS

65.965 ACRE TRACT
CPP PARTNERS, LTD
DOC. NO. 201106031689
O.P.R.C.C.T.

55.574 ACRE TRACT
MARILYN HELMKE
DOC. NO. 9906017297
O.P.R.C.C.T.

THIS IS BEING PLATTED IN UNIT 6 BUT IS INCLUDED IN THE <20% WPAP

200 OPEN SPACE & D.E.

10.0 AC.
JIM LAUGHMAN
DOC. NO. 201406037986
O.P.R.C.C.T.

20' WATER LINE EASEMENT
DOC. NO. 9706012826
O.P.R.C.C.T.

UNIT 5A RESIDENTIAL LOTS WITH PERMANENT BMPS

UNIT 5B RESIDENTIAL LOTS WITH PERMANENT BMPS

BRIDGE LOCATION

200 OPEN SPACE D.E. & U.E.

203 OPEN SPACE D.E. & U.E.

203 D.E. & U.E.

R-1A -6.6 RESIDENTIAL LARGE LOT

UNIT FOUR

200 D.E. & U.E. LOT 2.65 AC. BLOCK 4

UNIT 2B

UNIT 2A

UNIT ONE

UNIT THREE

UNIT 5A

UNIT 5B

UNIT SIX

STATE HIGHWAY 46 (100' R.O.W.)

KOELN STREET (50' R.O.W.)

MALINCKRODT (50' R.O.W.)

ALLEMANIA DRIVE (50' R.O.W.)

HAMBURG AVENUE (60' R.O.W.)

VARRELMANN (50' R.O.W.)

TOENGES LANE

KLEMM STREET (50' R.O.W.)

MAINZ STREET (50' R.O.W.)

SCHIMMEL PLACE (50' R.O.W.)

ARENDES DRIVE (50' R.O.W.)

LIERMANN AVE. (50' R.O.W.)

ETZEL TERRACE (50' R.O.W.)

HOHLBERGER (50' R.O.W.)

ANGELRODT (50' R.O.W.)

ESPENCHIED (R.O.W. VARIES)

HESSEN WAY (50' R.O.W.)

PYRMONT (50' R.O.W.)

MILENTZ PARK

HILDESHEIM (60' R.O.W.)

RAUSCHENBACH (50' R.O.W.)

HEIDELBERG RD (50' R.O.W.)

201 OPEN SPACE D.E. & U.E.

202 OPEN SPACE D.E. & U.E.

204 OPEN SPACE D.E. & U.E.

205 NBU LOT

206 OPEN SPACE D.E. & U.E.

201 D.E. & U.E. LOT 68.86 AC. BLOCK 1

206 U.E. & L.E. LOT 0.09 AC.

202 D.E., U.E. & L.E. LOT 1.44 AC.

205 U.E. & L.E. LOT 0.04 AC.

204 D.E. & U.E. LOT 0.44 AC.

203 D.E., U.E. & L.E. LOT 4.30 AC.

207 ACCESS ESMT & U.E. LOT 0.05 AC.

20' ACCESS EASEMENT

UNIT 4 RESIDENTIAL LOTS (WPAP WITH PERMANENT BMPS)

UNIT 6 RESIDENTIAL LOTS WITH PERMANENT BPMS

THIS IS A LOT IN UNIT 4 BUT IS INCLUDED IN THE <20% WPAP

71.35 ACRE TRACT
HERMAN BORCHERS III & MARY LOU BORCHERS
VOL. 244, PG. 646
D.R.C.C.T.

20' SANITARY SEWER EASEMENT
VOL. 1018, PG. 744
O.P.R.C.C.T.

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE (SEE NOTE NO. 7)

APPROXIMATE LOCATION OF FLOODWAY

APPROXIMATE LOCATION OF FLOOD CONTROL EASEMENT
VOL. 179, PG. 187
D.R.C.C.T.

NORTHWOODS UNIT 3
VOL. 8, PG. 342
M.P.R.C.C.T.

NORTHWOODS UNIT 1
VOL. 5, PG. 305
M.P.R.C.C.T.

MANOR CREEK SUBDIVISION UNIT ONE
DOC. NO. 9606053209
M.P.R.C.C.T.

NBU ESMT
DOC. NO. 201066026750

TXDOT PROPOSED ACCESS DENIAL PARCEL 24 PART 1

TXDOT PROPOSED ACCESS DENIAL & NBU ESMT
DOC. NO. 201066026750
PARCEL 24, PART 1

40' ROAD EASEMENT
BAR M RANCH COMMERCIAL
13, PG. 176
M.P.R.C.C.T.

EXISTING T BAR M DRIVEWAY

TXDOT PROPOSED ACCESS DENIAL PARCEL 24, PART 2

20' WATER LINE EASEMENT
DOC. NO. 9706012826
O.P.R.C.C.T.

LEGEND

- MANOR CREEK SUBDIVISION WPAP TO REMAIN <20% IMP. COVER (171.169 ACRES, 164 LOTS)
- NEW WPAP WITH >20% IMP & PERMANENT BMPS (94.78 ACRES, 197 LOTS)
- COMMUNITY CENTER MANOR CREEK WPAP TO REMAIN THE UNCHANGED (1.081 ACRES)

Manor Creek Subdivision WPAP Impervious Cover Calculations

Unit	Total Area (AC)	Streets (SF)	Streets (AC)	Lots (SF)	Lots (AC)	Total IC (AC)
1	43.468	216,915.27	4.980	532,980.00	12.24	17.215
2B	22.445	97,309.09	2.234	309,260.00	7.10	9.334
3	18.706	87,625.00	2.012	236,880.00	5.44	7.450
Lot 200 (Unit 6)	15.04	-	-	-	-	-
Lot 201 (Unit 4)	68.86	-	-	-	-	-
Lot 200 (Unit 4)	2.65	-	-	-	-	-
TxDOT ROW	-	2,978.00	0.068	-	-	0.068
Total	171.169	404,827.36	9.294	1,079,120.00	24.77	34.067
					Total IC	34.067
					Total Area	171.169
					IC %	19.90%

STATE OF TEXAS
CHRISTOPHER P. VAN HEERDE
93047
LICENSED
PROFESSIONAL ENGINEER

Chris Van Heerde, PE
11/9/15

HMT
ENGINEERING & SURVEYING
410 N. SEGUIN AVE.
NEW BRAUNFELS,
TEXAS, 78130
WWW.HMTNB.COM
PH: (830)625-8555

EXHIBIT C1

Drawing Name: N:_Projects\031 - DR Horton\031.023 - Manor Creek Unit 4\031.023.106 - Construction Documents\Engineering Reports\WPAP\031.023.110 Master Plan-WPAP-ARDS.dwg User: gomstrm Nov 09, 2015 - 9:00am

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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 request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 11/6/15

Signature of Customer/Agent:

Chris Van Heerde, PE

Project Information

1. Current Regulated Entity Name: Manor Creek Subidivision
   Original Regulated Entity Name: Manor Creek Subidivision
   Regulated Entity Number(s) (RN): RN1014801568
   Edwards Aquifer Protection Program ID Number(s): 05120702
   ☐ The applicant has not changed and the Customer Number (CN) is: _____
   ☒ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters**. A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☒ 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;
   - ☐ 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;
   - ☐ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☐ Physical modification of the approved organized sewage collection system;
   - ☐ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	265.84	171.169
Type of Development	Single-Family Residential	Single-Family Residential
Number of Residential Lots	341	164
Impervious Cover (acres)	53.141	34.067
Impervious Cover (%	19.91	19.90
Permanent BMPs	N/A	N/A
Other	____	____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	____	____
Pipe Diameter	____	____
Other	____	____

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☒ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☒ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☐ Acreage has not been added to or removed from the approved plan.

8. ☒ 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.

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 11/6/2015

Signature of Customer/Agent:

Chris Van Heerde, PE

Regulated Entity Name: Manor Creek Subdivision

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:164
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):171.169

3. Estimated projected population:492

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	1,079,120	÷ 43,560 =	24.773
Parking		÷ 43,560 =	
Other paved surfaces	404,827.36	÷ 43,560 =	9.294
Total Impervious Cover	1,483,947.36	÷ 43,560 =	34.067

Total Impervious Cover 34.067 **÷ Total Acreage** 171.169 **X 100 =** 19.90**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

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:

   ☐ 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
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

   Width of R.O.W.: _____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
    Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

11. ☐ A rest stop will be included in this project.

    ☐ A rest stop will not be included in this project.

12. ☐ 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. ☒ **Attachment B - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the 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	59,100Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 59,100	

15. Wastewater will be disposed of by:

☐ 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 from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ 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.

☒ Sewage Collection System (Sewer Lines):

☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☒ 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 New Braunfels Utilities (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 – 28 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): FIRM 48091C0435F (effective 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. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are _____ (#) 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**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

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

23. ☒ Areas of soil disturbance and areas which will not be disturbed.

24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

25. ☒ Locations where soil stabilization practices are expected to occur.

26. ☒ Surface waters (including wetlands).

☐ N/A

27. ☒ Locations where stormwater discharges to surface water or sensitive features are to occur.

☐ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ 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.

30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

WATER POLLUTION ABATEMENT PLAN
ATTACHMENT A
Factors Affecting Water Quality

The Manor Creek Subdivision Units 1, 2B, and 3 included the construction of 8" gravity wastewater line, 164 lots with 24.773 acres of structures/rooftops, and 9.294 acres of streets. The factor affecting water quality were runoff sediment transport from the trench work and construction being performed. However, temporary BMP measures were taken to insure water quality is not impaired by construction.

WATER POLLUTION ABATEMENT PLAN
ATTACHMENT B
Volume and Character of Stormwater

The Manor Creek Subdivision Units 1, 2B, and 3 cover 171.169 acres and increased the impervious cover from 0 to 19.90%. The volume and character of the stormwater runoff has not been updated since the original WPAP submittal in December 2010. The drainage area map and calculations for proposed conditions are attached on the Master Drainage Area Map (Exhibit D-1).

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Manor Creek Subdivsion
Regulated Entity Location: Hamburg Avenue, New Braunfels, Texas 78132
Name of Customer: Continental Homes of Texas, L.P.
Contact Person: Daniel Clawson II Phone: 512-418-6104
Customer Reference Number (if issued):CN 602550360
Regulated Entity Reference Number (if issued):RN 104801568

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☒ Comal ☐ Kinney

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:

☐ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

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	171.169 Acres	$ 8,000
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: Chris Van Steenderen, PE Date: 11/6/2015

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

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

RECEIVED
APR 19 2010
COUNTY ENGINEER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 8, 2010

Mr. Richard N. Maier
Continental Homes of Texas, L.P.
12554 Riata Vista Circle, 2nd Floor
Austin, Texas 78727

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Manor Creek Subdivision, located approximately 2 miles west of Loop 337 on the northeast side of State Highway 46, New Braunfels, Texas
TYPE OF PLAN: Request for Modification of an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 2439.03, Investigation No. 792425
Regulated Entity No. RN104801568

Dear Mr. Maier:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP modification request for the above-referenced project submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas, L.P. on February 12, 2010. As presented to the TCEQ, the Temporary and Permanent 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 original WPAP for this residential project was approved by letter dated April 4, 2006. The single family residential project had an area of approximately 252.038 acres. It included 343 lots, roads, and utilities. Impervious cover was 50.29 acres (19.95 percent).

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 266.92 acres. It will include 340 single-family residential lots, roads, and utilities. The impervious cover will be 53.141 acres (19.91 percent). About 0.123 acre of the site was dedicated to TxDOT after the April 4, 2006 WPAP approval and about 15 acres was added to the site west of its north corner. Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

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

GEOLOGY

The site is located within the Edwards Aquifer recharge zone. Reddish-brown and dark brown stony clay soils reportedly overlie limestones of the Person Formation of the Edwards Group. According to the geologic assessment included with the initial application and additional information submitted during its review, 104 geologic and man-made features were identified at the site. Thirteen of the features, S15, S21, S25, S35, S38, S61, S63, S70, S71, S81, S85, S89, and S93, were initially assessed as sensitive. Two of the sensitive features, S-38 and S-93, received additional evaluation by the geologist, who determined the features not to be sensitive. The original assessment was shown conducted April 5-14 and 21-28, 2005. The San Antonio Regional Office site inspection of March 22, 2006, revealed that the site was generally as described by the geologic assessment. Additional assessment was shown conducted December 19, 2009 for the 15 acres added to the site. Two additional features were described for the added acreage. Both were shown not sensitive. The San Antonio Regional Office did not conduct a site assessment for the added acreage.

Natural buffers were shown in the April 4, 2006 WPAP approval letter for eleven sensitive features. According to FEMA maps, the features are shown near or within Zone A of the 100-year flood along Blieders Creek. All of the sensitive features except S-89 are shown surrounded with rock berms. Feature S-89 is shown in a "no disturbance" area delineated on the site plan for the WPAP approved April 4, 2006. No regulated activities (such as construction or soil disturbing activities) will take place within the buffers or the "no disturbance" area.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated April 4, 2006.

II. 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.

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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.

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. No wells exist on the 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

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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 Alan G. Jones of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4074.

Sincerely,

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

MRV/agj/eg

Enclosure:
Deed Recordation Affidavit, Form TCEQ-0625
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Michael G. Short, P.E., The Schultz Group, Inc.
Mr. James C. Klein, P.E., City Engineer, City of New Braunfels
Mr. Tom Hornseth, P.E., Comal County
Mr. Karl J. Dreher, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

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Deed Recordation Affidavit
Edwards Aquifer Protection Plan

THE STATE OF TEXAS §

County of _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ who, being duly sworn by me, deposes and says:

(1) That my name is _____and that I own the real property described below.

(2) That said real property is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

(3) That the EDWARDS AQUIFER PROTECTION PLAN for said real property was approved by the Texas Commission on Environmental Quality (TCEQ) on _____.

A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit A and is incorporated herein by reference.

(4) The said real property is located in _____ County, Texas, and the legal description of the property is as follows:

_____
LANDOWNER-AFFIANT

SWORN AND SUBSCRIBED TO before me, on this __ day of _____, _____.

_____
NOTARY PUBLIC

THE STATE OF _____ §

County of _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ 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 __ day of _____, _____.

_____
NOTARY PUBLIC

_____
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

Change in Responsibility for Maintenance on Permanent Best Management Practices and Measures

The applicant is no longer responsible for maintaining the permanent best management practice (BMP) and other measures. The project information and the new entity responsible for maintenance is listed below.

Customer: _____

Regulated Entity Name: _____

Site Address: _____

City, Texas, Zip: _____

County: _____

Approval Letter Date: _____

BMPs for the project: _____

New Responsible Party: _____

Name of contact: _____

Mailing Address: _____

City, State: _____ Zip: _____

Telephone: _____ FAX: _____

_____ _____

Signature of New Responsible Party Date

I acknowledge and understand that I am assuming full responsibility for maintaining all permanent best management practices and measures approved by the TCEQ for the site, until another entity assumes such obligations in writing or ownership is transferred.

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.

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

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 16, 2010

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: Manor Creek Subdivision, located approximately 2 miles west of Loop 337 on the northeast side of State Highway 46, New Braunfels, 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.: 2439.03

Dear Mr. Hornseth:

The referenced application administratively complete on February 12, 2010, 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 March 11, 2010.

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

Lynn M. Bumguardner
Water Section Manager
San Antonio Regional Office

LMB/eg

2439.03

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MANOR CREEK SUBDIVISION

WATER POLLUTION ABATEMENT PLAN MODIFICATION

February 2010

Prepared for:

Continental Homes of Texas, LP
12554 Riata Circle, 2nd Floor
Austin, Texas 78727

Project No. 110309

Prepared By:

The Schultz Group Inc.
2461 Loop 337
New Braunfels, TX 78130
(830) 606-3913

Modification of a Previously Approved Plan Checklist

✓ General Information Form (*TCEQ-0587*)
- ATTACHMENT A - Road Map
- ATTACHMENT B - USGS / Edwards Recharge Zone Map
- ATTACHMENT C - Project Description

✓ Geologic Assessment Form (*TCEQ-0585*)
- ATTACHMENT A - Geologic Assessment Table, *TCEQ-0585-Table*
- Comments to the Geologic Assessment Table
- ATTACHMENT B - Soil Profile and Narrative of Soil Units
- ATTACHMENT C - Stratigraphic Column
- ATTACHMENT D - Narrative of Site Specific Geology
- Site Geologic Map(s)
- Table or list for the position of features' latitude/longitude (if mapped using GPS)

✓ Modification of a Previously Approved Plan (*TCEQ-0590*)
- ATTACHMENT A - Original Approval Letter and Approved Modification Letters
- ATTACHMENT B - Narrative of Proposed Modification
- ATTACHMENT C - Current Site Plan of the Approved Project

✓ Application Form (appropriate for the modification)
- Aboveground Storage Tank Facility Plan (*TCEQ-0575*)
- Organized Sewage Collection System Plan (*TCEQ-0582*)
- Underground Storage Tank Facility Plan (*TCEQ-0583*)
- Water Pollution Abatement Plan Application Form (*TCEQ-0584*)
- Lift Station / Force Main System Application (*TCEQ-0624*)

✓ Temporary Stormwater Section (*TCEQ-0602*), if necessary
- ATTACHMENT A - Spill Response Actions
- ATTACHMENT B - Potential Sources of Contamination
- ATTACHMENT C - Sequence of Major Activities
- ATTACHMENT D - Temporary Best Management Practices and Measures
- ATTACHMENT E - Request to Temporarily Seal a Feature, if sealing a feature
- ATTACHMENT F - Structural Practices
- ATTACHMENT G - Drainage Area Map
- ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations
- ATTACHMENT I - Inspection and Maintenance for BMPs
- ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices

✓ Permanent Stormwater Section (*TCEQ-0600*), if necessary
- ATTACHMENT A - 20% or Less Impervious Cover Waiver, if project is multi-family residential, a school, or a small business and 20% or less impervious cover is proposed for the site
- ATTACHMENT B - BMPs for Upgradient Stormwater
- ATTACHMENT C - BMPs for On-site Stormwater
- ATTACHMENT D - BMPs for Surface Streams
- ATTACHMENT E - Request to Seal Features, if sealing a feature
- ATTACHMENT F - Construction Plans
- ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan
- ATTACHMENT H - Pilot-Scale Field Testing Plan, if BMPs not based on *Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs*
- ATTACHMENT I -Measures for Minimizing Surface Stream Contamination

Modification of a Previously Approved Plan Checklist (continued)

✓ Agent Authorization Form (*TCEQ-0599)*, if application submitted by agent

✓ Application Fee Form (*TCEQ-0574*)

✓ Check Payable to the "Texas Commission on Environmental Quality"

✓ Core Data Form (*TCEQ-10400)*

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

REGULATED ENTITY NAME: Manor Creek Subdivision
COUNTY: Comal STREAM BASIN: Bleiders Creek

EDWARDS AQUIFER: X RECHARGE ZONE
__ TRANSITION ZONE

PLAN TYPE: __ WPAP __ AST __ EXCEPTION
__ SCS __ UST X MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Richard N. Maier, Assistant Secretary
Entity: Continental Homes of Texas, L.P., a Texas Limited Partnership By: CHTEX of Texas, Inc. a Delaware Corporation, Its General Partner
Mailing Address: 12554 Riata Vista Circle, 2nd Floor
City, State: Austin, TX. Zip: 78727
Telephone: (512) 345-4663 FAX: (512) 533-1429

Agent/Representative (If any):

Contact Person: Michael G. Short, P.E.
Entity: The Schultz Group, Inc.
Mailing Address: 2461 Loop 337
City, State: New Braunfels, TX. Zip: 78130
Telephone: (830) 606-3913 FAX: (830) 625-2204

2. X This project is inside the city limits of New Braunfels, TX.
__ 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.

The proposed Manor Creek development is located approximately 2 miles West of Loop 337 on the Northeast side of State Highway 46.

4. X **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. X **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind this sheet. The map(s) should clearly show:

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

6. X 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. X **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
X Existing residential site
__ Existing paved and/or unpaved roads
__ Undeveloped (Cleared)
X Undeveloped (Undisturbed/Uncleared)
__ Other: _____

PROHIBITED ACTIVITIES

9. X 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. X 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:

X 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 Contributing Zone Plan.
__ 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)
X San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

13. X Submit one (1) original and three ~~(3)~~ (4) copies of the completed application to the appropriate regional office for distribution by the TCEQ to the local municipality or county, groundwater conservation districts, and the TCEQ's Central Office.

14. X 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.
__ No person shall commence any regulated activity until the Contributing Zone Plan for the activity has been filed with the executive director.

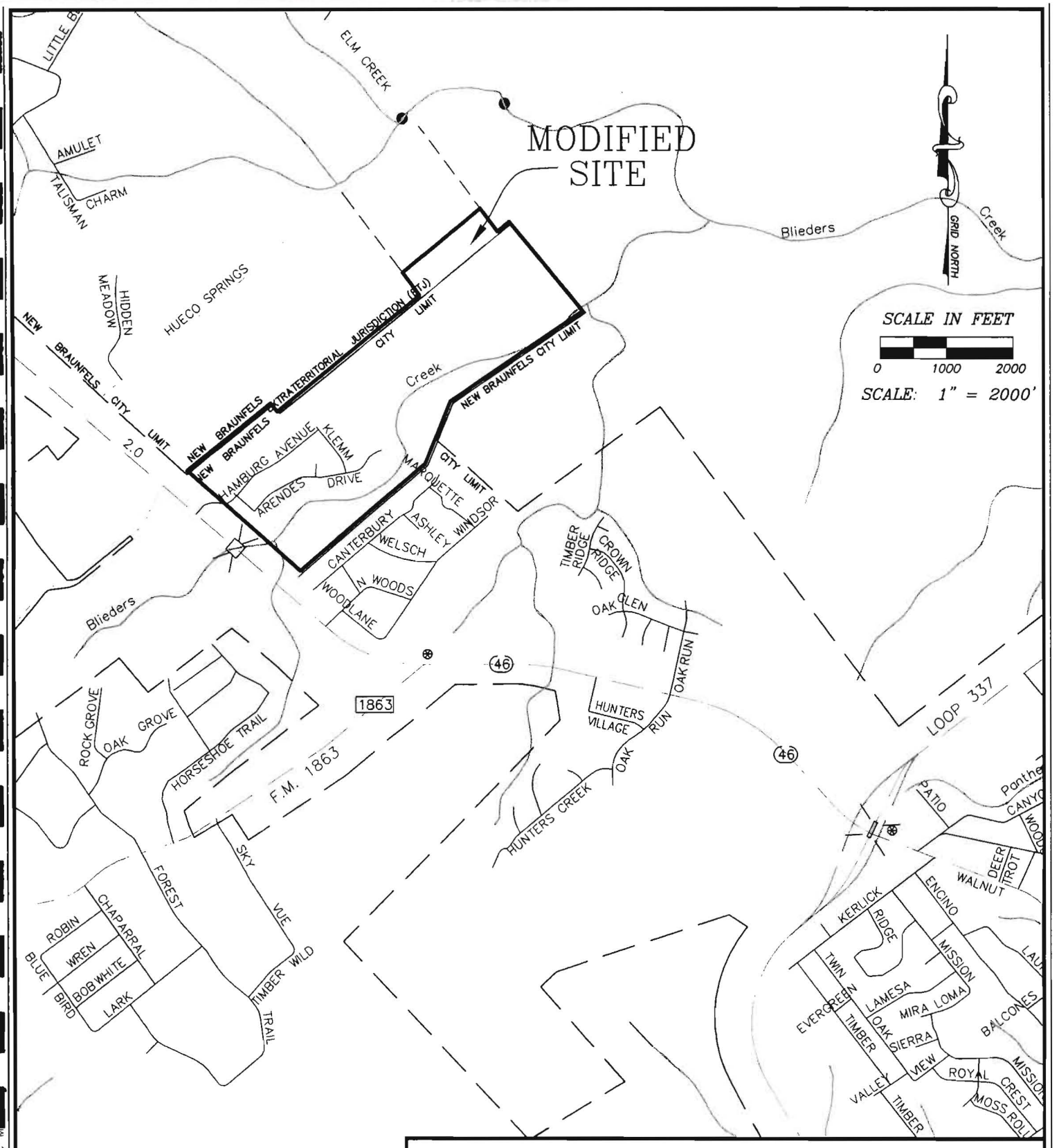
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **GENERAL INFORMATION FORM** is hereby submitted for TCEQ review. The application was prepared by:

Michael G. Short, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent — Date: 2/11/10

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.



LOCATION MAP

THE Schultz Group, INC.

TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130 P: 830.606.3913
F: 830.625.2204

DRAWN BY: M.H.	DATE: NOVEMEBER 2009
CHECKED BY: S.S.	JOB NO.: 110109

Edwards Aquifer Recharge Zone Map
30 Texas Administrative Code Chapter 213
Edwards Aquifer Authority Rule Chapter 713

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NEW BRAUNFELS WEST QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

NEW BRAUNFELS EAST QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

PROPOSED OVERALL
MANOR CREEK SUBDIVISION

SITE: MANOR CREEK
RECREATION CENTER

Recharge Zone

Transition Zone

Recharge

NEW BRAUNFELS

Produced by the United States Geological Survey
Revised in cooperation with the Texas Water Development Board
Control by USGS, NOS/NOAA, and USCE

Compiled by the Army Map Service by photogrammetric methods from aerial photographs taken 1956. Field checked 1958
Revised from aerial photographs taken 1986. Field checked 1987
Map edited 1988

Projection and 10,000-foot grid ticks: Texas coordinate system, south central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 20 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1988 MAGNETIC NORTH DECLINATION AT CENTER OF MAP DIAGRAM IS APPROXIMATE

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TEXAS
QUADRANGLE LOCATION

2998-413

ROAD CLASSIFICATION

Primary highway, hard surface ——— Light-duty road, hard or improved surface ———
Secondary highway, hard surface ——— Unimproved road ———
Interstate Route U. S. Route State Route

NEW BRAUNFELS WEST, TEX.
29098-F2-TF-024
1988
DMA 6343 II NW-SERIES V882

NEW BRAUNFELS EAST, TEX.
29098-F1-TF-024
1968
REVISED 1994
DMA 6343 II NE-SERIES V882

ATTACHMENT B
USGS/EDWARDS RECHARGE ZONE MAP

Last revision date of the Recharge Zone Boundary for this Quadrangle Map: March 1974

Attachment C – Project Description

The project was previously titled as Tschirhart Ranch Subdivision, it has since become known as Manor Creek. The original proposed project consisted of 252.038 acres of land that was to be developed into a 343 lot residential subdivision. Each individual residential lot was to contain approximately 3,860 square feet of impervious cover which included a building structure and a concrete driveway. There was to be approximately 6,800 L.F. of street in a 60' R.O.W. The overall developed project was to consist of less than 20% impervious cover, so that structural BMP's would not be required. The permanent BMP's around the sensitive features consist of native vegetation for a minimum of 50 feet around each feature.

Unit one has been constructed and the impervious cover has exceeded the 3,860 square feet of impervious cover allowed for each lot. As a result the owner has purchased an additional 15.001 acres to keep the impervious cover for the site under 20%.The impervious cover for lots within Units 2-6 have been reconfigured to contain approximately 3,662 square feet of impervious cover for interior lots and 3,865 square feet for optional corner lots which includes all proposed typical building structures and a concrete driveway. With the addition of the 15.001 acres and a reduction of area given an existing TxDOT dedication of 0.123 acres, this development will have less than 20% impervious cover; therefore, no structural BMP's are required. The 50 foot vegetative buffer around sensitive features will be maintained.

Geologic Site Assessment (WPAP)

for Regulated Activities / Development
on the Edwards Aquifer Recharge / Transition Zone

The Tschirhart Ranch Subdivision
(Manor Creek)
267.038 Acres
New Braunfels, Texas

FROST GEOSCIENCES CONTROL # FGS-E09176

DECEMBER 31, 2009

Prepared exclusively for

The Schultz Group
2461 Loop 337
New Braunfels, Texas 78130

Frost GeoSciences

Geotechnical ▪ Construction Materials
Forensics ▪ Environmental

13402 Western Oak • Helotes, Texas 78023 • Phone: (210) 372-1315 • Fax: (210) 372-1318

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TBPE Firm Registration # F-9227
TBPG Firm Registration # 50040

December 31, 2009

The Schultz Group
2461 Loop 337
New Braunfels, Texas 78130

Attn: Mr. Shawn Schorn

Re: Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivis9on
267.038 Acres
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E09176

Gentlemen:

Attached is a copy of the Geologic Assessment Report completed for the above referenced project site as it relates to 30 TAC §213.5(b)(3), effective June 1, 1999. Our investigation was conducted, and this report was prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The results of our investigation along with any required recommendations for Best Management Practices (BMP's) are provided in the following report.

If you have any questions regarding this report, or if Frost GeoSciences, Inc. may be of additional assistance to you on this project, please feel free to call our office. It has been a pleasure to work with you and we wish to thank you for the opportunity to be of service to you on this project. We look forward to being of continued service.



Sincerely,
Frost GeoSciences, Inc.

Steve Frost

Steve Frost, C.P.G.
President, Senior Geologist

Distribution: (6) The Schultz Group

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B: Site Photographs

C: Site Geologic Map

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: The Tschirhart Ranch Subdivision - 267.038 Acres

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)
Rumple-Comfort Assoc.	C/D	0.5 to 1
Comfort-Rock Outcrop Complex	D	0.5 to 1

* 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	1" = 200 '
Site Geologic Map Scale	1" = 200 '
Site Soils Map Scale (if more than 1 soil type)	1" = 1000 '

6. Method of collecting positional data:

✓ Global Positioning System (GPS) technology.
✓ Other method(s). 2003 & 2009 Aerial Photo

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 ___(#) 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. ✓ One (1) original and three (3) copies of the completed assessment has been provided.

Date(s) Geologic Assessment was performed: April 5-14, 21-28, 2005 & December 19, 2009
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.

Steve Frost, C.P.G.
Print Name of Geologist

(210) 372-1315
Telephone

(210) 372-1318
Fax

Signature of Geologist

December 31, 2009
Date

Representing: Frost GeoSciences, Inc.
(Name of Company)

STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
LICENSED PROFESSIONAL GEOSCIENTIST

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.

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

Stratigraphic Column

[Hydrogeologic subdivisions modified from Maclay and Small (1976); groups, formations, and members modified from Rose (1972); lithology modified from Dunham (1962); and porosity type modified from Choquette and Pray (1970). CU, confining unit; AQ, aquifer]

Hydrogeologic subdivision			Group, formation, or member		Hydrologic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity/permeability type
Upper Cretaceous	Upper confining units		Eagle Ford Group		CU	30 – 50	Brown, flaggy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/low permeability
			Buda Limestone		CU	40 – 50	Buff, light gray, dense mudstone	Porcellaneous limestone with calcite-filled veins	Minor surface karst	Low porosity/low permeability
			Del Rio Clay		CU	40 – 50	Blue-green to yellow-brown clay	Fossiliferous; *Ilymatogyra arietina*	None	None/primary upper confining unit
Lower Cretaceous	I	Edwards aquifer	Georgetown Formation		Karst AQ; not karst CU	2 – 20	Reddish-brown, gray to light tan marly limestone	Marker fossil; *Waconella wacoensis*	None	Low porosity/low permeability
	II		Edwards Group	Person Formation: Cyclic and marine members, undivided	AQ	80 – 90	Mudstone to packstone; *miliolid* grainstone; chert	Thin graded cycles; massive beds to relatively thin beds; crossbeds	Many subsurface; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding
	III			Leached and collapsed members, undivided	AQ	70 – 90	Crystalline limestone; mudstone to grainstone; chert; collapsed breccia	Bioturbated iron-stained beds separated by massive limestone beds; stromatolitic limestone	Extensive lateral development, large rooms	Majority not fabric/one of the most permeable
	IV			Regional dense member	CU	20 – 24	Dense, argillaceous mudstone	Wispy iron-oxide stains	Very few; only vertical fracture enlargement	Not fabric/low permeability; vertical barrier
	V			Kainer Formation: Grainstone member	AQ	50 – 60	*Miliolid* grainstone; mudstone to wackestone; chert	White crossbedded grainstone	Few	Not fabric/recrystallization reduces permeability
	VI			Kirschberg evaporite member	AQ	50 – 60	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable
	VII			Dolomitic member	AQ	110 – 130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, *Toucasia* abundant	Caves related to structure or bedding planes	Mostly not fabric; some bedding plane-fabric/water-yielding
	VIII			Basal nodular member	Karst AQ; not karst CU	50 – 60	Shaly, nodular limestone; mudstone and *miliolid* grainstone	Massive, nodular and mottled, *Exogyra texana*	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric; stratigraphically controlled/large conduit flow at surface; no permeability in subsurface
	Lower confining unit		Upper member of the Glen Rose Limestone		CU; evaporite beds AQ	350 – 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/relatively impermeable

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-1	N29° 43' 42.6"	W98° 11' 17"	SC	20	Kep	1	1	1.5	-	-	-	-	O,F	7	27	27		Yes		Hillside
S-2	N29° 43' 42.2"	W98° 11' 15.8"	O^VG	5	Kep	15	50		-	-	1	0.5	O,F,C	15	20	20		Yes		Hillside
S-3	N29° 43' 41.1"	W98° 11' 17"	SC	20	Kep	1	1	1.5	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-4	N29° 43' 37.9"	W98° 11' 12.4"	SC	20	Kep	1	1	2	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-5	N29° 43' 39.4"	W98° 11' 11.6"	SC	20	Kep	1	1	1.5					O,F	10	30	30		Yes		Hillside
S-6	N29° 43' 34.5"	W98° 11' 11"	O^VHG	5	Kep	25	75		45	-	4/1	.03/.03	O,F,C	19	24	24			Yes	Drainage
S-7	N29° 43' 33.5"	W98° 11' 7.97"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-8	N29° 43' 33.4"	W98° 11' 7.37	O^VH	5	Kep	20	200				3-10	0.08-0.3	O,F,C	19	24	24			Yes	Cliff
S-9	N29° 43' 44.3"	W98° 11' 5.2"	O^FS	5	Kep	20	40		33	10	1	0.25	O,F,C	19	34	34			Yes	Hillside
S-10	N29° 43' 41.9	W98° 11' 4.85	SC	20	Kep	1.5	1.5	2	-	-	-	-	O,F,N	12	32	32		Yes		Hillside
S-11	N29° 43' 36.6	W98° 11' 4.18"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-12	N29° 43' 38.3"	W98° 11' 3.72"	SC	20	Kep	1	1	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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

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STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
LICENSED
PROFESSIONAL GEOSCIENTIST

Signature Steve Frost Date December 31, 2009 Sheet 1 of 9

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.8	≥1.8	
S-13	N29° 43' 33.4"	W98° 11' 4.95"	SC	20	Kep	1	1	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-14	N29° 43' 32.6"	W98° 11' 4.96"	OVRFH	5	Kep	15	40		25	10	3-5	0.12	O,F,C	15	30	30		Yes		Drainage
S-15	N29° 43' 30.5"	W98° 11' 3.15"	ZMISC	30	Kep	20	75		-	-	1-5	0.25	O,F,C	20	50		50		Yes	Drainage
S-16	N29° 43' 33.5"	W98° 11' 0.93"	SC	20	Kep	1	2	2	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-17	N29° 43' 37.4"	W98° 10' 54.7"	SC	20	Kep	2	2	2					O,F	12	32	32		Yes		Hillside
S-18	N29° 43' 37.8"	W98° 10' 54.4"	SC	20	Kep	2	2	1.5	-	-	-	-	O,F,C	12	32	32			Yes	Hillside
S-19	N29° 43' 34.2"	W98° 11' 0.26"	SC	20	Kep	0.5	0.5	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-20	N29° 43' 39.1"	W98° 10' 53.6"	SC	20	Kep	2	2	2	-	-	-	-	O,F,C	12	32	32		Yes		Hillside
S-21	N29° 43' 39.8"	W98° 10' 59.5"	SF	20	Kep	15	30		45	10	1-2	0.25	O,F,C	20	50		50		Yes	Drainage
S-22	N29° 43' 40.8"	W98° 10' 52.9"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-23	N29° 43' 42"	W98° 10' 44.4"	SC	20	Kep	0.5	4	1.5	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-24	N29° 43' 38.3"	W98° 11' 3.72"	SC	20	Kep	0.5	4	1.5	-	-	-	-	O,F	15	35	35		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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
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FS	Flowstone, cements, cave deposits
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Signature Steve Frost Date December 31, 2009 Sheet 2 of 9

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-25	N29° 43' 40.7"	W98° 10' 58.6"	Z[VIII]	30	Kep	50	100		-	-	1-4	0.25	O,F,C	20	50		50	Yes		Drainage
S-26	N29° 43' 40.6"	W98° 11' 1.51"	SC	20	Kep	1	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-27	N29° 43' 41.1"	W98° 11' 0.076"	O[VII]	5	Kep	20	60		-	-	2-6	0.2-0.5	O,F,C	12	17	17		Yes		Hillside
S-28	N29° 43' 41.1"	W98° 11' 0.83"	SC	20	Kep	1.5	1	2	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-29	N29° 43' 41.3"	W98° 11' 1.09"	SC	20	Kep	1.5	4	1.5					O,F	15	35	35		Yes		Hillside
S-30	N29° 43' 44.3"	W98° 11' 1.81"	SC	20	Kep	1	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-31	N29° 43' 41.4"	W98° 10' 59.2"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-32	N29° 43' 42.1"	W98° 10' 58.6"	SC	20	Kep	1.5	3	1.5	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-33	N29° 43' 56.7"	W98° 10' 56.8"	SC	20	Kep	2	2	1.5	-	-	-	-	O,F,C	12	32	32		Yes		Hillside
S-34	N29° 43' 57.6"	W98° 10' 55.6"	SC	20	Kep	1	1	1	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-35	N29° 43' 41.2"	W98° 10' 53.2"	SF	20	Kep	10	15		78	10	1	0.20	O,F	20	50		50	Yes		Hillside
S-36	N29° 43' 50.6"	W98° 10' 53.9"	SC	20	Kep	1	0.5	1	-	-	-	-	O,F	10	30	30		Yes		Hillside

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Signature _____ Date December 31, 2009 Sheet 3 of 9

GEOLOGIC ASSESSMENT TABLE

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						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-37	N29° 43' 59.1"	W98° 10' 53.4"	O[VR]	5	Kep	15	20		-	-	2-4	0.15	O,F	15	20	20		Yes		Drainage
S-38	N29° 43' 59.1"	W98° 10' 51.1"	Z[MBR]	30	Kep	20	75		-	-	-	-	O,F	20	50		50		Yes	Drainage
S-39	N29° 43' 52"	W98° 10' 52.3"	SC	20	Kep	1	1	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-40	N29° 43' 41.1"	W98° 11' 0.83"	CD	5	Kep	4	5	1	-	-	-	-	O,F	9	14	14		Yes		Hillside
S-41	N29° 43' 54.8"	W98° 10' 50.8"	SC	20	Kep	1.5	3	1.5					O,F	15	35	35		Yes		Hillside
S-42	N29° 43' 50.4"	W98° 10' 50.1"	SC	20	Kep	1	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-43	N29° 43' 42.7"	W98° 10' 47.8"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-44	N29° 43' 51.3"	W98° 10' 47.4"	SC	20	Kep	2	2	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-45	N29° 43' 53.4"	W98° 10' 47.7"	SC	20	Kep	2	2	1.5	-	-	-	-	O,F,C	12	32	32		Yes		Hillside
S-46	N29° 43' 50.7"	W98° 10' 48.8"	SF	20	Kep	2	10	2	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-47	N29° 43' 50.7"	W98° 10' 49.1"	SC	20	Kep	1	0.5	1	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-48	N29° 43' 50.6"	W98° 10' 49.2"	SC	20	Kep	2	1.5	2	-	-	-	-	O,F	10	30	30		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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

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Signature Steve Frost Date December 31, 2009 Sheet 4 of 9

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-49	N29° 43' 49.2"	W98° 10' 44.1"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-50	N29° 43' 45.7"	W98° 10' 43.5"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-51	N29° 43' 58"	W98° 10' 46.6"	O^VRFR	5	Kep	25	75		60	10	1-3	0.1-0.5	O,F	12	27	27		Yes		Hillside
S-52	N29° 43' 54"	W98° 10' 44.3"	O^VRFR	5	Kep	50	75		40-55	10	1-4	0.1-0.5	O,F	19	34	34		Yes		Drainage
S-53	N29° 43' 52.9"	W98° 10' 44.9"	O^VR	5	Kep	20	40		-	-	3-6	0.1-0.25	O,F,C	12	17	17		Yes		Hillside
S-54	N29° 43' 45.1"	W98° 10' 46.8"	SC	20	Kep	2	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-55	N29° 43' 41.8"	W98° 10' 44.5"	O^VR	5	Kep	10	10		-	-	1-4	0.1-0.25	O,F,C	10	15	15		Yes		Hillside
S-56	N29° 43' 43.1"	W98° 10' 43.9"	SC	20	Kep	0.5	0.5	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-57	N29° 43' 43.1"	W98° 10' 44.2"	O^VRFR	5	Kep	10	50		50-60	-	1-3	0.1-0.25	O,F,C	12	17	17		Yes		Hillside
S-58	N29° 43' 42.8"	W98° 10' 43.2"	O^VR	5	Kep	10	50	1	-	-	-	-	O,F	12	17	17		Yes		Hillside
S-59	N29° 43' 41.2"	W98° 10' 53.2"	SC	20	Kep	1	0.5		-	-	-	-	O,F	12	32	32		Yes		Hillside
S-60	N29° 43' 50.6"	W98° 10' 53.9"	SC	20	Kep	1	0.5	1	-	-	-	-	O,F	10	30	30		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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

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GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-61	N29° 43' 44.6"	W98° 10' 43.9"	Z^VMBR	30	Kep	30	100		-	-	1-4	0.1-0.25	O,F,C	20	50		50		Yes	Drainage
S-62	N29° 43' 47"	W98° 10' 47.4"	SC	20	Kep	1	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-63	N29° 43' 46.5"	W98° 10' 42.3"	C	30	Kep	4	10	10	-	-	-	-	N	20	50		50		Yes	Cliff
S-64	N29° 43' 46.5"	W98° 10' 42.3"	O^VR	5	Kep	15	75	10	-	-	-	-	O,F,C	15	20	20			Yes	Cliff
S-65	N29° 43' 47.5"	W98° 10' 42.8"	O^FR	5	Kep	15	100						O,F	15	20	20			Yes	Drainage
S-66	N29° 43' 49.1"	W98° 10' 40.9"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-67	N29° 43' 49.1"	W98° 10' 41.7"	SC	20	Kep	1	0.75	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-68	N29° 43' 51.6"	W98° 10' 42.4"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-69	N29° 43' 55"	W98° 10' 44"	O^VR	5	Kep	15	20		18	-	1-4	0.1-0.25	O,F,C	12	17	17		Yes		Hillside
S-70	N29° 43' 55"	W98° 10' 44.2"	SC	20	Kep	3	1	1	-	-	-	-	O,F	20	40		40		Yes	Drainage
S-71	N29° 43' 55.1"	W98° 10' 43.6"	SC	20	Kep	4	4	1.5	-	-	-	-	O,F,C	20			40		Yes	Drainage
S-72	N29° 43' 56.3"	W98° 10' 38.6"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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
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GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.8	>1.8	
S-73	N29° 43' 55.8"	W98° 10' 42.4"	OVH	5	Kep	20	50		-	-	1-4	0.1-0.25	O,F,C	20	25	25			Yes	Drainage
S-74	N29° 43' 57.3"	W98° 10' 39.6"	OVH	5	Kep	20	50		-	-	1-4	0.1-0.25	O,F,C	20	25	25			Yes	Drainage
S-75	N29° 43' 58.8"	W98° 10' 41.1"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32			Yes	Hillside
S-76	N29° 43' 8.48"	W98° 10' 40.5"	SC	20	Kep	2	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-77	N29° 43' 59.8"	W98° 10' 37.9"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-78	N29° 43' 57.5"	W98° 10' 34.5"	SC	20	Kep	5	5	1	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-79	N29° 43' 58.5"	W98° 10' 31.3"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-80	N29° 43' 58.4"	W98° 10' 30.5"	SC	20	Kep	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-81	N29° 43' 59.3"	W98° 10' 31.3"	SH	20	Kep	10	10	1	-	-	-	-	O,F,V	20	40		40	Yes		Hillside
S-82	N29° 43' 57.7"	W98° 10' 30.1"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-83	N29° 43' 59.2"	W98° 10' 27.3"	SC	20	Kep	1	1	3	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-84	N29° 43' 58.9"	W98° 10' 26.4"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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
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FS	Flowstone, cements, cave deposits
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GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-85	N29° 43' 3.42"	W98° 10' 26.3"	Z^MISC	30	Kep	20	90		-	-	1-4	0.1-0.5	O,F,C	25	55		55		Yes	Floodplain
S-86	N29° 44' 0.19"	W98° 10' 25"	SC	20	Kep	3	2	2	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-87	N29° 43' 56.2"	W98° 10' 35"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-88	N29° 44' 3.42"	W98° 10' 42.7"	SC	20	Kep	2	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-89	N29° 44' 3.3"	W98° 10' 18.1"	Z^MISC	30	Kep	15	40		-	-	1-5	0.1-1	O,F	20	50		50		Yes	Floodplain
S-90	N29° 44' 14.1"	W98° 10' 25.4"	SC	20	Kep	6	5	1	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-91	N29° 44' 10.7"	W98° 10' 19.5"	SC	20	Kep	2	2	2	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-92	N29° 44' 7.32"	W98° 10' 32.5"	SC	20	Kep	4	1	2	-	-	-	-	O,F	17	37	37		Yes		Hillside
S-93	N29° 44' 8.33"	W98° 10' 32.1"	SH	20	Kep	4	5	2	-	-	-	-	O,F,C	20	40		40	Yes		Hillside
S-94	N29° 44' 9.1"	W98° 10' 20"	O^VR	5	Kep	10	20		41	-	1-2	0.25-0.33	O,F	19	24	24			Yes	Hillside
S-95	N29° 44' 7.42"	W98° 10' 17.4"	O^VR	5	Kep	20	50		76	-	1-4	0.1-0.33	O,F,C	19	24	24			Yes	Hillside
S-96	N29° 44' 7.87"	W98° 10' 16.1"	SC	20	Kep	1	1	1	-	-	-	-	O,F	19	39	39		Yes		Floodplain

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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
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LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-97	N29° 44' 7.71"	W98° 10' 16.6"	O^VR	5	Kep	15	75		-	-	1-4	0.1-0.25	O,F,C	19	24	24			Yes	Hillside
S-98	N29° 44' 14.6"	W98° 10' 30.2"	SC	20	Kep	1	3	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-99	N29° 44' 7.02"	W98° 10' 30.1"	SC	20	Kep	3	3	1.5	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-100	N29° 44' 5.02"	W98° 10' 17.5"	F	20	Kep				-	-	-	-	-	-	-	-	-		Yes	Streambed
S-101	N29° 43' 52.9"	W98° 10' 41.5"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-102	N29° 43' 49.9"	W98° 10' 42.7"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-103	N29° 44' 9.16"	W98° 10' 19.1"	SC	20	Kep	2	3	2	-	-	-	-	O,F,C	15	35	35		Yes		Hillside
S-104	N29° 44' 00.9"	W98° 10' 25.3"	SC	20	Kep	2	2	2	-	-	-	-	O,F	19	39	39		Yes		Floodplain
S-501	N29° 44' 13.74"	W98° 10' 34.74"	O^VR	5	Kep	10	30	-	-	-	1	0.5	F	7	12	12		Yes		Hillside
S-502	N29° 44' 16.5"	W98° 10' 30.9"	MB	30	Kep	50	100	-	-	-	-	-	F	5	35	35		Yes		Hillside

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2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution Cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
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CD	Non-karst closed depression	5
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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
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LOCATION

The project site is located along and north of State Highway 46, approximately 3/4 miles northwest of the intersection of State Highway 46 and F.M. 1863, in New Braunfels, Texas. An overall view of the area is shown on copies of the site plan, a street map, the U.S.G.S. Topographic Map, the Official Edwards Aquifer Recharge Zone Map, the FIRM Map, a geologic map, a 2003 Aerial Photograph at a scale of 1"=1000', a 2003 Aerial Photograph at a scale of 1"=600', and a 1973 Aerial Photograph at a scale of 1"=1000', Plates 1a, 2, 3, 4, 5, 6, 8, and 9 in Appendix A.

METHODOLOGY

The Geologic Assessment was conducted by Mr. Steve Frost, C.P.G., President and Senior Geologist with Frost GeoSciences, Inc.. Mr. Frost is a Licensed Professional Geoscientist in the State of Texas (License # 315), and is a Certified Professional Geologist with the American Institute of Professional Geologist (Certification # 10176).

Frost GeoSciences, Inc. researched the geology of the area near the intersection of State Highway 46 and F.M. 1863. The research included, but was not limited to, the Bureau of Economic Geology, Geologic Atlas of Texas, San Antonio Sheet, FEMA maps, Edwards Aquifer Recharge Zone Maps, U.S.G.S. 7.5 Minute Quadrangle Maps, the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the U.S.G.S. Water-Resources Investigations Report 94-4117, and the U.S.D.A. Soil Survey of Comal & Hays Counties, Texas.

After reviewing the available information, a field investigation was performed to identify any geologic or man made potential recharge features. A transect spacing of approximately 50 feet, or less depending on vegetation thickness, was used to inspect the project area. A 2003 aerial photograph, in conjunction with a hand held Garmin eTrex Summit Global Positioning System with an Estimated Potential Error ranging from 15 to 18 feet, was used to navigate around the property and identify the locations of potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev.

10-1-04). The locations of any potential recharge features noted in the field were marked with blue and white flagging. The flagging is numbered with the same potential recharge feature I.D. # that is used on the Site Geologic Map in Appendix C of this report. The Site Geologic Map indicating the limits of the project site and the locations of potential recharge features is included in Appendix C. A copy of a 2003 Aerial Photograph at an approximate scale of 1"=600' indicating the limits of the project site and the locations of potential recharge features is included on Plate 8 in Appendix A. The Geologic Assessment Form, Stratigraphic Column, and the Geologic Assessment Table have been filled with the appropriate information for this project site and are included on pages 1-12 of this report.

RESEARCH & OBSERVATIONS

7.5 Minute Quadrangle Map Review

According to the U.S.G.S. 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988), the elevation across the project site ranges from 760 to 860 feet above mean sea level. The project site has a total relief of approximately 100 feet. Runoff from the project site flows to the southeast and north into Blieders Creek. Blieders Creek then flows to the northeast. Blieders Creek is located along the southeastern property line. State Highway 46 is located immediately southwest of the project site. The intersection of State Highway 46 and F.M. 1863 is located southeast of the project site. Huego Springs Loop Road is located northwest of the project site. A few areas of residential development are visible south and southwest of the project site. A landing strip is located east of the project site. A flood control - recharge dam is located northeast of the project site along Blieders Creek. A copy of the U.S.G.S. 7.5 Minute Quadrangle Map indicating the location of the project site is included on Plate 3 in Appendix A.

Recharge / Transition Zone

According to the Official Edwards Aquifer Recharge Zone Map, New Braunfels West, Texas Sheet (1988), the project site is located within the Recharge Zone of the Edwards Aquifer.

A copy of the Official Edwards Aquifer Recharge Zone Map indicating the location of the project site is included on Plate 4 in Appendix A.

100-Year Floodplain

According to the Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM) Panel #'s 4854630100C and 4854630105C, revised 09-29-86, the areas along Blieders Creek in the northeast portion of project site are located within Zone A of the 100-year flood. The remainder of the project site is located in Zone C. According to the panel legend, Zone A represents areas of the 100 year flood plain where base flood elevations and flood hazards factors are not determined. Zone C represents areas of minimal flooding. A copy of the above referenced FIRM panels indicating the location of the project site is included on Plate 5 in Appendix A.

Soils

According to the United States Department of Agriculture, Soil Conservation Service, Soil Survey of Comal & Hays Counties, Texas, (1977), the project site is located on the Rumple-Comfort Association (RUD), and the Comfort-Rock Complex (CrD). A copy of the 1973 aerial photograph (approximate scale: 1"=1000') from the U.S.D.A. Soil Survey of Comal & Hays Counties, Texas indicating the location of the project site and the soil types is included on Plate 9 in Appendix A.

The Rumple-Comfort Association consists of shallow and moderately deep soils on uplands in the Edwards Plateau Land Resource Area. The surface layer of the Rumple Soil is dark reddish brown very cherty clay loam about 10 inches thick. Rounded chert and limestone cobbles and gravel cover about 20 percent of the surface. The subsoil to a depth of 14 inches is dark reddish-brown very cherty clay, and to a depth of 28 inches it is dark reddish-brown extremely stony clay. The underlying material is indurated fractured limestone. The Comfort Soil is dark brown, neutral, extremely stony clay about 7 inches thick. The

subsoil to a depth of 12 inches is dark reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated fractured limestone. The soil is noncalcareous throughout. The soils in this association are well drained. Surface runoff is medium, but varies due to the occurrence of caves, fracture zones, and sinks. Permeability is moderately slow. Water erosion is a moderate hazard.

This soil has a USDA Texture Classification of very cherty clay loam, stony clay, very stony clay, extremely stony clay, and weathered bedrock. The Unified Classification is GC, CL or SC. The AASHO Classification is A-2-6, A-6, and A-2-7. This soil has an average permeability from 0.2 to 0.6 inches/hour.

The Comfort-Rock Outcrop Complex consists of shallow, clayey soils and Rock Outcrop on side slopes and on hilltops and ridge tops on uplands in the Edwards Plateau Land Resource Area. The Comfort Extremely Stony Clay makes up 49 to more than 95 percent of the complex, but on the average it makes up 70 percent. Rock Outcrop and areas of soil less than 4 inches deep make up 5 to 36 percent, but the average is 15 percent. Typically, the surface layer of the Comfort soil is dark brown extremely stony clay about 6 inches thick. Cobbles and stones as much as 4 feet across cover about 45 percent of the surface. The subsoil extends to a depth of 13 inches. It is dark reddish brown extremely stony clay. The underlying material is indurated fractured limestone. The soil is mildly alkaline and noncalcareous throughout. The Comfort Soil is well drained. Surface runoff is slow to medium. Permeability is slow, and the available water capacity is very low. Water erosion is a slight hazard.

This soil has a USDA Texture Classification of extremely stony clay, stony clay, very stony clay, and weathered bedrock. The Unified Classification is CH, GC, CL, or SC. The AASHO Classification is A-2-7, and A-7-6. This soil has an average permeability from 0.6 to 0.2 inches/hour.

Narrative Description of the Site Geology

Based on a visual inspection of the ground surface, the overall potential for fluid flow from the project site into the Edwards Aquifer appears to be low to intermediate.

One hundred two features were noted on the project site at the time of the field investigation on April 5-14 and 21-28, 2005. Ninety natural karst features and 12 man-made features were noted on the project site at the time of the field investigation. According to the U.S. Geological Survey Water Resources Investigations 94-4117, a fault (S-100) is located along the southeastern property line. No obvious visual indications of the fault were noted on the project site at the time of the on-site inspection. The natural karst features noted on the site consisted of numerous solution cavities, rock outcrops, and zones of fractured rock, vuggy rock, and solution cavities. A number of the solution cavities appeared to have been dug out by burrowing animals. The man made features consisted of man hole covers associated with a sanitary sewer line crossing the project site. The locations of the Potential Recharge Features are identified on the Site Plan on Plate 1a in Appendix A, on the 2003 aerial photograph on Plate 8 in Appendix A, and on the Site Geologic Map provided in Appendix C. Color photographs of the project site and some of the potential recharge features are included in Appendix B.

Potential Recharge Feature (PRF) #S-1 is a small solution cavity infilled with fine soil and leaves. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 27 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 4 of this report.

Potential Recharge Feature #S-2 consists of an outcrop of vuggy limestone. The outcrop was about 15 feet wide and 50 feet long. The vugs were approximately 6 inches in size and occurred at a density of 1 vug per foot. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 4 of this report.

Potential Recharge Features #S-3 through #S-5 consist of the solution cavities noted on the project site at the time of the field investigation. PRF #S-4 and PRF #S-5 appeared to be dug out by a burrowing animal. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 30 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 4 of this report.

Potential Recharge Feature #S-6 is an outcrop of vuggy and fractured limestone noted within a natural drainage path. The outcrop is about 25 feet wide and 75 feet long. The vugs ranged in size from 1/2 inches to 1 inch with a density of 4 to 5 vugs per foot. The fractures were approximately an inch in width and occurred in a density of 1 fracture per foot. The general trend of the fractures was 45 degrees. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 24 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 4 of this report.

Potential Recharge Features #S-7, #S-11, #S-22, #S-31, #S-43, #S-49, #S-50, #S-82, #S-84, #S-87, S-101, and S-102 are man hole covers associated with a sanitary sewer line crossing the project site along the southeastern portion of the property. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 37 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 4-12 of this report.

Potential Recharge Features #S-8 and #S-9 are outcrops of vuggy and fractured limestone. PRF #S-8 is a cliff of limestone along Blieders Creek. The cliff is ranges from 3 feet to 15 feet along the length of the outcrop. PRF #S-9 is a outcrop of fractured limestone about 20 feet wide and 40 feet long. The fractures are approximately 1 inch in width and occur at a density of 1 fracture per foot. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 24 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 4 of this report.

Potential Recharge Features # S-10, #S-12, and #S-13 are solution cavities. PRF #S-10 is a vertical feature that is about 18 inches around and extends vertically about 2 feet. PRF #S-12

is a solution cavity noted under a limestone boulder. The feature is about 1 foot wide and 1 foot long and extends about 18 inches downward. PRF #S-13 appears to have been dug out by a burrowing animal. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 4 and 5 of this report.

Potential Recharge Feature #S-14 consists of an outcrop of vuggy and fractured limestone noted in a natural drainage path. The outcrop was about 15 feet wide and 40 feet long. The vugs were approximately 1 to 2 inches in size and occurred at a density of 3 to 5 vugs per foot. The fractures are about 1 in width and occur 1 to 2 fractures per foot. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 30 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 5 of this report.

Potential Recharge Feature #'s S-15, #S-85, and #S-89 are zones of vuggy rock and solution cavities. The Zones consist of large vugs ranging from 4 inches to 12 inches with several solution cavities ranging from 4 inches to 18 inches. The vugs and solution cavities are infilled with fine soils leaves and other organic materials. PRF#S-15 was noted in a natural drainage path. According to the FEMA, Flood Insurance Rate Map, PRF #S-85 and PRF #S-89 are located in the 100 year flood plain. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 50 to 55 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5 and 11 of this report.

Potential Recharge Features #S-16 through #S-20 are solution cavities noted on the site at the time of the field inspection. PRF #S-16 appears to have been dug out by a burrowing animal. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 5 of this report.

Potential Recharge Features #S-21 and #S-35 appear to be outcrops of solution enlarged fractures. PRF #S-21 is about 15 feet wide and 30 feet long. The fractures are about 1 to 2 inches in width and occur at a density of 1 to 2 fractures per foot. The dominate trend of the

fractures was about 45 degrees. The outcrop was noted in a natural drainage path. PRF #S-35 is about 10 feet wide and 15 feet long. The fractures are about 2 to 4 inches wide and occur at about 1 to 2 fractures per foot. The dominate trend of the fractures was about 78 degrees. Frost GeoSciences, Inc. rates this feature as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 50 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 5 and 6 of this report.

Potential Recharge Features #S-23 and #S-24 are elongated solution cavities approximately 6 inches in width and 4 feet in length. The features are infilled with fine soils and leaves. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 35 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 5 of this report.

Potential Recharge Features #S-25, #S-38, and #S-61 are zones of vuggy and fractured rock. The widths of the zones range from 30 to 50 feet and the lengths range from 75 to 100 feet. Each of the outcrop zones were noted in natural drainage paths. The vugs ranged in size from 1 inch to 3 inches and occurred at a density of 1 to 4 per foot. The fractures ranged in size from 1 to 2 inches in width and occurred at a density of 1 to 3 per foot. The orientation of the fractures varied. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score a 50 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 6, 7, and 9 of this report.

Potential Recharge Features #S-26, #S-28 through #S-30, and #S-32 through #S-34 are solution cavities noted on the project site at the time of the field inspection. The features are infilled with fine soils and leaves. The features range in size from 12 inches to 18 inches wide and 1 to 4 feet in length. The features were about 18 inches to 2 feet deep. PRF #S-26, PRF #S-28, and PRF #S-30 appeared to be dug out by a burrowing animal. PRF #S-29 is an elongated solution cavity. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 30 to 39 on the sensitivity

scale in column 10 of the Geologic Assessment Table on Page 6 of this report.

Potential Recharge Feature #S-27 is an outcrop of vuggy rock typical of the outcrops noted on the project site at the time of the field investigation. The outcrop is about 20 feet wide and 60 feet long. The vugs were 2 to 6 inches in size and occur at a density of 2 to 3 per foot. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 17 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 5 of this report.

Potential Recharge Features #S-36, #S-39, #S-41, #S-42, #S-44, #S-45, #S-47, and #S-48 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. PRF #S-42 and PRF #S-48 appear to have been dug out by burrowing animals at one time. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 30 to 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 6 and 7 of this report.

Potential Recharge Feature #S-37 is a outcrop of vuggy rock noted on the project site at the time of the field investigation. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 7 of this report.

Potential Recharge Feature #S-40 is a closed depression about 4 feet wide and 5 feet long. The feature is about 1 foot deep and may be the result of a tree removal. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 14 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 5 of this report.

Potential Recharge Feature #S-46 is a solution enlarged fracture about 2 feet wide and 10 feet long. The feature appears to be a few solution cavities in a row. The feature appears to be about 2 feet deep and infilled with soil, leaves, twigs, and gravel. Frost GeoSciences, Inc. rates this

feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 7 of this report.

Potential Recharge Features #S-51, #S-52, and #S-57 are outcrops of vuggy and fractured rock. PRF #S-52 is located in a natural drainage path. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 17 to 34 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 8 of this report.

Potential Recharge Features #S-53, #S-55, and #S-58 are outcrops of vuggy rock noted on the project site at the time of the field inspection. The outcrops all have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 15 to 17 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 8 of this report.

Potential Recharge Features #S-54, #S-56, #S-59, #S-60, #S-62, and #S-66 through #S-68 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. The size of the features range in size from 6 inches to 2 feet wide, 6 inches to 2 feet long, and 1 to 2 feet deep. PRF #S-54 appears to have been dug out by burrowing animals at one time. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 30 to 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 8 and 9 of this report.

Potential Recharge Feature #S-63 is a cave noted in the wall of a cliff. The cliff was noted along a natural drainage path. The opening of the cave was about 4 feet tall and 10 feet wide. The cave extended horizontally approximately 10 feet into the cliff. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). This feature scores a 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 9 of this report.

Potential Recharge Features #S-65 and #S-69 are outcrops of vuggy and fractured rock noted on the project site at the time of the field inspection. #S-65 have fractures ranging in size from 1 to 2 inches wide and the fractures occur about 1 to 2 fractures per foot. #S-69 have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 17 to 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 8 of this report.

Potential Recharge Features #S-70 and #S-71 are solution cavities noted in a natural drainage path. The features were infilled with fine soils and leaves and twigs. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score 40 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 8 and 9 of this report.

Potential Recharge Features #S-72, #S-75 through #S-80, and #S-83 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. The size of the features range in size from 6 inches to 2 feet wide, 6 inches to 2 feet long, and 1 to 2 feet deep. PRF #S-75 appears to have been dug out by a burrowing animal at one time. PRF #S-78 is about 5 feet wide, 5 feet long and 1 foot deep. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 32 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 9 and 10 of this report.

Potential Recharge Features #S-73 and #S-74 are outcrops of vuggy and fractured rock noted on the project site at the time of the field inspection. PRF #S-73 have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. PRF #S-74 have fractures ranging in size from 1 to 2 inches wide and the fractures occur about 1 to 2 fractures per foot. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score 25 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 10 of this report.

Potential Recharge Features #S-81 and #S-93 are sinkholes. PRF S#-81 is about 10 feet around and 1 foot deep. A tree was noted growing in the middle of the feature. The feature was infilled with fine soils, coarse sand, cobbles, and with grass and shrubs. PRF #S-93 is 4 feet wide, 5 feet long, and 2 feet deep. The feature is infilled with coarse soils and gravel as well as leaves and twigs. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score 40 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 10 and 11 of this report.

Potential Recharge Features #S-86, #S-88, and #S90 through #S-92 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. The size of features PRF #S-86, PRF #S-88, PRF #S-91 and PRF #S-92 range in size from 1 foot to 4 feet wide, 1 foot to 2 feet long, and 1 to 2 feet deep. PRF #S-90 is about 6 feet wide, 5 feet long and 1 foot deep. PRF #S-92 appears to have been dug out by a burrowing animal at one time. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 32 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 11 of this report.

Potential Recharge Features #S-94, #S-95 and #S-97 are outcrops of vuggy rock noted on the project site at the time of the field inspection. The outcrops have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features score 24 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 10 of this report.

Potential Recharge Features #S-96, #S-98, and #S-99 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. According to the FEMA, Flood Insurance Rate Map, PRF #S-96 are located in the 100 year flood plain. PRF #S-98 and PRF #S-99 appears to have been dug out by a burrowing animal at one time. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 5-01-02). These features range in score from 32 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 11 and 12 of this report.

Potential Recharge Feature #S-103 consist of three small solution cavities in a limestone boulder. The features are infilled with leaves and fine soils. The small cavities range in size from 8 inches to 18 inches wide and 12 to 18 inches in length. The general overall width and length of the feature is approximately 2 feet by 3 feet. The overall depth of the feature was about 18 inches to 2 feet deep. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 35 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 12 of this letter.

Potential Recharge Feature #S-104 is solution cavity within a closed depression. The solution cavity was approximately 2 feet wide and 2 feet long. The closed depression was approximately 3 feet wide and 4 feet long. The overall depth appears to be 18 inches to 2 feet. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 12 of this report.

Potential Recharge Feature #S-501 is an outcrop of vuggy limestone. The vugs are up to 6 inches and spaced approximately 1 per foot. These vugs are infilled with dark clay and would allow little or no fluid flow into the subsurface. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 12 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 12 of this report.

Potential Recharge Feature #S-502 is an area of cleared vegetation that appears to have been used to have a line of sight from a deer blind to a feeder. No indications of infiltration were noted within the cleared area. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 35 on the sensitivity scale in column 10 of the Geologic Assessment Table on Page 12 of this report.

According to the U.S. Geological Survey Water Resources Investigations 94-4117, Potential Recharge Feature #S-100 is a fault located along the southeastern property line. No obvious visual indications of the fault were noted on the project site at the time of the on-site inspection.

The project site supports a dense stand of vegetative cover with a several open grassy areas. Overall vegetation on the project site consists of ashe juniper (*Juniperus ashei*), live oak (*Quercus virginiana*), cedar elm (*Ulmus crassifolia*), and mesquite (*Prosopis glandulosa*), with Texas persimmon (*Diospyros texana*), agarita (*Berberis trifoliolata*), huisache (*Acacia farnesiana*), sage (*Leucophyllum*), whitebrush (*Aloysia gratissima*), Yucca, mountain laurel, and prickly pear cactus (*Opuntia lindheimeri*).

According to the site plan provided by Schultz Group, Inc., the surveyed elevations on the project site range from 760 to 860 feet. A copy of the site plan indicating the boundary of the project site and the elevations is included on the Site Plan on Plate 1a in Appendix A and the Site Geologic Map in Appendix C of this report.

According to the U.S. Geological Survey Water Resources Investigations 94-4117, the project site is located on the Cyclic and Marine Member and the Leached and Collapsed Member of the Cretaceous Edwards Person Limestone.

The Cyclic and Marine Member of the Edwards Person Limestone consists of mudstone to packstone with milliolid grainstone and chert. This member occurs as thin graded cycles of massive to relatively thin beds with some crossbeds. Typically, cavern development in this member is common, but occurs mainly in the subsurface. The caverns within this member might be associated with earlier episodes of karst development.

The Leached and Collapsed Member of the Cretaceous Edwards Person Limestone consists of crystalline limestone, mudstone, and grainstone with chert and collapsed breccia. Bioturbated iron-stained beds are common and are separated by massive limestone beds with stromatolitic limestone. This member forms extensive lateral karst development with large rooms. The overall thickness of this member ranges from 70 to 90 feet thick.

A copy of the U.S.G.S. Water Resources Investigation 94-4117 indicating the location of the project site is included on Plate 6 in Appendix A.

BEST MANAGEMENT PRACTICE (BMP)

Based on a visual inspection of the ground surface and the research performed for this project, the overall potential for fluid flow from the project site into the Edwards Aquifer appears to be low to intermediate. According to the U.S. Geological Survey Water Resources Investigations 94-4117, a fault located along the southeastern property line. No obvious visual indications of the fault were noted on the project site at the time of the on-site inspection. However, the potential always exists to encounter subsurface features that lack a surface expression. Construction personnel should be informed of the potential to encounter subsurface karst features associated with the fault, vuggy outcrops, or outcrops zones during excavating activities. Construction personnel should also be informed of the proper protocol to follow in the event that a solution cavity and/or cave is encountered during the excavation and development of the property.

DISCLAIMER

This report has been prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04) by a Licensed Texas Professional Geoscientist. All areas of the project site were carefully inspected for features that could contribute to the recharge of the Edwards Aquifer, however, this survey cannot preclude the presence of subsurface karst features that lack surface expression. This report is not intended to be a definitive investigation of all possible geologic or karst features at this site. All conclusions, opinions, and recommendations for Best Management Practices (BMP's) in this report are based on information obtained while researching the project, and on the site conditions at the time of our field investigation.

This report has been prepared for the exclusive use of The Schultz Group. This report is based on available known records, a visual inspection of the project site, and the work generally accepted for a Geologic Assessment for Regulated Activities / Developments on the Edwards Aquifer Recharge / Transition Zone, relating to 30 TAC §213.5(b)(3), effective June 1, 1999.

REFERENCES

1) U.S.G.S. 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988).

2) Official Edwards Aquifer Recharge Zone Map, New Braunfels West, Texas Sheet (1996).

3) Small, Ted A., and Hanson, John A., 1994, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County, Texas. U.S. Geological Survey Water Resources Investigations 94-4117.

4) Barnes, V.L., 1983, Geologic Atlas of Texas, San Antonio Sheet, Bureau of Economic Geology, The University of Texas at Austin, Texas.

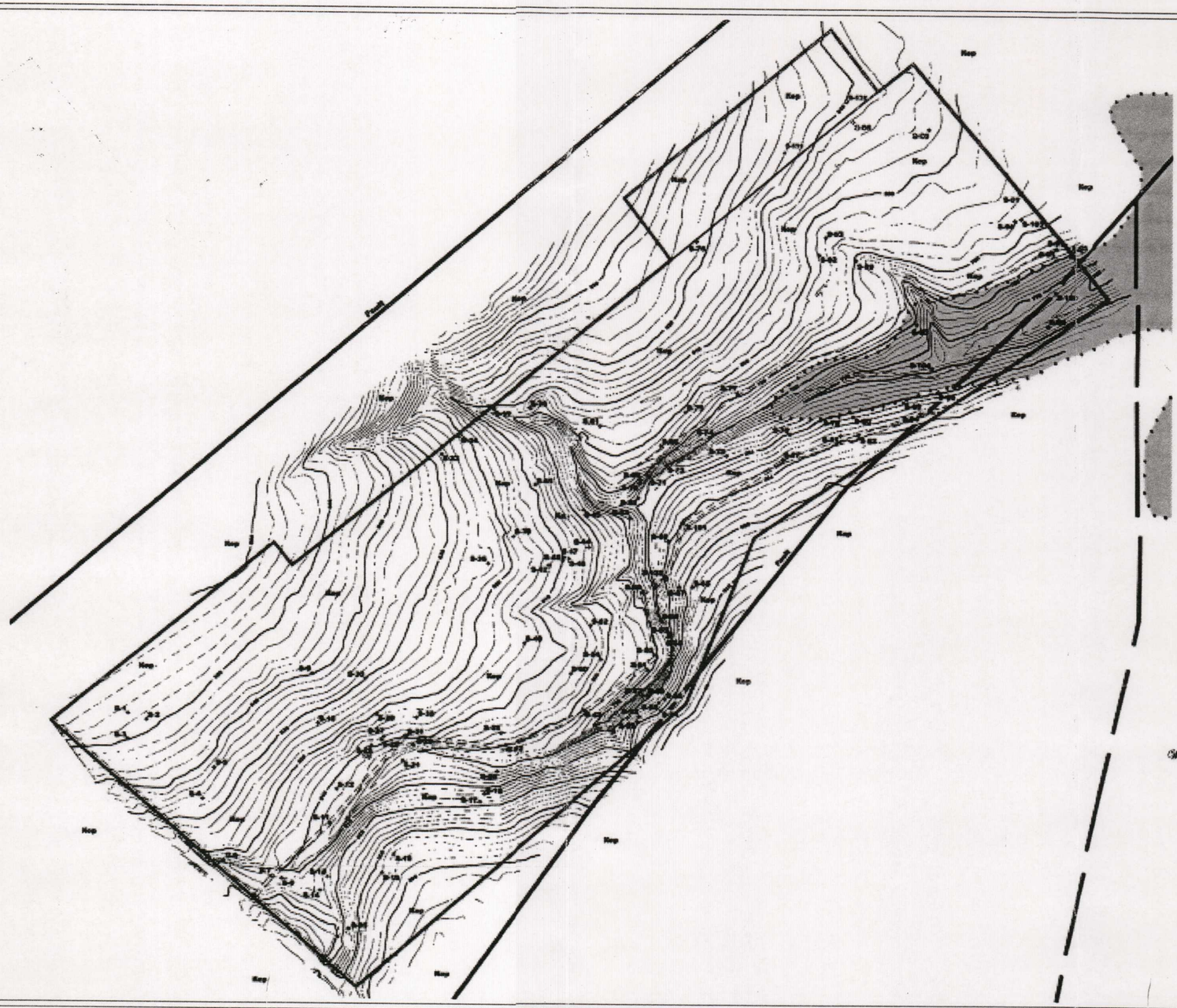
5) Federal Emergency Management Agency (FEMA), May 15, 1991, Comal County, Texas and Incorporated Areas, Flood Insurance Rate Map (FIRM), Panel #'s 4854630100C and 4854630105C, FEMA, Washington D.C.

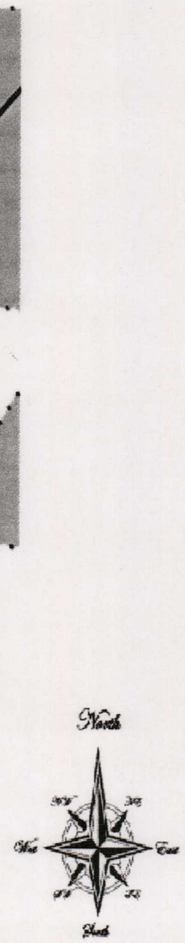
6) U.S.D.A. Soil Conservation Service, Soil Survey of Comal and Hayes County, Texas (1984).

7) TCEQ-0585-Instructions (Rev. 10-1-04). "Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zone".

8) Collins, Edward, W., 2000, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, Bureau of Economic Geology, The University of Texas at Austin, Texas.

Frost GeoSciences





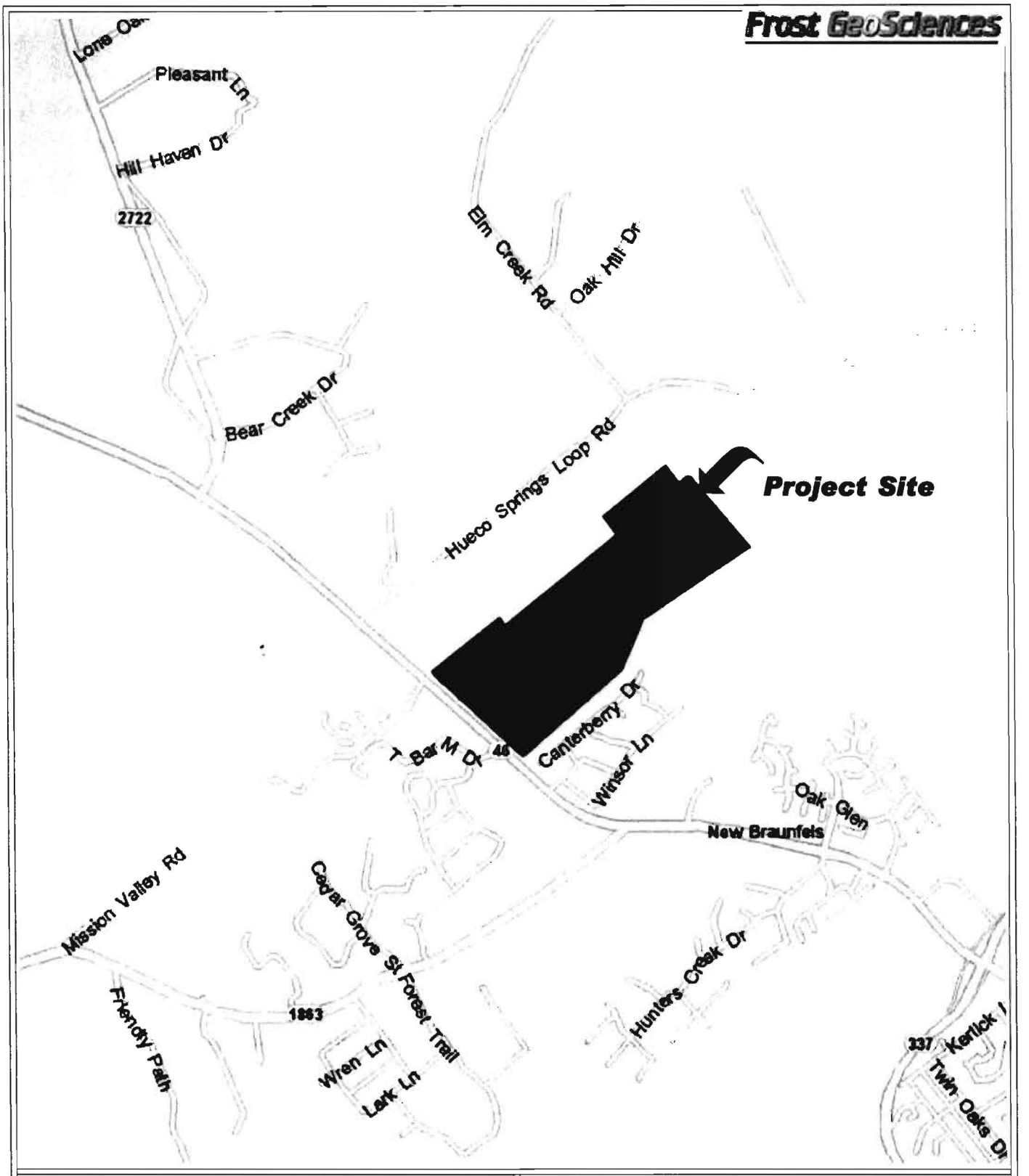
1 inch = 400 feet

PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivision
New Braunfels, Texas

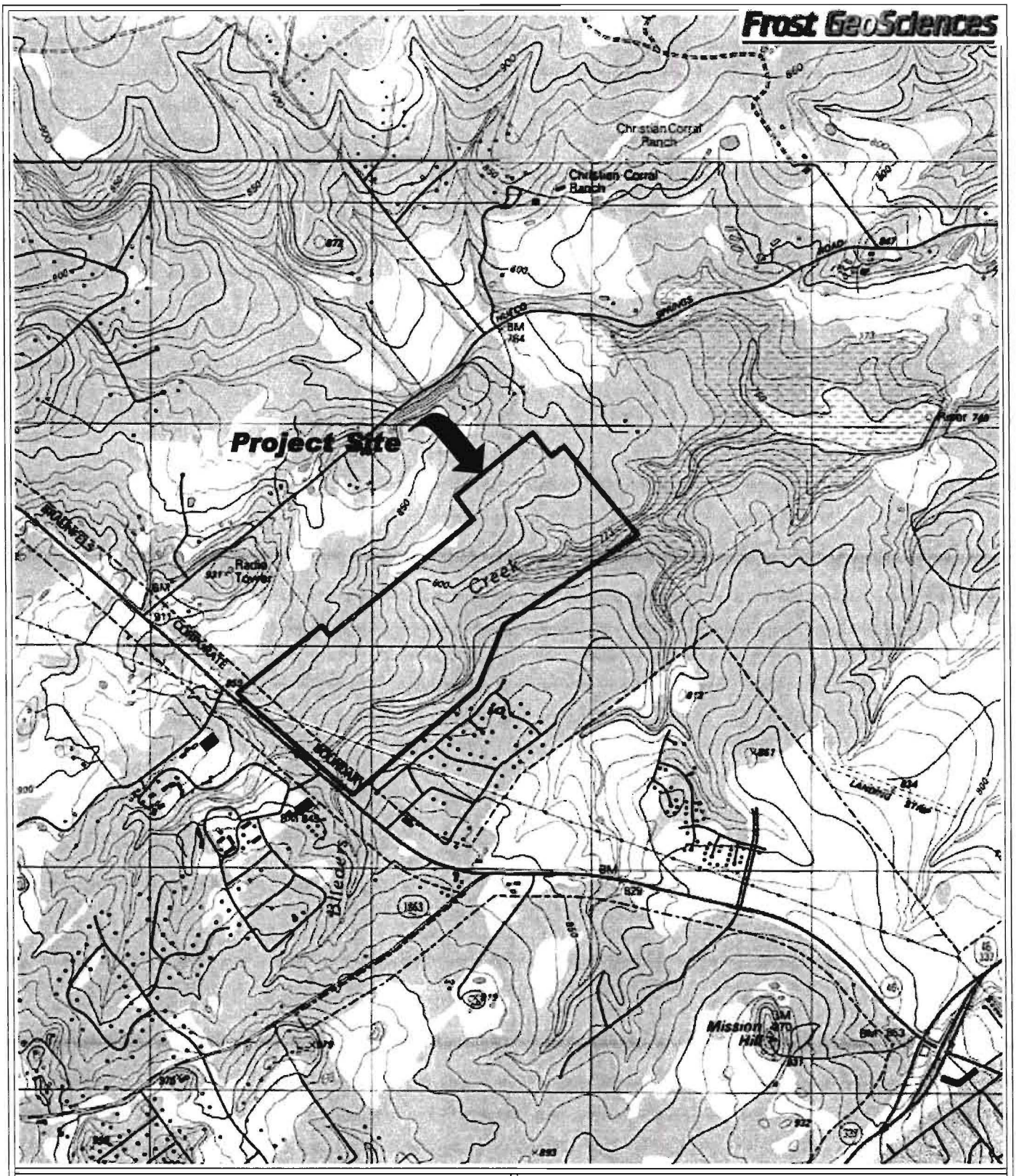
Site Plan with PRF's

PROJECT NO.: FGS-E09176

DATE: December 31, 2009



PROJECT NAME: Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone The Tschirhart Ranch Subdivision New Braunfels, Texas	Street Map
PROJECT NO.: FGS-E09176	**DATE:** December 31, 2009



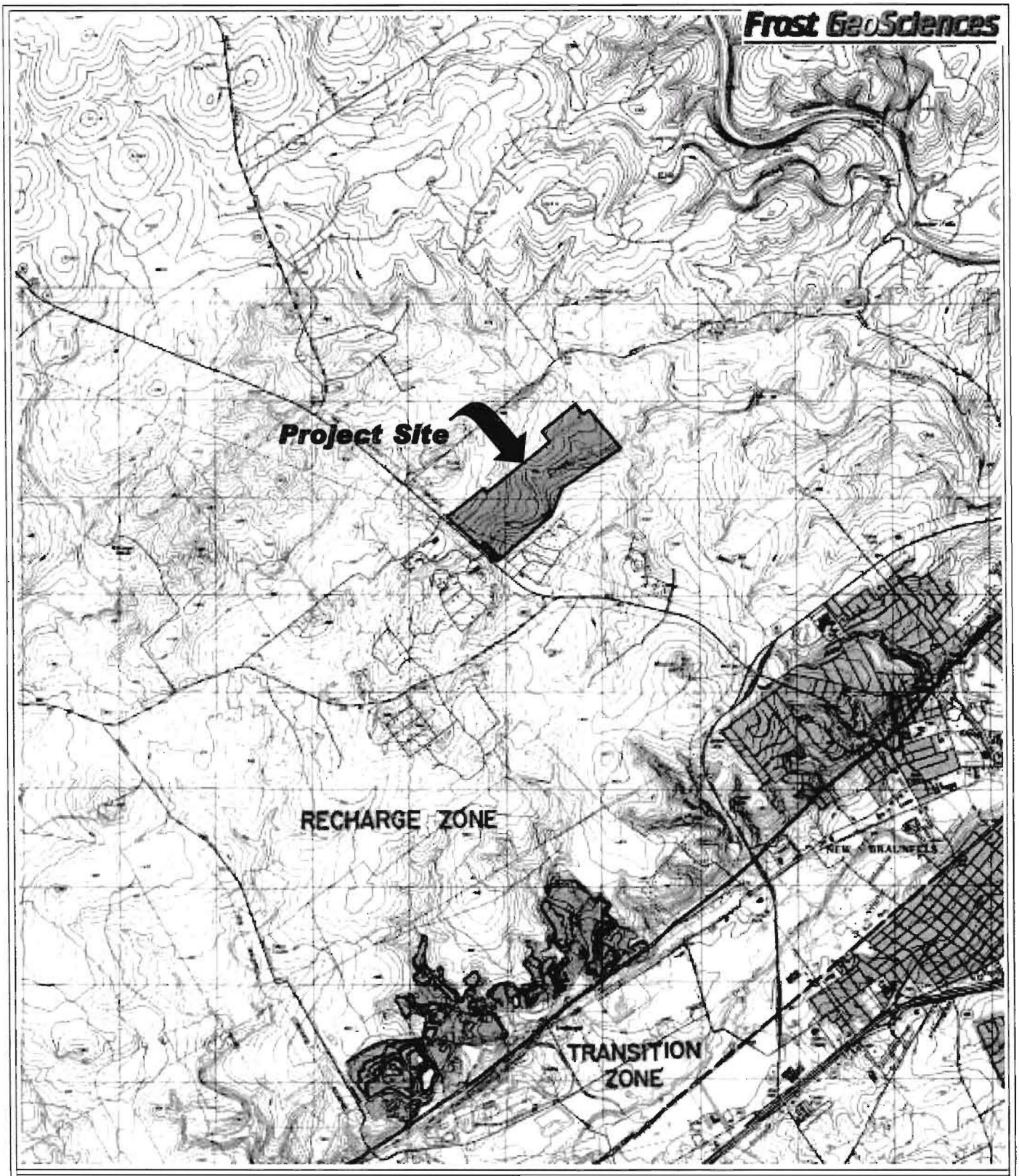
PROJECT NAME:

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivision
New Braunfels, Texas

U.S.G.S. 7.5 Minute Quadrangle Map
New Braunfels West, Texas Sheet (1988)

PROJECT NO.:	**DATE:**
FGS-E09176	December 31, 2009

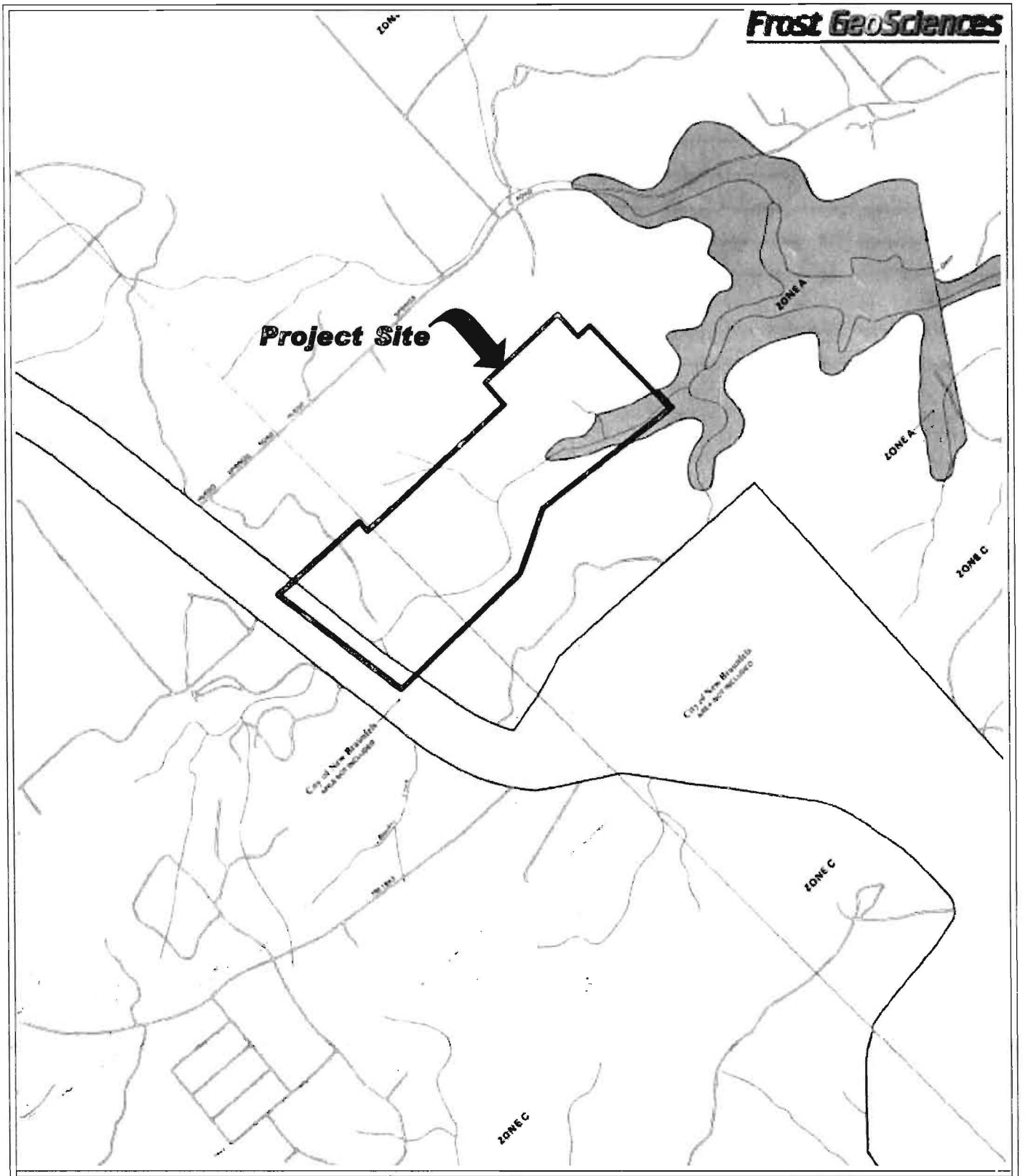
Frost GeoSciences



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivision
New Braunfels, Texas

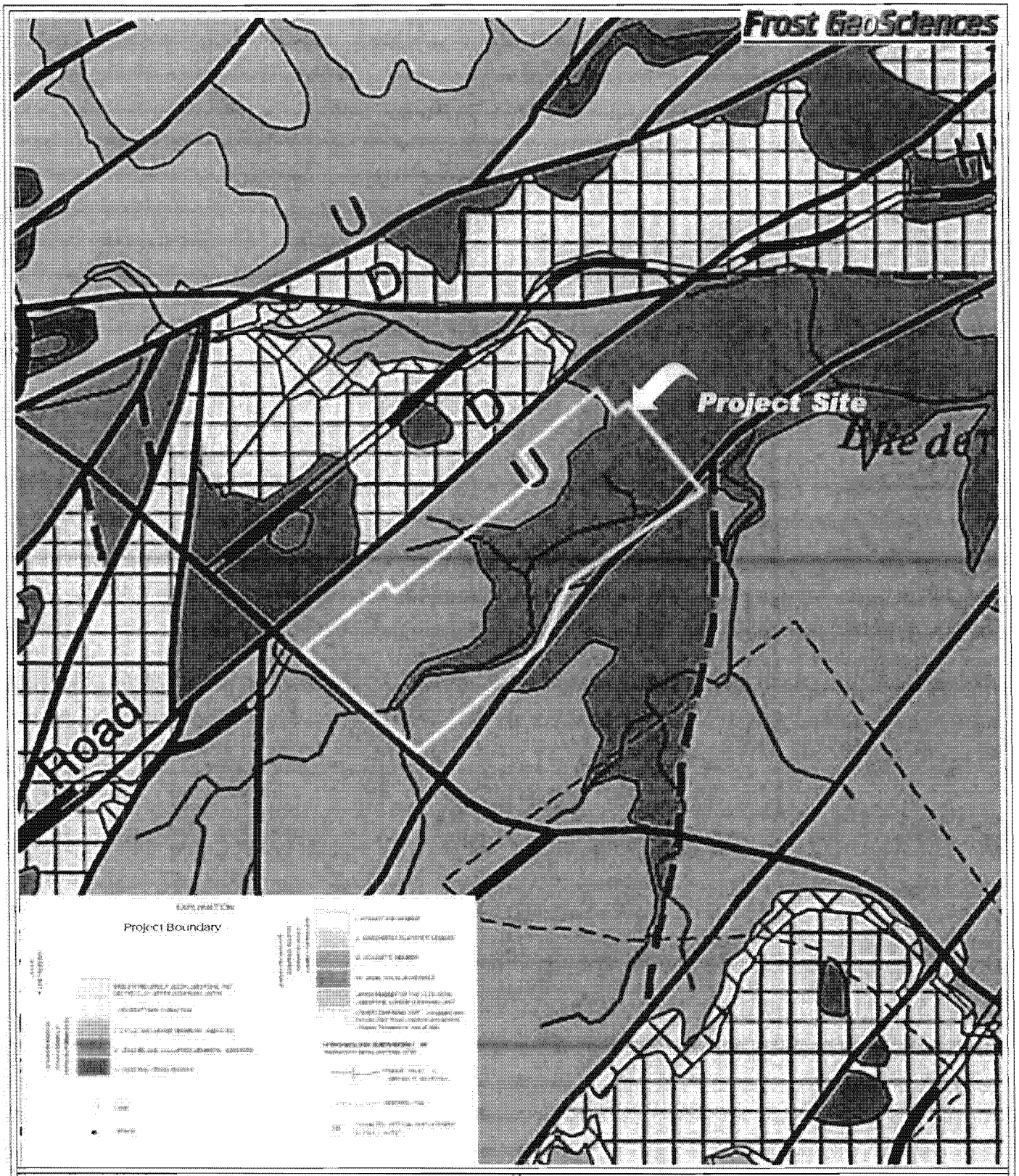
Official Edwards Aquifer Recharge Zone Map
New Braunfels West, Texas Sheet 1988

PROJECT NO.:	DATE:
FGS-E09176	December 31, 2009



PROJECT NAME:	Flood Insurance Rate Map (FIRM)	
Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone The Tschirhart Ranch Subdivision New Braunfels, Texas	Community Panel #'s 4854630100C & 4854630105C (9-29-1986)	
	PROJECT NO.: FGS-E09176	DATE: December 31, 2009

Frost GeoSciences



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivision
New Braunfels, Texas

United States Geologic Survey
Water Resources Investigations #94-4117
Geologic Map of Comal County, Texas

PROJECT NO.: FGS-E09176

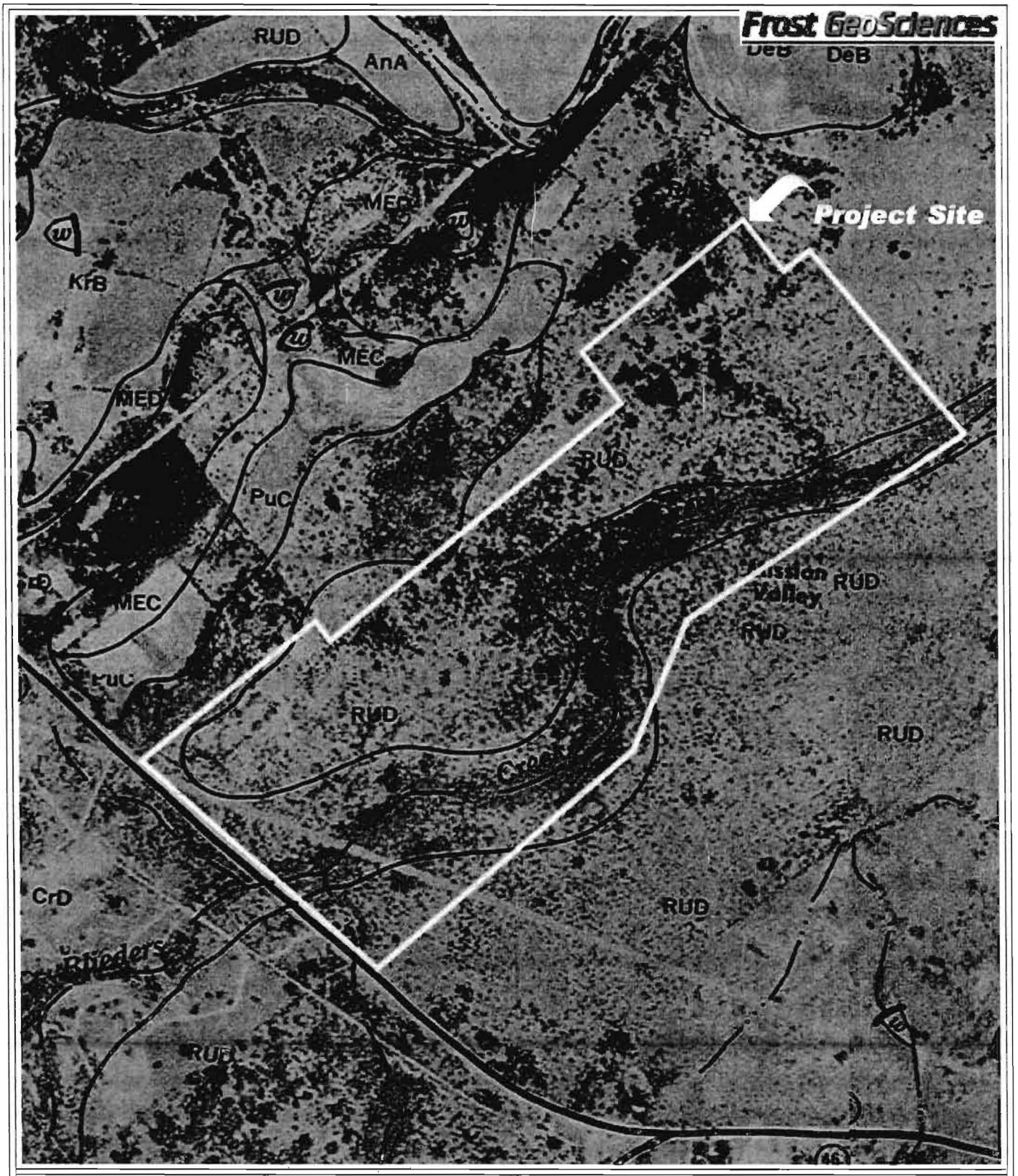
DATE: December 31, 2009



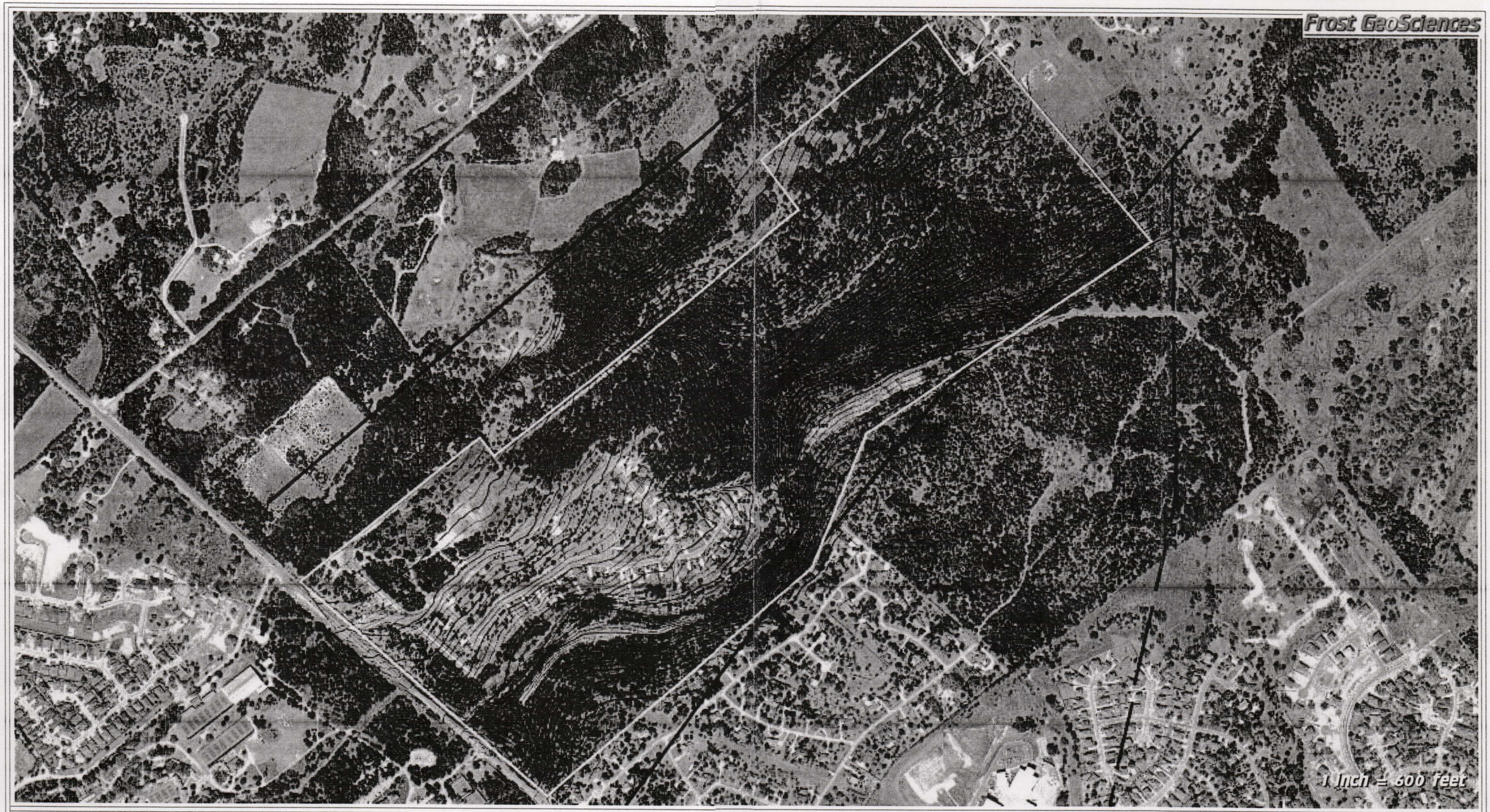
PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivision
New Braunfels, Texas

2009 Aerial Photograph
Landiscor Aerial Information

PROJECT NO.:	DATE:
FGS-E09176	December 31, 2009



PROJECT NAME: Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone The Tschirhart Ranch Subdivision New Braunfels, Texas	1973 Aerial Photograph United States Department of Agriculture
PROJECT NO.: FGS-E09176	**DATE:** December 31, 2009



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
The Tschirhart Ranch Subdivision
New Braunfels, Texas

2009 Aerial Photograph with Potential Recharge Feature Locations
Landiscor Aerial Information

PROJECT NO.: FGS-E09176

DATE: December 31, 2009



View of potential recharge feature # S-1.



Typical view of the vegetative cover noted near S-1.



View of potential recharge feature # S-2.



Typical view of the vegetative cover noted near S-2.



View of potential recharge feature # S-3.



Typical view of the vegetative cover noted near S-3.



View of potential recharge feature # S-4.



Typical view of vegetative cover noted near S-4.



View of potential recharge feature # S-5.



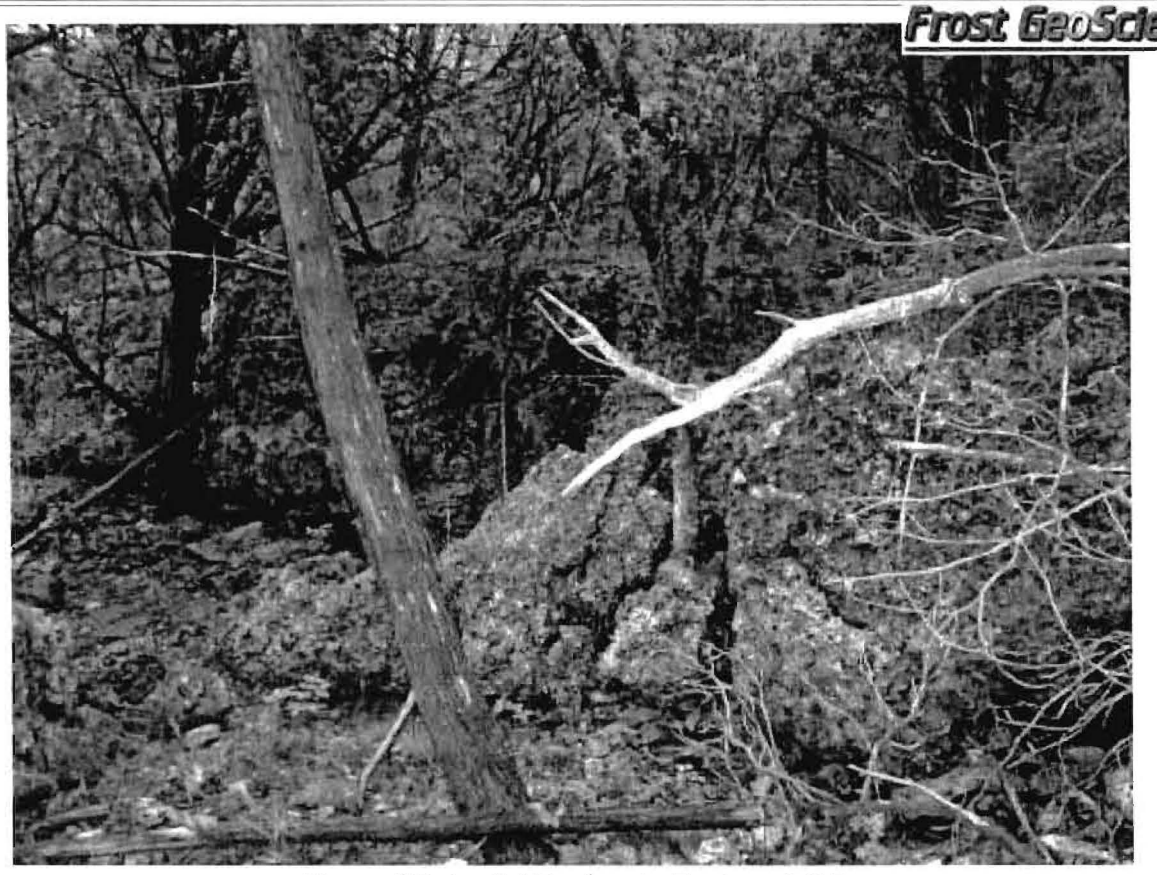
Typical view of the vegetative cover noted near S-5..



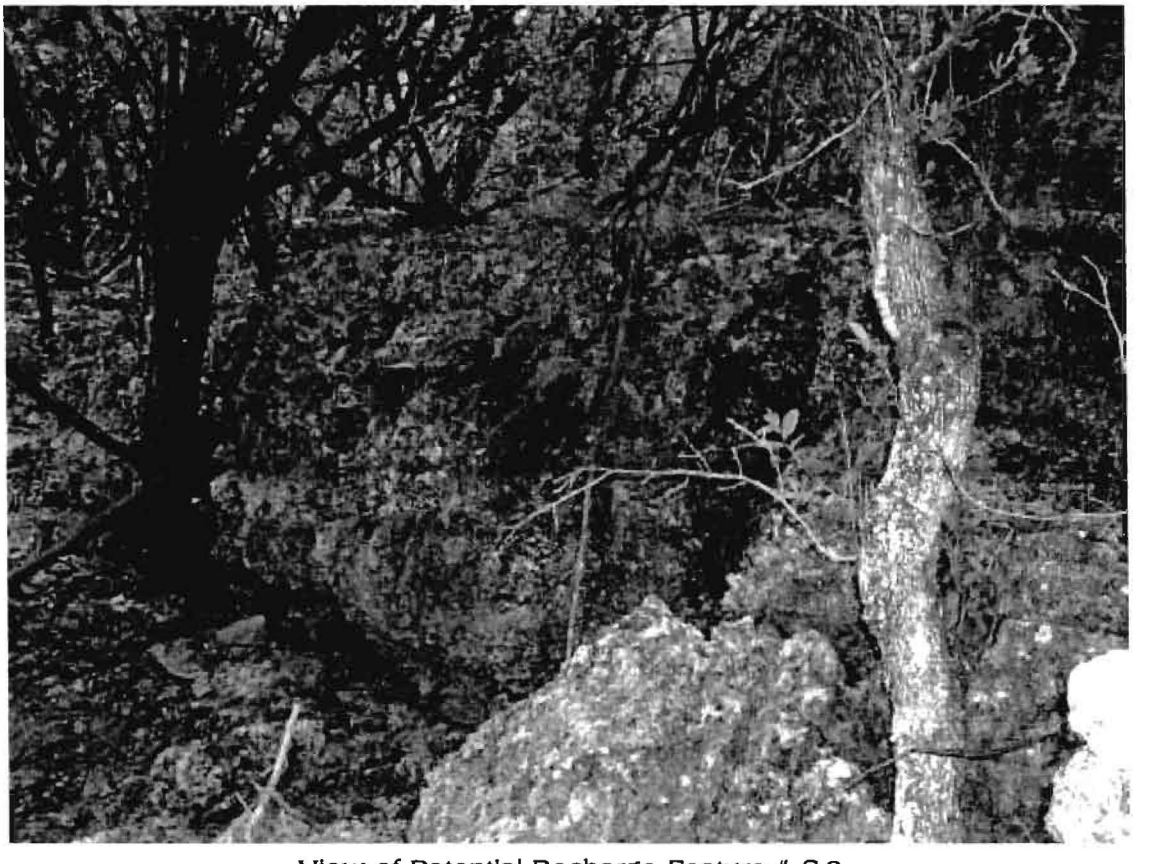
View of Potential Recharge Feature # S-6.



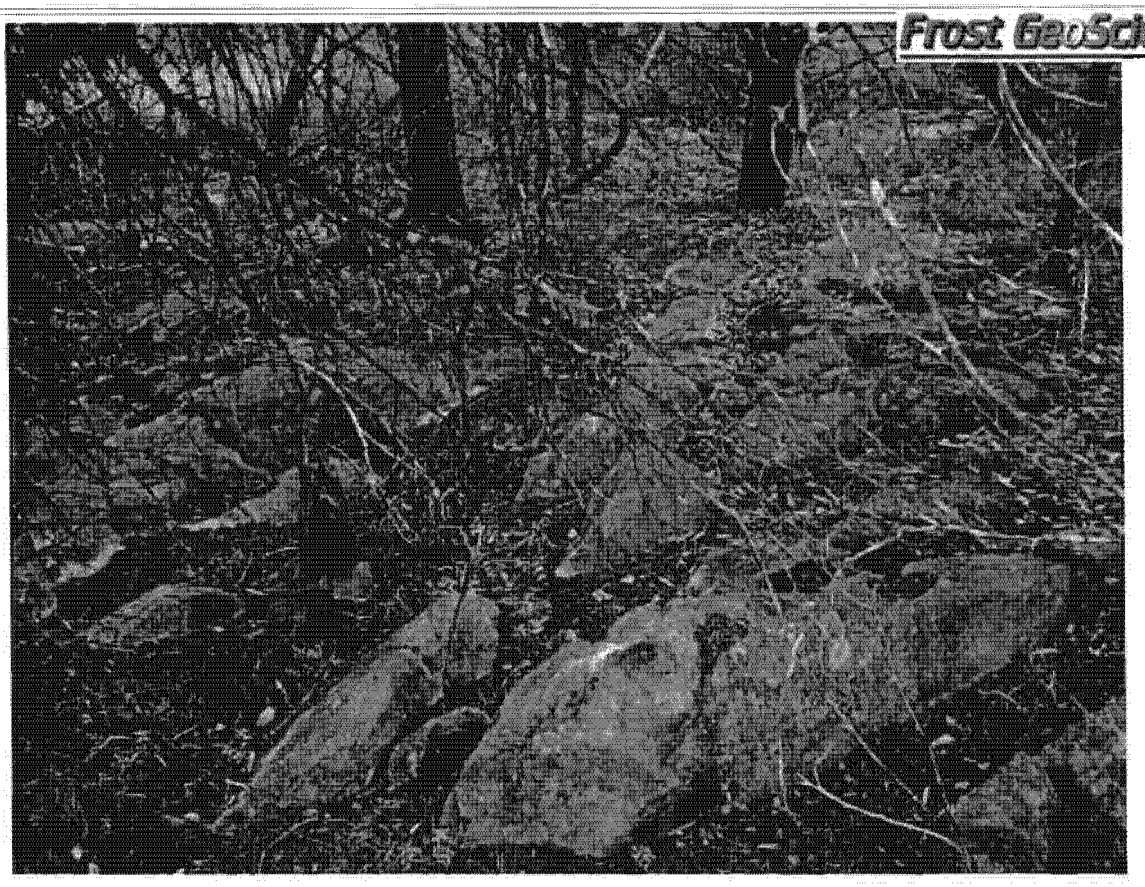
View of Potential Recharge Feature # S-7.



View of Potential Recharge Feature # S-8.



View of Potential Recharge Feature # S-8.



View of Potential Recharge Feature # S-9.



Typical view of the vegetative cover noted near S-9.



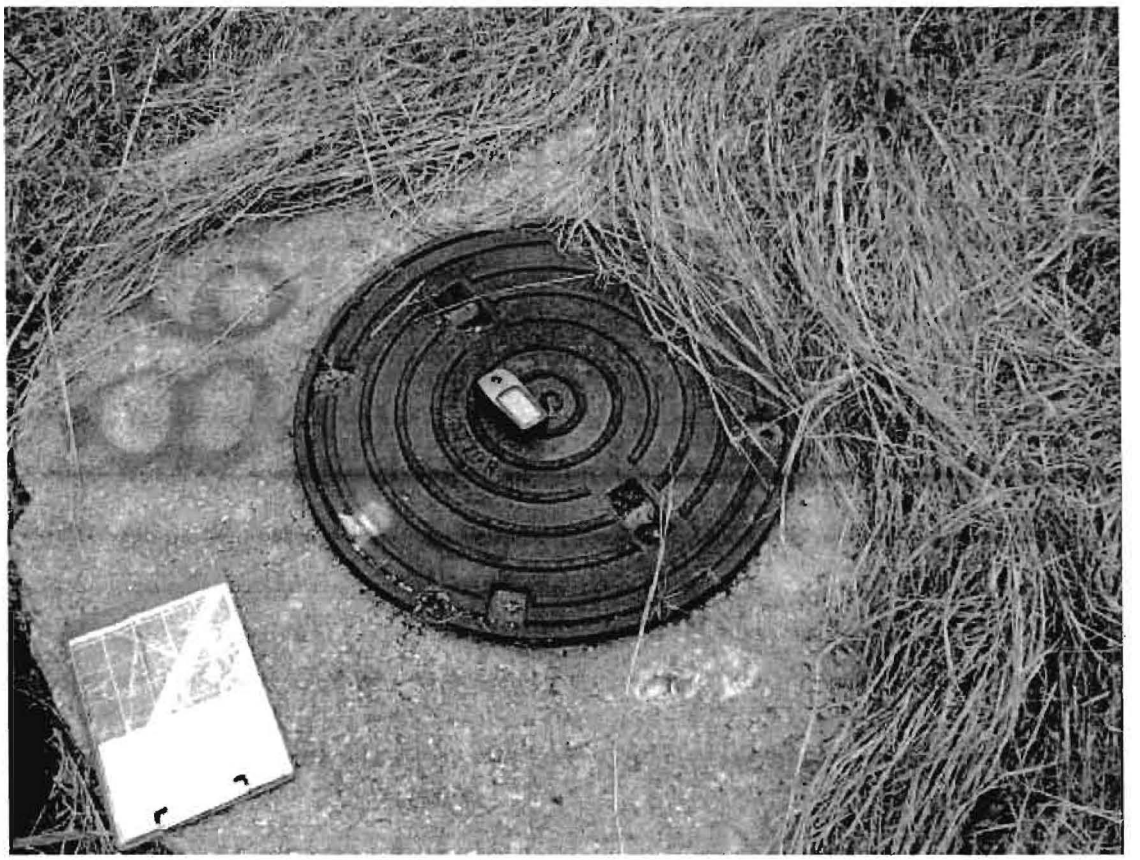
View of Potential Recharge Feature # S-10.



View of the interior of S-10.



Typical view of the vegetative cover noted near S-10.



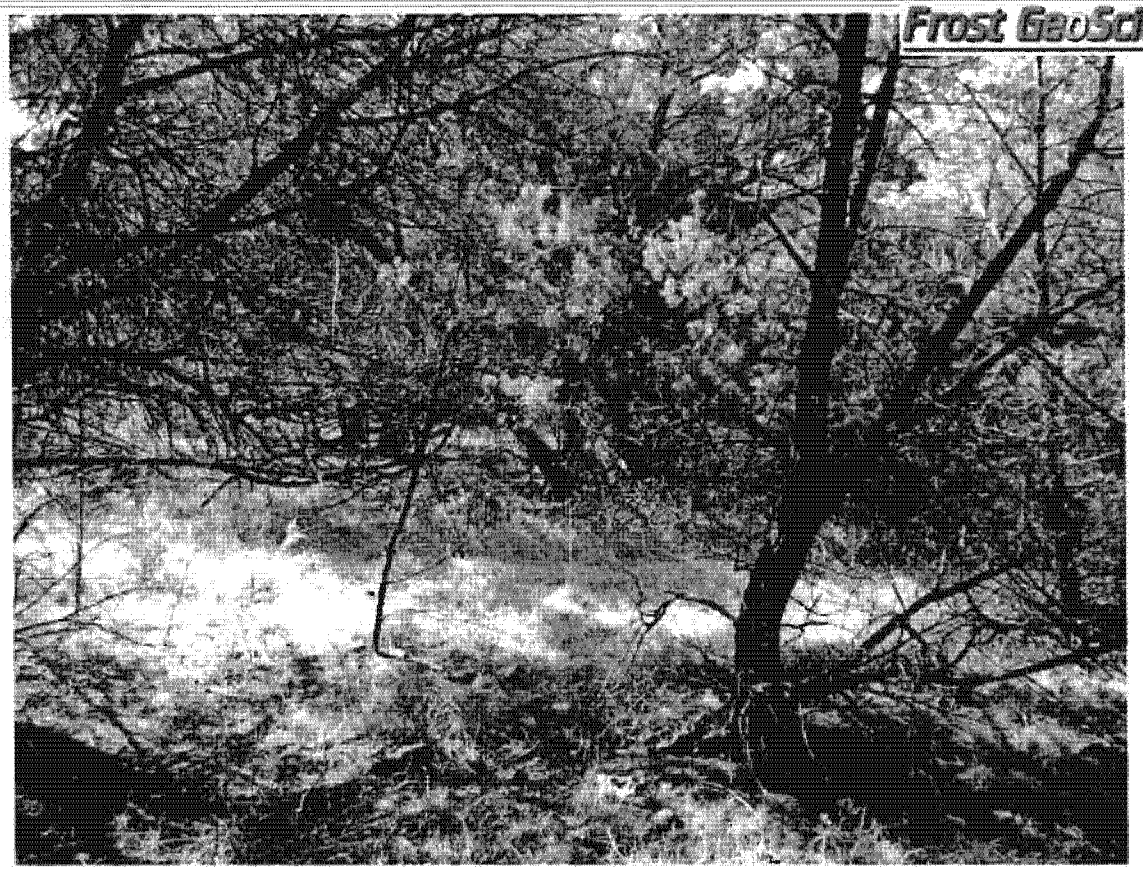
View of Potential Recharge Feature # S-11.



View of Potential Recharge Feature # S-12.



View of Potential Recharge Feature # S-13.



Typical view of the vegetative cover noted near S-13.



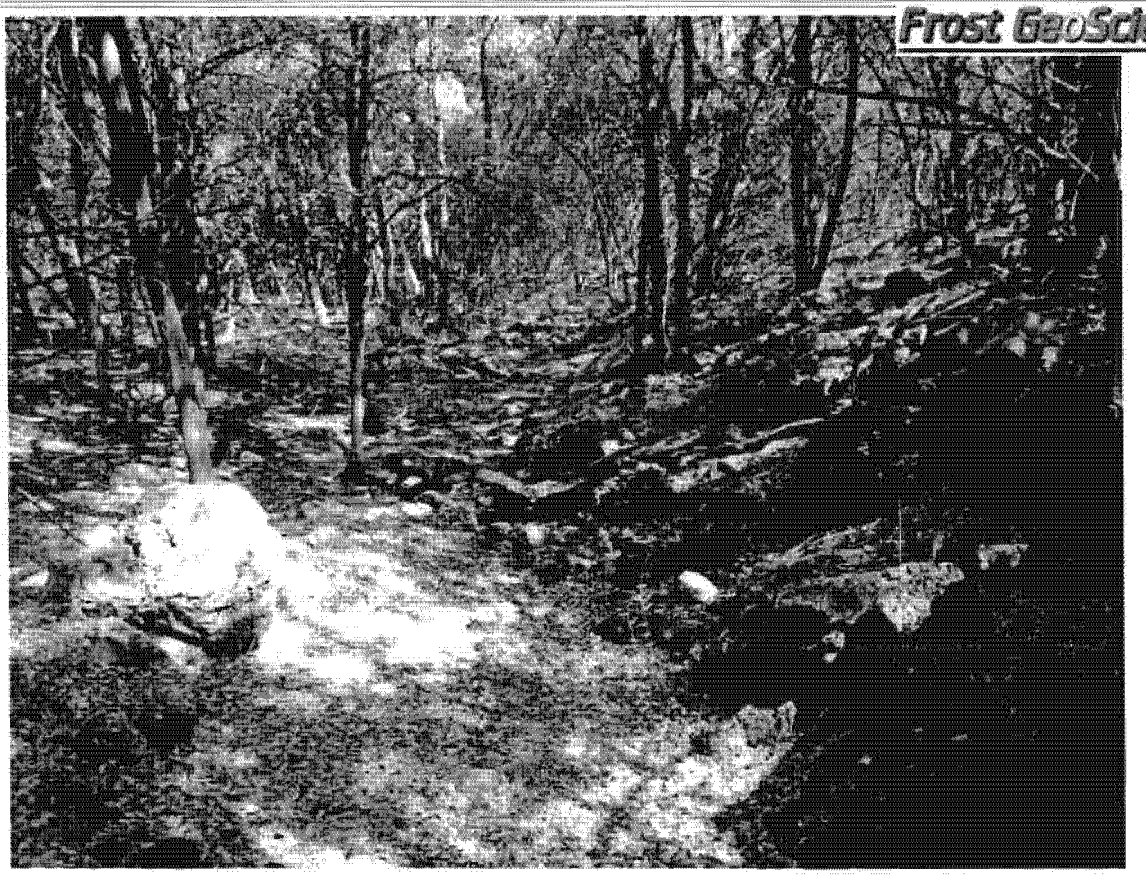
View of Potential Recharge Feature # S-14.



Typical view of the vegetative cover noted near S-14.



Typical view of the vegetative cover noted near S-15.



View to the east along the Potential Recharge Feature # S-15.



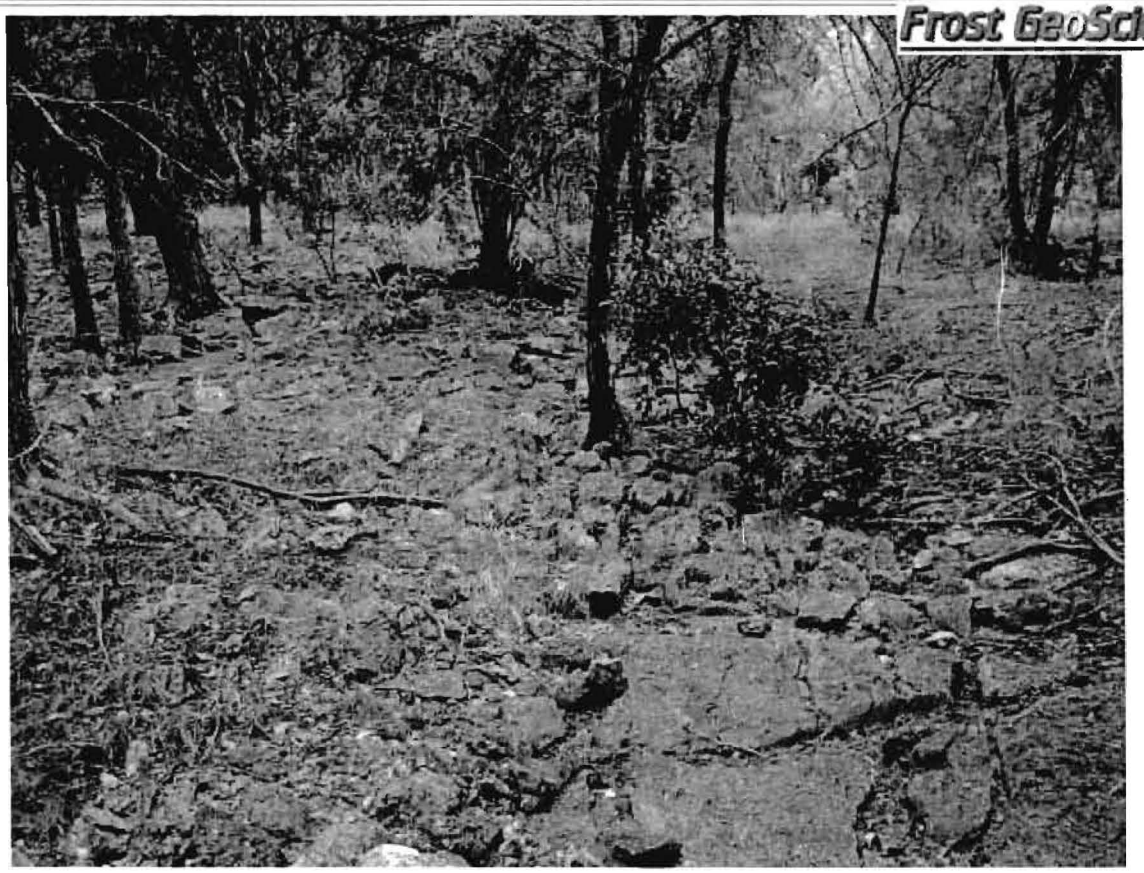
View to the west along the Potential Recharge Feature # S-15.



View of Potential Recharge Feature # S-19.



Typical view of the vegetative cover noted near S-19.



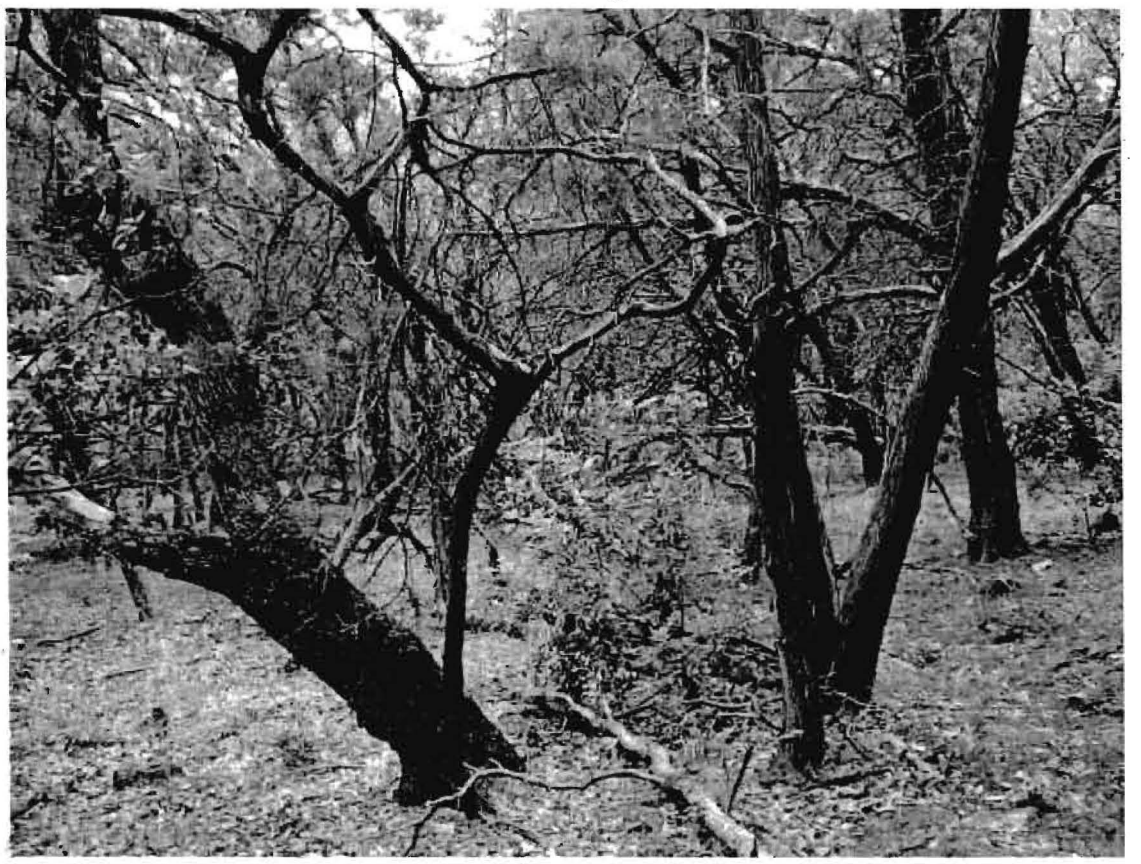
View of Potential Recharge Feature # S-21.



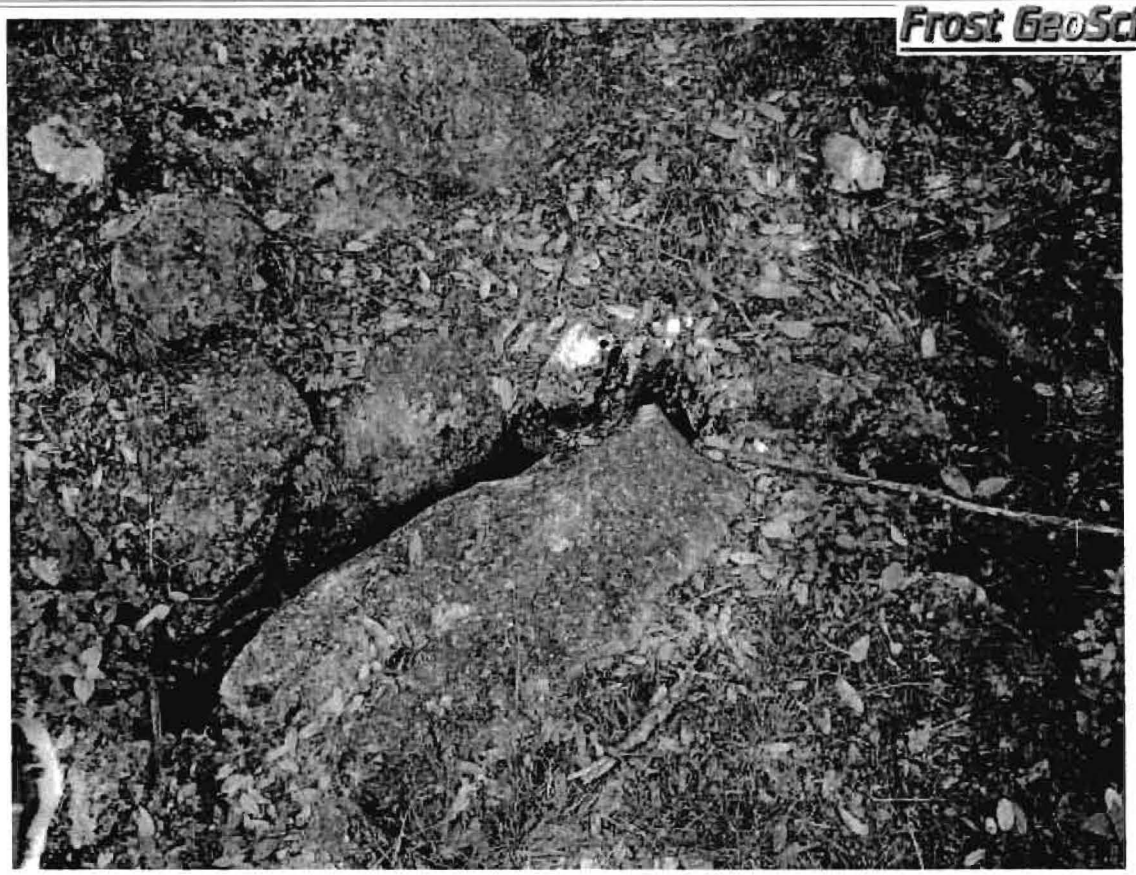
Typical view of the vegetative cover noted near S-21.



View of Potential Recharge Feature # S-23.



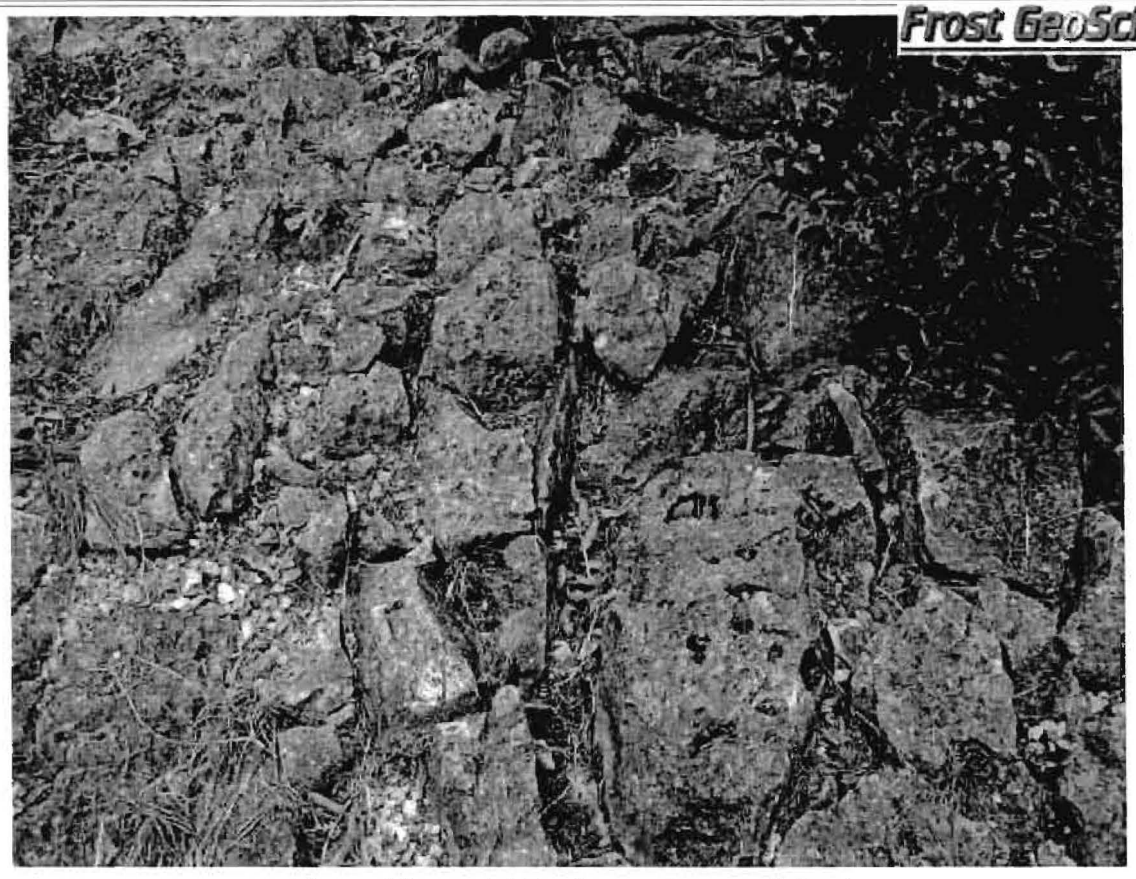
Typical view of the vegetative cover noted near S-23.



View of Potential Recharge Feature # S-24.



Typical view of the vegetative cover noted near S-24.



View of Potential Recharge Feature # S-25.



Typical view of the vegetative cover noted near S-25.



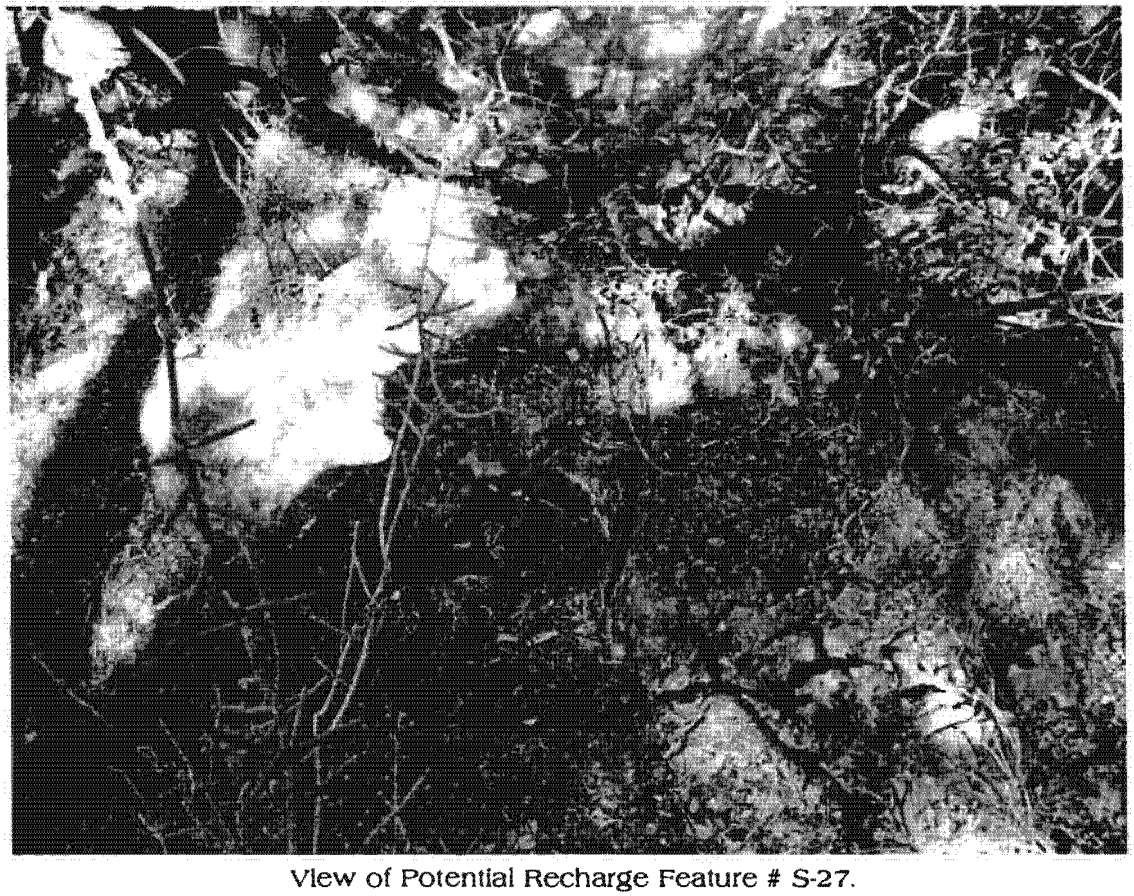
View of Potential Recharge Feature # S-26.



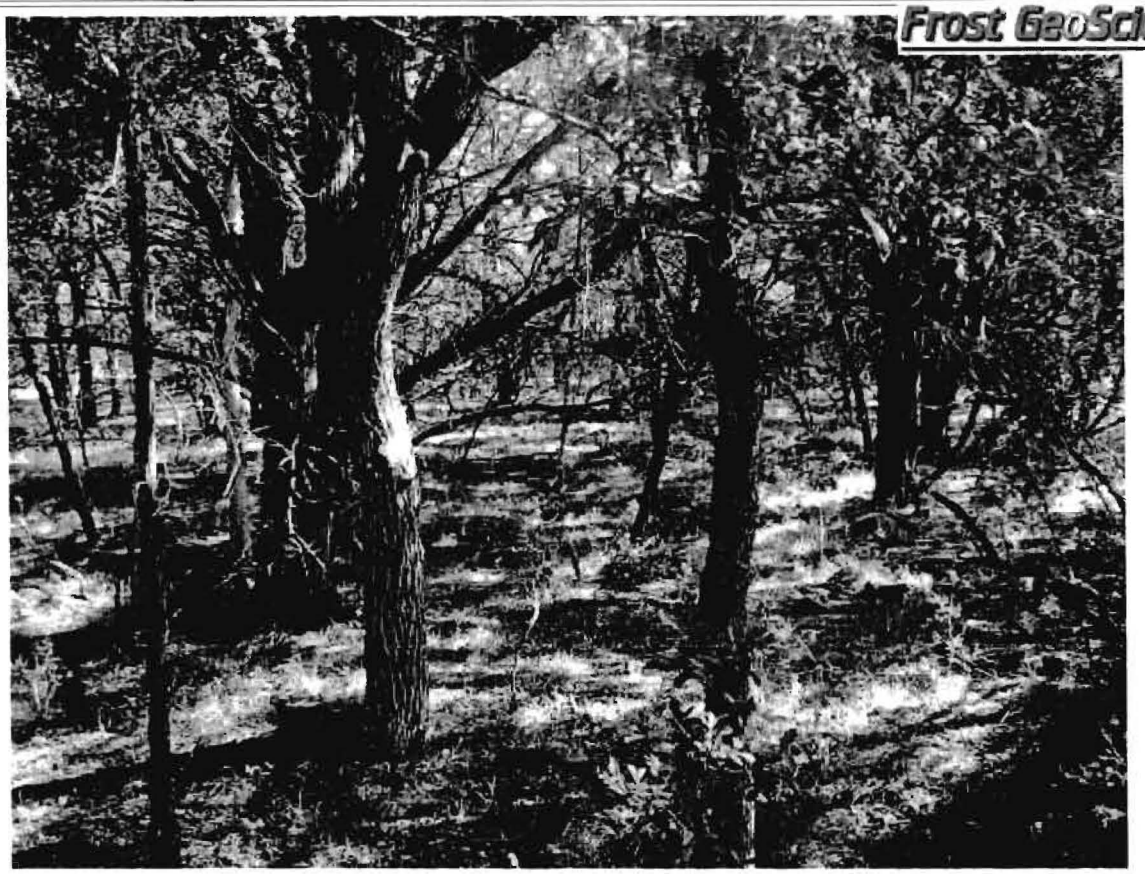
Typical view of the vegetative cover noted near S-26.



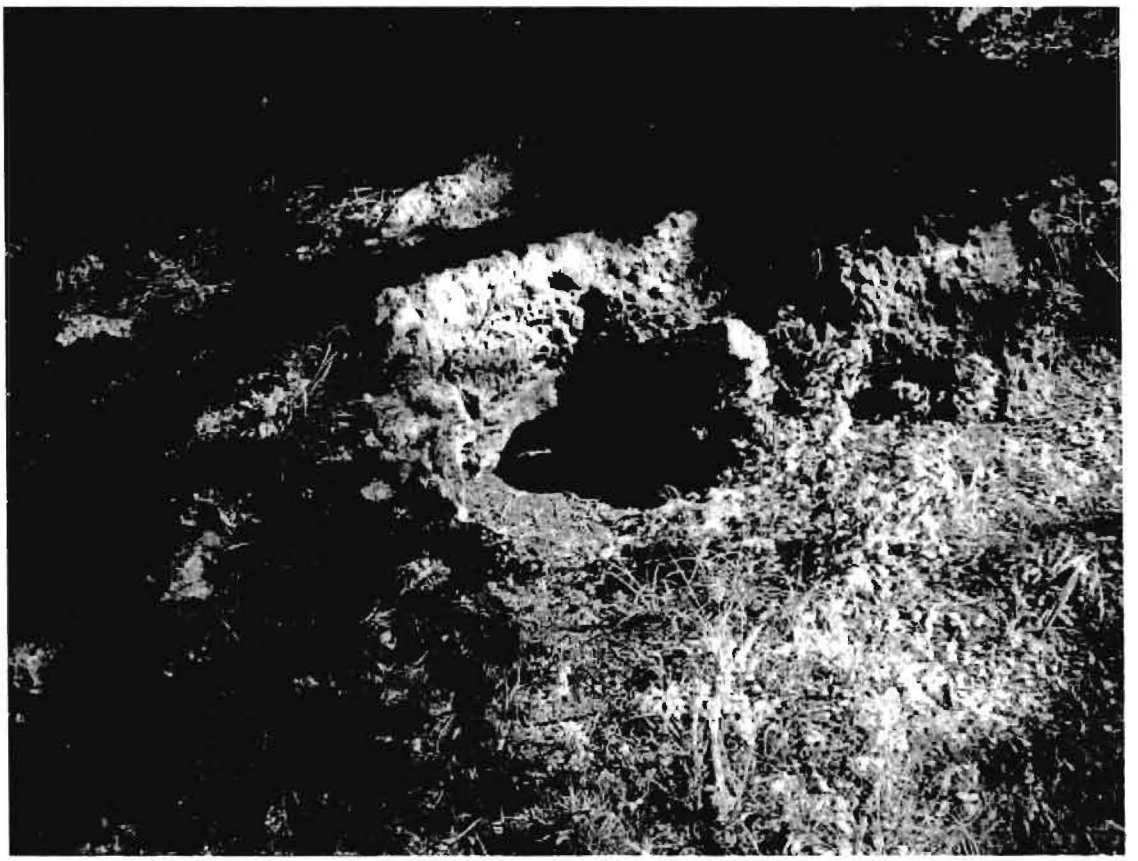
View of Potential Recharge Feature # S-27.



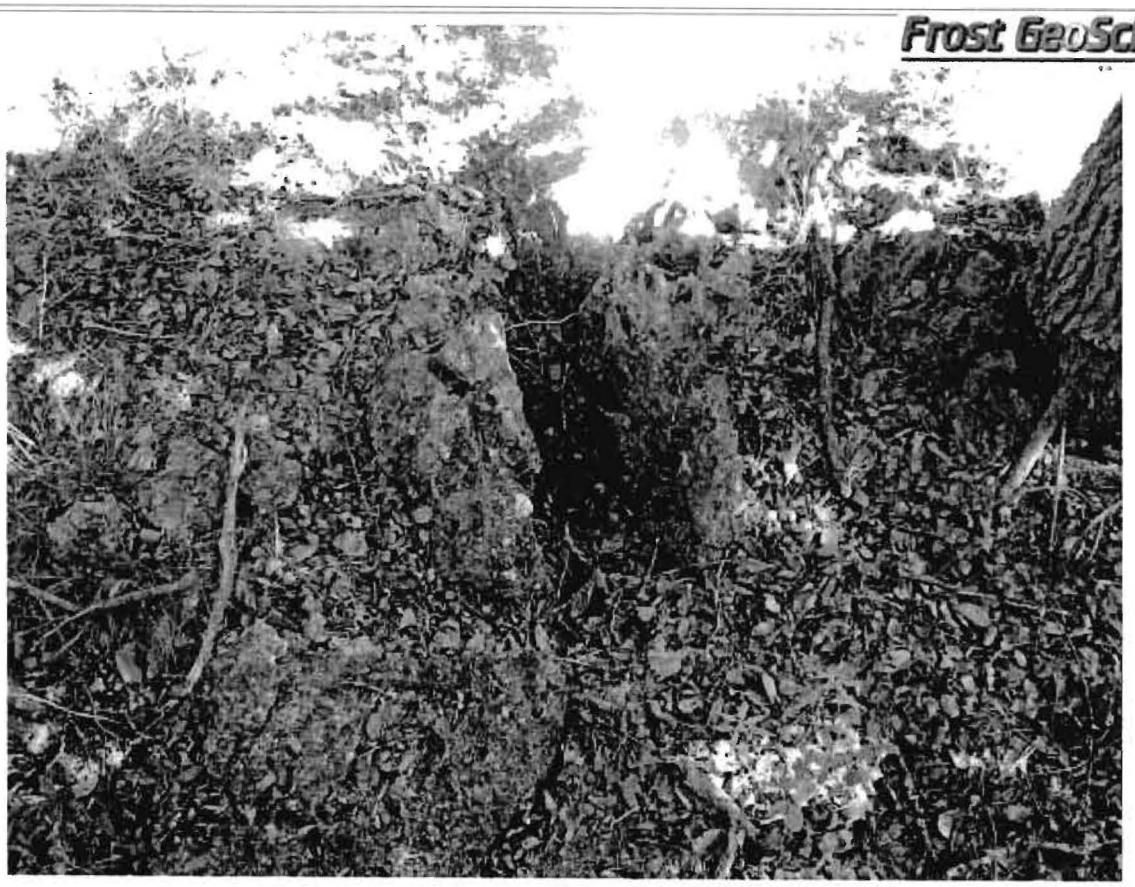
View of Potential Recharge Feature # S-27.



Typical view of the vegetative cover noted near S-27.



View of Potential Recharge Feature # S-28.



View of Potential Recharge Feature # S-29.



Typical view of the vegetative cover noted near S-29.



View of Potential Recharge Feature # S-30.



Typical view of the vegetative cover noted near S-30.



View of Potential Recharge Feature # S-32.



Typical view of the vegetative cover noted near S-32.



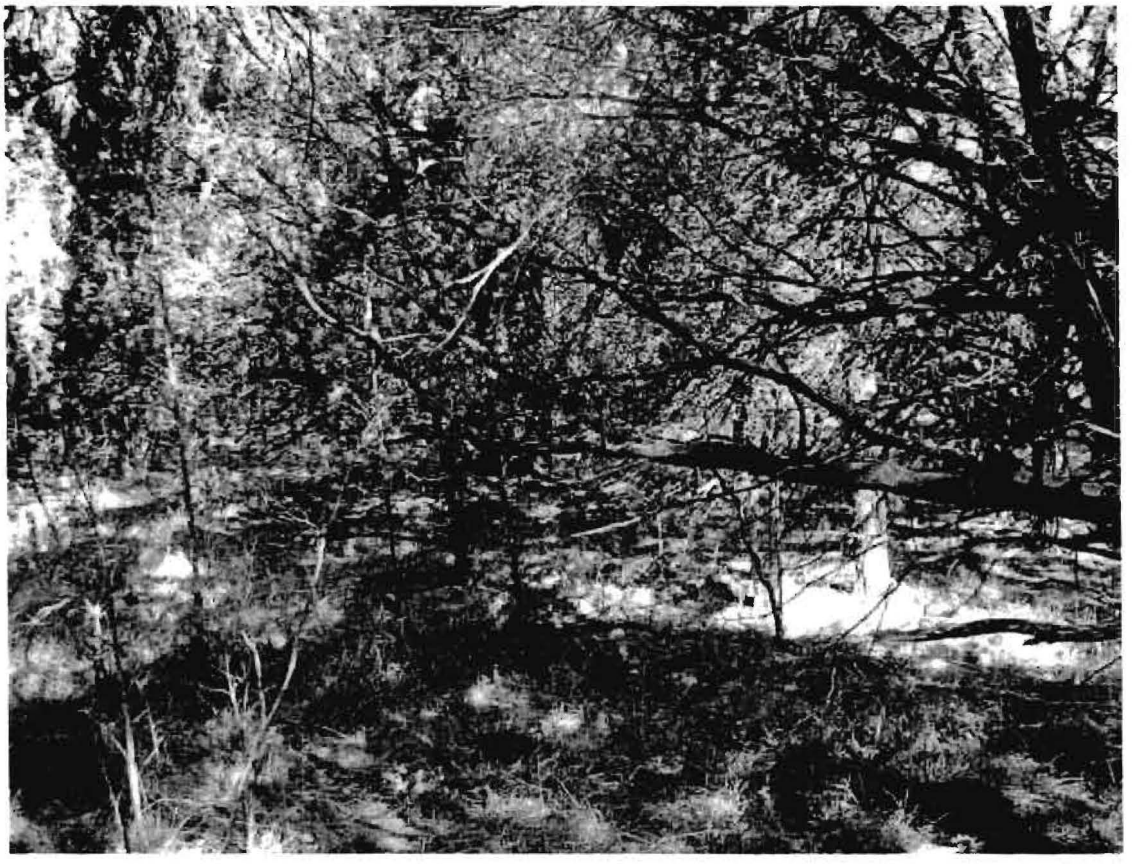
View of Potential Recharge Feature # S-34.



Typical view of the vegetative cover noted near S-34.



View of Potential Recharge Feature # S-35.



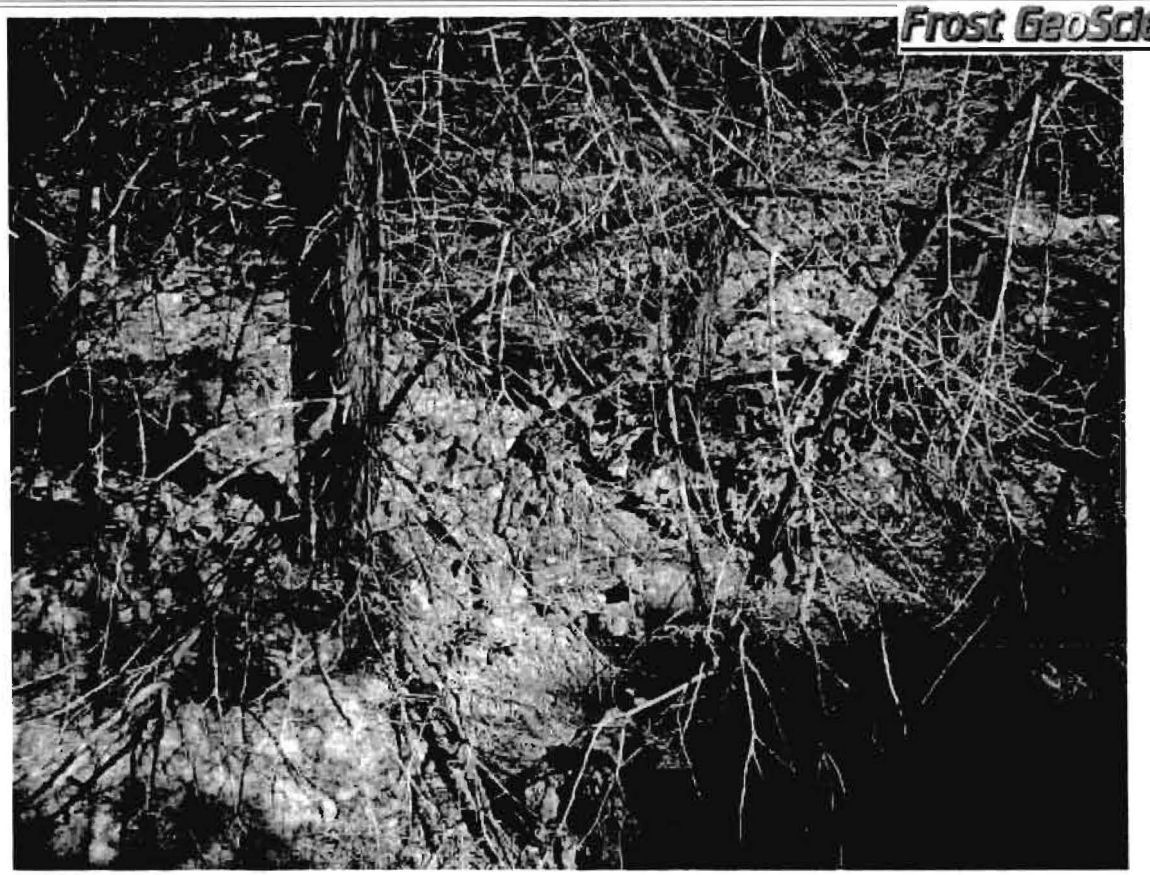
Typical view of the vegetative cover noted near S-35.



View of Potential Recharge Feature # S-36.



Typical view of the vegetative cover noted near S-36.



View of Potential Recharge Feature # S-37.



Typical view of the vegetative cover noted near S-37.



View to the east along the rock outcrop of Potential Recharge Feature # S-38.



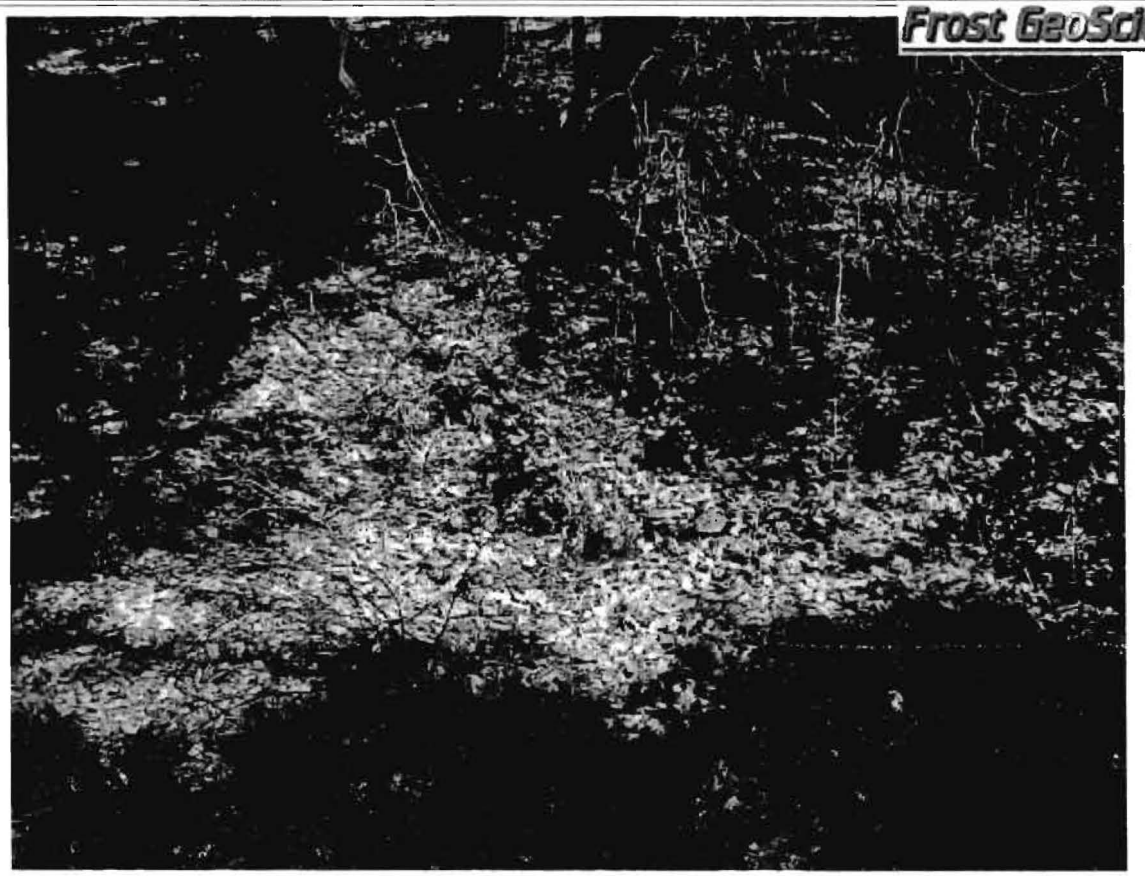
View to the west along the rock outcrop of Potential Recharge Feature # S-38.



View of Potential Recharge Feature # S-39.



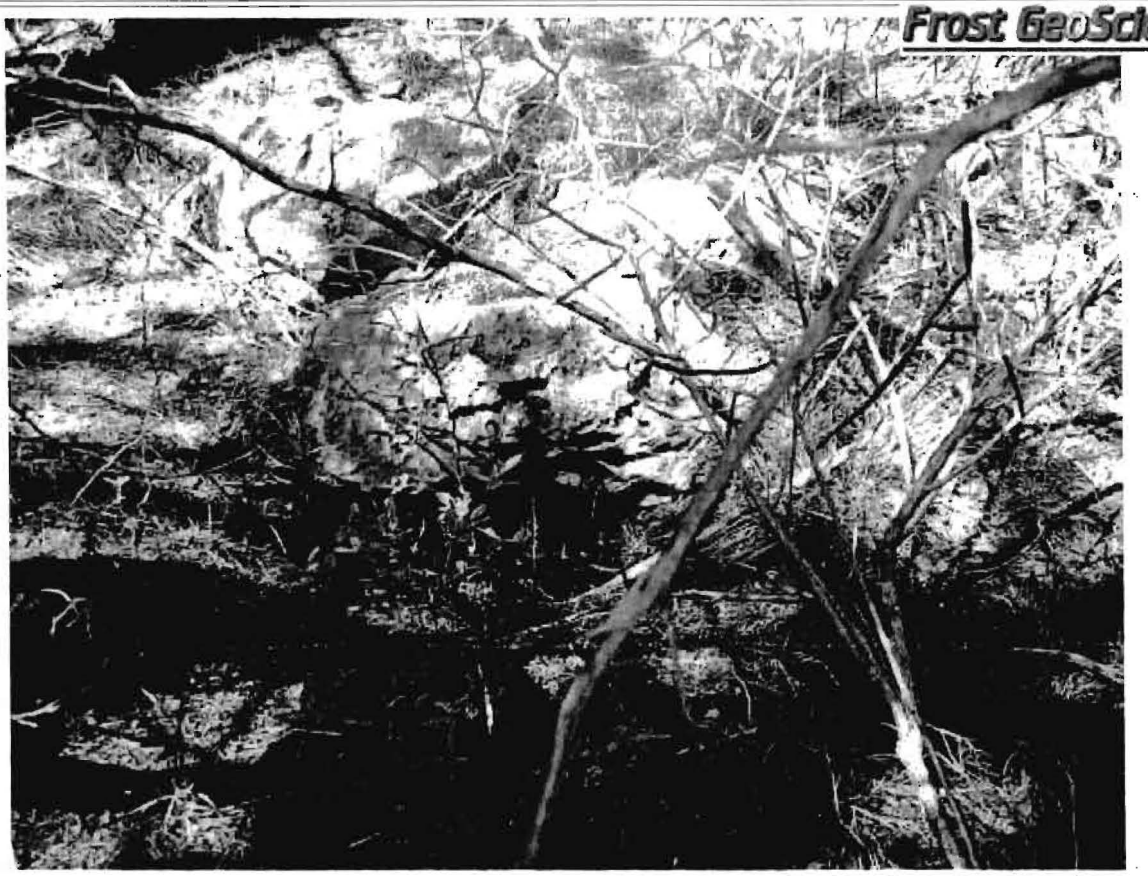
Typical view of the vegetative cover noted near S-39.



View of Potential Recharge Feature # S-40.



Typical view of the vegetative cover noted near S-40.



View of Potential Recharge Feature # S-42.



Typical view of the vegetative cover noted near S-42.



View of Potential Recharge Feature # S-46.



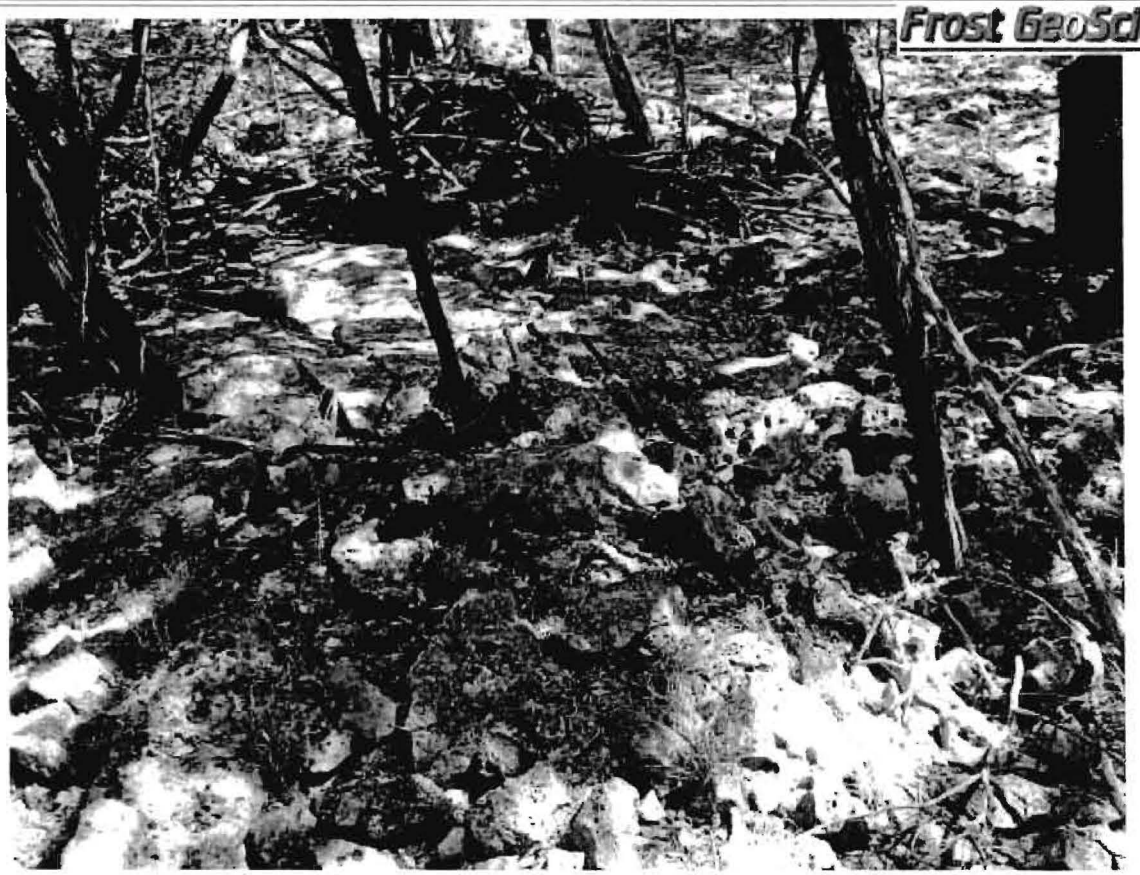
Typical view of the vegetative cover noted near S-46.



View of Potential Recharge Feature # S-47.



View of Potential Recharge Feature # S-48.



View of Potential Recharge Feature # S-52.



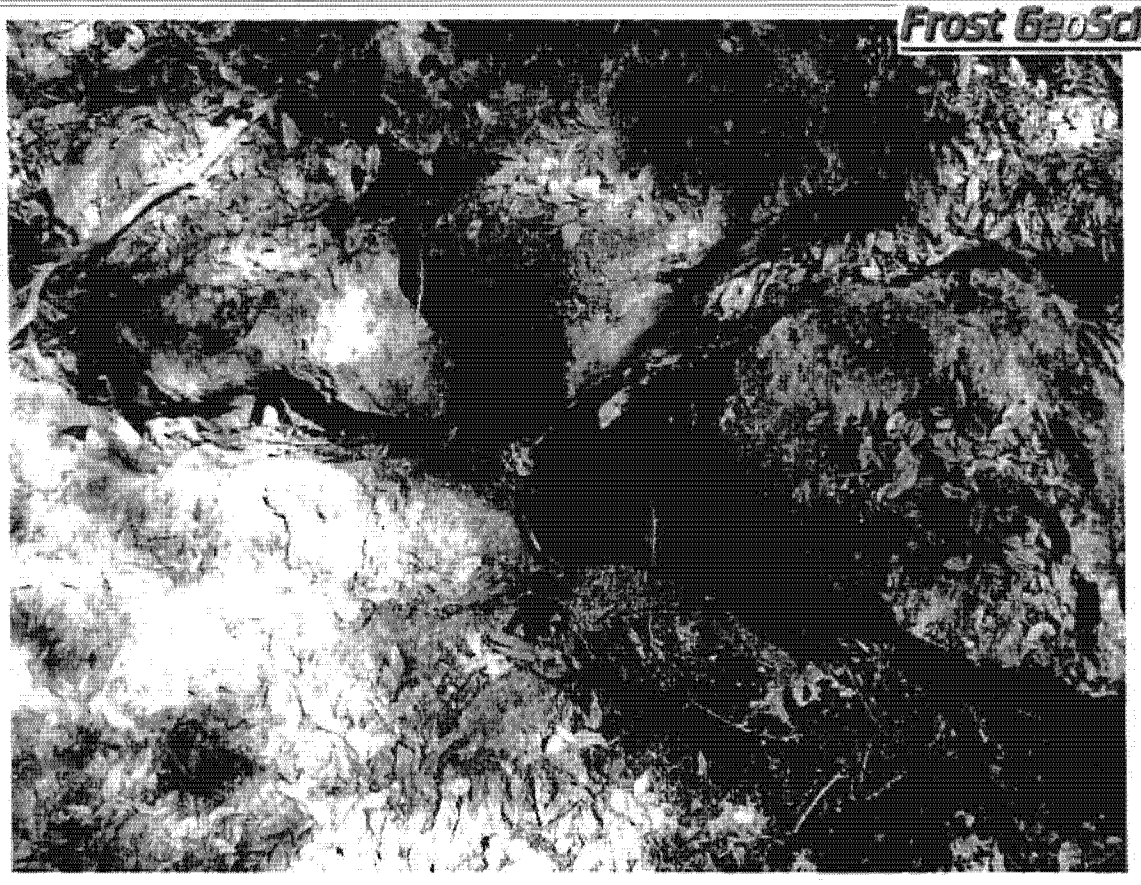
Typical view of the vegetative cover noted near S-52.



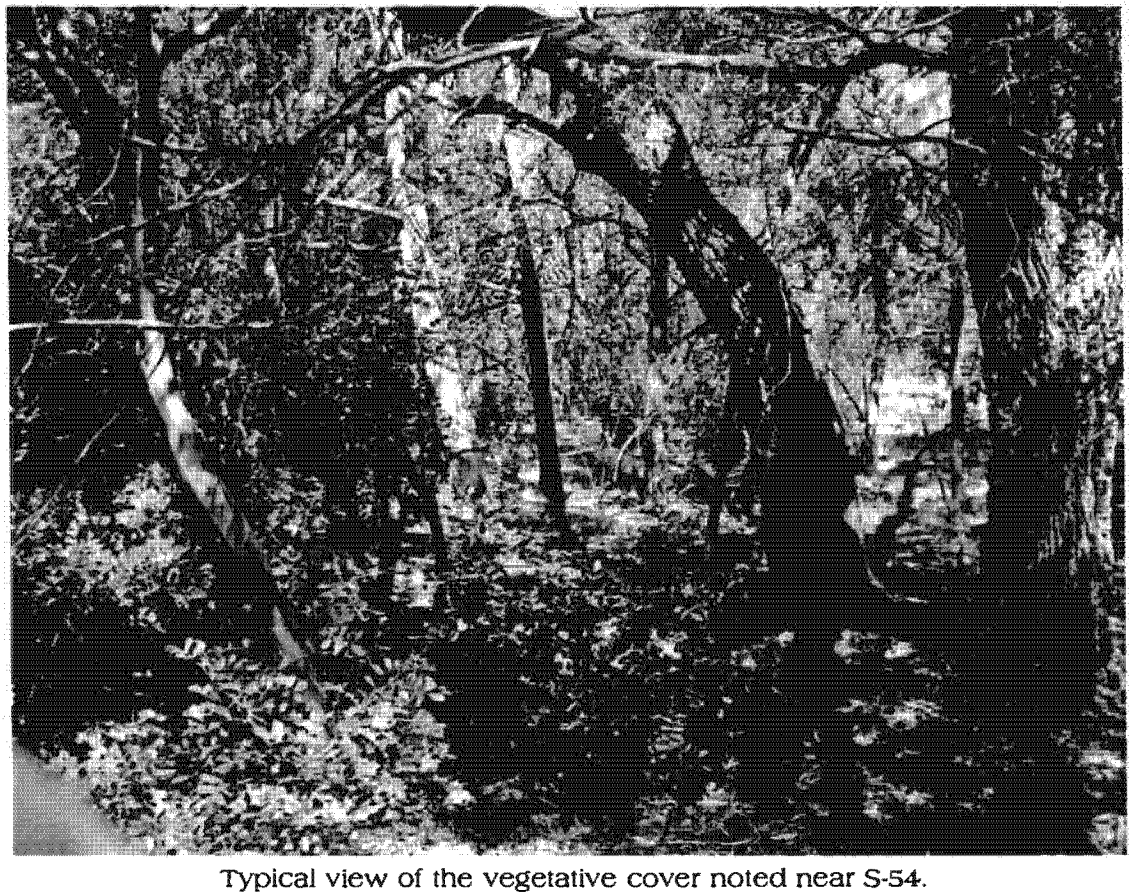
View of Potential Recharge Feature # S-53.



Typical view of the vegetative cover noted near S-53.



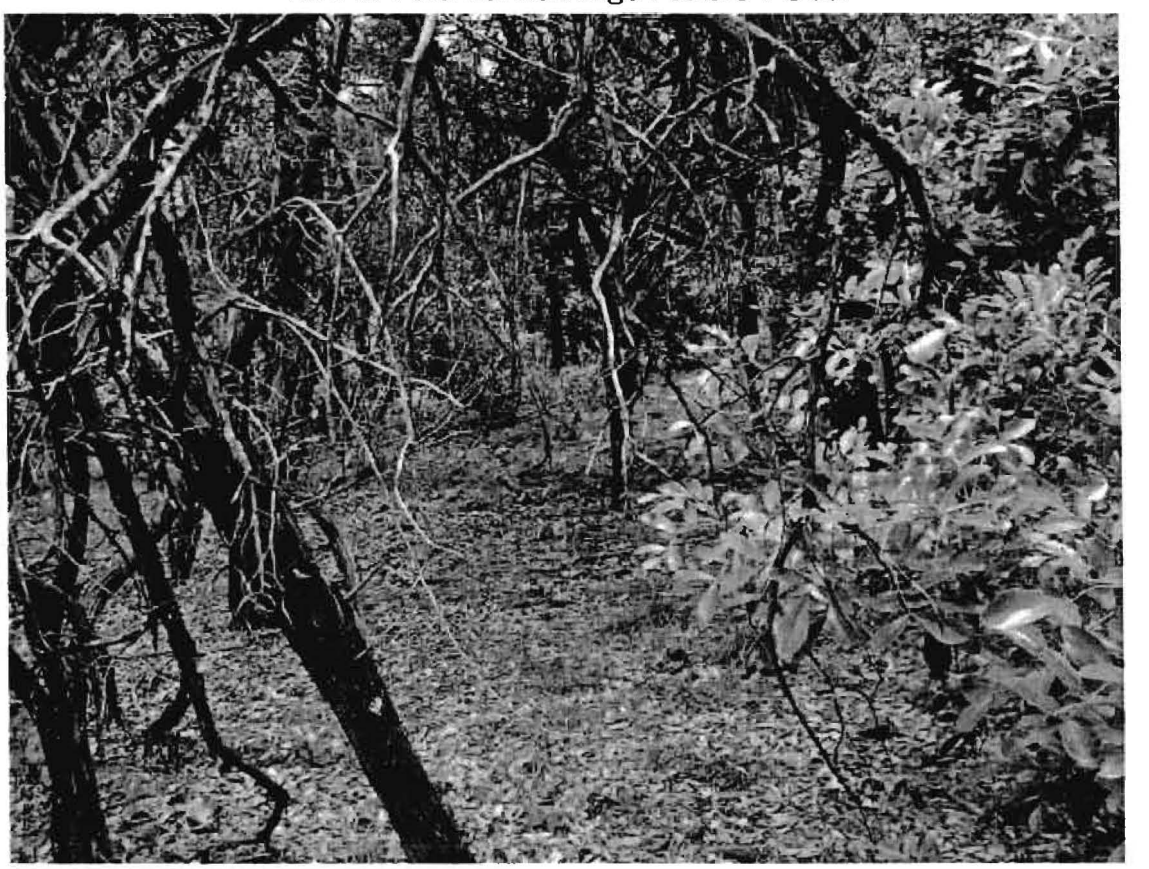
View of Potential Recharge Feature # S-54.



Typical view of the vegetative cover noted near S-54.



View of Potential Recharge Feature # S-55.



Typical view of the vegetative cover noted near S-55.



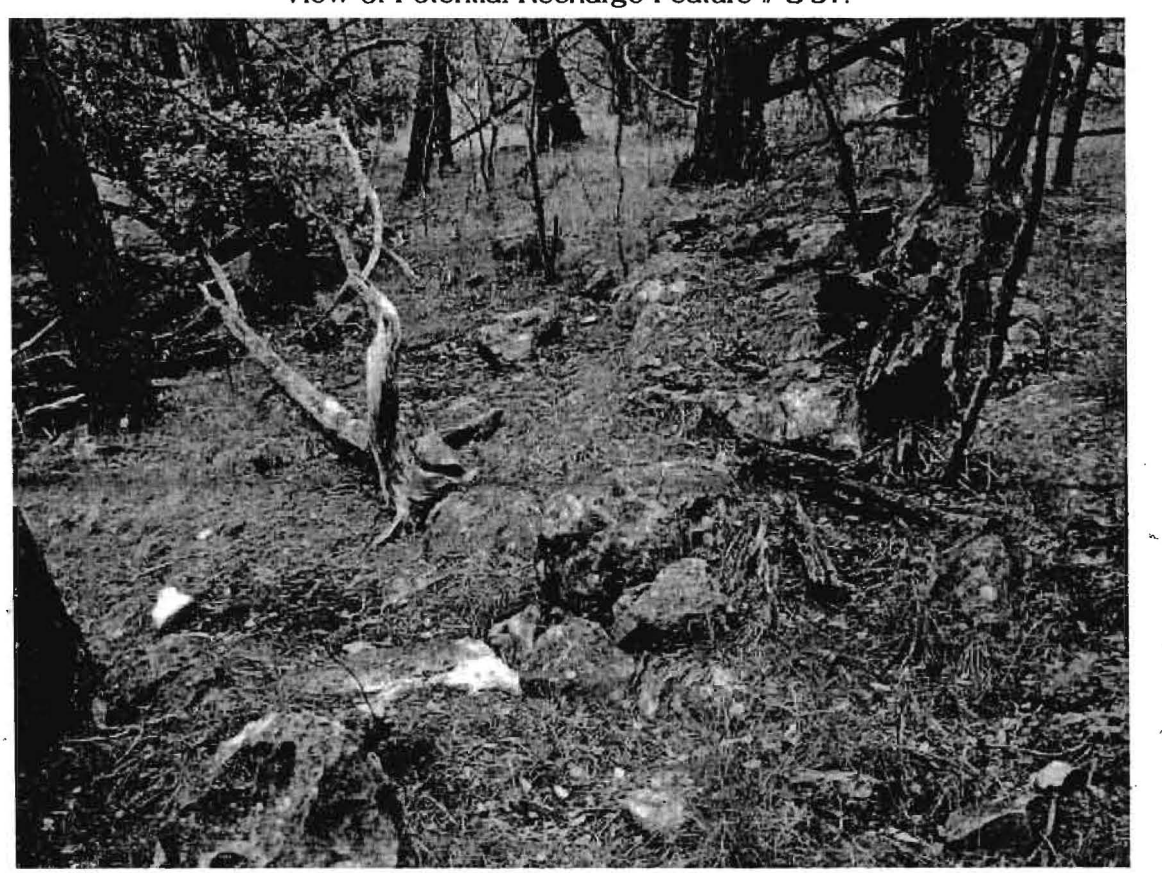
View of Potential Recharge Feature # S-56.



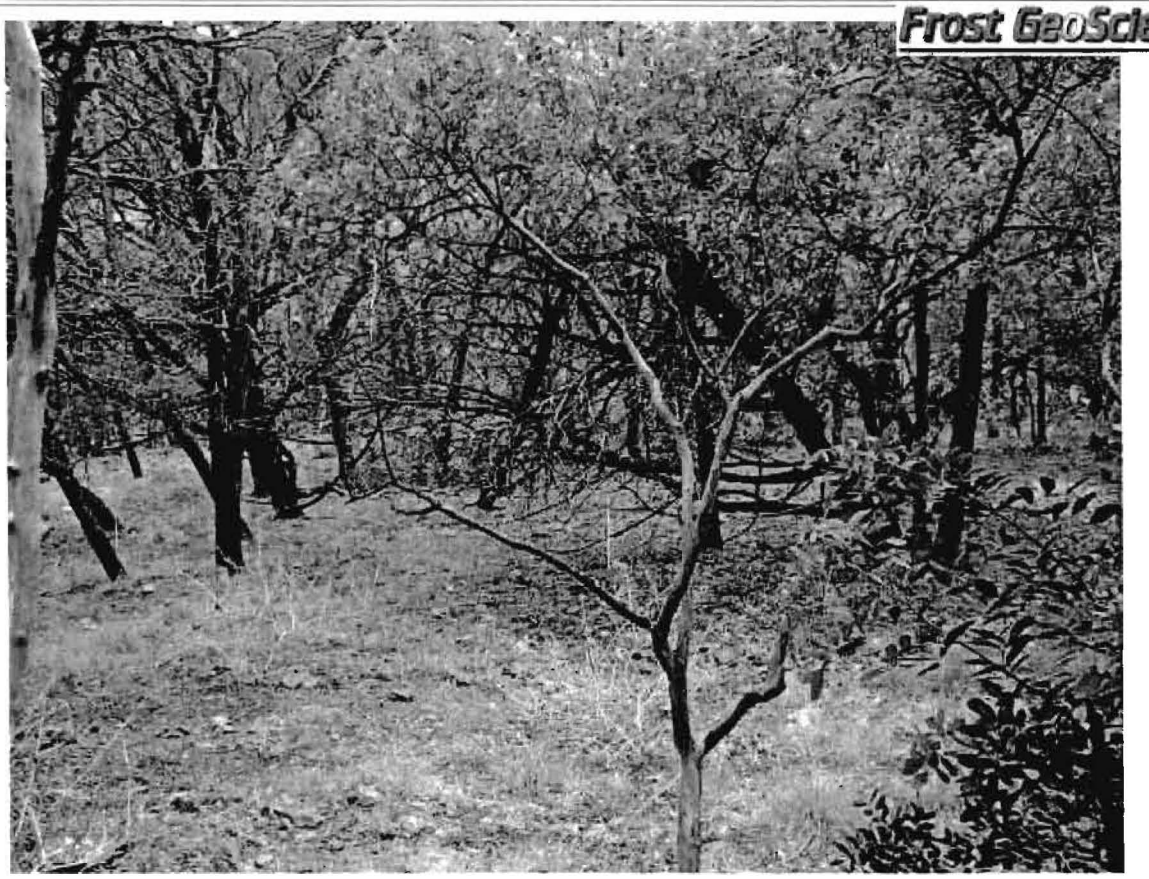
Typical view of the vegetative cover noted near S-56.



View of Potential Recharge Feature # S-57.



View of Potential Recharge Feature # S-58.



Typical view of the vegetative cover noted near S-58.



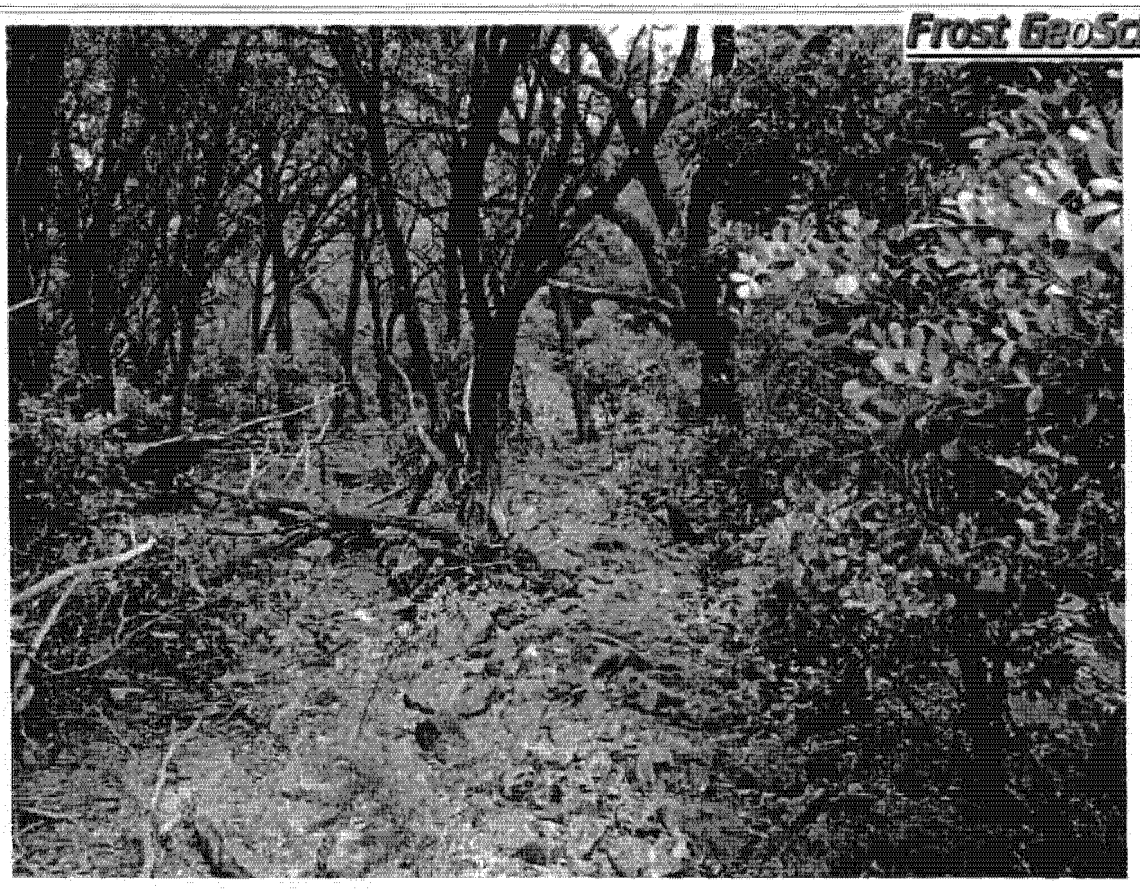
View of Potential Recharge Feature # S-59.



View of Potential Recharge Feature # S-61.



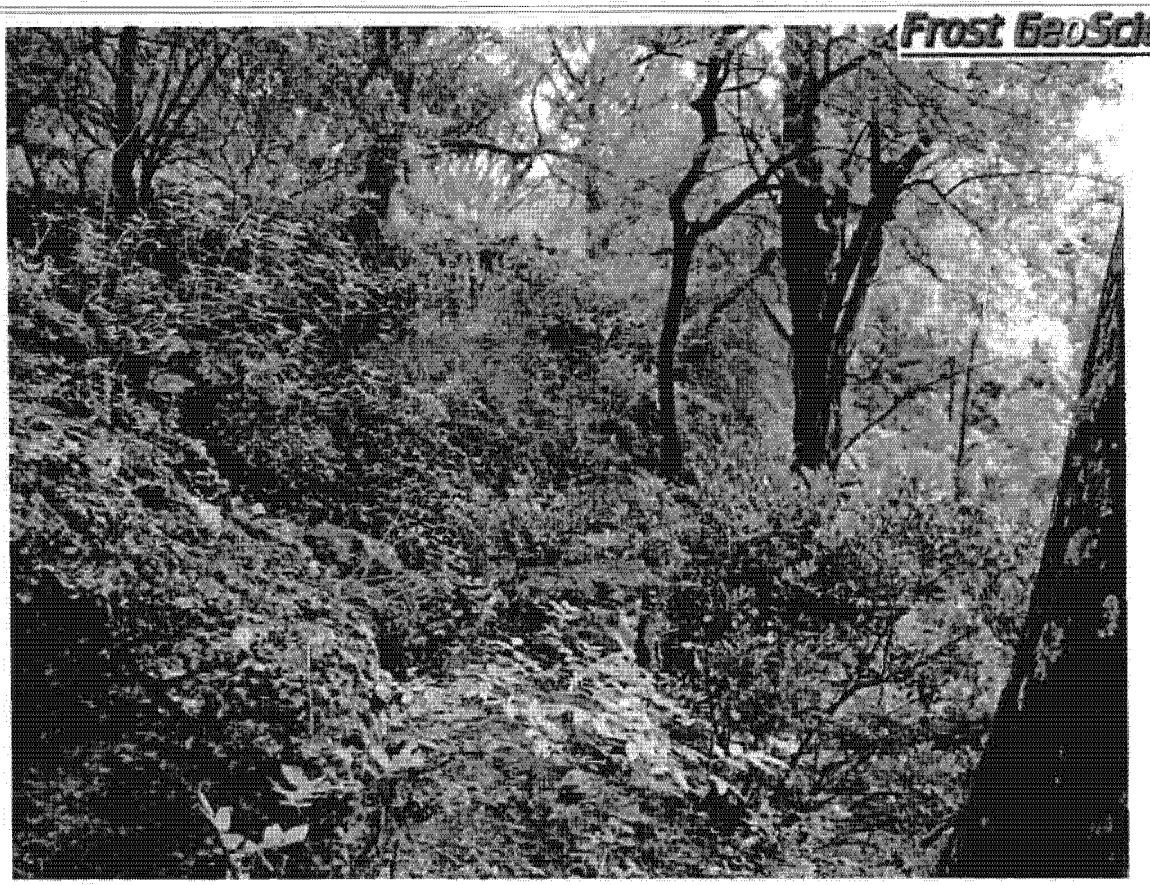
Typical view of the vegetative cover noted near S-61.



Typical view of the vegetative cover noted near S-61.



View of Potential Recharge Feature # S-63.



View of Potential Recharge Feature # S-64.



Typical view of the vegetative cover noted near S-64.



View of Potential Recharge Feature # S-65.



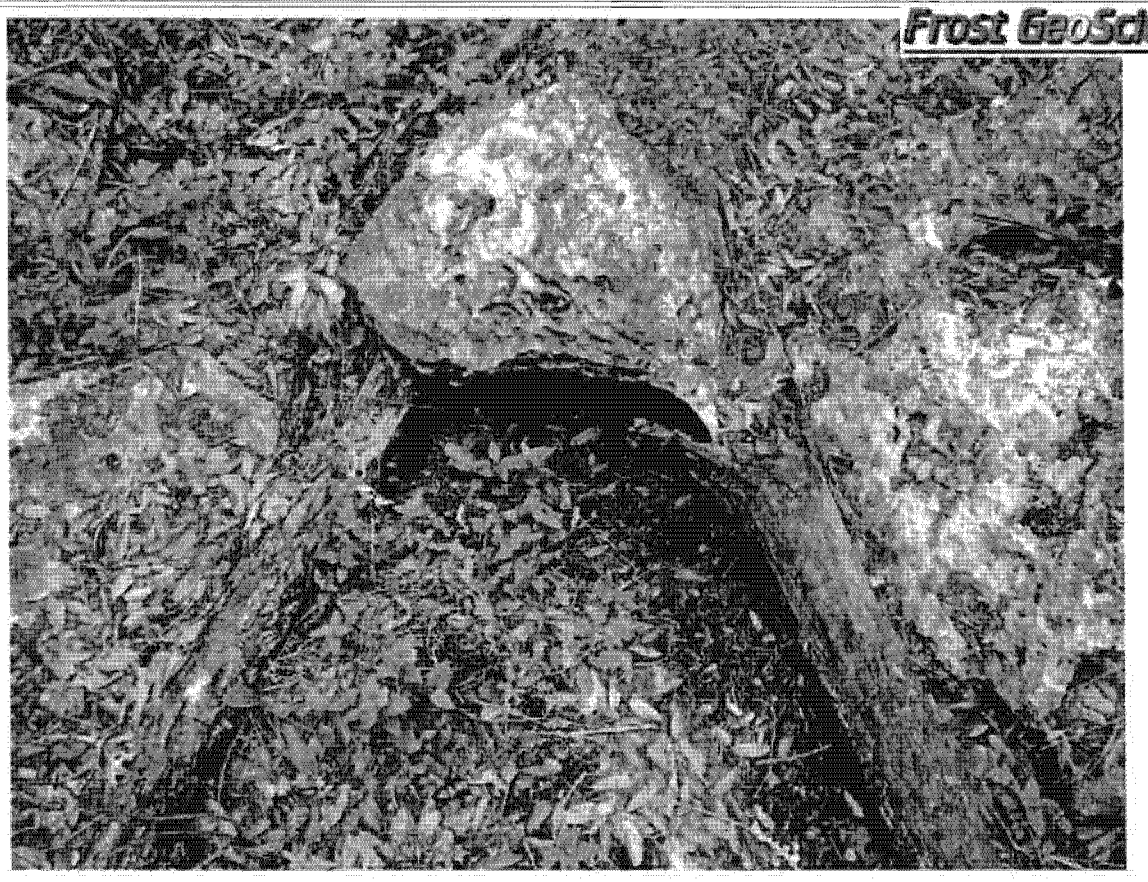
View of Potential Recharge Feature # S-65.



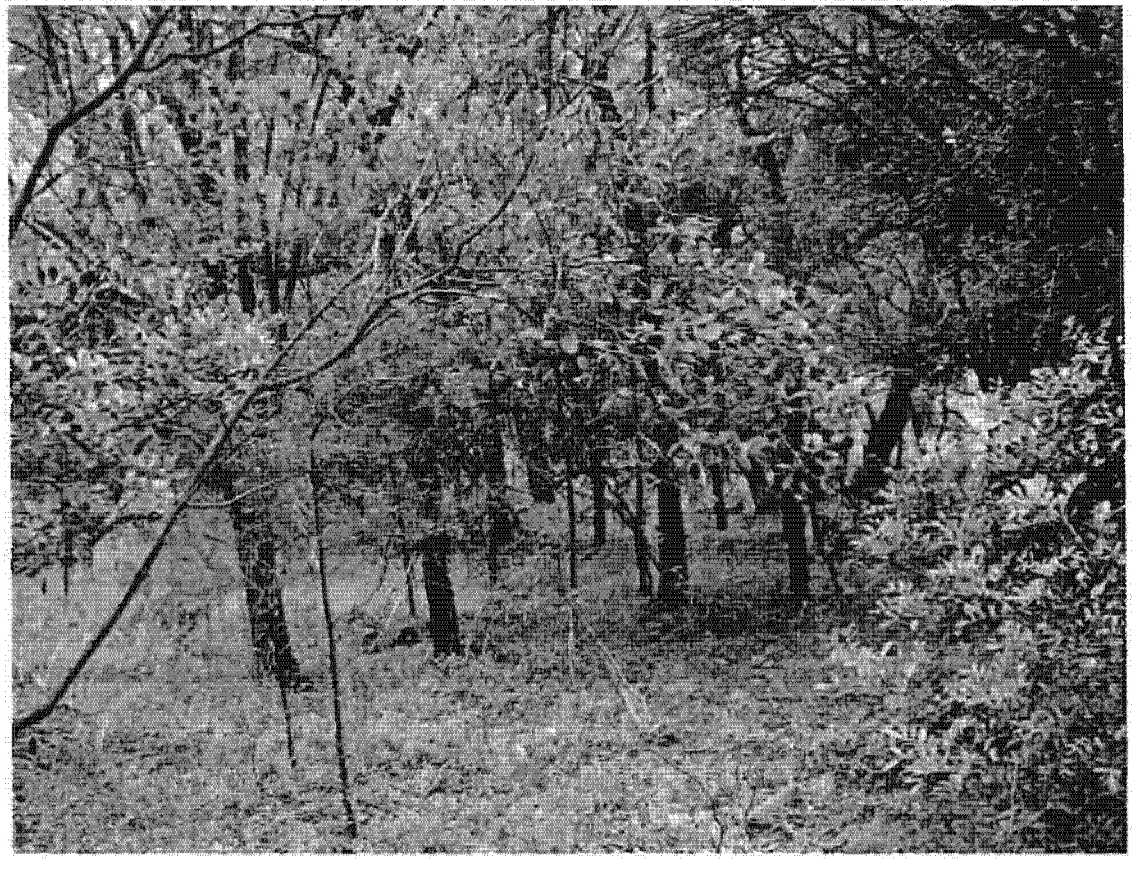
View of Potential Recharge Feature # S-66.



Typical view of the vegetative cover noted near S-66.



View of Potential Recharge Feature # S-67.



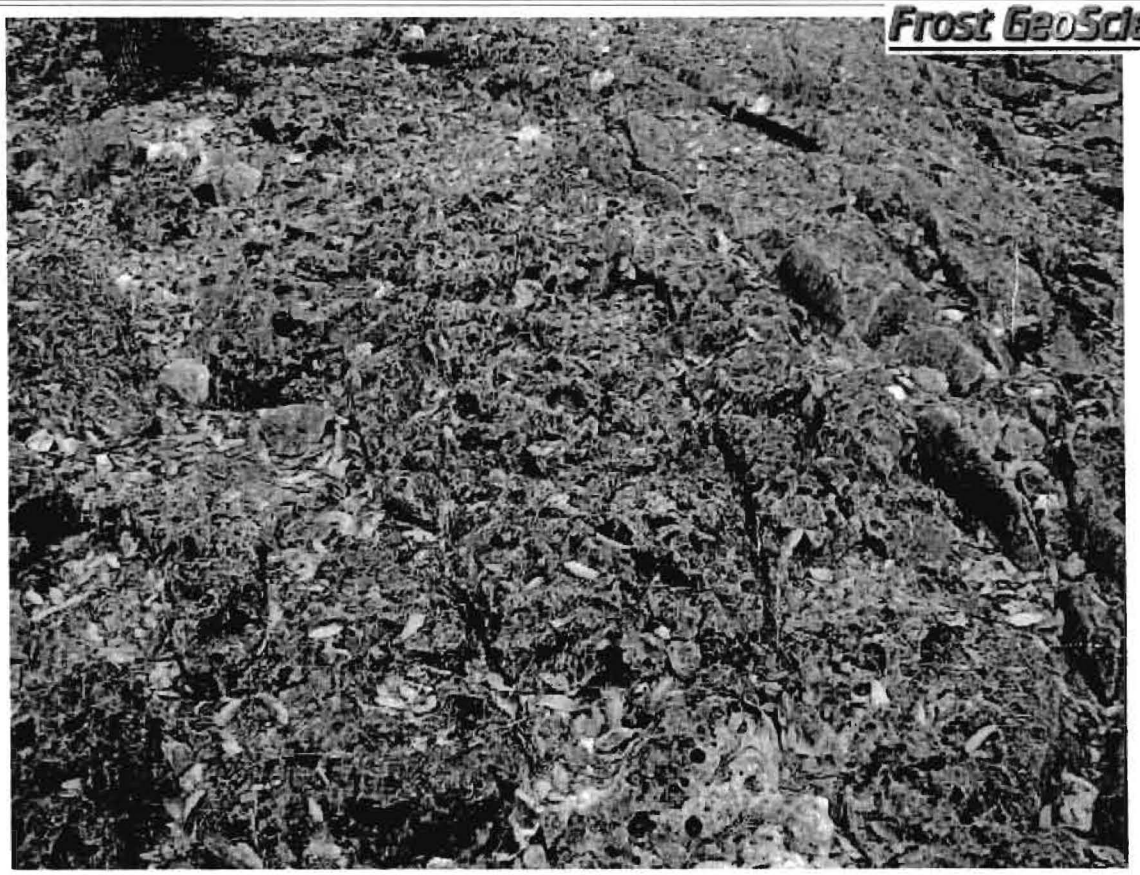
Typical view of the vegetative cover noted near S-67.



View of Potential Recharge Feature # S-68.



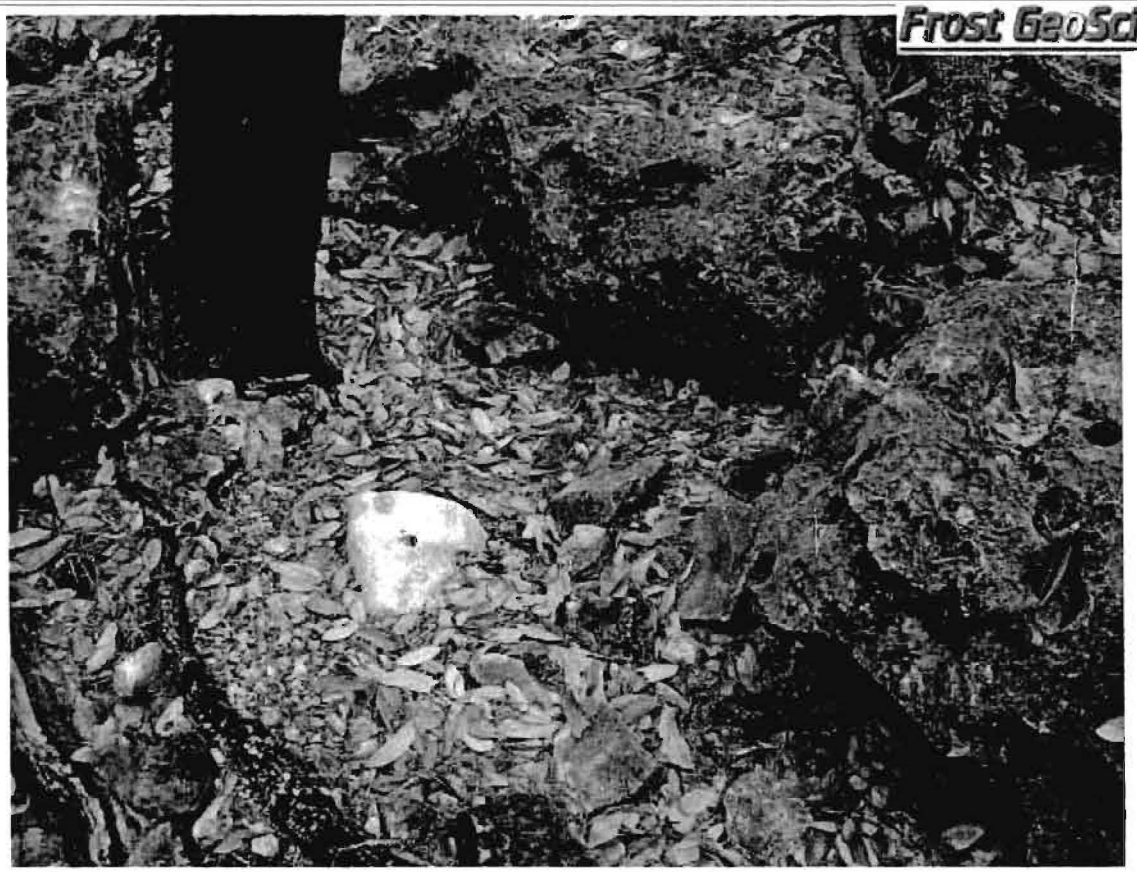
Typical view of the vegetative cover noted near S-68.



View of Potential Recharge Feature # S-69.



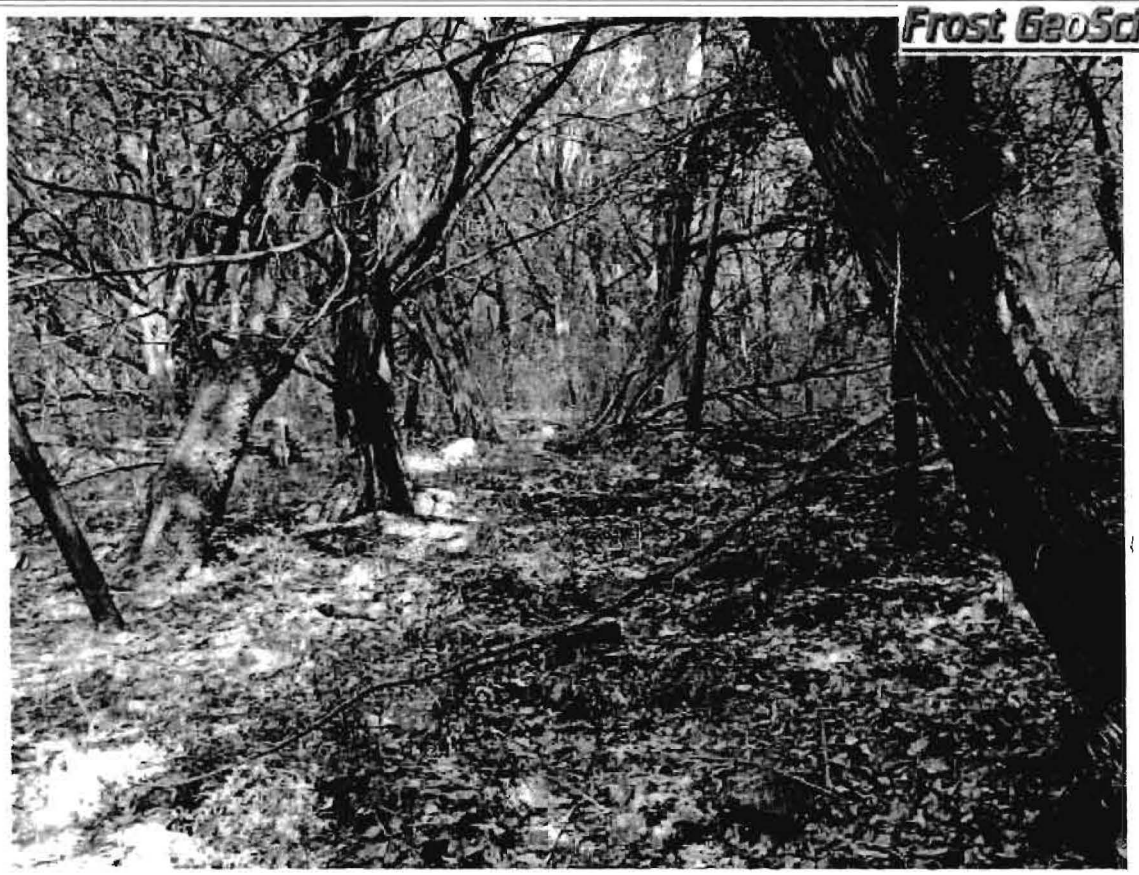
View of Potential Recharge Feature # S-69.



View of Potential Recharge Feature # S-70.



View of Potential Recharge Feature # S-72.



Typical view of the vegetative cover noted near S-72.



View of Potential Recharge Feature # S-73.



View of Potential Recharge Feature # S-74.



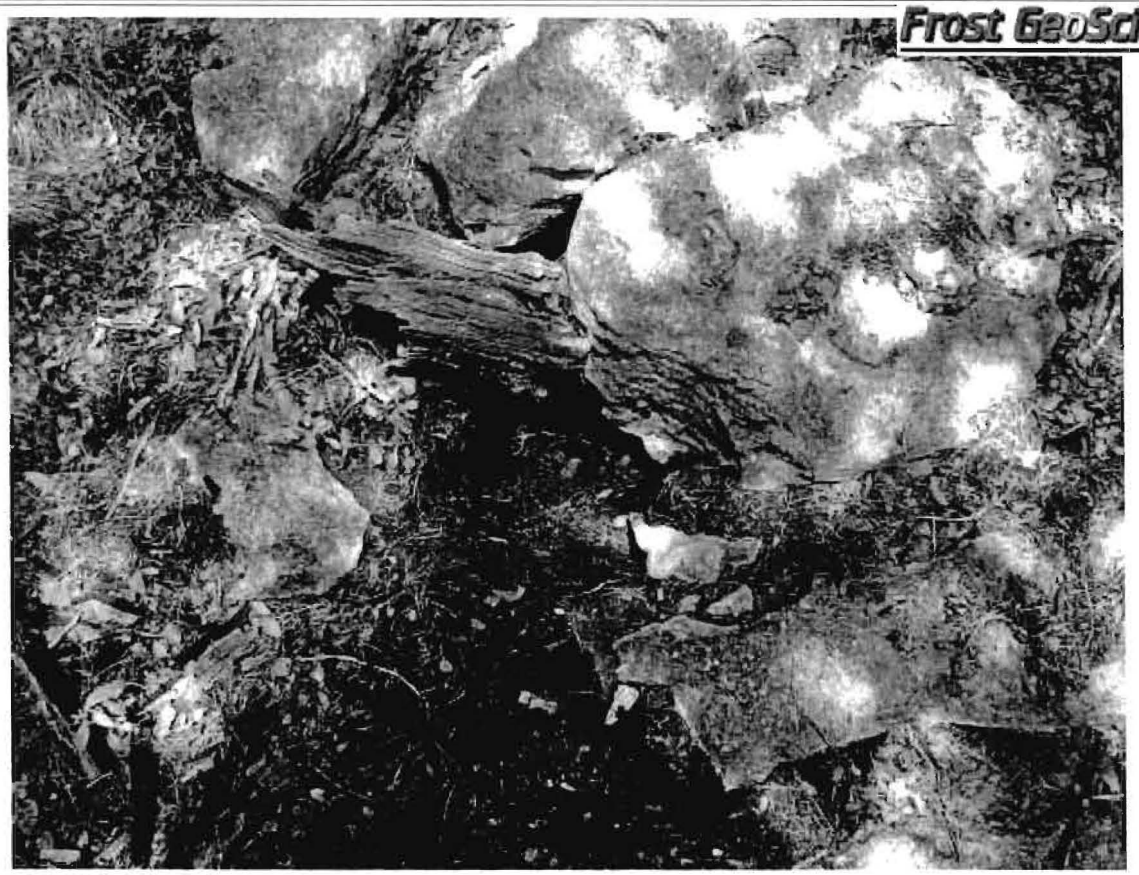
View of Potential Recharge Feature # S-74.



View of Potential Recharge Feature # S-75.



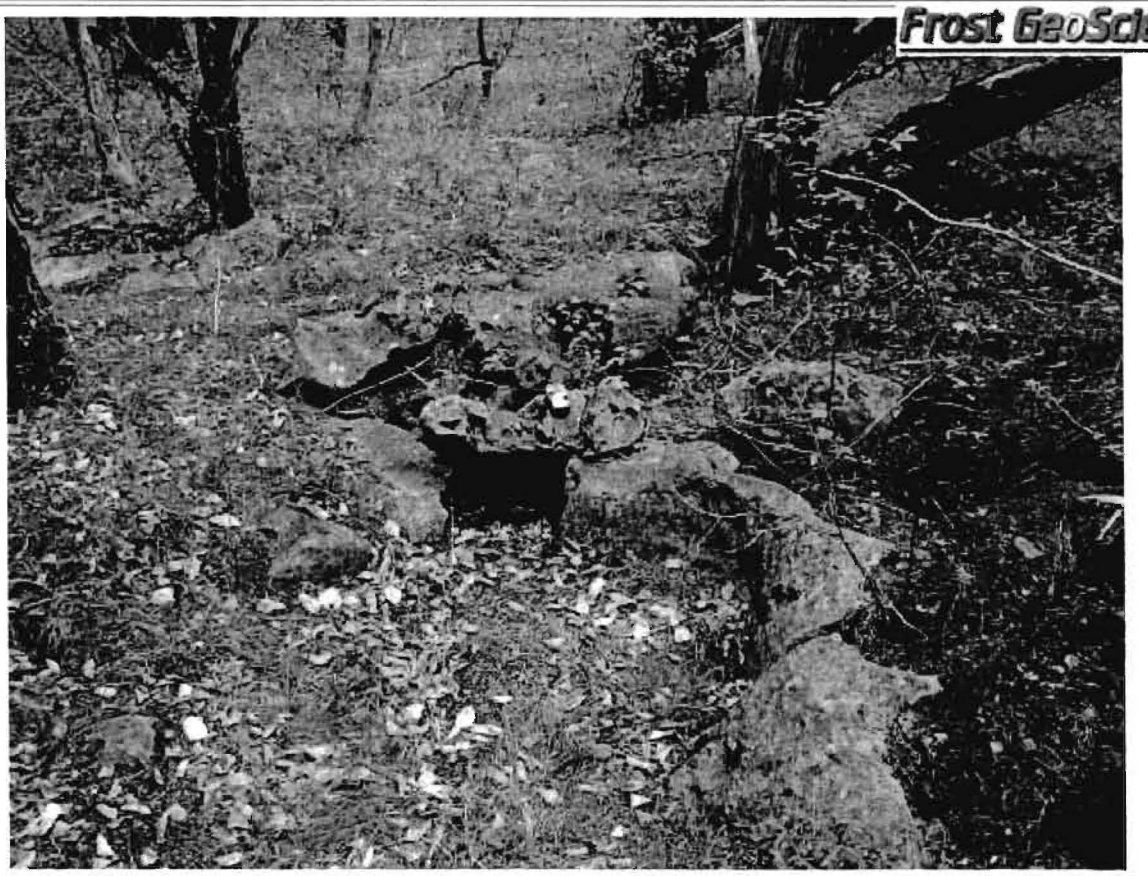
Typical view of the vegetative cover noted near S-75.



View of Potential Recharge Feature # S-77.



Typical view of the vegetative cover noted near S-77.



View of Potential Recharge Feature # S-78.



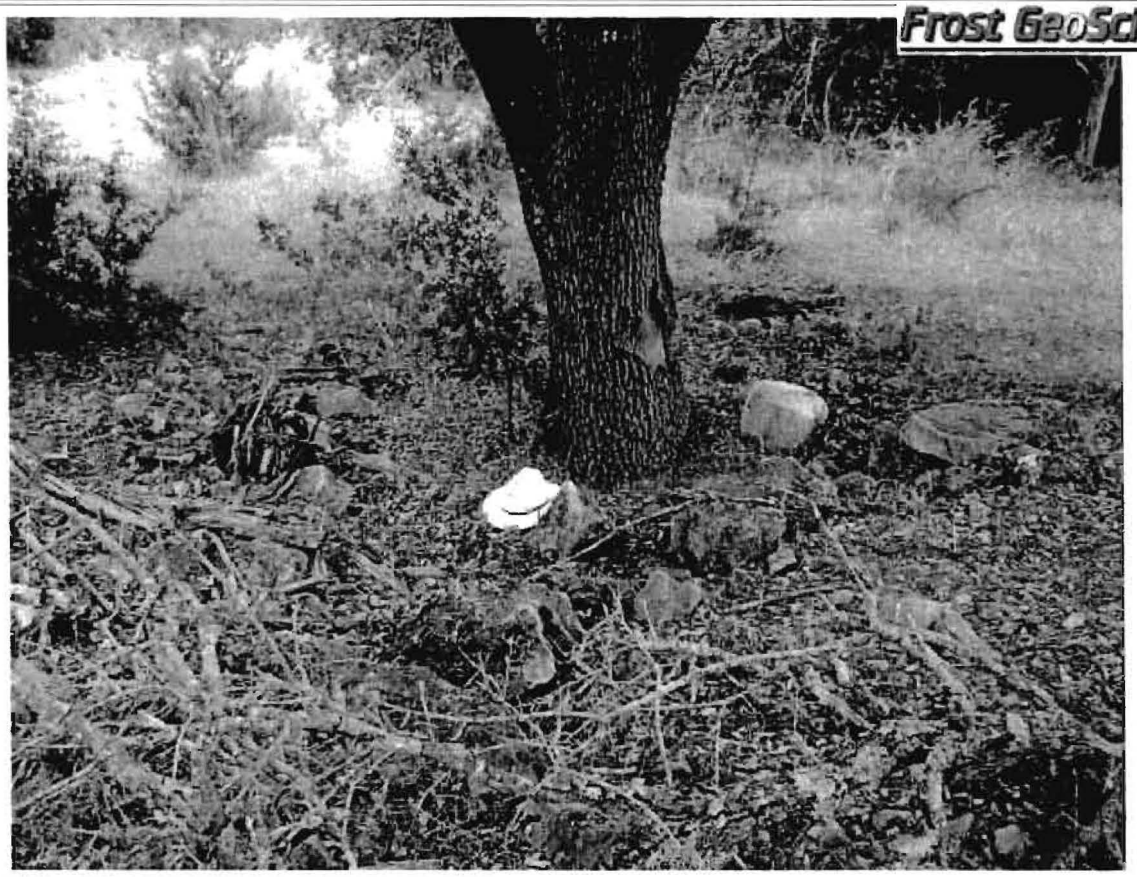
View of Potential Recharge Feature # S-78.



View of Potential Recharge Feature # S-79.



View of Potential Recharge Feature # S-80.



View of Potential Recharge Feature # S-81.



View of Potential Recharge Feature # S-81.



View of Potential Recharge Feature # S-83.



View of Potential Recharge Feature # S-85.



View of Potential Recharge Feature # S-85.



View of Potential Recharge Feature # S-86.



View of Potential Recharge Feature # S-88.



View of Potential Recharge Feature # S-89.



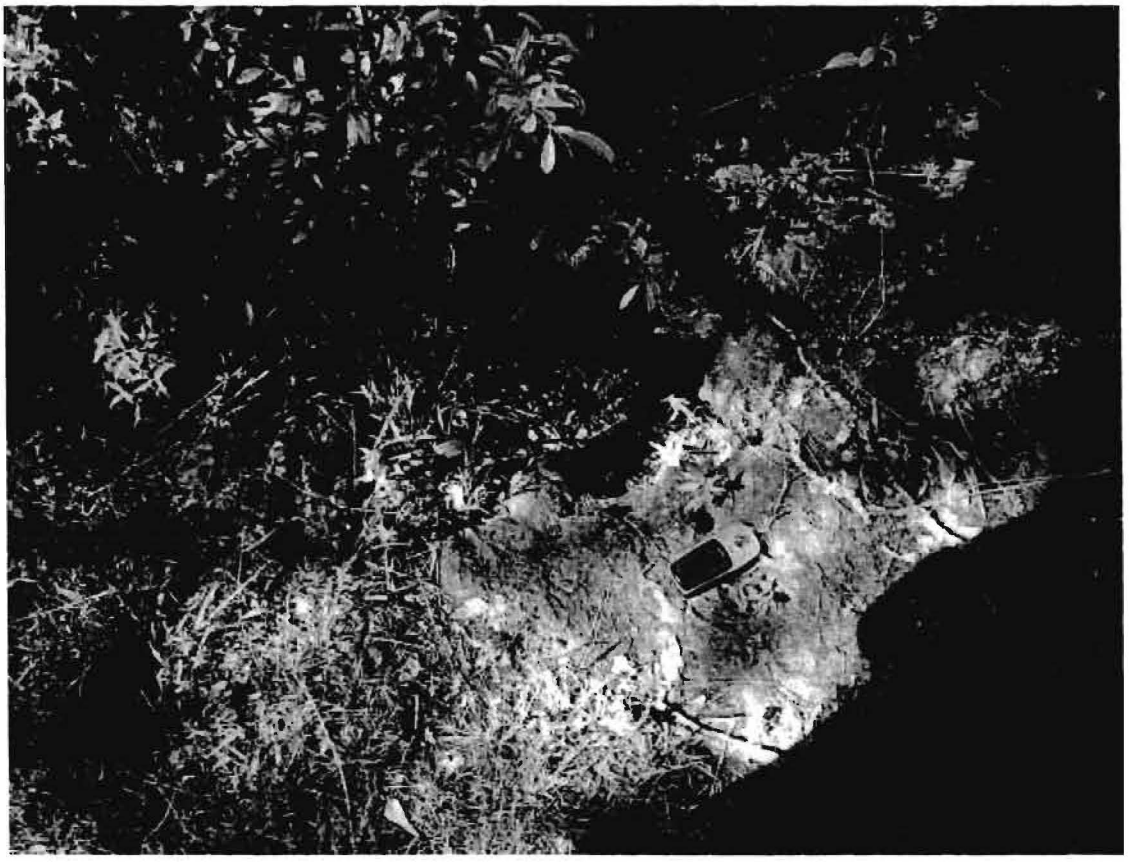
View of Potential Recharge Feature # S-89.



View of Potential Recharge Feature # S-89.



View of Potential Recharge Feature # S-90.



View of Potential Recharge Feature # S-91.



View of Potential Recharge Feature # S-92.



Typical view of the vegetative cover noted near S-92.



View of Potential Recharge Feature # S-93.



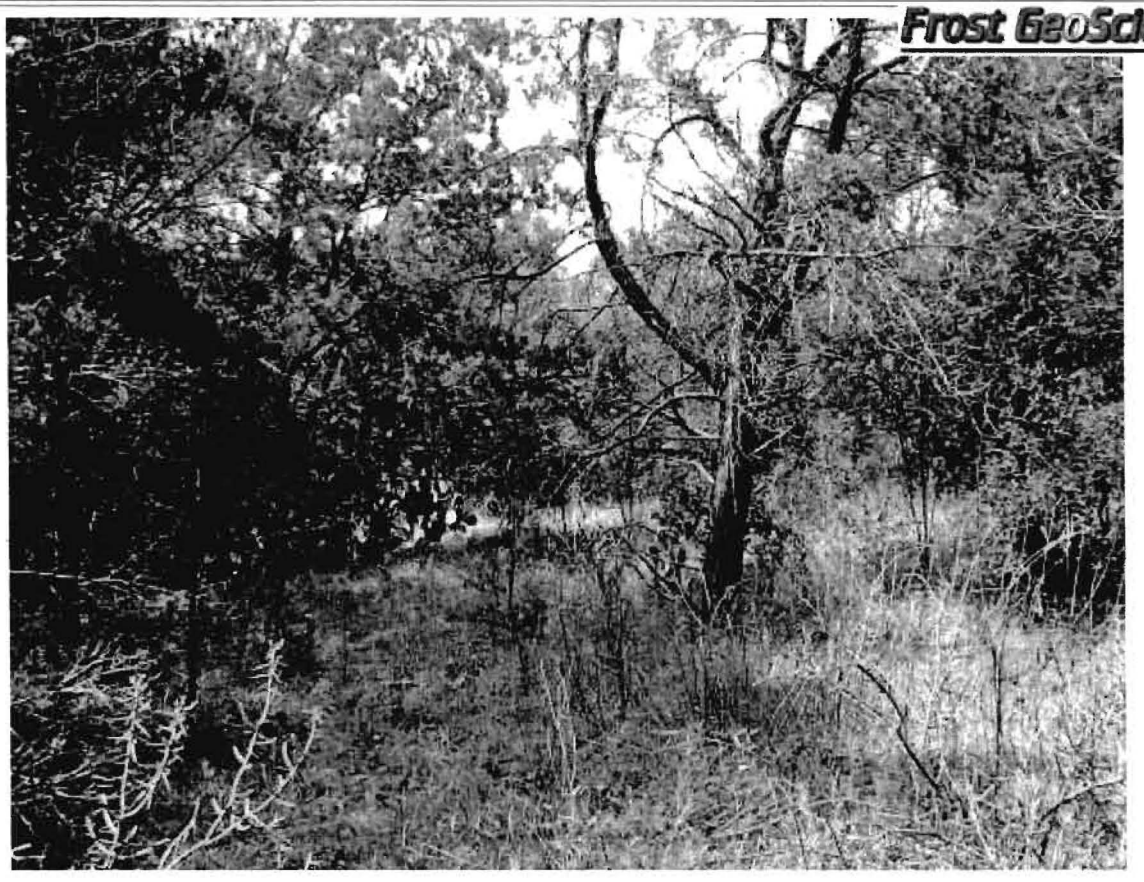
Typical view of the vegetative cover noted near S-93.



View of Potential Recharge Feature # S-94.



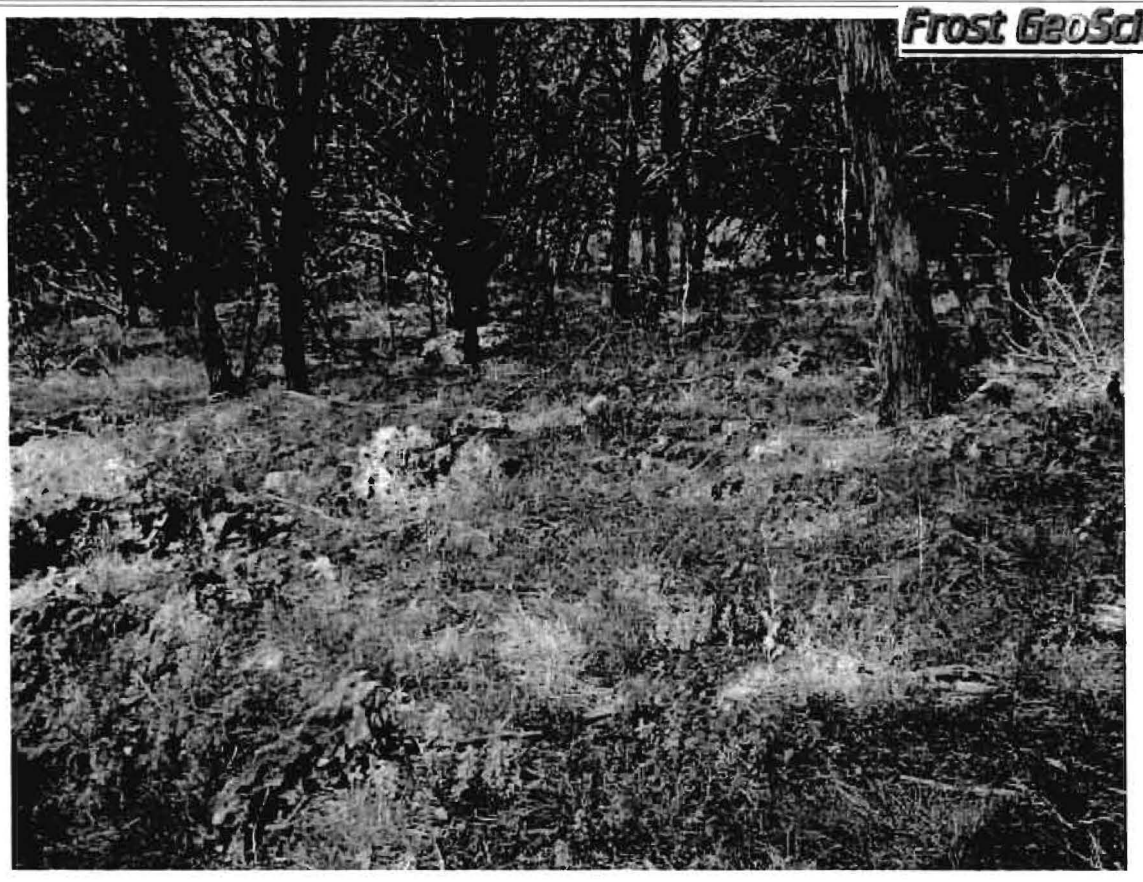
View of Potential recharge Feature # S-95.



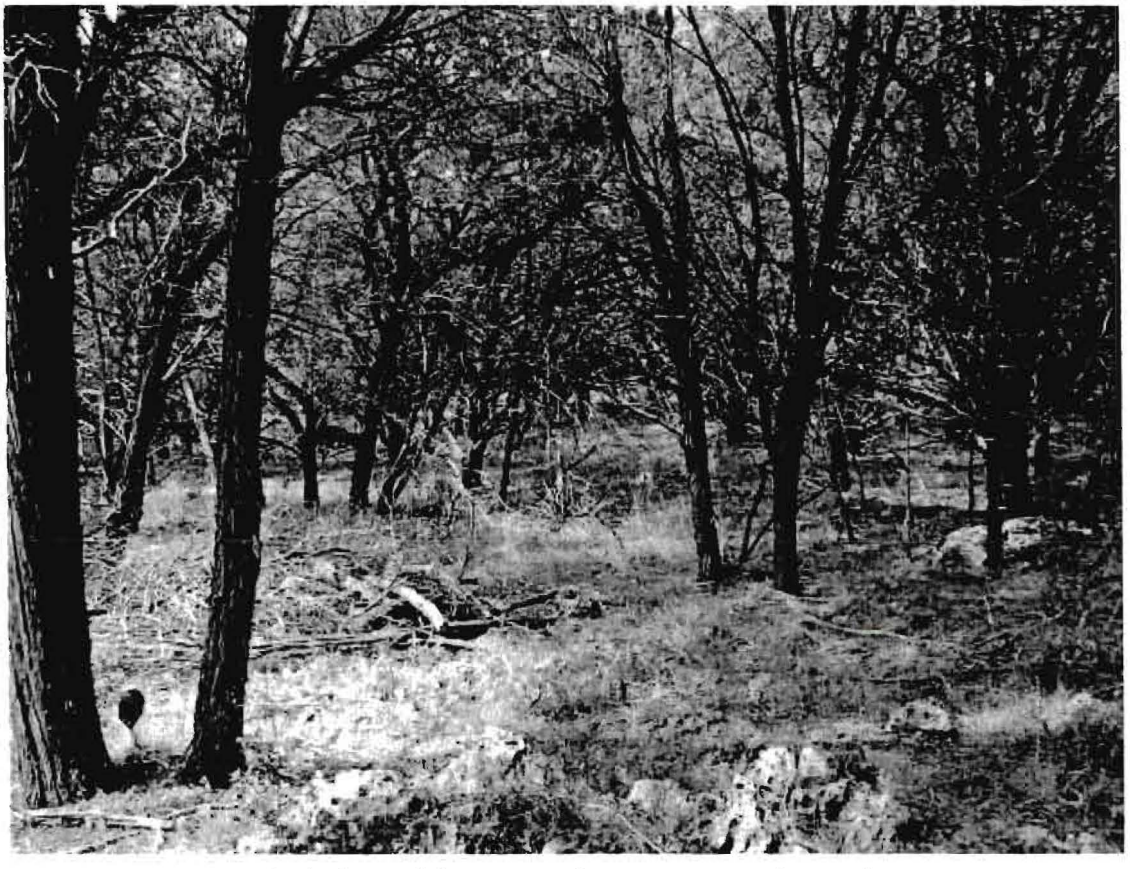
Typical view of the vegetative cover noted near S-95.



View of Potential Recharge Feature # S-96.



View of Potential Recharge Feature # S-97.



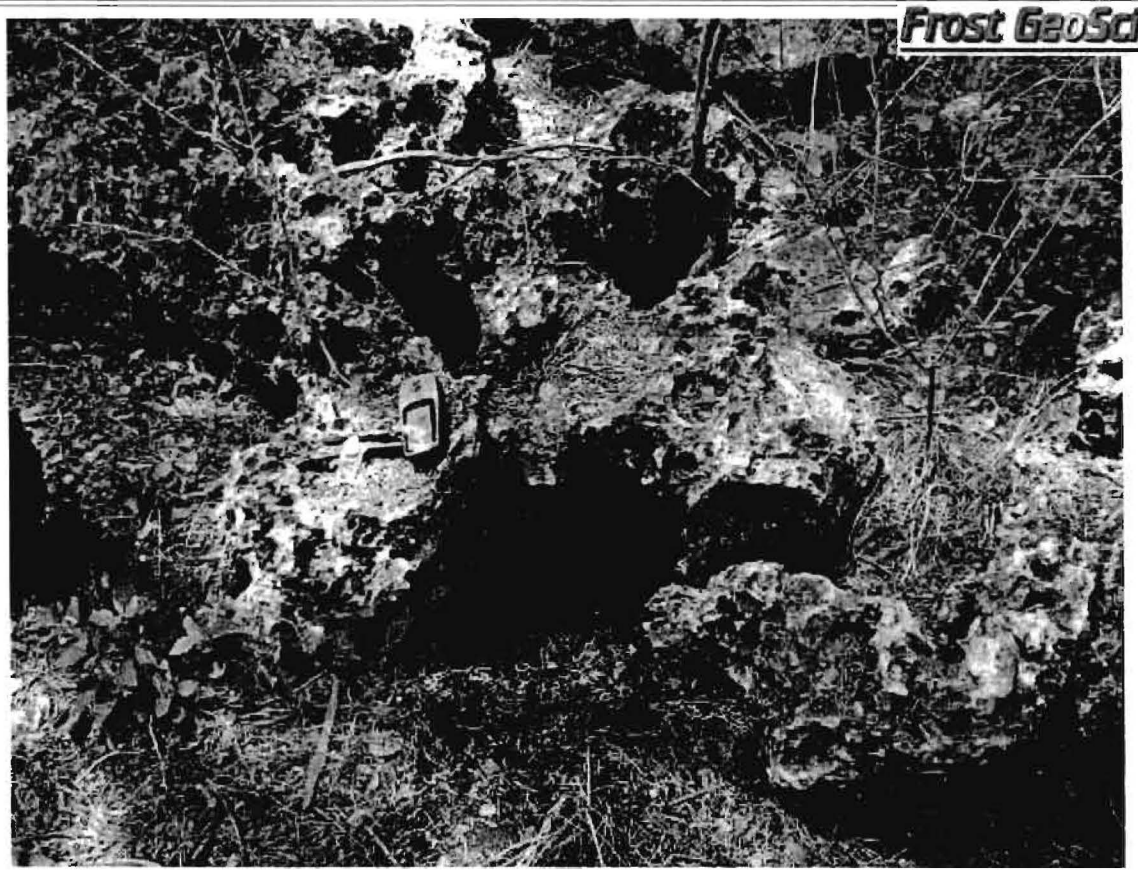
Typical view of the vegetative cover noted near S-97.



View of Potential Recharge Feature # S-98.



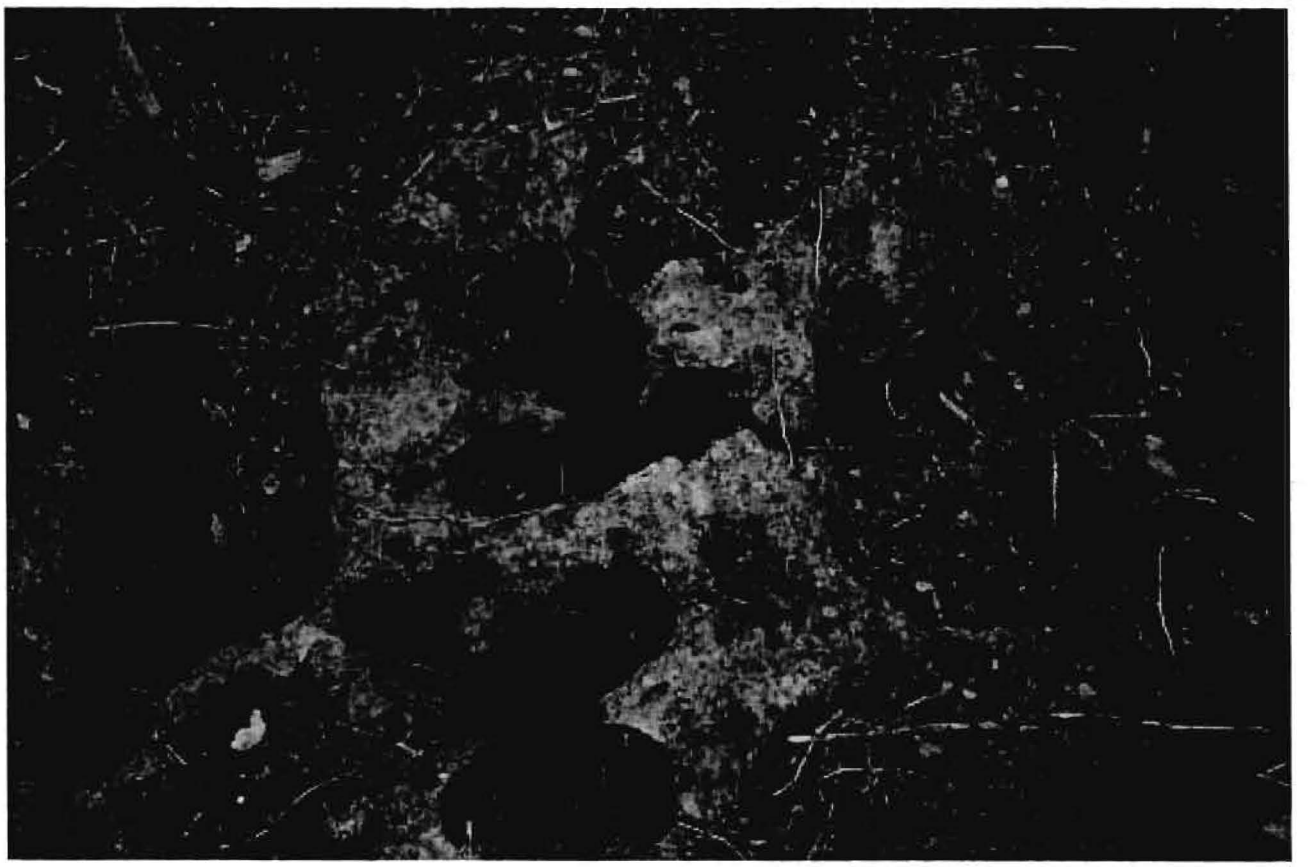
Typical view of the vegetative cover noted near S-98.



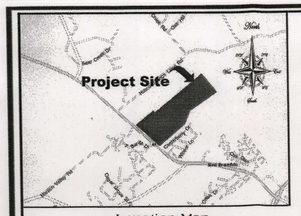
View of Potential Recharge Feature # S-99.



Typical view of the vegetative cover noted near S-99.



View of Potential Recharge Feature # S-103.



Location Map

Frost GeoSciences
Geotechnical • Construction Materials
Forensics • Environmental
13402 Western Oak Dr. • Helotes, Texas 78023
Phone: (210) 372-1315 Fax: (210) 372-1318

Site Geologic Map

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
for the
Tschirhart Ranch Subdivision
267.038 Acres
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E09176

Legend

- Fill - Fill Material
- Qal - Alluvium
- Kau - Austin Chalk
- Kef - Eagle Ford Shale
- Kbu - Buda Limestone
- Kdr - Del Rio Clay
- Kgt - Georgetown Limestone
- Kep - Edwards Person Limestone
- Kek - Edwards Kainer Limestone
- Kgr - Glen Rose Formation

- S-# - Potential Recharge Feature (PRF)
- Formation Contact
- 100-Year Floodplain - Zone A
- 100-Year Floodplain - Zone AE
- Other Flood Hazard Area - Zone X (shaded)

Floodplain Information Obtained From
FIRM: Flood Insurance Rate Map
Comal County, Texas: Panel # 48546301 00C, Revised 2/29/86
Comal County, Texas: Panel # 48546301 05C, Revised 2/29/86

Fault Information Obtained From:
Bureau of Economic Geology, Geologic Atlas of Texas, San Antonio Sheet (1983)
U.S. Geological Survey, Water Resources Investigations Report 94-4117 (1994)
Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000)

STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
PROFESSIONAL GEOSCIENTIST

Steve Frost
Signature of Texas Licensed Geoscientist
Steve Frost, TPG# 315, AIPG # 10176

North
NW NE West East SW SE
South

Graphic Scale
200 0 100 200 400
(In Feet)

1 inch = 200 feet
Representative Fraction 1:2400

Contour Interval - 2 feet

Modification of a Previously Approved Plan
for Regulated Activities on the
Edwards Aquifer Recharge Zone and Transition Zone
and Relating to 30 TAC 213.4(j), Effective June 1, 1999

1. Current Regulated Entity Name: Water Pollution Abatement Plan for Tschirhart Ranch Subdivision
Original Regulated Entity Name: Manor Creek Subdivision
Assigned Regulated Entity Numbers (RN): 1) _____, 2) _____, 3) _____

X The applicant has not changed and the Customer Number (CN) is: CN 601213523
___ The applicant has changed. A new Core Data Form has been provided.

2. X **Attachment A: Original Approval Letter and Approved Modification Letters:** A copy of the original approval letter and copies any letters approving modification are found at the end of this form.

3. A modification of a previously approved plan in requested for (check all that apply):

___ 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;
___ 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;
X development of land previously identified as undeveloped in the original water pollution abatement plan;
___ physical modification of the approved organized sewage collection system;
___ physical modification of the approved underground storage tank system;
___ physical modification of the approved aboveground storage tank system.

4. Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	Approved Project	Proposed Modification
Acres	252.038	266.916
Type of Development	Residential	Residential
Number of Residential Lots	343	340
Impervious Cover (acres)	50.29	53.141
Impervious Cover (%)	19.95%	19.91%
Permanent BMPs	Vegetative Buffers	Vegetative Buffers
Other		

SCS Modification Summary	Approved Project	Proposed Modification
Linear Feet		
Pipe Diameter		
Other		

AST Modification Summary	Approved Project	Proposed Modification
Number of ASTs		
Volume of ASTs		
Other		

UST Modification Summary	Approved Project	Proposed Modification
Number of USTs		
Volume of USTs		
Other		

5. _X_ **Attachment B: Narrative of Proposed Modification**. A narrative description of the nature of the proposed modification is provided at the end of this form. It discusses what was approved, including previous modifications, and how this proposed modification will change the approved plan.

6. _X_ **Attachment C: Current site plan of the approved project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is provided at the end of this form. A site plan detailing the changes proposed in the submitted modification is required elsewhere.

___ The approved construction has not commenced The original approval letter, and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.

___ The approved construction has commenced and has been completed Attachment C illustrates that the site was constructed as approved.

___ The approved construction has commenced and has been completed Attachment C illustrates that the site was **not** constructed as approved.

___ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.

_X_ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. _X_ The acreage of the approved plan has increased A Geologic Assessment has been provided for the new acreage.

___ Acreage has not been added to **or** removed from the approved plan.

8. _X_ One (1) original and ~~3~~ 4 copies of the complete application has been provided.

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 request for a **MODIFICATION TO A PREVIOUSLY APPROVED PLAN** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Michael G. Short, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

2/11/10
Date

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 4, 2006

Mr. Timothy D. Pruski
Continental Homes of Texas
211 N. Loop 1604 East, Suite 130
San Antonio, TX 78232

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Manor Creek (Tschirhart Ranch) ; Located on the north side of State Highway 46, approximately 2 miles west of the intersection of Loop 337 and State Highway 46; New Braunfels, 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 ID No. 2439.00
Investigation Number: 449964
Regulated Entity Number: RN104801568

Dear Mr. Pruski:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas on December 7, 2007. Final review of the WPAP application was completed after additional material was received on March 31, 2006. As presented to the TCEQ, the Temporary and Permanent 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.*

PROJECT DESCRIPTION

The proposed single family residential project will have an area of approximately 252.038 acres. It will include 343 lots, roads, and utilities. The impervious cover will be 50.29 acres (19.95 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by the New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

Since this single-family residential project will not have more than 20 percent impervious cover, an exemption from permanent BMPs is approved.

GEOLOGY

According to the geologic assessment included with the application and additional information submitted during the review, 104 geologic and man-made features were identified on the site. Thirteen of the features, S15, S21, S25, S35, S38, S61, S63, S70, S71, S81, S85, S89, and S93, were initially assessed as sensitive. Two of the sensitive features, S -38 and S-93, received additional evaluation by the geologist, who determined the features not to be sensitive. The San Antonio Regional Office site inspection of March 22, 2006, revealed that the site is generally as described by the geologic assessment.

SPECIAL CONDITIONS

I. If the impervious cover ever increases above 20 percent or the land use changes, the exemption for the whole site may no longer apply and the property owner must notify the San Antonio Regional Office of these changes.

II Intentional discharges of sediment laden stormwater are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

III. As proposed, a 50 foot natural buffer will be provided around geologic features assessed as sensitive.

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

Prior to Commencement of Construction:

2. 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, TNRCC-0625) that you may use to deed record the approved WPAP is enclosed.

3. 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.

4 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.

5. 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.

6. 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.

7. 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:

8. 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.

9. 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.

10. No wells exist on the 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.

11. 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.

12. 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.

13. 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:

14 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.

15. **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 the San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TNRCC-10263) is enclosed.**

16. **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.**

17. **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.**

18 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 Lynn M. Bumguardner of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210.403.4023.

Sincerely,

Glenn Shankle
for Executive Director
Texas Commission on Environmental Quality

GS/LMB/eg

Enclosures: Deed Recordation Affidavit, TNRCC-0625
Change in Responsibility for Maintenance on Permanent BMPs, TNRCC-10263

cc Mr. Stephen E. Schultz, The Schultz Group, Inc
Mr. Michael Short, City of New Braunfels
Mr. Tom Hornseth, Comal County
Mr. Robert J. Potts, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

Attachment B - Narrative of Proposed Modification

The project was previously titled Tschirhart Ranch Subdivision, it has since become know as Manor Creek. The original proposed project consisted of 252.038 acres of land that was to be developed into a 343 lot residential subdivision. Each individual residential lot was to contain approximately 3,860 square feet of impervious cover which included a building structure and a concrete driveway. There was to be approximately 6,800 L.F. of street in a 60' R.O.W. The overall developed project was to consist of less than 20% impervious cover, so that structural BMP's would not be required. The permanent BMP's around the sensitive features consist of native vegetation for a minimum of 50 feet around each feature.

Unit one has been constructed and the impervious cover has exceeded the 3,860 square feet of impervious cover allowed for each lot. As a result the owner has purchased an additional 15.001 acres to keep the impervious cover for the site under 20%.The impervious cover for lots within Units 2-6 have been reconfigured to contain approximately 3,662 square feet of impervious cover for interior lots and 3,865 square feet for optional corner lots which includes all proposed typical building structures and a concrete driveway. With the addition of the 15.001 acres and a reduction of area given an existing TxDOT dedication of 0.123 acres this development will have less than 20% impervious cover; therefore, no structural BMP's are required. The 50 foot vegetative buffer around sensitive features will be maintained.

Additional Items Changed

a. FEMA Flood Plain has been updated with the new FEMA Flood Plain maps approved September 2009
b. The south entrance from State Hwy 46 has been adjusted in anticipation of a future TxDOT drainage structure.
c. In Unit III Varrelman Road has been shifted slightly north.
d. In Unit V Liermann Avenue was shifted slightly south.
e. 15.001 Acres have been added to the original tract an a dedication of 0.123 acres to TxDOT has occurred at the Hamburg entrance. The total area for the site is now 266.916 acres.
f. Three lots have been combined in Unit II for a future Community Center. Making the total acreage outside the Community Center 265.836 acres.

These changes have been included in the new impervious cover calculations.

Attachment C
Current Site Plan

SCALE IN FEET
200 100 0 200
SCALE: 1" = 200' HORZ.

TRIANGULAR INTERCEPTOR SWALES (UNIT 1 & 2)
TEMP. CONSTRUCTION ENTRANCE/EXIT (UNIT 3)
TEMP. CONSTRUCTION ENTRANCE/EXIT (UNIT 5)
TRIANGULAR INTERCEPTOR SWALES (UNIT 5 & 6)
TEMP. CONSTRUCTION ENTRANCE/EXIT (UNIT 1)
TEMP. CONSTRUCTION ENTRANCE/EXIT (UNIT 2)
TEMP. CONSTRUCTION ENTRANCE/EXIT (UNIT 6)
TEMP. CONSTRUCTION ENTRANCE/EXIT (UNIT 4)
TRIANGULAR INTERCEPTOR SWALES (UNIT 4)
UNIT I
UNIT II
UNIT III
UNIT IV
UNIT V
UNIT VI
OPEN SPACE
AREA NOT TO BE DISTURBED.
FILL/ EXCESS MATERIAL SPOILS AREA.
20' ± ACCESS TO SPOILS AREA.
APPROXIMATE 100 YEAR FLOOD F.E.M.A. PANEL NO. 485463 0105 C
Fault
Kep

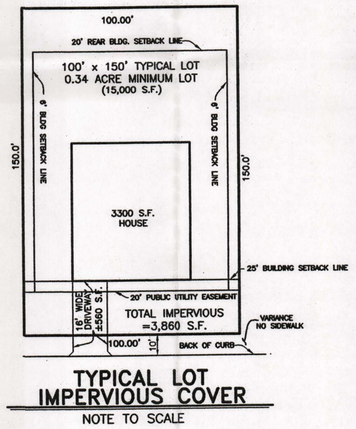
S-15 20'x75'
S-121 15'x30'
S-25 50'x100'
S-35 10'x15'
S-61 30'x100'
S-63 10'x10'
S-70 3'x1'
S-71 4'x4'
S-81 10'x10'
S-82
S-85 20'x90'
S-104

APPROXIMATE AREA OF PROPOSED MINOR CHANNEL IMPROVEMENTS/ BRUSH CLEARING/ DISTURBED AREA AND AREA OF SOIL STABILIZATION (i.e. SEEDING UPON COMPLETION OF EXCAVATION ON SURFACES OTHER THAN ROCK/ GRADING WHERE APPLICABLE)

**** NOTE: NO CHANNEL IMPROVEMENTS WITHIN BUFFER ZONES.****

NATIVE BUFFER ZONE NOTE:

BUFFER ZONES AROUND A POINT RECHARGE FEATURE OR CLUSTER OF CONTIGUOUS POINT RECHARGE FEATURES SHALL BE MAINTAINED IN A NATURAL STATE TO THE MAXIMUM PRACTICAL EXTENT. THIS IMPLIES A CONSTRUCTION-FREE ZONE. WHEN ALL OR A PORTION OF THE BUFFER FOR A SENSITIVE FEATURE IS LOCATED WITHIN THE YARD OF A RESIDENTIAL TRACT, IT SHOULD BE SEPARATED BY A BARRIER, SUCH AS A FENCE, FROM CONVENTIONAL LANDSCAPING AND MAINTAINED IN THE NATURAL STATE. THE "NATURAL STATE" OF A BUFFER WILL TYPICALLY BE A COMBINATION OF DENSE NATIVE GRASSES, SHRUBS AND TREES.



TYPICAL LOT IMPERVIOUS COVER
NOTE TO SCALE

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	1,131,900	÷ 43,560 =	25.98
Street & Driveways	1,037,065	÷ 43,560 =	23.81
Other paved surfaces/Drainage	21924	÷ 43,560 =	0.50
Total Impervious Cover	2,190,889	÷ 43,560 =	50.29
Total Impervious Cover ÷ Total Acreage x 100 =			19.95 %

TOTAL SITE ACREAGE = 252.038 AC.

TOTAL NUMBER OF RESIDENTIAL LOTS = 343

**** NOTE ****

THIS SITE WILL BE USED FOR A LOW DENSITY SINGLE- FAMILY RESIDENTIAL DEVELOPMENT AND HAS 20% OR LESS IMPERVIOUS COVER. THEREFORE, NO OTHER PERMANENT BMP's WITH SUPPORTING CALCULATIONS ARE REQUIRED / PRESENT.

LEGEND:

- MANMADE FEATURE (EXISTING SEWER MANHOLE)
- GEOLOGIC FEATURE
- 50 FT. MIN. NATURAL VEGETATIVE BUFFER ZONE AROUND SENSITIVE GEOLOGIC FEATURE w/ TEMPORARY HIGH SERVICE ROCK BERM AROUND PERIMETER
- S.F. SILT FENCE
- ROCK BERM
- TEMPORARY CONSTRUCTION ENTRANCE / EXIT
- CHANNEL IMPROVEMENTS/BRUSH CLEARING AREA TO BE DISTURBED w/ SOIL STABILIZATION WHERE ROCK IS NOT ENCOUNTERED.
- AREAS TO BE DISTURBED (PROPOSED R.O.W.'s w/ SOIL STABILIZED PARKWAYS)
- AREAS TO BE DISTURBED (PROPOSED CHANNEL IMPROVEMENTS w/ SOIL STABILIZATION)

REVISIONS		
DESCRIPTION	DATE	
REVISED SITE FEATURES/AREAS TO BE DISTURBED.	03/31/06	

STATE OF TEXAS
JOHN J. MOY JR.
87835
LICENSED PROFESSIONAL ENGINEER
John J. Moy, P.E.
Rev. 3/31/06

SITE PLAN OF TSCHIRHART RANCH SUBDIVISION
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337, NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: J.J.M.
DATE: DECEMBER 2005
JOB NO.: 110205

S-1

File Name: P:\110205\DSD\sht01.dwg

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: Manor Creek Subdivision

REGULATED ENTITY INFORMATION

1. The type of project is:
   X Residential: # of Lots: 340
   ___ Residential: # of Living Unit Equivalents: ___
   ___ Commercial
   ___ Industrial
   ___ Other: ___

2. Total site acreage (size of property): 266.916

3. Projected population: 858

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	956,627	÷ 43,560 =	21.961
Streets & Driveways/Sidewalks	1,336,252	÷ 43,560 =	30.676
Other paved surfaces/Drainage	21,924	÷ 43,560 =	0.503
Total Impervious Cover	2,314,803	÷ 43,560 =	53.141
Total Impervious Cover ÷ Total Acreage x 100 =			19.91

5. X **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. X Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY N/A
Complete questions 7-12 if this application is exclusively for a road project.

7. Type of project:
   N/A TXDOT road project.
   N/A County road or roads built to county specifications.
   N/A City thoroughfare or roads to be dedicated to a municipality.
   N/A Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:
   N/A Concrete
   N/A Asphaltic concrete pavement
   N/A Other: ___

9. Length of Right of Way (R.O.W.): ____ feet.
Width of R.O.W.: ____ feet.
L x W = ____ Ft^2 ÷ 43,560 Ft^2/Acre = ____ acres.

10. Length of pavement area: ____ feet.
Width of pavement area: ____ feet.
L x W = ____ Ft^2 ÷ 43,560 Ft^2/Acre = ____ acres.
Pavement area ____ acres ÷ R.O.W. area ____ acres x 100 = ___% impervious cover.

11. N/A A rest stop will be included in this project.
N/A 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. **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	102,900 gallons/day
__% Industrial	_____ gallons/day
__% Commingled	_____ gallons/day
TOTAL	102,900 gallons/day

15. Wastewater will be disposed of by:
___**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.
__ 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):
X Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
__ 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 Gruene Road (name) Treatment Plant. The treatment facility is:

X existing.
__ proposed.

16. X 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
X 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):
Flood Insurance Rate Map – Comal County Texas, Community Panel 48091C0435F 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.
X 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 ____(#) 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 30 TAC §238.
X 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:
X All **sensitive and possibly sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.
__ No **sensitive and possibly 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 in ATTACHMENT D provided at the end of this form. Geologic or manmade features were found and are shown and labeled.
__ **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained in ATTACHMENT D provided at the end of this form. No geologic or manmade features were found.

22. X 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. N/A 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 One (1) original and three ~~(3)~~ (4) copies of the completed application have been provided.

29. X Any modification of this WPAP will require TCEQ 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:

Michael G. Short, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent — Date: 2/11/10

WATER POLLUTION ABATEMENT PLAN APPLICATION

5. ATTACHMENT A - Factors Affecting Water Quality.

The various facets of construction involved with this project will consist of site clearing, site grading, utility service lines, building structure, driveways, etc. for this 266.916 project site. The disturbance of the existing site during construction are factors that could affect surface water and groundwater quality. To assist in the preservation of the quality of surface water exiting the site during construction, which in turns assists in the preservation the groundwater quality, temporary pollution controls will be installed. Some possible sources of contamination during construction would be from machinery or equipment in the form of oil or fuel. Containment and cleanup is addressed in the Temporary Pollution Control section of this submittal.

13. ATTACHMENT B - Volume and Character of Stormwater.

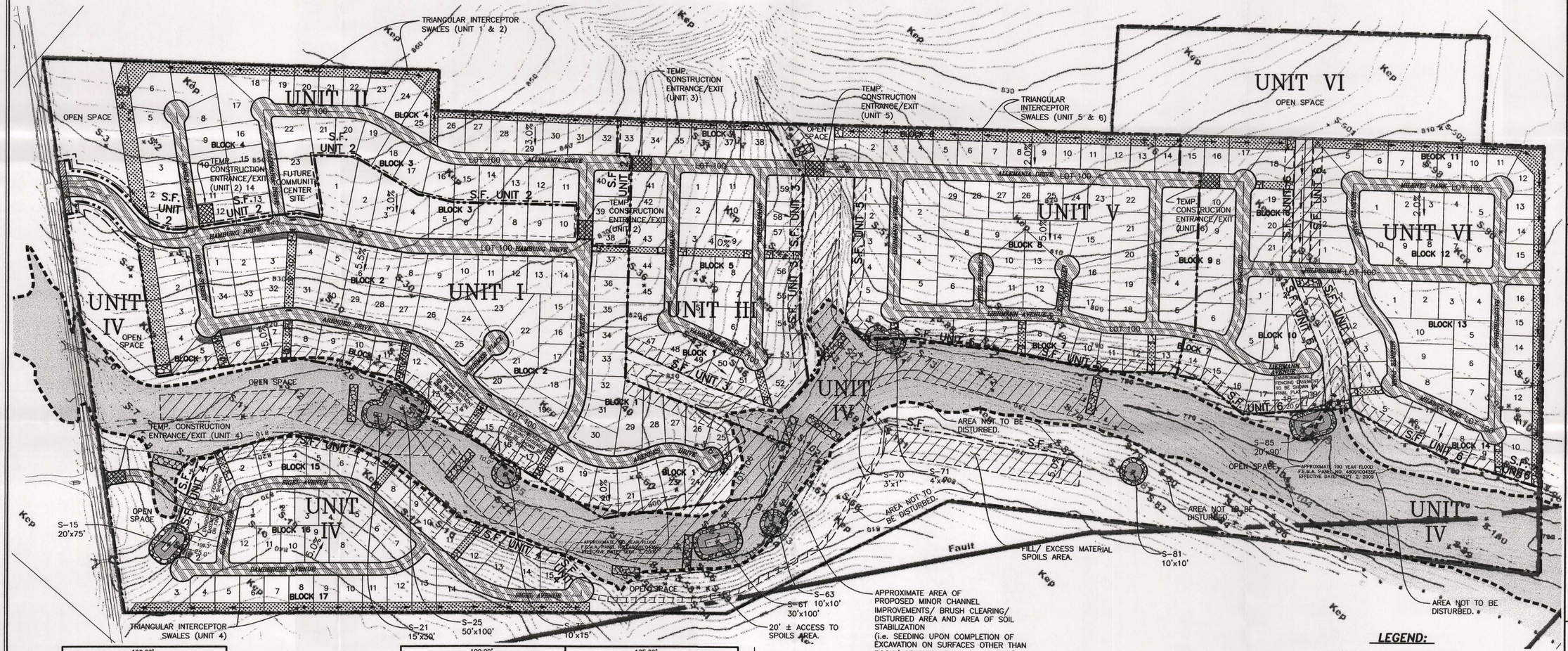
The stormwater runoff generated from this site will consist of rooftops, concrete driveways, paved streets and landscape areas. The runoff will be of a domestic nature and may contain small amounts of oil, suspended solids, fertilizers, and household pesticides. This is a low density single family development with less than 20% impervious cover. Therefore, no structural permanent Best Management Practices are being proposed to capture a specific volume of storm water runoff. However, the sensitive features located on the site will be protected by native environment buffer zones which are shown on the Site Plan. The average Pre-Construction runoff coefficient for the site is Cpre = 0.36 and the average Post-Construction runoff coefficient is Cpost = 0.53.

SITE PLAN

NATIVE BUFFER ZONE NOTE:

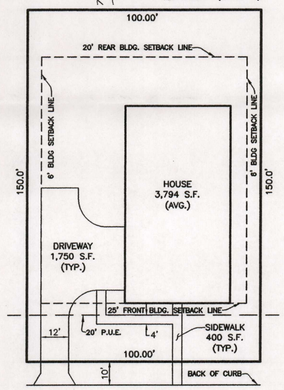
BUFFER ZONES AROUND A POINT RECHARGE FEATURE OR CLUSTER OF CONTIGUOUS POINT RECHARGE FEATURES SHALL BE MAINTAINED IN A NATURAL STATE TO THE MAXIMUM PRACTICAL EXTENT. THIS IMPLIES A CONSTRUCTION–FREE ZONE. WHEN ALL OR A PORTION OF THE BUFFER FOR A SENSITIVE FEATURE IS LOCATED WITHIN THE YARD OF A RESIDENTIAL TRACT, IT SHOULD BE SEPARATED BY A BARRIER, SUCH AS A FENCE, FROM CONVENTIONAL LANDSCAPING AND MAINTAINED IN THE NATURAL STATE. THE "NATURAL STATE" OF A BUFFER WILL TYPICALLY BE A COMBINATION OF DENSE NATIVE GRASSES, SHRUBS AND TREES.

SCALE IN FEET
200 100 0 200
SCALE: 1" = 200' HORZ.



APPROXIMATE AREA OF PROPOSED MINOR CHANNEL IMPROVEMENTS/ BRUSH CLEARING/ DISTURBED AREA AND AREA OF SOIL STABILIZATION (i.e. SEEDING UPON COMPLETION OF EXCAVATION ON SURFACES OTHER THAN ROCK/ GRADING WHERE APPLICABLE)

**** NOTE: NO CHANNEL IMPROVEMENTS WITHIN BUFFER ZONES.****

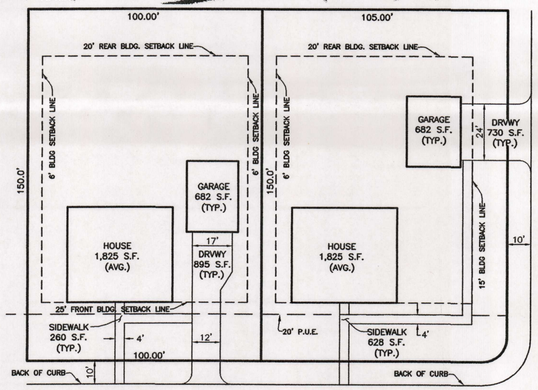


UNIT 1 TYPICAL LOT IMPERVIOUS COVER (AVERAGE PER LOT 5,944 SF) SEE NOTE 1

NOT TO SCALE

NOTE:

1. TOTAL IMPERVIOUS COVER FOR UNIT 1 SHALL NOT EXCEED 481,464 SF FOR ALL 81 LOTS.
2. IMPERVIOUS COVER CALCULATED TO THE BACK OF CURB AND INCLUDES THE TYPICAL DRIVEWAY AND SIDEWALKS.
3. TOTAL IMPERVIOUS COVER FOR UNIT 2–6 SHALL NOT EXCEED 954,548 SF FOR ALL 259 LOTS (30 CORNER LOTS, 229 INTERIOR LOTS)



UNIT 2–6 TYPICAL INTERIOR LOT IMPERVIOUS COVER (AVERAGE PER LOT 3,662 SF) SEE NOTE 3

NOT TO SCALE

UNIT 2–6 TYPICAL CORNER LOT (OPTION) IMPERVIOUS COVER (AVERAGE PER LOT 3,865 SF) SEE NOTE 3

NOT TO SCALE

IMPERVIOUS COVER SUMMARY

IMPERVIOUS COVER OF PROPOSED PROJECT	SQUARE–FEET	ACRES
STRUCTURES / ROOF TOPS UNIT 1	307,314	7.055
DRIVEWAYS / SIDEWALKS UNIT 1	174,150	3.998
STRUCTURES / ROOF TOPS UNITS 2–6	649,313	14.924
DRIVEWAYS / SIDEWALKS UNITS 2–6	305,235	7.007
STREETS	856,867	19.671
OTHER PAVED SURFACES / DRAINAGE	21,924	0.503
TOTAL / IMPERVIOUS COVER	2,314,803	53.141

TOTAL SITE ACREAGE = 266.916 AC.

TOTAL IMPERVIOUS COVER ÷ TOTAL ACREAGE = 19.91%

TOTAL NUMBER OF RESIDENTIAL LOTS = 340

**** NOTE ****

THIS SITE WILL BE USED FOR A LOW DENSITY SINGLE– FAMILY RESIDENTIAL DEVELOPMENT AND HAS 20% OR LESS IMPERVIOUS COVER. THEREFORE, NO OTHER PERMANENT BMP's WITH SUPPORTING CALCULATIONS ARE REQUIRED / PRESENT.

LEGEND:

- MANMADE FEATURE (EXISTING SEWER MANHOLE)
- GEOLOGIC FEATURE
- 50 FT. MIN. NATURAL VEGETATIVE BUFFER ZONE AROUND SENSITIVE GEOLOGIC FEATURE w/ TEMPORARY HIGH SERVICE ROCK BERM AROUND PERIMETER
- SILT FENCE
- ROCK BERM
- TEMPORARY CONSTRUCTION ENTRANCE / EXIT
- CHANNEL IMPROVEMENTS/BRUSH CLEARING AREA TO BE DISTURBED w/ SOIL STABILIZATION WHERE ROCK IS NOT ENCOUNTERED.
- AREAS TO BE DISTURBED (PROPOSED R.O.W.'s w/ SOIL STABILIZED PARKWAYS)
- AREAS TO BE DISTURBED (PROPOSED CHANNEL IMPROVEMENTS w/ SOIL STABILIZATION)

REVISIONS

DESCRIPTION	DATE

RACHEL G. SHORT 86015 LICENSED PROFESSIONAL ENGINEER

SITE PLAN OF MANOR CREEK SUBDIVISION

NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606–3913 FAX (830) 625–2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: NOVEMEBR 2009
JOB NO.: 110109

S–1

File Name: F:\110109\DESIGN\plot01.dwg

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

1. 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.

2. 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.

3. 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.

4. 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.

5. Prior to commencement of construction, all temporary erosion and sedimentation (E&S) control measures must be properly selected, installed, and maintained in accordance with the manufacturers 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.

6. 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).

7. 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.

8. 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).

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S 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.

10. 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 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.

11. 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.

12. The holder of any approved Edward 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:

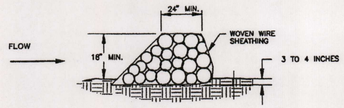
A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

B. 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;

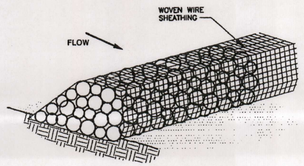
C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office 1921 Cedar Bend, Suite 150 Austin, Texas 78758-5336 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

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



CROSS SECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

Materials:

(1) The berm structure shall be secured with a woven wire sheathing having maximum opening of 1 inch a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.

(2) Clean, open graded 3- to 5-inch diameter rock shall be used.

Installation:

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing shall be 20 gauge woven wire mesh with 1 inch opening.

(2) Berm shall have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.

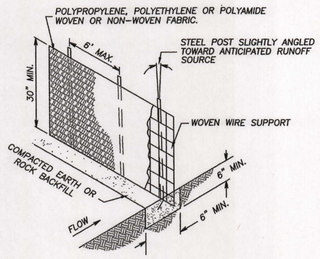
(3) Place the rock along the sheathing as shown in the Rock Berm Detail to a height not less than 18".

(4) 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.

(5) Berm shall be built along the contour at zero percent grade or as near as possible.

(6) The ends of the berm shall be tied into existing upslope grade and the berm shall be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

ROCK BERM DETAIL
N.T.S.



Materials:

(1) Silt fence material shall 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/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts shall 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/ft , and Brindell hardness exceeding 140.

(3) Woven wire backing to support the fabric shall be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

(1) Steel posts, which support the silt fence, shall 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 shall be 6 feet.

(2) Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence shall be sited so that the maximum drainage area is 1/4 acre/100 feet of fence.

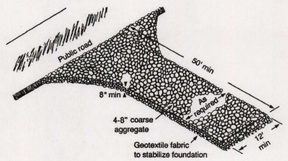
(3) The toe of the silt fence shall be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

(4) 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.

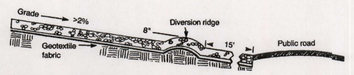
(5) Silt fence shall be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There shall be a 3-foot overlap, securely fastened where ends of fabric meet.

(6) Silt fence shall be removed when the site is completely stabilized so as not to block or impede storm flow drainage.

SILT FENCE
N.T.S.



Schematic of Temporary Construction Entrance/Exit



Cross-section of a Construction Entrance/Exit

Materials:

(1) The aggregate shall consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.

(2) The aggregate shall be placed with a minimum thickness of 8 inches.

(3) The geotextile fabric shall be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd^2, a mullen burst rating of 140 lb/in^2, and an equivalent opening size greater than a number 50 sieve.

(4) If vehicle(s) require washing, a washing facility with a level area and a minimum of 4 inch washed stone or commercial rock shall be constructed in an approved area. Divert wastewater to sedimentation controlled areas.

Installation:

(1) Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.

(2) The minimum width of the entrance/exit shall be 12 feet or the the full width of exit roadway, whichever is greater.

(3) The construction entrance shall be at least 50 feet long.

(4) If the slope toward the rood 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.

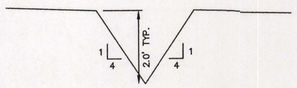
(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.

(6) Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.

(7) Divert all surface runoff and drainage from the stone pad to sedimentation controlled areas.

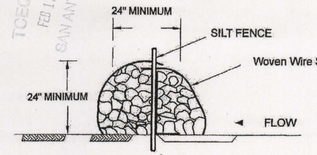
(8) Top of Temporary Construction Entrance/Exit Shall Project no more than 4" above Natural Ground.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT
N.T.S.

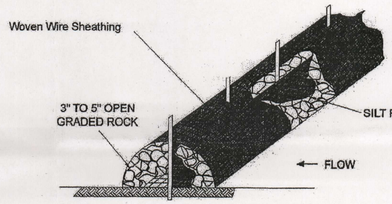


TRIANGULAR INTERCEPTOR SWALE DETAIL
N.T.S.

TCEQ-R13
FEB 12 2010
SAN ANTONIO



Cross - Section



Materials:

(1) 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/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) 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/ft^2, and Brindell hardness exceeding 140. Rebar (either #5 or #6) may also be used to anchor the berm.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

(4) 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 shoat rings.

(5) 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:

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1-inch openings.

(2) Install the silt fence along the center of the proposed berm placement, as with a normal silt fence described in Section 2.4.3.

(3) Place the rock along the sheathing on both sides of the silt fence as shown in the diagram (Figure 1.30), to a height not less than 24 inches. Clean, open graded 3-5" diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rock may be used.

(4) 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.

(5) The high service rock berm should be removed when the site is revegetated or otherwise stabilized or it may remain in place as a permanent BMP if drainage is adequate.

HIGH SERVICE ROCK BERM
N.T.S.

REVISIONS

DESCRIPTION	DATE



WATER POLLUTION ABATEMENT PLAN
GENERAL NOTES & DETAILS

MANOR CREEK SUBDIVISION
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: S.S.
DATE: FEBRUARY 2010
JOB NO.: 110109

S-2

File Name: P:\110109\TCEQ\Apnot02.dwg

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: Manor Creek Subdivision

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 that 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.
X Fuels and hazardous substances will not be stored on-site.

2. X **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. X 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. X **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.
__ The are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

5. X **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. X 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: **Bleiders 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. X **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.

   X 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.

   N/A **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.

   X There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. X **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. X **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.

X 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.

__ 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, repair, 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 manufacturers specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicates 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:

Michael G. Short, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

2/11/10
Date

TEMPORARY STORMWATER SECTION

2. ATTACHMENT A -Spill Response Actions.

The following includes a copy of Section 1.4.16 of the TCEQ "Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices" Pages 1-118 through 1-121, Spill Prevention and Control. The following is made part of the spill response action plan. In addition in the event of a significant hazardous spill the contractor or construction personnel shall notify TCEQ by telephone as soon as possible and within 24-hours at (512)339-2929 (Austin) or (210)490-3096 (San Antonio) between 8 am and 5 pm or after hours contact the Environmental Release Hotline at 1-800-832-8224. The contractor shall have available at the construction site all emergency numbers to include the Edwards Aquifer Authority (210) 222-2204 or 1-800-292-1047 and the National Response Center (202) 267-2675 or 1-800-424-8802.

4. ATTACHMENT B -Potential Sources of Contamination.

There is a potential for contamination as result of servicing and operating construction equipment (oil, gas, etc), from construction materials (concrete, etc), and from portable toilet facilities.

5. ATTACHMENT C - Sequence of Major Activities.

The following is a sequence of major activities which will involve soil disturbance along with an estimate of the area of the site to be disturbed by each activity:

Sequence No.	Description of Soil Disturbing Activity	Estimated Area to be Disturbed by each Activity (Acres) (Total)
1	Clearing and Grubbing (Street/Drainage)	47
2	Excavation and Grading (Streets/Drainage)	47
3	Underground Utility Service Installation	30
4	Final Structures Installation (Including Houses & Driveways)	31

7. ATTACHMENT D - Temporary Best Management Practices and Measures.

The Temporary Best Management Practices (TBMP) that will be used for this project are silt fences, rock berms, high service rock berms and a temporary construction entrance/exit. The temporary controls will be installed prior to construction and shall be maintained during construction by the contractor. The controls shall be removed by the contractor when vegetation is established and the construction area is stabilized.



RG-348
Revised July 2005

Complying with the Edwards Aquifer Rules

Technical Guidance on Best Management Practices

printed on
recycled paper

Field Operations Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

1.4.16 Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.

(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(5) Contain the spread of the spill.

(6) Recover spilled materials.

(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

(5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

(2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately

(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.

(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

(5) Place drip pans or absorbent materials under paving equipment when not in use.

(6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.

(7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

(9) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

(2) Discourage "topping off" of fuel tanks.

(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

utility construction, silt fences shall be installed down gradient of all proposed home building and driveway construction operations to contain any sediment from leaving the individual lots. The temporary construction entrance/exit shall be adjusted/relocated prior to the construction of each new unit of development and will be removed just prior to final pavement placement.

a. Stormwater that is flowing upstream of the project limits in the Bleider's Creek will continue to pass through the project limits in its current manner. All other stormwater that originates upgradient of the project site will be allowed to enter the property limits but will then be directed around the disturbed areas via interceptor swales in association with each unit of construction. The stormwater runoff will be conveyed via these swales that will be cut around the perimeter of the site and rock berms will be installed in these swales to control the sediment from the disturbed areas. The rock berms will slow the velocity of the water down and the sediment will settle out. It will be the contractors responsibility to remove the sediment that builds up after significant rainfall events. The swales will be vegetated/landscaped in the final conditions of the site.

b. Stormwater that originates on-site will be filtered by silt fences and/or rock berms on the downgradient side of the property. The silt fences and rock berms will slow the velocity of the water down and the sediment will settle out. It will be the contractors responsibility to remove the sediment that builds up after significant rainfall events. There will be no contaminated/polluted runoff coming off this site other than sediment which will be handled with silt fence, rock berms and the temporary construction entrance/exit.

c. Stormwater runoff that originates on-site and upgradient of the site will be filtered by silt fences and rock berms on the downgradient side of the property. The silt fences and rock berms will slow the velocity of the water down and the sediment will settle out. It will be the contractors responsibility to remove the sediment that builds up after significant rainfall events. The silt fences and rock berms will capture the sediment that would otherwise be conveyed to streams, sensitive features, etc.

d. There were eleven sensitive features located on the site. These features are S-15, 21, 25, 35, 61, 63, 70, 71, 81, 85 and 89. The majority of these sensitive features are located along the banks of very defined natural channels with drainage areas greater than 1.6 acres. The predominant recharge of these features appears to be the natural water way that drains to these locations with limited drainage contributing via sheet flow. There will be a 50 ft. native environment buffer zone around each sensitive feature and each will be protected during construction by the installation of high service rock berms around the 50' perimeter. There are no sensitive features being proposed to be sealed and the non-sensitive features are either located in the proposed yards of platted lots which will be covered by topsoil and grass or they will be covered by concrete (house pad/driveway).

9. ATTACHMENT F - Structural Practices.

The structural practices that will be used for temporary control of erosion/sediment on this site are silt fences, rock berms, high service rock berms and a temporary construction entrance/exit. Interceptor swales will be excavated around the sides of the property that will prevent upgradient runoff from flowing across the disturbed areas. These swales will outfall to areas that are controlled with by rock berms and the runoff will be filtered before leaving the property. These minor swales will be excavated to the extent that the stormwater will not enter disturbed areas during construction.

10. ATTACHMENT G - Drainage Area Map.

The drainage area map has been enclosed and is located at the end of this section.

12. ATTACHMENT I - Inspection and Maintenance for BMP's.

Silt Fence Inspection and Maintenance Guidelines:

a. Inspect all fencing weekly, and after any rainfall.
b. Remove sediment when buildup reaches 6 inches, or install a second line of fencing parallel to the old fence.
c. Replace any torn fabric or install a second line of fencing parallel to the torn section.
d. Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, relocate it to a spot where it will provide equal protection, but will not obstruct vehicles.

Rock Berm Inspection and Maintenance Guidelines:

a. Inspection shall be made weekly and after each rainfall by the contractor.
b. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved site and in such a manner as to not contribute to additional siltation.
c. Repair any loose wire sheathing.
d. The berm shall be reshaped as needed during inspection.
e. The berm shall be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
f. The rock berm shall be left in place until all upstream areas are stabilized and accumulated silt removed.

High Service Rock Berm Inspection and Maintenance Guidelines:

a. Inspection shall be made weekly and after each rainfall by the contractor.
b. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved site and in such a manner as to not contribute to additional siltation.
c. Repair any loose wire sheathing.
d. The berm shall be reshaped as needed during inspection.
e. The berm shall be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
f. The rock berm shall be left in place until all upstream areas are stabilized and accumulated silt removed.

Temporary Construction Entrance/Exit:

a. The entrance shall be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way.
b. All sediment spilled, dropped, washed or tracked on to public rights-of-way shall be removed immediately by the contractor.
c. When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way.
d. When washing is required, it shall be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
e. All sediment shall be prevented from entering any storm drain, ditch or water course by using approved methods.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

INSPECTION FORM

GENERAL NOTES

1. STONE SIZE - 4 TO 8 INCHES CRUSHED ROCK.

2. LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.

3. THICKNESS - NOT LESS THAN 8 INCHES.

4. WIDTH - NOT LESS THAN 12 FEET.

5. WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO THAT NO SEDIMENT LEAVES THE SITE. ALL UNFILTERED SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE.

6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. 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 ROADWAY MUST BE REMOVED IMMEDIATELY.

7. DRAINAGE - ENTRANCE MUST BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

DOES MUCH SEDIMENT GET TRACKED ONTO ROAD?	IS THE GRAVEL CLEAN OR IS IT FILLED WITH SEDIMENT?	DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO LEAVE THE SITE?

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

SILT FENCE

INSPECTION FORM

GENERAL NOTES

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT), WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.

3. 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 AND COMPACTED.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST AND TO WOVEN WIRE, WHICH IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT DOUBLE OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPEATION REPORT

DATE:_____

SIGNATURE: _____

IS THE BOTTOM OF THE FABRIC STILL BURIED ?	IS THE FABRIC TORN OR SAGGING ?	ARE THE POSTS TIPPED OVER ?	HOW DEEP IS THE SEDIMENT?

MAINTENANCE REQUIRED FOR SILT FENCE:

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

ROCK BERMS
INSPECTION FORM

GENERAL NOTES:

1. WOVEN WIRE SHEATHING SHALL BE PERPENDICULAR TO THE FLOW LINE AND THE SHEATHING SHALL BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHALL HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACEMENT OF THE ROCK ALONG THE SHEATHING SHALL NOT BE LESS THAN 18 INCHES.

4. THE WIRE SHEATHING SHALL BE WRAPPED AROUND THE ROCK AND SECURED 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 SHALL BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

   THE ENDS OF THE BERM SHALL BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

IS THE BERM A MINIMUM OF 18 INCHES HIGH ?	IS LEVEL OF SILT GREATER THAN 6 INCHES DEEP?

MAINTENANCE REQUIRED FOR ROCK BERMS:

_____

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

HIGH SERVICE ROCK BERMS

INSPECTION FORM

GENERAL NOTES:

1. WOVEN WIRE SHEATHING SHALL BE PERPENDICULAR TO THE FLOW LINE AND THE SHEATHING SHALL BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHALL HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACEMENT OF THE ROCK ALONG THE SHEATHING SHALL NOT BE LESS THAN 18 INCHES.

4. THE WIRE SHEATHING SHALL BE WRAPPED AROUND THE ROCK AND SECURED 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 SHALL BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

   THE ENDS OF THE BERM SHALL BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

IS THE BERM A MINIMUM OF 24 INCHES HIGH ?	IS LEVEL OF SILT GREATER THAN 6 INCHES DEEP?

MAINTENANCE REQUIRED FOR HIGH SERVICE ROCK BERMS:

_____

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

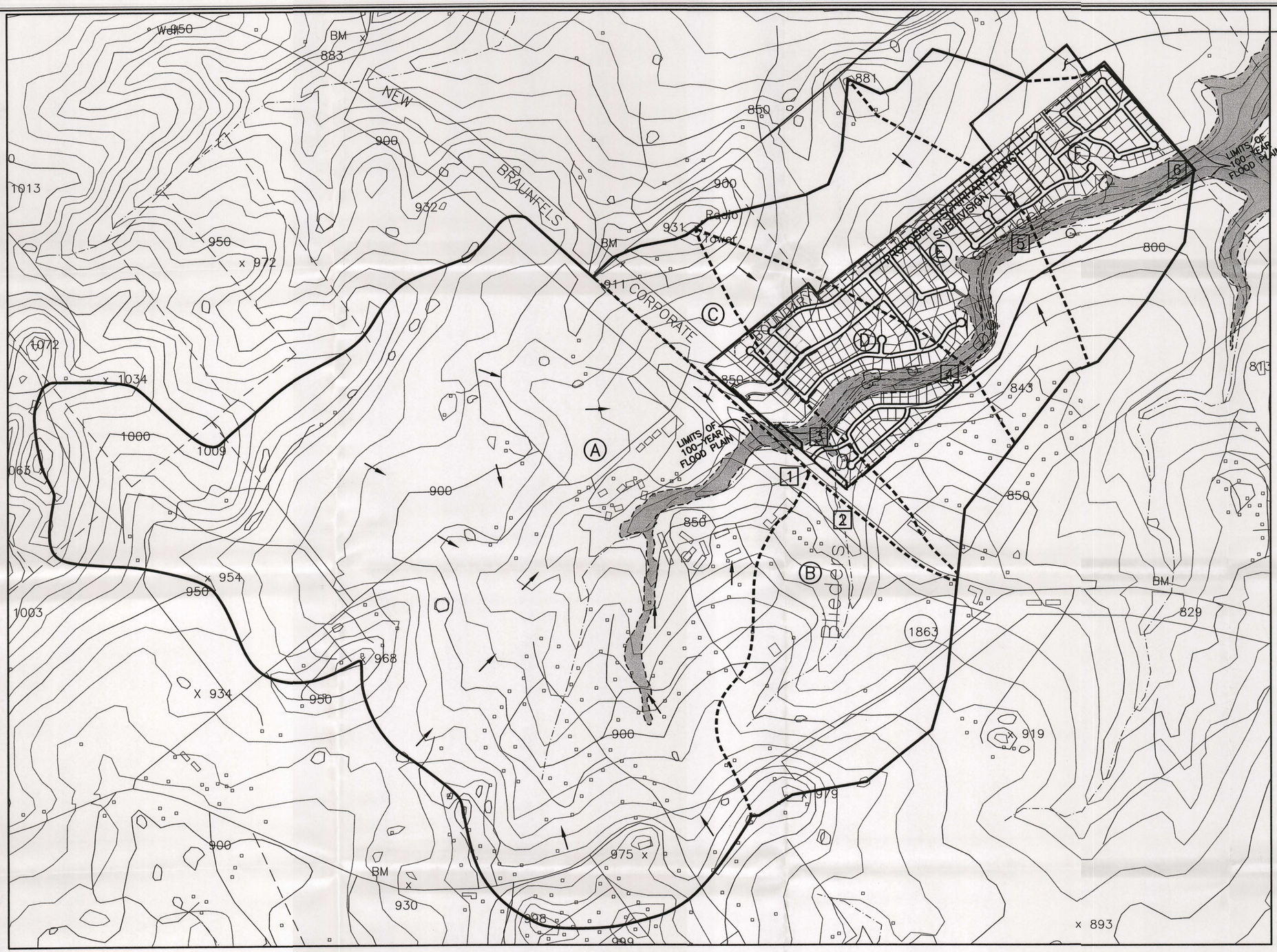
17. ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.

Temporary Stabilization - No bare ground exposed during construction will be left to stabilize naturally. In any disturbed area where construction activities have ceased, permanently or temporarily, the contractor shall initiate temporary stabilization of the area by the use of seeding and mulching within 14 days, except in areas where construction activities are scheduled to resume within 21 days. The temporary seeding will consist of Green Sprangletop, Buffalo Grass, and Bermuda Grass with straw or cedar mulch applied on final layer in accordance with TxDOT Item 164- Seeding for Erosion Control. Depending on the growing season at the time of construction, mixture and application rates may be modified by the engineer.

Permanent Stabilization - Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed no later than 14 days after the last construction activity. The permanent seed mix shall consist of Green Sprangletop, Buffalo Grass, and Bermuda Grass with straw or cedar mulch applied on final layer in accordance with TxDOT Item 164 - Seeding for Erosion Control. Depending on the growing season at the time of construction, mixture and application rates may be modified by the engineer. It shall be the contractors responsibility to provide watering bi-weekly for the seeded areas for a period of 30 calendar days.

ATTACHMENT G

MASTER DRAINAGE AREA MAP



SCALE IN FEET
600 300 0 600
SCALE: 1" = 600'

LEGEND

- OVERALL DRAINAGE AREA BOUNDARY
- SUB-AREA DRAINAGE BOUNDARY
- (A) DRAINAGE AREA DESIGNATION
- [1] DRAINAGE NODE POINT
- DIRECTION OF FLOW

DRAINAGE AREA DESIGNATION	AREA (ACRES)	AREA ($MILES^2$)
A	992.3	1.550
B	175.7	0.275
C	82.9	0.130
D	134.3	0.210
E	177.7	0.278
F	158.2	0.247

SCS UNIT HYDROGRAPH TYPE III DISTRIB, AMC II (DEVELOPED CONDITIONS)

DRAINAGE NODE POINT	CONTRIBUTING D.A.'s	TOTAL AREA (ACRES)	CN	TIME OF CONCENTRATION (min.)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
1	A	992.3	86	49	2399.2	3167.0	4582.4
2	B	175.7	86	17	672.9	886.3	1278.6
3	A+B+C	1250.9	86	52	2930.8	3865.2	5585.1
4	A+B+C+D	1385.2	86	57	3081.0	4062.8	5870.2
5	A+B+C+D+E	1562.9	86	63	3271.9	4316.0	6238.3
6	A+B+C+D+E+F	1721.1	86	69	3421.4	4520.9	6546.3

NOTES:

1) NODE POINTS [1] & [2] ARE LOCATED ON THE UPSTREAM END OF THE CULVERTS BELOW S.H. 46.
2) NODE POINTS [3], [4], [5] & [6] ARE CONFLUENCE POINTS OF CONTRIBUTING DRAINAGE AREAS ALONG BLIEDERS CREEK.

OVERALL DRAINAGE INFORMATION AND CALCULATIONS OBTAINED FROM PREVIOUSLY APPROVED TSCHIRHART RANCH SUBDIVISION (SGI 2005)

REVISIONS

DESCRIPTION	DATE

MICHEL G. SCHULTZ 88016 LICENSED PROFESSIONAL ENGINEER

MASTER DRAINAGE AREA MAP OF MANOR CREEK SUBDIVISION
NEW BRAUNFELS, TEXAS

The Schultz Group, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C./M.H.
CHECKED BY: S.S.
DATE: FEBRUARY 2010
JOB NO.: 110109

D-1

File Name: P:\110109\TCSD\dsn01-Master.dwg

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

REGULATED ENTITY NAME: Manor Creek Subdivision

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

1. N/A Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

2. N/A 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. N/A 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. X 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.

   X This site will be used for low density single-family residential development and has 20% or less impervious cover.
   N/A This site will be used for low density single-family residential development but has more than 20% impervious cover.
   N/A This site will not be used for low density single-family residential development.

5. N/A 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.

N/A **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.

N/A This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

N/A This site will not be used for multi-family residential developments, schools, or small business sites.

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

N/A 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.

N/A 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.**

N/A 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" or "possibly 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.

N/A **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.

N/A 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. N/A **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. N/A 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:

Michael G. Short, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

2/11/10
Date

EXEMPTION FROM PERMANENT BMP'S NOTIFICATION

Due to this site containing less than 20% impervious cover, other permanent BMP's are not required. If the percent impervious cover increases above 20% or land use changes, the exemption of 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.

PERMANENT STORMWATER SECTION

6. ATTACHMENT B - BMP's for Upgradient Stormwater.

Permanent BMP's or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site because this stormwater consists primarily of runoff from surrounding properties that are adjacent to the project site and are of different ownership. Interceptor swales are being proposed just inside the property lines to bypass the upgradient flow and these swales will be vegetated upon completion of the site.

7. ATTACHMENT C - BMP's for On-Site Stormwater.

There are no permanent BMP's required for this project site due to the total impervious cover being less than 20% of the total project site. However, 50 ft. native environment buffer zones have been shown around all sensitive features and this can be found on the Site Plan in the Water Pollution Abatement Plan section of this report. Temporary BMP's will be installed downstream of all stormwater that will flow over the exposed areas during construction. These temporary BMP's can also be found on the Site Plan previously mentioned.

8. ATTACHMENT D - BMP's for Surface Streams.

The proposed Temporary BMP's for this site will consist of silt fence, rock berms, high service rock berms and temporary construction entrance/exit. Due to this site having less than 20% impervious cover; no other permanent BMP's are required. However, 50 ft. native environment buffer zones have been shown around all sensitive features and this can be found on the Site Plan in the Water Pollution Abatement Plan section of this report. The sensitive features are: Features S-15, 21, 25, 35, 61, 63, 70, 71, 81, 85 and S-89.

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

I Richard N. Maier,
Print Name

Title - Owner/President/**Other** Assistant Secretary of

Continental Homes of Texas, L.P., a Texas limited partnership

Corporation/Partnership/Entity Name

have authorized Michael G. Short, P.E.

Print Name of Agent/Engineer

of The Schultz Group, 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 applicants 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.

by [signature] V.P. 12/1/09
Applicant's Signature Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Richard N. Mercer 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 December, 2009.

[signature]
NOTARY PUBLIC

KATRINA MCDONALD
Notary Public, State of Texas
My Commission Expires
August 10, 2013

Katrina McDonald
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 8/10/13

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

NAME OF PROPOSED REGULATED ENTITY: Manor Creek Subdivision
REGULATED ENTITY LOCATION: Approx. 2 miles West from Loop 337 on the NE side of SH 46
NAME OF CUSTOMER: Continental Homes of Texas, L.P.
CONTACT PERSON: Michael G. Short, P.E. PHONE: (830) 606-3913
(Please Print)

Customer Reference Number (if issued): CN 601213523 (nine digits)

Regulated Entity Reference Number (if issued): RN 104801568 (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):

☐ **Austin Regional Office**

☐ **Mailed to TCEQ**:
TCEQ – Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ **San Antonio Regional Office**

☐ **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	266.916	$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

2/2/10
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.

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.

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Schedule
30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

PROJECT	PROJECT AREA IN ACRES	FEE
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

PROJECT	COST PER LINEAR FOOT	MINIMUM FEE MAXIMUM FEE
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

PROJECT	COST PER TANK OR PIPING SYSTEM	MINIMUM FEE MAXIMUM FEE
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150

D.R. HORTON America's Builder

File Copy - Do Not Mail

Check Number 0230598
Date 02/09/10

Texas Commission on Environmental Qua
14250 Judson Road
DRH Inc. Texas Disb Account

Stub 1 of 1

1382697

PO Numb	Invoice Number	Subdv Lot#	Lot Address	Cost Cde	Legal Desc	Gross	Deductions	Amount Paid
	2/4/20108	42552	Manor Creek 6			8,000.00		8,000.00
						8,000.00		8,000.00

Check Number 0230598
Date 02/09/10

Texas Commission on Environmental Qua
14250 Judson Road
DRH Inc. Texas Disb Account

Stub 1 of 1

1382697

PO Numb	Invoice Number	Subdv Lot#	Lot Address	Cost Cde	Legal Desc	Gross	Deductions	Amount Paid
	2/4/20108	42552	Manor Creek 6			8,000.00		8,000.00
						8,000.00		8,000.00

THIS CHECK IS PRINTED IN RED AND BLUE INK ON THE FACE ON CHEMICAL AND BLEACH REACTIVE PAPER WITH INVISIBLE FLUORESCENT FIBERS AND BASKETWEAVE ON BACK MP

D.R. HORTON America's Builder

DRH Inc. Texas Disb Account
401 Commerce Street, Suite 500
Fort Worth, TX 76102

Controlled Disbursement
Bank of America, N.A.
Atlanta, Dekalb County, Georgia

64-1278
611 GA

1382697

Check Number 230598

Date	Amount
02/09/10	$*****8,000.00

Void after 6 months from date of issue

Pay *EIGHT THOUSAND AND 00/100* **********

To The Order Of

Texas Commission on Environmental Qua
14250 Judson Road
San Antonio TX 78233-4480

D. R. Horton

⑈00230598⑈ ⑆061112788⑆ 329 903 6873⑈

TCEQ Use Only

TCEQ Core Data Form

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)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☒ Other **WPAP Modification**

2. Attachments — Describe Any Attachments: *(ex. Title V Application, Waste Transporter Application, etc.)*

☒ Yes ☐ No — Manor Creek Subdivision

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN 601213523		RN 104801568

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:*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☒ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:			
☐ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A	
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*	*If new Customer, enter previous Customer below*	*End Date:*

10. Mailing Address:							
	City		State		ZIP		ZIP + 4

11. Country Mailing Information *(if outside USA)*	12. E-Mail Address *(if applicable)*

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
( ) -		( ) -

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*

20. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated?

☐ Yes ☐ 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)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☒ 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)*

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*								
	City		State		ZIP		ZIP + 4	
25. Mailing Address:								
	City		State		ZIP		ZIP + 4	

26. E-Mail Address:		
27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
( ) -		( ) -

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)

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

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

35. Description to Physical Location:			
36. Nearest City	County	State	Nearest ZIP Code

37. Latitude (N) In Decimal:			38. Longitude (W) In Decimal:		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

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.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
☐ New Source Review – Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☐ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Michael G. Short, P.E.	41. Title:	Senior Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830) 606-3913		(830) 625-2204	mshort@schultzgroupinc.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:	The Schultz Group, Inc.	Job Title:	Senior Engineer
Name *(In Print)*:	Michael G. Short, P.E.	Phone:	(830) 606-3913
Signature:		Date:	2/12/10

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 4, 2006

Mr. Timothy D. Pruski
Continental Homes of Texas
211 N. Loop 1604 East, Suite 130
San Antonio, TX 78232

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Manor Creek (Tschirhart Ranch) ; Located on the north side of State Highway 46, approximately 2 miles west of the intersection of Loop 337 and State Highway 46; New Braunfels, 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 ID No. 2439.00
Investigation Number: 449964
Regulated Entity Number: RN104801568

Dear Mr. Pruski:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas on December 7, 2007. Final review of the WPAP application was completed after additional material was received on March 31, 2006. As presented to the TCEQ, the Temporary and Permanent 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.*

PROJECT DESCRIPTION

The proposed single family residential project will have an area of approximately 252.038 acres. It will include 343 lots, roads, and utilities. The impervious cover will be 50.29 acres (19.95 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by the New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

Since this single-family residential project will not have more than 20 percent impervious cover, an exemption from permanent BMPs is approved.

GEOLOGY

According to the geologic assessment included with the application and additional information submitted during the review, 104 geologic and man-made features were identified on the site. Thirteen of the features, S15, S21, S25, S35, S38, S61, S63, S70, S71, S81, S85, S89, and S93, were initially assessed as sensitive. Two of the sensitive features, S -38 and S-93, received additional evaluation by the geologist, who determined the features not to be sensitive. The San Antonio Regional Office site inspection of March 22, 2006, revealed that the site is generally as described by the geologic assessment.

SPECIAL CONDITIONS

I. If the impervious cover ever increases above 20 percent or the land use changes, the exemption for the whole site may no longer apply and the property owner must notify the San Antonio Regional Office of these changes.

II. Intentional discharges of sediment laden stormwater are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

III. As proposed, a 50 foot natural buffer will be provided around geologic features assessed as sensitive.

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.

Prior to Commencement of Construction:

2. 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, TNRCC-0625) that you may use to deed record the approved WPAP is enclosed.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

<u>During Construction:</u>

8. 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.

9. 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.

10. No wells exist on the 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.

11. 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.

12. 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.

13. 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:

14. 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.

15. 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 the San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TNRCC-10263) is enclosed.

16. 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.

17. 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.

18. 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 Lynn M. Bumguardner of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210.403.4023.

Sincerely,

Bobby D. Caldwell

for Glenn Shankle
Executive Director
Texas Commission on Environmental Quality

GS/LMB/eg

Enclosures: Deed Recordation Affidavit, TNRCC-0625
Change in Responsibility for Maintenance on Permanent BMPs, TNRCC-10263

cc: Mr. Stephen E. Schultz, The Schultz Group, Inc.
Mr. Michael Short, City of New Braunfels
Mr. Tom Hornseth, Comal County
Mr. Robert J. Potts, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

Bryan W. Shaw, Ph.D., *Chairman*
Toby Baker, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 9, 2015

RECEIVED
JUN 12 2015
COUNTY ENGINEER

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

Re: PROJECT NAME: Manor Creek Subdivision, located off Highway 46, New Braunfels, Texas

PLAN TYPE: Application for a Water Pollution Abatement Plan (WPAP), 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program

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. More information regarding this project may be obtained from the TCEQ Central Registry website at http://www.tceq.state.tx.us/permitting/central_registry/.

Please forward your comments to this office by July 9, 2015.

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

Todd Jones

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

RECEIVED
JUN 12 2015
COUNTY ENGINEER

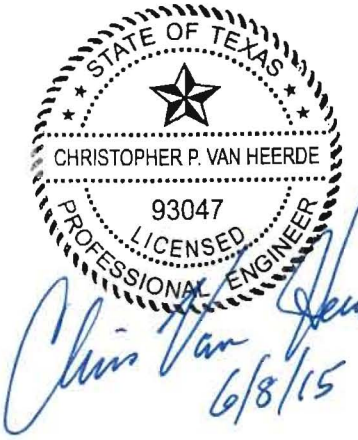
TCEQ-R13
JUN 09 2015
SAN ANTONIO

Manor Creek Subdivision Modification

A distinguished project by:

Continental Homes of Texas, L.P. dba DR Horton

Water Pollution Abatement Plan Report



New Braunfels, Texas
Submittal June 2015

Prepared by:

HMT
ENGINEERING & SURVEYING

410 N. Seguin Ave.
New Braunfels, TX 78130
HMTNB.COM
830.625.8555 • FAX: 830.625.8556
TBPE FIRM F-10901

HMT
ENGINEERING & SURVEYING

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.
3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the effected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Manor Creek Subdivision						**2. Regulated Entity No.:**104801568			
3. Customer Name: Continental Homes of Texas, L.P. dba DR Horton						**4. Customer No.:** 602550360			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**		169.98	
9. Application Fee:	$8,000		**10. Permanent BMP(s):**			N/A			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Comal		**14. Watershed:**			Bleiders Creek			

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	___	___	___
Region (1 req.)	___	___	___
County(ies)	___	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	_X_	___	___	___
Region (1 req.)	___	_X_	___	___	___
County(ies)	___	_X_	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	_X_Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge _X_New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Chris Van Heerde, C.F.M., P.E. Print Name of Customer/Authorized Agent
Chris Van Heerde, PE 6/9/2015 Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

General Information Form

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

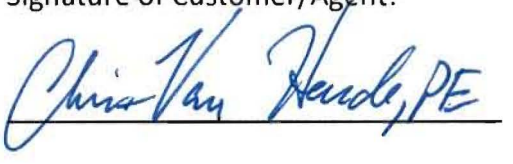
Signature

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:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 6/9/15

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Manor Creek Subdivision
2. County: Comal
3. Stream Basin: Bleiders Creek
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☒ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

Contact Person: Daniel Clawson II
Entity: Continental Homes of Texas, L.P.
Mailing Address: 210 West Hutchison Street
City, State: San Marcos, Texas Zip: 78666
Telephone: 512-418-6104 FAX: 800-581-2588
Email Address: dclawson@drhorton.com

8. Agent/Representative (If any):

Contact Person: Chris Van Heerde, C.F.M., P.E.
Entity: HMT Engineering & Surveying
Mailing Address: 410 N. Sequin Avenue
City, State: New Braunfels, Texas Zip: 78130
Telephone: 830-625-8555 FAX: 830-625-8556
Email Address: chrisvh@hmtnb.com

9. Project Location:

☒ The project site is located inside the city limits of New Braunfels.
☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
☐ The project site is not located within any city's limits or ETJ.

10. ☒ 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.

Beginning at TCEQ San Antonio regional office, head south on Judson Road towards Villa Camino, turn left onto I-35 Frontage Road, take the ramp on the left onto I-35 North. Take exit 184 toward TX-337 Loop/Farm to Market Rd 482/Rueckle Rd, merge onto I-35 Frontage Road, and turn left onto TX-337 Loop N/S Rueckle Rd. Turn left onto TX-46E/State Spur 453/N Walnut Ave, and then turn right onto Hamburg Avenue to enter the Manor Creek Subdivision.

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

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

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** 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.

☐ Survey staking will be completed by this date: _____

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

☒ Area of the site
☒ Offsite areas
☒ Impervious cover
☒ Permanent BMP(s)
☒ Proposed site use
☒ Site history
☒ Previous development
☒ Area(s) to be demolished

15. 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

16. ☒ 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).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ 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

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

☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, 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.

19. ☒ 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:

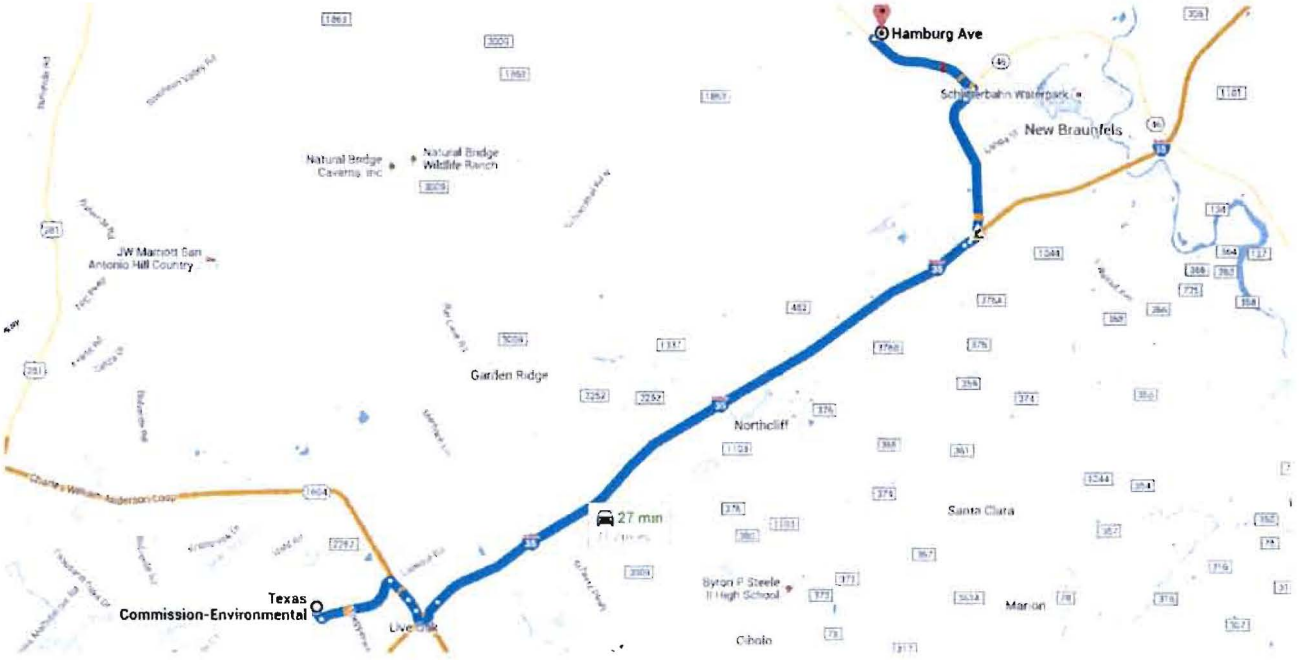
☐ TCEQ cashier
☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ 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.

21. ☒ 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.

Google

Directions from Texas Commission-Environmental to Hamburg Ave

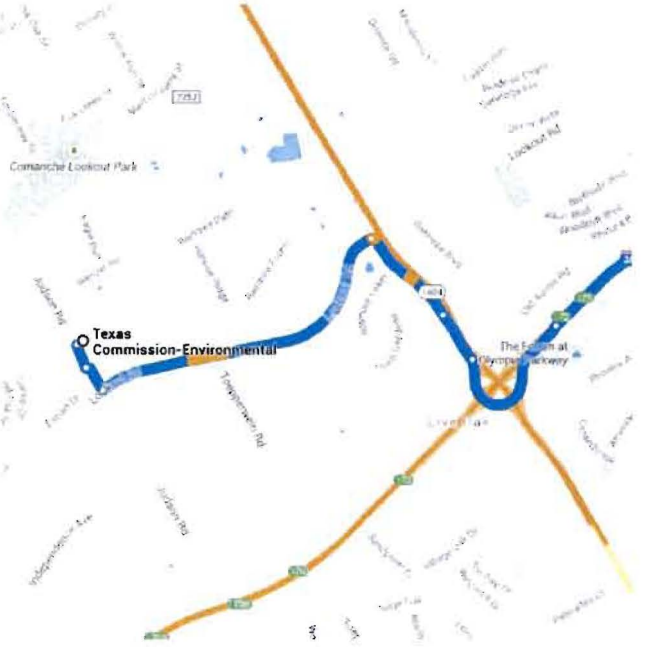


Texas Commission-Environmental

14250 Judson Road, San Antonio, TX 78233

Get on I-35 N in Selma from Lookout Rd

3.5 mi / 6 min



1. Head southeast on Judson Rd toward Villa Camino
   0.1 mi
2. Turn left at the 1st cross street to stay on Judson Rd
   0.1 mi
3. Turn left onto Lookout Rd
   1.6 mi
4. Turn right onto N Loop 1604 E
   0.5 mi
5. Take the Texas 1604 Loop S ramp on the left
   0.3 mi
6. Keep right at the fork, follow signs for I-35 N/Austin and merge onto I-35 N
   0.8 mi

Map data ©2015 Google

Follow I-35 N to Interstate 35 Frontage Rd in New Braunfels. Take exit 184 from I-35 N

12.4 mi / 11 min



7. Merge onto I-35 N

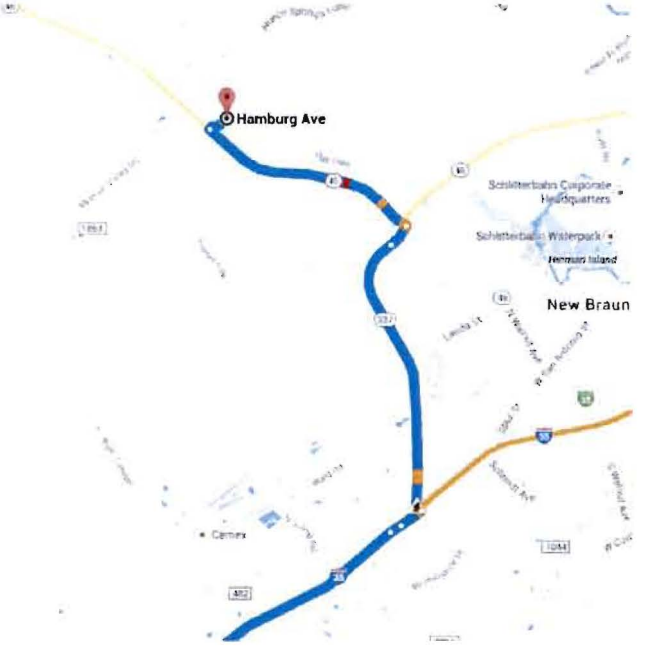
12.3 mi

8. Take exit 184 toward TX-337 Loop/Farm to Market Rd 482/Rueckle Rd

0.1 mi

Take TX-337 Loop N and TX-46 E to Hamburg Ave

5.7 mi / 11 min



9. Merge onto Interstate 35 Frontage Rd

0.2 mi

10. Turn left onto TX-337 Loop N/S Rueckle Rd

Continue to follow TX-337 Loop N

2.8 mi

11. Take the TX-46 W/TX-46 BUS ramp to Boerne/New Braunfels

0.2 mi

12. Turn left onto TX-46 E/State Spur 453/N Walnut Ave

Continue to follow TX-46 E

2.2 mi

13. Turn right onto Hamburg Ave

Restricted usage road

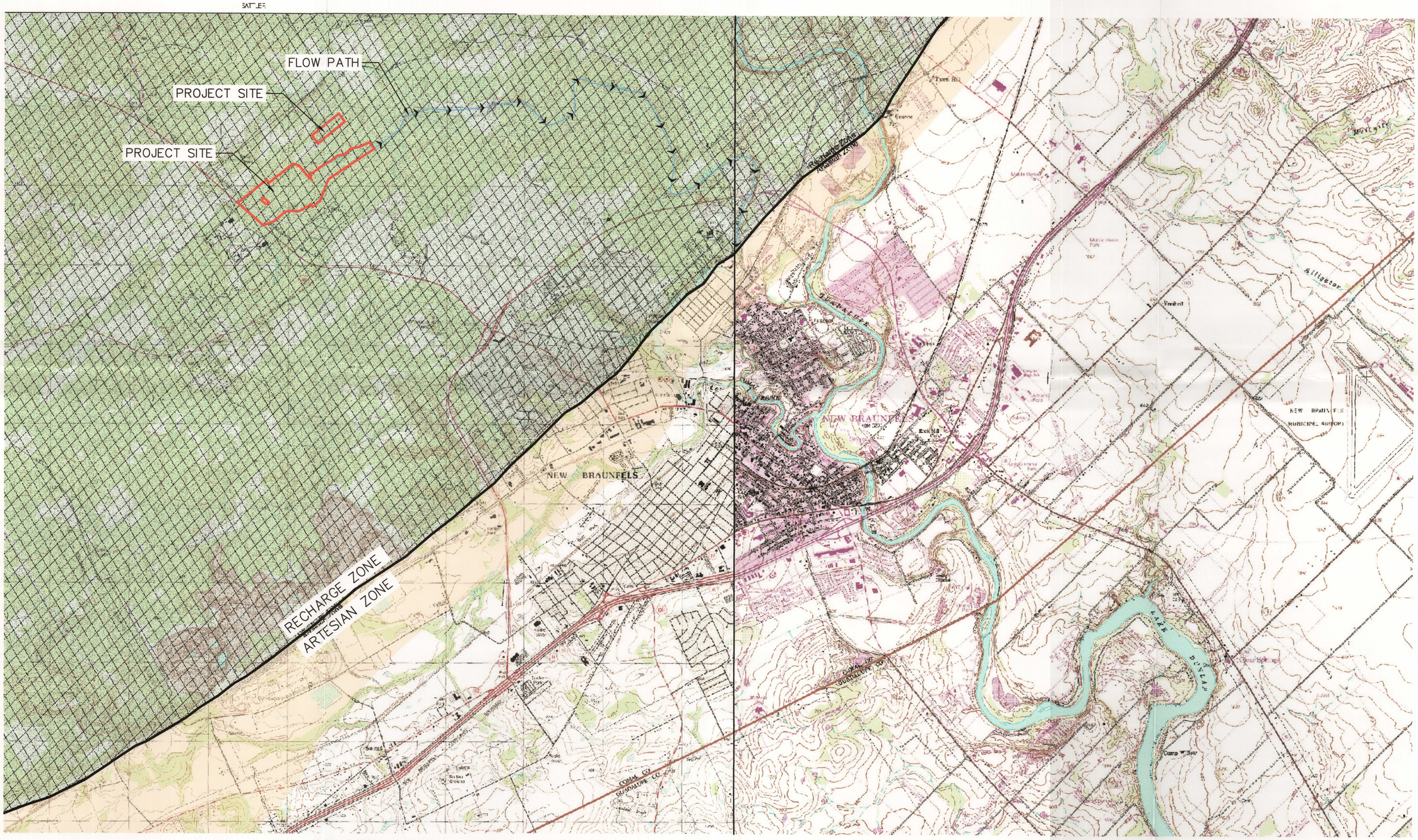
0.2 mi

Hamburg Ave

New Braunfels, TX 78132

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Edwards Aquifer Recharge Zone and Contributing Zone Map
Edwards Aquifer Authority Rule Chapter 713
STATE OF TEXAS
TEXAS WATER DEVELOPMEMT BOARD



NEW BRAUNFELS WEST
QUADRANGLE
TEXAS

NEW BRAUNFELS EAST
QUADRANGLE
TEXAS

0 1000 2000 4000
HORIZONTAL SCALE: 1:2000

410 N. SEGUIN AVE.
NEW BRAUNFELS,
TEXAS 78130
PH: (830)625-8555
FAX: (830)625-8556
www.HMTNB.com
TBPE FIRM F-10961

HMT
ENGINEERING & SURVEYING

STATE OF TEXAS
CHRISTOPHER P. VAN HEERDE
93047
LICENSED
PROFESSIONAL ENGINEER
Chris Van Heerde, PE
6/5/15

ATTACHMENT B -
USGS/EDWARDS
RECHARGE ZONE MAP
CIVIL SITE CONSTRUCTION PLANS

RECEIVED
JUN 12 2015
COUNTY ENGINEER

MANOR CREEK SUBDIVISION
WPAP

DR HORTON
210 W. HUTCHISON
SAN MARCOS, TEXAS 78666

TCEQ-R13
JUN 09 2015
SAN ANTONIO

DATE:	JUNE 2015
DRAWN BY:	KRK
DESIGNED BY:	GJM
CHECKED BY:	CVH
REVIEWED BY:	SWH
PROJECT NO.:	031.024.105

SHEET
B

Drawing Name: N:_Projects\031 - DR Horton\031.024 - Manor Creek Unit 5\031.024.105 Construction Documents\Engineering Reports\WPAP\USGS Recharge Map-WPAP.dwg User: kellyk Jun 05, 2015 - 9:02am

GENERAL INFORMATION FORM
ATTACHMENT C
Project Description

The proposed Manor Creek Subdivision project (previously titled Tschirhart Ranch Subdivision) is located on Hamburg Avenue, New Braunfels, Texas. The subdivision is within the New Braunfels city limits. The total subdivision site covers a total of 267.03 acres and divided into 6 Units. Manor Creek Units 1-3 have been completed and contain 165 lots on 169.98 acres. Construction of homes within Unit 3 is currently on going; however, all street and drainage improvements are currently complete. When fully developed Unit 1, 2B, and 3 will have 32.66 acres of impervious cover, or 19.2%. Manor Creek Subdivision Units 4-6 represent the remainder of the land owned by Continental Homes of Texas, L.P. in this development which totals 95.97 acres and is currently undeveloped. There is no existing impervious cover on the 95.97 acres of Units 4-6, with the proposed conditions the impervious cover increases to be 35.74 acres or 37.24% at the full development of the site.

The impervious cover that has been and is planned to be constructed for Manor Creek Units 4-6 will exceed the maximum 20% impervious cover allowed under the current WPAP. Therefore, Units 4-6 will have permanent BMPs to treat the impervious cover from these units. There are platted lots within Unit 4, 5, and 6 that will contribute open space to the remaining 20% Impervious Cover WPAP for Manor Creek Subdivision Units 1, 2B, and 3. These areas include Lot 200 in Unit 6 (15.04 Acres), Lot 201 in Unit 4 (68.87Acres), and Lot 202 in Unit 4 (1.45 Acres). Exhibit C1 shows the areas included in this WPAP, the areas in the less than 20% Impervious Cover WPAP, and the Manor Creek Amenity Center (Unit 2A) which has a sand basin as the Permanent BMP and remains unchanged.

AMENDED WPAP MASTER PLAN
FOR
MANOR CREEK SUBDIVISION

SCALE: 1"=400'

LEGEND:
U.E. = UTILITY EASEMENT
D.E. = DRAINAGE EASEMENT
L.E. = LANDSCAPE EASEMENT
S.S.E. = SANITARY SEWER EASEMENT
R.O.W. = RIGHT-OF-WAY
M.P.R.C.C.T. = MAP AND PLAT RECORDS, COMAL COUNTY, TEXAS
O.P.R.C.C.T. = OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS
D.R.C.C.T. = DEED RECORDS, COMAL COUNTY, TEXAS
(XX) = ZONING TYPE
[XXXX] = LANDUSE
XX" W = EXISTING WATER LINE
XX" SS = EXISTING SEWER LINE
E = OVERHEAD ELECTRIC

SITE

LOCATION MAP
SCALE: NTS

20.402 ACRE TRACT
ALICE SCHWANZ
DOC. NO. 200906011153
O.P.R.C.C.T.

20.402 ACRE TRACT
DORA HUMMEL
DOC. NO. 200906011152
O.P.R.C.C.T.

20.402 ACRE TRACT
ALICE SCHWANZ
DOC. NO. 200906011155
O.P.R.C.C.T.

NEW BRUANFEL

65.965 ACRE TRACT
CPP PARTNERS, LTD
DOC. NO. 201106031689
O.P.R.C.C.T.

R-1A -6.6
RESIDENTIAL LARGE LOT

55.574 ACRE TRACT
MARILYN HELMKE
DOC. NO. 9906017297
O.P.R.C.C.T.

NEW BRUANFELS CITY LIMITS

THIS IS BEING PLATTED IN UNIT 6 BUT IS NEED IN THE <20% WPAP

200
OPEN SPACE
& D.E.
15.04 AC OF OPEN SPACE

203
OPEN SPACE
D.E. & U.E.

203
D.E. & U.E.

10.0 AC
JM LAUGHMAN
DOC. NO. 201406037986
O.P.R.C.C.T.

20' WATER LINE EASEMENT
DOC. NO. 9706012826
O.P.R.C.C.T.

200
OPEN SPACE
D.E. & U.E.

20' U.E.
MANOR CREEK SUBDIVISION UNIT ONE
DOC. NO. 0606053209
M.P.R.C.C.T.

UNIT FOUR
1.45 AC OF OPEN SPACE

200
D.E. & U.E.
1.45 AC OF OPEN SPACE
BLOCK 4

LOT 100 **UNIT 2B**
22.445 AC OF RESIDENTIAL AREA

UNIT 2A
1.081 AC
K 3

ROLLINGROOT (60' R.O.W.)

KOELN STREET (50' R.O.W.)

ALLEMANIA DRIVE (50' R.O.W.)

LOT 100

HAMBURG AVENUE (60' R.O.W.)

STATE HIGHWAY 46 (100' R.O.W.)

UNIT ONE
43.466 AC OF RESIDENTIAL AREA

201
D.E. & U.E. LOT
68.87 AC.
BLOCK 1

LOT 100

ARENDES DRIVE (50' R.O.W.)

SCHERMER PLACE (50' R.O.W.)

KLEIN STREET (50' R.O.W.)

VARRELMANN (50' R.O.W.)

TOENGES LANE (50' R.O.W.)

UNIT THREE
18.706 AC OF RESIDENTIAL AREA

MAINZ STREET (50' R.O.W.)

115
D.E. & U.E.

TXDOT PROPOSED ACCESS DENIAL & NBU ESMT
DOC. NO. 2010660267750
PARCEL 24, PART 1

20' WATER LINE EASEMENT
DOC. NO. 9670012826
O.P.R.C.C.T.

20' SANITARY SEWER EASEMENT
VOL. 1018, PG. 744
O.P.R.C.C.T.

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE
(SEE NOTE NO. 7)

202
D.E., U.E.
& L.E. LOT
1.45 AC.

201
D.E. &
U.E. LOT
68.87 AC.
BLOCK 1

TXDOT PROPOSED ACCESS DENIAL & NBU ESMT
DOC. NO. 2010660267750
PARCEL 24, PART 2

203
D.E., U.E.
& L.E. LOT
4.46 AC.
BLOCK 3

BISCHOFF PLACE (50' R.O.W.)

SIGEL AVENUE (50' R.O.W.)

UNIT FOUR
24.79 AC OF RESIDENTIAL AREA

BAMBERGER AVE (50' R.O.W.)

20' WATER LINE EASEMENT
DOC. NO. 9670012826
O.P.R.C.C.T.

UNIT 4 RESIDENTIAL LOTS (WPAP WITH PERMANENT BMPS)

203
D.E., U.E.
& L.E. LOT
0.44 AC.

APPROXIMATE LOCATION OF FLOODWAY

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE
(SEE NOTE NO. 8)

203
D.E., U.E.
& L.E. LOT
4.46 AC.

NORTHWOODS UNIT 3
VOL. 8, PG. 342
M.P.R.C.C.T.

R-1A -6.6
RESIDENTIAL

203
D.E., U.E.
& L.E. LOT
4.46 AC.

NORTHWOODS UNIT 1
VOL. 5, PG. 305
M.P.R.C.C.T.

NEW BRUANFELS CITY LIMITS

LOT 100

ALLEMANIA DRIVE (60' R.O.W.)

LIERMANN AVE (50' R.O.W.)

ETZEL TERRACE (50' R.O.W.)

EICHELBERGER (50' R.O.W.)

ANGELROOT (50' R.O.W.)

ESPENCHED (R.O.W. VARIES)

UNIT FIVE
45.67 AC OF RESIDENTIAL AREA

201
OPEN SPACE
D.E. & U.E.

202
OPEN SPACE
D.E. & U.E.

HESSEN WAY (50' R.O.W.)

PYRMONT (50' R.O.W.)

MILENTZ PARK

UNIT SIX
25.51 AC OF RESIDENTIAL AREA

LOT 100

HILDESHEIM (60' R.O.W.)

204
OPEN SPACE
D.E. & U.E.

HEIDELBERG RD (50' R.O.W.)

RAUSCHENBACH (50' R.O.W.)

205
NBU LOT

206
OPEN SPACE
D.E. & U.E.

201
OPEN SPACE
D.E. & U.E.

R-1A -6.6
RESIDENTIAL LARGE LOT

APPROXIMATE LOCATION OF FLOOD CONTROL EASEMENT
VOL. 149, PG. 167
D.R.C.C.T.

APPROXIMATE LOCATION OF FLOODWAY

APPROXIMATE LOCATION OF FLOODWAY

20' SANITARY SEWER EASEMENT
VOL. 1018, PG. 744
O.P.R.C.C.T.

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE
(SEE NOTE NO. 8)

201
D.E. &
U.E. LO,
68.87 AC.
BLOCK 1

UNIT FOUR
68.87 AC OF OPEN SPACE

NEW BRUANFELS CITY LIMITS

UNIT 6 RESIDENTIAL LOTS WITH PERMANENT BPMS

THIS IS A LOT IN UNIT 4 BUT IS NEEDED IN THE <20% WPAP

71.35 ACRE TRACT
HERMAN BORCHERS III &
MARY LOU BORCHERS
VOL. 244, PG. 646
D.R.C.C.T.

LEGEND

- MANOR CREEK SUBDIVISION WPAP TO REMAIN <20% IMP. COVER (169.977 ACRES, 164 LOTS)
- NEW WPAP WITH >20% IMP & PERMANENT BMPS (95.97 ACRES, 197 LOTS)
- COMMUNITY CENTER MANOR CREEK WPAP TO REMAIN THE UNCHANGED (1.081 ACRES)

MANOR CREEK SUBDIVISION WPAP IMPERVIOUS COVER CALCULATIONS

Unit	Streets (SF)	Streets (AC)	Lots (SF)	Lots (AC)	Total Area (AC)
1	216,915.27	4.98	504,225.00	11.58	43.47
2B	97,309.09	2.23	292,575.00	6.72	22.45
3	87,625.00	2.01	224,100.00	5.14	18.71
Lot 200 (Unit 6)	-	-	-	-	15.04
Lot 201 (Unit 4)	-	-	-	-	68.87
Lot 202 (Unit 4)	-	-	-	-	1.45
TOTAL		9.23		23.44	169.98
				TOTAL IC (AC)	32.66
				TOTAL AREA (AC)	169.98
				IC %	19.22%

HMT
ENGINEERING & SURVEYING
410 N. SEGUIN AVE.
NEW BRAUNFELS,
TEXAS, 78130
WWW.HMTNB.COM
PH: (830)625-8555

EXHIBIT C1

Drawing Name: N:_Projects\031 - DR Horton\031.023 - Manor Creek Unit 4\031.023.106 - Construction Documents\Engineering Reports\WPAP\031.023.110 Master Plan- WPAP- AREAS.dwg User: gpreffer Jun 08, 2015 - 11:39am

Geologic Site Assessment (WPAP)

Manor Creek Subdivision
New Braunfels, Texas

Frost GeoSciences, Inc.
Project No.: FGS-E15171

June 8, 2015

Prepared exclusively for

DR Horton
210 West Hutchison
San Marcos, Texas 78666

Frost GeoSciences

Geotechnical ▪ Construction Materials
Geologic ▪ Environmental

13402 Western Oak San Antonio, Texas 78259 Phone: (210) 372-1315 Fax: (210) 372-1318

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www.frostgeosciences.com
SDVOSB VBE DBE SBE
TBPE Firm Registration # F-9227
TBPG Firm Registration # 50040

June 8, 2015

DR HORTON
211 North Loop 1604, Suite 130
San Antonio, Texas 78232

Attn: Ms. Erika Jucknies

Re: Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E15171

Gentlemen:

Attached is a copy of the Geologic Assessment Report completed for the above referenced project site as it relates to 30 TAC §213.5(b)(3), effective June 1, 1999. Our investigation was conducted and this report was prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The results of our investigation, along with any recommendations for Best Management Practices (BMP's), are provided in the following report.

If you have any questions regarding this report, or if Frost GeoSciences, Inc. may be of additional assistance to you on this project, please feel free to call our office. It has been a pleasure to work with you and we wish to thank you for the opportunity to be of service to you on this project. We look forward to being of continued service.



Sincerely,
Frost GeoSciences, Inc.

Chris Wickman, P.G.
Senior Geologist

Distribution: (6) DR HORTON

Table of Contents

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APPENDIX

A: Figure 1: Site Plan
Figure 2: Street Map
Figure 3: U.S.G.S. Topographic Map
Figure 4: EAA Edwards Aquifer Recharge and Contributing Zone Map
Figure 5: FEMA Flood Map
Figure 6: USDA Soil Survey Map Aerial Photograph, 1 inch = 1,000 feet
Figure 7 U.S. Geological Survey, Water Resources Investigation # 94-4117
Figure 7A: Geologic Map of the New Braunfels, TX 30 X 60 Minute Quadrangle
Figure 8: 2014 Aerial Photograph, 1"=1,000'
Figure 9: 2014 Aerial Photograph with PRF's, 1"=600'

B: Site Photographs

C: Site Geologic Map

Geologic Assessment

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

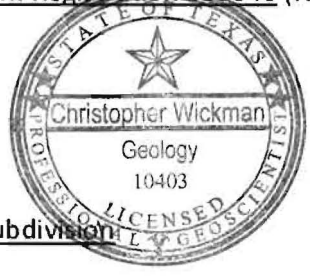
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Chris Wickman Telephone: (210) 372-1315

Date: June 8, 2015 Fax: (210) 372-1318

Representing: Frost Geosciences, Inc. Firm Registration #50040 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Manor Creek Subdivision

Project Information

1. Date(s) Geologic Assessment was performed: April 5-14 & 21-28 and May 22, 2015
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

5. ☒ 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.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Rumple-Comfort Association	C/D	0.5-1.0
Comfort-Rock outcrop complex	D	0.5-1.0

** 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.

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s).** 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: 1" = 200'
   Site Geologic Map Scale: 1" = 200'
   Site Soils Map Scale (if more than 1 soil type): 1" = 1,000'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☒ Other method(s). Please describe method of data collection: 2014 Aerial Photograph

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ 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.

13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are _____ (#) 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

15. ☒ 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.

Stratigraphic Column

[Hydrogeologic subdivisions modified from Maclay and Small (1976); groups, formations, and members modified from Rose (1972); lithology modified from Dunham (1962); and porosity type modified from Choquette and Pray (1970). CU, confining unit; AQ, aquifer]

Hydrogeologic subdivision			Group, formation, or member			Hydrologic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity/ permeability type
Upper Cretaceous	Upper confining units		Eagle Ford Group			CU	30 - 50	Brown, flaggy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/ low permeability
			Buda Limestone			CU	40 – 50	Buff, light gray, dense mudstone	Porcelaneous limestone with calcite-filled veins	Minor surface karst	Low porosity/low permeability
			Del Rio Clay			CU	40 - 50	Blue-green to yellow-brown clay	Fossiliferous; *Ilymatogyra arietina*	None	None/primary upper confining unit
Lower Cretaceous	I	Edwards aquifer	Georgetown Formation			Karst AQ; not karst CU	2 - 20	Reddish-brown, gray to light tan marly limestone	Marker fossil; *Waconella wacoensis*	None	Low porosity/low permeability
	II		Edwards Group	Person Formation	Cyclic and marine members, undivided	AQ	80 – 90	Mudstone to packstone; *miliolid* grainstone; chert	Thin graded cycles; massive beds to relatively thin beds; crossbeds	Many subsurface; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding
	III				Leached and collapsed members, undivided	AQ	70 – 90	Crystalline limestone; mudstone to grainstone; chert; collapsed breccia	Bioturbated iron-stained beds separated by massive limestone beds; stromatolitic limestone	Extensive lateral development; large rooms	Majority not fabric/one of the most permeable
	IV				Regional dense member	CU	20 – 24	Dense, argillaceous mudstone	Wispy iron-oxide stains	Very few; only vertical fracture enlargement	Not fabric/low permeability; vertical barrier
	V			Kainer Formation	Grainstone member	AQ	50 - 60	*Miliolid* grainstone; mudstone to wackestone; chert	White crossbedded grainstone	Few	Not fabric/ recrystallization reduces permeability
	VI				Kirschberg evaporite member	AQ	50 - 60	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable
	VII				Dolomitic member	AQ	110 - 130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, *Toucasia* abundant	Caves related to structure or bedding planes	Mostly not fabric; some bedding plane-fabric/water-yielding
	VIII				Basal nodular member	Karst AQ, not karst CU	50 - 60	Shaly, nodular limestone; mudstone and *miliolid* grainstone	Massive, nodular and mottled, *Exogyra texana*	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric; stratigraphically controlled/large conduit flow at surface; no permeability in subsurface
	Lower confining unit		Upper member of the Glen Rose Limestone			CU; evaporite beds AQ	350 – 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/relatively impermeable

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Manor Creek Subdivision — FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-3	N29° 43' 41.1"	W98° 11' 17"	SC	20	Kcp	1	1	1.5	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-4	N29° 43' 37.9"	W98° 11' 12.4"	SC	20	Kcp	1	1	2	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-6	N29° 43' 34.5"	W98° 11' 11"	O^VBR	5	Kcp	25	75		45	-	4/1	.03/.03	O,F,C	19	24	24			Yes	Drainage
S-7	N29° 43' 33.5"	W98° 11' 7.97"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-8	N29° 43' 33.4"	W98° 11' 7.37	O^VR	5	Kcp	20	200				3-10	0.08-0.3	O,F,C	19	24	24			Yes	Cliff
S-11	N29° 43' 36.6	W98° 11' 4.18"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-12	N29° 43' 38.3"	W98° 11' 3.72"	SC	20	Kcp	1	1	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-13	N29° 43' 33.4"	W98° 11' 4.95"	SC	20	Kcp	1	1	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-14	N29° 43' 32.6"	W98° 11' 4.96"	O^VBR	5	Kcp	15	40		25	10	3-5	0.12	O,F,C	15	30	30		Yes		Drainage
S-15	N29° 43' 30.5"	W98° 11' 3.15"	Z^MB	30	Kcp	20	75		-	-	1-5	0.25	O,F,C	20	50		50		Yes	Drainage
S-16	N29° 43' 33.5"	W98° 11' 0.93"	SC	20	Kcp	1	2	2	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-17	N29° 43' 37.4"	W98° 10' 54.7"	SC	20	Kcp	2	2	2					O,F	12	32	32		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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

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Signature _____ Date June 8, 2015 Sheet 1 of 7

STATE OF TEXAS — Christopher Wickman — Geology — 10403 — LICENSED PROFESSIONAL GEOSCIENTIST

GEOLOGIC ASSESSMENT TABLE | PROJECT NAME: Manor Creek Subdivision | FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-18	N29° 43' 37.8"	W98° 10' 54.4"	SC	20	Kcp	2	2	1.5	-	-	-	-	O,F,C	12	32	32			Yes	Hillside
S-19	N29° 43' 34.2"	W98° 11' 0.26"	SC	20	Kcp	0.5	0.5	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-20	N29° 43' 39.1"	W98° 10' 53.6"	SC	20	Kcp	2	2	2	-	-	-	-	O,F,C	12	32	32		Yes		Hillside
S-21	N29° 43' 39.8"	W98° 10' 59.5"	SF	20	Kcp	15	30		45	10	1-2	0.25	O,F,C	20	50		50		Yes	Drainage
S-22	N29° 43' 40.8"	W98° 10' 52.9"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-23	N29° 43' 42"	W98° 10' 44.4"	SC	20	Kcp	0.5	4	1.5	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-24	N29° 43' 38.3"	W98° 11' 3.72"	SC	20	Kcp	0.5	4	1.5	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-25	N29° 43' 40.7"	W98° 10' 58.6"	Z[illegible]	30	Kcp	50	100		-	-	1-4	0.25	O,F,C	20	50		50	Yes		Drainage
S-26	N29° 43' 40.6"	W98° 11' 1.51"	SC	20	Kcp	1	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-28	N29° 43' 41.1"	W98° 11' 0.83"	SC	20	Kcp	1.5	1	2	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-31	N29° 43' 41.4"	W98° 10' 59.2"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-35	N29° 43' 41.2"	W98° 10' 53.2"	SF	20	Kcp	10	15		78	10	1	0.20	O,F	20	50		50	Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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

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Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

STATE OF TEXAS
Christopher Wickman
Geology
10403
LICENSED
PROFESSIONAL GEOSCIENTIST

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Signature _____ Date June 8, 2015 Sheet 2 of 7

GEOLOGIC ASSESSMENT TABLE	PROJECT NAME: Manor Creek Subdivision	FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-37	N29° 43' 59.1"	W98° 10' 53.4"	O^{VR}	5	Kcp	15	20		-	-	2-4	0.15	O,F	15	20	20		Yes		Drainage
S-38	N29° 43' 59.1"	W98° 10' 51.1"	Z^{MBR}	30	Kcp	20	75		-	-	-	-	O,F	20	50		50		Yes	Drainage
S-43	N29° 43' 42.7"	W98° 10' 47.8"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-50	N29° 43' 45.7"	W98° 10' 43.5"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-51	N29° 43' 58"	W98° 10' 46.6"	O^{VRC}	5	Kcp	25	75		60	10	1-3	0.1-0.5	O,F	12	27	27		Yes		Hillside
S-52	N29° 43' 54"	W98° 10' 44.3"	O^{VRF}	5	Kcp	50	75		40-55	10	1-4	0.1-0.5	O,F	19	34	34		Yes		Drainage
S-53	N29° 43' 52.9"	W98° 10' 44.9"	O^{VR}	5	Kcp	20	40		-	-	3-6	0.1-0.25	O,F,C	12	17	17		Yes		Hillside
S-55	N29° 43' 41.8"	W98° 10' 44.5"	O^{VR}	5	Kcp	10	10		-	-	1-4	0.1-0.25	O,F,C	10	15	15		Yes		Hillside
S-56	N29° 43' 43.1"	W98° 10' 43.9"	SC	20	Kcp	0.5	0.5	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-57	N29° 43' 43.1"	W98° 10' 44.2"	O^{VRR}	5	Kcp	10	50		50-60	-	1-3	0.1-0.25	O,F,C	12	17	17		Yes		Hillside
S-58	N29° 43' 42.8"	W98° 10' 43.2"	O^{VR}	5	Kcp	10	50	1	-	-	-	-	O,F	12	17	17		Yes		Hillside
S-59	N29° 43' 41.2"	W98° 10' 53.2"	SC	20	Kcp	1	0.5		-	-	-	-	O,F	12	32	32		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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
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STATE OF TEXAS — Christopher W. Frost — Environmental Geology — 10403 — LICENSED PROFESSIONAL GEOSCIENTIST

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Manor Creek Subdivision — FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-61	N29° 43' 44.6"	W98° 10' 43.9"	Z[OTH]	30	Kcp	30	100		-	-	1-4	0.1-0.25	O,F,C	20	50		50		Yes	Drainage
S-63	N29° 43' 46.5"	W98° 10' 42.3"	C	30	Kcp	4	10	10	-	-	-	-	N	20	30		50		Yes	Cliff
S-64	N29° 43' 46.5"	W98° 10' 42.3"	O[VR]	5	Kcp	15	75	10	-	-	-	-	O,F,C	15	20	20			Yes	Cliff
S-65	N29° 43' 47.5"	W98° 10' 42.8"	O[FR]	5	Kcp	15	100						O,F	15	20	20			Yes	Drainage
S-66	N29° 43' 49.1"	W98° 10' 40.9"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-67	N29° 43' 49.1"	W98° 10' 41.7"	SC	20	Kcp	1	0.75	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-68	N29° 43' 51.6"	W98° 10' 42.4"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-69	N29° 43' 55"	W98° 10' 44"	O[VR]	5	Kcp	15	20		18	-	1-4	0.1-0.25	O,F,C	12	17	17		Yes		Hillside
S-70	N29° 43' 55"	W98° 10' 44.2"	SC	20	Kcp	3	1	1	-	-	-	-	O,F	20	40		40		Yes	Drainage
S-71	N29° 43' 55.1"	W98° 10' 43.6"	SC	20	Kcp	4	4	1.5	-	-	-	-	O,F,C	20			40		Yes	Drainage
S-72	N29° 43' 56.3"	W98° 10' 38.6"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside

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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
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STATE OF TEXAS — Christopher Wicks — Geology — 10403 — LICENSED PROFESSIONAL GEOSCIENTIST

TCEQ-0585-Table (Rev. 10-1-04)

GEOLOGIC ASSESSMENT TABLE	PROJECT NAME: Manor Creek Subdivision	FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-73	N29° 43' 55.8"	W98° 10' 42.4"	O^VR	5	Kcp	20	50		-	-	1-4	0.1-0.25	O,F,C	20	25	25			Yes	Drainage
S-74	N29° 43' 57.3"	W98° 10' 39.6"	O^FR	5	Kcp	20	50		-	-	1-4	0.1-0.25	O,F,C	20	25	25			Yes	Drainage
S-75	N29° 43' 58.8"	W98° 10' 41.1"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32			Yes	Hillside
S-76	N29° 43' 8.48"	W98° 10' 40.5"	SC	20	Kcp	2	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-77	N29° 43' 59.8"	W98° 10' 37.9"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-78	N29° 43' 57.5"	W98° 10' 34.5"	SC	20	Kcp	5	5	1	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-79	N29° 43' 58.5"	W98° 10' 31.3"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-80	N29° 43' 58.4"	W98° 10' 30.5"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-81	N29° 43' 59.3"	W98° 10' 31.3"	SH	20	Kcp	10	10	1	-	-	-	-	O,F,V	20	40		40	Yes		Hillside
S-82	N29° 43' 57.7"	W98° 10' 30.1"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-83	N29° 43' 59.2"	W98° 10' 27.3"	SC	20	Kcp	1	1	3	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-84	N29° 43' 58.9"	W98° 10' 26.4"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside

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2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution Cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
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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
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STATE OF TEXAS
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Geology
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GEOLOGIC ASSESSMENT TABLE	PROJECT NAME: Manor Creek Subdivision	FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-85	N29° 43' 3.42"	W98° 10' 26.3"	Z^{VRSC}	30	Kcp	20	90		-	-	1-4	0.1-0.5	O,F,C	25	55		55		Yes	Floodplain
S-86	N29° 44' 0.19"	W98° 10' 25"	SC	20	Kcp	3	2	2	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-87	N29° 43' 56.2"	W98° 10' 35"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-88	N29° 44' 3.42"	W98° 10' 42.7"	SC	20	Kcp	2	1	1	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-89	N29° 44' 3.3"	W98° 10' 18.1"	Z^{VRSC}	30	Kcp	15	40		-	-	1-5	0.1-1	O,F	20	50		50		Yes	Floodplain
S-91	N29° 44' 10.7"	W98° 10' 19.5"	SC	20	Kcp	2	2	2	-	-	-	-	O,F	15	35	35		Yes		Hillside
S-92	N29° 44' 7.32"	W98° 10' 32.5"	SC	20	Kcp	4	1	2	-	-	-	-	O,F	17	37	37		Yes		Hillside
S-93	N29° 44' 8.33"	W98° 10' 32.1"	SH	20	Kcp	4	5	2	-	-	-	-	O,F,C	20	40		40	Yes		Hillside
S-94	N29° 44' 9.1"	W98° 10' 20"	O^{VR}	5	Kcp	10	20		41	-	1-2	0.25-0.33	O,F	19	24	24			Yes	Hillside
S-95	N29° 44' 7.42"	W98° 10' 17.4"	O^{VR}	5	Kcp	20	50		76	-	1-4	0.1-0.33	O,F,C	19	24	24			Yes	Hillside
S-96	N29° 44' 7.87"	W98° 10' 16.1"	SC	20	Kcp	1	1	1	-	-	-	-	O,F	19	39	39		Yes		Floodplain

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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
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Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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Signature [signature] Date June 8, 2015 Sheet 6 of 7

STATE OF TEXAS
Jim Walker Wickman
Geology
10403
LICENSED
PROFESSIONAL GEOSCIENTIST

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Manor Creek Subdivision — FGS-E15171

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-97	N29° 44' 7.71"	W98° 10' 16.6"	O^VB	5	Kcp	15	75		-	-	1-4	0.1-0.25	O,F,C	19	24	24			Yes	Hillside
S-98	N29° 44' 14.6"	W98° 10' 30.2"	SC	20	Kcp	1	3	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-99	N29° 44' 7.02"	W98° 10' 30.1"	SC	20	Kcp	3	3	1.5	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-100	N29° 44' 3.02"	W98° 10' 17.5"	F	20	Kcp				-	-	-	-	-	-	-	-	-		Yes	Streambed
S-101	N29° 43' 52.9"	W98° 10' 41.5"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-102	N29° 43' 49.9"	W98° 10' 42.7"	MB	30	Kcp	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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 213.

Signature _____ Date June 8, 2015 Sheet 7 of 7

STATE OF TEXAS — Christopher Wickman — Geology — 10403 — LICENSED PROFESSIONAL GEOSCIENTIST

LOCATION

The Site is located along and north of State Highway 46, approximately 3/4 miles northwest of the intersection of State Highway 46 and F.M. 1863, in New Braunfels, Texas. An overall view of the area is shown on copies of the site plan, a street map, the U.S.G.S. Topographic Map, the E.A.A Edwards Aquifer Recharge Zone and Contributing Zone Map, the FIRM Map, the Bureau of Economic Geology Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, U.S. Geological Survey Water Resources Investigations 93-4030 Map, a 2014 aerial photograph at a scale of 1"=600', a 2014 aerial photograph at a scale of 1"=1,000', and a 1973 aerial photograph at a scale of 1"=1,000', Figures 1 through 9 in Appendix A.

METHODOLOGY

The Geologic Assessment was performed by Mr. Chris Wickman, P.G., Senior Geologist with Frost GeoSciences, Inc.. Mr. Wickman is a Licensed Professional Geoscientist in the State of Texas (License # 10403).

Frost GeoSciences, Inc. researched the geology of the area near the intersection of State Highway 46 and F.M. 1863. The research included, but was not limited to, the Bureau of Economic Geology, Geologic Atlas of Texas, San Antonio Sheet, FEMA maps, Edwards Aquifer Recharge Zone Maps, U.S.G.S. 7.5 Minute Quadrangle Maps, the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the U.S.G.S. Water-Resources Investigations Report 94-4117, and the U.S.D.A. Soil Survey of Comal & Hays Counties, Texas.

After reviewing the available information, a field investigation was performed to identify any geologic or man made potential recharge features. A transect spacing of approximately 50 feet, or less depending on vegetation thickness, was used to inspect the project area. A 2014 aerial photograph, in conjunction with a hand held Garmin 72H Global Positioning System with an Estimated Potential Error ranging from 15 to 18 feet, was used to navigate around the property and identify the locations of potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The locations of any potential recharge features

noted in the field were marked with blue and white flagging. The flagging is numbered with the same potential recharge feature I.D. # that is used on the Site Geologic Map in Appendix C of this report. The Site Geologic Map indicating the limits of the project site and the locations of potential recharge features is included in Appendix C. A copy of a 2014 Aerial Photograph at an approximate scale of 1"=600' indicating the limits of the project site and the locations of potential recharge features is included on Figure 9 in Appendix A. The Geologic Assessment Form TCEQ-085, (Rev. 2-11-15), Stratigraphic Column, and the Geologic Assessment Table have been filled with the appropriate information for this project site and are included on pages 1-12 of this report.

RESEARCH & OBSERVATIONS

7.5 Minute Quadrangle Map Review

According to the U.S.G.S. 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988), the elevation across the project site ranges from 760 to 840 feet above mean sea level. The project site has a total relief of approximately 80 feet. Runoff from the project site flows to the southeast and north into Blieders Creek. Blieders Creek is located along the southeastern property line. State Highway 46 is located immediately southwest of the project site. A few areas of residential development are visible south and southwest of the project site. A flood control - recharge dam is located northeast of the project site along Blieders Creek. A copy of the U.S.G.S. 7.5 Minute Quadrangle Map indicating the location of the project site is included on Figure 3 in Appendix A.

Recharge / Transition Zone

According to the E.A.A. Edwards Aquifer Recharge Zone and Contributing Zone Map (1994) and the Official Edwards Aquifer Recharge Zone Map, New Braunfels West, Texas Sheet (1988), the Site is located on the Edwards Aquifer Recharge Zone. A copy of the E.A.A. Edwards Aquifer Recharge and Contributing Zone Map indicating the location of the Site is included on Figure 4 in Appendix A.

100-Year Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the Comal County, Texas, Community Panel Numbers 48091C0430F and 48091C0435F (Revised September 2, 2009) was reviewed to determine if the Site is located within the 1% annual chance flood (100-year flood), which is also known as the base flood. A review of the above mentioned Panel Numbers indicate that the majority of the Site is located within Zone X. According to the Panel Legend, Zone X represents areas determined to be outside the 0.2% annual chance floodplain. However, areas located along Bieders Creek located within the southeastern portion of the project are located in Zones A, AE and Zone X (shaded). Zones A and AE are areas included in the Special Flood Hazard Area within the 100-year flood. Zones A and AE are defined by the map panel legend as areas where no base flood elevations have been determined (Zone A) and where base elevations have been determined (Zone AE). Zone X (shaded) is identified as an Other Flood Areas, and is defined as areas of the 2% annual chance flood, areas of the 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from the 1% annual chance flood. A copy of the above referenced FIRM panels indicating the location of the Site is included on Figure 5 in Appendix A.

Soils

According to the United States Department of Agriculture, Soil Conservation Service, Soil Survey of Comal & Hays Counties, Texas, (1977), the project site is located on the Rumple-Comfort Association (RUD), and the Comfort-Rock Complex (CrD). A copy of the 1973 aerial photograph (approximate scale: 1"=1000') from the U.S.D.A. Soil Survey of Comal & Hays Counties, Texas indicating the location of the project site and the soil types is included on Figure 6 in Appendix A.

The Rumple-Comfort Association consists of shallow and moderately deep soils on uplands in the Edwards Plateau Land Resource Area. The surface layer of the Rumple Soil is dark reddish brown very cherty clay loam about 10 inches thick. Rounded chert and limestone cobbles and gravel cover about 20 percent of the surface. The subsoil to a depth of 14 inches is dark reddish-

brown very cherty clay, and to a depth of 28 inches it is dark reddish-brown extremely stony clay. The underlying material is indurated fractured limestone. The Comfort Soil is dark brown, neutral, extremely stony clay about 7 inches thick. The subsoil to a depth of 12 inches is dark reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated fractured limestone. The soil is noncalcareous throughout. The soils in this association are well drained. Surface runoff is medium, but varies due to the occurrence of caves, fracture zones, and sinks. Permeability is moderately slow. Water erosion is a moderate hazard.

This soil has a USDA Texture Classification of very cherty clay loam, stony clay, very stony clay, extremely stony clay, and weathered bedrock. The Unified Classification is GC, CL or SC. The AASHO Classification is A-2-6, A-6, and A-2-7. This soil has an average permeability from 0.2 to 0.6 inches/hour.

The Comfort-Rock Outcrop Complex consists of shallow, clayey soils and Rock Outcrop on side slopes and on hilltops and ridge tops on uplands in the Edwards Plateau Land Resource Area. The Comfort Extremely Stony Clay makes up 49 to more than 95 percent of the complex, but on the average it makes up 70 percent. Rock Outcrop and areas of soil less than 4 inches deep make up 5 to 36 percent, but the average is 15 percent. Typically, the surface layer of the Comfort soil is dark brown extremely stony clay about 6 inches thick. Cobbles and stones as much as 4 feet across cover about 45 percent of the surface. The subsoil extends to a depth of 13 inches. It is dark reddish brown extremely stony clay. The underlying material is indurated fractured limestone. The soil is mildly alkaline and noncalcareous throughout. The Comfort Soil is well drained. Surface runoff is slow to medium. Permeability is slow, and the available water capacity is very low. Water erosion is a slight hazard.

This soil has a USDA Texture Classification of extremely stony clay, stony clay, very stony clay, and weathered bedrock. The Unified Classification is CH, GC, CL, or SC. The AASHO Classification is A-2-7, and A-7-6. This soil has an average permeability from 0.6 to 0.2 inches/hour.

Narrative Description of the Site Geology

Based on a visual inspection of the ground surface, the overall potential for fluid flow from the project site into the Edwards Aquifer appears to be low to intermediate.

One hundred two features were noted on the project site at the time of the field investigation on April 5-14 and 21-28, 2005. Ninety natural karst features and 12 man-made features were noted on the project site at the time of the field investigation. According to the U.S. Geological Survey Water Resources Investigations 94-4117, a fault (S-100) is located along the southeastern property line. No obvious visual indications of the fault were noted on the project site at the time of the on-site inspection. The natural karst features noted on the site consisted of numerous solution cavities, rock outcrops, and zones of fractured rock, vuggy rock, and solution cavities. A number of the solution cavities appeared to have been dug out by burrowing animals. The man made features consisted of man hole covers associated with a sanitary sewer line crossing the project site. The locations of the Potential Recharge Features are identified on the Site Plan on Figure 1 in Appendix A, on the 2003 aerial photograph on Plate 1h in Appendix A, and on the Site Geologic Map provided in Appendix C. Color photographs of the project site and some of the potential recharge features are included in Appendix B.

Potential Recharge Features #S-3 and S-4 consist of solution cavities noted on the project site at the time of the field investigation. PRF #S-4 appeared to have been dug out by a burrowing animal. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 30 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Feature #S-6 is an outcrop of vuggy and fractured limestone noted within a natural drainage path. The outcrop is about 25 feet wide and 75 feet long. The vugs ranged in size from 1/2 inches to 1 inch with a density of 4 to 5 vugs per foot. The fractures were approximately an inch in width and occurred in a density of 1 fracture per foot. The general trend of the fractures was 45 degrees. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of

the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 24 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-7, #S-11, #S-22, #S-31, #S-43, #S-50, #S-82, #S-84, #S-87, S-101, and S-102 are man hole covers associated with a sanitary sewer line crossing the project site along the southeastern portion of the property. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 37 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-8 is an outcrop of vuggy and fractured limestone. PRF #S-8 is a cliff of limestone along Blieders Creek. The cliff is ranges from 3 feet to 15 feet along the length of the outcrop. The fractures are approximately 1 inch in width and occur at a density of 1 fracture per foot. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 24 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-12, and #S-13 are solution cavities. PRF #S-12 is a solution cavity noted under a limestone boulder. The feature is about 1 foot wide and 1 foot long and extends about 18 inches downward. PRF #S-13 appears to have been dug out by a burrowing animal. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Feature #S-14 consists of an outcrop of vuggy and fractured limestone noted in a natural drainage path. The outcrop was about 15 feet wide and 40 feet long. The vugs were approximately 1 to 2 inches in size and occurred at a density of 3 to 5 vugs per foot. The fractures are about 1 in width and occur 1 to 2 fractures per foot. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 30 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Feature #'s S-15, #S-85, and #S-89 are zones of vuggy rock and solution

cavities. The Zones consist of large vugs ranging from 4 inches to 12 inches with several solution cavities ranging from 4 inches to 18 inches. The vugs and solution cavities are infilled with fine soils leaves and other organic materials. PRF#S-15 was noted in a natural drainage path. According to the FEMA, Flood Insurance Rate Map, PRF #S-85 and PRF #S-89 are located in the 100 year flood plain. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 50 to 55 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-16 through #S-20 are solution cavities noted on the site at the time of the field inspection. PRF #S-16 appears to have been dug out by a burrowing animal. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-21 and #S-35 appear to be outcrops of solution enlarged fractures. PRF #S-21 is about 15 feet wide and 30 feet long. The fractures are about 1 to 2 inches in width and occur at a density of 1 to 2 fractures per foot. The dominate trend of the fractures was about 45 degrees. The outcrop was noted in a natural drainage path. PRF #S-35 is about 10 feet wide and 15 feet long. The fractures are about 2 to 4 inches wide and occur at about 1 to 2 fractures per foot. The dominate trend of the fractures was about 78 degrees. Frost GeoSciences, Inc. rates this feature as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 50 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-23 and #S-24 are elongated solution cavities approximately 6 inches in width and 4 feet in length. The features are infilled with fine soils and leaves. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 35 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-25, #S-38, and #S-61 are zones of vuggy and fractured rock. The widths of the zones range from 30 to 50 feet and the lengths range from 75 to 100 feet. Each of the outcrop zones were noted in natural drainage paths. The vugs ranged in size from 1 inch to 3 inches and occurred at a density of 1 to 4 per foot. The fractures ranged in size from 1 to 2 inches in width and occurred at a density of 1 to 3 per foot. The orientation of the fractures varied. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score a 50 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-26 and #S-28 are solution cavities noted on the project site at the time of the field inspection. The features are infilled with fine soils and leaves. The features range in size from 12 inches to 18 inches wide and 1 to 4 feet in length. The features were about 18 inches to 2 feet deep. PRF #S-26 and PRF #S-28 appeared to be dug out by a burrowing animal. PRF #S-29 is an elongated solution cavity. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 30 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Feature #S-37 is a outcrop of vuggy rock noted on the project site at the time of the field investigation. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-51, #S-52, and #S-57 are outcrops of vuggy and fractured rock. PRF #S-52 is located in a natural drainage path. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 17 to 34 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-53, #S-55, and #S-58 are outcrops of vuggy rock noted on the project site at the time of the field inspection. The outcrops all have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. Frost GeoSciences, Inc. rates these features as

low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 15 to 17 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-56, #S-59 and #S-66 through #S-68 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. The size of the features range in size from 6 inches to 2 feet wide, 6 inches to 2 feet long, and 1 to 2 feet deep. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 30 to 32 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Feature #S-63 is a cave noted in the wall of a cliff. The cliff was noted along a natural drainage path. The opening of the cave was about 4 feet tall and 10 feet wide. The cave extended horizontally approximately 10 feet into the cliff. Frost GeoSciences, Inc. rates this feature as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-64, #S-65 and #S-69 are outcrops of vuggy and fractured rock noted on the project site at the time of the field inspection. #S-65 have fractures ranging in size from 1 to 2 inches wide and the fractures occur about 1 to 2 fractures per foot. #S-69 have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 17 to 20 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-70 and #S-71 are solution cavities noted in a natural drainage path. The features were infilled with fine soils and leaves and twigs. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score 40 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-72, #S-75 through #S-80, and #S-83 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. The size of the features range in size from 6 inches to 2 feet wide, 6 inches to 2 feet long, and 1 to 2 feet deep. PRF #S-75 appears to have been dug out by a burrowing animal at one time. PRF #S-78 is about 5 feet wide, 5 feet long and 1 foot deep. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 32 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-73 and #S-74 are outcrops of vuggy and fractured rock noted on the project site at the time of the field inspection. PRF #S-73 have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. PRF #S-74 have fractures ranging in size from 1 to 2 inches wide and the fractures occur about 1 to 2 fractures per foot. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score 25 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-81 and #S-93 are sinkholes. PRF S#-81 is about 10 feet around and 1 foot deep. A tree was noted growing in the middle of the feature. The feature was infilled with fine soils, coarse sand, cobbles, and with grass and shrubs. PRF #S-93 is 4 feet wide, 5 feet long, and 2 feet deep. The feature is infilled with coarse soils and gravel as well as leaves and twigs. Frost GeoSciences, Inc. rates these features as intermediate on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score 40 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-86, #S-88, and #S-91 and #S-92 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. The size of features PRF #S-86, PRF #S-88, PRF #S-91 and PRF #S-92 range in size from 1 foot to 4 feet wide, 1 foot to 2 feet long, and 1 to 2 feet deep. PRF #S-92 appears to have been dug out

by a burrowing animal at one time. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 32 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-94, #S-95 and #S-97 are outcrops of vuggy rock noted on the project site at the time of the field inspection. The outcrops have vugs ranging in size from 1 to 3 inches with a density ranging from 3 to 6 vugs per foot. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features score 24 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

Potential Recharge Features #S-96, #S-98, and #S-99 are solution cavities noted on the project site at the time of the field investigation. The features were infilled with fine soils and leaves and twigs. According to the FEMA, Flood Insurance Rate Map, PRF #S-96 are located in the 100 year flood plain. PRF #S-98 and PRF #S-99 appears to have been dug out by a burrowing animal at one time. Frost GeoSciences, Inc. rates these features as low on Figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). These features range in score from 32 to 39 on the sensitivity scale in column 10 of the Geologic Assessment Table on Pages 5-11 of this report.

According to the U.S. Geological Survey Water Resources Investigations 94-4117, Potential Recharge Feature #S-100 is a fault located along the southeastern property line. No obvious visual indications of the fault were noted on the project site at the time of the on-site inspection.

The project site supports a dense stand of vegetative cover with a several open grassy areas. Overall vegetation on the project site consists of ashe juniper (*Juniperus ashei*), live oak (*Quercus virginiana*), cedar elm (*Ulmus crassifolia*), and mesquite (*Prosopis glandulosa*), with Texas persimmon (*Diospyros texana*), agarita (*Berberis trifoliolata*), huisache (*Acacia farnesiana*), sage (*Leucophyllum*), whitebrush (*Aloysia gratissima*), Yucca, mountain laurel, and prickly pear cactus (*Opuntia lindheimeri*).

According to the U.S Geological Survey Water Resources Investigations (WRI) 94-4117, Texas and the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the Site is located on the Edwards Person Limestone. The USGS Water Resources Investigations (WRI) Report Map subdivides

the Edwards Person limestone into three separate geologic members. The USGS WRI Report Map indicates the Site is located on the upper two geologic members of the Edwards Person limestone, the Cyclic and Marine and the Leached and Collapsed members of the Edwards Person limestone. A copy of the WRI map and the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle are included on Figures 7 and 7A in Appendix A. A copy of the Stratigraphic Column highlighting the outcropping formations is included on Page 4 of this report.

The Cyclic and Marine Member of the Edwards Person Limestone consists of mudstone to packstone with milliolid grainstone and chert. This member occurs as thin graded cycles of massive to relatively thin beds with some crossbeds. Typically, cavern development in this member is common, but occurs mainly in the subsurface. The caverns within this member might be associated with earlier episodes of karst development.

The Leached and Collapsed Member of the Cretaceous Edwards Person Limestone consists of crystalline limestone, mudstone, and grainstone with chert and collapsed breccia. Bioturbated iron-stained beds are common and are separated by massive limestone beds with stromatolitic limestone. This member forms extensive lateral karst development with large rooms. The overall thickness of this member ranges from 70 to 90 feet thick.

According to the site plan provided by HMT Engineers, the surveyed elevations on the Site range from 760 to 864 feet. According to this survey, the total relief on the Site is approximately 104 feet. A copy of the site plan indicating the boundary of the Site and the elevations is included on the Site Plan on Figure 1 in Appendix A and the Site Geologic Map in Appendix C of this report

BEST MANAGEMENT PRACTICE (BMP)

Based on a visual inspection of the ground surface and the research performed for this project, the overall potential for fluid flow from the project site into the Edwards Aquifer appears to be low to intermediate. According to the U.S. Geological Survey Water Resources Investigations 94-4117, a fault located along the southeastern property line. No obvious visual indications of the fault were noted on the project site at the time of the on-site inspection. However, the potential always exists

to encounter subsurface features that lack a surface expression. Construction personnel should be informed of the potential to encounter subsurface karst features associated with the fault, vuggy outcrops, or outcrops zones during excavating activities. Construction personnel should also be informed of the proper protocol to follow in the event that a solution cavity and/or cave is encountered during the excavation and development of the property.

DISCLAIMER

This report has been prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04) by a Licensed Texas Professional Geoscientist. All areas of the project site were carefully inspected for features that could contribute to the recharge of the Edwards Aquifer, however, this survey cannot preclude the presence of subsurface karst features that lack surface expression. This report is not intended to be a definitive investigation of all possible geologic or karst features at this site. All conclusions, opinions, and recommendations for Best Management Practices (BMP's) in this report are based on information obtained while researching the project, and on the site conditions at the time of our field investigation.

This report has been prepared for the exclusive use of DR HORTON. This report is based on available known records, a visual inspection of the project site, and the work generally accepted for a Geologic Assessment for Regulated Activities / Developments on the Edwards Aquifer Recharge / Transition Zone, relating to 30 TAC §213.5(b)(3), effective June 1, 1999.

REFERENCES

1) U.S.G.S. 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988).

2) E.A.A. Edwards Aquifer Recharge and Contributing Zone Map, New Braufels West, TX (1999).

3) Small, Ted A., and Hanson, John A., 1994, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County, Texas. U.S. Geological Survey Water Resources Investigations 94-4117.

4) Barnes, V.L., 1983, Geologic Atlas of Texas, San Antonio Sheet, Bureau of Economic Geology, The University of Texas at Austin, Texas.

5) Federal Emergency Management Agency (FEMA), May 15, 1991, Comal County, Texas and Incorporated Areas, Flood Insurance Rate Map (FIRM), Panel #'s 48091C0430F and 48091C0435F, revised September 9, 2009, FEMA, Washington D.C.

6) U.S.D.A. Soil Conservation Service, Soil Survey of Comal and Hayes County, Texas (1984).

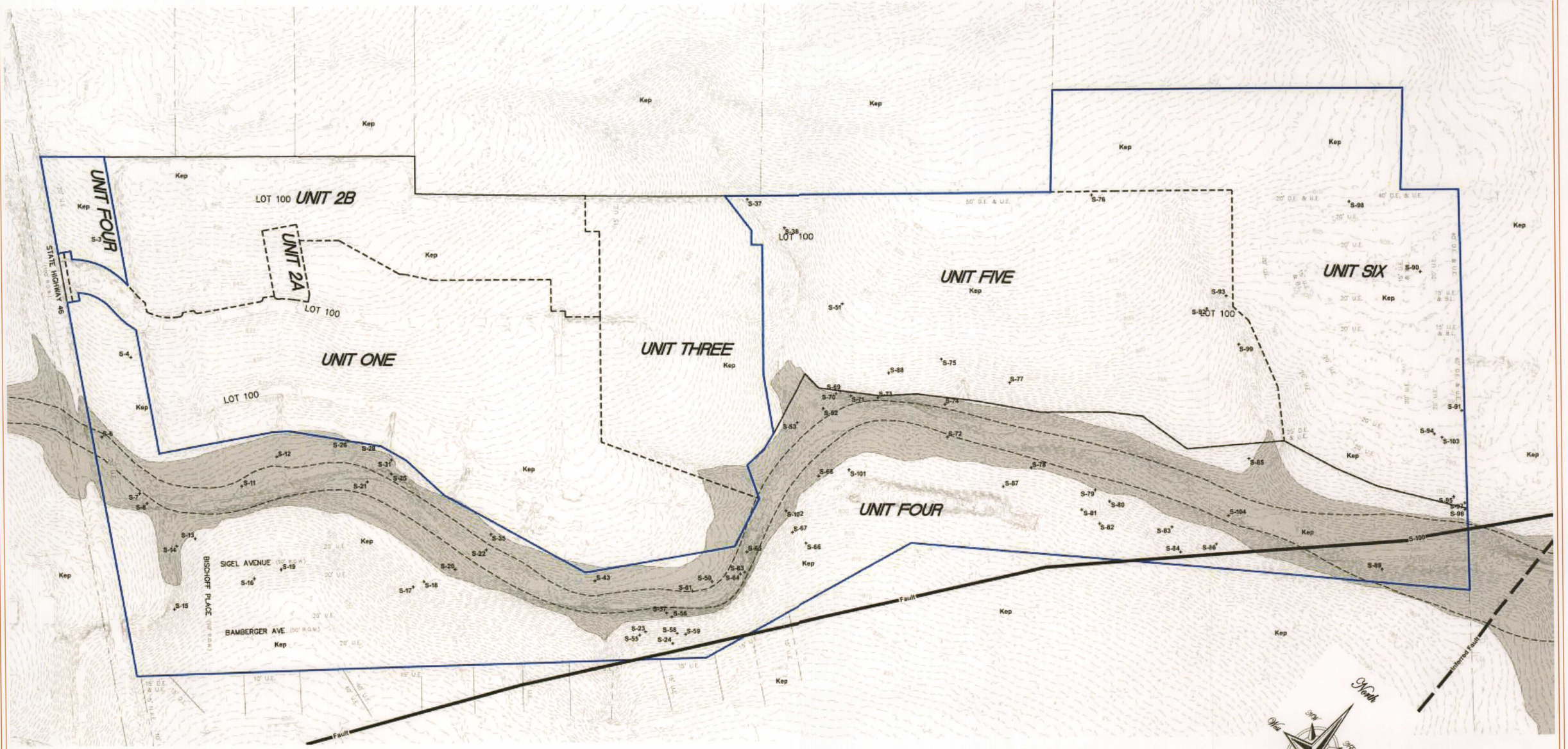
7) TCEQ-0585-Instructions (Rev. 10-1-04). "Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zone".

8) Collins, Edward, W., 2000, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, Bureau of Economic Geology, The University of Texas at Austin, Texas.

APPENDIX A

SITE LOCATION FIGURES

Frost GeoSciences



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

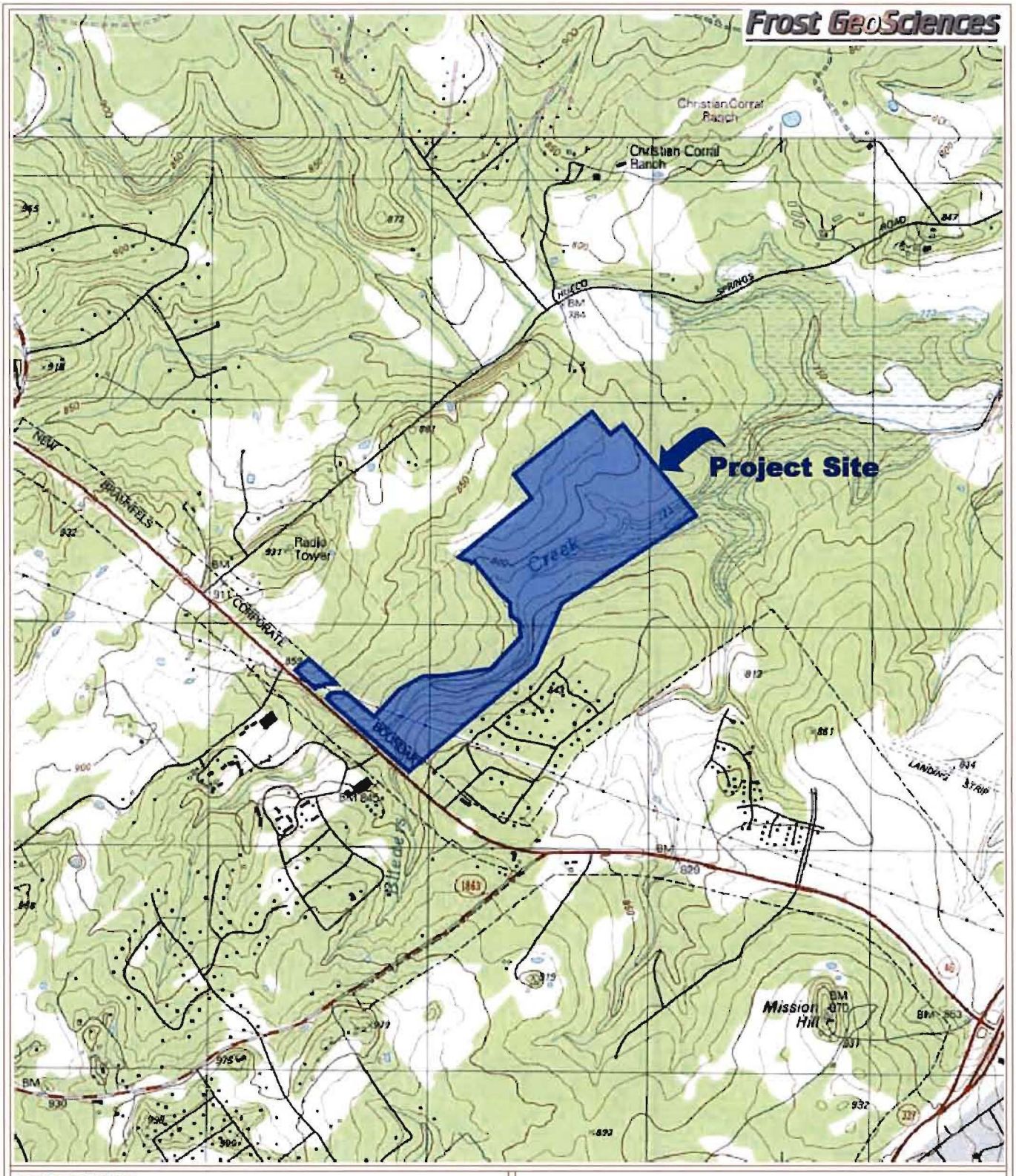
Site Layout

PROJECT NO.: FGS-E15171

DATE: June 8, 2015



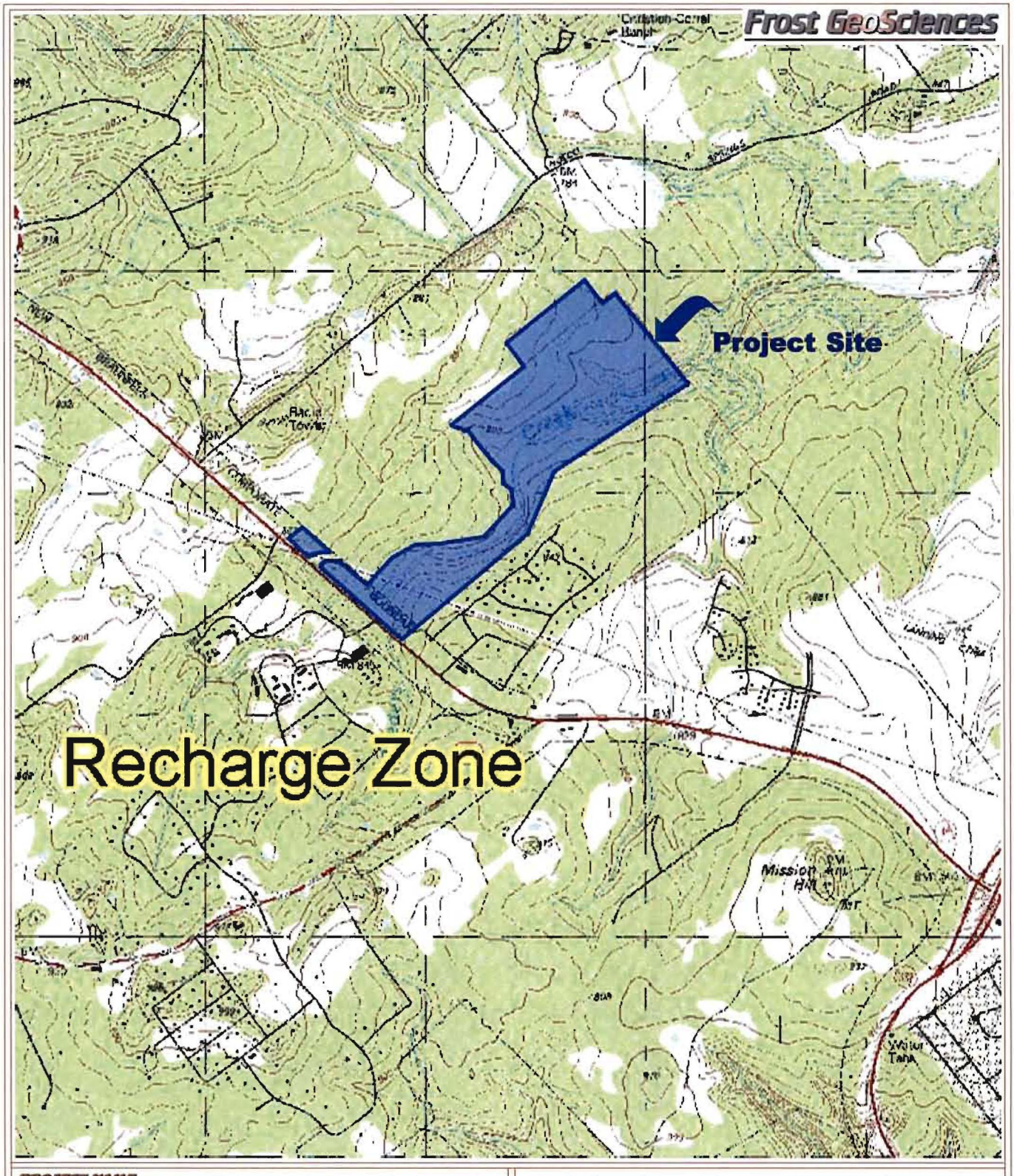
PROJECT NAME: Geologic Site Assessment (SCS) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone Manor Creek Subdivision Comal County, Texas	Street Map
	PROJECT NO.: FGS-E15171 / **DATE:** June 8, 2015



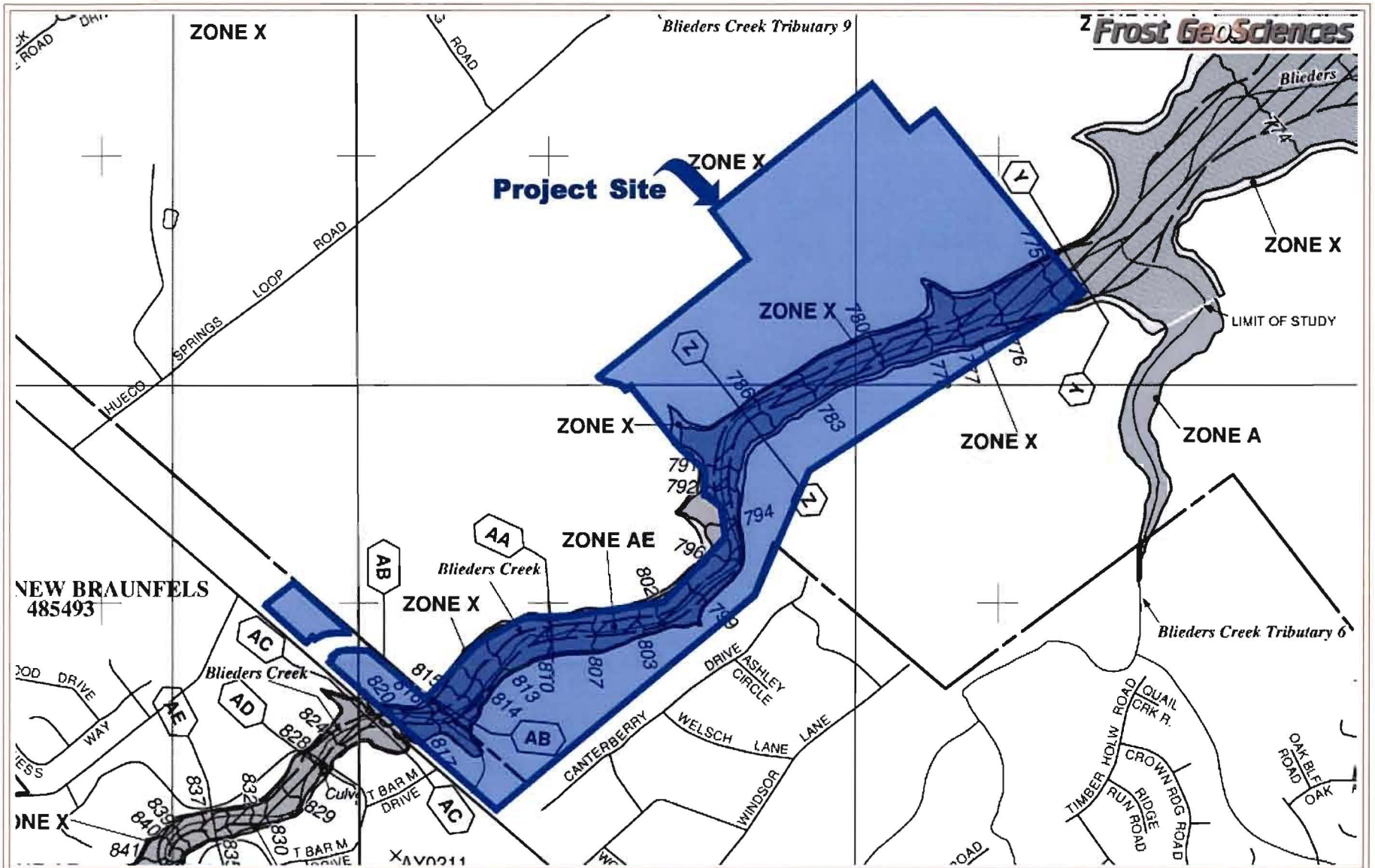
PROJECT NAME:
Geologic Site Assessment (SCS)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

U.S.G.S. 7.5 Minute Quadrangle Map
New Braunfels West, Texas Sheet (1988)

PROJECT NO.:	DATE:
FGS-E15171	June 8, 2015



PROJECT NAME: Geologic Site Assessment (SCS) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone Manor Creek Subdivision Comal County, Texas	EAA-Edwards Aquifer Recharge and Contributing Zone Map New Braunfels West, Texas Quadrangle (1998)
	PROJECT NO.: FGS-E15171 / **DATE:** June 8, 2015

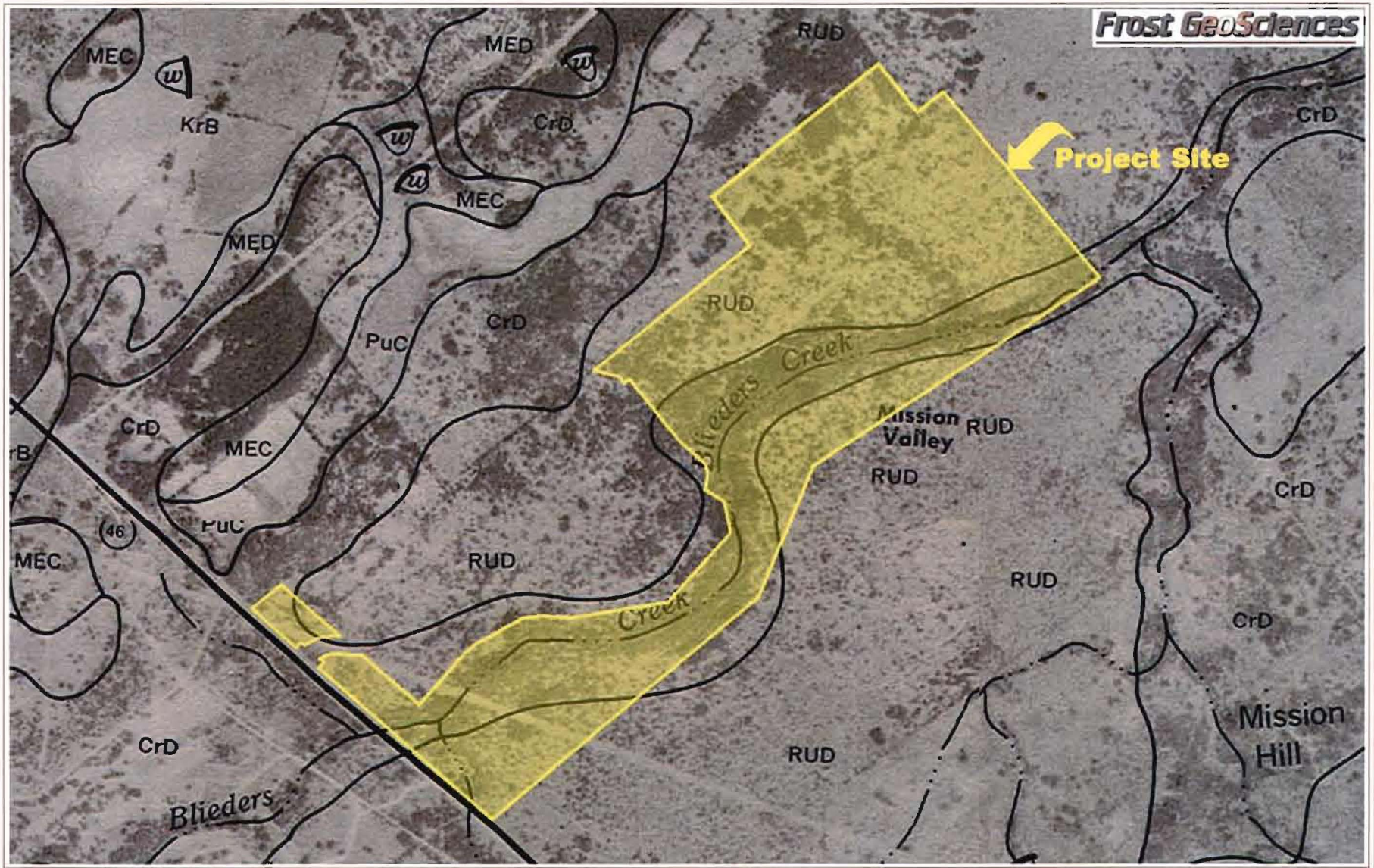


PROJECT NAME:
Geologic Site Assessment (SCS)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

Flood Insurance Rate Map (FIRM)
Community Panel #s 48091C0430F and 48091C0435F
September 9, 2009

PROJECT NO.: FGS-E15171

DATE: June 8, 2015

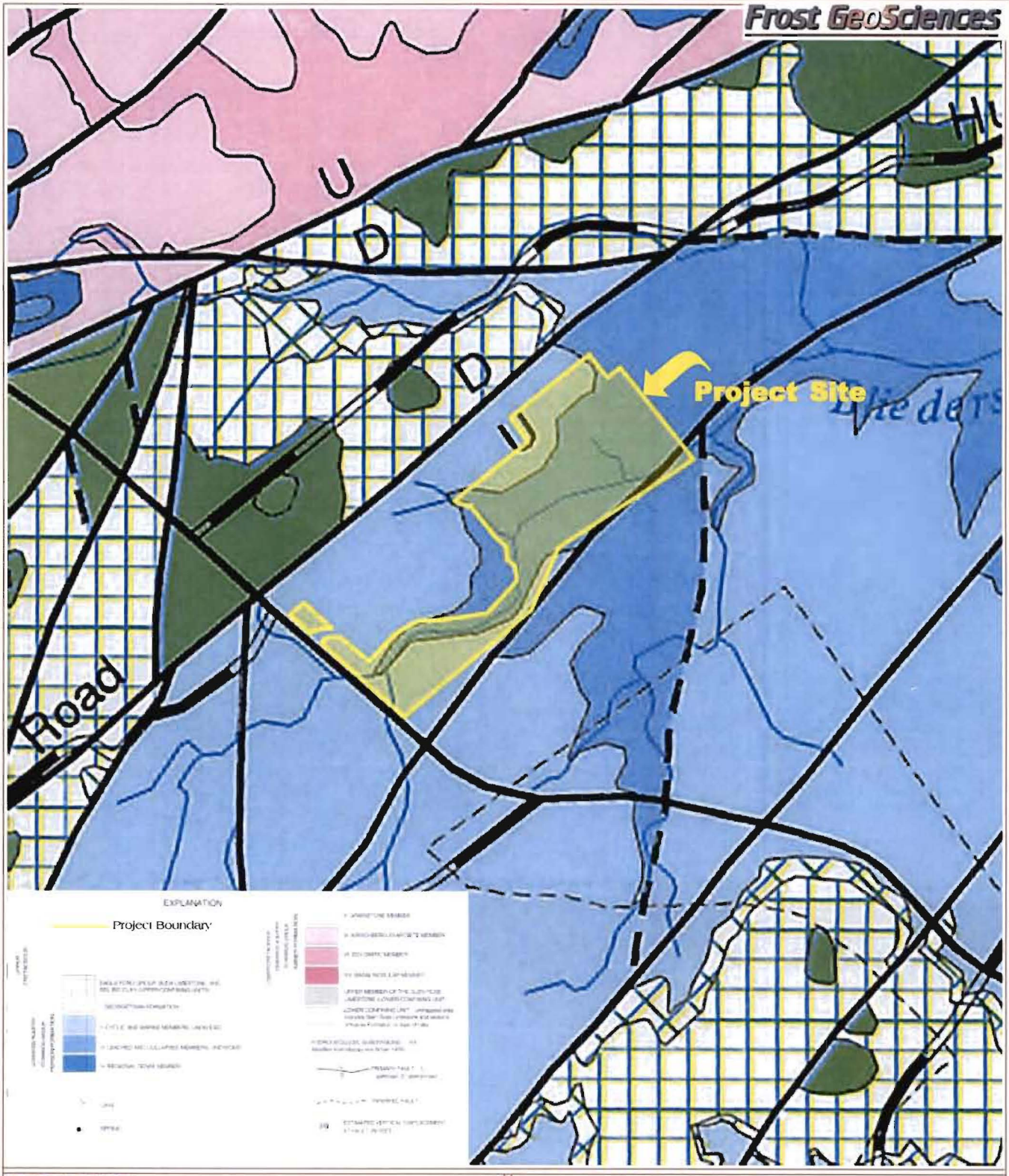


PROJECT NAME:
Geologic Site Assessment (SCS)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

1973 Aerial Photograph
United States Department of Agriculture
Soil Survey of Comal & Hays County, Texas

PROJECT NO.: FGS-E15171

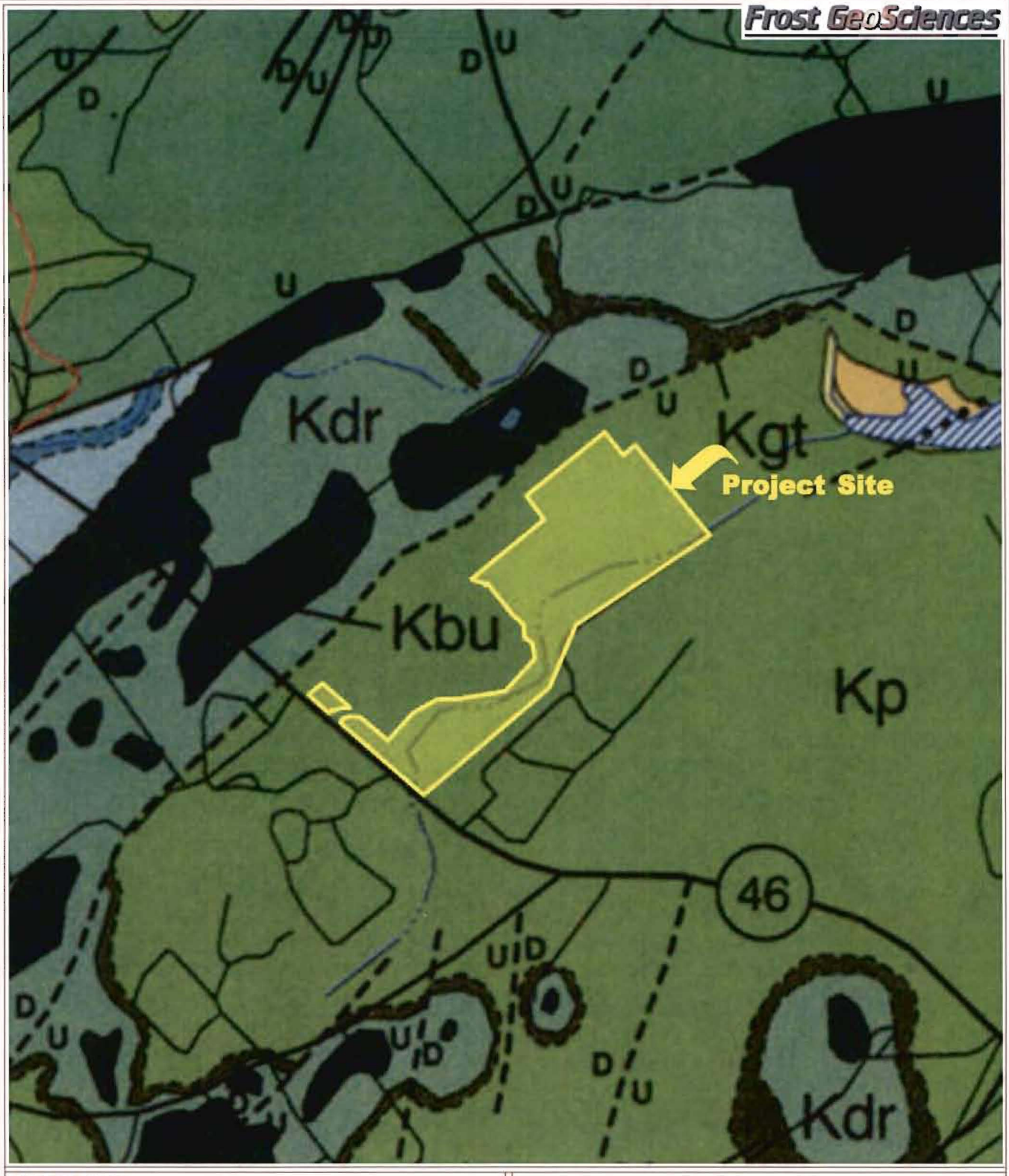
DATE: June 8, 2015



PROJECT NAME:
Geologic Site Assessment (SCS)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

United States Geologic Survey
Water Resources Investigations #4117-94
Geologic Map of Comal County, Texas

PROJECT NO.:	DATE:
FGS-E15171	June 8, 2015



PROJECT NAME: Geologic Site Assessment (SCS) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone Manor Creek Subdivision Comal County, Texas	Bureau of Economic Geology Geologic Map of the Comal County, Texas 30 X 60 Minute Quadrangle (2000)
	PROJECT NO.: FGS-E15171 / **DATE:** March 28, 2015



PROJECT NAME:
Geologic Site Assessment (SCS)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

2014 Aerial Photograph
National Agricultural Imagery Program

PROJECT NO.: FGS-E15171

DATE: June 8, 2015

Geotechnical • Construction Materials • Geologic • Environmental

FIGURE 8

Frost GeoSciences



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Manor Creek Subdivision
Comal County, Texas

2014 Aerial Photograph with PRFs
National Agricultural Imagery Program

PROJECT NO.: FGS-E15171

DATE: June 8, 2015

APPENDIX B

SITE PHOTOGRAPHS



View of potential recharge feature # S-3.



Typical view of the vegetative cover noted near S-3.



View of potential recharge feature # S-4.



Typical view of vegetative cover noted near S-4.



View of Potential Recharge Feature # S-8.



View of Potential Recharge Feature # S-8.



View of Potential Recharge Feature # S-7.



View of Potential Recharge Feature # S-11.



View of Potential Recharge Feature # S-12.



View of Potential Recharge Feature # S-13.



Typical view of the vegetative cover noted near S-13.



View of Potential Recharge Feature # S-14.



Typical view of the vegetative cover noted near S-14.



Typical view of the vegetative cover noted near S-15.



View to the east along the Potential Recharge Feature # S-15.



View to the west along the Potential Recharge Feature # S-15.



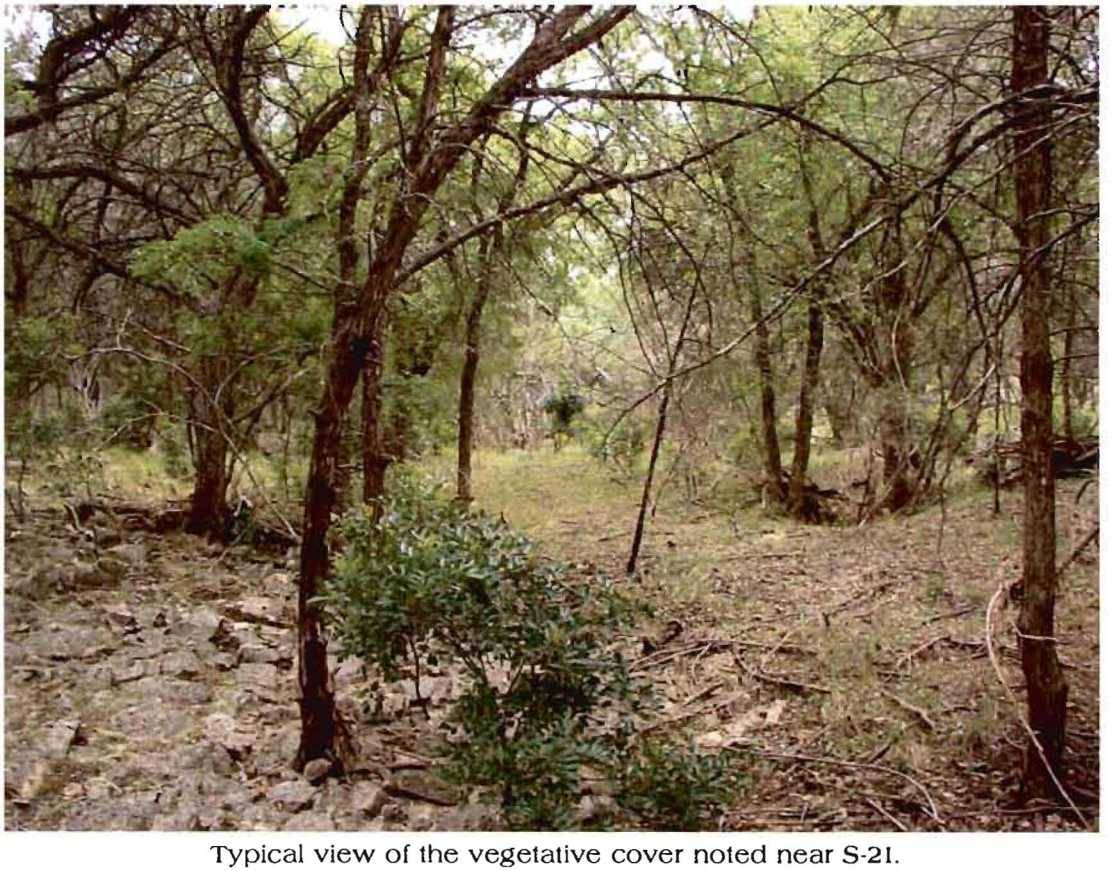
View of Potential Recharge Feature # S-19.



Typical view of the vegetative cover noted near S-19.



View of Potential Recharge Feature # S-21.



Typical view of the vegetative cover noted near S-21.



View of Potential Recharge Feature # S-23.



Typical view of the vegetative cover noted near S-23.



View of Potential Recharge Feature # S-24.



Typical view of the vegetative cover noted near S-24.



View of Potential Recharge Feature # S-25.



Typical view of the vegetative cover noted near S-25.



View of Potential Recharge Feature # S-26.



Typical view of the vegetative cover noted near S-26.



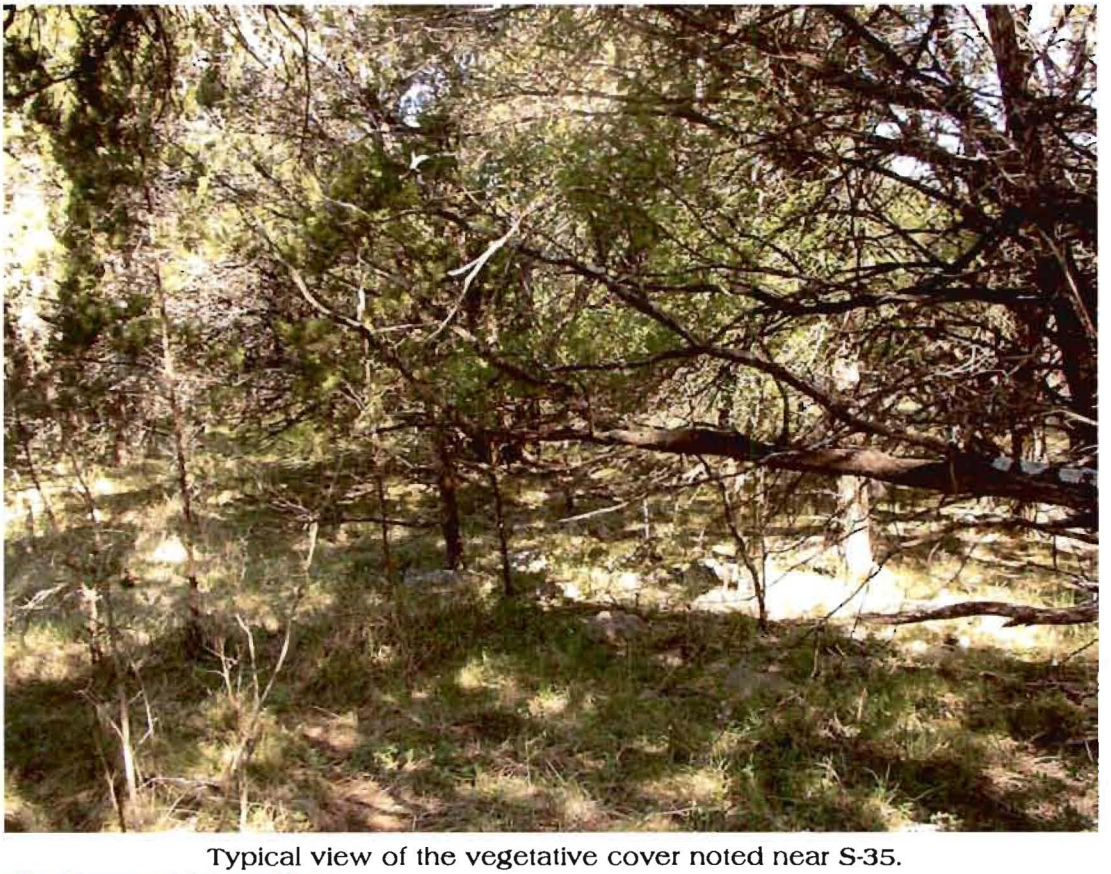
View of Potential Recharge Feature # S-28.



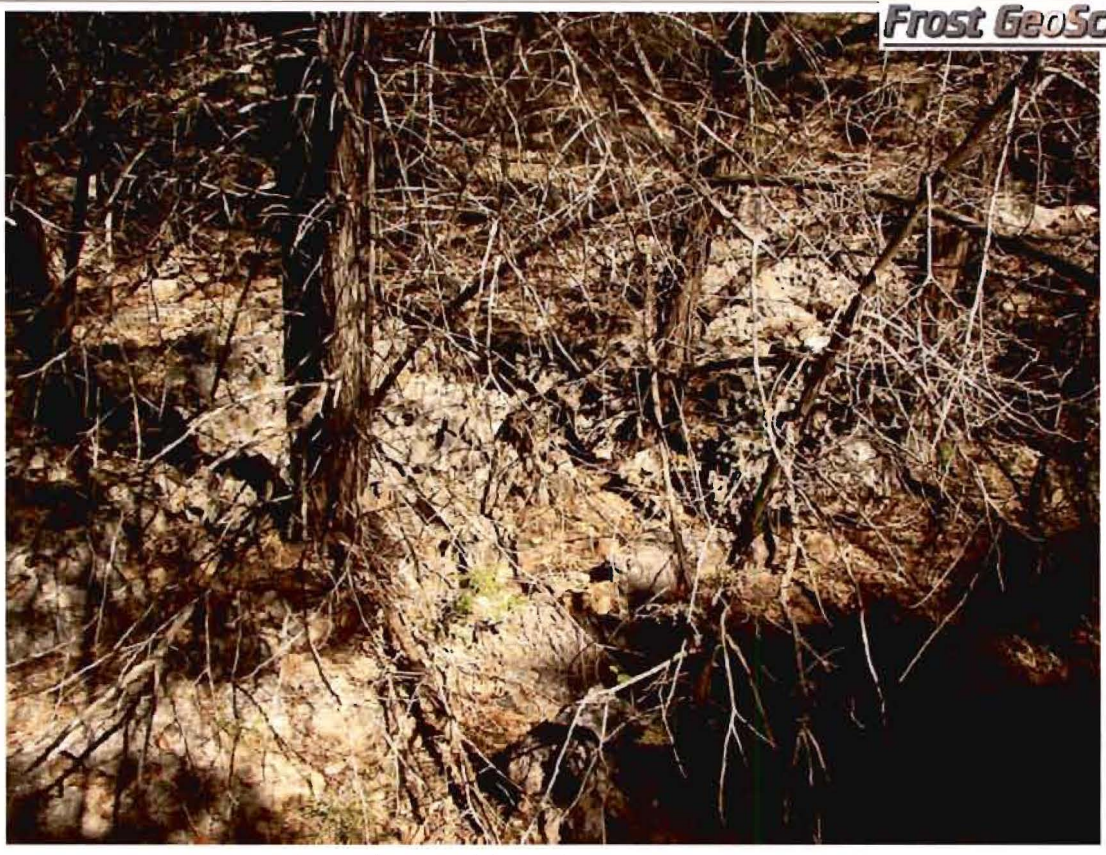
Typical view of the vegetative cover noted near S-28.



View of Potential Recharge Feature # S-35.



Typical view of the vegetative cover noted near S-35.



View of Potential Recharge Feature # S-37.



Typical view of the vegetative cover noted near S-37.



View to the east along the rock outcrop of Potential Recharge Feature # S-38.



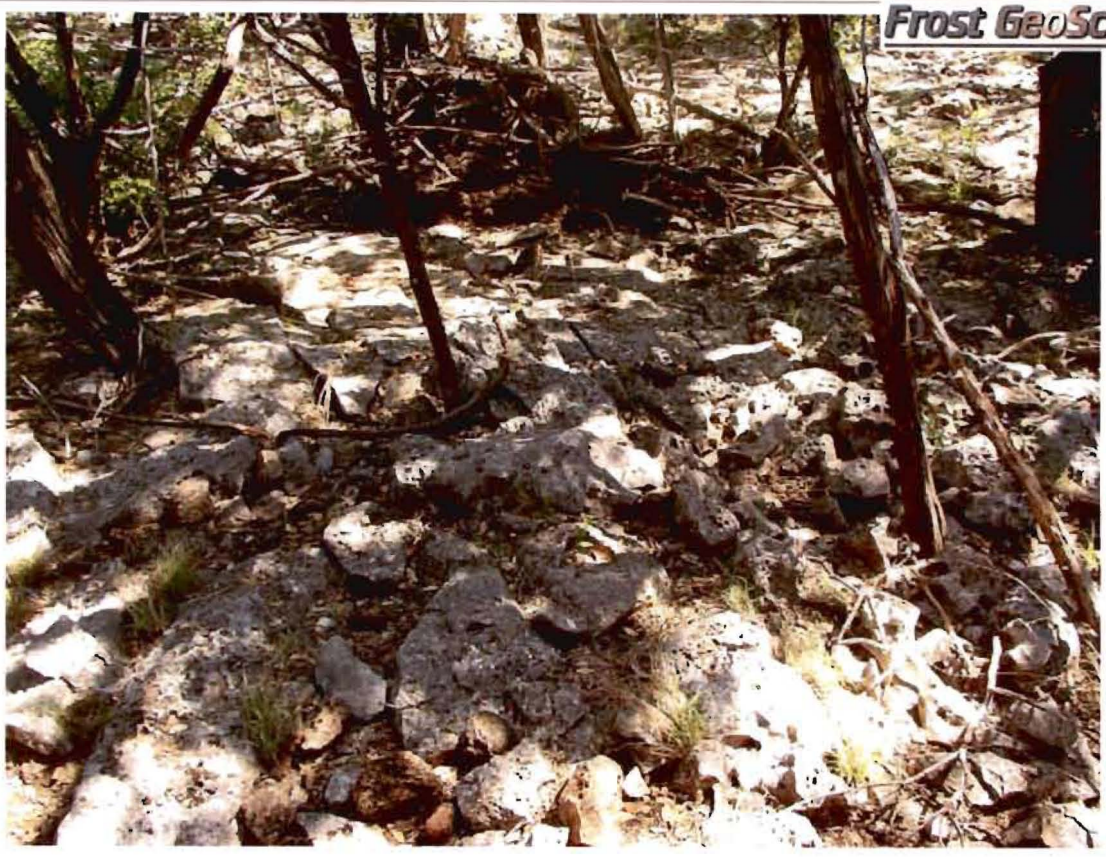
View to the west along the rock outcrop of Potential Recharge Feature # S-38.



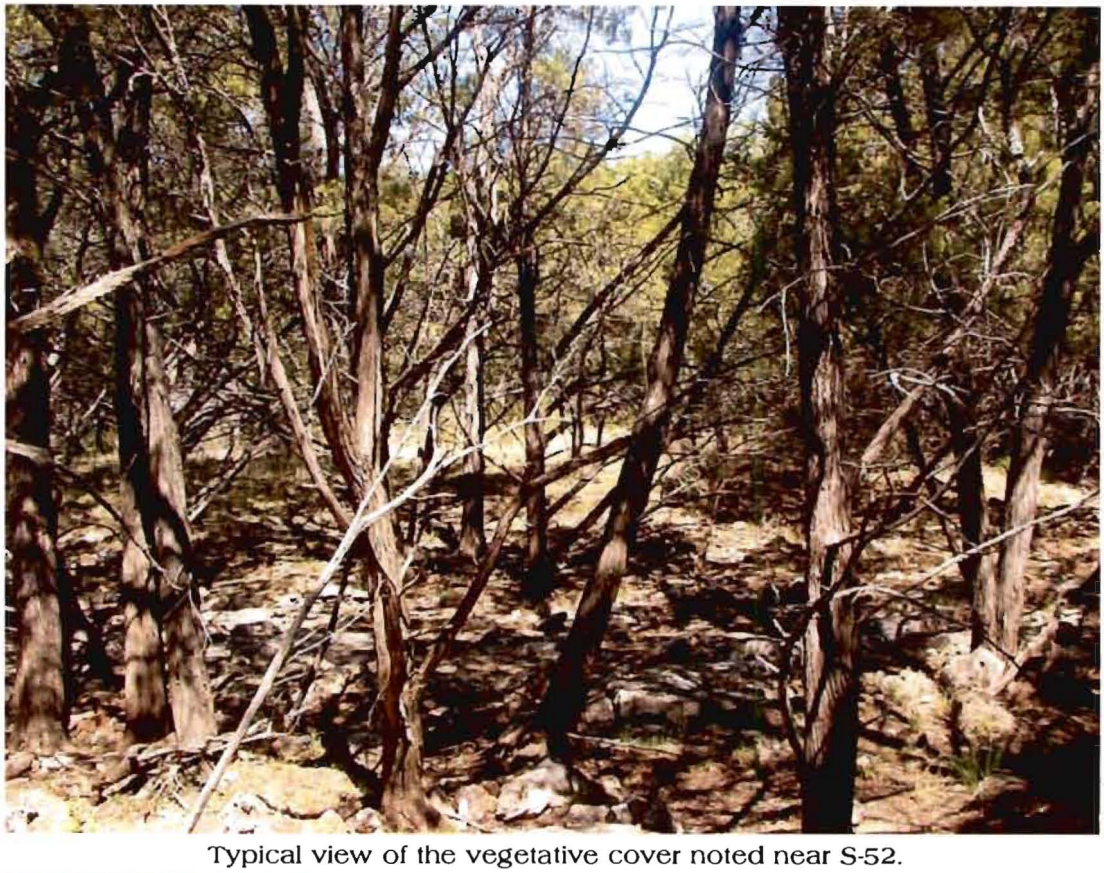
View of Potential Recharge Feature # S-51.



Typical view of the vegetative cover noted near S-51.



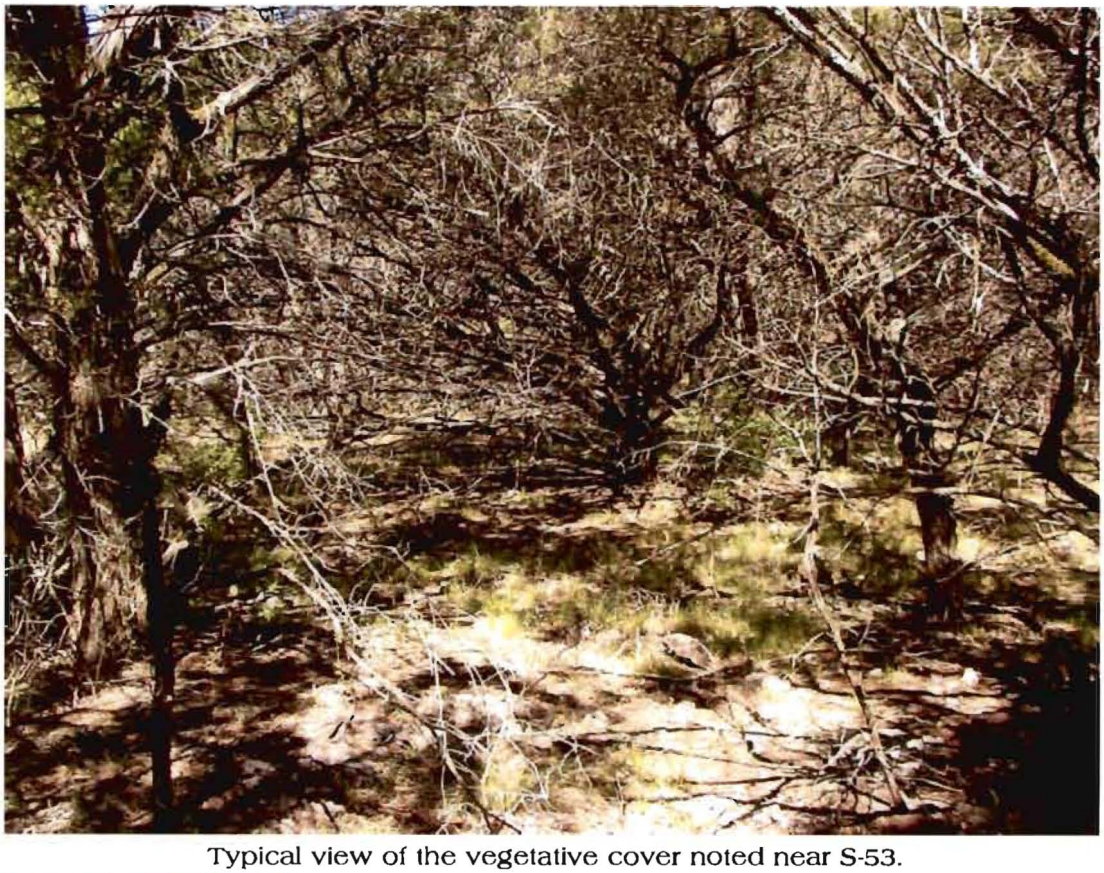
View of Potential Recharge Feature # S-52.



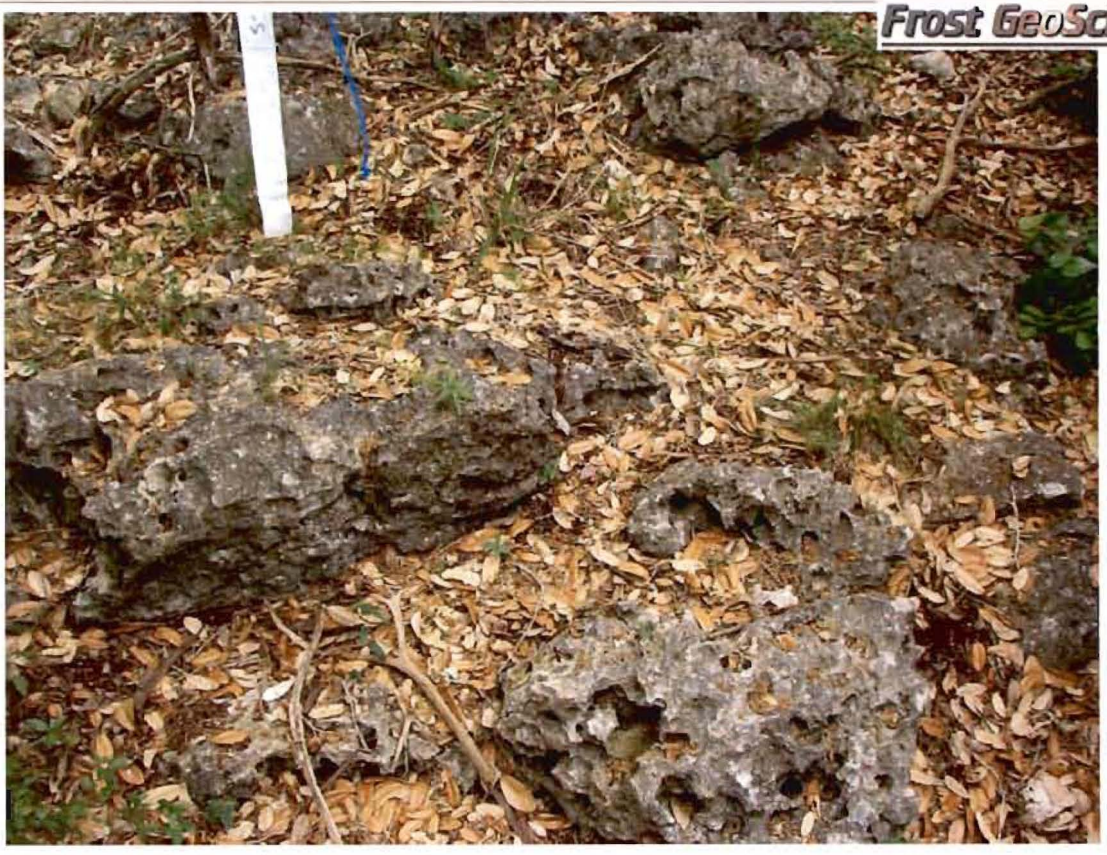
Typical view of the vegetative cover noted near S-52.



View of Potential Recharge Feature # S-53.



Typical view of the vegetative cover noted near S-53.



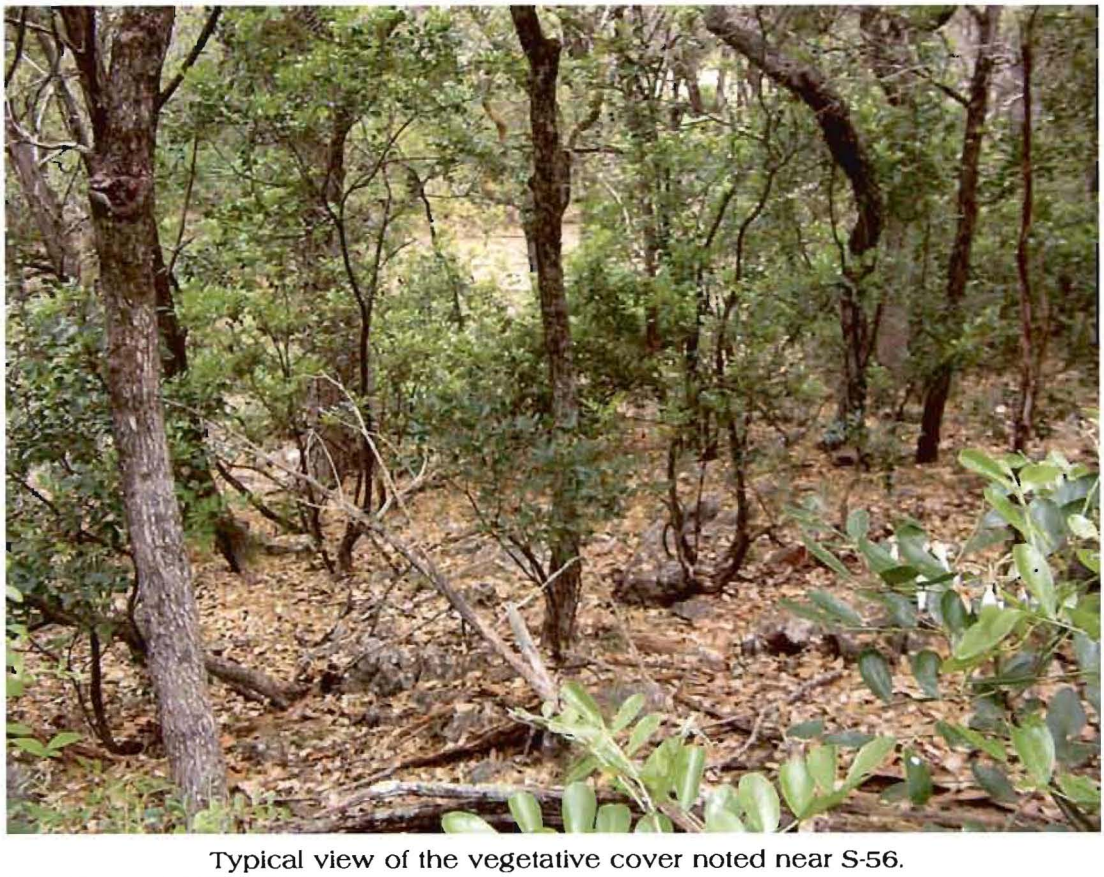
View of Potential Recharge Feature # S-55.



Typical view of the vegetative cover noted near S-55.



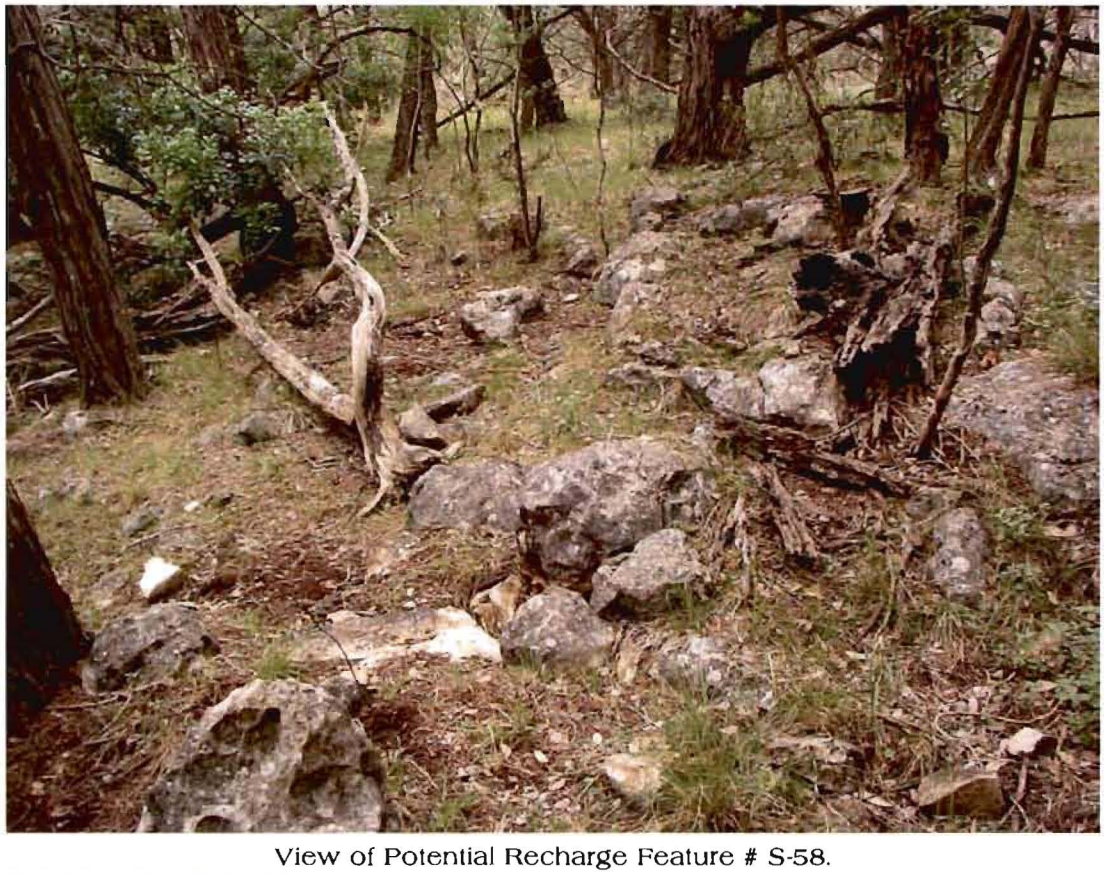
View of Potential Recharge Feature # S-56.



Typical view of the vegetative cover noted near S-56.



View of Potential Recharge Feature # S-57.



View of Potential Recharge Feature # S-58.



Typical view of the vegetative cover noted near S-58.



View of Potential Recharge Feature # S-59.



View of Potential Recharge Feature # S-61.



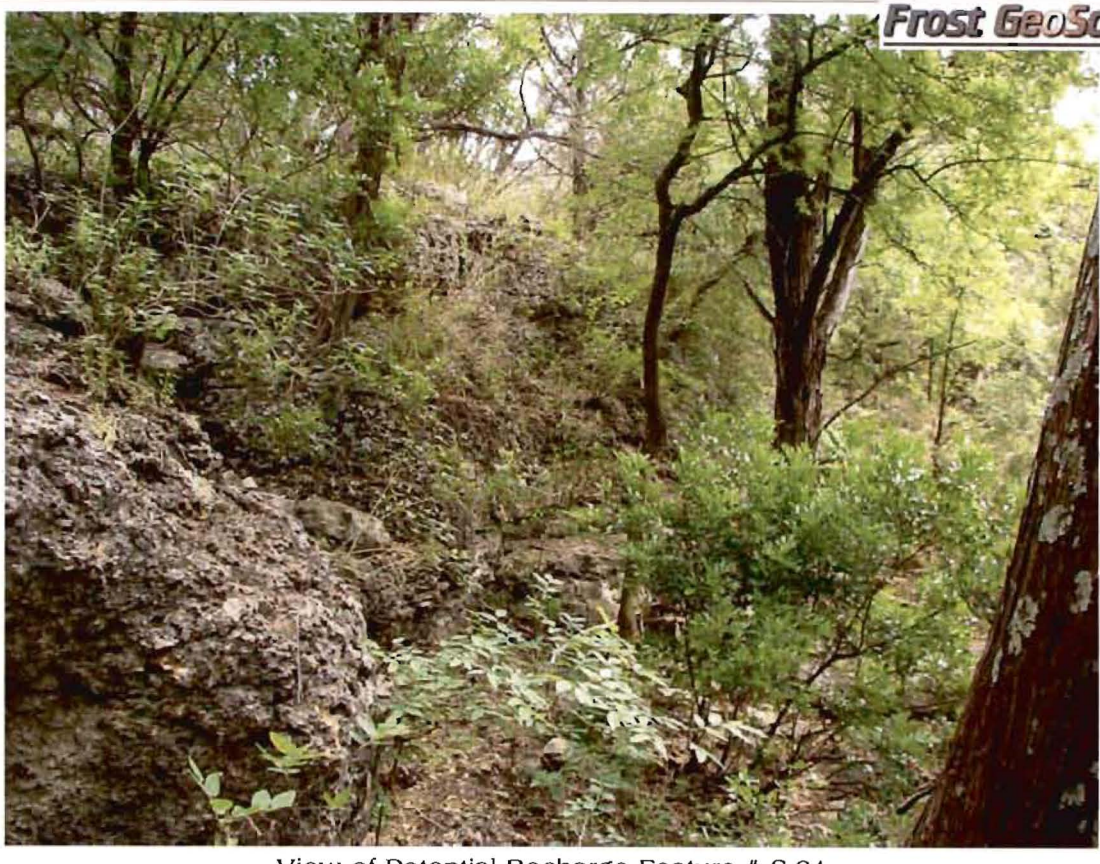
Typical view of the vegetative cover noted near S-61.



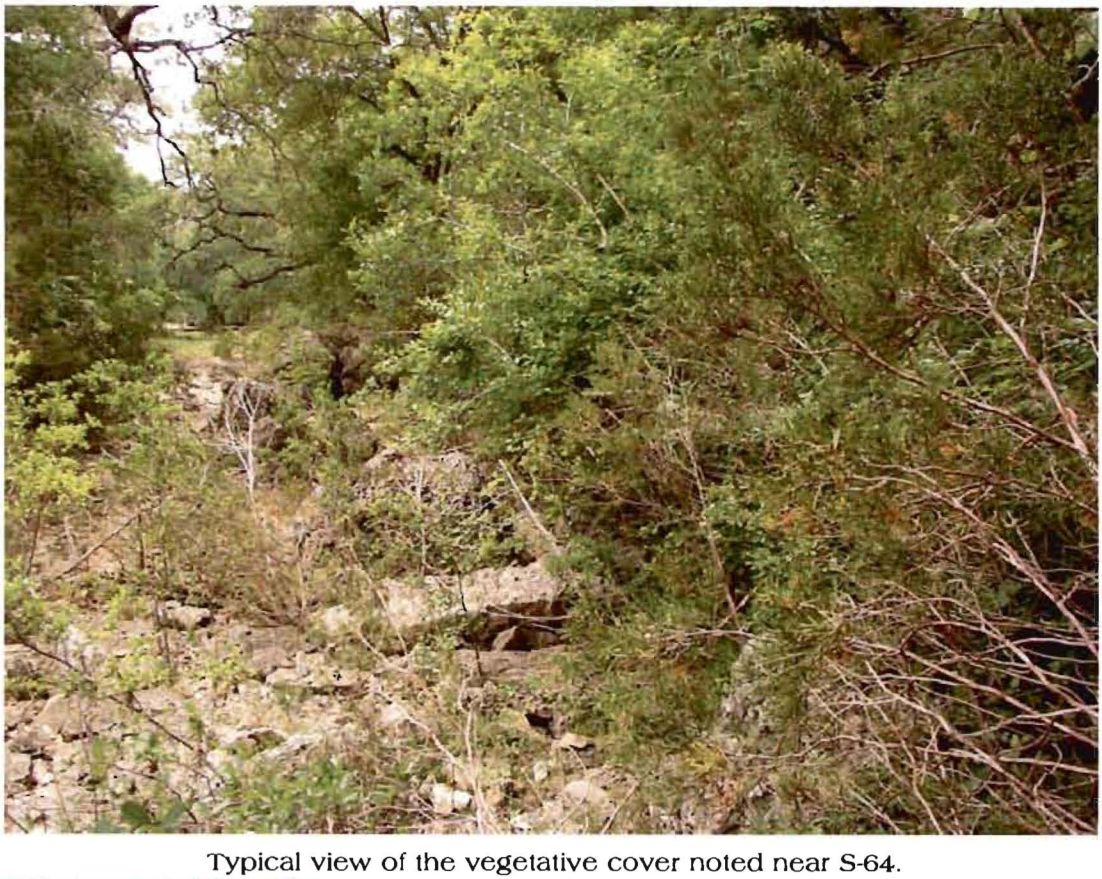
Typical view of the vegetative cover noted near S-61.



View of Potential Recharge Feature # S-63.



View of Potential Recharge Feature # S-64.



Typical view of the vegetative cover noted near S-64.



View of Potential Recharge Feature # S-65.



View of Potential Recharge Feature # S-65.



View of Potential Recharge Feature # S-66.



Typical view of the vegetative cover noted near S-66.



View of Potential Recharge Feature # S-67.



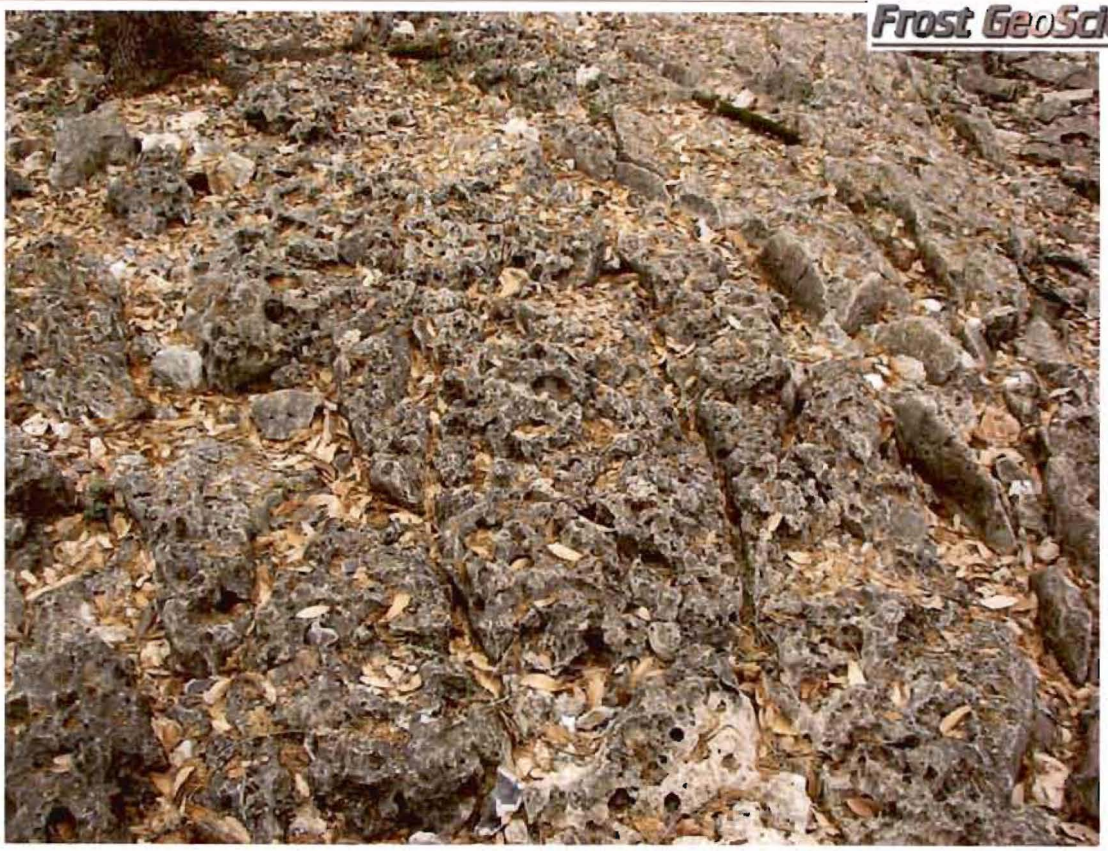
Typical view of the vegetative cover noted near S-67.



View of Potential Recharge Feature # S-68.



Typical view of the vegetative cover noted near S-68.



View of Potential Recharge Feature # S-69.



View of Potential Recharge Feature # S-69.



View of Potential Recharge Feature # S-70.



View of Potential Recharge Feature # S-72.



Typical view of the vegetative cover noted near S-72.



View of Potential Recharge Feature # S-73.



View of Potential Recharge Feature # S-74.



View of Potential Recharge Feature # S-74.



View of Potential Recharge Feature # S-75.



Typical view of the vegetative cover noted near S-75.



View of Potential Recharge Feature # S-77.



Typical view of the vegetative cover noted near S-77.



View of Potential Recharge Feature # S-78.



View of Potential Recharge Feature # S-78.



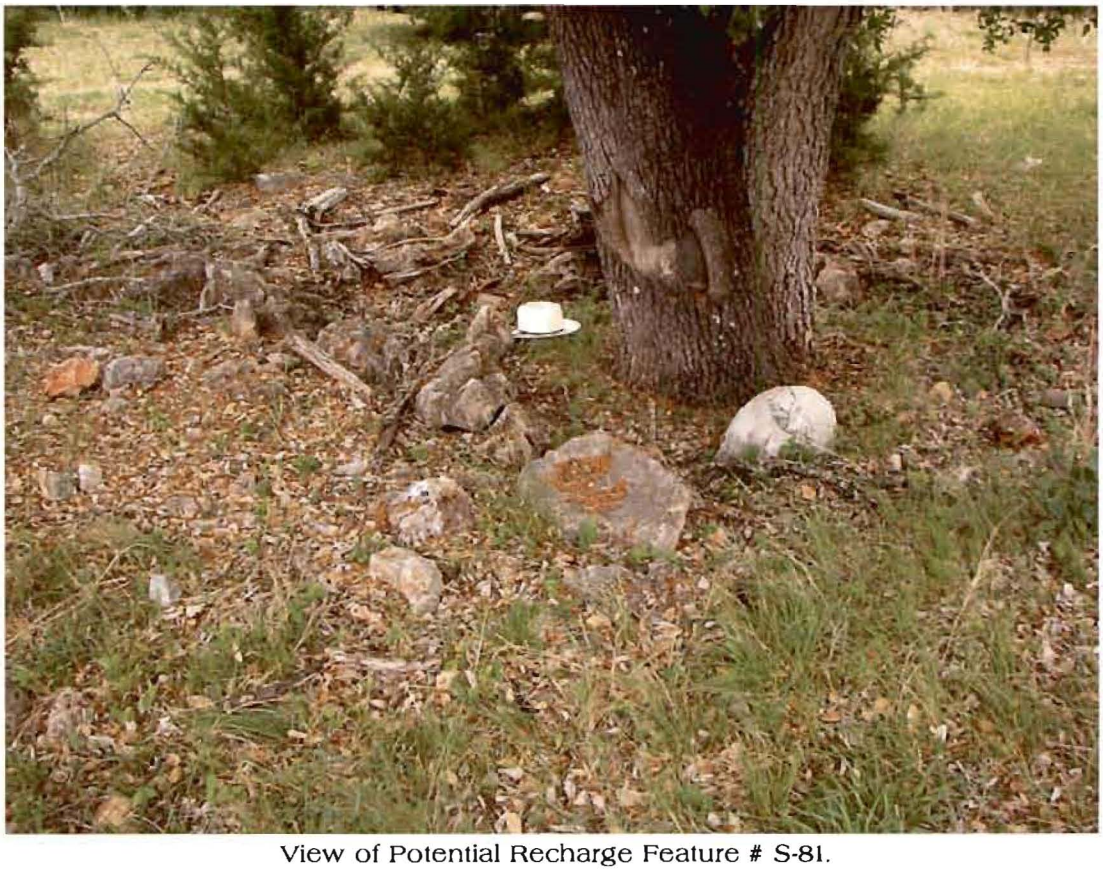
View of Potential Recharge Feature # S-79.



View of Potential Recharge Feature # S-80.



View of Potential Recharge Feature # S-81.



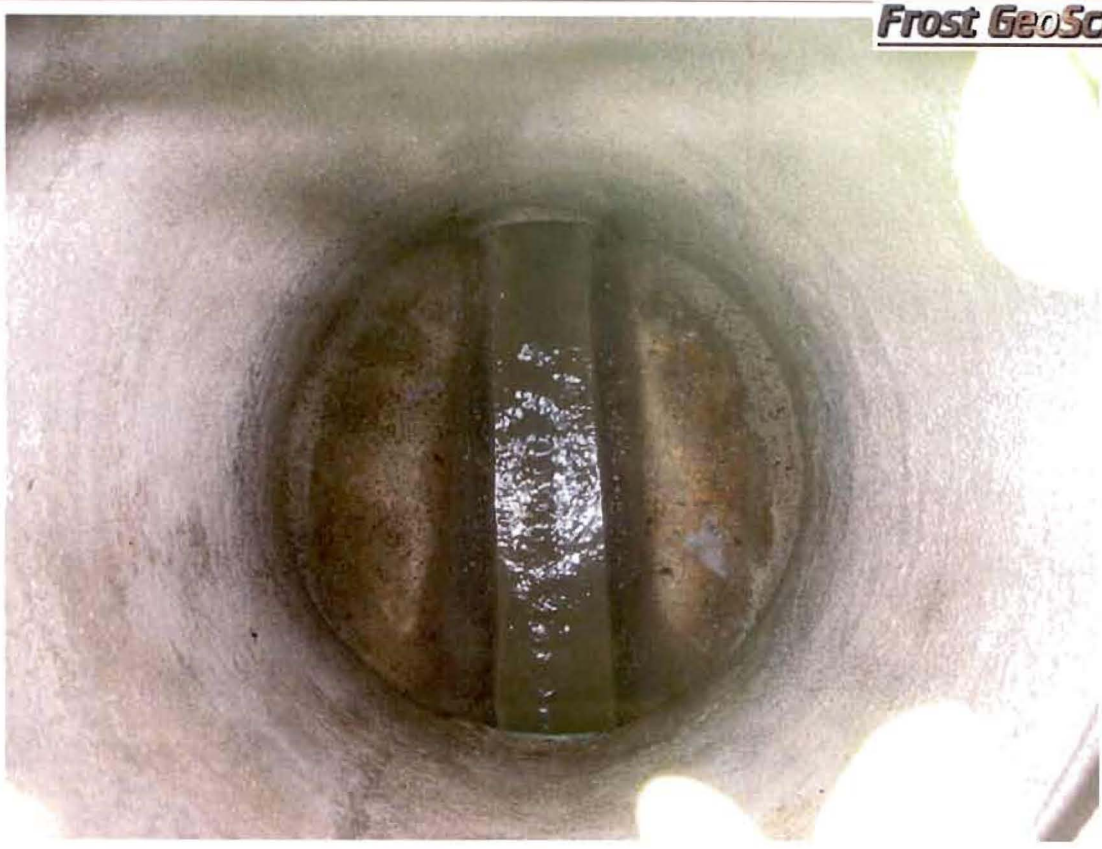
View of Potential Recharge Feature # S-81.



View of Potential Recharge Feature # S-83.



View of Potential Recharge Feature # S-84.



View of the interior of Potential Recharge Feature # S-84.



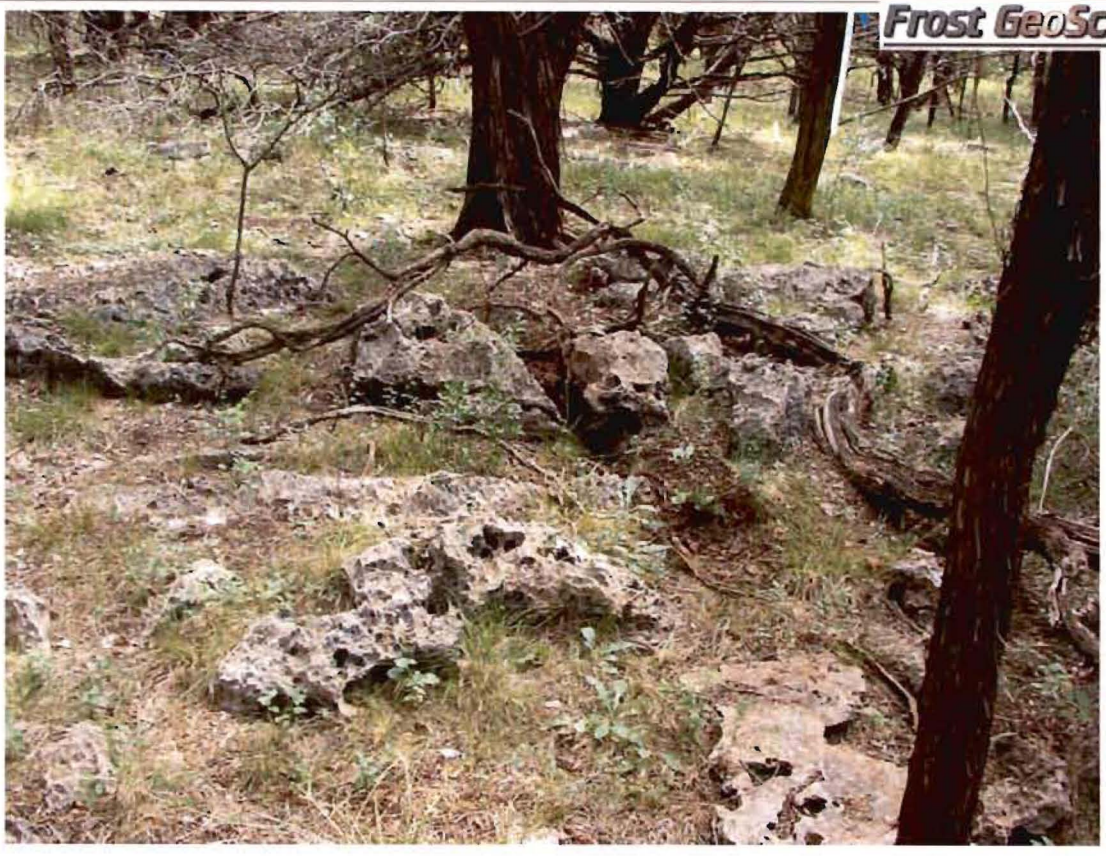
Typical view of the vegetative cover noted near S-84.



Typical view of the vegetative cover near Potential Recharge Feature # S-84.



View of Potential Recharge Feature # S-85.



View of Potential Recharge Feature # S-85.



View of Potential Recharge Feature # S-86.



View of Potential Recharge Feature # S-88.



View of Potential Recharge Feature # S-89.



View of Potential Recharge Feature # S-89.



View of Potential Recharge Feature # S-89.



Typical view of the vegetative cover near Potential Recharge Feature # S-90.



View of Potential Recharge Feature # S-91.



View of Potential Recharge Feature # S-92.



Typical view of the vegetative cover noted near S-92.



View of Potential Recharge Feature # S-93.



Typical view of the vegetative cover noted near S-93.



View of Potential Recharge Feature # S-94.



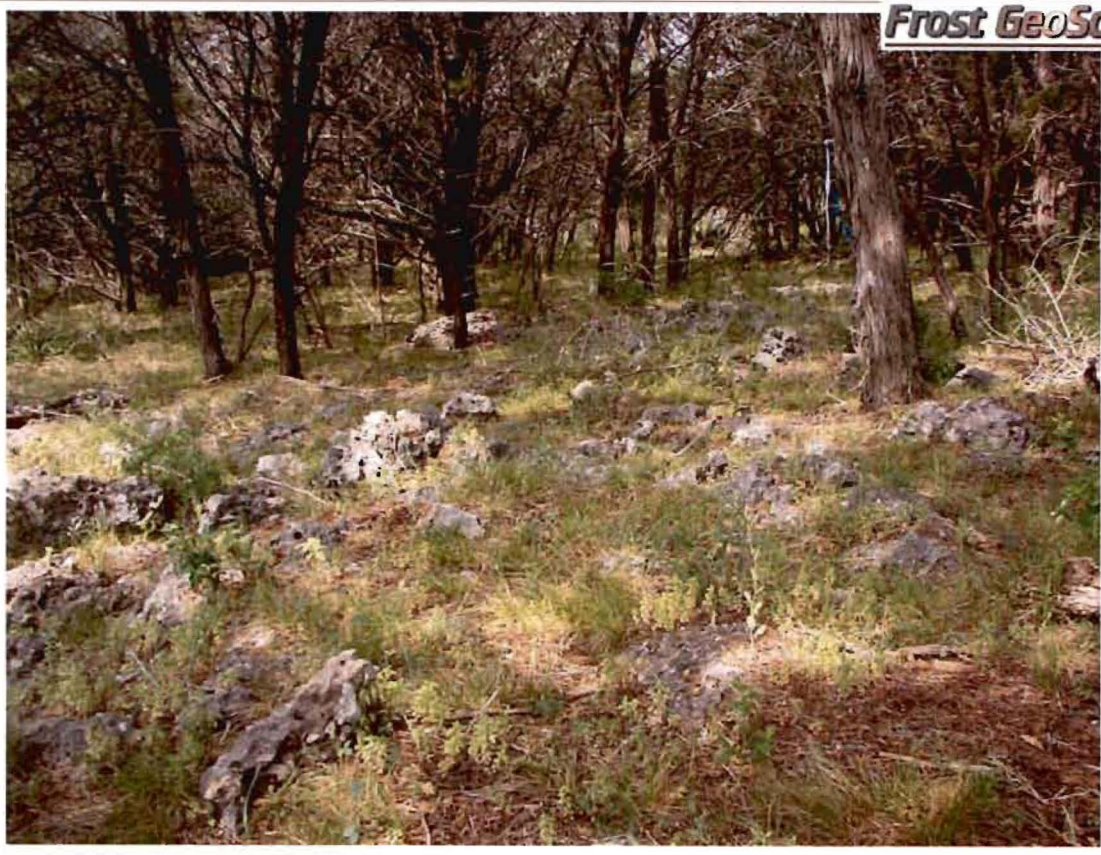
View of Potential recharge Feature # S-95.



Typical view of the vegetative cover noted near S-95.



View of Potential Recharge Feature # S-96.



View of Potential Recharge Feature # S-97.



Typical view of the vegetative cover noted near S-97.



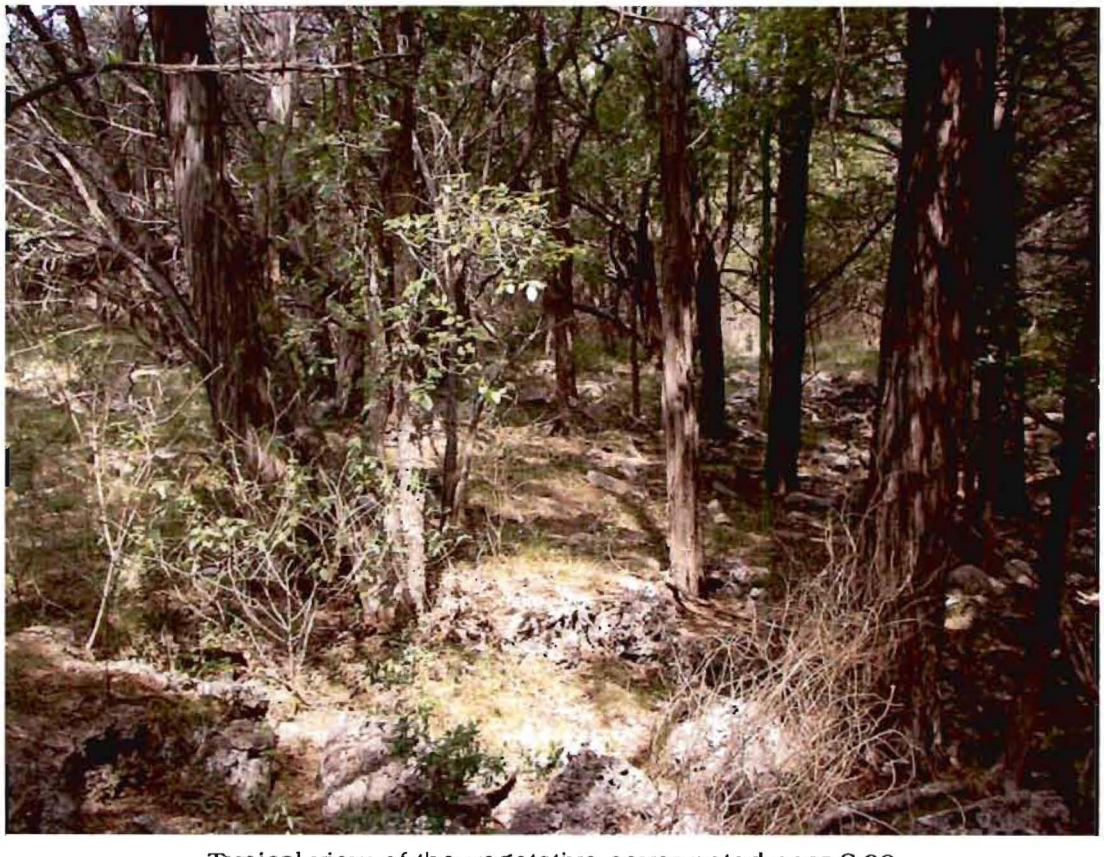
View of Potential Recharge Feature # S-98.



Typical view of the vegetative cover noted near S-98.



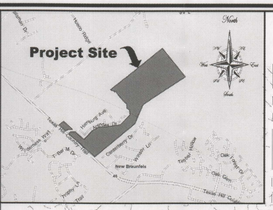
View of Potential Recharge Feature # S-99.



Typical view of the vegetative cover noted near S-99.

APPENDIX C

SITE GEOLOGIC MAP



Location Map

UNIT FOUR

LOT 100 UNIT 2B

UNIT 2A

LOT 100

UNIT ONE

LOT 100

UNIT THREE

LOT 100

UNIT FIVE

LOT 100

UNIT SIX

UNIT FOUR

STATE HIGHWAY 46 (U.S. R.O.W.)

SIGEL AVENUE (50' R.O.W.)

BISCHOFF PLACE (50' R.O.W.)

BAMBERGER AVE (50' R.O.W.)

Fault

Fault

Inferred Fault

Kep

S-1 S-2 S-3 S-4 S-5 S-6 S-7 S-8 S-9 S-10 S-11 S-12 S-13 S-14 S-15 S-16 S-17 S-18 S-19 S-20 S-21 S-22 S-23 S-24 S-25 S-26 S-27 S-28 S-29 S-30 S-31 S-32 S-33 S-34 S-35 S-36 S-37 S-38 S-39 S-40 S-41 S-42 S-43 S-44 S-45 S-46 S-47 S-48 S-49 S-50 S-51 S-52 S-53 S-54 S-55 S-56 S-57 S-58 S-59 S-60 S-61 S-62 S-63 S-64 S-65 S-66 S-67 S-68 S-69 S-70 S-71 S-72 S-73 S-74 S-75 S-76 S-77 S-78 S-79 S-80 S-81 S-82 S-83 S-84 S-85 S-86 S-87 S-88 S-89 S-90 S-91 S-92 S-93 S-94 S-95 S-96 S-97 S-98 S-99 S-100 S-101 S-102

Signature of Texas Licensed Geoscientist
Chris Wickman, P.G. Lic. # 10403

Legend

- Fill - Fill Material
- Qal - Alluvium
- Kau - Austin Chalk
- Kef - Eagle Ford Shale
- Kbu - Buda Limestone
- Kdr - Del Rio Clay
- Kgt - Georgetown Limestone
- Kep - Edwards Person Limestone
- Kek - Edwards Kainer Limestone
- Kgr - Glen Rose Formation

- S-# - Potential Recharge Feature (PRF)
- Formation Contact
- 100-Year Floodplain - Zone A
- 100-Year Floodplain - Zone AE
- Other Flood Hazard Area - Zone X (shaded)

Floodplain Information Obtained From
FIRM: Flood Insurance Rate Map
Comal County, Texas: Panel #s 48091C0430F and 48091C0435F, Revised 9/2/2009

Fault Information Obtained From:
Bureau of Economic Geology, Geologic Atlas of Texas, San Antonio Sheet (1983)
U.S. Geological Survey, Water Resources Investigations Report
Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000)

Graphic Scale

200 0 100 200 400

(In Feet)
1 inch = 200 feet
Representative Fraction 1:2400
Contour Interval - 1 foot

Site Geologic Map

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
for the
Manor Creek Subdivision
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E15171

Frost GeoSciences
Geotechnical • Construction Materials
Environmental & Geologic Consulting
SDVOSB • VBE • DIBE • SBE
13402 Western Oak Dr. • Helotes, Texas 78023
Phone: 210-372-1315 • Fax 210-372-1318

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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 request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 6/9/15

Signature of Customer/Agent:



Project Information

1. Current Regulated Entity Name: Manor Creek Subdivision
   Original Regulated Entity Name: Manor Creek Subdivision
   Regulated Entity Number(s) (RN): RN1014801568
   Edwards Aquifer Protection Program ID Number(s): 05120702
   ☐ The applicant has not changed and the Customer Number (CN) is: _____
   ☒ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☒ 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;
   - ☐ 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;
   - ☐ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☐ Physical modification of the approved organized sewage collection system;
   - ☐ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	265.84	169.977
Type of Development	Single-Family Residential	Single-Family Residential
Number of Residential Lots	341	164
Impervious Cover (acres)	53.141	23.44
Impervious Cover (%	19.91	19.22
Permanent BMPs	N/A	N/A
Other	____	____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	____	____
Pipe Diameter	____	____
Other	____	____

AST Modification Summary	*Approved Project*	*Proposed Modification*
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	*Approved Project*	*Proposed Modification*
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☒ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☒ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☐ Acreage has not been added to or removed from the approved plan.

8. ☒ 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.

№2439 00

ETC



Deed Recordation Affidavit
Edwards Aquifer Protection Plan

THE STATE OF TEXAS §
§
County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared Richard N. Maier who, being duly sworn by me, deposes and says:

(1) That my name is Richard N. Maier and that I own a portion of the real property described in paragraph 6 below, and all of the real property described in paragraph 7 below.

(2) That the said property described in paragraph 6 below is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

(3) That the EDWARDS AQUIFER PROTECTION PLAN for the Property was approved by the Texas Commission on Environmental Quality (TCEQ) on April 4, 2006. A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit "A" and is incorporated herein by reference.

(4) That the said property described in paragraph 6 below and said property described in paragraph 7 below is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

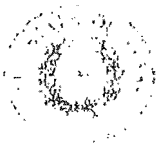
(5) That the Request for Modification of an Approved EDWARDS AQUIFER PROTECTION PLAN for said property described in paragraph 6 below and said property described in paragraph 7 below was approved by the Texas Commission on Environmental Quality (TCEQ) on April 8, 2010. A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit "B" and is incorporated herein by reference.

(6) The certain real property comprising approximately 242.038 acres of land is located in Comal County, Texas, and the legal description of the property is as more particularly described on Exhibit "C" attached hereto and incorporated herein for all purposes.

EXHIBIT "A"

Texas Commission on Environmental Quality Letter dated April 4, 2006

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marques, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 4, 2006

Mr. Timothy D. Pruski
Continental Homes of Texas
211 N. Loop 1604 East, Suite 130
San Antonio, TX 78232

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Manor Creek (Tschirhart Ranch) ; Located on the north side of State Highway 46, approximately 2 miles west of the intersection of Loop 337 and State Highway 46; New Braunfels, 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 ID No. 2439.00
Investigation Number: 449964
Regulated Entity Number: RN104801568

Dear Mr. Pruski:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas on December 7, 2007. Final review of the WPAP application was completed after additional material was received on March 31, 2006. As presented to the TCEQ, the Temporary and Permanent 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.*

PROJECT DESCRIPTION

The proposed single family residential project will have an area of approximately 252.038 acres. It will include 343 lots, roads, and utilities. The impervious cover will be 50.29 acres (19.95 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by the New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

Since this single-family residential project will not have more than 20 percent impervious cover, an exemption from permanent BMPs is approved.

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.

6. 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.

7. 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:

8. 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.

9. 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.

10. No wells exist on the 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.

11. 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.

12. 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.

13. 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.

EXHIBIT "B"

Texas Commission on Environmental Quality Letter dated April 8, 2010

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

APR 1 4 REC'D

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 8, 2010

Mr. Richard N. Maier
Continental Homes of Texas, L.P.
12554 Riata Vista Circle, 2nd Floor
Austin, Texas 78727

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Manor Creek Subdivision, located approximately 2 miles west of Loop 337 on the northeast side of State Highway 46, New Braunfels, Texas
TYPE OF PLAN: Request for Modification of an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 2439.03, Investigation No. 792425
Regulated Entity No. RN104801568

Dear Mr. Maier:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP modification request for the above-referenced project submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas, L.P. on February 12, 2010. As presented to the TCEQ, the Temporary and Permanent 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 original WPAP for this residential project was approved by letter dated April 4, 2006. The single family residential project had an area of approximately 252.038 acres. It included 343 lots, roads, and utilities. Impervious cover was 50.29 acres (19.95 percent).

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.

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

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.

EXHIBIT "C"

Legal Description, 252.038 Acres

THE Schultz Group INC.

P.O. BOX 310483 • NEW BRAUNFELS, TX 78131-0483 • Phone: (830) 606-3913 • Fax: (830) 625-2204

LEGAL DESCRIPTION
OF

252.038 acres of land out of the following surveys; Edwardo Hernandez Survey No. 454, Abstract No 263, Christian Pape Survey No. 831, Abstract No. 777, and the S.A. & M.G.-R.R. Co. survey No. 280, Abstract No 591, Comal County, Texas, and being designated as the SECOND TRACT and being a 251.35 acre tract as described in a partition dated October 20, 1976 and recorded in Volume 244, Pages 646-655 of the Deed Records of Comal County, Texas, said 252.038 acres of land being more particularly described as follows:

BEGINNING: at a found ½" iron pin in the Northeast Right of Way Line of State Highway No. 46 and being the Westernmost corner of this parcel and the Southernmost corner of a 71.35 acre tract as recorded in Volume 342, Pages 771-773 of the Deed Records of Comal County, Texas, and being South 49 deg. 00' 17" East, (all bearings in this description are referenced to Grid North of the Texas Coordinate System, Zone 4204, NAD 83 (93)), a distance of 1699.19 feet from a set ½" iron pin with plastic cap being a cutback corner at the Northeast intersection of State Highway No. 46 and Hueco Springs Loop Road;

THENCE: (1) NORTH 51 deg. 25' 03" East, a distance of 1610.65 feet along the Northwest boundary line of this parcel and said 251.35 acre tract and the Southeast boundary line of said 71.35 acre tract to a found ¼" iron pin being the Easternmost corner of said 71.35 acre tract;

THENCE: (2) SOUTH 39 deg. 07' 49" East, a distance of 161.93 feet along the Northeast boundary line of this parcel and said 251.35 acre tract and the Southwest boundary line of a 66.01 acre tract as recorded in Document No. 9906017297 of the Official Public Records of Comal County, Texas, to a found ¼" iron pin being the Southernmost corner of said 66.01 acre tract;

THENCE: the following courses along the Northwest boundary line of this parcel and the Southeast boundary line of said 66.01 acre tract, and a 55.574 acre tract as described in a partition Deed, Document No 9906017297 of the Official Public Records of Comal County, Texas:

LOIS M. SCHULTZ
PRESIDENT

STEPHEN E. SCHULTZ, R.P.L.S.
VICE PRESIDENT

BOBBIE L. HASER, P.E., R.P.L.S.
CORPORATE SECRETARY

CONSULTING ENGINEERS AND LAND SURVEYORS

(11) SOUTH 56 deg. 16' 19" West, a distance of 2411.61 feet to a found ¼" iron pin being an angle point;

(12) SOUTH 22 deg. 28' 06" West, a distance of 1009.92 feet to a found ½" iron pin being an angle point; and

(13) SOUTH 49 deg. 39' 15" West, a distance of 2447.28 feet to a found ¼" iron pin being the Southernmost corner of this parcel and said 251.35 acre tract and the Westernmost corner of said NORTHWOODS-UNIT 3;

THENCE: (14) NORTH 49 deg. 00' 17" West, a distance of 2264.77 feet along the Southwest boundary line of this parcel and said 251.35 acre tract and the Northeast Right of Way Line of said State Highway No. 46 to a found ½" iron pin being the **POINT OF BEGINNING**, and containing 252.038 acres of land.

THIS LEGAL DESCRIPTION WAS WRITTEN IN CONJUNCTION WITH A SURVEY PLAT PREPARED IN THIS OFFICE ON 8/13/04, JOB NO. 08-02-2004.

REVISED 9/27/04.

STATE OF TEXAS
REGISTERED
STEPHEN E. SCHULTZ
4233
PROFESSIONAL
LAND SURVEYOR

Stephen E. Schultz, R.P.L.S.
Registration No. 4233

F:\08-02-04\252.038AcreRevisedLegalDescription

THENCE: NORTH 51 deg. 00' 34" East, a distance of 1506.36 feet severing said 66.01 acre tract and along the Northwest line of this parcel to a set ½" pin with plastic cap stamped "4233" in the Northeast line of said 66.01 acre tract and being the Northernmost corner of this parcel;

THENCE: (5) SOUTH 37 deg. 15' 29" East, a distance of 435.77 feet along the Northeast line of this parcel and said 66.01 acre tract and the Southwest line of said 17.90 acre tract to a set ½" iron pin with plastic cap stamped "4233" being the POINT OF BEGINNING, containing 15.001 acres of land.

THIS LEGAL DESCRIPTION WAS WRITTEN IN CONJUNCTION WITH A SURVEY PLAT PREPARED IN OUR OFFICE ON 11/09/09, JOB NO. 11-01-2009.

STATE OF TEXAS
REGISTERED
STEPHEN E. SCHULTZ
4233
PROFESSIONAL
LAND SURVEYOR

Stephen E. Schultz 11/9/09
Stephen E. Schultz, R.P.L.S. #4233

F:\11010\Legals\15.001 acres

Filed and Recorded
Official Public Records
Joy Streater, County Clerk
Comal County, Texas
06/04/2010 01 16:39 PM
CASHFOUR
201006018339

Joy Streater

2010

CENTRAL RECORDS MC213 EDAQ | COMAL | MANOR CREEK SUBDIVISION | 12/7/~~2005~~

EDWARDS AQUIFER DATA ENTRY SHEET | NEW RECORD | Edit | PRINT

GENERAL INFO: **Region:** 13 | Received Date: 12/7/2005 | Edwards ID: 05120702 | SA#: 2439.00 | Plan Type: PAP

REGULATED ENTITY/SITE/PROJECT INFORMATION | SIC#: 1521 | NAICS: 236115 | RES/COMM: RESIDENTIAL

RN # RN104801568 | Reg Ent: MANOR CREEK SUBDIVISION

Address: | City: | ST: | Zip: | Zip Ext:

Loc: 2 ML W OF LOOP 337 ON NE SIDE OF HWY 46

Phone: 5123454663 | County: COMAL | Latitude: 29-43-49 | Longitude: 98-11-14

CUSTOMER/OWNER INFORMATION | Type: PA | CN # CN601213523

Name: CONTINENTAL HOMES OF TEXAS LP | Address: 12554 RIATA VISTA CIR FL 2

City: AUSTIN | ST: TX | Zip: 78727 | Zip Ext: 7165 | Phone: 5123451663

OWNER/APPLICANT INFORMATION

Type: PA | Name: MAIER, RICHARD N | Address: 12554 RIATA VISTA CIR FL 2

City: AUSTIN | ST: TX | Zip: 78727 | Zip Ext: 7165 | Phone: 5123454663

COMMENT:

PLAN INFORMATION

Edwards ID	SA #	Plan Type	Fee Rec Date	Fee Amount	Project Area	Ft SCS	# Tank	PST REG #	Type of Perm BMP	Agent	Phone #	Fax #
05120702	2,439.00	PAP	12/7/2005	$5,000.00	262.04				N/A	SCHULTZ GROUP	8306063913	8306252204
05120702	2,439.03	PAPMOD	2/12/2010	$8,000.00	266.92				LESS 20	SCHULTZ GROUP	8306063913	8306252204

LETTER INFORMATION

Edwards ID	SA #	Plan Type	Distribution Date	Investigator	SAI	CCEDS Inv #	Letter Type	Date of Letter	Response Due	Response Received
05120702	2439.00	PAP	12/7/2005	LBUMGUAR	3/22/2006	449964	APP	4/4/2006		
05120702	2439.02	CAVE	7/2/2007	MAUSER		672055	CCL	8/15/2007		
05120702	2439.03	PAPMOD	2/12/2010	AGJONES		792425	APP	4/5/2010		

RECEIVED
APR 23 2010
TCEQ
CENTRAL FILE ROOM

COMPLIANCE

EDW ID #	SA #	AKA	Deed Record	Const Notice	30 Day Testing	5 Year Testing	PBMP CERT	Excavate Cert
05120702	2439.00	MANOR CREEK UNIT 1 TSCHIRHART						

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

April 8, 2010

Mr. Richard N. Maier
Continental Homes of Texas, L.P.
12554 Riata Vista Circle, 2nd Floor
Austin, Texas 78727

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Manor Creek Subdivision, located approximately 2 miles west of Loop 337 on the northeast side of State Highway 46, New Braunfels, Texas
TYPE OF PLAN: Request for Modification of an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 2439.03, Investigation No. 792425
Regulated Entity No. RN104801568

Dear Mr. Maier:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP modification request for the above-referenced project submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas, L.P. on February 12, 2010. As presented to the TCEQ, the Temporary and Permanent 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 original WPAP for this residential project was approved by letter dated April 4, 2006. The single family residential project had an area of approximately 252.038 acres. It included 343 lots, roads, and utilities. Impervious cover was 50.29 acres (19.95 percent).

COPY

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.

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

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.

Deed Recordation Affidavit
Edwards Aquifer Protection Plan

THE STATE OF TEXAS §

County of _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ who, being duly sworn by me, deposes and says:

(1) That my name is _____ and that I own the real property described below.

(2) That said real property is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

(3) That the EDWARDS AQUIFER PROTECTION PLAN for said real property was approved by the Texas Commission on Environmental Quality (TCEQ) on _____.

A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit A and is incorporated herein by reference.

(4) The said real property is located in _____ County, Texas, and the legal description of the property is as follows:

_____
LANDOWNER-AFFIANT

SWORN AND SUBSCRIBED TO before me, on this __ day of _____, ____.

_____
NOTARY PUBLIC

THE STATE OF _____ §

County of _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ 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 __ day of _____, ____.

_____
NOTARY PUBLIC

_____
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

Texas Commission on Environmental Quality

Investigation Report

CONTINENTAL HOMES OF TEXAS LP

CN601213523

MANOR CREEK SUBDIVISION

RN104801568

Investigation # 792425 **Incident #**

Investigator: ALAN JONES **Site Classification** RESIDENTIAL

Conducted: 02/12/2010 -- 04/08/2010 **SIC Code:** 1521 **NAIC Code:** 236115

Program(s): EDWARDS AQUIFER

Investigation Type : Site Assessment File Review **Location :** 2 MI W OF LOOP 337 ON NE SIDE OF HWY 46

Additional ID(s) : 13-05120702

Address: ; , **Activity Type :** REGION 13 - SAN ANTONIO
EAPPNGMOD - EAPP Non-grant MOD Request Review

Principal(s) :

Role	Name
RESPONDENT	CONTINENTAL HOMES OF TEXAS LP

Contact(s) :

Role	Title	Name	Phone	
Regulated Entity Contact	PROJECT ENGINEER	MR MICHAEL G SHORT PE	Fax Work	(830) 625-2204 (830) 606-3913
Regulated Entity Mail Contact	VICE PRESIDENT	MR RICHARD N MAIER	Work Fax	(512) 345-4663 (512) 533-1429
Regulated Entity Contact		MR SHAWN T SHORN		

Other Staff Member(s) :

Role	Name
Investigator	CHARLYNE FRITZ
Investigator	ELAINE GROSENHEIDER
QA Reviewer	JAVIER ANGUIANO
Supervisor	TODD JONES

Associated Check List

Checklist Name	Unit Name

Investigation Comments :

Re: Manor Creek Subdivision, located approximately 2 miles west of Loop 337 on the northeast side of State Highway 46, New Braunfels, Texas
Request for Modification of an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 2439.03, Investigation No. 792425
Regulated Entity No. RN104801568

INTRODUCTION AND SUMMARY

The investigation was conducted to review the referenced Edwards Aquifer protection plan application. The WPAP application for the above-referenced project was submitted to the San Antonio Regional Office by The Schultz Group, Inc. on behalf of Continental Homes of Texas, L.P. on February 12, 2010.

GENERAL FACILITY AND PROCESS INFORMATION

Project Description

The proposed residential project will have an area of approximately 266.92 acres. It will include 340 single-family residential lots, roads, and utilities. The impervious cover will be 53.141 acres (19.91 percent). About 0.123 acre of the site was dedicated to TxDOT after the April 4, 2006 WPAP approval and about 15 acres is added to the site west of its north corner. Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by New Braunfels Utilities.

Geology

The site is located within the Edwards Aquifer recharge zone. Reddish-brown and dark brown stony clay soils reportedly overlie limestones of the Person Formation of the Edwards Group. According to the geologic assessment included with the initial application and additional information submitted during its review, 104 geologic and man-made features were identified at the site. Thirteen of the features, S15, S21, S25, S35, S38, S61, S63, S70, S71, S81, S85, S89, and S93, were initially assessed as sensitive. Two of the sensitive features, S-38 and S-93, received additional evaluation by the geologist, who determined the features not to be sensitive. The original assessment was shown conducted April 5-14 and 21-28, 2005. The San Antonio Regional Office site inspection of March 22, 2006, revealed that the site was generally as described by the geologic assessment. Additional assessment was shown conducted December 19, 2009 for the 15 acres to be added to the site. Two additional features were described for the added acreage. Both were shown not sensitive. The San Antonio Regional Office did not conduct a site assessment for the added acreage.

Natural buffers were shown in the April 4, 2006 WPAP approval letter for eleven sensitive features. According to FEMA maps, the features are shown near or within Zone A of the 100-year flood along Blieders Creek. All of the sensitive features except S-89 are shown surrounded with rock berms. No regulated activities (such as construction or soil disturbing activities) will take place within the buffers.

Permanent Pollution Abatement Measures

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

BACKGROUND
The original WPAP for this residential project was approved by letter dated April 4, 2006. The single family residential project had an area of approximately 252.038 acres. It included 343 lots, roads, and utilities. Impervious cover was 50.29 acres (19.95 percent).

ADDITIONAL INFORMATION

Special Conditions

The WPAP modification was approved with the following special conditions:

1. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated April 4, 2006.

II. 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.

No Violations Associated to this Investigation

Signed Alan G. Jones Date 4-6-10
Environmental Investigator

Signed [signature] Date 4-9-10
Supervisor

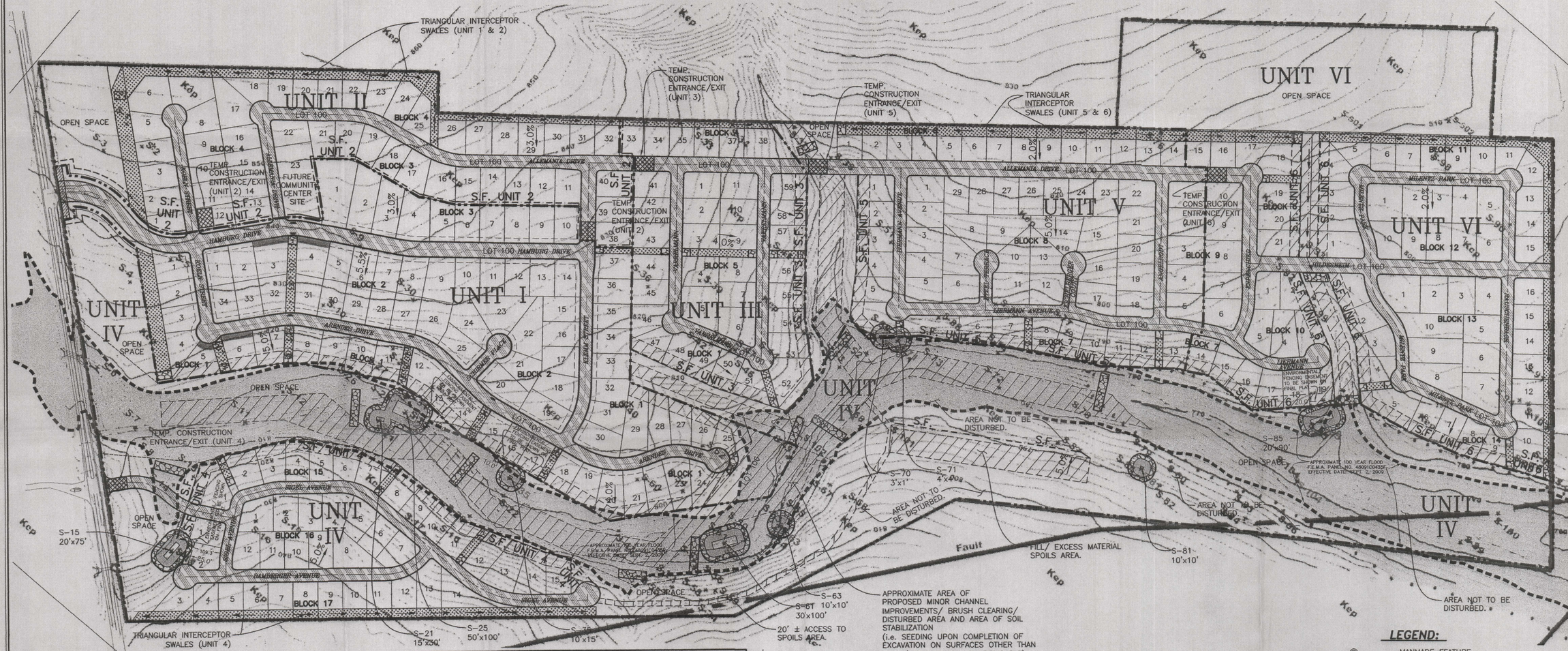
Attachments: (in order of final report submittal)

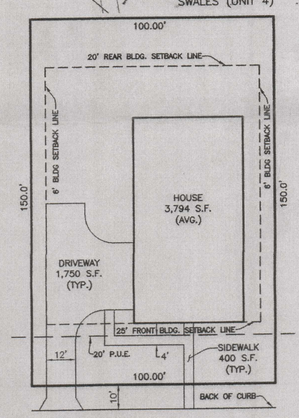
___Enforcement Action Request (EAR)
✓Letter to Facility (specify type) : APPROVAL
Investigation Report
___Sample Analysis Results
___Manifests
___NOR
___Maps, Plans, Sketches
___Photographs
___Correspondence from the facility
✓Other (specify) :
EAPP APPLICATION

NATIVE BUFFER ZONE NOTE:

BUFFER ZONES AROUND A POINT RECHARGE FEATURE OR CLUSTER OF CONTIGUOUS POINT RECHARGE FEATURES SHALL BE MAINTAINED IN A NATURAL STATE TO THE MAXIMUM PRACTICAL EXTENT. THIS IMPLIES A CONSTRUCTION–FREE ZONE. WHEN ALL OR A PORTION OF THE BUFFER FOR A SENSITIVE FEATURE IS LOCATED WITHIN THE YARD OF A RESIDENTIAL TRACT, IT SHOULD BE SEPARATED BY A BARRIER, SUCH AS A FENCE, FROM CONVENTIONAL LANDSCAPING AND MAINTAINED IN THE NATURAL STATE. THE "NATURAL STATE" OF A BUFFER WILL TYPICALLY BE A COMBINATION OF DENSE NATIVE GRASSES, SHRUBS AND TREES.

SCALE IN FEET
200 100 0 200
SCALE: 1" = 200' HORZ.

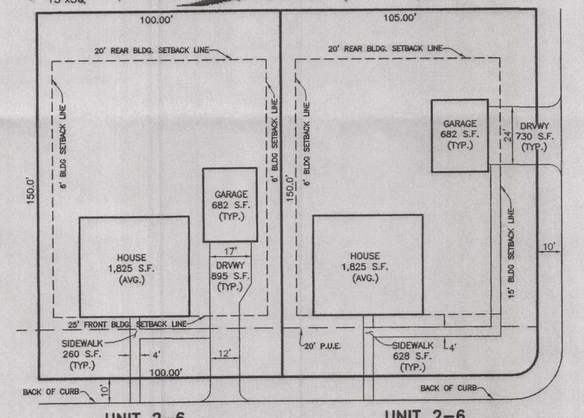




NOTE:

1. TOTAL IMPERVIOUS COVER FOR UNIT 1 SHALL NOT EXCEED 481,464 SF FOR ALL 81 LOTS.
2. IMPERVIOUS COVER CALCULATED TO THE BACK OF CURB AND INCLUDES THE TYPICAL DRIVEWAY AND SIDEWALKS.
3. TOTAL IMPERVIOUS COVER FOR UNIT 2–6 SHALL NOT EXCEED 954,548 SF FOR ALL 259 LOTS (30 CORNER LOTS, 229 INTERIOR LOTS)

UNIT 1
TYPICAL LOT
IMPERVIOUS COVER
(AVERAGE PER LOT 5,944 SF)
SEE NOTE 1
NOT TO SCALE



UNIT 2–6
TYPICAL INTERIOR LOT
IMPERVIOUS COVER
(AVERAGE PER LOT 3,662 SF)
SEE NOTE 3
NOT TO SCALE

UNIT 2–6
TYPICAL CORNER LOT (OPTION)
IMPERVIOUS COVER
(AVERAGE PER LOT 3,865 SF)
SEE NOTE 3
NOT TO SCALE

APPROXIMATE AREA OF PROPOSED MINOR CHANNEL IMPROVEMENTS/ BRUSH CLEARING/ DISTURBED AREA AND AREA OF SOIL STABILIZATION
(i.e. SEEDING UPON COMPLETION OF EXCAVATION ON SURFACES OTHER THAN ROCK/ GRADING WHERE APPLICABLE)

**** NOTE: NO CHANNEL IMPROVEMENTS WITHIN BUFFER ZONES.****

IMPERVIOUS COVER SUMMARY

IMPERVIOUS COVER OF PROPOSED PROJECT	SQUARE–FEET	ACRES
STRUCTURES / ROOF TOPS UNIT 1	307,314	7.055
DRIVEWAYS / SIDEWALKS UNIT 1	174,150	3.998
STRUCTURES / ROOF TOPS UNITS 2–6	649,313	14.924
DRIVEWAYS / SIDEWALKS UNITS 2–6	305,235	7.007
STREETS	856,867	19.671
OTHER PAVED SURFACES / DRAINAGE	21,924	0.503
TOTAL / IMPERVIOUS COVER	2,314,803	53.141

TOTAL SITE ACREAGE = 266.916 AC.
TOTAL IMPERVIOUS COVER ÷ TOTAL ACREAGE = 19.91%
TOTAL NUMBER OF RESIDENTIAL LOTS = 340

**** NOTE ****

THIS SITE WILL BE USED FOR A LOW DENSITY SINGLE– FAMILY RESIDENTIAL DEVELOPMENT AND HAS 20% OR LESS IMPERVIOUS COVER. THEREFORE, NO OTHER PERMANENT BMP's WITH SUPPORTING CALCULATIONS ARE REQUIRED / PRESENT.

LEGEND:

- MANMADE FEATURE (EXISTING SEWER MANHOLE)
- GEOLOGIC FEATURE
- 50 FT. MIN. NATURAL VEGETATIVE BUFFER ZONE AROUND SENSITIVE GEOLOGIC FEATURE w/ TEMPORARY HIGH SERVICE ROCK BERM AROUND PERIMETER
- S.F. — SILT FENCE
- ROCK BERM
- TEMPORARY CONSTRUCTION ENTRANCE / EXIT
- CHANNEL IMPROVEMENTS/BRUSH CLEARING AREA TO BE DISTURBED w/ SOIL STABILIZATION WHERE ROCK IS NOT ENCOUNTERED.
- AREAS TO BE DISTURBED (PROPOSED R.O.W.'s w/ SOIL STABILIZED PARKWAYS)
- AREAS TO BE DISTURBED (PROPOSED CHANNEL IMPROVEMENTS w/ SOIL STABILIZATION)

RECEIVED
JUN 12 2015
COUNTY ENGINEER
TCEQ-RG
SAN ANTONIO, TX 78233

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS — MICHAEL G. SHORT — 89118 — LICENSED PROFESSIONAL ENGINEER

SITE PLAN OF MANOR CREEK SUBDIVISION
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606–3913 FAX (830) 625–2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: NOVEMEBR 2009
JOB NO.: 110109

S–1

File Name: F:\110109\VEGO\vego01.dwg

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

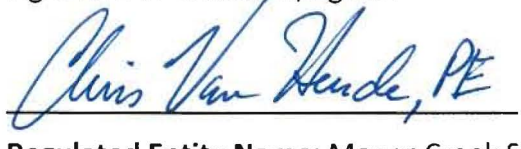
Signature

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:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 6/9/2015

Signature of Customer/Agent:



Regulated Entity Name: Manor Creek Subdivision

Regulated Entity Information

1. The type of project is:

   ☒ Residential: Number of Lots:164
   ☐ Residential: Number of Living Unit Equivalents:_____
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):169.98

3. Estimated projected population:492

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	1,020,900	÷ 43,560 =	23.44
Parking		÷ 43,560 =	
Other paved surfaces	401,849.36	÷ 43,560 =	9.23
Total Impervious Cover	1,556,834.4	÷ 43,560 =	32.66

Total Impervious Cover 32.66 **÷ Total Acreage** 169.98 **X 100 =** 19.2**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

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:

   ☐ 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
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

   Width of R.O.W.: _____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
    Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

11. ☐ A rest stop will be included in this project.

    ☐ A rest stop will not be included in this project.

12. ☐ 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. ☒ **Attachment B - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the 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	59,100Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 59,100	

15. Wastewater will be disposed of by:

☐ 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 from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ 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.

☒ Sewage Collection System (Sewer Lines):

☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☒ 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 New Braunfels Utilities (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 – 28 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): FIRM 48091C0435F (effective 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. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are _____ (#) 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**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

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

23. ☒ Areas of soil disturbance and areas which will not be disturbed.

24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

25. ☒ Locations where soil stabilization practices are expected to occur.

26. ☒ Surface waters (including wetlands).

☐ N/A

27. ☒ Locations where stormwater discharges to surface water or sensitive features are to occur.

☐ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ 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.

30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

WATER POLLUTION ABATEMENT PLAN
ATTACHMENT A
Factors Affecting Water Quality

The Manor Creek Subdivision Units 1, 2B, and 3 included the construction of 8" gravity wastewater line, 165 lots with 23.44 acres of structures/rooftops, and 9.23 acres of streets. The factor affecting water quality were runoff sediment transport from the trench work and construction being performed. However, temporary BMP measures were taken to insure water quality is not impaired by construction.

AMENDED WPAP MASTER PLAN
FOR
MANOR CREEK SUBDIVISION

SCALE: 1"=200'

LEGEND:
- U.E. = UTILITY EASEMENT
- D.E. = DRAINAGE EASEMENT
- L.E. = LANDSCAPE EASEMENT
- S.S.E. = SANITARY SEWER EASEMENT
- R.O.W. = RIGHT-OF-WAY
- M.P.R.C.C.T. = MAP AND PLAT RECORDS, COMAL COUNTY, TEXAS
- O.P.R.C.C.T. = OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS
- D.R.C.C.T. = DEED RECORDS, COMAL COUNTY, TEXAS
- XX = ZONING TYPE
- XXXX = LANDUSE
- —XX" W— = EXISTING WATER LINE
- —XX" SS— = EXISTING SEWER LINE
- —E— = OVERHEAD ELECTRIC

RECEIVED
JUN 12 2015
COUNTY ENGINEER
TCEQ-R13
JUN 09 2015
SAN ANTONIO

SITE

LOCATION MAP
SCALE: NTS

20.402 ACRE TRACT ALICE SCHWANZ DOC. NO. 200906011153 O.P.R.C.C.T.
20.402 ACRE TRACT DORA HUMMEL DOC. NO. 200906011152 O.P.R.C.C.T.
20.402 ACRE TRACT ALICE SCHWANZ DOC. NO. 200906011155 O.P.R.C.C.T.
NEW BRUANFELS
RAUNELS CITY LIMITS
65.965 ACRE TRACT CPP PARTNERS, LTD DOC. NO. 201106031689 O.P.R.C.C.T.
R-1A -6.6 RESIDENTIAL LARGE LOT
NEW BRUANFELS CITY LIMITS
55.574 ACRE TRACT MARILYN HELMKE DOC. NO. 9906017297 O.P.R.C.C.T.
THIS IS BEING PLATTED IN UNIT 6 BUT IS NEED IN THE <20% WPAP
43.492 ac. DIANA KNEUPPER VOL. 244, PG. 899 O.P.R.C.C.T.
10.0 AC. JIM LAUGHMAN DOC. NO. 201406037986 O.P.R.C.C.T.
NEW BRUANFELS CITY LIMITS

20' WATER LINE EASEMENT DOC. NO. 9706012826 O.P.R.C.C.T.

UNIT FOUR 1.45 AC OF OPEN SPACE
200 D.E. & U.E. 1.45 AC. BLOCK 1

UNIT 2B LOT 100 22.445 AC OF RESIDENTIAL AREA

UNIT 2A 1.081 AC. LOT 3

UNIT ONE 43.466 AC OF RESIDENTIAL AREA

UNIT THREE 18.706 AC OF RESIDENTIAL AREA

UNIT FIVE 45.67 AC OF RESIDENTIAL AREA

UNIT SIX 25.51 AC OF RESIDENTIAL AREA

UNIT FOUR 24.79 AC OF RESIDENTIAL AREA

UNIT FOUR 68.87 AC OF OPEN SPACE

200 OPEN SPACE & D.E. 15.04 AC OF OPEN SPACE

201 D.E. & U.E. LOT 68.87 AC. BLOCK 1

202 D.E., U.E. & L.E. LOT 1.45 AC.

203 D.E., U.E. & L.E. LOT 4.46 AC. BLOCK 3

204 D.E., U.E. & L.E. LOT 0.44 AC.

201 OPEN SPACE D.E. & U.E.

202 OPEN SPACE D.E. & U.E.

203 OPEN SPACE D.E. & U.E.

204 OPEN SPACE D.E. & U.E.

205 NBU LOT

206 OPEN SPACE D.E. & U.E.

STATE HIGHWAY 46 (150' R.O.W.)

KOEN STREET (50' R.O.W.)

MALINCKRODT (50' R.O.W.)

ALLEMANIA DRIVE (50' R.O.W.)

VARRELMANN (50' R.O.W.)

TOENGES LANE (50' R.O.W.)

HAMBURG AVENUE (60' R.O.W.)

ARENDES DRIVE (50' R.O.W.)

KLEMM STREET (50' R.O.W.)

SCHIRMER PLACE (50' R.O.W.)

MAINZ STREET (50' R.O.W.)

SIGEL AVENUE (50' R.O.W.)

BISCHOFF PLACE (50' R.O.W.)

BAMBERGER AVE (50' R.O.W.)

LIERMANN AVE (50' R.O.W.)

ETZEL TERRACE (50' R.O.W.)

EICHELBERGER (50' R.O.W.)

HESSEN WAY (50' R.O.W.)

ANGELRODT (50' R.O.W.)

ESPENCHED (R.O.W. VARIES)

PYRMONT (50' R.O.W.)

MILENTZ CLARK (50' R.O.W.)

HILDESHEIM (60' R.O.W.)

HEIDELBERG RD (50' R.O.W.)

RAUSCHENBACH (50' R.O.W.)

NEW BRUANFELS CITY LIMITS

20' U.E. MANOR CREEK SUBDIVISION UNIT ONE DOC. NO. 9706053209 M.P.R.C.C.T.

20' WATER LINE EASEMENT DOC. NO. 9706012826 O.P.R.C.C.T.

TXDOT PROPOSED ACCESS DENIAL & NBU ESMT DOC. NO. 201066026750 PARCEL 24, PART 1

20' WATER LINE EASEMENT DOC. NO. 9706012826 O.P.R.C.C.T.

TXDOT PROPOSED ACCESS DENIAL & NBU ESMT DOC. NO. 201066026750 PARCEL 24, PART 2

20' WATER LINE EASEMENT DOC. NO. 9706012826 O.P.R.C.C.T.

20' SANITARY SEWER EASEMENT VOL. 1018, PG. 744 O.P.R.C.C.T.

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE (SEE NOTE NO. 7)

APPROXIMATE LOCATION OF FLOODWAY

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE (SEE NOTE NO. 8)

APPROXIMATE LOCATION OF FLOOD CONTROL EASEMENT VOL. 149, PG. 167 D.R.C.C.T.

20' SANITARY SEWER EASEMENT VOL. 1018, PG. 744 O.P.R.C.C.T.

APPROXIMATE LOCATION OF 100-YEAR FLOODPLAIN ZONE AE (SEE NOTE NO. 8)

UNIT 4 RESIDENTIAL LOTS (WPAP WITH PERMANENT BMPS)

UNIT 6 RESIDENTIAL LOTS WITH PERMANENT BPMS

THIS IS A LOT IN UNIT 4 BUT IS NEEDED IN THE <20% WPAP

71.35 ACRE TRACT HERMAN BORCHERS III & MARY LOU BORCHERS VOL. 244, PG. 646 D.R.C.C.T.

NORTHWOODS UNIT 3 VOL. 8, PG. 342 M.P.R.C.C.T.

NORTHWOODS UNIT 1 VOL. 5, PG. 305 M.P.R.C.C.T.

R-1A -6.6 RESIDENTIAL

LEGEND

- MANOR CREEK SUBDIVISION WPAP TO REMAIN <20% IMP. COVER (169.977 ACRES, 164 LOTS)
- NEW WPAP WITH >20% IMP & PERMANENT BMPS (95.97 ACRES, 197 LOTS)
- COMMUNITY CENTER MANOR CREEK WPAP TO REMAIN THE UNCHANGED (1.081 ACRES)

MANOR CREEK SUBDIVISION WPAP IMPERVIOUS COVER CALCULATIONS

Unit	Streets (SF)	Streets (AC)	Lots (SF)	Lots (AC)	Total Area (AC)
1	216,915.27	4.98	504,225.00	11.58	43.47
2B	97,309.09	2.23	292,575.00	6.72	22.45
3	87,625.00	2.01	224,100.00	5.14	18.71
Lot 200 (Unit 6)	-	-	-	-	15.04
Lot 201 (Unit 4)	-	-	-	-	68.87
Lot 202 (Unit 4)	-	-	-	-	1.45
TOTAL		9.23		23.44	169.98
				TOTAL IC (AC)	32.66
				TOTAL AREA (AC)	169.98
				IC %	19.22%

STATE OF TEXAS
CHRISTOPHER P. VAN HEERDE
93047
LICENSED
PROFESSIONAL ENGINEER

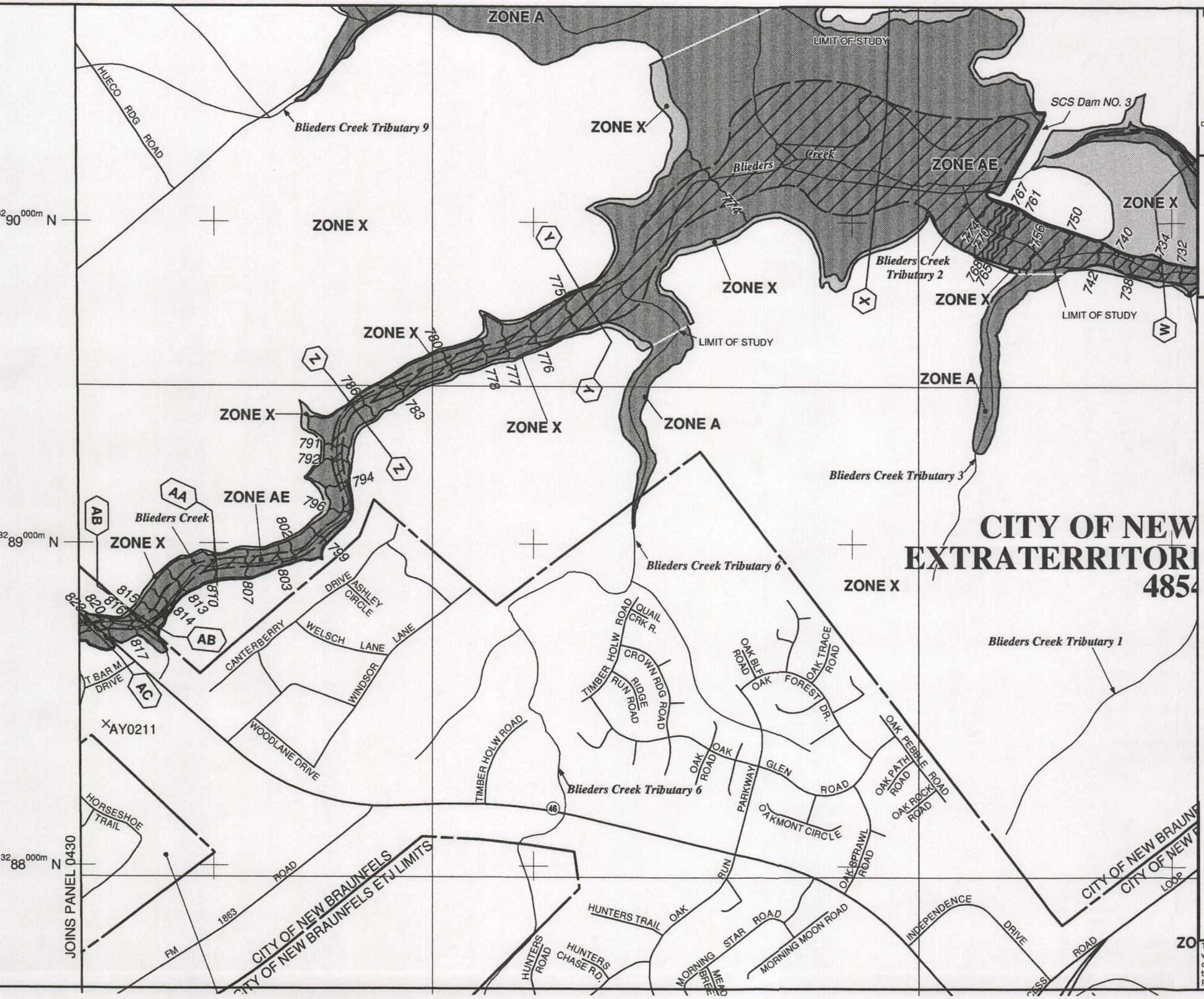
Chris Van Heerde, PE
6/9/15

HMT
ENGINEERING & SURVEYING

410 N. SEGUIN AVE.
NEW BRAUNFELS,
TEXAS, 78130
WWW.HMTNB.COM
PH: (830)625-8555

EXHIBIT C1

Drawing Name: N:_Projects\031 - DR Horton\031.023 - Manor Creek Unit 4\031.023.106 - Construction Documents\Engineering Reports\WPAP\031.023.110 Master Plan-WPAP-AREAS.dwg User: dp Jun 09, 2015 - 11:31am



National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0435F

FIRM
FLOOD INSURANCE RATE MAP
COMAL COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 435 OF 505

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
NEW BRAUNFELS, CITY OF	485493	0435	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48091C0435F

EFFECTIVE DATE
SEPTEMBER 2, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 6/5/2015

Signature of Customer/Agent:



Regulated Entity Name: Manor Creek Subdivision Units 4-6

Project Information

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:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ 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 the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

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**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

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 attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

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: Bleiders 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**. 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 is attached:

☒ 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.

☒ 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.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ 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 attached. 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**. A description of 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 is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

    ☐ 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.

    ☐ 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.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

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 have 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 attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ 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. ☒ 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. ☒ 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. ☒ 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. ☒ **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.

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

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ 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. ☒ 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.

TEMPORARY STORMWATER SECTION
ATTACHMENT A
Spill Response Actions

Contractor to notify all appropriate authorities if more than 25 gallons of hydrocarbons are spilled. The construction plans include the required notes regarding appropriate spill response actions as directed by TECQ. There will be no temporary storage vessels of fuel or hydrocarbons to be stored on site.

If spills of any hydrocarbons occur, construction must contain spills by immediate action. Earthen materials must be kept readily available to provide a Dike. Sand should be used to help soak fuels. Property disposal of any materials used will be required.

Contractor must promote job site awareness to all employees involved. All employees must be made aware of the provisions in this report.

Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4

(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater runoff during rainfall to the extent that it doesn't compromise cleanup activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function

Clean up

(1) Clean up leaks and spills immediately.

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMP's in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(a) Contain the spread of the spill.

(b) Recover spilled materials.

(c) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with the absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact

the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110, 119 and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

(5) Other agencies which may need to be consulted include, but are not limited to, the City of Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at:

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

(2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately.

(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allows leaking vehicles or equipment onsite.

(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

(5) Place drip pans or absorbent materials under paving equipment when not in use.

(6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.

(7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

(9) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are not sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

(2) Discourage "topping off" of fuel tanks.

(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/leaks.

TEMPORARY STORMWATER SECTION
ATTACHMENT B
Potential Sources of Contamination

This project included the construction in Units 1, 2B and 3 of Manor Creek. The construction of public improvements in these units is complete; however, home construction is ongoing. The possible sources of contamination include sediment transport from runoff and fuel spills by the Contractor while refueling equipment. Other small quantities of solvent for construction may be present. Contractor shall keep all fuel transfers and any other contaminants used secure. Silt Fences, rock berms, and filter curb inlet protection will aid in the removal of transported sediment from the runoff. Additionally, filter dams will be established below the sand filter system outlet structure.

Please see Attachment "A" for response actions.

TEMPORARY STORMWATER SECTION
ATTACHMENT C
Sequence of Major Activities

The construction of Units 1, 2B, and 3 is substantially complete and only home construction remains.

TEMPORARY STORMWATER SECTION
ATTACHMENT D
Temporary Best Management Practices and Measures

Temporary erosion controls are proposed for this project to include silt fence, rock berms, concrete wash out area, filter curb inlet protection, filter dams at the outlet structure of the proposed sand filter system, and a stabilized construction entrances and exits.

Temporary sediment basins are not required because there are no drainage areas greater than 10 acres disturbed on site.

Approximately 9,626 cumulative linear feet of silt fence will be used, with 3,247 linear feet in Unit 4, 3,096 linear feet in Unit 5, and 3,283 linear feet in Unit 6. This will be placed down gradient of all proposed construction. Please see sheet 16 of the Unit 4 plans, sheet 13 of the Unit 5 plans, and sheet 11 of the Unit 6 plans

A stabilized construction entrance at the beginning of the project will be required. Please see sheet 16 of the Unit 4 plans, sheet 13 of the Unit 5 plans, and sheet 11 of the Unit 6 plans.

Rock berms will be established at the existing low points at the beginning of the project will be required. Please see sheet 16 of the Unit 4 plans, sheet 13 of the Unit 5 plans, and sheet 11 of the Unit 6 plans

Filter dams will be established downstream of the outlet structure for the sand filter system at the beginning of the project. Please see sheet 16 of the Unit 4 plans, sheet 13 of the Unit 5 plans, and sheet 11 of the Unit 6 plans

From the TECQ RG 348 dated July, 2005, silt fences provide protection. In addition, the contractor will be directed to minimize disturbance to just the SCS line and reasonable working space.

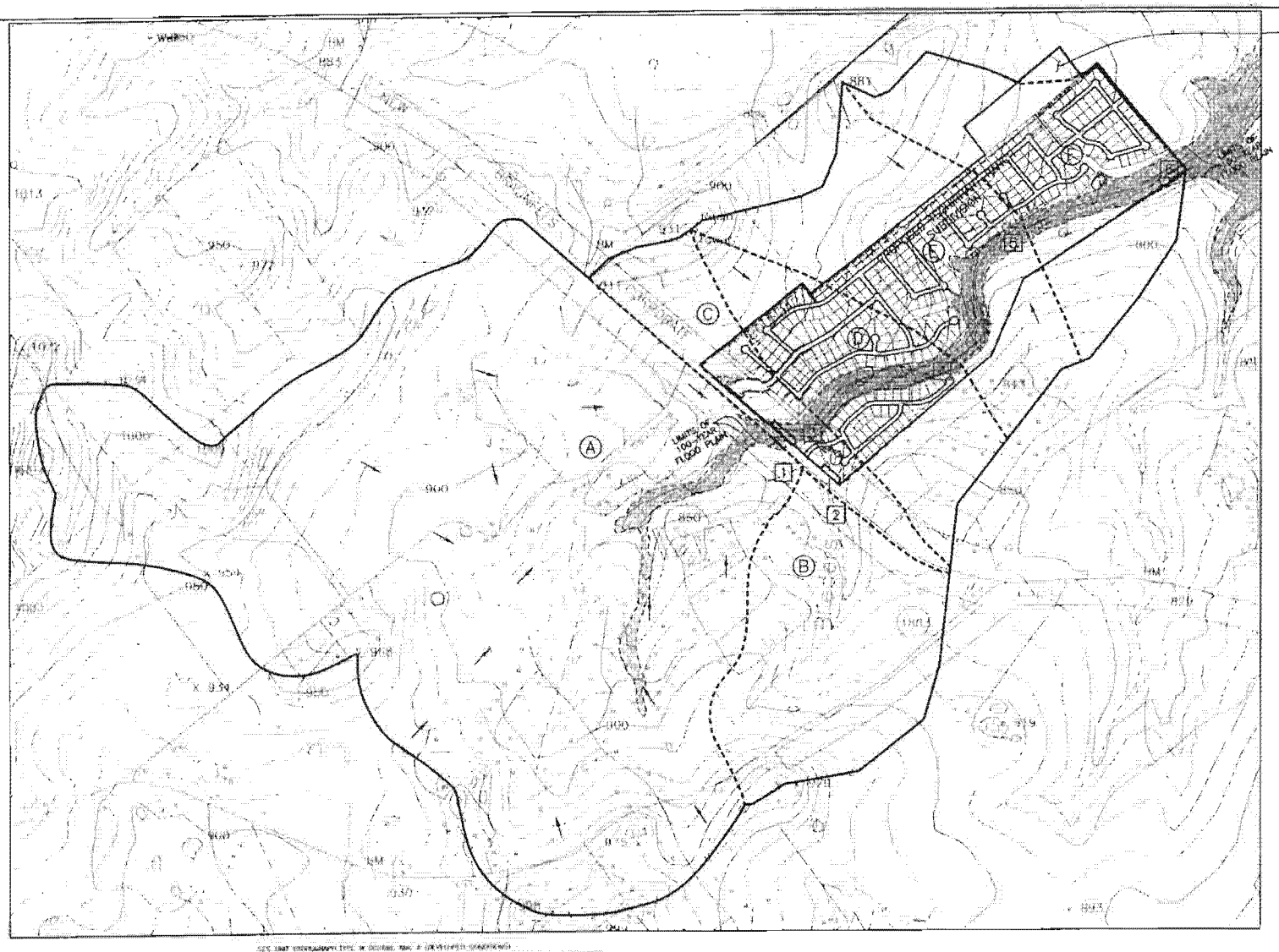
TEMPORARY STORMWATER SECTION
ATTACHMENT F
Structural Practices

During construction, silt fences will be used until construction is complete and vegetation and paving has been established. Rough cutting of the proposed streets will divert flows from entering the trench area. Additionally, the contractor will pile the spoils from trench excavation on the uphill side of the trench, with a minimum of one foot between the trench and the pile, in order to prevent storm water from entering the trench.

In addition, the contractor will be directed to minimize site disturbance and avoid having equipment in areas that are not necessary for the construction. Natural vegetation shall be left undisturbed and will help remove sediment if any bypass at silt fences or other structural measures occurs.

TEMPORARY STORMWATER SECTION
ATTACHMENT G
Drainage Area Map

The Existing and Proposed Drainage Area Maps presented in the construction plans for Units 1, 2B and 3 were previously approved by TCEQ. These drainage areas do not change for this WPAP modification. For reference Attachment G from the previously approved WPAP is included.



DRAINAGE AREA DESIGNATION	AREA (ACRES)	AREA (SQ. MILES)
A	352.2	0.550
B	114.7	0.179
C	82.9	0.130
D	134.1	0.210
E	117.7	0.184
F	196.2	0.307

DRAINAGE AREA DESIGNATION	CONTRIBUTING DRAINAGE AREAS	TOTAL AREA (ACRES)	CN	TIME OF CONCENTRATION (MIN.)	Q100 (CFS)	Q25 (CFS)	Q100 (CMS)
1	A	352.2	86	44	2799.2	2187.0	4582.4
2	B	114.7	86	17	872.9	686.3	1278.4
3	A+B+C	549.8	86	52	2830.8	2665.3	5085.1
4	A+B+C+D	1,348.7	86	57	5067.6	4862.8	9470.2
5	A+B+C+D+E	1,466.4	86	65	5271.6	4519.6	9838.3
6	A+B+C+D+E+F	1,662.6	86	69	5621.4	4820.9	10,449.3

NOTES:

1) NODE POINTS [1] & [2] ARE LOCATED ON THE UPSTREAM END OF THE CULVERTS BELOW S.H. 46.

2) NODE POINTS [3], [4], [5] & [6] ARE CONFLUENCE POINTS OF CONTRIBUTING DRAINAGE AREAS ALONG BLIEDERS CREEK.

OVERALL DRAINAGE INFORMATION AND CALCULATIONS OBTAINED FROM PREVIOUSLY APPROVED TSCHIRHART RANCH SUBDIVISION (SGI 2005)

MASTER DRAINAGE AREA MAP OF MANOR CREEK SUBDIVISION

NEW BRAUNFELS, TEXAS

The Schultz Group, INC.

DESIGNED BY: D.S./M.R.
DRAWN BY: M.R.
CHECKED BY: S.S.
DATE: FEBRUARY 2010
JOB NO.: 110108

D-1

TEMPORARY STORMWATER SECTION
ATTACHMENT I
Inspection and Maintenance of BMPs

The Contractor will be directed to inspect and maintain all temporary BMPs. The design engineer will also make regular visits to the project and will provide visual inspections as well. Any deficiency noted must be corrected immediately by the contractor.

Maintenance:

1. Inspect all silt fence, rock berms, concrete wash out areas, filter dams, and stabilized concrete entrances and exits weekly and after any rainfalls. Inspect the filter curb inlet protection daily.
2. Remove sediment when buildup reaches 6 inches on silt fence or rock berms or install a second line of silt fence parallel. Remove sediment when buildup reaches 2 inches in filter curb inlet protection.
3. Replace any torn fabric in the silt fence, filter dams, or filter curb inlet protection.
4. Replace or repair any sections crushed or collapsed in the course of construction.
5. See stormwater pollution plan details as shown in the construction plans for proper size and installation.
6. Contractor to maintain a daily log and note any deficiencies to temporary BMPs and corrective action taken. Rainfall events shall also be noted.

SWPPP Inspection Report
Attachment I

Operator: _____ Date: _____
Job Name: _____ Receiving Waters: _____
Location: _____ Map Grid: _____
Inspector: _____ Inspector Qualifications: _____
Is this site over the Aquifer recharge or contributing zone ____ If this site is in compliance with the SWPPP and Permit _____

Visual Inspection of the Site	Y	N	N/A	Comments
NOI Posted?				
Site Notice Posted?				
Was a copy of the NOI sent to the Reporting agency?				
SWPPP Plan in Box?				
Copy of WPAP in the box? (If applies)				
SWPPP Information updates				
Material list updated?				
Project Milestone current with intended dates?				
All current locations of BMP's Identified on plans?				
Areas under operators control clearly Identified on site map?				
Trash Containers and Restrooms noted?				
Stabilized areas updated or noted on plans?				
Site Conditions				
Entrance and exits free from off site tracking?				
Trash and Debri being contained on site?				
Material storage area effectively controlling pollutants?				
Wash out pit working order?				
Are all pollutants contained on site?				
Erosion Control devices in working order?				
Are all BMP's Adequate for this site at this times				
Hazardous Waste				
Is there materials being exposed to storm water runoff?				
Any signs of major leaks or spills?				
Any leaks or spills of reputable Quanitiy need to be reported?				

SWPPP Inspection Report
Attachment I

Job Name: _____ Date: _____

Location	What Failed and Amount	Reason	Modification to be made	Correction Date
Location	What Failed and Amount	Reason	Modification to be made	Correction Date
Location	What Failed and Amount	Reason	Modification to be made	Correction Date
Location	What Failed and Amount	Reason	Modification to be made	Correction Date
Location	What Failed and Amount	Reason	Modification to be made	Correction Date

I certify under the 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 Evaluate 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, too 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.

Qualified BMP Inspector: _____

SWPPP Inspection Report
Attachment I

Job Name: _____ Date: _____

Construction Activities and location

Block/Lot or Address	Work being done	Date

NOTES: _____

TEMPORARY STORMWATER SECTION
ATTACHMENT J
Schedule of Interim and Permanent Soil Stabilization Practices

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 cease 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.

If after 21 days, and construction activity will not resume, hydromulch shall be applied to all disturbed areas except in drainage channels or where slopes exceed 3:1. 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.

All erosion control measures must remain in place until such stabilization has successfully occurred.

Rock berms shall be used as indicated. Owner shall consult with design engineer to determine all necessary measures to stabilize the site if construction does not resume.

TCEQ RG 348 dated July 2005 shall be used as a guide in determining these areas that may require stabilization.

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

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:

Print Name of Customer/Agent: Chris Van Heerde, C.F.M., P.E.

Date: 6/9/2015

Signature of Customer/Agent

Chris Van Heerde, PE

Regulated Entity Name: Manor Creek Subdivsion

Permanent Best Management Practices (BMPs)

Permanent best management practices 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.

   ☒ N/A

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: _____

☒ N/A

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.

   ☒ N/A

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.

   ☒ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☐ The 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**. The 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 attached.
   ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☒ The 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 attached.

☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☒ 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, and an explanation is attached.

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 attached.

☒ 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, and an explanation is attached.

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 attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☒ N/A

9. ☒ 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.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☐ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☐ Design calculations (TSS removal calculations)
☐ TCEQ construction notes
☐ All geologic features
☐ All proposed structural BMP(s) plans and specifications

☒ N/A

11. ☐ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☐ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☐ Signed by the owner or responsible party
    ☐ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☐ A discussion of record keeping procedures

    ☒ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ☒ N/A

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 construction and development is attached. 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.

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☐ 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.

    ☒ N/A

15. ☐ 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.

    ☒ N/A

PERMANENT STORMWATER SECTION
ATTACHMENT B
BMPs for Upgradient Stormwater

There are no permanent BMPs for upgradient stormwater for the Manor Creek Subdivision site because the runoff from surrounding properties that flows from offsite to the site will be diverted into interceptor swales directly inside the property line. The swales will bypass the upgradient flow and will be vegetated upon completion of the subdivision.

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

I Daniel Clawson II,
Print Name

Division President,
Title - Owner/President/Other

of Continental Homes of Texas, L.P.,
Corporation/Partnership/Entity Name

have authorized Chris Van Heerde, C.F.M., P.E.
Print Name of Agent/Engineer

of HMT 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

6-2-2015
Date

THE STATE OF Texas §

County of Hays §

BEFORE ME, the undersigned authority, on this day personally appeared Daniel Clausen II 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 2 day of June, 205.

NOTARY PUBLIC

Roxanna Lebron
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: Feb. 03, 2018

ROXANNA LEBRON
Notary Public, State of Texas
My Commission Expires
February 03, 2018

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

I Joanna Paulson,
Print Name

Secretary,
Title - Owner/President/Other

of Manor Creek Homeowners Association Inc,
Corporation/Partnership/Entity Name

have authorized Chris Van Heerde, C.F.M., P.E.
Print Name of Agent/Engineer

of HMT 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.

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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

June 3, 2015
Date

THE STATE OF Texas §

County of Hays §

BEFORE ME, the undersigned authority, on this day personally appeared Daniel Clausen II 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 3 day of June, 2015.

NOTARY PUBLIC

Roxanna Lebron
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: Feb 03, 2018

ROXANNA LEBRON
Notary Public, State of Texas
My Commission Expires
February 03, 2018

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Manor Creek Subdivsion

Regulated Entity Location: Hamburg Avenue, New Braunfels, Texas 78132

Name of Customer: Continental Homes of Texas, L.P.

Contact Person: Daniel Clawson II Phone: 512-418-6104

Customer Reference Number (if issued):CN 602550360

Regulated Entity Reference Number (if issued):RN 104801568

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☒ Comal ☐ Kinney

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:

☐ Austin Regional Office

☐ Mailed to: TCEQ - Cashier

Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier

12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

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	169.98 Acres	$ 8,000
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: Chris Van Hende, PE Date: 6/9/2015

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

HANZ THORNHILL, INC. - DBA HMT ENGINEERING & SURVEYING 3897

DATE	INVOICE NO.	COMMENT	AMOUNT	NET AMOUNT
06/04/2015		Manor Creeks Units 1-3 - Revised WPAP		8,000.00
DATE 06/04/15		**VENDOR** Texas Commission on Environmental Quality	**TOTAL**	8,000.00

HANZ THORNHILL, INC.
DBA HMT ENGINEERING & SURVEYING
410 N SEGUIN AVE
NEW BRAUNFELS, TX 78130

BROADWAY NATIONAL BANK
1177 NE LOOP 410
SAN ANTONIO, TX 78209-1528
88-2193/1140

3897

PAY **Eight Thousand and no/100**

DATE	CHECK	CHECK AMOUNT
06/04/15	3897	$8,000.00

TO THE ORDER OF **TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

Stephen W. Hanz
AUTHORIZED SIGNATURE

Security features included. Details on back.

⑈003897⑈ ⑆114021933⑆ ⑈4100044187⑈

TCEQ Use Only

TCEQ Core Data Form

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)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☒ Other **WPAP Modification Application**

2. Attachments **Describe Any Attachments:** *(ex. Title V Application, Waste Transporter Application, etc.)*

☒Yes ☐No — Manor Creek Subdivision WPAP Modification

3. Customer Reference Number ***(if issued)*** — ~~CN 602550360~~ CN 601213523 CPV

Follow this link to search for CN or RN numbers in Central Registry**

4. Regulated Entity Reference Number ***(if issued)*** — **RN 104801568**

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy) 6/9/2015

6. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check only one of the following:*

☒Owner ☐Operator ☐Owner & Operator
☐Occupational Licensee ☐Responsible Party ☐Voluntary Cleanup Applicant ☐Other: _____

7. General Customer Information

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☒ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)* — *If new Customer, enter previous Customer below* — *End Date:*

Continental Homes of Texas, L.P. ~~dba DR Horton~~ CPV

10. Mailing Address: 210 West Hutchison Street

City	State	ZIP	ZIP + 4
San Marcos	TX	78666	5781

11. Country Mailing Information *(if outside USA)*

12. E-Mail Address *(if applicable)*: dclawson@drhorton.com

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(512) 805-3600	N/A	(844) 693-1213

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
742791904	17427919042	~~131835456~~ CPV	~~110854-6~~ CPV

20. Number of Employees ☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated? ☒ Yes ☐ 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)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☒ 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)*

Manor Creek Subdivision

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	Hamburg Avenue							
	City	New Braunfels	**State**	TX	**ZIP**	78132	**ZIP + 4**	5123
25. Mailing Address:	210 West Hutchison Street							
	City	San Marcos	**State**	TX	**ZIP**	78666	**ZIP + 4**	5781

26. E-Mail Address:	dclawson@drhorton.com

27. Telephone Number	**28. Extension or Code**	**29. Fax Number** *(if applicable)*
(512) 805-3600		(844) 693-1213

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	9532	237210	236117

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Land Development - Residential Subdivision

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

35. Description to Physical Location:	Located on Hamburg Avenue, which is 2.2 miles northwest of the TX-46 and TX-337 Loop intersection (directly off TX-46E)

36. Nearest City	**County**	**State**	**Nearest ZIP Code**
New Braunfels	Comal	TX	78132

37. Latitude (N) In Decimal:	29.729108	**38. Longitude (W) In Decimal:**	-98.185736

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	44.7888	-98	11	8.6496

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.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
☐ New Source Review – Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☐ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☒ Other: WPAP

SECTION IV: Preparer Information

40. Name:	Jessica Calhoun, C.F.M., P.E.	**41. Title:**	Project Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(210) 255-7873	N/A	(N/A) -	

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:	HMT Engineering & Surveying	**Job Title:**	Senior Project Engineer		
Name *(In Print)* :	Chris Van Heerde, C.F.M., P.E.			**Phone:**	(830) 625-8555
Signature:	Chris Van Heerde, PE			**Date:**	6/8/15

1v1 040202504091

Doc# 200506047873 Parent Tract

→ DHI TITLE

8/T

SPECIAL WARRANTY DEED

Date: December 13, 2005

Grantor: Ann Lou Hillert Tschirhart, joined pro forma by Leonard L. Tschirhart

Grantor's Mailing Address (including county):

2422 Northwoods Drive
New Braunfels, Comal County, Texas 78132

Grantee: Continental Homes of Texas, L.P., a Texas limited partnership

Grantee's Mailing Address (including county):

211 North Loop 1604 East, Suite 130
San Antonio, Bexar County, Texas 78232

Consideration: Ten Dollars ($10.00) and other valuable consideration.

Property (including any improvements): See Exhibit "A" attached hereto and incorporated herein by reference for all purposes; which Property includes, but is not limited to, all interest of Grantor, if any, in (1) strips and gores, if any, between the Property and any abutting properties, whether owned or claimed by deed, limitations, or otherwise, and whether located inside or outside the Property; and (2) any land lying in or under the bed of any creek, stream, or waterway or any highway, avenue, street, road, alley, easement or right-of-way, open or proposed, in, on, across, abutting, or adjacent to the Property.

Reservations from and Exceptions to Conveyance and Warranty: Any and all restrictions and easements of record to the extent the same are valid and still in force and effect.

Grantor, for the consideration and subject to the reservations from and exceptions to conveyance and warranty, grants, sells and conveys unto Grantee, the Property, together with all and singular the rights and appurtenances thereto in anywise belonging, TO HAVE AND TO HOLD it to Grantee, Grantee's heirs, executors, administrators, successors or assigns forever. Grantor binds Grantor and Grantor's heirs, executors, administrators and successors to WARRANT AND FOREVER DEFEND all and singular the Property to Grantee, Grantee's heirs, executors, administrators, successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the reservations from and exceptions to conveyance and warranty by, through or under Grantor but not otherwise.

GRANTEE IS PURCHASING THE PROPERTY "AS IS" WITH ALL FAULTS AND DEFECTS, AND GRANTEE ACKNOWLEDGES AND AGREES THAT, EXCEPT FOR THE WARRANTIES OF TITLE SET FORTH HEREIN, GRANTOR HAS NOT MADE, DOES NOT MAKE AND SPECIFICALLY DISCLAIMS ANY REPRESENTATIONS, WARRANTIES, PROMISES, COVENANTS, AGREEMENTS, OR GUARANTIES OF ANY KIND OR CHARACTER WHATSOEVER, WHETHER

EXPRESS OR IMPLIED, ORAL OR WRITTEN, PAST, PRESENT OR FUTURE, OF, AS TO, CONCERNING OR WITH RESPECT TO (A) THE NATURE, QUALITY OR CONDITION OF THE PROPERTY, INCLUDING, WITHOUT LIMITATION, ENVIRONMENTAL OR DRAINAGE CONSIDERATIONS AND THE WATER, SOIL, AND GEOLOGY, OR THE PRESENCE OR ABSENCE OF ANY POLLUTANT, HAZARDOUS WASTE, GAS OR SUBSTANCE OR SOLID WASTE ON OR ABOUT THE PROPERTY, (B) THE AVAILABILITY OF UTILITIES OR QUALITY OF ACCESS TO THE PROPERTY, (C) THE SUITABILITY OF THE PROPERTY FOR ANY AND ALL ACTIVITIES AND USES WHICH GRANTEE MAY INTEND TO CONDUCT THEREON, (D) THE COMPLIANCE OF OR BY THE PROPERTY AND/OR ITS OPERATION WITH ANY LAWS, RULES, ORDINANCES OR REGULATIONS OF ANY GOVERNMENTAL AUTHORITIES OR BODY HAVING JURISDICTION INCLUDING, WITHOUT LIMITATION, ALL APPLICABLE ZONING LAWS, (E) THE HABITABILITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE OF THE PROPERTY, OR (F) ANY OTHER MATTER RELATED TO OR CONCERNING THE PROPERTY, EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT AND THE WARRANTIES OF TITLE SET FORTH AND LIMITED HEREIN, AND GRANTEE SHALL NOT SEEK RECOURSE AGAINST GRANTOR ON ACCOUNT OF ANY LOSS, COST OR EXPENSE SUFFERED OR INCURRED BY GRANTEE WITH REGARD TO ANY OF THE MATTERS DESCRIBED IN CLAUSES (A) THROUGH (F) ABOVE. GRANTEE ACKNOWLEDGES THAT GRANTEE, HAVING BEEN GIVEN THE OPPORTUNITY TO INSPECT THE PROPERTY, IS RELYING SOLELY ON ITS OWN INVESTIGATION OF THE PROPERTY AND NOT ON ANY INFORMATION PROVIDED OR TO BE PROVIDED BY GRANTOR. GRANTEE FURTHER ACKNOWLEDGES THAT NO INDEPENDENT INVESTIGATION OR VERIFICATION HAS BEEN OR WILL BE MADE BY GRANTOR WITH RESPECT TO ANY INFORMATION SUPPLIED BY GRANTOR CONCERNING THE PROPERTY, AND GRANTOR MAKES NO REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION, IT BEING INTENDED BY THE PARTIES THAT GRANTEE SHALL VERIFY THE ACCURACY AND COMPLETENESS OF SUCH INFORMATION ITSELF. GRANTEE ACKNOWLEDGES THAT THE DISCLAIMERS, AGREEMENTS AND OTHER STATEMENTS SET FORTH HEREIN ARE AN INTEGRAL PORTION OF THIS SPECIAL WARRANTY DEED AND THAT GRANTOR WOULD NOT AGREE TO SELL THE PROPERTY TO GRANTEE FOR THE CONSIDERATION WITHOUT THE DISCLAIMERS, AGREEMENTS AND OTHER STATEMENTS SET FORTH HEREIN, WHICH DISCLAIMERS, AGREEMENTS, AND OTHER STATEMENTS SHALL SPECIFICALLY SURVIVE THE EXECUTION OF THIS SPECIAL WARRANTY DEED AND SHALL NOT MERGE THEREWITH.

Payment of current ad valorem taxes is assumed by Grantee.

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

GRANTOR:

Ann Lou Hillert Tschirhart
Ann Lou Hillert Tschirhart

Joined Pro Forma By:

Ann Lou Hillert Tschirhart
Leonard L. Tschirhart, by and through Ann Lou Hillert Tschirhart pursuant to a Special Power of Attorney dated December 28, 2004

Acknowledged and Accepted this
13 day of December, 2005

GRANTEE:

CONTINENTAL HOMES OF TEXAS, L.P.,
a Texas limited partnership

By: CHTEX of Texas, Inc., a Delaware corporation, General Partner

By:
Name: Timothy D Pruski
Title: Assistant Secretary

STATE OF TEXAS §
§
COUNTY OF Bexar §

This instrument was acknowledged before me on the 13th day of December, 2005, by Ann Lou Hillert Tschirhart.

DEANNA DUNCAN
Notary Public, State of Texas
My Commission Expires
July 29, 2007

Deanna Duncan
Notary Public, State of Texas

STATE OF TEXAS §
§
COUNTY OF Bexar §

This instrument was acknowledged before me on the 13th day of December, 2005, by Leonard L. Tschirhart, by and through Ann Lou Hillert Tschirhart pursuant to a Special Power of Attorney dated December 28, 2004.

DEANNA DUNCAN
Notary Public, State of Texas
My Commission Expires
July 29, 2007

Deanna Duncan
Notary Public, State of Texas

STATE OF TEXAS §
§
COUNTY OF BEXAR §

This instrument was acknowledged before me on the 13th day of December, 2005, by TIMOTHY D. KRUSE, ASSISTANT SECRETARY of CHTEX of Texas, Inc., a Delaware corporation, General Partner of Continental Homes of Texas, L.P., a Texas limited partnership, on behalf of said limited partnership.

Catherine M. Cook
Notary Public, State of Texas
My Comm Expires 03/30/07

Catherine M Cook
Notary Public, State of Texas

After recording, return to:

Continental Homes of Texas, L.P.
211 North Loop 1604 East, Suite 130
San Antonio, Texas 78232
Attention: Brian N. Jaeckle

EXHIBIT "A"

Doc# 200506047873

THE Schultz Group INC.

P.O. BOX 310483 • NEW BRAUNFELS, TX 78131-0483 • Phone: (830) 606-3913 • Fax: (830) 625-2204

LEGAL DESCRIPTION
OF

252.038 acres of land out of the following surveys; Edwardo Hernandez Survey No. 454, Abstract No. 263, Christian Pape Survey No. 831, Abstract No. 777, and the S.A. & M.G.-R.R. Co. survey No. 280, Abstract No. 591, Comal County, Texas, and being designated as the SECOND TRACT and being a 251.35 acre tract as described in a partition dated October 20, 1976 and recorded in Volume 244, Pages 646-655 of the Deed Records of Comal County, Texas, said 252.038 acres of land being more particularly described as follows:

BEGINNING: at a found ½" iron pin in the Northeast Right of Way Line of State Highway No. 46 and being the Westernmost corner of this parcel and the Southernmost corner of a 71.35 acre tract as recorded in Volume 342, Pages 771-773 of the Deed Records of Comal County, Texas, and being South 49 deg. 00' 17" East (all bearings in this description are referenced to Grid North in the Texas Coordinate System, Zone 4204, NAD 83 (93)), a distance of 1699.19 feet from a set ½" iron pin with plastic cap being a cutback corner at the Northeast intersection of State Highway No. 46 and Hueco Springs Loop Road;

THENCE: (1) NORTH 51 deg. 25' 03" East, a distance of 1610.65 feet along the Northwest boundary line of this parcel and said 251.35 acre tract and the Southeast boundary line of said 71.35 acre tract to a found ½" iron pin being the Easternmost corner of said 71.35 acre tract;

THENCE: (2) SOUTH 39 deg. 07' 49" East, a distance of 161.93 feet along the Northeast boundary line of this parcel and said 251.35 acre tract and the Southwest boundary line of a 66.01 acre tract as recorded in Document No. 9906017297 of the Official Public Records of Comal County, Texas, to a found ½" iron pin being the Southernmost corner of said 66.01 acre tract;

THENCE: the following courses along the Northwest boundary line of this parcel and the Southeast boundary line of said 66.01 acre tract, and a 55.574 acre tract as described in a partition Deed, Document No. 9906017297 of the Official Public Records of Comal County, Texas:

LOIS M. SCHULTZ PRESIDENT
STEPHEN E. SCHULTZ, R.P.L.S. VICE-PRESIDENT
BOBBIE L. HASERT, P.E., R.P.L.S. CHIEF ENGINEER
CONSULTING ENGINEERS AND LAND SURVEYORS

Recorder's Memorandum-Comal County
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility.

Doc# 200506047873

(3) NORTH 52 deg. 09' 22" East, a distance of 537.97 feet to a found ½" iron pin being an angle point;

(4) NORTH 51 deg. 41' 11" East, a distance of 474.71 feet to a found ½" iron pin being an angle point;

(5) NORTH 51 deg. 03' 35" East, a distance of 1266.80 feet to a found ½" iron pin being an angle point;

(6) NORTH 50 deg. 48' 24" East, a distance of 1443.84 feet to a found ½" iron pin being an angle point; and

(7) NORTH 51 deg. 23' 59" East, a distance of 764.01 feet to a found ½" iron pin being the Northernmost corner of this parcel and said 251.35 acre tract and a corner of a 17.900 acre tract as recorded in Document No. 9606021591 of the Official Public Records of Comal County, Texas, and the Westernmost corner of a 49.972 acre tract as recorded in Document No. 9506474912 of the Official Public Records of Comal County, Texas;

THENCE: (8) SOUTH 40 deg. 07' 39" East, a distance of 1184.74 feet along the Northeast boundary line of this parcel and said 251.35 tract and the Southwest line of said 49.972 acre tract to a set ½" iron pin with plastic cap being an angle point;

THENCE: (9) SOUTH 39 deg. 55' 39" East, a distance of 473.59 feet along the Northeast boundary line of this parcel and the Southwest boundary line of said 49.972 acre tract to a set ½" iron pin with plastic cap being an angle point; and

THENCE: (10) SOUTH 39 deg. 34' 39" East, a distance of 62.04 feet along the Northeast boundary line of this parcel and said 251.35 acre tract to a found ¼" iron pin being the Easternmost corner of this parcel and said 251.35 acre tract and the Northernmost corner of a 218.51 acre tract and designated as THIRD TRACT and recorded in said partition recorded in Volume 244, Pages 646-655 of the Deed Records of Comal County, Texas;

THENCE: the following courses along the Southeast boundary line of this parcel and said 251.35 acre tract and the Northwest boundary line of said 218.15 acre tract and the Northwest boundary line of NORTHWOODS-UNIT 1 as recorded in Volume 5, Page 305 of the Map and Plat Records of Comal County, Texas, and NORTHWOODS-UNIT 3 as recorded in Volume 8, Page 342 of the Map and Plat Records of Comal County, Texas:

Recorder's Memorandum-Comal County
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility.

Doc# 200506047873

(11) SOUTH 56 deg. 16' 19" West, a distance of 2411.61 feet to a found ¼" iron pin being an angle point;

(12) SOUTH 22 deg. 28' 06" West, a distance of 1009.92 feet to a found ½" iron pin being an angle point; and

(13) SOUTH 49 deg. 39' 15" West, a distance of 2447.28 feet to a found ¼" iron pin being the Southernmost corner of this parcel and said 251.35 acre tract and the Westernmost corner of said NORTHWOODS-UNIT 3;

THENCE: (14) NORTH 49 deg. 00' 17" West, a distance of 2264.77 feet along the Southwest boundary line of this parcel and said 251.35 acre tract and the Northeast Right of Way Line of said State Highway [illegible] to a found ½" iron pin being the POINT OF BEGIN[illegible]G, and containing 252.038 acres of land.

THIS LEGAL DESCRIPTION WAS WRITTEN IN CONJUNCTION WITH A SURVEY PLAT PREPARED IN THIS OFFICE ON 8/13/04, JOB NO. 08-02-2004.

REVISED 9/27/04.

STATE OF TEXAS
REGISTERED
STEPHEN E. SCHULTZ
4233
PROFESSIONAL
LAND SURVEYOR

Stephen E. Schultz, R.P.L.S.
Registration No. 4233

P:\08\02\04\252.038AcreRevisedLegalDescription

Doc# 200506047873
Pages 8
12/15/2005 11:16AM
Official Records of
COMAL COUNTY
JOY STREATER
COUNTY CLERK
Fees $44.00

Joy Streater

Doc# 200506047873

Recorder's Memorandum-Comal County
At the time of recordation, this instrument was found to be inadequate for the best photographic reproduction because of illegibility.

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: The Tschirhart Ranch Subdivision - 267.038 Acres FGS-E09176

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	≥ 40	<1.6	≥1.6	
S-37	N29° 43' 59.1"	W98° 10' 53.4"	O^VB	5	Kep	15	20		-	-	2-4	0.15	O,F	15	20	20		Yes		Drainage
S-38	N29° 43' 59.1"	W98° 10' 51.1"	Z^MBB	30	Kep	20	75		-	-	-	-	O,F	20	50		50		Yes	Drainage
S-39	N29° 43' 52"	W98° 10' 52.3"	SC	20	Kep	1	1	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-40	N29° 43' 41.1"	W98° 11' 0.83"	CD	5	Kep	4	5	1	-	-	-	-	O,F	9	14	14		Yes		Hillside
S-41	N29° 43' 54.8"	W98° 10' 50.8"	SC	20	Kep	1.5	3	1.5					O,F	15	35	35		Yes		Hillside
S-42	N29° 43' 50.4"	W98° 10' 50.1"	SC	20	Kep	1	1	2	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-43	N29° 43' 42.7"	W98° 10' 47.8"	MB	30	Kep	3	3	?	-	-	-	-	X	7	37	37		Yes		Hillside
S-44	N29° 43' 51.3"	W98° 10' 47.4"	SC	20	Kep	2	2	1.5	-	-	-	-	O,F	12	32	32		Yes		Hillside
S-45	N29° 43' 53.4"	W98° 10' 47.7"	SC	20	Kep	2	2	1.5	-	-	-	-	O,F,C	12	32	32		Yes		Hillside
S-46	N29° 43' 50.7"	W98° 10' 48.8"	SF	20	Kep	2	10	2	-	-	-	-	O,F	19	39	39		Yes		Hillside
S-47	N29° 43' 50.7"	W98° 10' 49.1"	SC	20	Kep	1	0.5	1	-	-	-	-	O,F	10	30	30		Yes		Hillside
S-48	N29° 43' 50.6"	W98° 10' 49.2"	SC	20	Kep	2	1.5	2	-	-	-	-	O,F	10	30	30		Yes		Hillside

* DATUM 1927 North American Datum (NAD27)

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 213.

STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
LICENSED
PROFESSIONAL GEOSCIENTIST

Signature Steve Frost Date December 31, 2009 Sheet 4 of 9

Solution Feature Discovery Notification Form
Edwards Aquifer Protection Program
For Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone
And Relating to 30 TAC 213.5(f)(2) Effective June 1, 1999

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When reporting a solution feature encountered during construction activities please provide the following information:

Regulated Entity Name:	Tschirhart Ranch Subdivision (Manor Creek Unit 1)	**EAPP ID #:**	2439.0
Project Type:	(WPAP) SCS UST AST	**Approval Date:**	April 4, 2006
Regulated Entity Location:	Approximately 2-miles west of Loop 337 and just northeast of SH-46	**Approval Dates/ID#'s of any Modifications:**	
Date Feature(s) Discovered:	June 22, 2007	**Date TCEQ Notified:**	June 27, 2007
Holder of Approved Plan:	Continental Homes of Texas	**Solution Feature Plan Submitted By:**	Mike Short, P.E.
Contact:	Timothy D. Pruski	**Title:**	Project Engineer
Title:	Assistant Secretary	**Company:**	The Schultz Group, Inc.
Mailing Address:	211 N. Loop 1604 East, Suite 130 San Antonio, TX 78232	**Mailing Address:**	2461 Loop 337 New Braunfels, TX 78130
Phone:	(210) 496-2668	**Phone:**	(830) 606-3913
Fax:	(210) 582-0961	**Fax:**	(830) 625-2204

Feature No.	Feature Dimensions	Location of Feature (Reference features related to a SCS by Line and Station)	Case*/ Sensitivity**
1	Approximately 18-in wide and 24-in long	Manor Creek Unit 1 Lot 8 Block 2 (Feature is not located within a proposed SCS trench line)	3/No

* per TCEQ Guidance Document 96.004
** per Geologic Assessment Table

2007 JUN 27 AM 9:16
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SAN ANTONIO
REGION

1. Plan, profile, cross section sketches, and photos for each feature are found as **ATTACHMENT 1**. See attached "Solution Cavity Inspection Report" (Frost GeoSciences 2007).
2. Geologic Assessment Table (if applicable) is found as **ATTACHMENT 2**.
3. Drawings and narrative descriptions of the proposed protection measures are found as **ATTACHMENT 3**.
4. If the discovery is related to a sewage collection system, a Texas Registered Professional Engineer is required to submit the protection plan.

Submitted by: _____ Date: 6/28/07

Printed name: Michael G. Short, P.E.

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 3 – PROPOSED PROTECTION MEASURES

The non-sensitive solution cavity shall be filled with 2,500-psi concrete to existing grade level as shown on the following detail.

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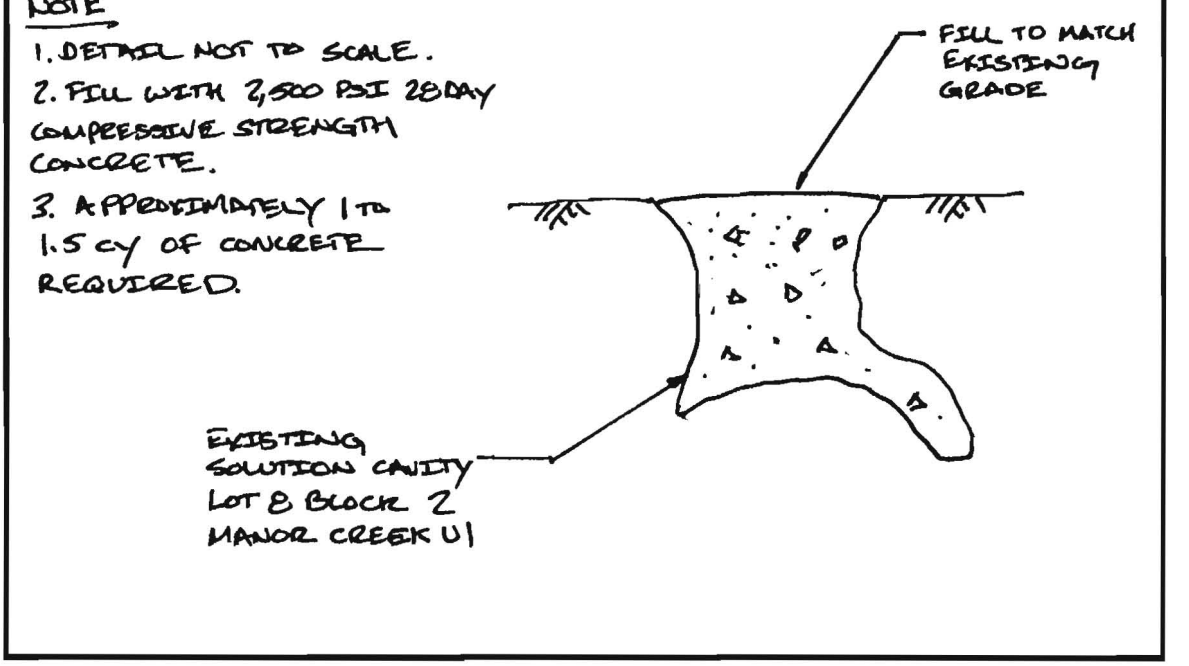
SOLUTION CAVITY PROTECTION DETAIL





Solution Cavity Inspection Report

Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

Frost GeoSciences Control # FGS-E07300

June 24, 2007

Prepared exclusively for

DR HORTON
211 N. Loop 1604 East, Suite 130
San Antonio, Texas 78232

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COUNTY ENGINEER

Frost GeoSciences

Geotechnical ▪ Construction Materials
Forensics ▪ Environmental

13402 Western Oak • Helotes, Texas 78023 • Phone: (210) 372-1315 • Fax: (210) 372-1318

Frost GeoSciences
Geotechnical • Construction Materials
Forensics • Environmental

13402 Western Oak
Helotes, Texas 78023
Phone (210) 372-1315
Fax (210) 372-1318
www.frostgeosciences.com

Steve Frost, C.P.G.

June 24, 2007

DR HORTON
211 N. Loop 1604 East, Suite 130
San Antonio, Texas 78232

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Attn.: Mr. Harry Affleck

Re: Solution Cavity Inspection Report
Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

Frost GeoSciences, Inc. Control No. FGS-E07300

Dear Sir:

Mr. Steve Frost, C.P.G., Executive Vice President of Frost GeoSciences, Inc., performed a site visit and solution cavity inspection on June 23, 2007 and has completed the solution cavity inspection at the above referenced project site. Mr. Frost is a Licensed Professional Geoscientist in the State of Texas (License # 315), and is a Certified Professional Geologist with the American Institute of Professional Geologist (Certification # 10176). Our investigation was conducted in general accordance with the "Instructions to Geologists", TCEQ-0383-Instructions (Rev. 10-1-04). The EAPP Solution Cavity Forms have been included in the report. The results of our investigation along with recommendations for Best Management Practices (BMP's) are provided in the following report.

A copy of the New Braunfels Street Map indicating the location of the project site is indicated on Plate 1. The solution cavity is located on Lot 8, Block 2 within Manor Creek, Unit 1. One feature was inspected at the time of our site inspection. A site plan of Manor Creek, Unit 1 indicating the location of the solution cavity is included in this report on Plate 2. The position of the solution cavity was obtained in the field using a hand held Garmin eTrex, Global Positioning System Receiver with an Estimated

Position Error (EPE) of 9 feet. All points were located using the 1927 North American Datum (NAD27). A copy of the U.S.G.S. 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988), indicating the location of the project site and the location of the solution cavity is included on Plate 3.

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This location plots the solution cavity on the Edwards Aquifer Recharge Zone. A copy of the Edwards Underground Water District Reference Map (March 1988) indicating the location of the project site is included on Plate 4.

The solution cavity is located within the Cyclic and Marine Members (Undivided) of the Cretaceous Edwards Person Limestone. The Cyclic and Marine Members of the Cretaceous Edwards Person Limestone consists of mudstone to packstone and miliolid grainstone with chert. The member is characterized by massive beds of limestone to relatively thin beds of limestone with some crossbedding. The Cyclic and Marine Member forms a few caves some that are laterally extensive. Overall thickness ranges from 80 to 90 feet thick. A copy of the U.S. Geological Survey Water Resources Investigations 94-4117 indicating the location of the project site and the solution cavity is included in this report on Plate 5.

A copy of the 2003 Aerial photograph indicating the location of the project site and the solution cavity is included on Plate 6.

The solution cavity is located on Lot 8, Block 2 and has an approximate latitude/ longitude location of N 29° 43.755', W 98° 11.046'. The solution cavity appears to hav a natural opening as no grading has taken place on this portion of the property at th ture of the site inspection. This feature is 18 inches wide and 24 inches long. Th opening. extends down into the ground at least two feet. immediately below the c apped off with this feature opens up to approximately 4 feet in diameter. The feature toot of the opening. clay and appears to pinch out against the sides of the feature with Frost GeoSciences, Inc. recommends that the feature be se d with concrete.

The EAPP-Solution Cavity Forms have been modified to more properly reflect a cavity opening within a residential lot and filled out with the appropriate information. These forms are included in this report. Color photographs of the feature is included in this report.

If you have any questions regarding this Solution Cavity Inspection Report, or if Frost GeoSciences, Inc. may be of additional assistance to you on this project, please feel free to call our office. It has been a pleasure to work with you and we wish to thank you for the opportunity to be of service to you on this project. We look forward to being of continued service.



Very truly yours,
Frost GeoSciences, Inc.

Steve Frost, C.P.G.
Executive Vice President

Distribution: (1) DR HORTON
(4) The Schultz Group

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Plan & Profile Views
Manor Creek, Unit 1
Lot 8, Block 2

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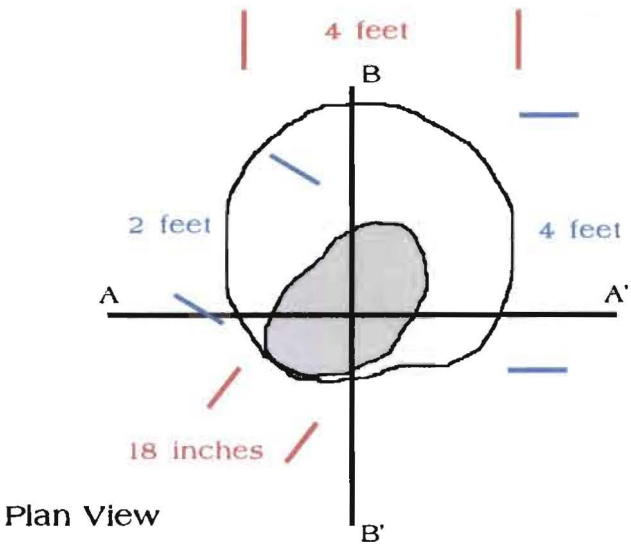
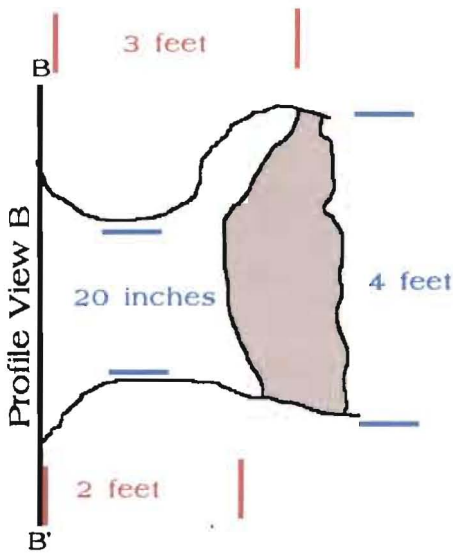
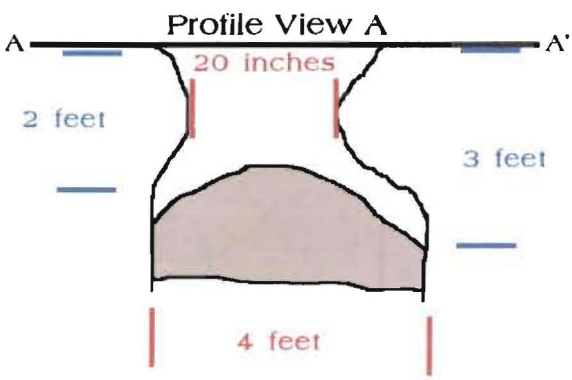


Plan View





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Lot	Block	Feature	Case	Sensitivity
8	2	Solution Cavity	3	No

Notes: See Frost GeoSciences, Inc. Letter - Control # FGS-E07300 dated June 24, 2007

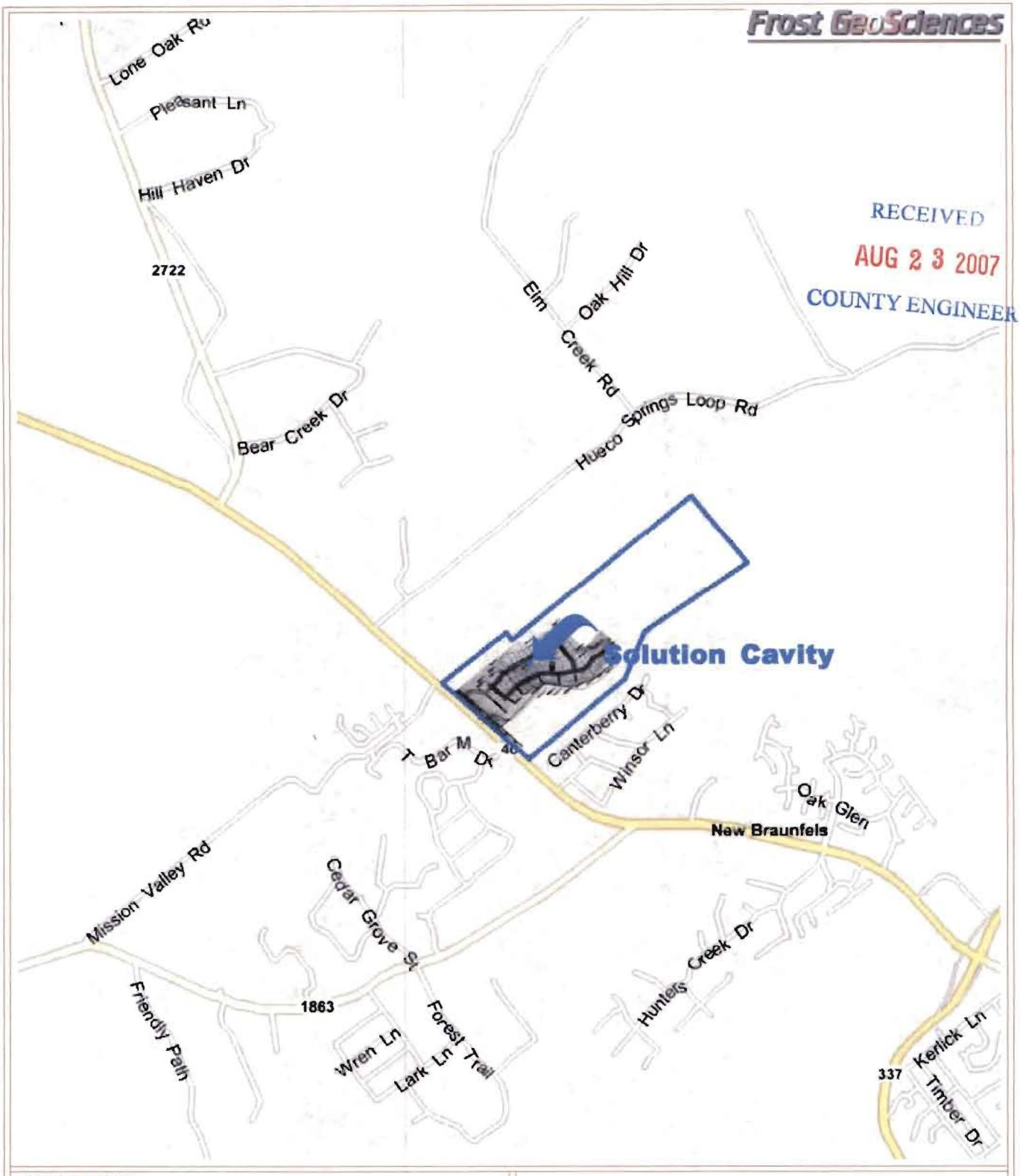
STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
LICENSED
PROFESSIONAL GEOSCIENTIST

Steve Frost, C.P.G.
Printed Name of Geologist

Signature of Geologist

June 24, 2007
Date

Frost GeoSciences



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PROJECT NAME:
Solution Cavity Inspection Report
Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

Street Map

PROJECT NO.: FGS-E07300

DATE: June 24, 2007

Frost GeoSciences

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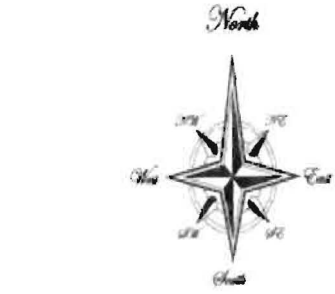

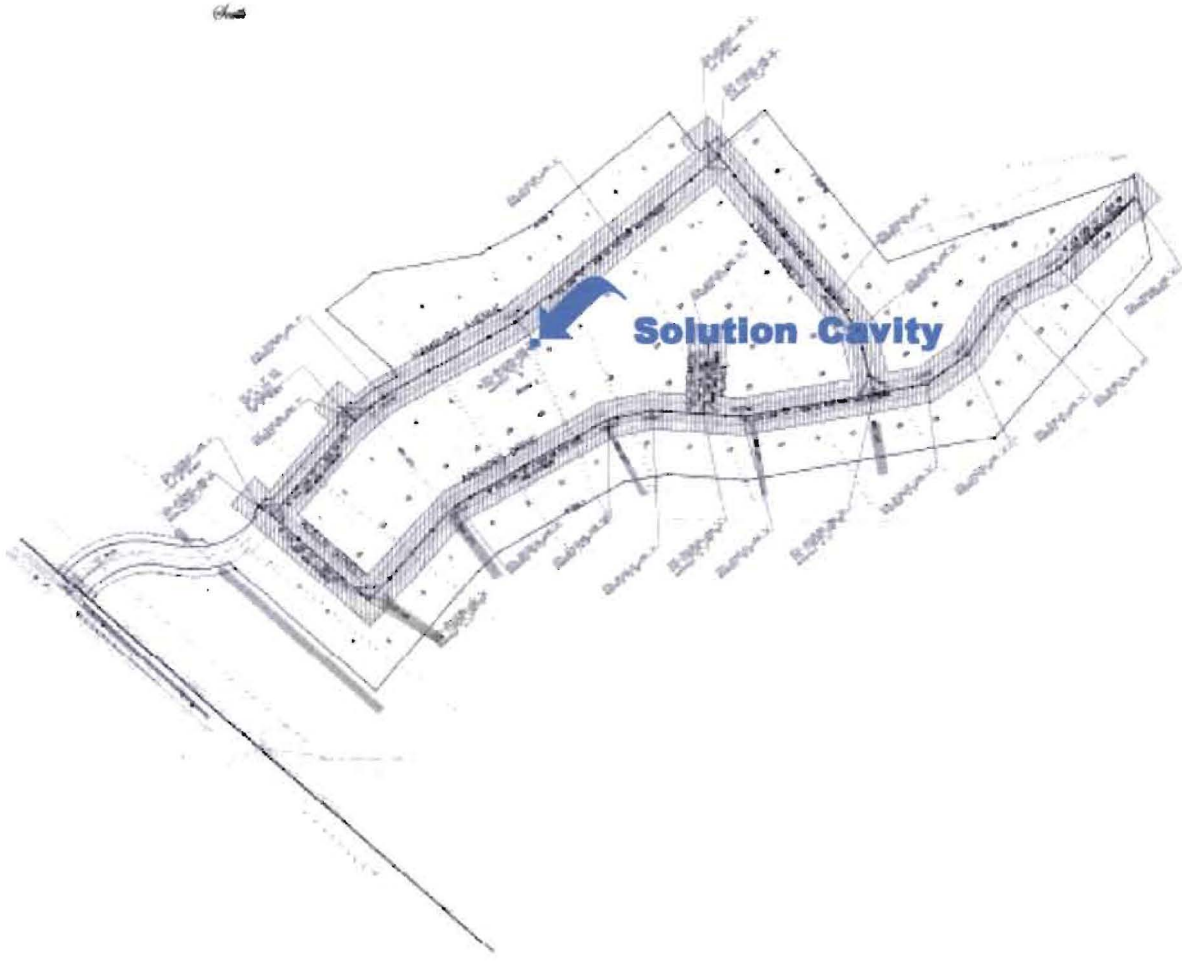

PROJECT NAME:

Solution Cavity Inspection Report
Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

Site Plan

PROJECT NO.:	DATE:
FGS-E07300	June 24, 2007

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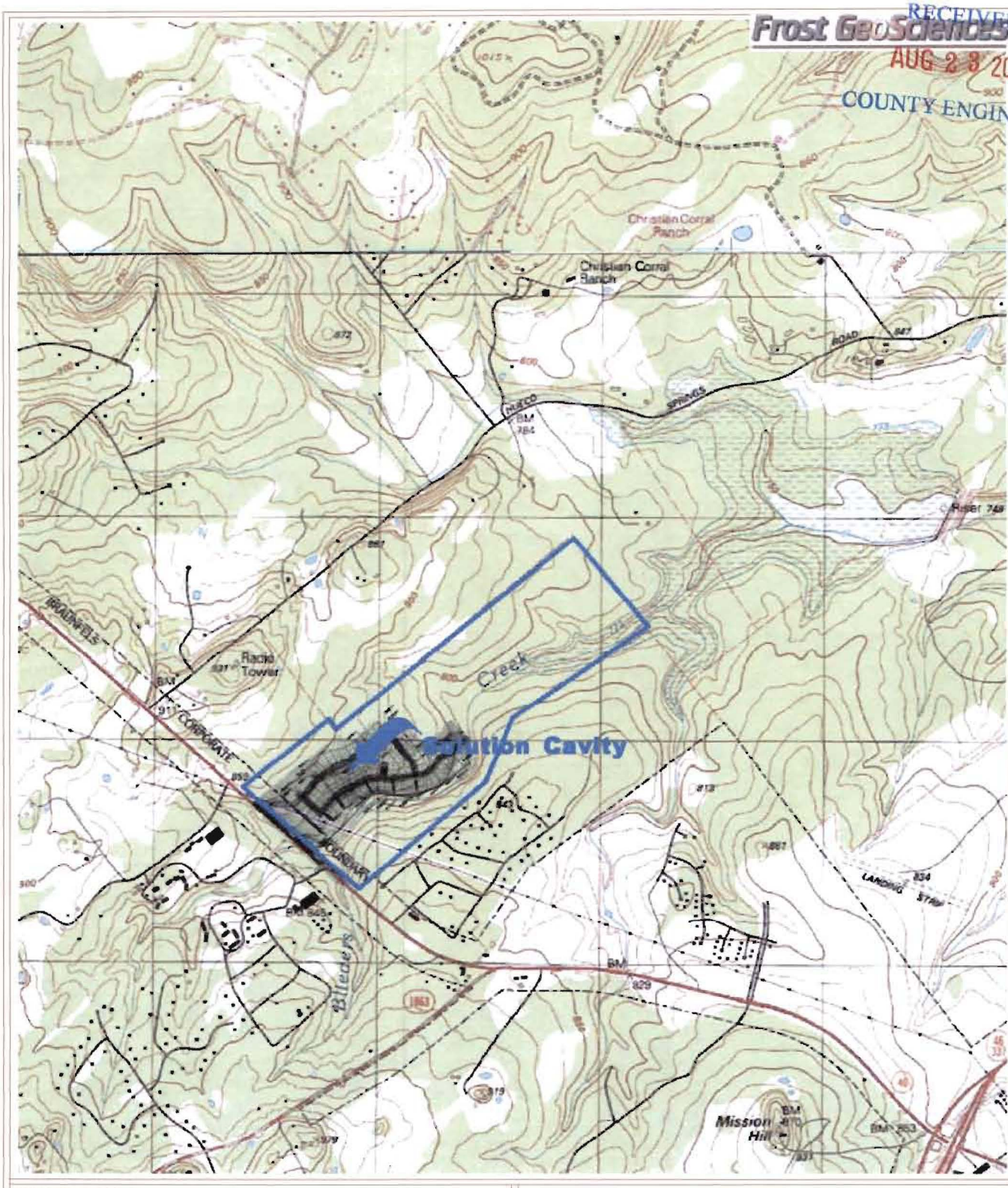

PROJECT NAME:

Solution Cavity Inspection Report
Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

U.S.G.S. 7.5 Minute Quadrangle Map
New Braunfels West, Texas Sheet (1988)

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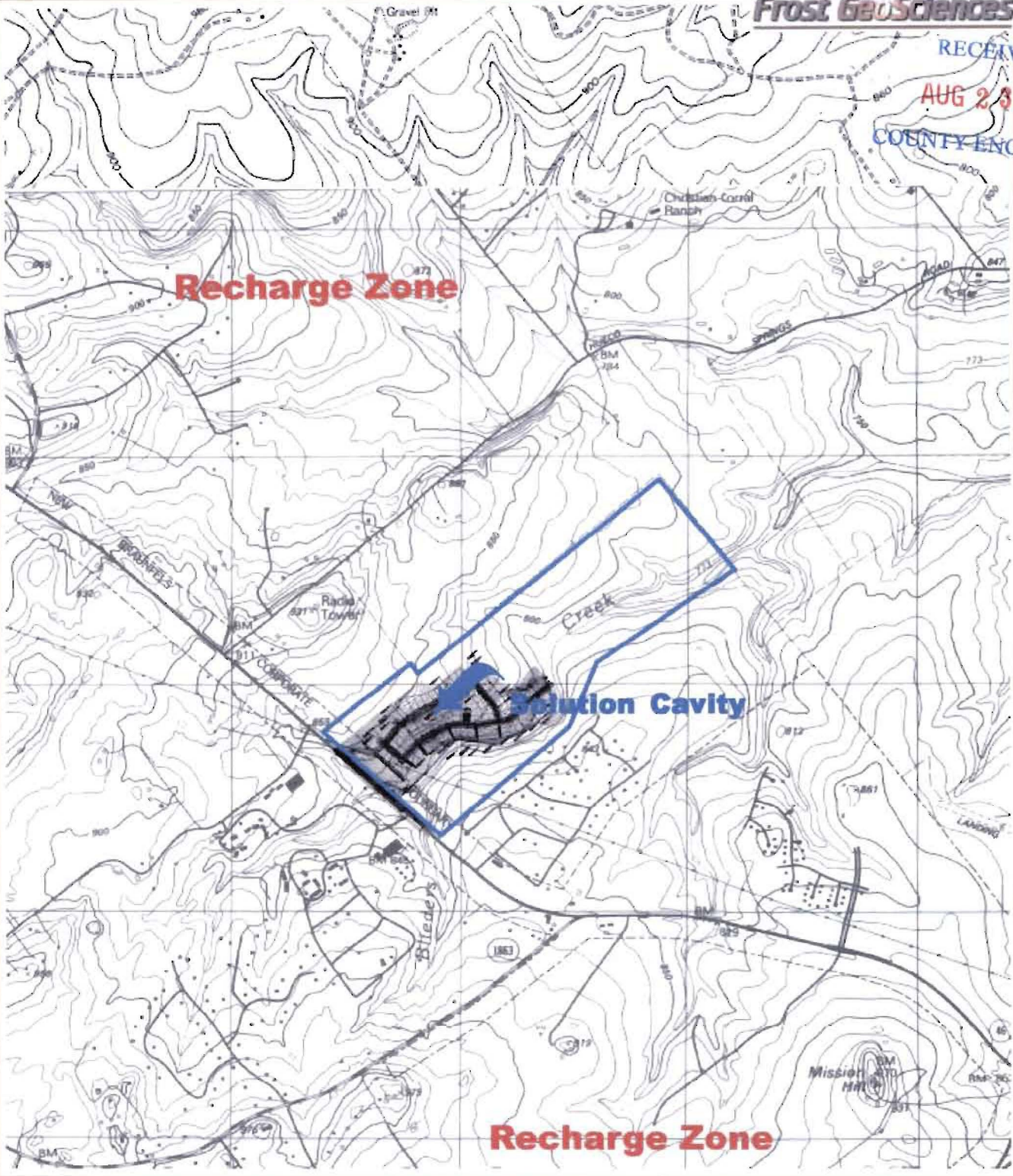

PROJECT NAME:

Solution Cavity Inspection Report
Manor Creek, Unit I
Lot 8, Block 2
New Braunfels, Texas

Edwards Underground Water District
Reference Map
(March 1988)

PROJECT NO.: FGS-E07300

DATE: June 24, 2007

Geologic and Environmental Consulting

PLATE NO. 4

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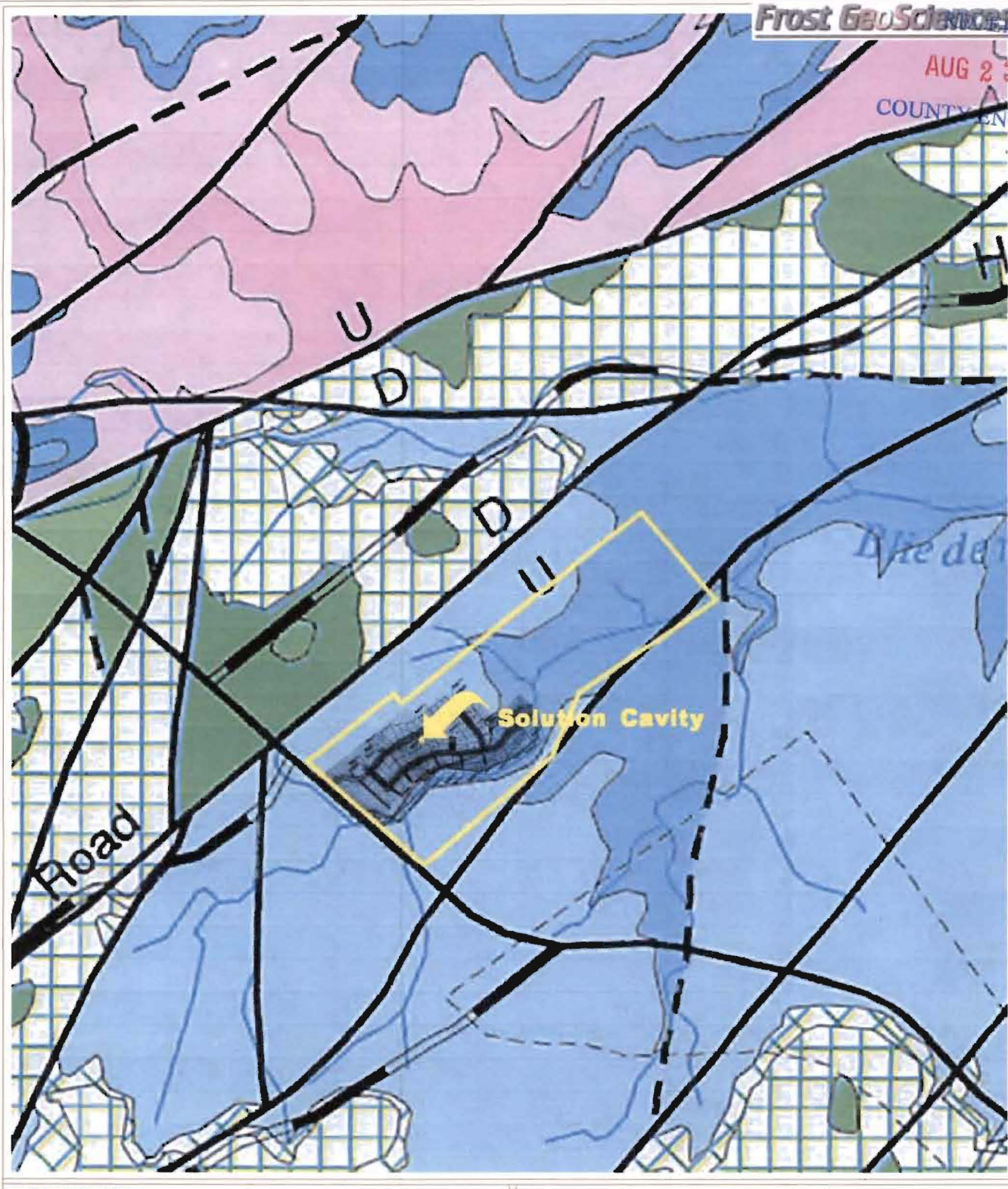

PROJECT NAME:

Solution Cavity Inspection Report
Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

United States Geologic Survey
Water Resources Investigations #94-4117
Geologic Map of Comal County, Texas

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Solution Cavity Inspection Report
Manor Creek, Unit 1
Lot 8, Block 2
New Braunfels, Texas

2005 Aerial Photograph
Landiscor Aerial Information

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View of the opening of the solution cavity in Manor Creek, Unit 1, on Lot 8, Block 2.



View inside the above mentioned cavity.



View of the clay cap pinching out against the edge of the cavity.

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