Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 3, 2013

Mr. Virgil Knowlton
TKO Real Estate II, L.P.
1100 NW Loop 410, Suite 900
San Antonio, Texas 78209

Re: Edwards Aquifer, Comal, County

NAME OF PROJECT: Ramble Ridge Subdivision; Located 8.2 miles west of intersection of FM 3009 and IH 35; San Antonio ETJ, 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. 2614.01; Investigation No. 1075611; Regulated Entity No. RN-105155808; Additional ID No. 13-13031901

Dear Mr. Knowlton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Gallegos Engineering, Inc. on behalf of TKO Real Estate II, L. P. on March 19, 2013. Final review of the WPAP was completed after additional material was received on April 29, 2013, May 14, 2013, August 2, 2013 and August 26, 2013. 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 WPAP for the single family residential project was approved on March 20, 2007. The site has an area of approximately 388 acres with 28.30 acres (7.28 percent) of impervious cover. The development includes 209 lot sites, home buildings and driveways, public roads, recreation area and utilities. Project wastewater is disposed of by an on-site sewage facility for each lot. No permanent BMPs were required for

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:

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 Dianne Pavlicek, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4074.

Sincerely,

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

LB/DP/eg

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

cc: Mr. Richard Gallegos, P.E., Gallegos Engineering, Inc.
Mr. Scott Halty, San Antonio Water System
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

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

Protecting Texas by Reducing and Preventing Pollution

September 3, 2013

Mr. Virgil Knowlton
TKO Real Estate II, L.P.
1100 NW Loop 410, Suite 900
San Antonio, Texas 78209

RECEIVED
SEP 26 2013
COUNTY ENGINEER

Re: Edwards Aquifer, Comal, County

NAME OF PROJECT: Ramble Ridge Subdivision; Located 8.2 miles west of intersection of FM 3009 and IH 35; San Antonio ETJ, 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. 2614.01; Investigation No. 1075611; Regulated Entity No. RN-105155808; Additional ID No. 13-13031901

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BACKGROUND

The WPAP for the single family residential project was approved on March 20, 2007. The site has an area of approximately 388 acres with 28.30 acres (7.28 percent) of impervious cover. The development includes 209 lot sites, home buildings and driveways, public roads, recreation area and utilities. Project wastewater is disposed of by an on-site sewage facility for each lot. No permanent BMPs were required for

this project, since it is a single family residential development with not more than 20 percent impervious cover.

PROJECT DESCRIPTION

This WPAP Modification requested the reclassification of several karst features rated as sensitive in the Geologic Assessment done by Thornhill (2006) as a result of a new Geologic Assessment done by Langan (2012). Reclassifying sensitive features to not sensitive would allow for more lots to be buildable for home residences.

PERMANENT POLLUTION ABATEMENT MEASURES

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

GEOLOGY

Site geology consists of the Kirschberg Evaporite member, Dolomitic member and Basal Nodular member of the Kainer Formation of the Edwards Group. The Glen Rose Limestone (Upper member) occurs along the northwestern property line, in the Cibolo Creek floodplain. Thornhill (2006) identified 72 features with 40 of these features rated as sensitive. Langan (2012) proposed to reclassify 20 of the 40 sensitive features to not sensitive.

A site assessment conducted by the San Antonio Regional Office staff geoscientist along with John Langan, P.G., on July 11, 2013, concluded that 19 of the 20 karst features proposed for reclassification could be reclassified to not sensitive. This reclassification is based on the misidentification of karst feature type by Thornhill (2006) and/or variation in the selected relative infiltration rate of the feature. Many individually mapped features seemed to be a continuation of the ubiquitous, dissolutioned, vuggy and fractured outcrop of the lower section of the Dolomitic member. Assessment by Langan (2012) included the hand excavation and probing of several features and revealed no subsurface interconnection and thus such features did not rate as sensitive.

The following features were reclassified from sensitive to not sensitive: S-4, S-8, S-9, S-11, S-13, S-14, S-15, S-16, S-17, S-19, S-24, S-28, S-32, S-36, S-37, S-40, S-45, S-46 and S-58. Feature S-52 will remain as sensitive. A final map depicting the natural buffer zones for the remaining 21 sensitive karst features on the site and the location of the reclassified features is included in the August 26, 2013 final submission to the TCEQ.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated March 20, 2007.

II. The existing 21 karst features rated as sensitive shall be managed in accordance with TCEQ RG-348 Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices (2005), Chapter 5: Management of Sensitive Features.

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.
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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. Four 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 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.

<u>After Completion of Construction:</u>

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.
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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 Dianne Pavlicek, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4074.

Sincerely,

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

LB/DP/eg

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

cc: Mr. Richard Gallegos, P.E., Gallegos Engineering, Inc.
Mr. Scott Halty, San Antonio Water System
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

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*)

NA 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

NA 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*)

Filed and Recorded
Official Public Records
Joy Streater, County Clerk
Comal County, Texas
09/25/2013 02:26:05 PM
TERRI 8 Page(s)
201306041054

Joy Streater

S/C

201306041054 09/25/2013 02:26:05 PM 1/8

Deed Recordation Affidavit
Edwards Aquifer Protection Plan

RECEIVED
SEP 2 0 2013
COUNTY ENGINEER

THE STATE OF TEXAS §
County of Comal §

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

(1) That my name is TKO Real Estate II, L.P. 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 September 3, 2013

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 Comal County, Texas, and the legal description of the property is as follows:

LANDOWNER-AFFIANT

SWORN AND SUBSCRIBED TO before me, on this 25th day of September, 2013

NOTARY PUBLIC

THE STATE OF TEXAS §
County of COMAL §

BEFORE ME, the undersigned authority, on this day personally appeared SCOTT KNOWLTON 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 25th day of September, 2013

NOTARY PUBLIC

MAUREEN K. McNERTNEY
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 8/8/14

MAUREEN K. McNERTNEY
NOTARY PUBLIC STATE OF TEXAS
COMMISSION EXPIRES:
08-08-2014

TCEQ-0625 (Rev. 10/01/04)

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

REGULATED ENTITY NAME: Ramble Ridge Subdivision
COUNTY: Comal STREAM BASIN: Cibolo Creek
Bear Creek

EDWARDS AQUIFER: ✓ RECHARGE ZONE
__ TRANSITION ZONE

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

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Virgil Knowlton
Entity: TKO Real Estate II, L.P.
Mailing Address: 1100 N.E. Loop 410, Ste 900
City, State: San Antonio, Texas Zip: 78209
Telephone: 210-651-6860 FAX: 210-494-9840

Agent/Representative (If any):

Contact Person: Richard M. Gallegos
Entity: Gallegos Engineering, Inc.
Mailing Address: 101 Fawn Drive
City, State: San Antonio, Texas Zip: 78231
Telephone: 210 641-0812 FAX: 210 641-0812

2. __ This project is inside the city limits of _____.
✓ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of San Antonio.
__ 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.

4. ✓ **ATTACHMENT A - ROAD MAP**. A road map showing directions to and the location of the project site is attached at the end of this form.

5. ✓ **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind t his sheet. The map(s) should clearly show:

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

6. ✓ Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. **The TCEQ must be able to inspect the project site or the application will be returned.**

7. ✓ **ATTACHMENT C - PROJECT DESCRIPTION**. Attached at the end of this form is a detailed narrative description of the proposed project.

8. Existing project site conditions are noted below:
— Existing commercial site
— Existing industrial site
— Existing residential site
✓ Existing paved and/or unpaved roads
✓ Undeveloped (Cleared)
✓ Undeveloped (Undisturbed/Uncleared)
— Other: _____

PROHIBITED ACTIVITIES

9. ✓ I am aware that the following activities are prohibited on the **Recharge Zone** and are not proposed for this project:

(1) waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
(2) new feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
(3) land disposal of Class I wastes, as defined in 30 TAC §335.1;
(4) the use of sewage holding tanks as parts of organized collection systems; and
(5) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

10. ✓ I am aware that the following activities are prohibited on the **Transition Zone** and are not proposed for this project:

(1) waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
(2) land disposal of Class I wastes, as defined in 30 TAC §335.1; and
(3) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

ADMINISTRATIVE INFORMATION

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

✓ For a Water Pollution Abatement Plan and Modifications, the total acreage of the site where regulated activities will occur.
— For an Organized Sewage Collection System Plans and Modifications, the total linear

footage of all collection system lines.

__ For a UST Facility Plan or an AST Facility Plan, the total number of tanks or piping systems.

__ A request for an exception to any substantive portion of the regulations related to the protection of water quality.

__ A request for an extension to a previously approved plan.

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

__ TCEQ cashier

__ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)

✓ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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

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

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

Richard M. Gallegos
Print Name of Customer/Agent

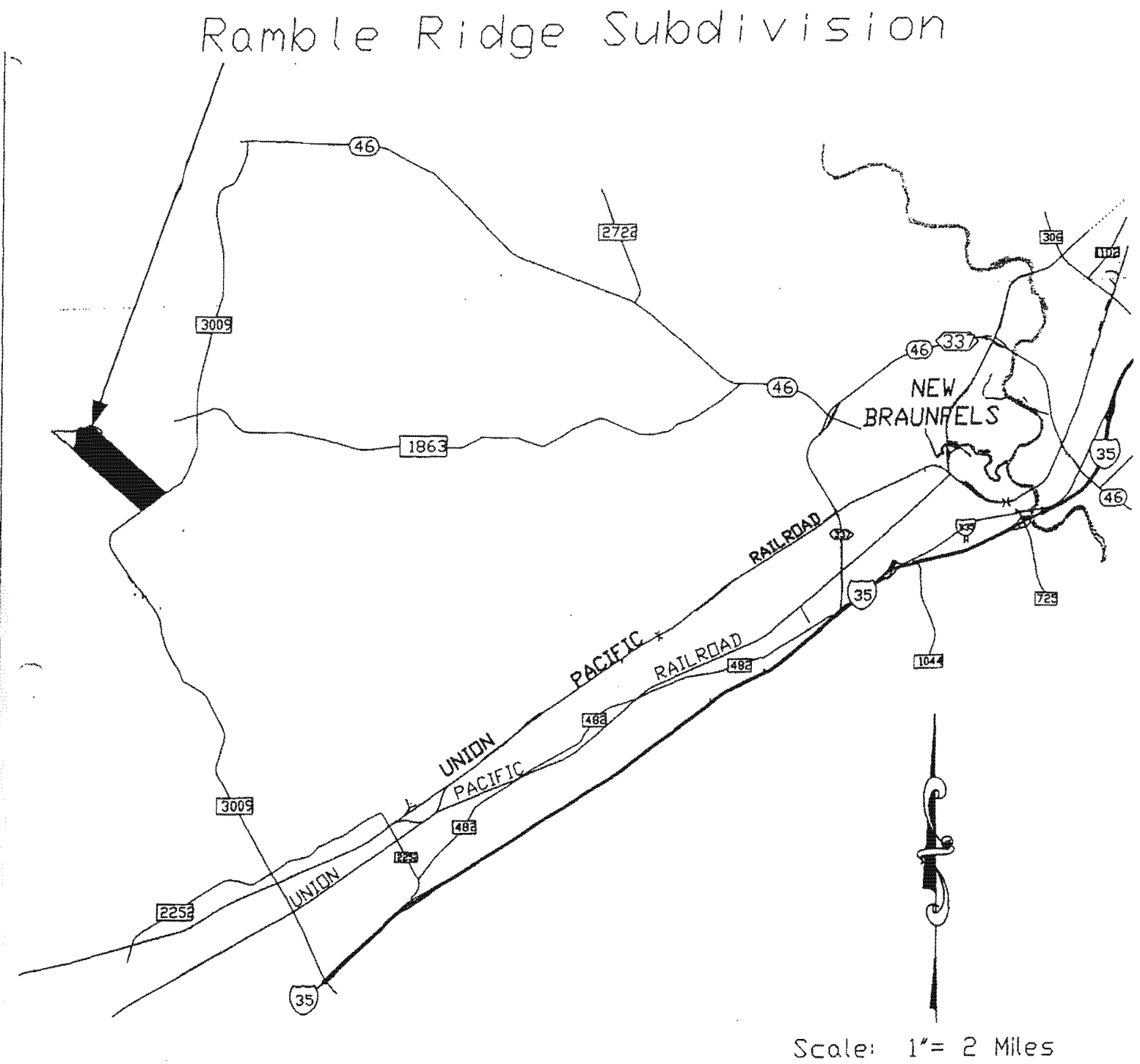
Signature of Customer/Agent

3/5/13
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.

ATTACHMENT A – ROAD MAP



ATTACHMENT A

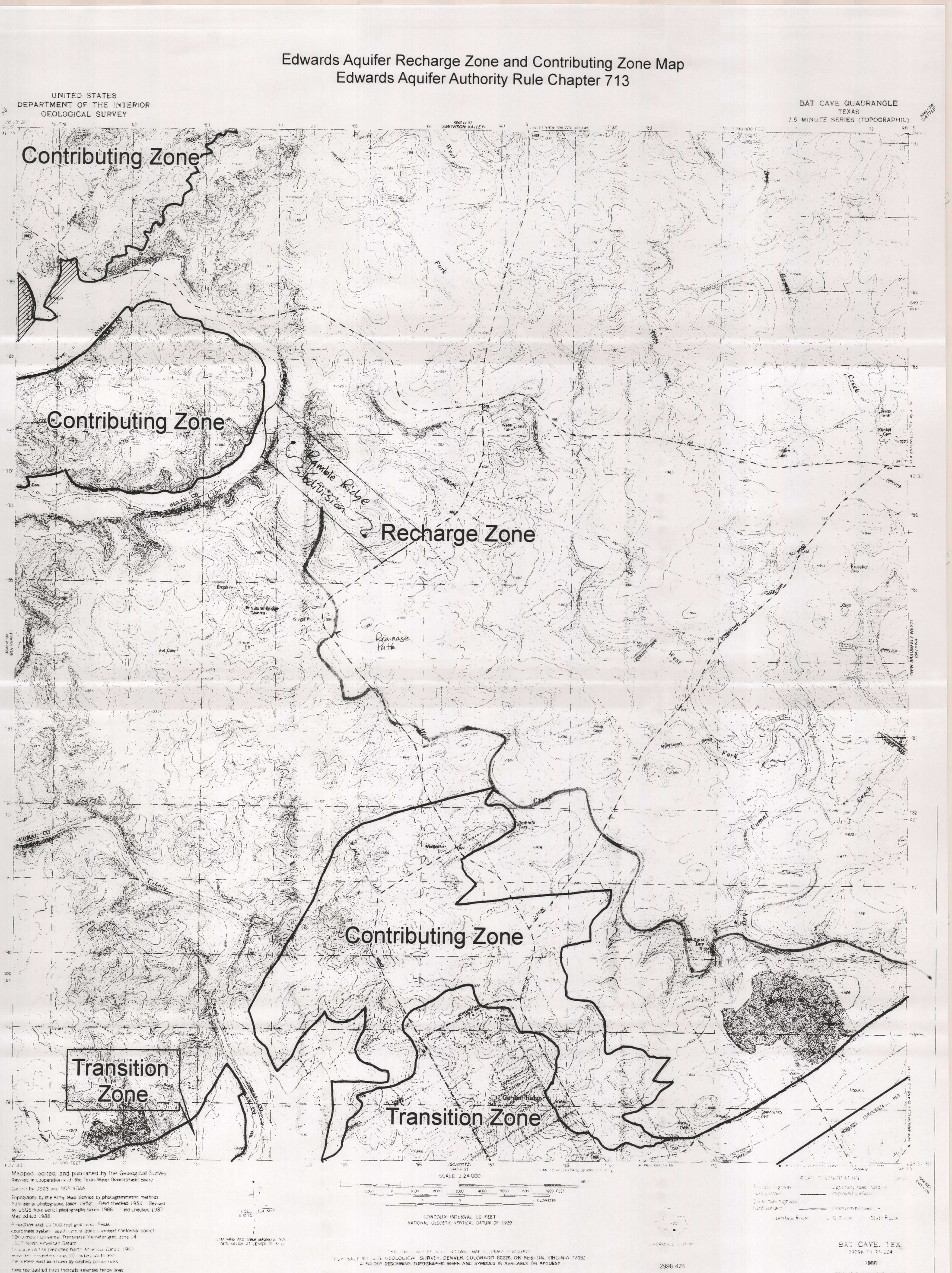
RAMBLE RIDGE SUBDIVISION

LOCATION MAP

ATTACHMENT B – USGS/EDWARDS RECHARGE ZONE MAP

BAT CAVE QUADRANGLE

Edwards Aquifer Recharge Zone and Contributing Zone Map
Edwards Aquifer Authority Rule Chapter 713



Creation date for ch. 713 subchs. E and F boundary: March 2008
Last revision date of the recharge zone boundary for this quadrangle map: March 1974

This area regulated as contributing zone by ch. 713 (Water Quality), subchs. E (Spill Reporting) and F (Hazardous Substances Registration, Storage, and Planning) of the EDWARDS AQUIFER AUTHORITY RULES
This area regulated as recharge zone by ch. 713 (Water Quality), subch. G (Aboveground and Underground Storage Tanks) of the EDWARDS AQUIFER AUTHORITY RULES

ATTACHMENT C – PROJECT DESCRIPTION

Ramble Ridge Subdivision original WPAP was approved on March 20, 2007. This modification is requesting reclassification of previously categorized sensitive features to non-sensitive features. The main reason to re-look at the sensitive features and to have them possibly described as non-sensitive will make the lot buildable for a home residence. Currently some of the lots are not buildable due to some of the sensitive features and there locations.

Here are the features we request being reclassified in numerical order: S-4 Lot 3, S-8 Lot 6, S-9 Lot 8, S-11 Lot 8, S-13 Lot 9, 14 Lot 9, S-15 Lot 9, S-16 Lot 9, S-17 Lot 132, S-19 Lot 132, S-24 Lot 143 and Lot 135, S-28 Lot 111, S-32 Lot 107, S-36 Lot 13 and Lot 14, S-37 Lot 13 and Lot 14, S-40 Lot 20 and Lot 21, S-46 Lot 169 and Lot 170 and S-52 Lot 56. See Site Plan located within WPAP section of this submittal or the Geological Assessment Site Geologic Map.

As stated in the original WPAP the buffer zones will remain in their natural state where any construction or soil disturbing is prohibited. When all or part of a buffer zone is located on a residential lot, the lot owner will mark the boundary of the buffer zone via a fence, placing large boulders, or some form of distinctive planting. The fencing used can be any visible type, boulders are to be a minimum of 12 inches in one dimension and be located no further than eight feet apart, while utilizing plants must be distinctive, and spaced no further apart than four times their height. The plants must be suitable for the climate and soil conditions of the site and must be unique so that other plants of the same species are not located on the same lot.

The purchaser of any lots having all or part of a buffer zone easement shall be given a copy of the easement delineation stated above along with a copy of the subdivision plat showing the subject lot and the easement contained thereon and including a copy of the Technical Guidance Manual RG-348.

Geologic Assessment

PSI Original Geologic Assessment Dated May 3, 2012.

Updated Geologic map and tables located at the back of the original report.

GEOLOGIC ASSESSMENT

For

RAMBLE RIDGE TRACT
F.M. 3009
COMAL COUNTY, TEXAS

Prepared for

ACS, INC.
15315 SAN PEDRO
SAN ANTONIO, TEXAS 78280

Prepared by

Professional Service Industries, Inc.
Three Burwood Lane
San Antonio, Texas 78216
Telephone (210) 342-9377

PSI PROJECT NO.: 435- 1030

May 3, 2012







PSI Information To Build On
Engineering • Consulting • Testing

May 3, 2012

ACS, Inc.
15315 San Pedro
San Antonio, Texas 78280

Attn: Mr. Scott Knowlton, Vice President

Re: Geologic Assessment
Ramble Ridge Development
FM 3009
Comal County, Texas
PSI Project No. 435-1030

Dear Mr. Knowlton:

Professional Service Industries, Inc. (PSI) has completed a Geologic Assessment of the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe the surficial geologic units observed in the field, and hand excavated where practicable in an attempt to more accurately define the locations and extent of significant recharge features present in the area.

AUTHORIZATION

Authorization to perform this assessment was given by a signed copy of PSI Agreement reference No. 435-920 between ACS, Inc. and PSI dated January 26, 2012.

PROJECT DESCRIPTION

The subject site is located on the north side of F.M. 3009, approximately 1.2 miles south of the intersection with F.M. 1863 in Comal County, Texas. The Ramble Ridge tract is approximately 388-acres in size, and is predominantly undeveloped with the exception of some paved access roads in preparation for site development.

REGIONAL GEOLOGY

Physiography

Comal County lies within two physiographic provinces, the Edwards Plateau and the Blackland Prairie. Most of Comal County lies within the Edwards Plateau, which is characterized by rugged and hilly terrain, with elevations in excess of 1,400' feet above sea level in the northwestern portion of the county. This area is underlain by beds of

limestone that dip gently to the southeast. South of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends northeast-southwest across Comal County and is composed of fault blocks of limestone, chalk, shale and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 650 feet to 1100 feet above sea level. The regional dip of the lower Cretaceous rocks in Comal County is 15 feet per mile towards the southeast. The faults are predominantly normal, down-to-the Gulf Coast, with near vertical throws. Elevations at the Ramble Ridge site range from approximately 1,165 feet above mean sea level in the central portion of the tract to approximately 910 feet above mean sea level in the northern corner of the site, next to Cibolo Creek.

Stratigraphy and Structure

The underlying rocks at the site are predominantly members of the Lower Cretaceous Edwards Kainer Formation. The underlying Basal Nodular Member (Kbn) of the Kainer Formation occurs at lower elevations in the southern and northern portions of the site. The Glen Rose Limestone (Upper Member, Kgru) occurs along the northwestern property line, in the Cibolo Creek floodplain. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Kainer Formation ranges between 260 and 310 feet thick and forms the lower member of the Edwards Group, beneath the Person Formation which compromises the Edwards Aquifer, a federally-designated sole source aquifer for the region.

SITE INVESTIGATION

The site investigation consisted of a visual evaluation and limited hand excavation and probing of features to assess potential subsurface connectivity, and determine if the feature was a sensitive (greater than 40 points on the Geologic Assessment Table 0585), or had limited recharge potential. The results of the site investigation are included in the attached TCEQ 0585 Tables.

SUMMARY

Several sensitive features were noted on the subject site. Fairly large solution cavities/sinkhole zones were seen in the north-south drainage in the north-central portion of the site (Features S-68 and S-72). Other solution cavities were noted throughout the site, with varying degrees of potential sensitivity (S-42, S-47, S-51, S-52, S-58, and S-63-66). Other features assessed in January included small relatively dense outcrops previously identified as "zones". Likewise, several small solution cavities that previously rated high infiltration rates were excavated to solid rock without encountering subsurface connections, or were on hillsides with limited catchment areas. Features S-36 and S-37 appear to be differential erosional features related to bedding planes rather than solution cavities; Feature S-46 was mapped as a "swallet" but is a man-made excavation that had standing water; and Feature S-24 also had standing water, indicating low infiltration rates. While Feature S-31, a small solution cavity was not found to be sensitive, it was located in a zone of vuggy, fractured rock in a drainage, and thus was found to be sensitive. Similarly, another solution cavity (S-47), that was not readily hand-excavated, was judged

to be potentially sensitive until further assessment by excavation can occur (with TCEQ concurrence). A fault is mapped near the southern property line, paralleling F.M. 3009. While no surface indications of this fault were noted, the vertical throw is fairly large, as the Person Formation is downthrown to the south against the Basal Nodular Member of the Kainer Formation.

Please note that subtle features, buried or obscured from view, may be present on the tract. It is probable that clearing/construction activities will reveal the presence of features currently hidden by thick vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance.

We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

John Langan, P.G.
Environmental Department Manager



WARRANTY

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a general geological recharge assessment of this site. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geologic methods, only for the site described in this report. These methods have been developed to provide the client with information regarding apparent indications of existing or potential conditions relating to the subject site and are necessarily limited to the conditions observed at the time of the site visit and research. This report is also limited to the information available at the time it was prepared. In the event additional information is provided to PSI following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a possibility that conditions may exist which could not be identified within the scope of the assessment or which were not apparent during the site visit. PSI believes that the information obtained from others during the review of public information is reliable; however, PSI cannot warrant or guarantee that the information provided by others is complete or accurate.

This report has been prepared for the exclusive use of ACS, Inc. for the site discussed herein. Reproductions of this report cannot be made without the expressed approval of ACS, Inc. The general terms and conditions under which this assessment was prepared apply solely to ACS, Inc. No other warranties are implied or expressed.

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: Ramble Ridge Tract

TYPE OF PROJECT: _X_ WPAP __ AST __ SCS __ UST

LOCATION OF PROJECT: _X_ Recharge Zone __ Transition Zone __ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. _X_ 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)
Comfort-Rock outcrop complex, undulating (CrD)	C	<1 - 2
Eckrant-Rock Outcrop Complex , steep (ErG)	C	<1 - 2

* 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. _X_ 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. _X_ 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. _X_ 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" = _400'_
Site Geologic Map Scale	1" = _400'_
Site Soils Map Scale (if more than 1 soil type)	1" = _400'_

6. Method of collecting positional data:
   _X_ Global Positioning System (GPS) technology.
   __ Other method(s).

7. _X_ The project site is shown and labeled on the Site Geologic Map.

8. _X_ Surface geologic units are shown and labeled on the Site Geologic Map.

9. _X_ 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. _X_ The Recharge Zone boundary is shown and labeled, if appropriate.

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

_X_ There are __5__ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
___ The geotechnical borings are not in use and have been properly abandoned. (It is not known whether the two water wells have been properly plugged.)
_X_ The wells are not in use and will be properly abandoned.
_X_ 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. _X_ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

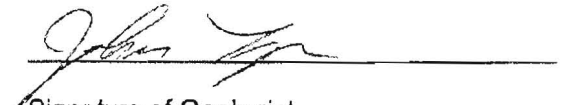
Date(s) Geologic Assessment was performed: January 26-, April 19, 2012
Date(s)

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.

John Langan
Print Name of Geologist

210-342-9377
Telephone

210-342-9401
Fax


Signature of Geologist

May 3, 2012
Date

Representing: PSI, Inc
(Name of Company)

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

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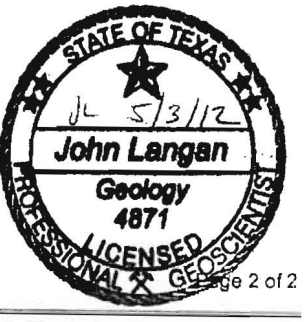


STRATIGRAPHIC COLUMN
Ramble Ridge
FM 3009
Comal County, Texas

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
Person Formation	170' - 220'	Limestones and dolomites, extensive porosity development in "honeycomb sections, interbedded with massive recrystallized limestones with more limited permeabilities (especially Regional Dense Member separating the Person and Kainer Formations.
Kainer Formation	210' - 310'	Hard, miliolid limestones, overlying calcified dolomites and dolomite. Leached evaporitic "Kirschberg" zone of very porous and permeable collapse breccia formed by the dissolution of gypsum. Overlies the basal nodular (Walnut) bed.
Basal Nodular Member	50-60	Massive, nodular, mottled limestone, with *exogyra texana* bivalve.
Glen Rose Limestone	350-500	Shaly limestone and marl, with alternating resistant and recessive beds, resulting in "stair-step" topography

SOILS NARRATIVE

According to the Soil Survey for Comal County, Texas, the subject property is underlain by the following soils:

- Comfort-Rock outcrop complex, undulating (CrD) – shallow, well drained, moderate permeability, very low available water capacity, moderate hazard of water erosion, chalk fragments
- Eckrant-Rock outcrop complex, steep (ErG) – shallow clayey and rock outcrops on uplands, with convex slopes of 8 to 30%. The soil is approximately 10" thick stony, noncalcareous, well drained, rapid surface runoff, moderately slow to slow permeability, very low available water capacity, moderate hazard of water erosion, overlies limestone.

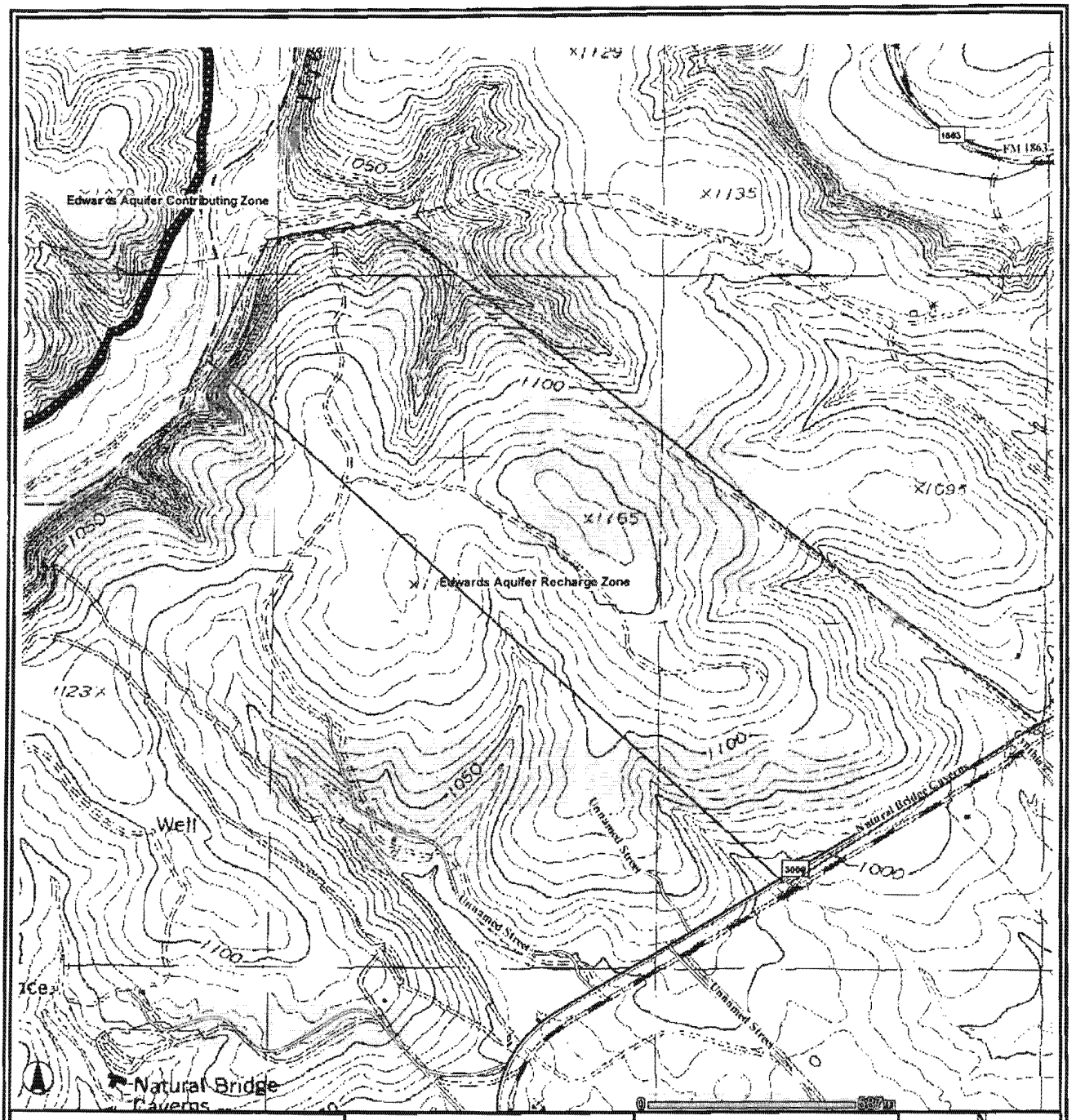
SITE GEOLOGIC NARRATIVE

The underlying rocks at the site are predominantly members of the Lower Cretaceous Edwards Kainer Formation. The underlying Basal Nodular Member (Kbn) occurs at lower elevations in the southern and northern portions of the site. The Glen Rose Limestone (Upper Member, Kgru) occurs along the northwestern property line, in the Cibolo Creek floodplain. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Kainer Formation ranges between 260 and 310 feet thick and forms the lower water-bearing member of the Edwards Group, beneath the Person Formation which compromises the Edwards Aquifer, a federally-designated sole source aquifer for the region. The Kainer overlies the Basal Nodular Member, which in turn overlies the Upper Member of the Glen Rose Limestone.

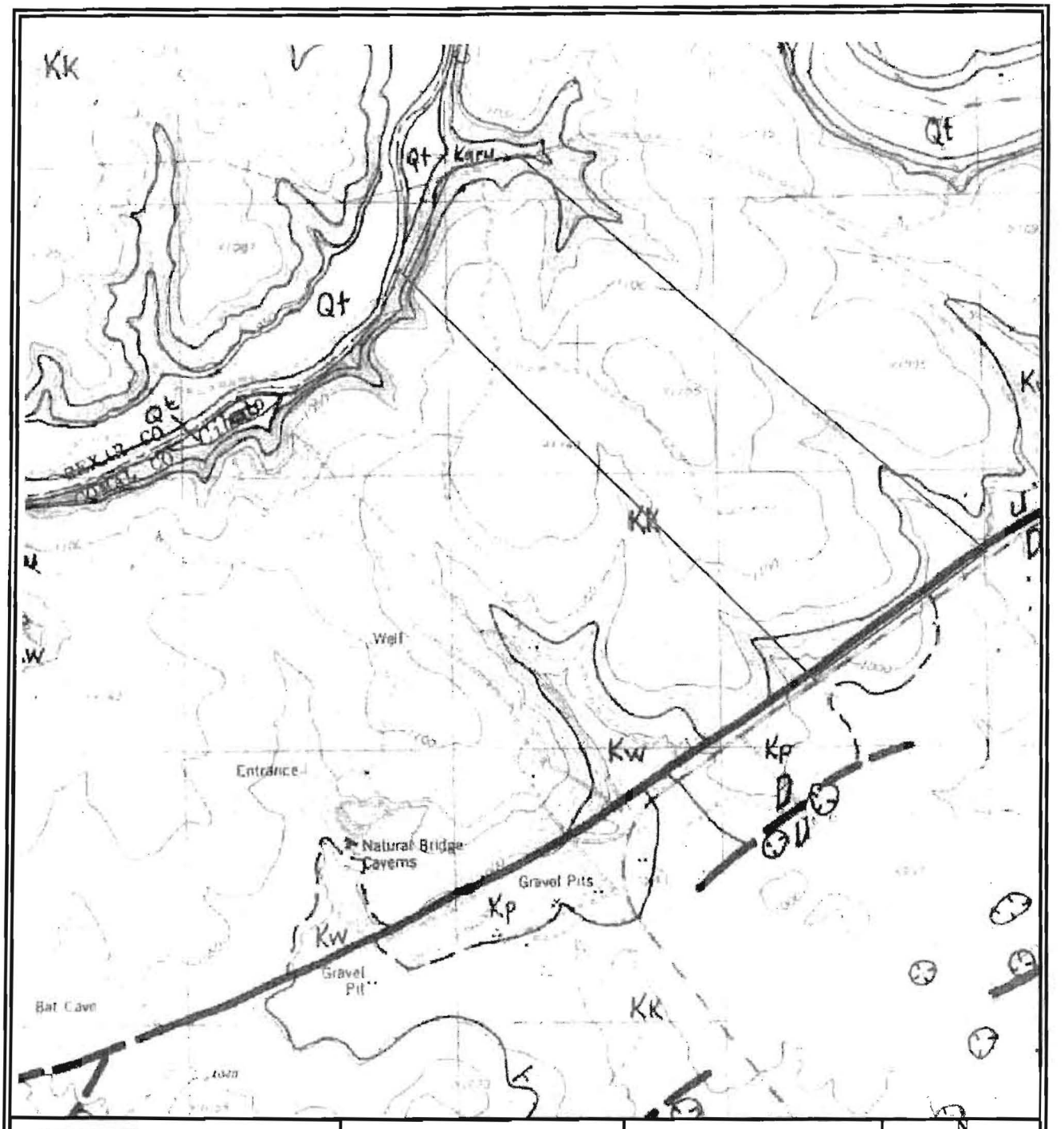


PSI Information To Build On
Engineering Consulting Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

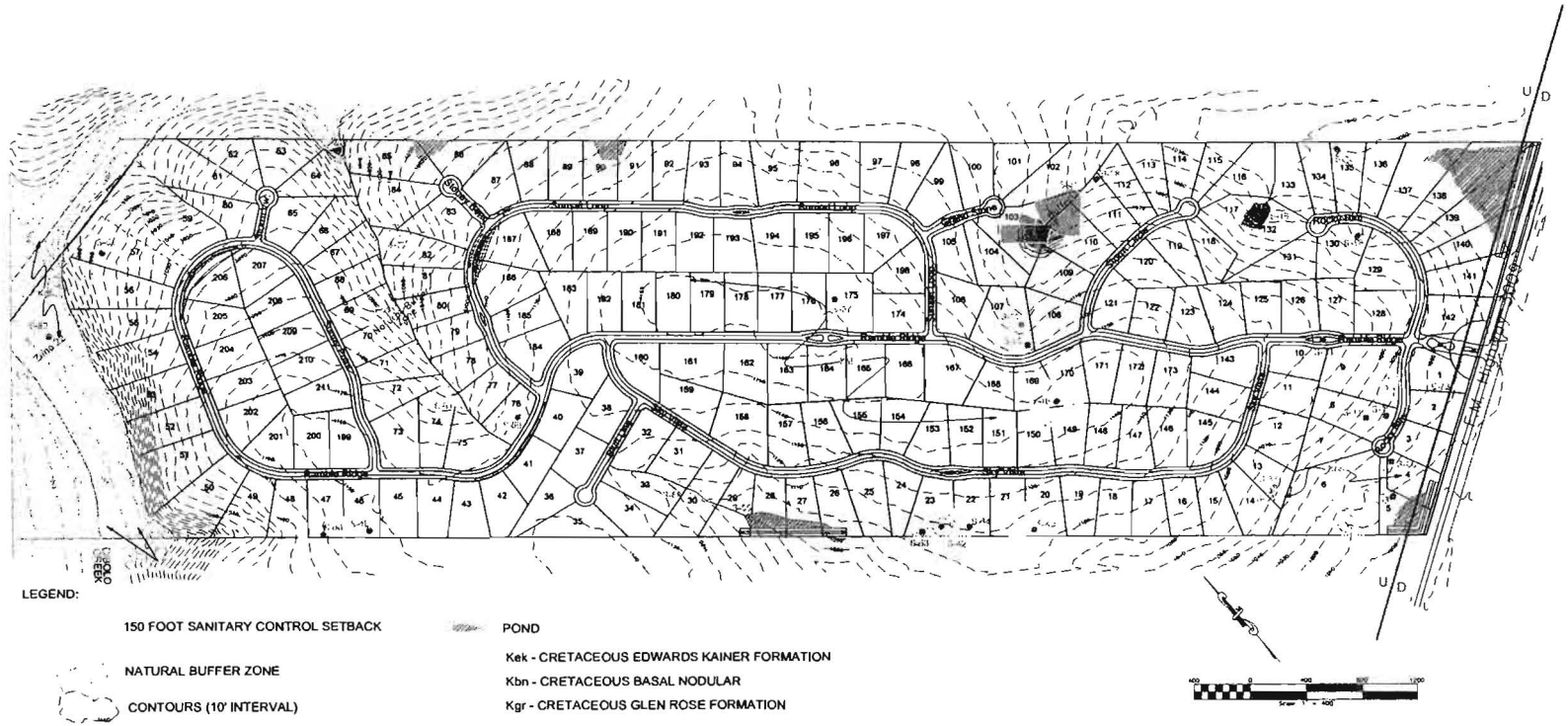
SOILS MAP
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS



psi *Information To Build On* **Engineering • Consulting • Testing** PSI, Inc. 3 Burwood Lane San Antonio, Texas 78216	**PROJECT NAME:** Ramble Ridge F.M. 3009 Comal County, Texas PROJECT NO.:4351030	**USGS "Bat Cave, Texas" Topographic Maps/Edwards Aquifer Recharge Zone Map**	N



psi Information To Build On Engineering • Consulting • Testing PSI, Inc. 3 Burwood Lane San Antonio, Texas 78216	**PROJECT NAME:** Ramble Ridge F.M. 3009 Comal County, Texas PROJECT NO.:4351030	**Geologic Map** **1988** **"Bat Cave, Texas"** **USGS Topographic Map**	N



LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

psi Information To Build On
Engineering Consulting Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

REVISIONS:

From original PSI Report

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Rambie Ridge																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	BOX 10	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z								<40	>40	<1.8	>1.8	
S-1	29-41-59.6	98-19-24.1	SC	20	Kek	1	0.5	1.5					F	15	35	X		X		Hillside
S-3	29-41-54.7	98-19-26.7	MB	30	Kek	1	1	550						0	30	X				2 wells
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-5	29-41-55.3	98-19-29.8	O	5	Kek	20	5	1			3	0	F	10	15	X		X		Hillside
S-6	29-41-55.6	98-19-30	SC	20	Kek	0.2	0.3	1.5						15	35					Drainage
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-11	29-41-59.8	98-19-59.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.8	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-18	29-42-11.7	98-19-21.5	SC	20	Kek	2	0.7	1.5					O	25	45		X	X		Hillside
S-19	29-42-11.2	98-19-11.5	SC	20	Kek	1.5	2	0.3					O	15	35	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-29	29-42-18.8	98-19-28.6	SC	20	Kek	2	2.5	1					O	20	40		X		X	Streambed
S-31	29-42-18.4	98-19-32.3	Z	30	Kek	200	150	5					C	30	60		X		X	Drainage

* DATUM:

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date: May 3, 2012

Sheet 1 of 3

STATE OF TEXAS
JL 5/3/12
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

From original report

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: Ramble Ridge

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	RQD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-33	29-42-4.5	98-19-23.4	MB	30	Kek	1	1	700						0	30	X		X		well
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-19.3	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside
S-42	29-42-9.4	98-19-48.7	SC	20	Kek	5	5	2					F	15	35	X		X		Hillside
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-47	29-42-29	98-19-40.3	SC	20	Kek	6	6	1					O	20	40		X	X		Hillside
S-51	29-42-50	98-20-17.2	SC	20	Kek	2	1	3					F	15	35	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	10	30	X		X		Hillside
S-55	29-42-15.8	98-19-56.8	O	5	Kek	100	50	6			1		C	10	15	X			X	Drainage
S-57	29-42-22.7	98-19-44.6	MB	30	Kek	1	1	>300						0	30	X		X		well
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X		X		Hillside
S-59	29-42-28.9	98-20-3.7	MB	30	Kek	1	1	>300						0	30	X		X		well
S-60	29-42-19	98-19-58.7	O	5	Kek	250	60	5			2	0.2	F	12	17	X			X	Drainage

* DATUM:

2A TYP	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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My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date: May 3, 2012

Sheet 2 of 3

STATE OF TEXAS — JL 5/3/12 — John Langan — Geology — 4871 — LICENSED PROFESSIONAL GEOSCIENTIST

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

From Original Report

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Rambie Ridge																	
LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING			
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ROSE	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-61	29-42-30.5	98-20-6.1	O	5	Kek	500	70	30			1	0.2	F	18	23	X			X	Drainage
S-62	29-42-48.6	98-20-20 7	MB	30	Kbn	1	1	250						0	30	X		X		Hillside
S-63	29-42-9.4	98-19-49.3	SC	20	Kek	3	1	5					F	30	50		X	X		Hillside
S-64	29-42-8.5	98-19-47.9	SC	20	Kek	5	4	1.5					F	25	45		X	X		Hillside
S-65	29-42-15.3	98-19-36.1	SC	20	Kek	6	1	3					F	12	32	X		X		Hillside
S-66	29-41-56.1	98-19-25.5	SC	20	Kek	3	2.5	2.5					N	20	40		X		X	Hillside
S-68	29-42-36.5	98-20-5	Z	30	Kek	185	35	20					C	30	50		X		X	Drainage
S-72	29-42-40.7	98-20-2	Z	30	Kek	75	30	20					C	30	50		X		X	Drainage
S-73	29-41-57.4	98-19-19.6	F	20	Kek	2250	50	650					C	15	35	X			X	Hillside

* DATUM:

2A TYP	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
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Sheet : 3 3

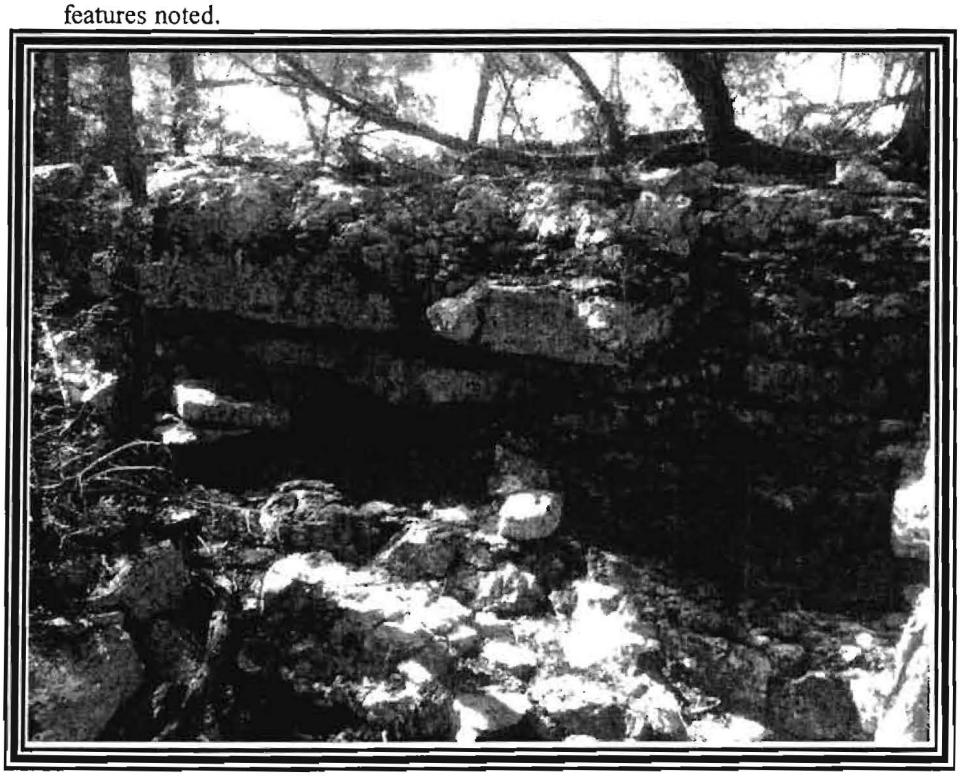
STATE OF TEXAS
JL 5/3/12
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

From original Report



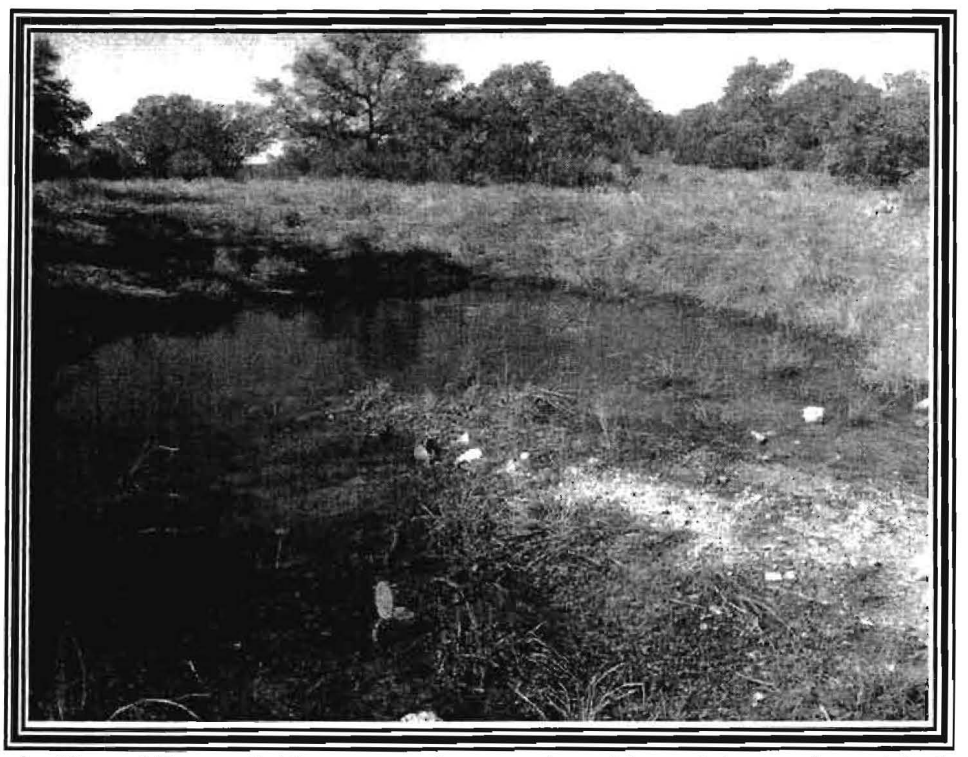
1. View of Feature S-4, located on the south-southwest corner of the site, with no sensitive features noted.



2. View of Feature S-18, a sensitive feature in a drainage on the southeastern portion of the site.



3. View of Feature S-24, located in the southeastern portion of the site. Standing water was noted, indicating limited subsurface infiltration.



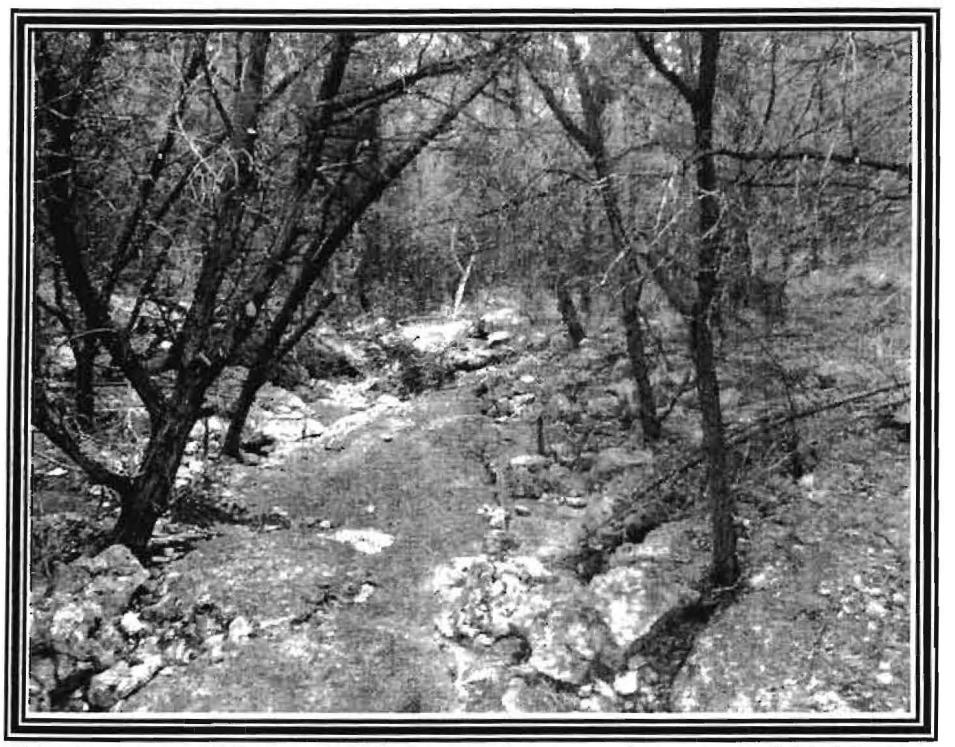
4. View of Feature S-46, a man-made excavation with ponded water located in the south-central portion of the site.



5. View of solution cavity Feature S-47, located in the east-central portion of the site.



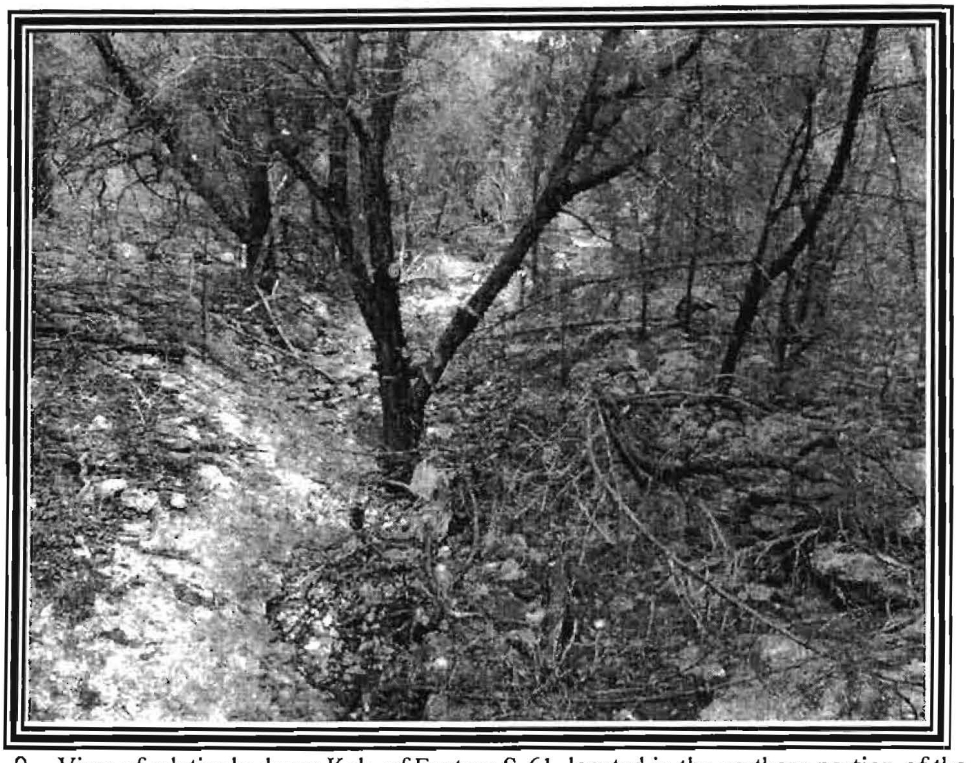
6. View of zone Feature S-31, in a drainage on the south-central portion of the site.



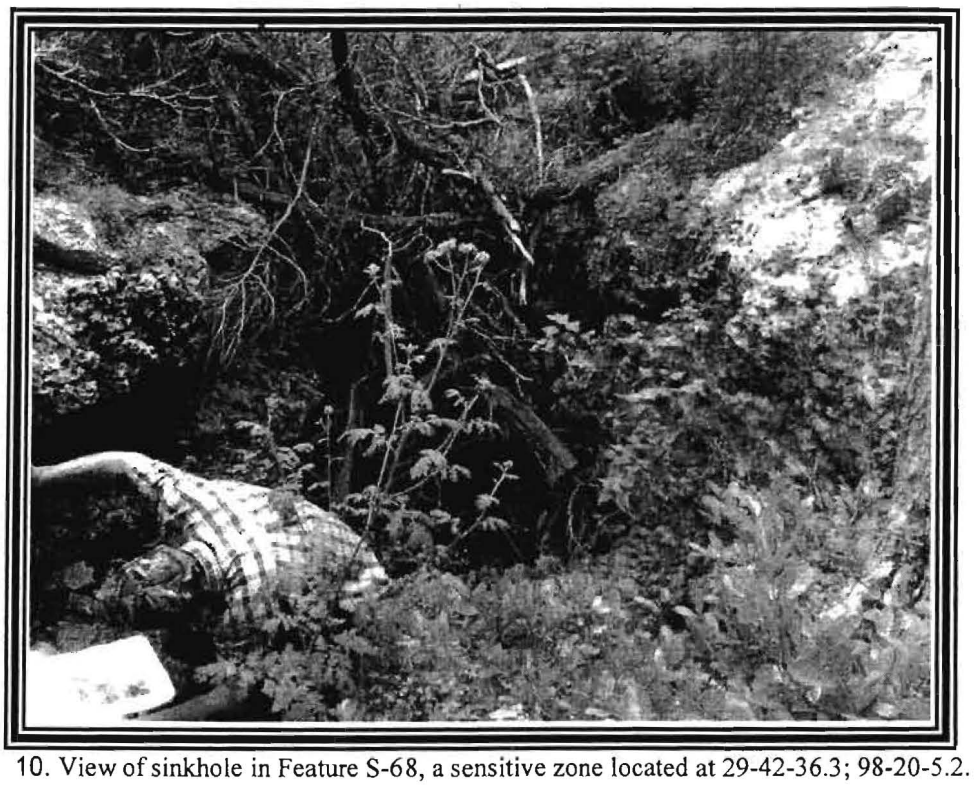
7. View of relatively dense Kek in streambed drainage feature located on the eastern portion of the site, at 29-42-18.45; 98-19-27.



8. View of Feature S-65, a solution cavity feature in the southern portion of the site at 29-42-15.3; 98-19-36.1.



9. View of relatively dense Kek of Feature S-61, located in the northern portion of the site at 29-42-30.3; 98-20-6.1.



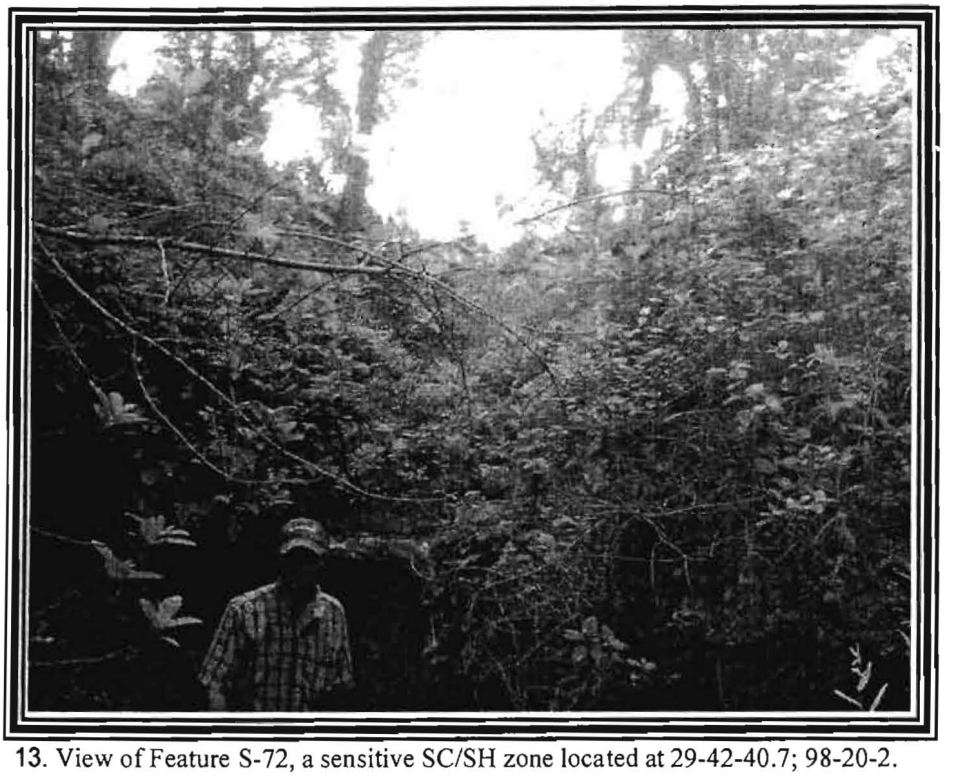
10. View of sinkhole in Feature S-68, a sensitive zone located at 29-42-36.3; 98-20-5.2.



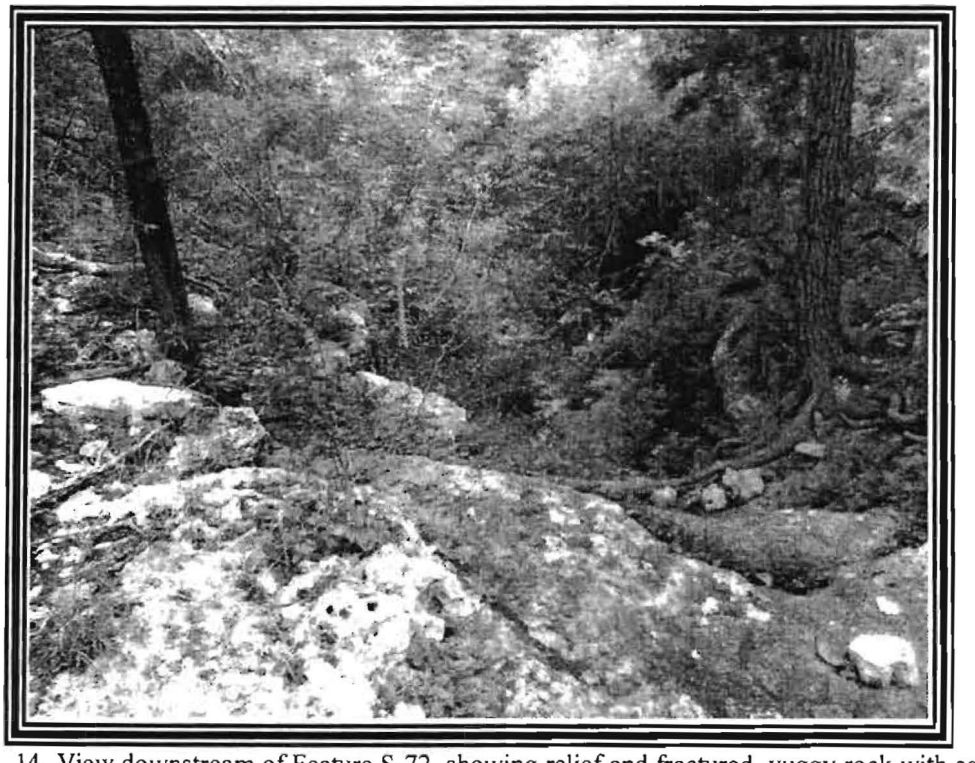
11. Another view of Feature S-68, a sensitive zone located at 29-42-36.3; 98-20-5.2.



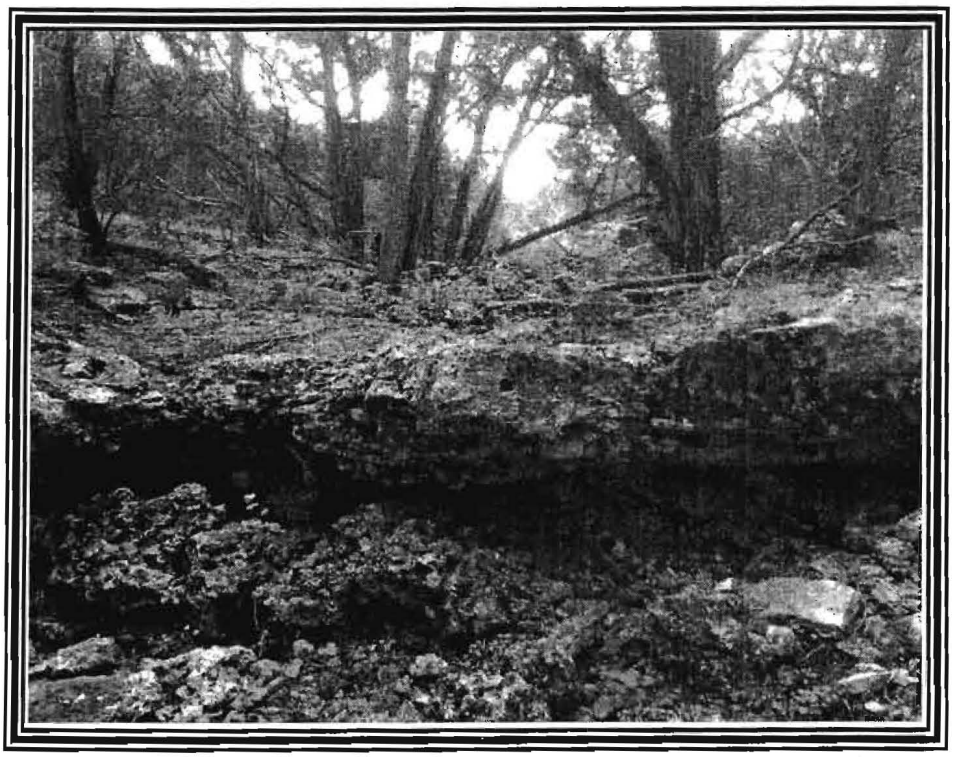
12. Another view of Feature S-68, a sensitive zone located at 29-42-36.3; 98-20-5.2, showing near cavernous dissolution and fern growth.



13. View of Feature S-72, a sensitive SC/SH zone located at 29-42-40.7; 98-20-2.



14. View downstream of Feature S-72, showing relief and fractured, vuggy rock with solution cavities and sinkholes.



15. View upstream of the eastern limit of Feature S-72, showing dissolution of Kek.



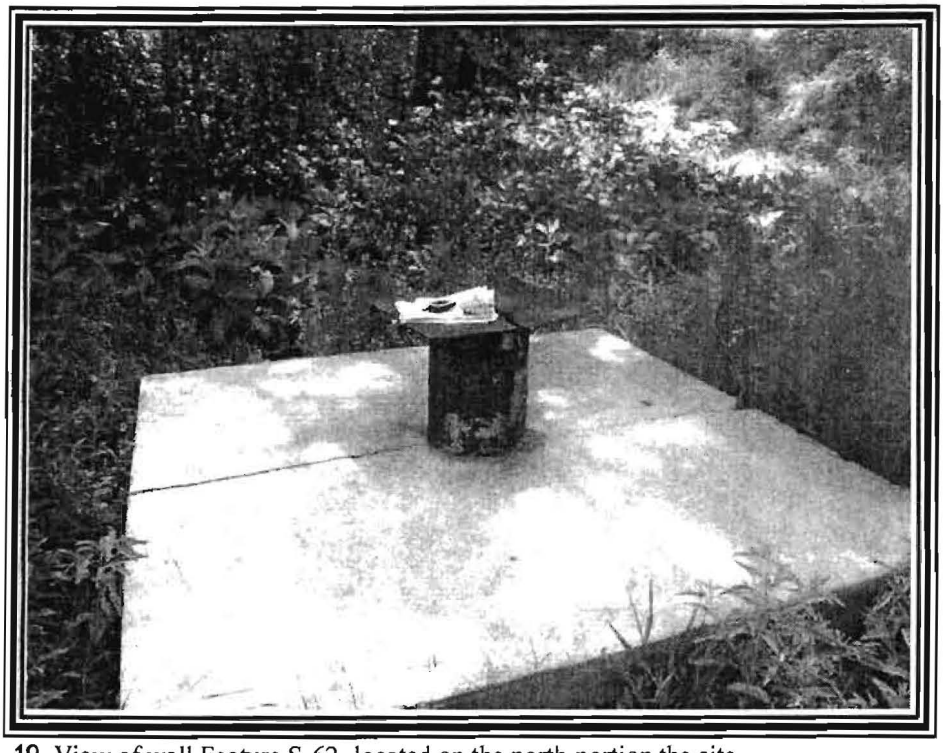
16. View of Feature S-51, a small solution cavity on the north side of the tract with abundant harvestmen.



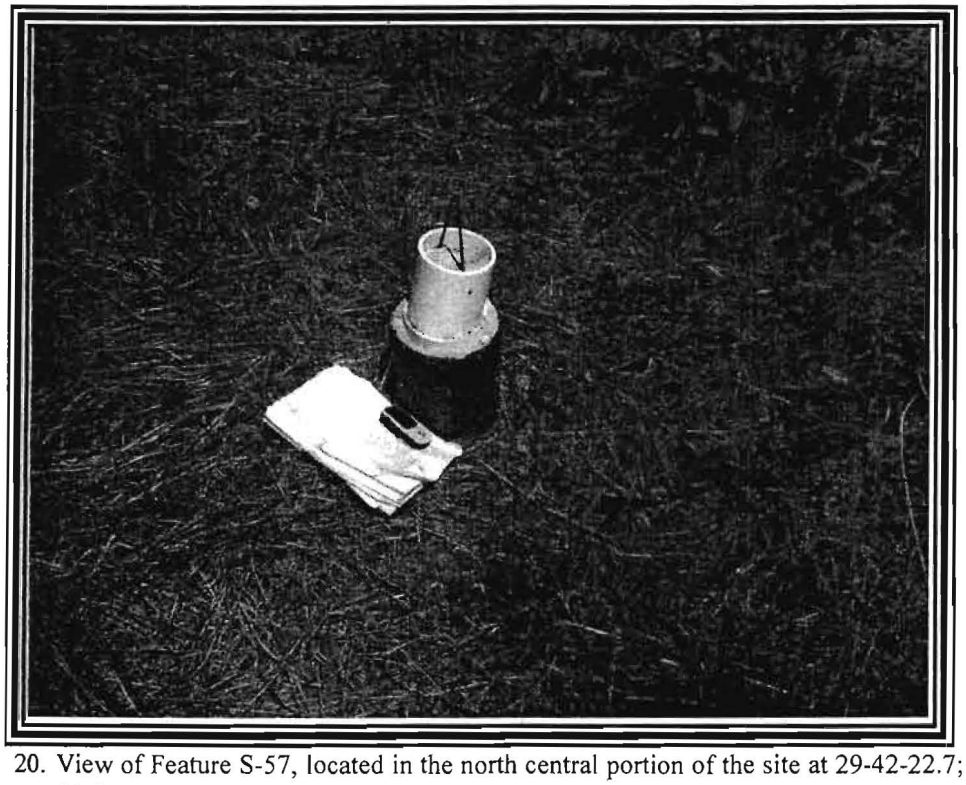
17. View of solution cavity Feature S-52, located near the north property line of the site.



18. View of Basal Nodular outcrop in the vicinity of S-52, on the northern property line, near Cibolo Creek.



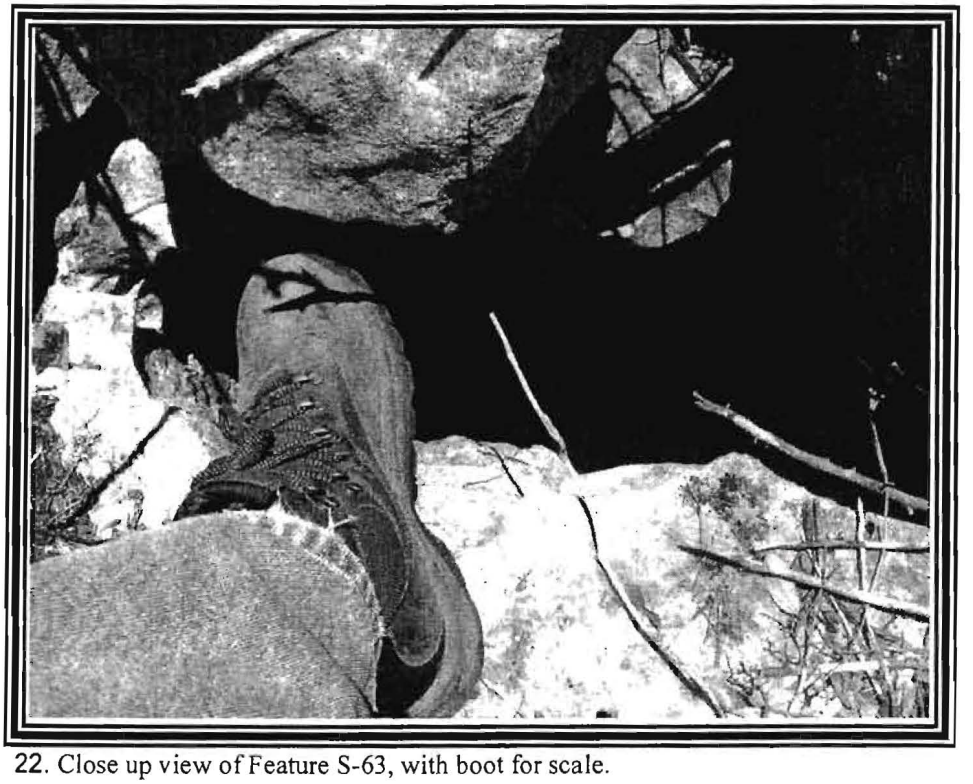
19. View of well Feature S-62, located on the north portion the site.



20. View of Feature S-57, located in the north central portion of the site at 29-42-22.7; 98-19-44.6.



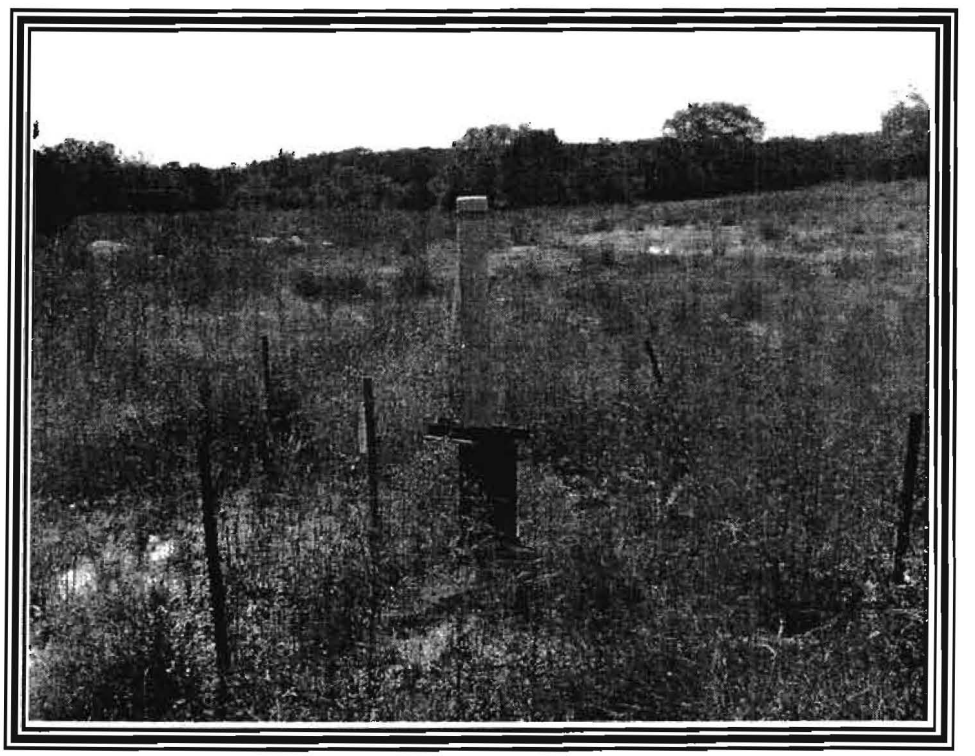
21. View of sensitive solution cavity Feature S-63, located near the southern property line at 29-42-9.4; 98-19-49.3



22. Close up view of Feature S-63, with boot for scale.



23. View of solution cavity Feature S-64, located southeast of Feature S-63 at 29-42-8.5; 98-19-47.9.



24. View of well Feature S-3, near the southern corner of the site, just north of F.M. 3009.



25. View of solution cavity Feature S-66, located near the southern corner of the property at 29-41-56.1; 98-19-25.5.



26. View of standing water in a drainage on the northern portion of the site, downstream of features S-68 and S-72, indicating limited recharge in the lower permeability Basal Nodular member encountered at lower elevations.

Updated Geologic Assessment Tables and Exhibit

SITE GEOLOGIC NARRATIVE

The underlying rocks at the site are predominantly members of the Lower Cretaceous Edwards Kainer Formation. The underlying Basal Nodular Member (Kbn) occurs at lower elevations in the southern and northern portions of the site. The Glen Rose Limestone (Upper Member, Kgru) occurs along the northwestern property line, in the Cibolo Creek floodplain. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Kainer Formation ranges between 260 and 310 feet thick and forms the lower water-bearing member of the Edwards Group, beneath the Person Formation which compromises the Edwards Aquifer, a federally-designated sole source aquifer for the region. The Kainer includes the Basal Nodular Member, which in turn overlies the Upper Member of the Glen Rose Limestone.

Feature S-4 is located near the southwest property line, which was mapped as a "zone" and rated sensitive by others, but re-inspection revealed only an outcrop, with limited potential for recharge, and thus rated as not sensitive. Features S-9, 11, 13, 14, 15, and 16 were all located in the southwest portion of the tract, just north of Rocky Rim, and appeared to be related to erosion of outcrops on hillsides, with occasional, and limited solution cavities. These features were previously hand-excavated in 2012 and found to have potential for subsurface interconnection, and thus were also rated not sensitive.

Features S-8, S-17 and S-19 were in topographic drainages, and were minor solution cavities and/or closed depressions with low potential for subsurface interconnection. Features S-24, 28 and 32 were also in drainages, a solution enlarged fracture, outcrop and solution cavity, respectively. As with the earlier cases, these features did not reveal subsurface interconnection during the hand excavation and probing done earlier, and thus did not rate as sensitive features. Features S-36 and 37 appear to be differential erosion features related to bedding planes rather than solution cavities; S-46 was previously mapped as a "swallet" but is a man-made excavation that was observed to have standing water in 2012, but is currently dry.

Features S-40 and 45 were closed depressions on the western property line at relatively high elevations, with limited recharge potential confirmed by hand excavations. Feature S-52 is on the far north portion of the property, near the floodplain, on a steep hillside with limited development potential, in the Basal Nodular Member of the Edwards Group. This feature has a large opening, and based on the proximity to the floodplain, was judged to be a sensitive feature. Feature S-58 is a small solution cavity in the northwest portion of the property, on a hillside with limited potential for subsurface interconnection, and thus low recharge potential and sensitivity.

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Feature Re-Evaluation																		
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	MOD 10	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	
						X	Y	Z								<40	≥40	<1.6	≥1.6		
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside	
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage	
S-9	29-41-58.6	98-19-23.8	SC	20	Kek	1.5	2.5	1.5					F	12	32	X		X		Hillside	
S-11	29-41-59.6	98-19-24.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside	
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside	
S-14	29-42-0.3	98-19-22.1	SC	20	Kek	1	0.5	0.7					F	12	32	X		X		Hillside	
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside	
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside	
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside	
S-19	29-42-11.2	98-19-11.5	CD	5	Kek	1.5	2	0.3					O	15	20	X		X		Hillside	
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed	
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed	
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage	
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage	
S-37	29-41-59.6	98-19-32.1	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside	
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside	

* DATUM:_____

2A TYP	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
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Date: July 25, 2013

Sheet 1 of 2

STATE OF TEXAS
JL 7/25/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

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						X	Y	Z								<40	≥40	<1.6	≥1.6	
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	25	45		X	X		Hillside
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X		X		Hillside

* DATUM:_____

2A TYP	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
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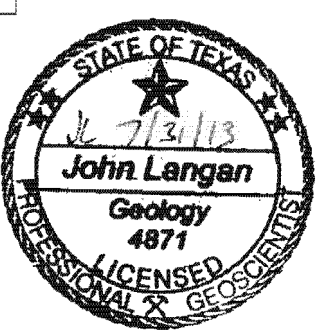
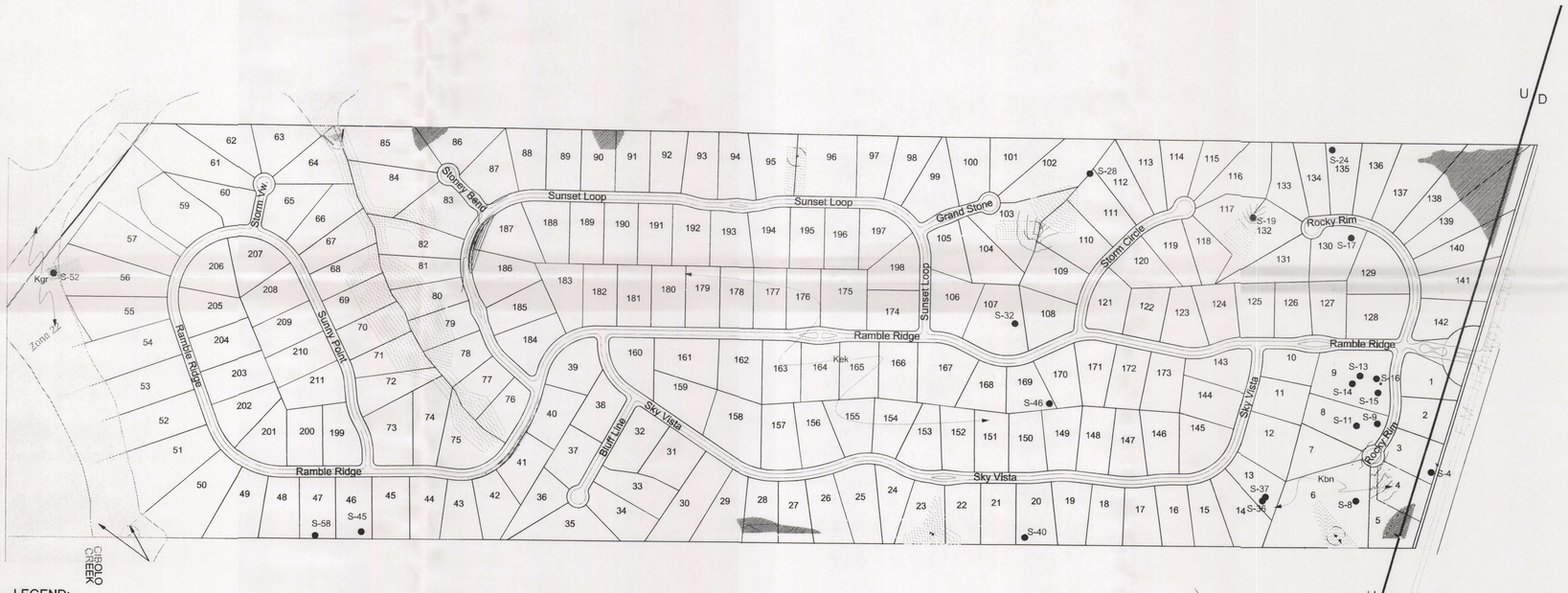
Date: July 25, 2013

Sheet 2 of 2



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



LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

S-9 FEATURES CONSIDERED FOR RE-CLASSIFICATION

● S-# FEATURES CONSIDERED FOR RE-CLASSIFICATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

STATE OF TEXAS
John Langan
Geology
4871
LICENSED PROFESSIONAL GEOLOGIST

psi
Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 07/25/13
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

Geologic Assessment

Thornhill Group Original Geologic Assessment Dated July 25, 2006.

GEOLOGIC ASSESSMENT REPORT
RAMBLE RIDGE RANCH
COMAL COUNTY, TEXAS

INTRODUCTION

Thornhill Group, Inc. (TGI) conducted on the Ramble Ridge Ranch property in Comal and Bexar counties a geologic assessment according to the guidelines of the Texas Commission on Environmental Quality (TCEQ), specifically in accordance with form TCEQ-0585 (Rev. 10-01-04) as provided in Appendix 1. TGI conducted the assessment in association with the Water Pollution Abatement Plan (WPAP) to be prepared and submitted to the TCEQ. TGI designed and conducted the assessment work to accomplish the following tasks:

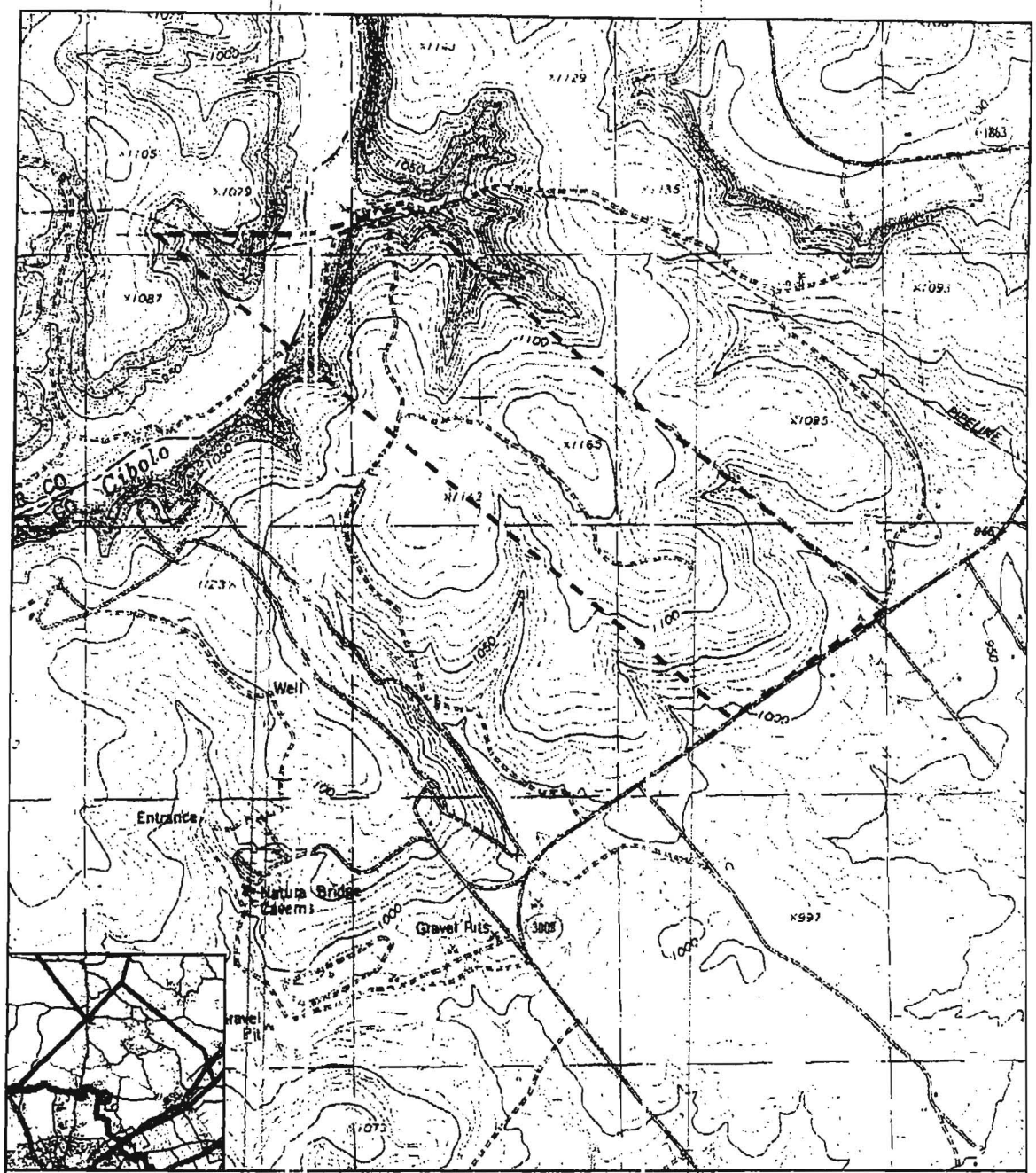
- Cataloging identifiable potentially sensitive features in the outcrop of the Edwards aquifer on the subject property;
- Verification of surface geology and soil characteristics versus existing map information; and,
- Preparation of proper geologic assessment forms, maps, diagrams, and reports as required by the TCEQ.

METHODOLOGY

TGI conducted site investigations on the Ramble Ridge Ranch between June 7, 2006 and June 14, 2006. During the investigation TGI cataloged features as defined in the *Instructions to Geologists for **Geologic Assessments** on the Edwards Aquifer Recharge/Transition Zones.* TGI also mapped, to the extent possible, the contacts of geologic members forming the portions of the Edwards and Associated Limestones (i.e, Edwards aquifer) found in the study area. TGI transected the property at 15 meter intervals with special attention paid to areas of likely feature formation. Using the ***Geologic Assessment Table*** provided by the TCEQ (Appendix 2), TGI cataloged and ranked each feature providing a relative sensitivity score.

SITE HYDROGEOLOGIC CONDITIONS

Ramble Ridge Ranch is located along FM 3009 in Comal County approximately 5.5 miles north of the city of Garden Ridge. Dense groves of cedar and oak trees between grassy plains characterize the property. Relief on the property is approximately 250 feet with the high point near the center of the property and the low occurring in the Cibolo Creek bed on the northwest side of the property. Several incised valleys emanate radially from the


Cibolo
Well
Entrance
Natural Bridge Caverns
Gravel Pits
PIPELINE
Explanation
Approximate Property Boundary
N
Digital U.S.G.S. Topographic 7.5 Minute Map
Series: Bat Cave, Texas Quadrangle (1988)
0
2,000
Feet
Ramble Ridge Ranch
Figure 1.
Location Map
THORNHILL GROUP, INC.

property high point to drain water off the ranch. Figure 1 illustrates the location and topography of the study area.

Soils

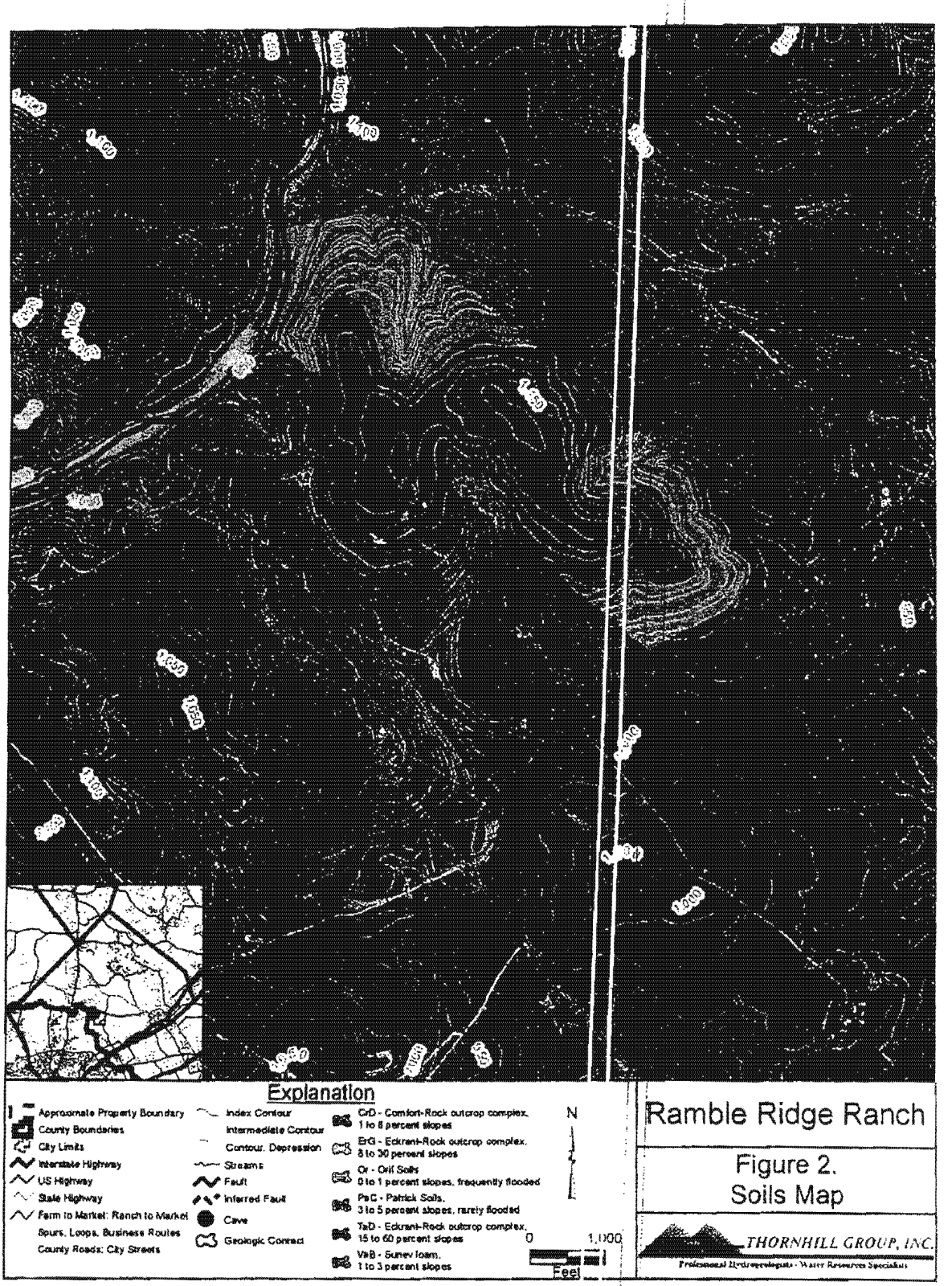
The primary soil types in the study area are Comfort (CrD) and Eckrant (ErG, TaD). These types compose approximately 52 percent and 45 percent of the study area, respectively. The CrD, ErG, and TaD are extremely stony to cobbly clays that are typically less than 18 inches thick and well drained with a hydraulic conductivity up to four (4) feet per day (ft/d) ("Soil Survey Geographic (SSURGO) database for Comal and Hays Counties, Texas", 2005 and "Soil Survey Geographic (SSURGO) database for Bexar County, Texas", 2006). The infiltration rate in the CrD, ErG, and TaD is very slow (Urban Hydrology for Small Watersheds, Technical Release 55, 1986). Figure 2 illustrates the soils mapped across the study area.

Three (3) additional soils are present in the northwest corner of the study area, namely, Orif (Or), Patrick (PaC), and Sunev (VaB). The Orif is typically a gravelly loamy sand up to 60 inches deep and well drained with a hydraulic conductivity up to 40 ft/d. The PaC is typically a gravelly loam to a gravelly sand up to 60 inches deep and well drained with a hydraulic conductivity up to 40 ft/d. The VaB is typically a loam up to 60 inches deep and well drained with a hydraulic conductivity up to 4 ft/d ("Soil Survey Geographic (SSURGO) database for Bexar County, Texas", 2006). The infiltration rate in the Or is high and in the PaC and VaB is moderate (Urban Hydrology for Small Watersheds, Technical Release 55, 1986).

Stratigraphy

In Comal County the Edwards Group is approximately 440 feet thick and consists of seven (7) distinct members (from top to bottom): the cyclic and marine (undivided), the leached and collapsed (undivided), the regional dense, the grainstone, the Kirschberg evaporite, the dolomitic, and the basal nodular (Small and Hanson, 1994). However, within the subject study area the Edwards is at most only about 200 feet thick with only the lower three (3) members of the Kainer Formation present (see Plate 1). The upper member of the Glen Rose Limestone underlies the Edwards aquifer. Figure 3 presents a stratigraphic column of the units found on the subject propery and Figure 4 illustrates the general surface geology as mapped by the Bureau of Economic Geology (BEG). Plate 1 provides a map of the surface geology showing the approximate extents of each member. Table 1 presents the general lithologic and hydrologic characteristics of the rock units found within the study area.

The uppermost member found on the property is the Kirschberg evaporite, which occurs at land surface at the highest elevations on the property. The Kirschberg consists mostly of crystalline limestone and mudstone with chert nodules and lenses, within the study area, and


Explanation
Approximate Property Boundary
County Boundaries
City Limits
Interstate Highway
US Highway
State Highway
Farm to Market; Ranch to Market
Spurs, Loops, Business Routes
County Roads; City Streets
Index Contour
Intermediate Contour
Contour, Depression
Streams
Fault
Inferred Fault
Cave
Geologic Contact
CrD - Comfort-Rock outcrop complex, 1 to 8 percent slopes
ErG - Eckrant-Rock outcrop complex, 8 to 30 percent slopes
Or - Orif Soils 0 to 1 percent slopes, frequently flooded
PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
TaD - Eckrant-Rock outcrop complex, 15 to 60 percent slopes
VaB - Sunev loam, 1 to 3 percent slopes
N
0
1,000
Feet
Ramble Ridge Ranch
Figure 2.
Soils Map
THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

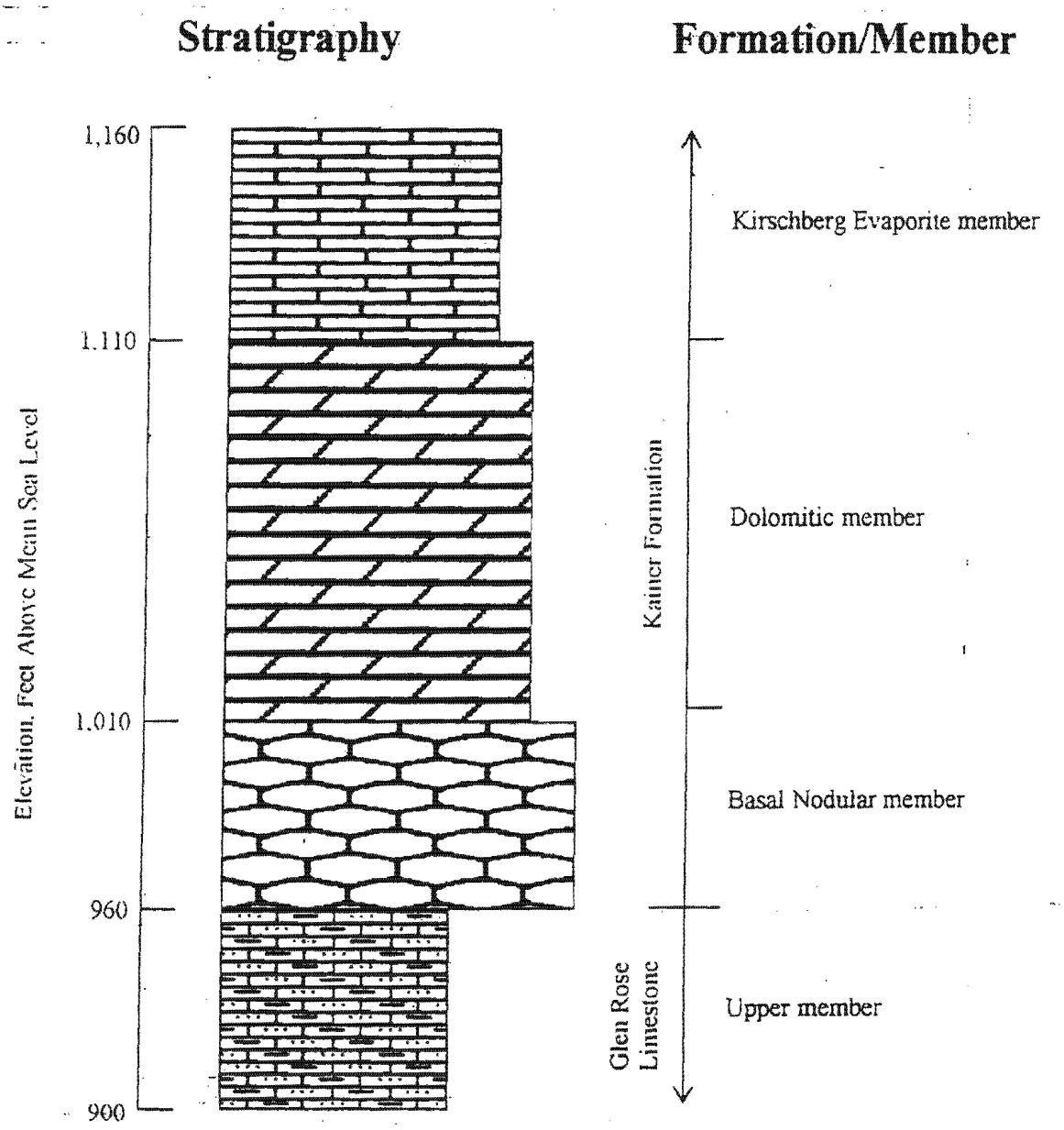


Figure 3. Stratigraphic column showing formations and members, with approximate thicknesses, encountered on the Ramble Ridge Ranch property.

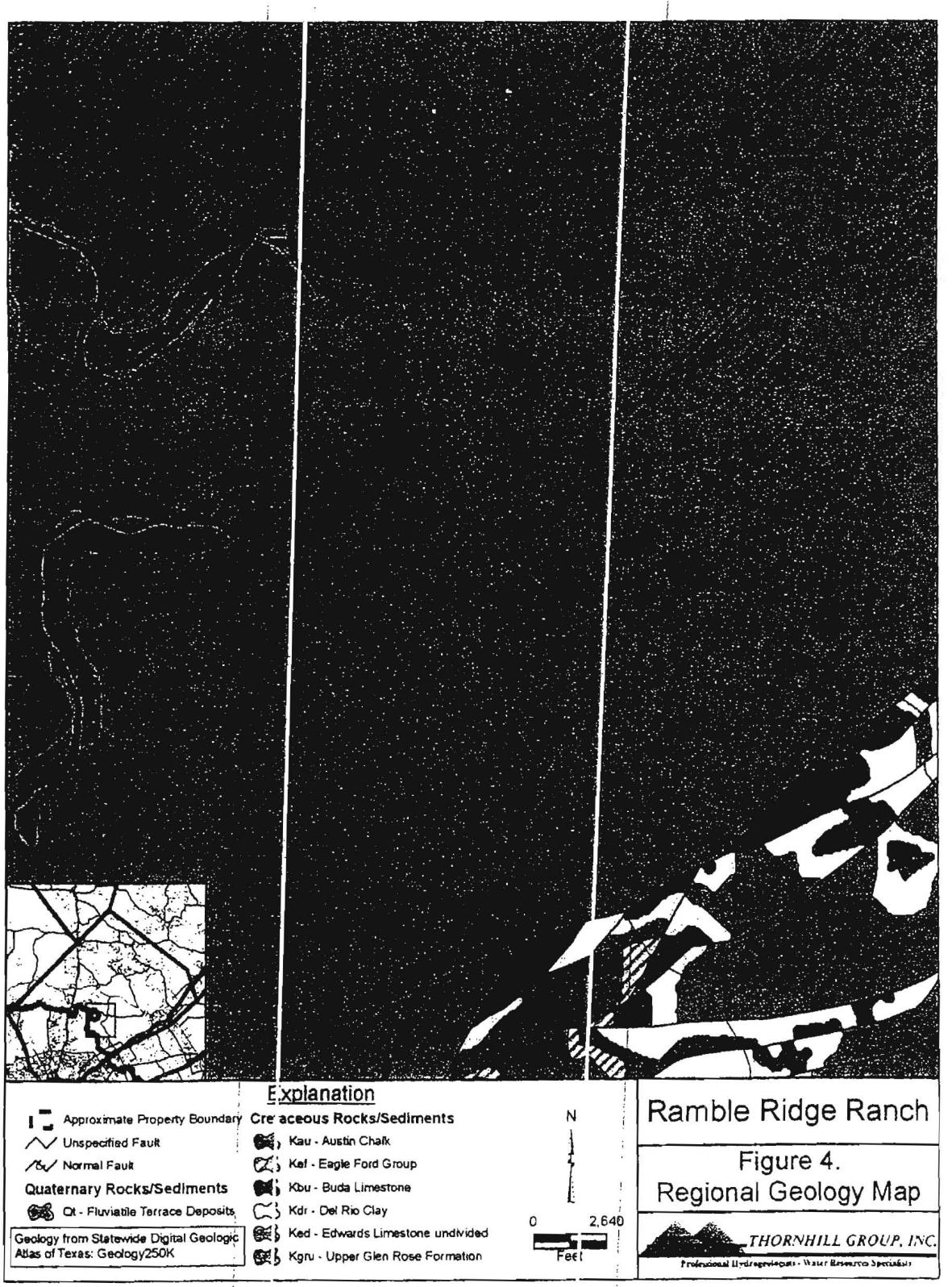

Explanation
Approximate Property Boundary
Unspecified Fault
Normal Fault
Quaternary Rocks/Sediments
Qt - Fluviatile Terrace Deposits
Geology from Statewide Digital Geologic Atlas of Texas: Geology250K
Cretaceous Rocks/Sediments
Kau - Austin Chalk
Kef - Eagle Ford Group
Kbu - Buda Limestone
Kdr - Del Rio Clay
Ked - Edwards Limestone undivided
Kgru - Upper Glen Rose Formation
N
0
2,640
Feet
Ramble Ridge Ranch
Figure 4.
Regional Geology Map
THORNHILL GROUP, INC.
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Table 1. General Lithologic and Hydrologic Characteristics of Rock Units (modified from Small and Hanson, 1994).

System	Group	Formation	Member	Rock Characteristics	Field Identification	Porosity/ Permeability Type	Thickness, feet
	Edwards	Kainer	Kirschberg Evaporate	Highly altered crystalline limestone, chalky mudstone, chert	Boxwork voids, with neospar and travertine frame	Majority fabric/ one of the most permeable	50-60
			[illegible]	[illegible]	Massively bedded, pale gray	[illegible]	[illegible]
			Basal Nodular Member	Shaly, nodular limestone, mudstone and [illegible] grainstone	Massive, nodular and mottled	Fabric/large conduit flow at surface; low permeability in subsurface	50-60
	Trinity	Glen Rose Limestone	Upper Member	Yellowish tan, thinly bedded limestone and marl.	Stair-step topography, alternating limestone and marl	Some water production at evaporate beds/ relatively low permeability	350-500

is approximately 60 feet thick (Small and Hanson, 1994). The dolomitic member in the study area is about 110 feet thick; this member is typically dense crystalline limestone withzones of grainstone and mudstone with rudists commonly found near the top of the member (Small and Hanson, 1994). The lowermost member of the Kainer, the basal nodular, is approximately 50 feet thick. The basal nodular is typically a marly, nodular limestone with some *miliolid* grainstone (Small and Hanson, 1994).

The Glen Rose Limestone occurs within the Cibolo Creek bed on the northwest side of the property where it conformably underlies the basal nodular member of the Edwards Group. Yellowish tan, thinly bedded limestone and marl layers compose the upper member of the Glen Rose Limestone which forms a characteristic stair-step topography due to differential weathering. The upper portion of the Glen Rose exposed on the property is Interval A. Interval A has a relatively high clay content which likely limits the potential for the formation of cave entrances. That is, as the unit erodes. the clays settle into the enlarged fractures reducing the effective permeability and potential for enlargement (Veni, 2005).

Hydrogeologic Characteristics

Small and Hanson describe the uppermost member in the study area, the Kirschberg evaporite, as the most porous and permeable subdivision in the Kainer Formation. Within the study area, the Kirschberg evaporite is an outlier, therefore the outcrop of this unit is surrounded by the outcrop of the underlying dolomitic member. TGI observed significant vuggy porosity along the outcrops of the Kirschberg evaporite. There is potential for fluid infiltration and percolation through the outcrop of this member within the study area. Water entering the Kirschberg would likely move into the underlying unit or discharge to the surface as springs fed by discontinuous perched-water zones. The dense crystalline matrix of the dolomitic member is not conducive to ground-water flow. However, numerous interconnected solution openings along bedding planes and fractures, some forming caverns. could allow water to move rapidly through the unit. The basal nodular is quite cavernous in this area around Cibolo Creek. The Texas Speleological Survey indicates that several caves are on nearby properties. Major nearby caverns include Double Decker Cave to the northeast and Natural Bridge Caverns to the southwest. While there is relatively little flow through the pore matrix of the member, the potential for significant flow through solution enlarged fractures and bedding planes is high (Small and Hanson, 1994).

Once the water enters the dolomitic member it may travel along bedding planes and vertical fractures to either discharge as springs (i.e., perched water) or enter the basal nodular; in addition, water may enter directly from the surface to follow similar flow paths. Water entering the basal nodular may flow through small to large caverns in the subsurface. A portion of the water moving through the basal nodular may enter Interval A of the upper member of the Glen Rose Limestone, where large passageways and chambers are known to exist near the study area, and recharge the Trinity aquifer.

Overall, the lithology and field investigations suggest there is potential for significant infiltration and movement of water into the Edwards aquifer beneath the property, particularly at some identified features, mostly in drainages leading to Cibolo Creek. Hydrogeologic data and information also indicate that direct infiltration of ground-water in the upland parts of the property is likely insignificant. Most of the recharge to the Edwards aquifer occurs due to streamflow losses in major streams and tributaries crossing the recharge zone, and that a small percentage of recharge occurs as direct infiltration in the interstream areas; most reports indicate recharge in the interstream areas is approximately 20 percent though some suggest it may be as high as 40 percent (Lindgren, Dutton and Hovorka, 2004) Additionally, the Edwards aquifer is mostly to completely unsaturated beneath portions the subject property based on test drilling results and the lack of springs/seeps originating from Edwards rocks. Two small springs issuing from caves located in drainages on the subject property indicate the limited and discontinuous occurrence of perched zones. Therefore, it is likely that much, if not most, of the recharge occurring within the property boundaries moves directly into the Upper Trinity aquifer (i..e., Upper Glen Rose limestone).

Potentially Sensitive Geologic and Man-Made Features

TGI found several features within the study area boundaries. TGI cataloged each feature discovered using the ***Geologic Assessment Table*** (TCEQ-0585-Table, Rev. 10-01-04) which is included in Appendix 2. As expected, many of the features are concentrated in the drainages and streambeds; however, TGI located several features on hillsides. Plate 1 shows the location of each feature corresponding to the ***Geologic Assessment Table***. In addition, Appendix 3 provides photographs of each feature cataloged during the field assessment.

TGI identified a total of 72 individual features and rated the features in accordance with the TCEQ's philosophy and guidance directing geologists to be conservative and, if in doubt, err on the side of being overly protective of the aquifer. Based on the TCEQ's rating scales in the geologic assessment form and a conservative approach, 40 of the 72 features scored more than 40 points on the sensitivity scale. Of these 40, 21 were located in drainage areas.

During the field assessment most of the features were dry but some exhibited evidence of previous flow either into or out of the feature. During TGI's field investigations, small amounts of water discharged from two (2) caves (ID: 70 and 71) identified in the drainage on the northern portion of the property in the dolomitic member. A test hole drilled uphill from these caves (ID: 59) encountered a void at the contact between the Glen Rose Limestone and Kainer Formation that was large enough to prevent returns yet did not produce water.

While several of the features encountered indicated a high potential for interconnectedness with the shallow subsurface based on dimensions and characteristics, it is likely that most recharge on the property occurs within drainages. As stated above, all hydrogeologic data and information show conclusively the majority of recharge to the local Edwards aquifer occurs due to streamflow losses from major streams and tributaries as they flow across the

outcrop. Only a small percentage of recharge occurs within upland, interstream areas. Additionally, the features identified showed openings to depths of a few feet and test drilling suggested that most of the Edwards aquifer across the upland portions of the property is unsaturated. In fact, the Edwards and Associated limestones may be completely unsaturated across much of the property with water moving directly to the underlying Trinity aquifer, except for some perched zones indicated by the very small amount of water found at the cave openings (ID: 70 and 71). Therefore, while several of the features in the upland areas were rated relatively sensitive, it is likely that these features do not contribute significantly to the recharge of the local Edwards aquifer. Therefore, most features will require minimal protection in the WPAP.

SUMMARY

TGI's investigations revealed that the majority of the Ramble Ridge Ranch lies atop the outcrop of the Kainer Formation of the Edwards Group. Within Cibolo Creek, erosion has removed the Edwards limestone entirely and exposed the upper member of the Glen Rose Limestone. Most of the features identified by TGI occur in the dolomitic member of the Kainer Formation. However, TGI did notice a trend of features along the contact of the Kirschberg evaporite member and the dolomitic member.

Under the TCEQ's guideline requiring geologists to be cautious in identifying potentially sensitive features and, if uncertain, to err by being overly protective of the aquifer, TGI observed 40 features that scored 40 or more sensitivity points based on the TCEQ's rating scale. Despite the number of sensitive features according to the TCEQ rating system, many, if not most, of these features are insignificant with respect to recharging the Edwards aquifer. Hydrogeologic evidence suggests that any water entering the subsurface on the property would likely move to the Trinity aquifer or discharge locally to drainages.

The drainages and streambeds within the study area appear to be the focal points for potential infiltration. However, the relatively thin soils and rocky hilltops could allow for percolation to the subsurface throughout the study area, depending on the intensity and duration of rainfall and antecedent conditions. Previous investigations indicate that recharge to the Edwards occurs predominantly within streambeds as streams lose water while flowing over the outcrop. While Cibolo Creek does cross the property, it flows over the less permeable upper member of the Glen Rose Limestone.

While the potential infiltration to the subsurface may be significant, lithologic information and test drilling evidence suggest that little water remains in the local Edwards aquifer. As discussed above, the hydrogeologic characteristics of the rocks underlying the property appear to direct ground-water flow to discharge features or to the underlying Trinity aquifer. Test drilling on the property indicated that these formations did not produce significant quantities of water beneath the property.

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APPENDIX 1 —
GEOLOGIC ASSESSMENT FORM

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: Ramble Ridge Ranch

TYPE OF PROJECT: _X_ WPAP __ AST __ SCS __ UST

LOCATION OF PROJECT: _X_ Recharge Zone __ Transition Zone __ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. _X_ Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**. (see Appendix 2)

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)
CrD – Comfort-Rock outcrop complex	D	<1.5
ErG, TaD – Eckrant-Rock outcrop complex	D	<1.5
Or – Orif Soils	A	<5
PaC – Patrick Soils	B	<5
VaB – Sunev loam	B	<5

* 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. _X_ 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. (see Figure 3)

4. _X_ 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. (see Table 1)

5. X 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" = 300 '
Site Geologic Map Scale	1" = 300' '
Site Soils Map Scale (if more than 1 soil type)	1" = 2,000"

6. Method of collecting positional data:

X Global Positioning System (GPS) technology.
__ Other method(s).

7. X The project site is shown and labeled on the Site Geologic Map.

8. X Surface geologic units are shown and labeled on the Site Geologic Map.

9. X 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. X The Recharge Zone boundary is shown and labeled, if appropriate.

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

X There are 4 (#) 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.
X The wells are not in use and will be properly abandoned. (2 test wells, Feature 3 & 59; 1 existing test well, Feature 33)
X The wells are in use and comply with 16 TAC Chapter 76. (1 existing windmill well, Feature 57)
__ There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

12. X One (1) original and three (3) copies of the completed assessment has been provided.

Date(s) Geologic Assessment was performed: July 07, 2006 – July 14, 2006
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.

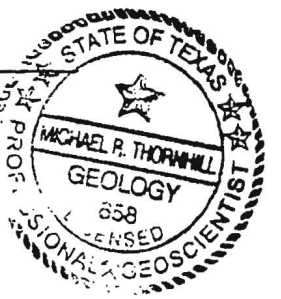
Michael R. Thornhill
Print Name of Geologist

(512) 244-2172
Telephone

(512) 244-1461
Fax

Michael R. Thornhill
Signature of Geologist

8-17-06
Date



Representing:

Thornhill Group, Inc
1104 South Mays Street, Suite 208
Round Rock, Texas 78664

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.

APPENDIX 2 —
GEOLOGIC ASSESSMENT TABLE

PLATE —
POTENTIALLY SENSITIVE GEOLOGIC
AND MAN-MADE FEATURES MAP

	GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Ranch Geological Assessment																		
	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B	1C	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP	DENSITY (#/FT)	APERTURE (FEET)	INFIL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	≥40	<1.6	≥1.6		
1	1	29°41'53.9"	98°19'25.9"	SF	20	K_{ed}	0.2	1.5	0.3	344				O	10	30	X			X	flat	
2	2	29°41'53.4"	98°19'27"	Z	30	K_{ed}	8	10	0.5	320		0.5	0.2	O	10	40		X		X	flat	
3	3	29°41'54.5"	98°19'26.7"	MB	30	K_{ed}	0.83	0.83	550	165				N	0	30	X			X	flat	TGI: TW-1
4	4	29°41'55.1"	98°19'22.3"	Z	30	K_{ed}	3	24	0.2	345		2	0.05	O	20	50		X		X	flat	
5	5	29°41'55.3"	98°19'29.8"	Z	30	K_{ed}	6	18	0.5	350		3	0.05	O	30	60		X		X	flat	
6	6	29°41'55.6"	98°19'29.9"	SC	20	K_{ed}	0.15	0.25	0.5	320			0.15	O	35	55		X		X	Drainage	
7	7	29°41'55.6"	98°19'29.8"	SC	20	K_{ed}	0.05	0.45	0.2	95			0.05	O	19	39	X			X	Drainage	
8	8	29°41'56.3"	98°19'27.5"	SC	20	K_{ed}	0.5	0.8	>2	350			0.5	V	35	55		X		X	Drainage	
9	9	29°41'56.6"	98°19'23.7"	SC	20	K_{ed}	1.5	2.5	1.5	335			1.5	O	30	50		X		X	Hilltop	
10	10	29°41'59"	98°19'25.9"	SC	20	K_{ed}	3.1	1.6	2	335			1.5	O	19	39	X			X	Hillside	
11-12	11	29°41'59.6"	98°19'24.6"	SC	20	K_{ed}	1	1.5	2	330			1	O	35	55		X	X		Hillside	
13	12	29°41'59.9"	98°19'23.6"	SF	20	K_{ed}	1.5	8	1	335			1.5	O	19	39	X		X		Hillside	
14	13	29°42'0.6"	98°19'22.3"	SC	20	K_{ed}	2.5	0.6	1	340			0.6	O	23	43		X		X	Hillside	
15	14	29°42'0.3"	98°19'22.1"	SC	20	K_{ed}	0.5	1	0.7	320			0.5	O	25	45		X	X		Hillside	
16-17	15	29°42'0.7"	98°19'21.9"	SF	20	K_{ed}	5	4	2	355			5	O	20	40		X	X		Hillside	
18	16	29°42'0.3"	98°19'21.8"	SF	20	K_{ed}	0.5	0.4	1.5	320			0.4	O	30	50		X	X		Hillside	
19	17	29°42'7.2"	98°19'17.6"	SC	20	K_{ed}	4	0.5	1.5	260			0.5	O	31	51		X	X		Hillside	
20	18	29°42'11.7"	98°19'21.5"	SC	20	K_{ed}	2	0.7	1.5	240			0.7	O	30	50		X	X		Stream Bed	
21	19	29°42'11.2"	98°19'21.5"	Z	30	K_{ed}	1.5	2	0.3	240		0.5	1.5	O	10	40		X		X	Stream Bed	
22	20	29°42'13"	98°19'23.8"	SF	20	K_{ed}	3	0.3	0.4	250			0.3	O	17	37	X		X		Hillside	
23	21	29°42'3.6"	98°19'31"	SW	30	K_{ed}	18	8	1	350			16	V	7	37	X		X		Hillside	
24	22	29°42'10.5"	98°19'14.3"	Z	30	K_{ed}	4	7	0.3	240		2	4	O	9	39	X			X	Stream Bed	
25	23	29°42'10.7"	98°19'14.7"	SF	20	K_{ed}	0.7	8	0.2	260			0.7	O	15	35	X			X	Stream Bed	
26	24	29°42'11.2"	98°19'15"	SF	20	K_{ed}	5.6	1	0.5	250			1	O	25	45		X		X	Stream Bed	
27	25	29°42'11.6"	98°19'15.9"	SC	20	K_{ed}	3	1	3.5	290			1	O	10	30	X			X	Stream Bed	
28	26	29°42'12.2"	98°19'15.9"	SF	20	K_{ed}	3.5	0.5	2.9	280			0.5	O	11	31	X			X	Stream Bed	
29	27	29°42'18.9"	98°19'27"	O	5	K_{ed}	5	3.5	0.3	300			5	O	10	15	X			X	Stream Bed	
30-31	28	29°42'18.8"	98°19'27.5"	SW	30	K_{ed}	4	9	2.5	290			4	O	15	45		X		X	Stream Bed	
32	29	29°42'18.8"	98°19'28.6"	SC	20	K_{ed}	2	2.5	1	290				O	20	40		X		X	Stream Bed	
33-34	30	29°42'18.5"	98°19'29.3"	O	5	K_{ed}	5	3.5	1.5	290			3.5	C	5	10	X			X	Stream Bed	

	GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Ranch Geological Assessment																		
	LOCATION			FEATURE CHARACTERISTICS													EVALUATION			PHYSICAL SETTING			
	1A	1B *	1C *	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP (DEG)	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	≥40	<1.8	≥1.8		
35	31	29°42'18.4"	98°19'32.3"	SC	20	K_{ed}	1.2	1	1.5	300			1	O	35	55		X		X	Drainage	
36	32	29°42'15.8"	98°19'36.7"	SC	20	K_{ed}	0.7	1	2	40			0.7	O	30	50		X		X	Drainage	
37	33	29°42'4.5"	98°19'23.4"	MB	30	K_{ed}	0.83	0.83	725	305			0.83	N	0	30	X			X	Hilltop	Existing Well
38	34	29°41'59.6"	98°19'30"	SF	20	K_{ed}	1.25	10	0.6	200			1.25	O	16	36	X		X		Drainage	
39	35	29°42'0.6"	98°19'31.1"	SC	20	K_{ed}	1	0.6	1.1	310			0.6	O	0	20	X			X	Drainage	
40	36	29°41'59.6"	98°19'32"	SC	20	K_{ed}	3	1.4	0.5	335			1.4	O	24	44		X		X	Drainage	
41	37	29°41'59.6"	98°19'32"	SC	20	K_{ed}	2.5	2	0.7	335			2	O	20	40		X		X	Drainage	
42	38	29°41'58.7"	98°19'33.1"	SC	20	K_{ed}	2.2	1.5	0.9	335			1.5	O	19	39	X			X	Drainage	
43	39	29°41'58.7"	98°19'33.8"	SF	20	K_{ed}	3.5	1	1	240			1	O	15	35	X		X		Drainage	
44	40	29°42'6"	98°19'45"	SW	30	K_{ed}	20	16	0.4	340			16	O	25	55		X		X	Hillside	
45	41	29°42'9.4"	98°19'48.7"	SC	20	K_{ed}	2	0.5	1.1	210			0.5	O	18	38	X			X	Hillside	
46-47	42	29°42'9.4"	98°19'48.7"	Z	30	K_{ed}	30	60	1	210		0.3		O	15	45		X		X	Hillside	
48	43	29°42'15.5"	98°19'56.7"	SC	20	K_{ed}	3	1	1	325			1	O	19	39	X			X	Stream Bed	
49	44	29°42'16.7"	98°19'57.3"	SF	20	K_{ed}	0.3	2.5	0.2	325			0.3	O	19	39	X			X	Stream Bed	
50	45	29°42'28.8"	98°20'15.7"	SC	20	K_{ed}	0.6	0.3	1.4	30			0.3	O	33	53		X	X		Hillside	
51	46	29°42'11.1"	98°19'38.6"	SW	30	K_{ed}	40	18	3	10				V	16	46		X		X	Hilltop	
52	47	29°42'29.4"	98°19'40.3"	SC	20	K_{ed}	1.3	1	1	260			1	O	20	40		X		X	Hillside	
53	48	29°42'30.6"	98°19'41"	SC	20	K_{ed}	0.9	0.6	0.4	260			0.6	O	16	36	X			X	Drainage	
54	49	29°42'33.8"	98°19'44.9"	O	5	K_{ed}	1.7	0.8	0.4	360			0.8	O	15	20	X		X		Hillside	
55	50	29°42'35.8"	98°19'51.9"	SF	20	K_{ed}	0.8	2	1	350			0.8	O	17	37	X			X	Hillside	
56	51	29°42'33.8"	98°19'57.8"	O	5	K_{ed}	4	1	0.7	310			1	O	9	14	X			X	Hillside	
57-59	52	29°42'50.3"	98°20'19.6"	SC	20	K_{ed}	2	4	>4.6	300			2	N	35	55		X		X	Hillside	
64	53	29°42'48.4"	98°20'42.6"	SC	20	K_{ed}	7	4.2	1.6	50			4.2	O	16	35	X			X	Stream Bed	
65	54	29°42'48.6"	98°20'41.9"	O	5	K_{ed}	3	2	1.5	50			2	O	20	25	X			X	Stream Bed	
69	55	29°42'37"	98°20'26.4"	SC	20	K_{grv}	3	4.5	1.5	300			3	O	22	42		X	X		Hillside	
72	56	29°42'47.4"	98°20'19.7"	SF	20	K_{ed}	2.6	2	3	310			2	O	18	38	X			X	Hillside	
	57	29°42'22.5"	98°19'44.3"	MB	30	K_{ed}	0.33	0.33	-	-			0.33	N	0	30	X				Hillside	Windmill
73	58	29°42'30.2"	98°20'17.9"	SC	20	K_{ed}	1	3	0.8	280			1	O	28	48		X	X		Hillside	
75	59	29°42'28.7"	98°20'4"	MB	30	K_{ed}	0.83	0.83	650	305			0.83	N	0	30	X			X	Drainage	TGI: TW-2
74	60	29°42'46.9"	98°20'23.5"	SC	20	K_{grv}	1.5	1	1.4	275			1	O	30	50		X		X	Hillside	

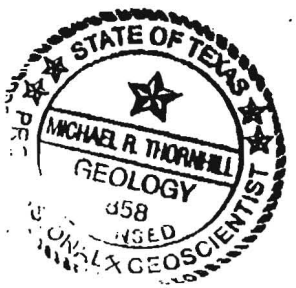
GEOLOGIC ASSESSMENT TABLE	PROJECT NAME: Ramble Ridge Ranch Geological Assessment																					
	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	RQE	DENSITY (HOFT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	≥40	<1.6	≥1.6		
76-77	61	29°42'30.2"	98°20'5.7"	SC	20	K_{ed}	1.1	0.5	1.2	350			0.5	O	30	50		X		X	Stream Bed	
78	62	29°42'30.3"	98°20'6.2"	SF	20	K_{ed}	5.1	6.5	2	350			2	O	16	36	X			X	Stream Bed	
79-80	63	29°42'31.3"	98°20'5.8"	SC	20	K_{ed}	0.15	0.1	>1.6	350			0.1	O	35	55		X		X	Stream Bed	
81	64	29°42'31.6"	98°20'5.8"	SC	20	K_{ed}	0.4	0.2	0.4	350			0.2	O	20	40		X		X	Stream Bed	
82	65	29°42'32.4"	98°20'5.4"	SW	30	K_{ed}	4	3	1.4	310			3	O	10	40		X		X	Stream Bed	
83	66	29°42'34.4"	98°20'5.8"	O	5	K_{ed}	10	5	1.6	355			5	O	15	20	X			X	Stream Bed	
84	67	29°42'35"	98°20'3.9"	SC	20	K_{ed}	0.9	0.2	0.6	360			0.2	O	30	50		X		X	Stream Bed	
85	68	29°42'36.9"	98°20'5.1"	SC	20	K_{ed}	1.5	1	1.3	350			1	O	30	50		X		X	Stream Bed	
86	69	29°42'39.4"	98°20'4.5"	SC	20	K_{ed}	1	1	>3	10			1	N	33	53		X		X	Stream Bed	cavity w/ discharge
88,90,91-93	70	29°42'39.4"	98°20'4.5"	C	30	K_{ed}	4.5	3.5	>8	10			3.5	N	35	65		X		X	Stream Bed	cave w/ discharge
87,89,92-93	71	29°42'39.4"	98°20'4.5"	C	30	K_{ed}	5	3	>6.5	10			3.5	N	35	65		X		X	Stream Bed	cave w/ discharge
94	72	29°42'40.3"	98°20'2"	SC	20	K_{ed}	2.9	4	3	5			2.9	N	35	55		X		X	Stream Bed	

* DATUM: North American Datum 1983

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 rod colors
V	Vegetation Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

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



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

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

Signature: Michael R. Thornhill Date: 8-17-06

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: Ramble Ridge Subdivision
Original Regulated Entity Name: _____
Assigned Regulated Entity Numbers (RN): 1) 105 155 808, 2) _____, 3) _____

✓ The applicant has not changed and the Customer Number (CN) is: CN 603 148149
___ The applicant 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 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;
✓ 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	388.58	388.58
Type of Development	Residential	Residential
Number of Residential Lots	211	211
Impervious Cover (acres)	28.44	28.44
Impervious Cover (%)	7.32%	7.32%
Permanent BMPs	NA	NA
Other		Karst Feature Reclassification

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 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. ✓ **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.

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

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

NA 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.

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:

Richard McCallegos
Print Name of Customer/Agent

Signature of Customer/Agent

3/5/13
Date

ATTACHMENT A
ORIGINAL APPROVAL LETTER

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 20, 2007

Mr. J. W. Wood
Fiorano Ventures, LLC
17460 IH 35 North, Suite 160-350
Schertz, Texas 78154

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Ramble Ridge; Located on FM 3009, 8.2 miles northwest of IH 35, San Antonio, Texas
TYPE OF PLAN: Request for the Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer; Edwards Aquifer Protection Program ID No. 2614.00; Investigation No. 538964; Regulated Entity No. RN105155808

Dear Mr. Wood:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the San Antonio Regional Office by Bunker Engineering on behalf of Fiorano Ventures, LLC on January 22, 2006. Final review of the WPAP was completed after additional material was received on February 28, 2007 and March 8, 2007. 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 388 acres. The impervious cover will be 28.30 acres (7.28%) and will include 209 lot sites, home buildings and driveways (3,000 square foot), public roads, recreation area and utilities. Project wastewater will be disposed of by an on-site sewage facility for each individual lot. According to a letter dated

November 14, 2005, signed by Thomas Hornseth P.E. with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

The single family residential portion of the 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 submitted, 72 features were identified on site. Of those 72 features, 40 features were given a "sensitive" rating. The San Antonio Regional Office conducted an on-site inspection February 16, 2007 and the site appeared to be in general agreement with the geologic assessment.

During the site assessment on February 16, 2007, regulated activities (road clearing, brush and tree clearing, building construction) were observed at the project site. Temporary BMPs (silt fence and stabilized construction entrance) were only observed at the entrance of the project site. Throughout the remainder of the site, no temporary BMPs were observed on the downgradient side of disturbed areas. These activities had commenced prior to the issuance of this approval letter.

SPECIAL CONDITIONS

I. The holder of the approved Edwards Aquifer Water Pollution Abatement Plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the application.

II. 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.

III. The request to seal feature #2 is hereby granted. The project engineer provided justification as to why the proposed detention basin could not be relocated and still meet Comal County requirements.

IV. Temporary BMPs are necessary during all phases of construction including house construction. Silt fence and other adequate temporary BMPs are to be present along the downgradient portion of any disturbed areas from house construction. These temporary BMPs must protect water quality and inspection, maintenance and repair will need to follow the guidelines set forth in the WPAP.

V. 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.

VI. The project engineer stated the four wells (Feature ID 3, 33, 57, 59) located on site will be properly abandoned. Within 60 days of the date of this letter provide correspondence that the four wells have been properly abandoned.

VII. As stated in Attachment C of the WPAP application, all homebuyers will have made available:

a. Lot plat showing any sensitive features and recharge feature easements for sensitive features in the plat boundary.
b. The list of requirements and guidelines, presented to the TCEQ by the applicant, for creating the visual barrier to delineate the recharge feature easements as stated in the Project Description of the WPAP application.
c. Copy of Chapter 5 Section 5.1.2 Sensitive Features, of the Technical Guidance Manual (TGM, 2005), pages 5-2 through 5-3. Special highlighting of "Temporary erosion control measures should be placed as near the construction as possible to minimize disturbance within the buffer zone..." must be provided to make the homebuyer aware of the need for temporary BMPs.
d. Copy of Title 30 TAC Chapter 285, Sub Chapter E, §285.40, OSSF on the Recharge Zone of the Edwards Aquifer.

VIII. Regulated activities identified (through site assessment investigation on February 16, 2007) at the project site may constitute construction without the prior approval of the water pollution abatement plan as required by Commission rules (30 TAC §213.4(a)). Therefore, the applicant is hereby advised that the after-the-fact approval of the development, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

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 appropriate 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.

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 complete.

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 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. Four 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.

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.

<u>After Completion of Construction:</u>

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 (TCEQ-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 Charly Fritz of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4065.

Sincerely,

Glenn Shankle
Executive Director
Texas Commission on Environmental Quality

GS/CEF

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

cc: Mr. Dan Bunker, P.E., Bunker Engineering
Mr. Thomas Hornseth, P.E., Comal County
Mr. Robert Potts, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

ATTACHMENT B – NARRATIVE OF PROPOSED MODIFICATION

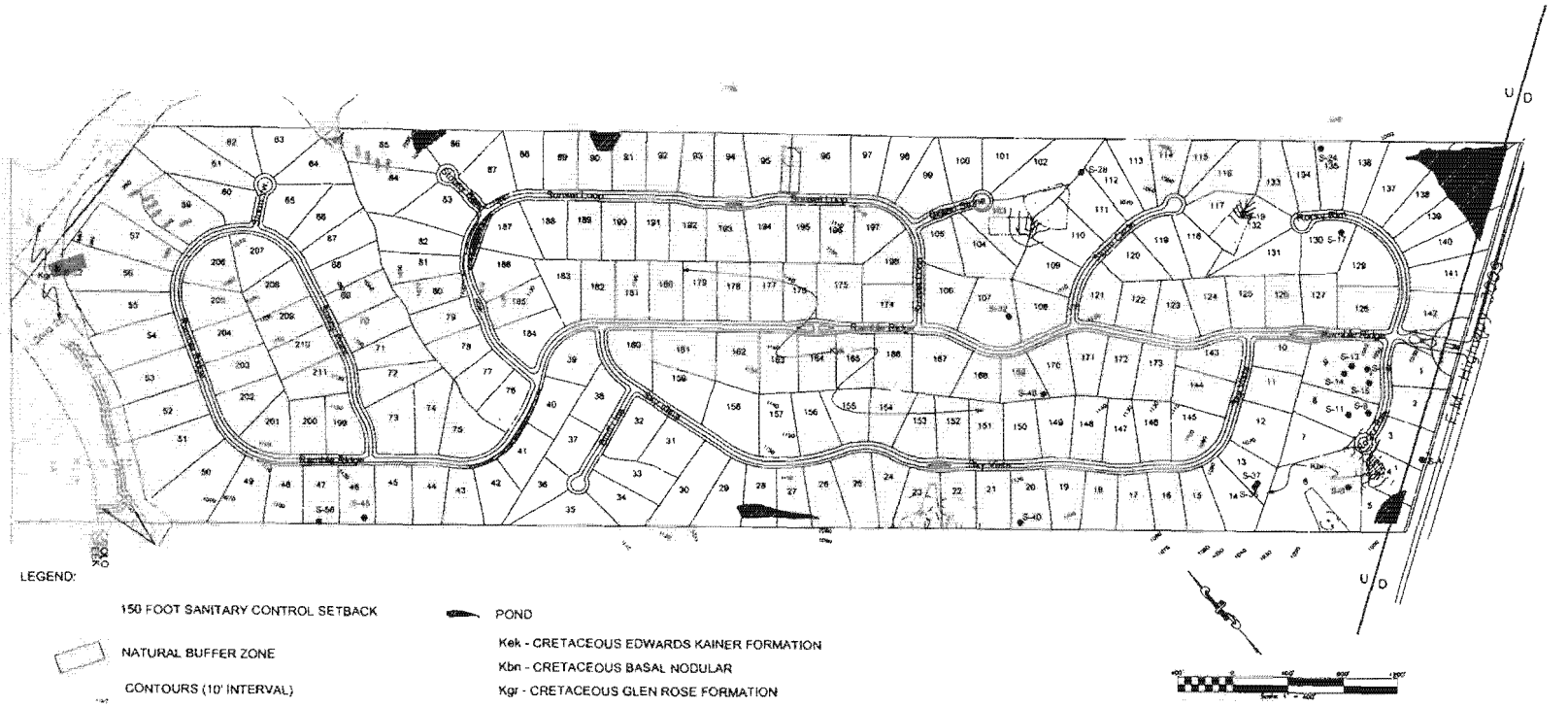
Ramble Ridge Subdivision original WPAP was approved on March 20, 2007. This modification is requesting reclassification of previously categorized sensitive features to non-sensitive features.

Here are the features we request being reclassified in numerical order: S-4 Lot 3, S-8 Lot 6, S-9 Lot 8, S-11 Lot 8, S-13 Lot 9, 14 Lot 9, S-15 Lot 9, S-16 Lot 9, S-17 Lot 132, S-19 Lot 132, S-24 Lot 143 and Lot 135, S-28 Lot 111, S-32 Lot 107, S-36 Lot 13 and Lot 14, S-37 Lot 13 and Lot 14, S-40 Lot 20 and Lot 21, S-46 Lot 169 and Lot 170 and S-52 Lot 56. See Site Plan located within WPAP section of this submittal or the Geological Assessment Site Geologic Map.

As stated in the original WPAP the buffer zones will remain in their natural state where any construction or soil disturbing is prohibited. When all or part of a buffer zone is located on a residential lot, the lot owner will mark the boundary of the buffer zone via a fence, placing large boulders, or some form of distinctive planting. The fencing used can be any visible type, boulders are to be a minimum of 12 inches in one dimension and be located no further than eight feet apart, while utilizing plants must be distinctive, and spaced no further apart than four times their height. The plants must be suitable for the climate and soil conditions of the site and must be unique so that other plants of the same species are not located on the same lot.

The purchaser of any lots having all or part of a buffer zone easement shall be given a copy of the easement delineation stated above along with a copy of the subdivision plat showing the subject lot and the easement contained thereon and including a copy of the Technical Guidance Manual RG-348.

ATTACHMENT C – CURRENT SITE PLAN



LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

S-9 FEATURES CONSIDERED FOR RE-CLASSIFICATION

● S-# FEATURES CONSIDERED FOR RE-CLASSIFICATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

psi Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/28/13

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: Ramble Ridge Subdivision

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ✓ Residential: # of Lots: 211
   - __ Residential: # of Living Unit Equivalents: ____
   - __ Commercial
   - __ Industrial
   - __ Other: ____

2. Total site acreage (size of property): 388.58 Ac.

3. Projected population: 836

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	474,750	÷ 43,560 =	10.90
Parking	158,250	÷ 43,560 =	3.63
Other paved surfaces	605,800	÷ 43,560 =	13.91
Total Impervious Cover	1,238,800	÷ 43,560 =	28.44
Total Impervious Cover ÷ Total Acreage x 100 =			7.32%

5. ✓ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.

6. ✓ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

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

7. Type of project:
   - __ 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 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	62,700 gallons/day
0 % Industrial	_____ gallons/day
0 % Commingled	_____ gallons/day

TOTAL 62,700 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.

___ 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 _____ (name) Treatment Plant. The treatment facility is:
__ existing.
__ proposed.

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

SITE PLAN REQUIREMENTS

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

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

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):

_____

_____

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

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
✓ There are 4 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)
✓ The wells are not in use and have been properly abandoned.
__ The wells are not in use and will be properly abandoned.
__ The wells are in use and comply with 16 TAC §76.
__ There are no wells or test holes of any kind known to exist on the project site.

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

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

23. ✓ 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).

27. ✓ Locations where stormwater discharges to surface water or sensitive features.
__ There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

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

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

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

Richard M. Gallegos
Print Name of Customer/Agent

Signature of Customer/Agent

3/5/13
Date

ATTACHMENT A – FACTORS AFFECTING WATER QUALITY

This WPAP Modification specifically asks for the TCEQ to look at certain sensitive features to see if there is a chance of reclassification from sensitive to non-sensitive. Given this information the factors affecting water quality will remain the same from the original WPAP previously approved. Therefore the following information was taken directly from the original WPAP Attachment A:

Water quality is affected by permeability of the surface. Adding impermeable cover increases the quantity, and therefore the velocity, of water run-off. Increased velocity gives the runoff a greater ability to carry pollutants. The proposed subdivision plat presently shows 211 lots. All but three of these lots are to be sold for construction of single family residences. Located on Lot 5 will be facilities for the water system (storage tank, pump house, pressure tank) with about 1,000 S.F. of impervious area. The developer has no plan to add any impervious cover to Lot 58. This lot, to be used as a private park for property owners, provides access to the Cibolo Creek for residents of the subdivision. A 1,490 S.F. building for use as a sales office has been constructed on Lot 42. Pavement for the parking area will be added when the subdivision roads are paved. The building will be removed and Lot 42 sold as a residential building site when the marketing of the subdivision is complete. To simplify the calculation these three lots are included in the total number of residential lots shown for calculation of impervious cover. The amount and type of impervious cover expected after construction as shown on the preceding sheet was estimated as follow:

Structures/Rooftops-(2,250 SF/lot)(211 lots) = 474,750 SF
Parking (driveways)-(750 SF/lot)(211 lots) = 158,250 SF
Other Paved Surfaces (23,300' road)(26' width) = 605,800 SF
Total: 1,238,800 SF

The greatest potential danger of degradation of water quality from this project will be in the roadway and utility construction phase. Waste from construction workers and equipment, along with the ever present danger of high suspended solids content in storm water during the period of when soil has been disturbed by clearing and grading operations but not yet re-stabilized after road, drainage, and utility construction is complete, will cause surface water pollution. To a lesser degree, house and driveway construction will bring similar concerns for a much longer period of time. Even when there is no longer any construction activity, low density single family development will cause a slight degradation of runoff water quality due to human activity (including chemical use and automobile wastes) and increased impervious area. Ground water degradation, if any, would occur only in isolated instances.

ATTACHMENT B – VOLUME AND CHARACTERISTIC OF STORM WATER

As stated in Attachment A prior to this page, this WPAP Modification specifically asks for the TCEQ to look at certain sensitive features to see if there is a chance of reclassification from sensitive to non-sensitive. Given this information the factors affecting water quality will remain the same from the original WPAP previously approved. Therefore the following information was taken directly from the original WPAP Attachment B:

As, above, there should be a slight degradation of storm water quality due to human activity. Quantity of storm water is estimated to increase 10.2% as shown in the calculation below.

Percent Increase in Runoff Volume

Prior to development estimated runoff coefficient "C" = 0.40
After development C = 0.40 for pervious area and 0.96 for impervious area
Impervious area = 7.32%
After development combined C = 0.40(0.9268) + 0.96(0.0732) = 0.441
Increase in runoff = (0.441-0.40)/0.40 = 0.1025 = ***10.25%***

Increase in Average Annual Runoff:

Average annual rainfall = 33 inches
Total acreage = 388.58 acres
Average annual runoff before development = 0.40(388.58)(33/12) = 427.438 acre feet
Average annual runoff after development = 0.441(388.58)(33/12) = 474.25 acre feet
Increase in average annual runoff = 471.25-427.438 = ***43.812 acre feet***

Runoff Velocity:

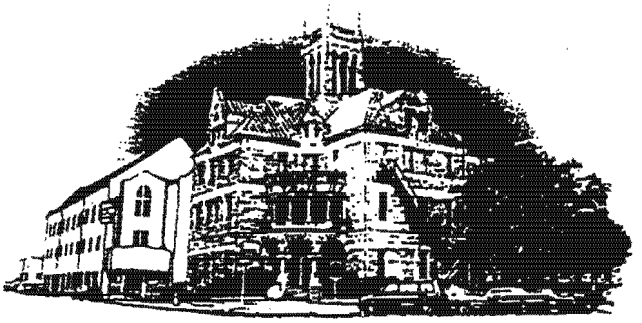
Runoff velocities will increase very little if any due to the Comal County requirement that Q100 (maximum runoff rate for 100 year storm) not increase above present condition.

Annual Pollutant load:

Total Suspended Solids is estimated as follows:

From pervious cover area (360.14 Ac.)(33")(0.03)(80)(0.226) =	*6,446 pounds*
From impervious area (28.44 Ac.)(33")(0.90)(170)(0.226) =	*32, 452 pounds*
Total Annual Suspended Solids =	*38,898 pounds*

ATTACHMENT C – SUITABILITY LETTER FROM AUTHORIZED AGENT



Comal County

OFFICE OF COMAL COUNTY ENGINEER

November 14, 2005

Ramble Ridge, L.L.C.
17460 IH35N, Ste. 160-350
Schertz, TX 78154

Re: Proposed subdivision of RAMBLE RIDGE SUBDIVISION, within Comal County, Texas

Dear Property Owner:

We have completed the field inspection of the referenced for the recommendation for private sewage facilities and have found the property to be approved with the conditions that individual septic systems permits shall be required for the lots within this subdivision.

Please be advised that these individual permits will be required to meet 30 TAC 285.40, subchapter E (copy attached). Please specifically reference the one acre minimum lot size and 150 foot distance requirement to recharge features.

Should you have any questions, please feel free to contact us.

Sincerely,

Thomas H. Hornseth, P.E.
Comal County Engineer

xc: Mr. Mike Harris, R.P.L.S.,
ACS, Inc.

SUBCHAPTER E : SPECIAL REQUIREMENTS FOR OSSFS LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE
§285.40

§285.40. OSSFs on the Recharge Zone of the Edwards Aquifer.

(a) Applicability. In addition to the requirements given in this chapter, the following additional provisions apply to the Edwards Aquifer recharge zone as defined in §285.2 of this title (relating to Definitions) and is not intended to be applied to any other areas in the State of Texas.

(b) Additional application requirements for new OSSFs.

(1) All planning and design materials shall be submitted by a professional engineer or sanitarian registered in Texas.

(2) Site evaluation to be conducted by a certified site evaluator possessing a valid certificate.

(c) Conditions for obtaining a permit to construct. In order to obtain a permit to construct in the Edwards Aquifer recharge zone, the following conditions must be met.

(1) Minimum lot sizes. Each lot or tract of land on the recharge zone on which OSSFs are to be located must have an area of at least one acre (43,560 square feet) per single family dwelling.

(2) Minimum separation distances from recharge features. The following separation distances shall be maintained from recharge features found during a site evaluation or in accordance with a geologic assessment performed in accordance with Chapter 213 of this title (relating to Edwards Aquifer). No sewage treatment tank or holding tank may be located within 50 feet of a recharge feature. No soil absorption system may be located within 150 feet of a recharge feature.

(3) No OSSF may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde county line to the recharge zone.

(d) Existing OSSFs. OSSFs licensed by, or registered with, the appropriate permitting authority at the time of adoption of this section shall remain licensed or registered under the terms and conditions of the current license or registration. Any relicensing shall be performed in accordance with §285.3 of this title (relating to Applicability). An OSSF installed on the recharge zone prior to April 11, 1977, in Uvalde or Kinney Counties is not required to be permitted or licensed, provided the OSSF is not causing pollution, is not a threat to the public health, or is not a nuisance, and has not been substantially modified.

(e) Exceptions for certain lots. Lots platted and recorded with the county in its official plat record, deed, or tax records of the counties prior to the dates for the counties indicated in this

subsection, are exempted from the one-acre minimum lot size requirement, pursuant to the conditions of subsection (f) of this section.

(1) Kinney, Uvalde, Medina, Bexar, and Comal Counties–March 26, 1974;

(2) Hays County–June 21, 1984;

(3) Travis County–November 21, 1983; and

(4) Williamson County–May 21, 1985.

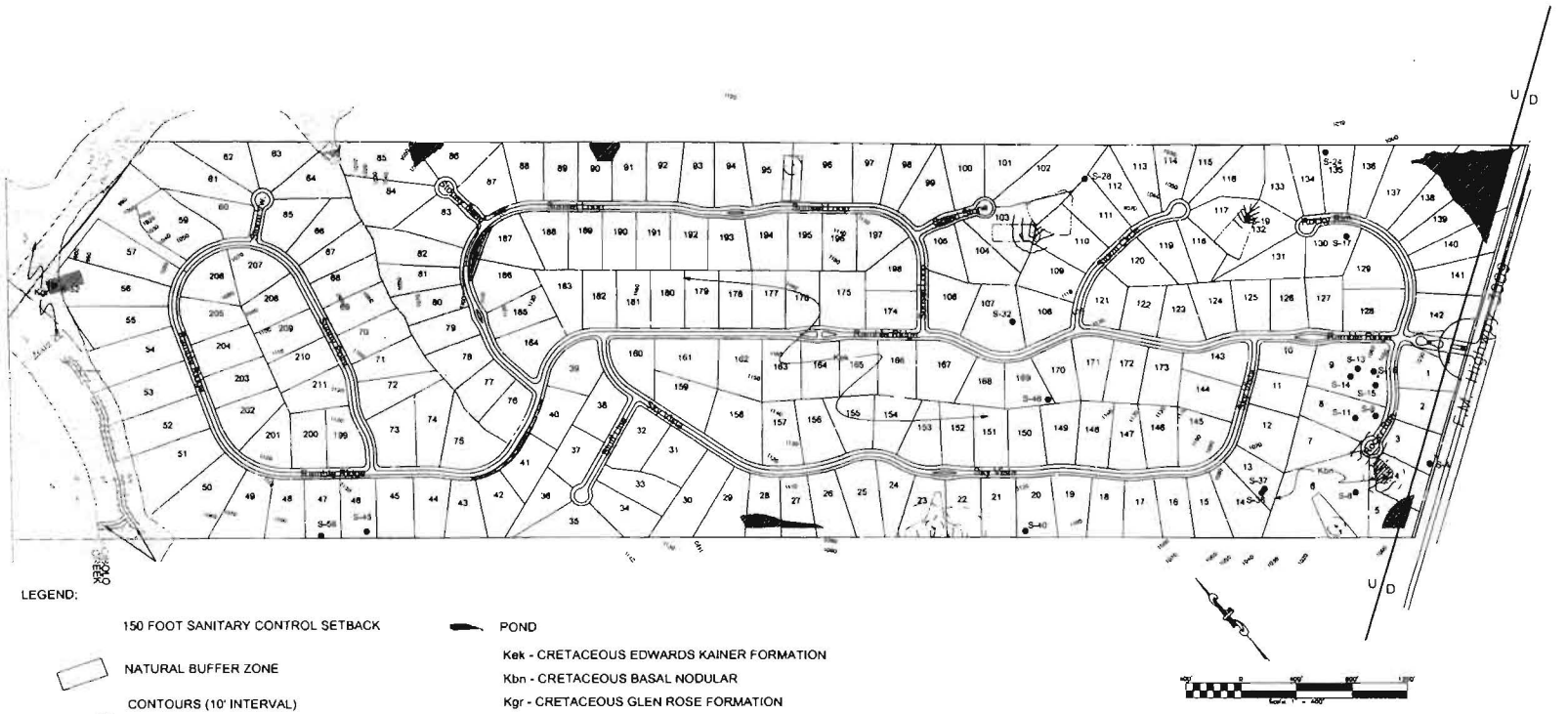
(f) Notice. Any person, or his agents or assignees, desiring to construct a residential development with two or more lots in which OSSFs will be utilized in whole or in part on the recharge zone and desiring to sell, lease, or rent the lots therein, must inform in writing each prospective purchaser, lessee, or renter of the following.

(1) Each lot within the regulated development is subject to the terms and conditions of this section.

(2) A permit to construct shall be required before an OSSF can be constructed in the subdivision.

(3) A license to operate shall be required for the operation of an OSSF.

(4) Whether or not an application for a water pollution abatement plan as defined in Chapter 213 of this title (relating to Edwards Aquifer), has been made, and whether or not it has been approved, and whether any restrictions or conditions have been placed on that approval.


U D
U D
Rambler Ridge
Sunset Spur
Ridge Line
Sky View
Rambler Ridge
Sunset Spur
Ridge Line
Sky View
Rambler Ridge
Sunset Spur
Ridge Line
Sky View

Temporary Stormwater Section

Not applicable for this karst re-classification modification.

Permanent Stormwater Section

Not applicable for this karst re-classification modification.

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

I Virgil Knowlton,
Print Name

Managing Partner,
Title - Owner/President/Other

of TKO Real Estate II, L.P.,
Corporation/Partnership/Entity Name

have authorized Richard M. Gallegos
Print Name of Agent/Engineer

of Gallegos Engineering, 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:

Virgil K. Knowlton
Applicant's Signature

3/5/13
Date

THE STATE OF TEXAS §

County of COMAL §

BEFORE ME, the undersigned authority, on this day personally appeared VIRGIL K. KNOWLTON 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 5th day of MARCH, 2013.

NOTARY PUBLIC

MAUREEN K. McNERTNEY
Typed or Printed Name of Notary

MAUREEN K. McNERTNEY
NOTARY PUBLIC STATE OF TEXAS
COMMISSION EXPIRES:
08-08-2014

MY COMMISSION EXPIRES: 8/8/2014

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

NAME OF PROPOSED REGULATED ENTITY: Ramble Ridge Subdivision
REGULATED ENTITY LOCATION: 26,00 Block of Natural Bridge Caverns Rd (FM3009)
NAME OF CUSTOMER: TKO Real Estate II, L.P.
CONTACT PERSON: Virgil Knowlton PHONE: 210-651-6860
(Please Print)

Customer Reference Number (if issued): CN 603 148 149 (nine digits)
Regulated Entity Reference Number (if issued): RN 105 155 808 (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
512/239-1278

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	388.58 Acres	$ 8,000.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Virgil K. Knowlton
Signature

3/5/2013
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

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

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

☑ Yes ☐ No — WPAP Modification

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		RN 105 155 808

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 03/05/2013

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:*
TKO Real Estate II, L.P.		

10. Mailing Address: 1100 N.E. Loop 410, Suite 900

City	State	ZIP	ZIP + 4
San Antonio	Texas	78209	1574

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)*
(210) 651-6860	—	(210) 494-9840

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)*
45-326 1141	32045044354	—	0801478276

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)*

Ramble Ridge Subdivision

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	26000 Block FM 3009							
	City	San Antonio	State	Texas	ZIP	78266	ZIP + 4	
25. Mailing Address:	TKO Real Estate, II, L.P.							
	1100 N.E. Loop 410, Suite 900							
	City	San Antonio	State	Texas	ZIP	78209	ZIP + 4	1574

26. E-Mail Address:		
27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(210) 651-6860	—	(210) 494-9840

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		236115	

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

Single Family Residential Subdivision

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

35. Description to Physical Location:	Westside of 3009 - 8.2 miles northwest from IH35/FM3009 Intersection

36. Nearest City	County	State	Nearest ZIP Code
Garden Ridge	Comal	Texas	78266

37. Latitude (N) In Decimal:	29.7058	38. Longitude (W) In Decimal:	98.3306

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	42	20	98	19	50

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:	Richard M. Gallegos	41. Title:	President

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 641-0812	—	(210) 641-2037	rgegallegosengr.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:	Gallegos Engineering, Inc.	Job Title:	Consulting Engineer
Name *(In Print)*:	Richard M. Gallegos	Phone:	(210) 641-0812
Signature:		Date:	3/16/13

TRANSMITTAL *VKK*

DATE: September 26, 2013

TO: **Comal County Engineers Office**

RECEIVED
SEP 26 2013
COUNTY ENGINEER

ATTENTION: **John Kimble**

WE ARE SENDING YOU ATTACHED VIA: HAND DELIVERY

QUANTITY	DESCRIPTION
1	WPAP & TCEQ Documents
	Ramble Ridge
	195 David Jonas Drive
	New Braunfels, Tx 78132

SIGNED: Tina Thomas

RECEIVED BY: _____

18225 FM 2252, SAN ANTONIO, TX 78266 PHONE: (210) 651-6860 FAX: (210) 651-5435

RECEIVED
SEP 26 2013
COUNTY ENGINEER

San Antonio Water System

September 12, 2013

RECEIVED
SEP 26 2013
COUNTY ENGINEER

Mr. Richard Gallegos
Gallegos Engineering, Inc.
101 Fawn Drive
San Antonio, Texas 78231

RE: File No. 223 - Request for review and approval of an Aquifer Protection Plan (Letter of Certification) for **Ramble Ridge Development,** located northeast of the intersection of Natural Bridge Caverns Road and FM 3009

Dear Mr. Gallegos:

On September 6, 2013 the Resource Protection and Compliance Division of the San Antonio Water System (SAWS) received an Aquifer Protection Plan issued by your office concerning the property referenced above. This letter serves as certification that the requirements of Chapter 34, Article VI, Division 6, Sections 34-910 and 34-911 of the San Antonio City Code have been complied with as they apply to the above-referenced development. Ramble Ridge Development, 388.58 acres, is a Category 3 property as defined by the Aquifer Protection Ordinance (Ordinance No. 81491) of the City of San Antonio Code.

This Letter of Certification does not relieve or reduce the obligation of the recipient of this letter, the land owner, developer, or affiant to fully and completely comply with all of the terms and conditions of the application for a approved Aquifer Protection Plan, the approved Water Pollution Abatement Plan and/or Pollution Prevention Criteria that have been submitted in relation to the referenced development project. The recipient of this letter is authorized to commence development activities as provided for, and subject to all of the terms and conditions of Chapter 34, Article VI, Division 6, of the San Antonio City Code. Pursuant to Section 34-910 of said Code, this Letter of Certification **will expire** if not utilized within **three years** from the date of this document.

Sincerely,

Michael J. Barr, Supervisor
Aquifer Protection and Evaluation Section

Approved:

Andrew Wiatrek, Manager
Edwards Aquifer and Watershed Protection Division

AW:BVK

San Antonio Water System

RECEIVED
SEP 26 2013
COUNTY ENGINEER

THE

AQUIFER PROTECTION PLAN

PROJECT NAME: Ramble Ridge Subdivision

APPLICANT: TKO Real Estate II, L.P.

DATE: 9/6/13

Revised: April, 2007

AQUIFER PROTECTION PLAN

For Activities Which Require Pollution Prevention Practices on the Edwards Aquifer Recharge Zone/Drainage/Contributing Zone Area.

No development shall be undertaken on any land, tract, parcel, or lot which is within the boundaries of the Edwards Aquifer Recharge Zone and which is also subject to regulation by Chapter 34 of the City Code ArticleVI, Division 6 unless and until an Aquifer Protection Plan is issued by the Resource Protection and Compliance Department of the San Antonio Water System to the owner, developer of such property or their authorized agent.

GENERAL INFORMATION

PROJECT NAME: Ramble Ridge Subdivision WPAP Modification

ACREAGE: 388.58

Do Not Write in this box **For SAWS use only** **Updated April, 2007**	
Received by SAWS (Day 1)	
Inspection Date:	
Judged Administratively ____ Complete..... ____ Incomplete.....	DATE _____ _____
Water Pollution Abatement Plan ____ Submitted ..... ____ Approved	DATE _____ _____
Has a Variance been requested?	____ Yes ____ No
_____ Approved _____ Incomplete and Returned _____ Disapproved	

T H E AQUIFER PROTECTION P L A N

The following information must be provided to the Resource Protection & Compliance Department. All questions must be completed on the application and all information provided on the Aquifer Protection Plan. **Category 1 properties are not required to fill out the Aquifer Protection Plan (formerly known as the Site Development Plan/Letter of Certification).**

APPLICATION:

SOURCE: Page six (6) of the Aquifer Protection Ordinance No. 81491

Aquifer Protection Plan (s)

The following information must be included in the Aquifer Protection Plan (s). Please check "SB" for Submitted or "NA" for Not Applicable. Failure to comply with these requirements constitutes cause for rejection of the plan (s).

	SB	NA	(SB=Submitted NA=Not Applicable)
1.	✓		The date, written scale and bar scale, north arrow, and key site plan showing the location of the tract on which the development is to take place.
2.	✓		The existing boundary lines and acreage of the tract on which the development is to take place, and the common boundary lines and names of the owners of adjacent properties.
3.	✓		Identification of all existing and/or proposed Floodplain Preservation Areas, floodplain buffer zones, highly significant recharge features and buffer zones, and all such other areas with restrictions as required by this article.
4.		✓	A detailed erosion/sedimentation control plan and construction sequencing plan required by Section 34-975 of the Aquifer Protection Ordinance # 81491.
5.		✓	A detailed drainage plan and street layout that comply with the requirements of this division (Aquifer Protection Ordinance # 81491).
6.		✓	Engineering drawings showing compliance with the applicable requirements of this division (Aquifer Protection Ordinance # 81491) for control strategies on development.
7.		✓	A report, site plan, and/or other relevant information addressing the Best Management Practices as required by sections 34-965 through 34-975 (Aquifer Protection Ordinance # 81491).

	SB	NA	
8.	✓		A topographic map, drawn to a scale of one hundred (100) feet to one inch, or at a scale appropriate for the size of the development. The map should display, according to the best information available, topographic and geologic information and features (including, but not limited to, faults and fractures along waterways, and sinkholes), and proposed and existing floodplain preservation areas. Details of buffering for features and floodplains when applicable.
9.	✓		The location, type of use, and total percentage of proposed and existing impervious cover on the site, in conformance with this Division. Impervious cover shall include asphalt and concrete surfaces, sidewalks, rooftops, swimming pools and other surfaces which do not allow percolation into the subsurface.
10.		✓	Location of all temporary and permanent runoff detention basins, constructed and altered waterways and other physical facilities to be installed to comply with the terms of this division.
11.		✓	An affidavit from the appropriate affiant showing acceptance of legal and financial responsibility for structural controls, maintenance cost, monitoring, and remediation.
12.		✓	Final plans for underground utility installation shall be submitted with the Aquifer Protection Plan and shall show maximum construction corridor widths.
13.		✓	Location of all monitoring stations, sample points or other significant devices used to obtain, measure, or assure water quality.
14.		✓	Any baseline water quality data from surface water samples required to be taken or maintained under regulations established by the San Antonio Water System.
15.		✓	A maintenance plan which provides the proposed schedule and details of maintenance which will be performed to ensure the proper operation and effectiveness of all control structures.
16.		✓	Special notes or attachments as may be required by other Sections of this Division.
17.	✓		Has the site plan (s) been sealed by a registered professional engineer?

San Antonio Water System
Aquifer Protection Plan

COMPLETELY FILL OUT THE FOLLOWING INFORMATION

1. Person making inquiry:

Contact Person: Virgil Knowlton
Entity: TKO Real Estate II, L.P.
Mailing Address: 1100 N.E. Loop 410, Ste. 900
City, State: San Antonio, Texas
Zip Code: 78209
Telephone: 210-651-6860
Fax: 210-494-9840

2. Agent (If any):

Contact Person: Richard Gallegos
Entity: Gallegos Engineering, Inc.
Mailing Address: 101 Fawn Drive
City, State: San Antonio, Texas
Zip Code: 78231
Telephone: 210-641-0812
Fax: 210-641-2037

3. Enter Site Address (if assigned):

Street (If assigned): 26,000 Block of Natural Bridge Caverns Rd (FM 3009)
City, Zip: Garden Ridge, Texas

(Check appropriate box)

Relationship To Recharge Zone	GOVERNMENTAL JURISDICTION			
	Inside San Antonio City Limits	Within City of San Antonio ETJ	In Bexar County and outside San Antonio ETJ	Acreage Subtotal
Acreage within Transition Zone				
Acreage within Recharge Zone		V		388.58
Acreage within Contributing Zone Area				
TOTAL PROJECT ACREAGE				388.58

4. The location of the project site is generally described below (Example "NE corner of Bitters & Heimer Roads", "On east side of Heimer Road, 1/4 mile north of Bitters Road").

Located on Fm 3009 approximately 8.2 miles northwest of IH35

5. ✓ A copy of the official 7 1/2 minute USGS quadrangle map (s) of the Edwards Recharge Zone is attached behind this sheet. Maps are available from:

Edwards Aquifer Authority (Edwards Underground Water District) (210) 222-2204
Ferguson Map Company (210) 829-7629.

The map (s) should clearly show:

1. Project Site.
2. USGS Quadrangle Name(s).
3. Boundaries of the Recharge Zone.

6. The locations of **all known wells** (oil, water, unplugged, capped and/or abandoned, test holes, etc.). Mark all that apply.

6A.____ There are no wells or test holes of any kind known to exist on this project site:

6B.____ #____ well(s) will be drilled and used for _____;

6C.✓ # 4 well(s) are **present** on the project site and their locations are labeled on the Site Plan.

(1) ✓ The well(s) **have been** properly abandoned.

(2) ____ The well(s) are not in use and **will be** properly abandoned.

(3) ____ The wells are in use and comply with Chapter 34 of the San Antonio City Code, Article VI, Division 2, entitled Wells containing Sections 34-566 thru Sections 34-590. The well(s) will be used for _____.

7. The **type of project** is:
(Check all that apply)

	# of Lots	# of Living Unit Equivalents	Projected Population
Residential	211		836
Multi-Family			
Commercial		NA	NA
Utility		NA	NA
Recharge Structure/Dam		NA	NA
Other			

8. A narrative description of the proposed project is included below:
WPAP modification is for the possible reclassification of Karst features.

9. Buffering if applicable
✓ Floodplain – Describe how the floodplain will be buffered:

✓ Sensitive/Significant Features (**"sensitivity of ≥40 and a catchment area of ≥1.6 acres-from Geological Assessment"**) – Describe how the feature/s will be buffered:
See Attachment B from TCEQ WPAP modification application.
See Geologic Assessment tables.

10. Impervious cover of Project
✓ Impervious cover of portion of project within the Edwards Aquiver Recharge Zone
7.32 Percentage 28.44 Acreage
___ Impervious cover of portion of project within the Contributing Zone
_____ Percentage _____ Acreage

11. Source of Potable Water.

___ San Antonio Water System
✓ Water Purveyor: 3009 Water Company, LLC
___ Other: _____
___ Private on-site water well (s). Source of water (formation)(if known)_____
___ No potable water will be needed for this project.

12. Source of Non-Potable water.

✓ Non Applicable
___ Private on-site water well (s). Source of water (formation)(if known) _____
___ Other: _____

13. The existing conditions on the project site are noted below.
The project site is:

___ Existing commercial site
___ Existing industrial site
✓ Existing residential site
___ Existing paved and/or unpaved roads
___ Undeveloped (Clear)
___ Undeveloped (with woods and meadows)
___ Partially Developed.
___ Other _____

14. Municipal Solid waste, and/or hazardous waste:

___ There are areas of trash, debris or other municipal solid waste or hazardous waste on this property which will be disposed of properly at an authorized landfill prior to commencing construction.

✓ There are no areas of trash, debris or other municipal solid waste or hazardous waste existing on this property.

___ Other comments describe below:

_____

_____

15. Wastewater to be generated by proposed project.

Wastewater to be generated by proposed project:	
Character	Volume
100 % Domestic	62,700 gallons/day
___ % Industrial	_____ gallons/day
___ % Commingled	_____ gallons/day
TOTAL	62,700 gallons/day

16. The Method of Wastewater Disposal is:

On site sewage facility for each individual lot.

16A. ✓ On-Site Sewage Treatment (Septic Tank):

On-site septic tanks will be used to treat and dispose of wastewater. **The appropriate licensing authority's letter is attached directly behind this page.** It states that the land is suitable for the use of a septic tank or identifies areas that are not suitable.

Furthermore, I am aware that the minimum lot size in Bexar County for an on-site sewage treatment facility on the Recharge Zone is one (1) acre. Each lot in this project / development is at least one (1) acre in size and the on-site treatment facility will be designed and installed by a Texas licensed sanitarian or engineer. A copy of the letter from the County or City approving the use of on-site sewage treatment designed in accordance with County and City requirements is attached.

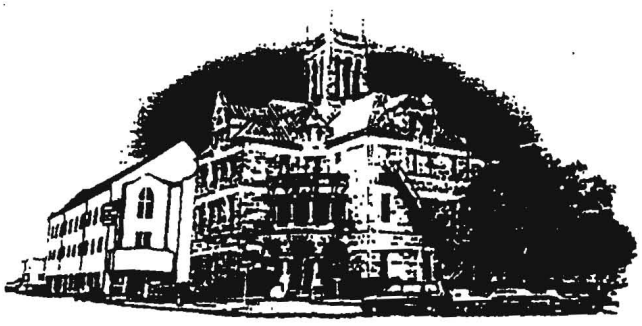
_____ 9/20/13
Signature Date

16B. ___ On-Site Sewage Collection System (Sewer Lines):

An organized **public or private** (circle one) sewage collection system (SCS) will convey wastewater from this project off of the Recharge Zone for treatment and disposal at the EXISTING / PROPOSED (circle one) _____ Sewage Treatment Plant (S.T.P.).

16C. ___ For sewer lines, all private service laterals will be inspected by:

Entity Name: _____
Address: _____
City, State, Zip: _____
Telephone: _____
Fax: _____



Comal County

OFFICE OF COMAL COUNTY ENGINEER

November 14, 2005

Ramble Ridge, L.L.C.
17460 IH35N, Ste. 160-350
Schertz, TX 78154

Re: Proposed subdivision of RAMBLE RIDGE SUBDIVISION, within Comal County, Texas

Dear Property Owner:

We have completed the field inspection of the referenced for the recommendation for private sewage facilities and have found the property to be approved with the conditions that individual septic systems permits shall be required for the lots within this subdivision.

Please be advised that these individual permits will be required to meet 30 TAC 285.40, subchapter E (copy attached). Please specifically reference the one acre minimum lot size and 150 foot distance requirement to recharge features.

Should you have any questions, please feel free to contact us.

Sincerely,

Thomas H. Hornseth, P.E.
Comal County Engineer

xc: Mr. Mike Harris, R.P.L.S.,
ACS, Inc.

SUBCHAPTER E : SPECIAL REQUIREMENTS FOR OSSFS LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE
§285.40

§285.40. OSSFs on the Recharge Zone of the Edwards Aquifer.

(a) Applicability. In addition to the requirements given in this chapter, the following additional provisions apply to the Edwards Aquifer recharge zone as defined in §285.2 of this title (relating to Definitions) and is not intended to be applied to any other areas in the State of Texas.

(b) Additional application requirements for new OSSFs.

(1) All planning and design materials shall be submitted by a professional engineer or sanitarian registered in Texas.

(2) Site evaluation to be conducted by a certified site evaluator possessing a valid certificate.

(c) Conditions for obtaining a permit to construct. In order to obtain a permit to construct in the Edwards Aquifer recharge zone, the following conditions must be met.

(1) Minimum lot sizes. Each lot or tract of land on the recharge zone on which OSSFs are to be located must have an area of at least one acre (43,560 square feet) per single family dwelling.

(2) Minimum separation distances from recharge features. The following separation distances shall be maintained from recharge features found during a site evaluation or in accordance with a geologic assessment performed in accordance with Chapter 213 of this title (relating to Edwards Aquifer). No sewage treatment tank or holding tank may be located within 50 feet of a recharge feature. No soil absorption system may be located within 150 feet of a recharge feature.

(3) No OSSF may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde county line to the recharge zone.

(d) Existing OSSFs. OSSFs licensed by, or registered with, the appropriate permitting authority at the time of adoption of this section shall remain licensed or registered under the terms and conditions of the current license or registration. Any relicensing shall be performed in accordance with §285.3 of this title (relating to Applicability). An OSSF installed on the recharge zone prior to April 11, 1977, in either Uvalde or Kinney Counties is not required to be permitted or licensed, provided the OSSF is not causing pollution, is not a threat to the public health, or is not a nuisance, and has not been substantially modified.

(e) Exceptions for certain lots. Lots platted and recorded with the county in its official plat record, deed, or tax records of the following counties prior to the dates for the counties indicated in this

subsection, are exempted from the one-acre minimum lot size requirement, pursuant to the conditions of subsection (f) of this section.

(1) Kinney, Uvalde, Medina, Bexar, and Comal Counties--March 26, 1974;

(2) Hays County--June 21, 1984;

(3) Travis County--November 21, 1983; and

(4) Williamson County--May 21, 1985

(f) Notice. Any person, or his agents or assignees, desiring to construct a residential development with two or more lots in which OSSFs will be utilized in whole or in part on the recharge zone and desiring to sell, lease, or rent the lots therein, must inform in writing each prospective purchaser, lessee, or renter of the following.

(1) Each lot within the regulated development is subject to the terms and conditions of this section.

(2) A permit to construct shall be required before an OSSF can be constructed in the subdivision.

(3) A license to operate shall be required for the operation of an OSSF.

(4) Whether or not an application for a water pollution abatement plan as defined in Chapter 213 of this title (relating to Edwards Aquifer), has been made, and whether or not it has been approved, and whether any restrictions or conditions have been placed on that approval.

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Feature Re-Evaluation																
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING	
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	MOD 10	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z								<40	≥40	<1.6	≥1.6	
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-9	29-41-58.6	98-19-23.8	SC	20	Kek	1.5	2.5	1.5					F	12	32	X		X		Hillside
S-11	29-41-59.6	98-19-24.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside
S-14	29-42-0.3	98-19-22.1	SC	20	Kek	1	0.5	0.7					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-19	29-42-11.2	98-19-11.5	CD	5	Kek	1.5	2	0.3					O	15	20	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-32.1	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date: July 25, 2013

Sheet 1 of 2

STATE OF TEXAS
JL 7/25/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Feature Re-Evaluation																
LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	25	45		X	X		Hillside
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X		X		Hillside

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date: July 25, 2013

Sheet 2 of 2

STATE OF TEXAS
JL 7/31/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

ATTACHMENT B – NARRATIVE OF PROPOSED MODIFICATION

Ramble Ridge Subdivision original WPAP was approved on March 20, 2007. This modification is requesting reclassification of previously categorized sensitive features to non-sensitive features.

Here are the features we request being reclassified in numerical order: S-4 Lot 3, S-8 Lot 6, S-9 Lot 8, S-11 Lot 8, S-13 Lot 9, 14 Lot 9, S-15 Lot 9, S-16 Lot 9, S-17 Lot 132, S-19 Lot 132, S-24 Lot 143 and Lot 135, S-28 Lot 111, S-32 Lot 107, S-36 Lot 13 and Lot 14, S-37 Lot 13 and Lot 14, S-40 Lot 20 and Lot 21, S-46 Lot 169 and Lot 170 and S-52 Lot 56. See Site Plan located within WPAP section of this submittal or the Geological Assessment Site Geologic Map.

As stated in the original WPAP the buffer zones will remain in their natural state where any construction or soil disturbing is prohibited. When all or part of a buffer zone is located on a residential lot, the lot owner will mark the boundary of the buffer zone via a fence, placing large boulders, or some form of distinctive planting. The fencing used can be any visible type, boulders are to be a minimum of 12 inches in one dimension and be located no further than eight feet apart, while utilizing plants must be distinctive, and spaced no further apart than four times their height. The plants must be suitable for the climate and soil conditions of the site and must be unique so that other plants of the same species are not located on the same lot.

The purchaser of any lots having all or part of a buffer zone easement shall be given a copy of the easement delineation stated above along with a copy of the subdivision plat showing the subject lot and the easement contained thereon and including a copy of the Technical Guidance Manual RG-348.

Edwards Aquifer Recharge Zone and Contributing Zone Map
Edwards Aquifer Authority Rule Chapter 713

RECEIVED
SEP 26 2013
COUNTY ENGINEER



Creation date for ch. 713 subchs. E and F boundary: March 2008
Last revision date of the recharge zone boundary for this quadrangle map: March 1974

This area regulated as contributing zone by ch. 713 (Water Quality), subchs. E (Spill Reporting) and F (Hazardous Substances Registration, Storage, and Planning) of the EDWARDS AQUIFER AUTHORITY RULES
This area regulated as recharge zone by ch. 713 (Water Quality), subch. G (Aboveground and Underground Storage Tanks) of the EDWARDS AQUIFER AUTHORITY RULES

GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

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SEP 13 2013
COUNTY ENGINEER

2013 AUG -2 PM 2:09

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SAN ANTONIO
REGION

August 2, 2013

Ms. Dianne Pavlicek, P.G.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

Re: Response to July 12, 2013 Comments to Application for WPAP Modification
Ramble Ridge Subdivision, Comal County
San Antonio File No. 2614.01

Dear Ms. Pavlicek:

We are responding to your July 12, 2013 email requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

1. Karst features 19 of 20 have been reclassified as not sensitive based on the field visit on July 11, 2013 although Feature S-52 remains sensitive. Please replace the Geologic Assessment table 2 pages with the enclosed updated Geologic Assessment Table 2 pages dated July 25, 2013.
2. See attached Site Geologic Narrative for explanation of reclassification.
3. Mapped karst features have been corrected.
4. Enclosed find a revised Geologic Assessment Table showing only re-assessed features and new sensitive features pertinent to this WPAP modification. Narrative for the features has been enclosed. Map has been revised accordingly, dated July 25, 2013 and is attached to this cover letter.

Four additional copies of this entire package have been included for your use. Please let us know if you have any questions, comments or require any additional information.

Sincerely,
GALLEGOS ENGINEERING, INC.

Richard M. Gallegos, P.E.
President

STATE OF TEXAS
RICHARD M. GALLEGOS
86916
LICENSED
PROFESSIONAL ENGINEER

cc: Mr. Virgil Knowlton
TKO Real Estate II, L.P.

Dianne Pavlicek

From: Dianne Pavlicek
Sent: Friday, July 12, 2013 12:54 PM
To: Richard M. Gallegos (rg@gallegoseng.com); john.langan@psiusa.com; acs1@satx.rr.com
Cc: Todd Jones
Subject: Final Revisions / Ramble Ridge Karst Feature Re-Assessment

Hello Richard, John and Scott,

1) 19 of the 20 re-assessed karst features can be re-classified as not sensitive based on field observations on July 11, 2013. Feature S-52 shall remain as sensitive.

2) Not sensitive re-classification was based on Langan's (2012) varying feature type classification than Thornhill's (2006) and/or Langan's lower infiltration rate than Thornhill's.

3) My field observations revealed that several of the mapped karst features are not actually classifiable as unique karst features that should be rated. Many individually mapped features seem to be a continuation of the ubiquitous, dissolutioned, vuggy and fractured outcrop primarily of the Dolomitic member of the Edwards Group.

4) Final revision should include the following:
    a. Submit a modified Geologic Assessment Table listing only re-assessed features for WPAP Mod and any *new* sensitive features as mapped by Langan.
    b. Submit narrative descriptions of all features in GA Table.
    c. On the final map, show only numbered karst features that were re-assessed as not sensitive and any *new* sensitive features with *new* buffers; include explanation in map legend. Also, include ALL remaining buffer zones.
    d. 1 inch = 400 feet scale is fine; however, print final maps on sheets with dimensions of at least 22 inches x 28 inches. Please just submit 5 large maps all in color.

Please contact me with any questions or different ideas.

Molto grazie! (That's "Much thanks!" in Italian)

Dianne Pavlicek, M.A., P.G.
Geoscientist
Edwards Aquifer Protection Program
TCEQ – San Antonio Region
14250 Judson Road
San Antonio, TX 78233
Phone: 210-403-4074
Fax: 210-545-4329
dianne.pavlicek@tceq.texas.gov

TCEQ
Protecting Texas by Reducing and Preventing Pollution

Fax Cover Sheet

Number of Pages: *(including this sheet)* 3

Date:	May 15, 2013
To:	Richard M. Gallegos, P.E.
Organization:	Gallegos Engineering, Inc.
Fax:	210-641-2037
To:	Virgil Knowlton
Organization:	TKO Real Estate II, L.P.
Fax:	210-494-9840
From:	Dianne Pavlicek, P.G.
Division :	Edwards Aquifer Protection Program – San Antonio Region
	Texas Commission on Environmental Quality
Phone:	210-403-4074
Fax:	210-545-4329

Re: Edwards Aquifer, Comal County

Name of Project: Ramble Ridge Subdivision; Located 8.2 miles west of intersection of FM 3009 and IH-35, San Antonio, Texas

Plan Type: Request for the Modification of the Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213

San Antonio File No. 2614.01

Dear Mr. Gallegos:

We are in the process of technically reviewing the WPAP you submitted on the above-referenced project. Before we can proceed with our review, the following comments relating to the application must be addressed.

The following comments are the result of your May 14, 2013 response.

1) Regarding item 2-9 concerning feature S-41 on Lot 20, it is stated that S-41 is a new feature. My April 9, 2013 comments noted that S-41 is not listed in Geologic Assessment Table and that Thornhill rates it SC 38 (not sensitive). The response to this comment was that S-41 was removed from GA Table. Please explain these discrepancies. *Again note that S-41 is not in the original GA Table (Langan) and since Thornhill rates it SC 38, it should be removed from the map.*

S-9
S-13
S-14
S-65
S-58
S-45
S-52

5) ***Please review these comments carefully so that another revision is not required.***

6) ***Please contact me with any questions you may have.***

We ask that you submit one original and four copies of the amended materials to supplement the WPAP to this office by no later than **14 days from the date of this fax** to avoid denial of the plan. If the response to this notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, a second notice will be sent to you requiring a response within 14 days from the notice date. 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 will be denied unless you provide written notification that the application is being withdrawn. Please note that the application fee will be forfeited if the plan is not withdrawn. If you have any questions or require additional information, please contact Dianne Pavlicek, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4074.

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Feature Re-Evaluation																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B	1C	2A	2B	3	4				5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	MENSIONS (FEET)			TREND OF FEATURE	DEG	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						>40	≤40	>1.6	>1.6	
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-9	29-41-58.6	98-19-23.8	SC	20	Kek	1.5	2.5	1.5					F	12	32	X		X		Hillside
S-11	29-41-59.6	98-19-24.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside
S-14	29-42-0.3	98-19-22.1	SC	20	Kek	1	0.5	0.7					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-19	29-42-11.2	98-19-11.5	CD	5	Kek	1.5	2	0.3					O	15	20	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-32.1	O	5	Kek	2.5	2	0.7			3	[illegible]	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside

* DATUM

2A TYP	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 material

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

Date: July 25, 2013

Sheet 1 of

STATE OF TEXAS
7/25/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Feature Re-Evaluation																	
LOCATION			FEATURE CHARACTERISTICS													EVALUATION			PHYSICAL SETTING		
1A	1B	1C	2A	2B	3	4			5	6A	6	7	8A	8B	9	10			11		12
DATUM*	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (feet)			TREND (DEGREES)	CAVE? Y/N	DEPTH (feet)	# OF FEATURES	APERTURE (feet)	INFILL	RELATIVE HUMIDITY (%)	DATE	SPELEOTHEMS		ENTRANCE/FEATURE ACCESS		TOPOGRAPHY
						X	Y	Z		Y/N							Y/N	Y/N	Y/N	Y/N	
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5						F	5	10	X		X		Hillside
S-46	29-42-19.2	98-19-37.6	MB	30	Kek	45	30	4						F	0	30	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1						N	25	45		X	X		Hillside
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8						O	12	32	X		X		Hillside

* DATUM:

2A TYP	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
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12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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Date: July 25, 2013

Sheet 2 of

STATE OF TEXAS
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

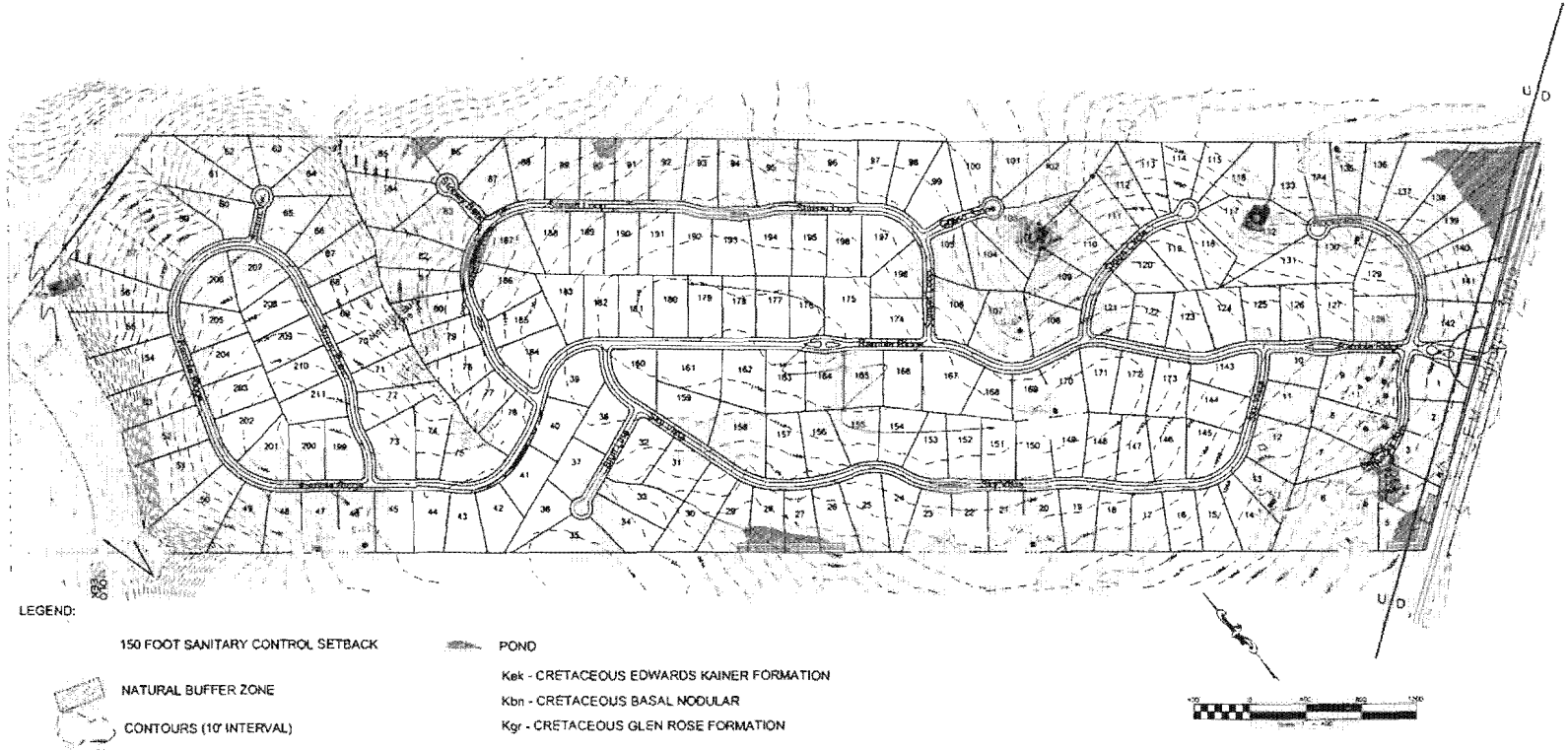
SITE GEOLOGIC NARRATIVE

The underlying rocks at the site are predominantly members of the Lower Cretaceous Edwards Kainer Formation. The underlying Basal Nodular Member (Kbn) occurs at lower elevations in the southern and northern portions of the site. The Glen Rose Limestone (Upper Member, Kgru) occurs along the northwestern property line, in the Cibolo Creek floodplain. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Kainer Formation ranges between 260 and 310 feet thick and forms the lower water-bearing member of the Edwards Group, beneath the Person Formation which compromises the Edwards Aquifer, a federally-designated sole source aquifer for the region. The Kainer includes the Basal Nodular Member, which in turn overlies the Upper Member of the Glen Rose Limestone.

Feature S-4 is located near the southwest property line, which was mapped as a "zone" and rated sensitive by others, but re-inspection revealed only an outcrop, with limited potential for recharge, and thus rated as not sensitive. Features S-9, 11, 13, 14, 15, and 16 were all located in the southwest portion of the tract, just north of Rocky Rim, and appeared to be related to erosion of outcrops on hillsides, with occasional, and limited solution cavities. These features were previously hand-excavated in 2012 and found to have potential for subsurface interconnection, and thus were also rated not sensitive.

Features S-8, S-17 and S-19 were in topographic drainages, and were minor solution cavities and/or closed depressions with low potential for subsurface interconnection. Features S-24, 28 and 32 were also in drainages, a solution enlarged fracture, outcrop and solution cavity, respectively. As with the earlier cases, these features did not reveal subsurface interconnection during the hand excavation and probing done earlier, and thus did not rate as sensitive features. Features S-36 and 37 appear to be differential erosion features related to bedding planes rather than solution cavities; S-46 was previously mapped as a "swallet" but is a man-made excavation that was observed to have standing water in 2012, but is currently dry.

Features S-40 and 45 were closed depressions on the western property line at relatively high elevations, with limited recharge potential confirmed by hand excavations. Feature S-52 is on the far north portion of the property, near the floodplain, on a steep hillside with limited development potential, in the Basal Nodular Member of the Edwards Group. This feature has a large opening, and based on the proximity to the floodplain, was judged to be a sensitive feature. Feature S-58 is a small solution cavity in the northwest portion of the property, on a hillside with limited potential for subsurface interconnection, and thus low recharge potential and sensitivity.



LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

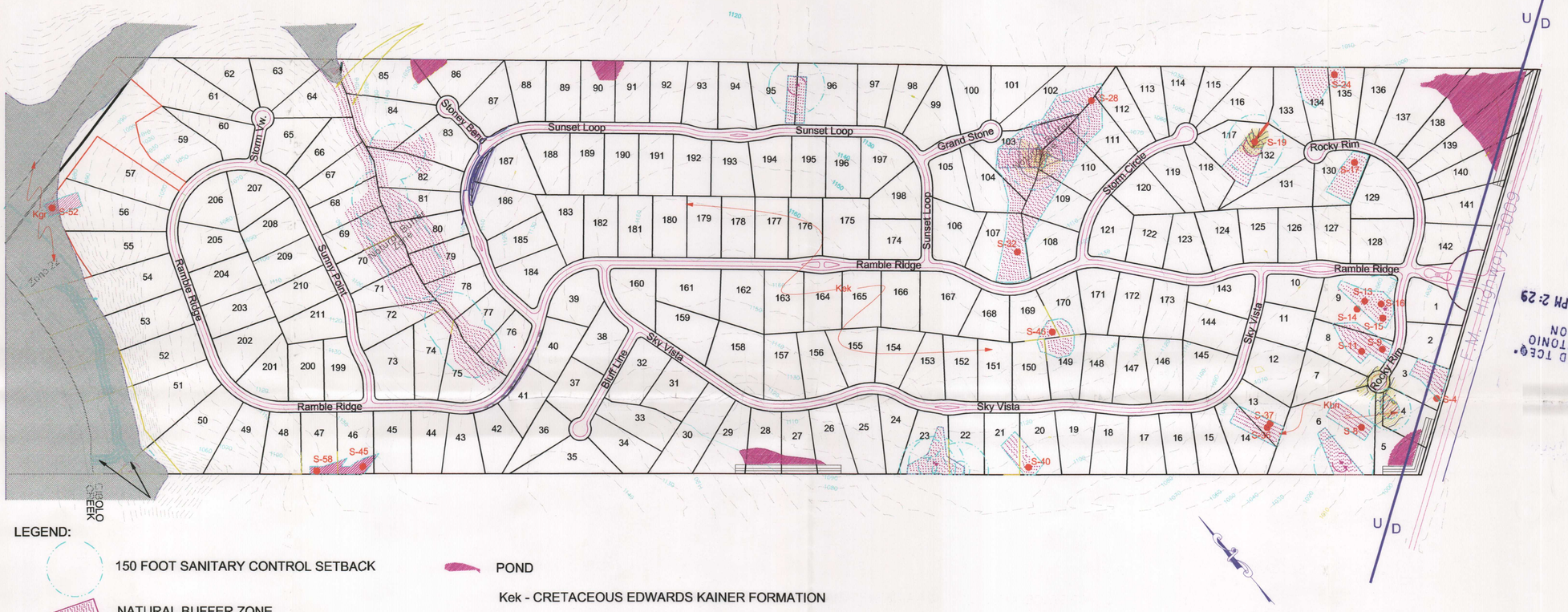
Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

psi Information To Build On
Engineering • consulting • testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/7/13

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS



LEGEND:

- 150 FOOT SANITARY CONTROL SETBACK
- NATURAL BUFFER ZONE
- CONTOURS (10' INTERVAL)
- VARIABLE WIDTH DRAINAGE EASEMENT
- SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN
- POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION
Kbn - CRETACEOUS BASAL NODULAR
Kgr - CRETACEOUS GLEN ROSE FORMATION

400' 0 400' 800' 1200'
Scale: 1" = 400'

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JL 7/26/13
John Langan
Geology
4971
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STATE OF TEXAS

psi
Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 07/25/13
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

August 26, 2013

Ms. Dianne Pavlicek, P.G.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

Re: Response to August 5, 2013 Comments to Application for WPAP Modification
Ramble Ridge Subdivision, Comal County
San Antonio File No. 2614.01

Dear Ms. Pavlicek:

We are responding to your August 5, 2013 fax requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

1. Map has been correct per comments. Attached see one original and four copies.
2. Enclosed please find an original and four additional copies of the latest GA tables for your use.

Please let us know if you have any questions, comments or require any additional information.

Sincerely,
GALLEGOS ENGINEERING, INC.

Richard M. Gallegos, P.E.
President

STATE OF TEXAS
RICHARD M. GALLEGOS
86916
LICENSED
PROFESSIONAL ENGINEER
8/26/13

cc: Mr. Virgil Knowlton
TKO Real Estate II, L.P.

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SAN ANTONIO
REGION
2013 AUG 26 AM 9:35

TCEQ
Protecting Texas by Reducing and Preventing Pollution

Fax Cover Sheet

Number of Pages: *(including this sheet)* 2

Date:	August 5, 2013
To:	Richard M. Gallegos, P.E.
Organization:	Gallegos Engineering, Inc.
Fax:	210-641-2037
To:	Virgil Knowlton
Organization:	TKO Real Estate II, L.P.
Fax:	210-494-9840
From:	Dianne Pavlicek, P.G.
Division :	Edwards Aquifer Protection Program – San Antonio Region
	Texas Commission on Environmental Quality
Phone:	210-403-4074
Fax:	210-545-4329

Re: Edwards Aquifer, Comal County

Name of Project: Ramble Ridge Subdivision; Located 8.2 miles west of intersection of FM 3009 and IH-35, San Antonio, Texas

Plan Type: Request for the Modification of the Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213

San Antonio File No. 2614.01

Dear Mr. Gallegos:

We are in the process of technically reviewing the WPAP you submitted on the above-referenced project. Before we can proceed with our review, the following comments relating to the application must be addressed.

The map submitted on August 2, 2013 was not updated. Please submit the ***final map*** with the following information:

1) Show the location of the following features that were re-classified as not sensitive ***without*** a buffer zone, since they have been re-classified as not sensitive:

S-4
S-8
S-9

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Feature Re-Evaluation																
LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C *	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ROD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-9	29-41-58.6	98-19-23.8	SC	20	Kek	1.5	2.5	1.5					F	12	32	X		X		Hillside
S-11	29-41-59.6	98-19-24.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside
S-14	29-42-0.3	98-19-22.1	SC	20	Kek	1	0.5	0.7					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-19	29-42-11.2	98-19-11.5	CD	5	Kek	1.5	2	0.3					O	15	20	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-32.1	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

Date: July 25, 2013

Sheet 1 of 2

STATE OF TEXAS
JL 7/25/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

RECEIVED TCEQ
SAN ANTONIO
REGION
2013 AUG 26 AM 9:35

GEOLOGIC ASSESSMENT TABLE	PROJECT NAME: Ramble Ridge Feature Re-Evaluation																			
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	FOR CD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	25	45		X	X		Hillside
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X		X		Hillside

* DATUM:_____

2A TYP	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	
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12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date: July 25, 2013

Sheet 2 of 2

STATE OF TEXAS
JL 7/31/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

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SAN ANTONIO
REGION
2013 AUG 26 AM 9:35

Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 3, 2013

Mr. Virgil Knowlton
TKO Real Estate II, L.P.
1100 NW Loop 410, Suite 900
San Antonio, Texas 78209

Re: Edwards Aquifer, Comal, County

NAME OF PROJECT: Ramble Ridge Subdivision; Located 8.2 miles west of intersection of FM 3009 and IH 35; San Antonio ETJ, 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. 2614.01; Investigation No. 1075611; Regulated Entity No. RN-105155808; Additional ID No. 13-13031901

Dear Mr. Knowlton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Gallegos Engineering, Inc. on behalf of TKO Real Estate II, L. P. on March 19, 2013. Final review of the WPAP was completed after additional material was received on April 29, 2013, May 14, 2013, August 2, 2013 and August 26, 2013. 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 WPAP for the single family residential project was approved on March 20, 2007. The site has an area of approximately 388 acres with 28.30 acres (7.28 percent) of impervious cover. The development includes 209 lot sites, home buildings and driveways, public roads, recreation area and utilities. Project wastewater is disposed of by an on-site sewage facility for each lot. No permanent BMPs were required for

this project, since it is a single family residential development with not more than 20 percent impervious cover.

PROJECT DESCRIPTION

This WPAP Modification requested the reclassification of several karst features rated as sensitive in the Geologic Assessment done by Thornhill (2006) as a result of a new Geologic Assessment done by Langan (2012). Reclassifying sensitive features to not sensitive would allow for more lots to be buildable for home residences.

PERMANENT POLLUTION ABATEMENT MEASURES

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

GEOLOGY

Site geology consists of the Kirschberg Evaporite member, Dolomitic member and Basal Nodular member of the Kainer Formation of the Edwards Group. The Glen Rose Limestone (Upper member) occurs along the northwestern property line, in the Cibolo Creek floodplain. Thornhill (2006) identified 72 features with 40 of these features rated as sensitive. Langan (2012) proposed to reclassify 20 of the 40 sensitive features to not sensitive.

A site assessment conducted by the San Antonio Regional Office staff geoscientist along with John Langan, P.G., on July 11, 2013, concluded that 19 of the 20 karst features proposed for reclassification could be reclassified to not sensitive. This reclassification is based on the misidentification of karst feature type by Thornhill (2006) and/or variation in the selected relative infiltration rate of the feature. Many individually mapped features seemed to be a continuation of the ubiquitous, dissolutioned, vuggy and fractured outcrop of the lower section of the Dolomitic member. Assessment by Langan (2012) included the hand excavation and probing of several features and revealed no subsurface interconnection and thus such features did not rate as sensitive.

The following features were reclassified from sensitive to not sensitive: S-4, S-8, S-9, S-11, S-13, S-14, S-15, S-16, S-17, S-19, S-24, S-28, S-32, S-36, S-37, S-40, S-45, S-46 and S-58. Feature S-52 will remain as sensitive. A final map depicting the natural buffer zones for the remaining 21 sensitive karst features on the site and the location of the reclassified features is included in the August 26, 2013 final submission to the TCEQ.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated March 20, 2007.

II. The existing 21 karst features rated as sensitive shall be managed in accordance with TCEQ RG-348 Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices (2005), Chapter 5: Management of Sensitive Features.

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. Four 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 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.

<u>After Completion of Construction:</u>

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 Dianne Pavlicek, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4074.

Sincerely,

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

LB/DP/eg

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

cc: Mr. Richard Gallegos, P.E., Gallegos Engineering, Inc.
Mr. Scott Halty, San Antonio Water System
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

Bryan W. Shaw, Ph.D., *Chairman*
Carlos Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Covar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 21, 2013

RECEIVED
MAR 26 2013
COUNTY ENGINEER

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

Re: Edwards Aquifer, Comal County
PROJECT NAME: Ramble Ridge Subdivision, located 8.2 miles northwest of the IH 35 and FM 3009 intersection, San Antonio, Texas
PLAN TYPE: Application for Approval of a Water Pollution Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 2614.01

Dear Mr. Hornseth:

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

Please forward your comments to this office by April 21, 2013.

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
Water Section Work Leader
San Antonio Regional Office

TJ/eg

Ramble Ridge
Conal

Modification of a Previously Approved Plan Checklist

TCEQ-R13
MAR 19 2013
SAN ANTONIO

✓ 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*)

RECEIVED
MAR 26 2013
COUNTY ENGINEER

NA 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

NA 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)*

TCEQ-R13
MAR 19 2013
SAN ANTONIO

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

REGULATED ENTITY NAME: Ramble Ridge Subdivision
COUNTY: Comal STREAM BASIN: Cibolo Creek
Bear Creek

EDWARDS AQUIFER: ✓ RECHARGE ZONE
__ TRANSITION ZONE

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

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Virgil Knowlton
Entity: TKO Real Estate II, L.P.
Mailing Address: 1100 N.E. Loop 410, Ste 900
City, State: San Antonio, Texas Zip: 78209
Telephone: 210-651-6860 FAX: 210-494-9840

Agent/Representative (If any):

Contact Person: Richard M. Gallegos
Entity: Gallegos Engineering, Inc.
Mailing Address: 101 Fawn Drive
City, State: San Antonio, Texas Zip: 78231
Telephone: 210 641-0812 FAX: 210 641-0812

2. __ This project is inside the city limits of _____.
✓ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of San Antonio.
__ 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.

4. ✓ **ATTACHMENT A - ROAD MAP**. A road map showing directions to and the location of the project site is attached at the end of this form.

5. ✓ **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind t his sheet. The map(s) should clearly show:

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

6. ✓ Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. **The TCEQ must be able to inspect the project site or the application will be returned.**

7. ✓ **ATTACHMENT C - PROJECT DESCRIPTION**. Attached at the end of this form is a detailed narrative description of the proposed project.

8. Existing project site conditions are noted below:
   - ___ Existing commercial site
   - ___ Existing industrial site
   - ___ Existing residential site
   - ✓ Existing paved and/or unpaved roads
   - ✓ Undeveloped (Cleared)
   - ✓ Undeveloped (Undisturbed/Uncleared)
   - ___ Other: _____

PROHIBITED ACTIVITIES

9. ✓ I am aware that the following activities are prohibited on the **Recharge Zone** and are not proposed for this project:

   (1) waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
   (2) new feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
   (3) land disposal of Class I wastes, as defined in 30 TAC §335.1;
   (4) the use of sewage holding tanks as parts of organized collection systems; and
   (5) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

10. ✓ I am aware that the following activities are prohibited on the **Transition Zone** and are not proposed for this project:

   (1) waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
   (2) land disposal of Class I wastes, as defined in 30 TAC §335.1; and
   (3) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

ADMINISTRATIVE INFORMATION

11. The fee for the plan(s) is based on:
   - ✓ For a Water Pollution Abatement Plan and Modifications, the total acreage of the site where regulated activities will occur.
   - ___ For an Organized Sewage Collection System Plans and Modifications, the total linear

footage of all collection system lines.

__ For a UST Facility Plan or an AST Facility Plan, the total number of tanks or piping systems.

__ A request for an exception to any substantive portion of the regulations related to the protection of water quality.

__ A request for an extension to a previously approved plan.

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

__ TCEQ cashier

__ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)

✓ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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

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

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

Richard M. Gallegos
Print Name of Customer/Agent

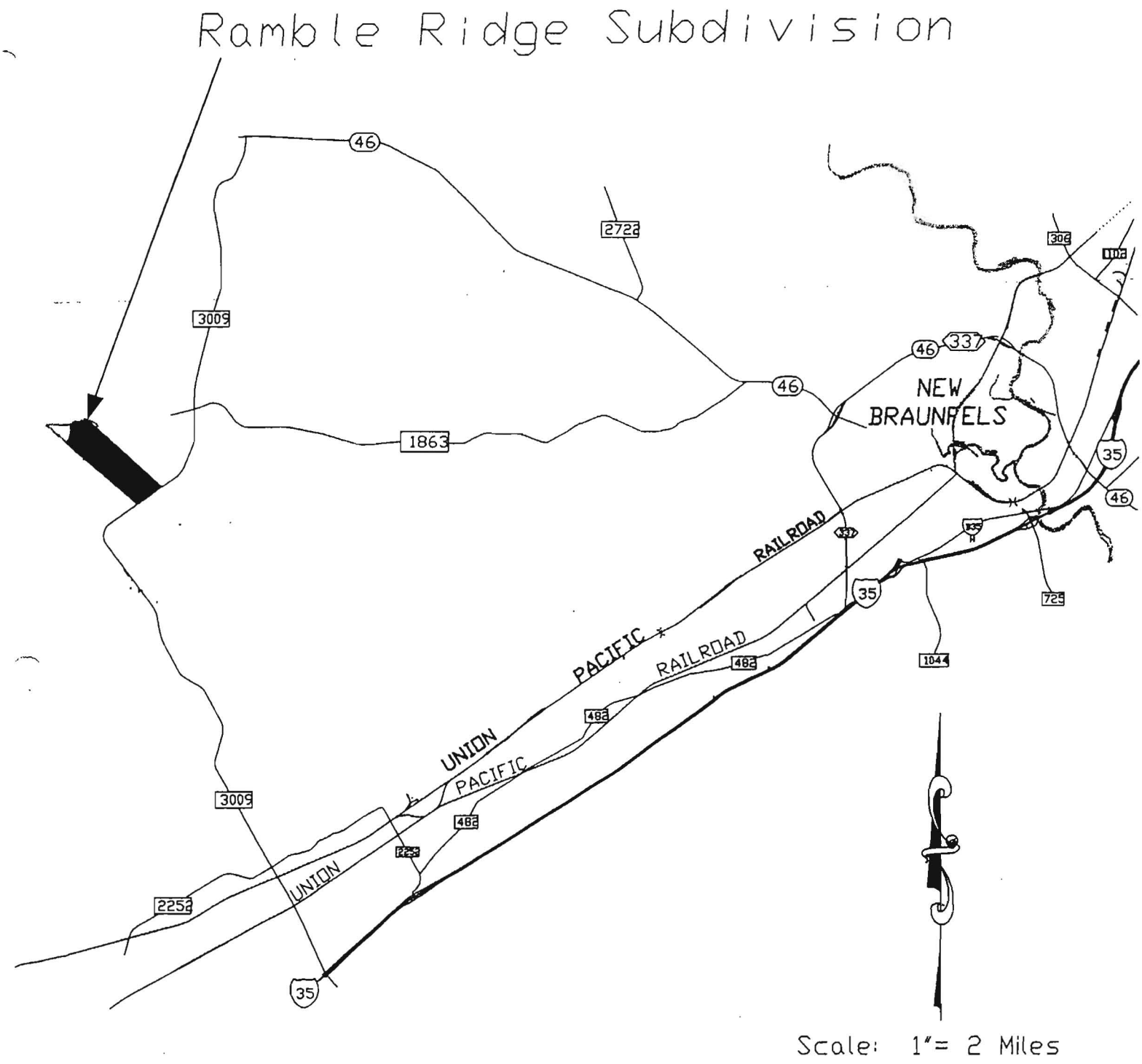
Signature of Customer/Agent

3/5/13
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.

ATTACHMENT A – ROAD MAP



ATTACHMENT A

RAMBLE RIDGE SUBDIVISION

LOCATION MAP

ATTACHMENT B – USGS/EDWARDS RECHARGE ZONE MAP

BAT CAVE QUADRANGLE

Edwards Aquifer Recharge Zone and Contributing Zone Map
Edwards Aquifer Authority Rule Chapter 713



Creation date for ch. 713 subchs. E and F boundary: March 2008

Last revision date of the recharge zone boundary for this quadrangle map: March 1974

This area regulated as contributing zone by ch. 713 (Water Quality), subchs. E (Spill Reporting) and F (Hazardous Substances Registration, Storage, and Planning) of the EDWARDS AQUIFER AUTHORITY RULES

This area regulated as recharge zone by ch. 713 (Water Quality), subch. G (Aboveground and Underground Storage Tanks) of the EDWARDS AQUIFER AUTHORITY RULES

ATTACHMENT C – PROJECT DESCRIPTION

Ramble Ridge Subdivision original WPAP was approved on March 20, 2007. This modification is requesting reclassification of previously categorized sensitive features to non-sensitive features.

Here are the features we request being reclassified in numerical order: S-4 Lot 3, S-8 Lot 6, S-9 Lot 8, S-11 Lot 8, S-13 Lot 9, 14 Lot 9, S-15 Lot 9, S-16 Lot 9, S-17 Lot 132, S-19 Lot 132, S-24 Lot 143 and Lot 135, S-28 Lot 111, S-32 Lot 107, S-36 Lot 13 and Lot 14, S-37 Lot 13 and Lot 14, S-40 Lot 20 and Lot 21, S-46 Lot 169 and Lot 170 and S-52 Lot 56. See Site Plan located within WPAP section of this submittal or the Geological Assessment Site Geologic Map.

As stated in the original WPAP the buffer zones will remain in their natural state where any construction or soil disturbing is prohibited. When all or part of a buffer zone is located on a residential lot, the lot owner will mark the boundary of the buffer zone via a fence, placing large boulders, or some form of distinctive planting. The fencing used can be any visible type, boulders are to be a minimum of 12 inches in one dimension and be located no further than eight feet apart, while utilizing plants must be distinctive, and spaced no further apart than four times their height. The plants must be suitable for the climate and soil conditions of the site and must be unique so that other plants of the same species are not located on the same lot.

The purchaser of any lots having all or part of a buffer zone easement shall be given a copy of the easement delineation stated above along with a copy of the subdivision plat showing the subject lot and the easement contained thereon and including a copy of the Technical Guidance Manual RG-348.

RECEIVED
MAR 2 6 2013
COUNTY ENGINEER

Geologic Assessment

PSI Original Geologic Assessment Dated May 3, 2012.

Updated Geologic map and tables located at the back of the original report.

GEOLOGIC ASSESSMENT

For

RAMBLE RIDGE TRACT
F.M. 3009
COMAL COUNTY, TEXAS

Prepared for

ACS, INC.
15315 SAN PEDRO
SAN ANTONIO, TEXAS 78280

Prepared by

Professional Service Industries, Inc.
Three Burwood Lane
San Antonio, Texas 78216
Telephone (210) 342-9377

PSI PROJECT NO.: 435- 1030

May 3, 2012







RECEIVED
MAR 2 6 2013
COUNTY ENGINEER

PSI Information To Build On
Engineering • Consulting • Testing

May 3, 2012

ACS, Inc.
15315 San Pedro
San Antonio, Texas 78280

Attn: Mr. Scott Knowlton, Vice President

Re: Geologic Assessment
Ramble Ridge Development
FM 3009
Comal County, Texas
PSI Project No. 435-1030

Dear Mr. Knowlton:

Professional Service Industries, Inc. (PSI) has completed a Geologic Assessment of the above referenced project in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located on the Edwards Aquifer Recharge Zone (EARZ). The purpose of this report is to describe the surficial geologic units observed in the field, and hand excavated where practicable in an attempt to more accurately define the locations and extent of significant recharge features present in the area.

AUTHORIZATION

Authorization to perform this assessment was given by a signed copy of PSI Agreement reference No. 435-920 between ACS, Inc. and PSI dated January 26, 2012.

PROJECT DESCRIPTION

The subject site is located on the north side of F.M. 3009, approximately 1.2 miles south of the intersection with F.M. 1863 in Comal County, Texas. The Ramble Ridge tract is approximately 388-acres in size, and is predominantly undeveloped with the exception of some paved access roads in preparation for site development.

REGIONAL GEOLOGY

Physiography

Comal County lies within two physiographic provinces, the Edwards Plateau and the Blackland Prairie. Most of Comal County lies within the Edwards Plateau, which is characterized by rugged and hilly terrain, with elevations in excess of 1,400' feet above sea level in the northwestern portion of the county. This area is underlain by beds of

limestone that dip gently to the southeast. South of the Edwards Plateau is the Balcones Fault Zone, which is also the northernmost limit of the Blackland Prairie. The Balcones Fault Zone extends northeast-southwest across Comal County and is composed of fault blocks of limestone, chalk, shale and marl. The undulating, hilly topography of the Blackland Prairie ranges in elevation from about 650 feet to 1100 feet above sea level. The regional dip of the lower Cretaceous rocks in Comal County is 15 feet per mile towards the southeast. The faults are predominantly normal, down-to-the Gulf Coast, with near vertical throws. Elevations at the Ramble Ridge site range from approximately 1,165 feet above mean sea level in the central portion of the tract to approximately 910 feet above mean sea level in the northern corner of the site, next to Cibolo Creek.

Stratigraphy and Structure

The underlying rocks at the site are predominantly members of the Lower Cretaceous Edwards Kainer Formation. The underlying Basal Nodular Member (Kbn) of the Kainer Formation occurs at lower elevations in the southern and northern portions of the site. The Glen Rose Limestone (Upper Member, Kgru) occurs along the northwestern property line, in the Cibolo Creek floodplain. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Kainer Formation ranges between 260 and 310 feet thick and forms the lower member of the Edwards Group, beneath the Person Formation which compromises the Edwards Aquifer, a federally-designated sole source aquifer for the region.

SITE INVESTIGATION

The site investigation consisted of a visual evaluation and limited hand excavation and probing of features to assess potential subsurface connectivity, and determine if the feature was a sensitive (greater than 40 points on the Geologic Assessment Table 0585), or had limited recharge potential. The results of the site investigation are included in the attached TCEQ 0585 Tables.

SUMMARY

Several sensitive features were noted on the subject site. Fairly large solution cavities/sinkhole zones were seen in the north-south drainage in the north-central portion of the site (Features S-68 and S-72). Other solution cavities were noted throughout the site, with varying degrees of potential sensitivity (S-42, S-47, S-51, S-52, S-58, and S-63-66). Other features assessed in January included small relatively dense outcrops previously identified as "zones". Likewise, several small solution cavities that previously rated high infiltration rates were excavated to solid rock without encountering subsurface connections, or were on hillsides with limited catchment areas. Features S-36 and S-37 appear to be differential erosional features related to bedding planes rather than solution cavities; Feature S-46 was mapped as a "swallet" but is a man-made excavation that had standing water; and Feature S-24 also had standing water, indicating low infiltration rates. While Feature S-31, a small solution cavity was not found to be sensitive, it was located in a zone of vuggy, fractured rock in a drainage, and thus was found to be sensitive. Similarly, another solution cavity (S-47), that was not readily hand-excavated, was judged

to be potentially sensitive until further assessment by excavation can occur (with TCEQ concurrence). A fault is mapped near the southern property line, paralleling F.M. 3009. While no surface indications of this fault were noted, the vertical throw is fairly large, as the Person Formation is downthrown to the south against the Basal Nodular Member of the Kainer Formation.

Please note that subtle features, buried or obscured from view, may be present on the tract. It is probable that clearing/construction activities will reveal the presence of features currently hidden by thick vegetation and/or soil cover. If caves, sinkholes, or solution cavities are encountered during future clearing/construction activities, please contact our office for additional assistance.

We appreciate this opportunity to be of service to you. If you have any questions, please do not hesitate to contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

John Langan, P.G.
Environmental Department Manager



WARRANTY

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a general geological recharge assessment of this site. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geologic methods, only for the site described in this report. These methods have been developed to provide the client with information regarding apparent indications of existing or potential conditions relating to the subject site and are necessarily limited to the conditions observed at the time of the site visit and research. This report is also limited to the information available at the time it was prepared. In the event additional information is provided to PSI following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a possibility that conditions may exist which could not be identified within the scope of the assessment or which were not apparent during the site visit. PSI believes that the information obtained from others during the review of public information is reliable; however, PSI cannot warrant or guarantee that the information provided by others is complete or accurate.

This report has been prepared for the exclusive use of ACS, Inc. for the site discussed herein. Reproductions of this report cannot be made without the expressed approval of ACS, Inc. The general terms and conditions under which this assessment was prepared apply solely to ACS, Inc. No other warranties are implied or expressed.

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: Ramble Ridge Tract

TYPE OF PROJECT: _X_ WPAP __ AST __ SCS __ UST

LOCATION OF PROJECT: _X_ Recharge Zone __ Transition Zone __ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. _X_ 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)
Comfort-Rock outcrop complex, undulating (CrD)	C	<1 - 2
Eckrant-Rock Outcrop Complex , steep (ErG)	C	<1 - 2

* 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. _X_ 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. _X_ 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. _X_ 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" = 400'
Site Geologic Map Scale	1" = 400'
Site Soils Map Scale (if more than 1 soil type)	1" = 400'

6. Method of collecting positional data:
   _X_ Global Positioning System (GPS) technology.
   __ Other method(s).

7. X The project site is shown and labeled on the Site Geologic Map.

8. X Surface geologic units are shown and labeled on the Site Geologic Map.

9. X 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. X The Recharge Zone boundary is shown and labeled, if appropriate.

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

X There are 5 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
___ The geotechnical borings are not in use and have been properly abandoned. (It is not known whether the two water wells have been properly plugged.)
X The wells are not in use and will be properly abandoned.
X 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. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

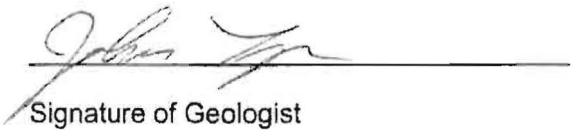
Date(s) Geologic Assessment was performed: January 26-, April 19, 2012
Date(s)

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.

John Langan
Print Name of Geologist

210-342-9377
Telephone

210-342-9401
Fax



Signature of Geologist

May 3, 2012
Date

Representing: PSI, Inc
(Name of Company)

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

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STRATIGRAPHIC COLUMN
Ramble Ridge
FM 3009
Comal County, Texas

FORMATION	THICKNESS	LITHOLOGIC DESCRIPTION
Person Formation	170' - 220'	Limestones and dolomites, extensive porosity development in "honeycomb sections, interbedded with massive recrystallized limestones with more limited permeabilities (especially Regional Dense Member separating the Person and Kainer Formations.
Kainer Formation	210' - 310'	Hard, miliolid limestones, overlying calcified dolomites and dolomite. Leached evaporitic "Kirschberg" zone of very porous and permeable collapse breccia formed by the dissolution of gypsum. Overlies the basal nodular (Walnut) bed.
Basal Nodular Member	50-60	Massive, nodular, mottled limestone, with *exogyra texana* bivalve.
Glen Rose Limestone	350-500	Shaly limestone and marl, with alternating resistant and recessive beds, resulting in "stair-step" topography

SOILS NARRATIVE

According to the Soil Survey for Comal County, Texas, the subject property is underlain by the following soils:

- Comfort-Rock outcrop complex, undulating (CrD) – shallow, well drained, moderate permeability, very low available water capacity, moderate hazard of water erosion, chalk fragments
- Eckrant-Rock outcrop complex, steep (ErG) – shallow clayey and rock outcrops on uplands, with convex slopes of 8 to 30%. The soil is approximately 10" thick stony, noncalcareous, well drained, rapid surface runoff, moderately slow to slow permeability, very low available water capacity, moderate hazard of water erosion, overlies limestone.

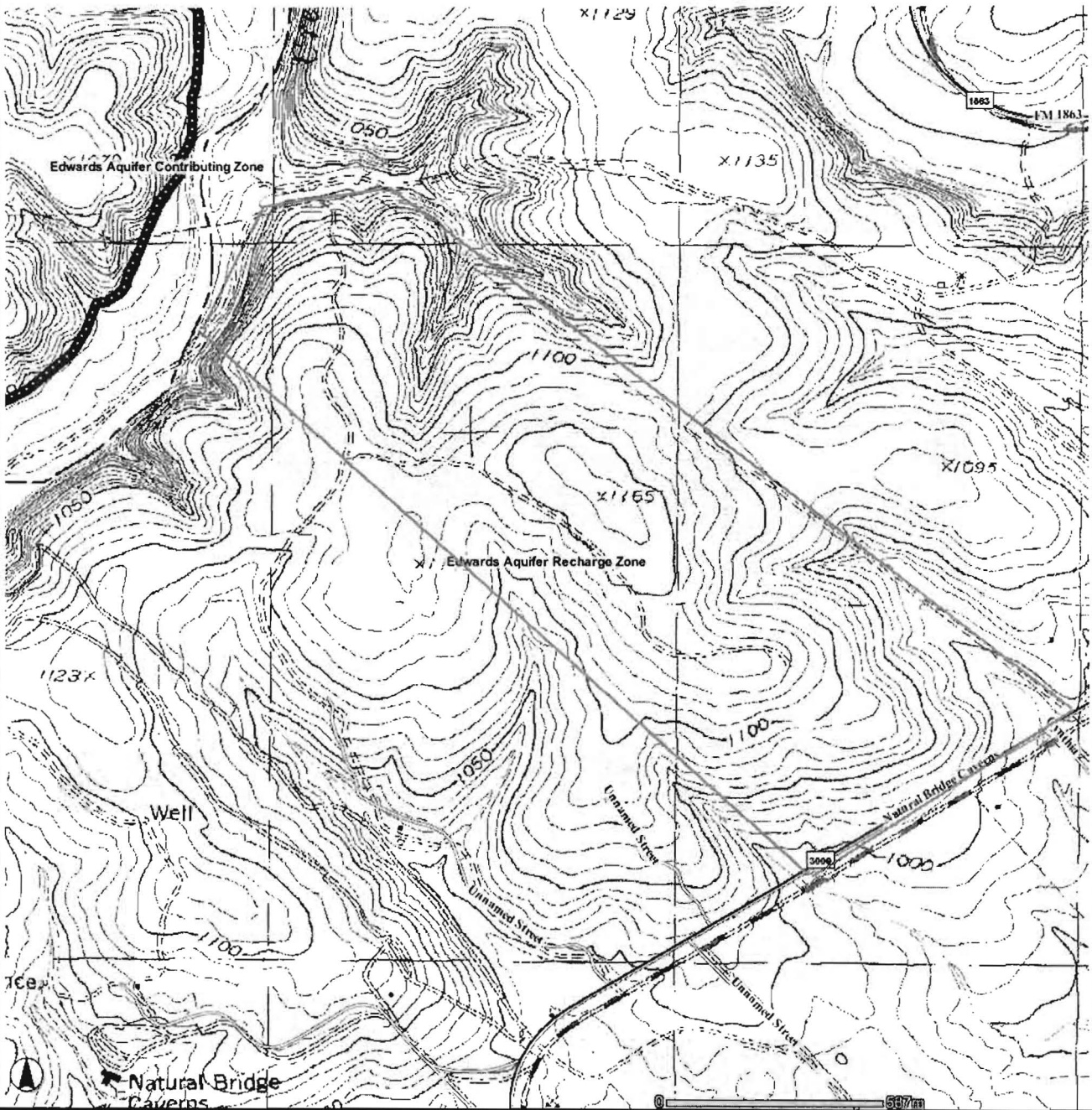
SITE GEOLOGIC NARRATIVE

The underlying rocks at the site are predominantly members of the Lower Cretaceous Edwards Kainer Formation. The underlying Basal Nodular Member (Kbn) occurs at lower elevations in the southern and northern portions of the site. The Glen Rose Limestone (Upper Member, Kgru) occurs along the northwestern property line, in the Cibolo Creek floodplain. According to "The Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop, Comal County Texas" written by the USGS, the Kainer Formation ranges between 260 and 310 feet thick and forms the lower water-bearing member of the Edwards Group, beneath the Person Formation which compromises the Edwards Aquifer, a federally-designated sole source aquifer for the region. The Kainer overlies the Basal Nodular Member, which in turn overlies the Upper Member of the Glen Rose Limestone.

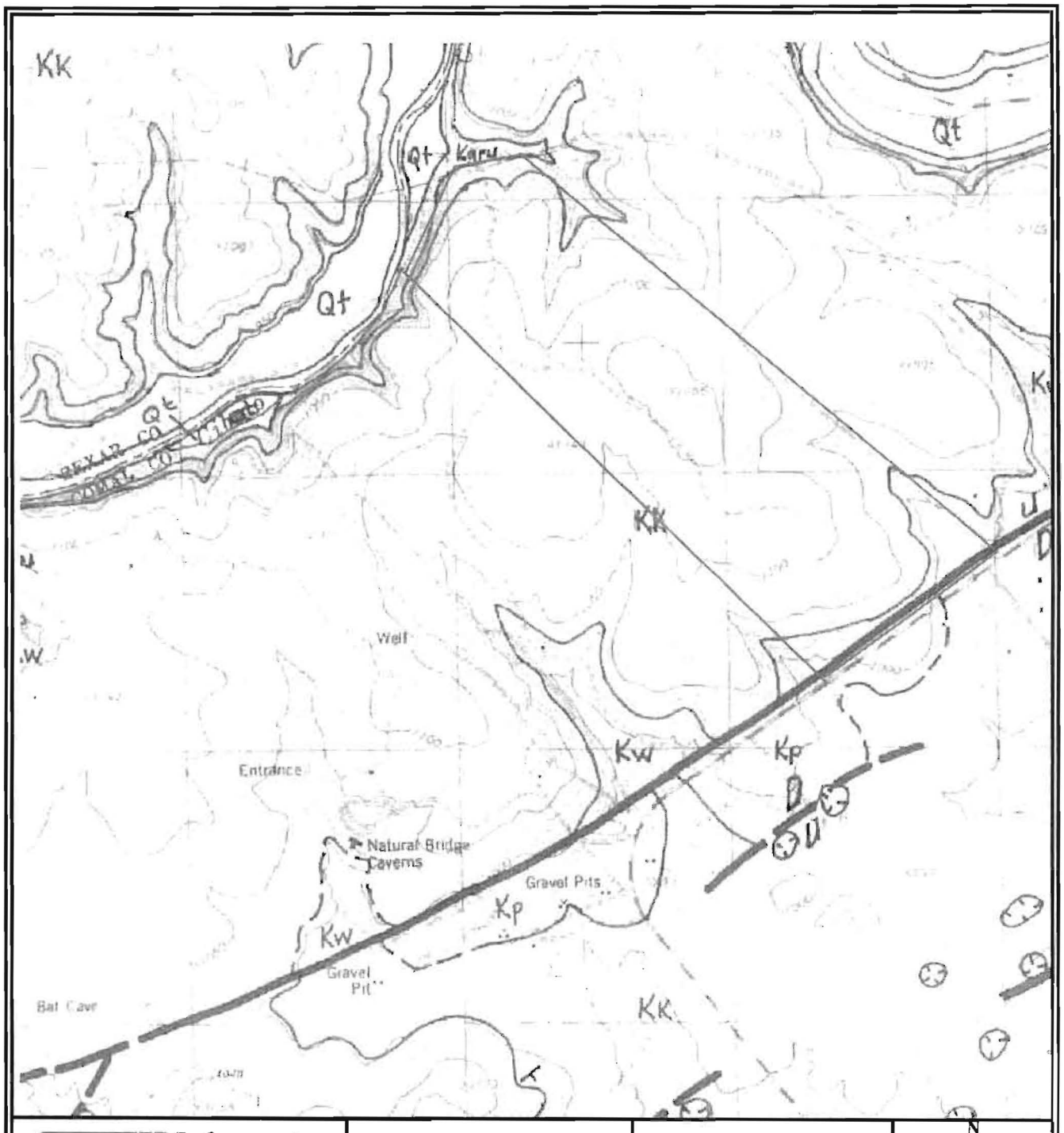


psi Information To Build On
Engineering Consulting Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

SOILS MAP
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS



psi Information To Build On Engineering • Consulting • Testing PSI, Inc. 3 Burwood Lane San Antonio, Texas 78216	**PROJECT NAME:** Ramble Ridge F.M. 3009 Comal County, Texas PROJECT NO.:4351030	**USGS "Bat Cave, Texas" Topographic Maps/Edwards Aquifer Recharge Zone Map**	N



[psi] Information To Build On
Engineering • Consulting • Testing

PSI, Inc.
3 Burwood Lane
San Antonio, Texas 78216

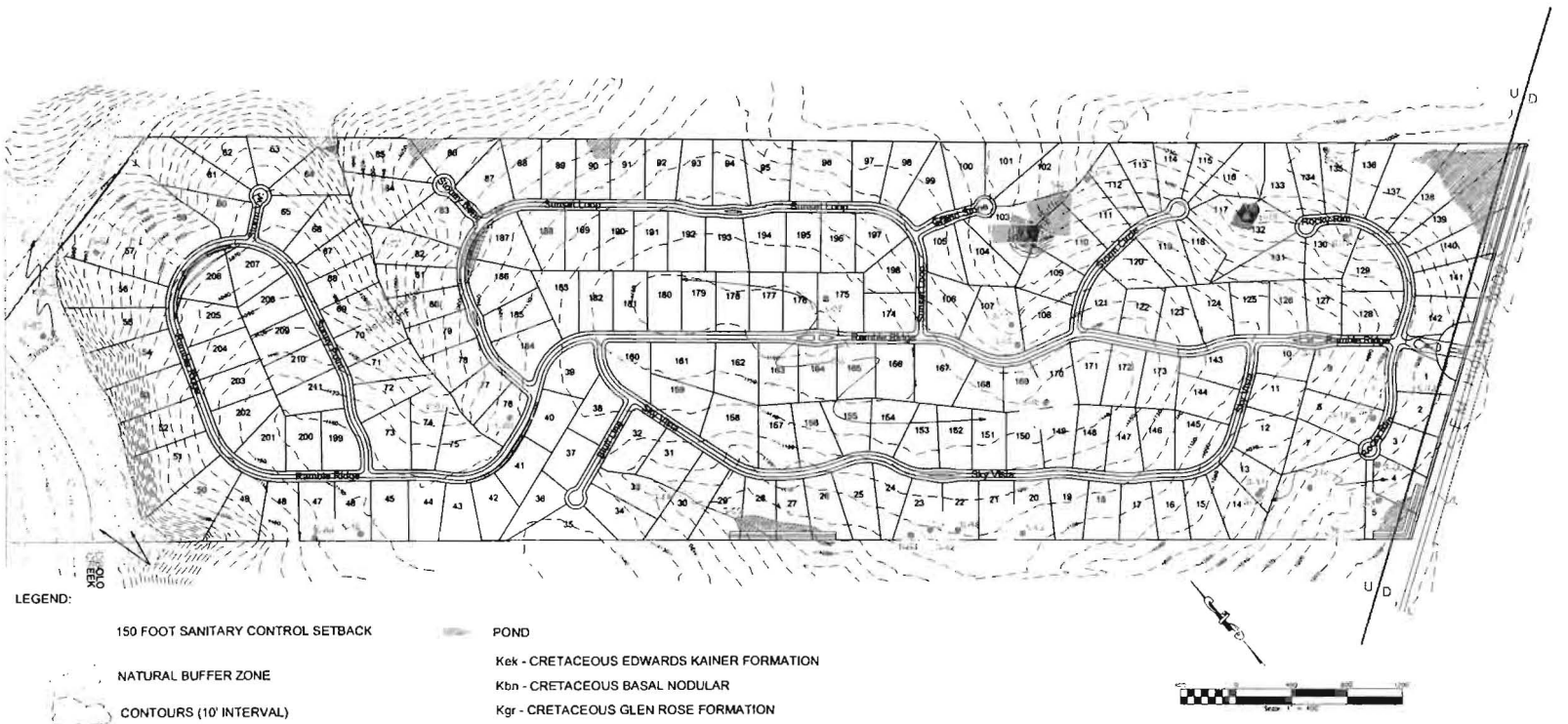
PROJECT NAME:
Ramble Ridge
F.M. 3009
Comal County, Texas

PROJECT NO.:4351030

Geologic Map
1988

"Bat Cave, Texas"
USGS Topographic Map

N


Rambla Ridge
Sky Vista
Summit Loop
Sunset Knoll
Sunset Crest
Sunset Cove
Sunset Ridge
Rambla Ridge
Sky Vista
Rambla Ridge
Sky Vista
Rambla Ridge
Sky Vista

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: Ramble Ridge

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ROSE	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.8	≥1.8	
S-1	29-41-59.6	98-19-24.1	SC	20	Kek	1	0.5	1.5					F	15	35	X		X		Hillside
S-3	29-41-54.7	98-19-26.7	MB	30	Kek	1	1	550						0	30	X				2 wells
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-5	29-41-55.3	98-19-29.8	O	5	Kek	20	5	1			3	0	F	10	15	X		X		Hillside
S-6	29-41-55.6	98-19-30	SC	20	Kek	0.2	0.3	1.5						15	35					Drainage
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-11	29-41-59.6	98-19-59.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-18	29-42-11.7	98-19-21.5	SC	20	Kek	2	0.7	1.5					O	25	45		X	X		Hillside
S-19	29-42-11.2	98-19-11.5	SC	20	Kek	1.5	2	0.3					O	15	35	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-29	29-42-18.8	98-19-28.6	SC	20	Kek	2	2.5	1					O	20	40		X		X	Streambed
S-31	29-42-18.4	98-19-32.3	Z	30	Kek	200	150	5					C	30	60		X		X	Drainage

* DATUM:

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date: May 3, 2012

Sheet 1 of 3

STATE OF TEXAS — JL 5/3/12 — John Langan — Geology 4871 — LICENSED PROFESSIONAL GEOSCIENTIST

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

From original report

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: Ramble Ridge

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ROSE	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-33	29-42-4.5	98-19-23.4	MB	30	Kek	1	1	700						0	30	X		X		well
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-19.3	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside
S-42	29-42-9.4	98-19-48.7	SC	20	Kek	5	5	2					F	15	35	X		X		Hillside
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-47	29-42-29	98-19-40.3	SC	20	Kek	6	6	1					O	20	40		X	X		Hillside
S-51	29-42-50	98-20-17.2	SC	20	Kek	2	1	3					F	15	35	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	10	30	X		X		Hillside
S-55	29-42-15.8	98-19-56.8	O	5	Kek	100	50	6			1		C	10	15	X			X	Drainage
S-57	29-42-22.7	98-19-44.6	MB	30	Kek	1	1	>300						0	30	X		X		well
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X		X		Hillside
S-59	29-42-28.9	98-20-3.7	MB	30	Kek	1	1	>300						0	30	X		X		well
S-60	29-42-19	98-19-58.7	O	5	Kek	250	60	5			2	0.2	F	12	17	X			X	Drainage

* DATUM:

2A TYP	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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Date: May 3, 2012

Sheet 2 of 3

STATE OF TEXAS
JL 5/3/12
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

From Original Report

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: Ramble Ridge

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	KRD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-61	29-42-30.5	98-20-6.1	O	5	Kek	500	70	30			1	0.2	F	18	23	X			X	Drainage
S-62	29-42-48.6	98-20-20.7	MB	30	Kbn	1	1	250						0	30	X		X		Hillside
S-63	29-42-9.4	98-19-49.3	SC	20	Kek	3	1	5					F	30	50		X	X		Hillside
S-64	29-42-8.5	98-19-47.9	SC	20	Kek	5	4	1.5					F	25	45		X	X		Hillside
S-65	29-42-15.3	98-19-36.1	SC	20	Kek	6	1	3					F	12	32	X		X		Hillside
S-66	29-41-56.1	98-19-25.5	SC	20	Kek	3	2.5	2.5					N	20	40		X		X	Hillside
S-68	29-42-36.5	98-20-5	Z	30	Kek	185	35	20					C	30	50		X		X	Drainage
S-72	29-42-40.7	98-20-2	Z	30	Kek	75	30	20					C	30	50		X		X	Drainage
S-73	29-41-57.4	98-19-19.6	F	20	Kek	2250	50	650					C	15	35	X			X	Hillside

* DATUM:

2A TYP	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	
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TCEQ-0585-Table (Rev. 10-01-04)

From original Report



1. View of Feature S-4, located on the south-southwest corner of the site, with no sensitive features noted.



2. View of Feature S-18, a sensitive feature in a drainage on the southeastern portion of the site.



3. View of Feature S-24, located in the southeastern portion of the site. Standing water was noted, indicating limited subsurface infiltration.



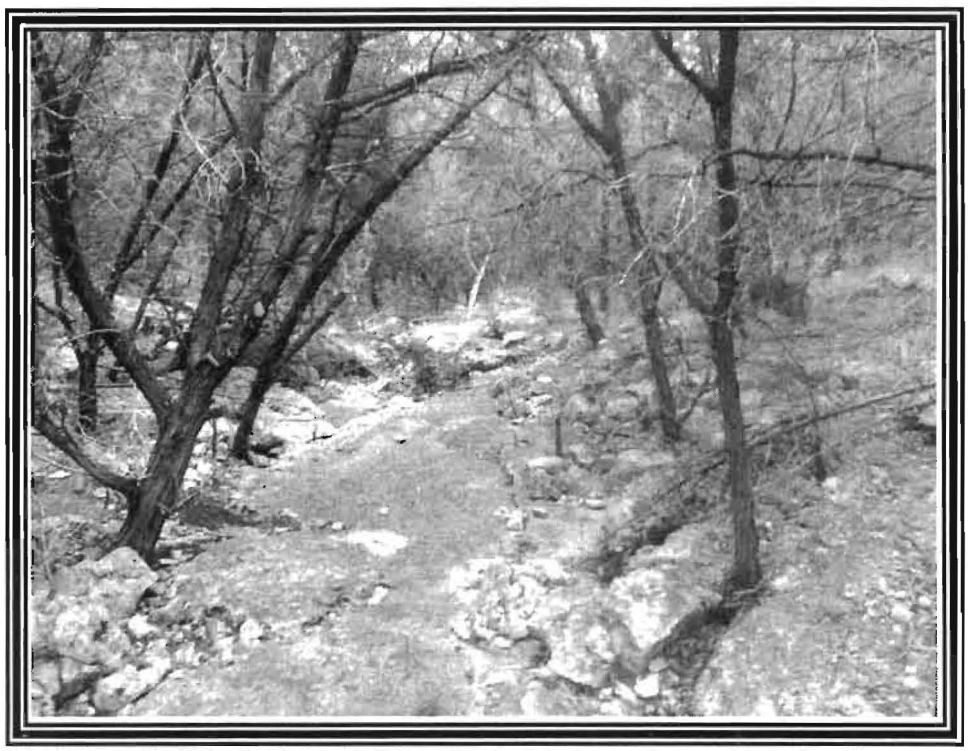
4. View of Feature S-46, a man-made excavation with ponded water located in the south-central portion of the site.



5. View of solution cavity Feature S-47, located in the east-central portion of the site.



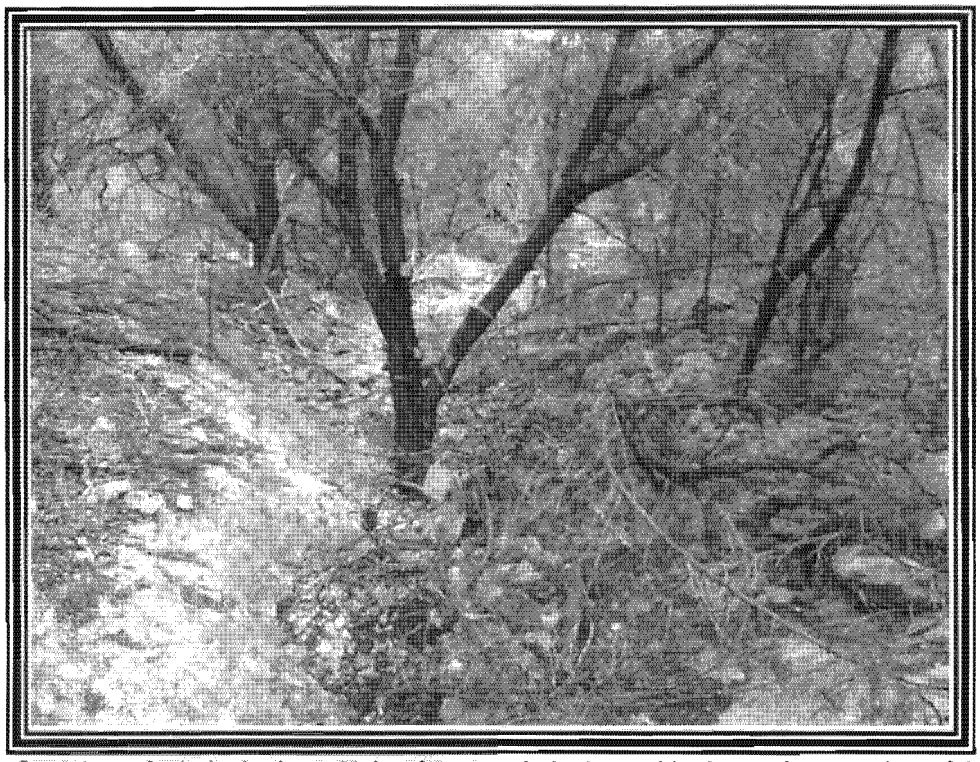
6. View of zone Feature S-31, in a drainage on the south-central portion of the site.



7. View of relatively dense Kek in streambed drainage feature located on the eastern portion of the site, at 29-42-18.45; 98-19-27.



8. View of Feature S-65, a solution cavity feature in the southern portion of the site at 29-42-15.3; 98-19-36.1.



9. View of relatively dense Kek of Feature S-61, located in the northern portion of the site at 29-42-30.3; 98-20-6.1.



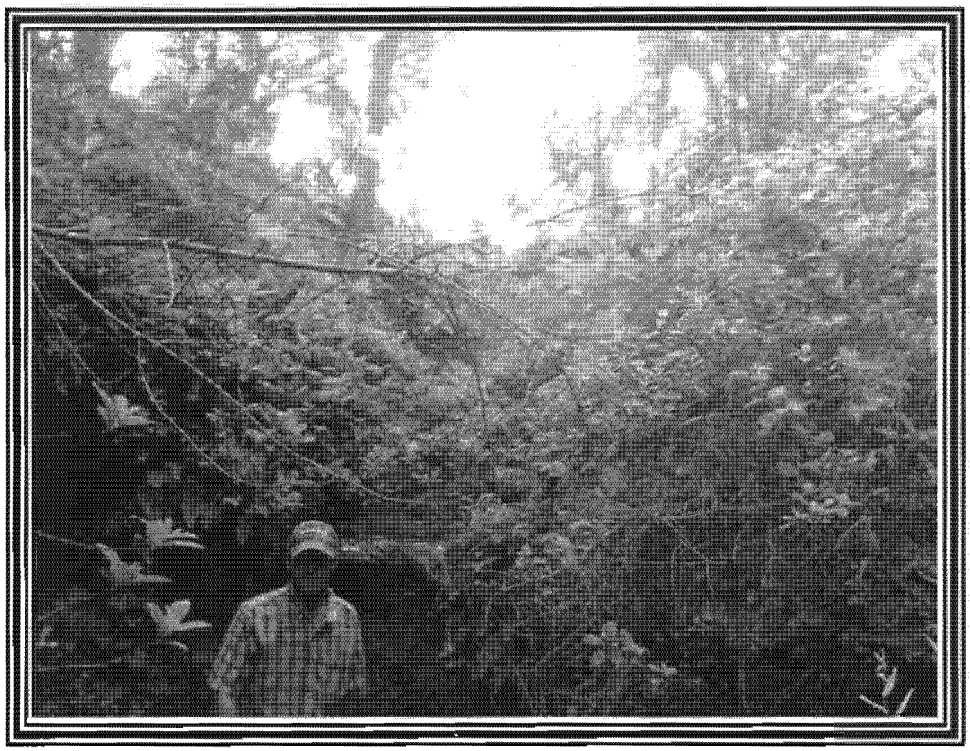
10. View of sinkhole in Feature S-68, a sensitive zone located at 29-42-36.3; 98-20-5.2.



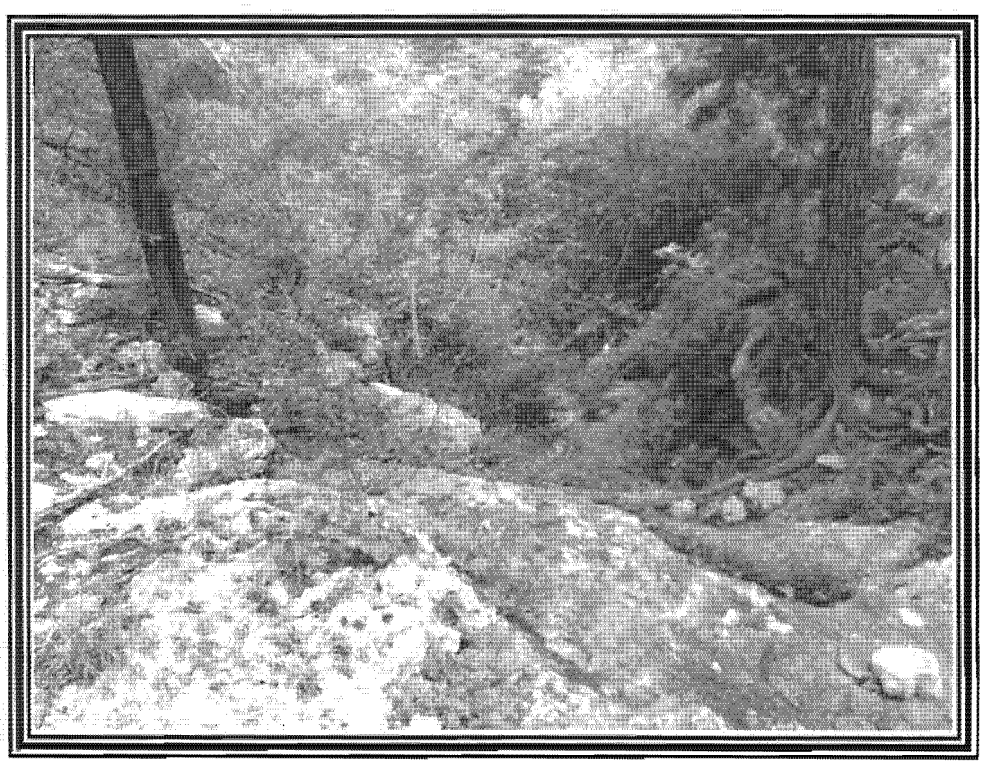
11. Another view of Feature S-68, a sensitive zone located at 29-42-36.3; 98-20-5.2.



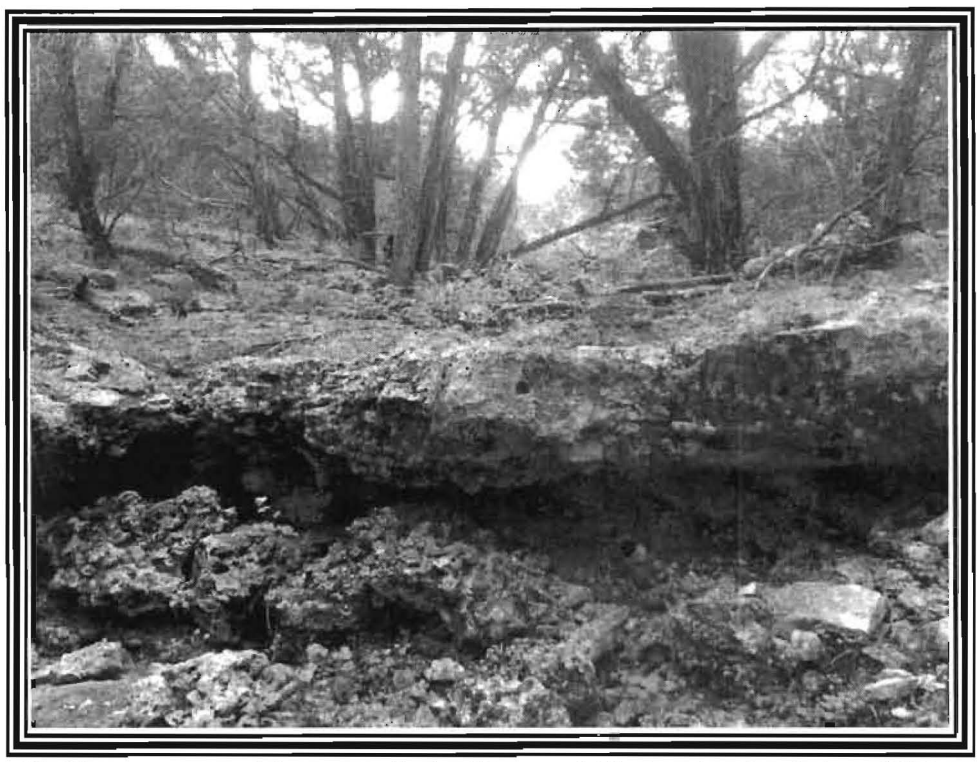
12. Another view of Feature S-68, a sensitive zone located at 29-42-36.3; 98-20-5.2, showing near cavernous dissolution and fern growth.



13. View of Feature S-72, a sensitive SC/SH zone located at 29-42-40.7; 98-20-2.



14. View downstream of Feature S-72, showing relief and fractured, vuggy rock with solution cavities and sinkholes.



15. View upstream of the eastern limit of Feature S-72, showing dissolution of Kek.



16. View of Feature S-51, a small solution cavity on the north side of the tract with abundant harvestmen.



17. View of solution cavity Feature S-52, located near the north property line of the site.



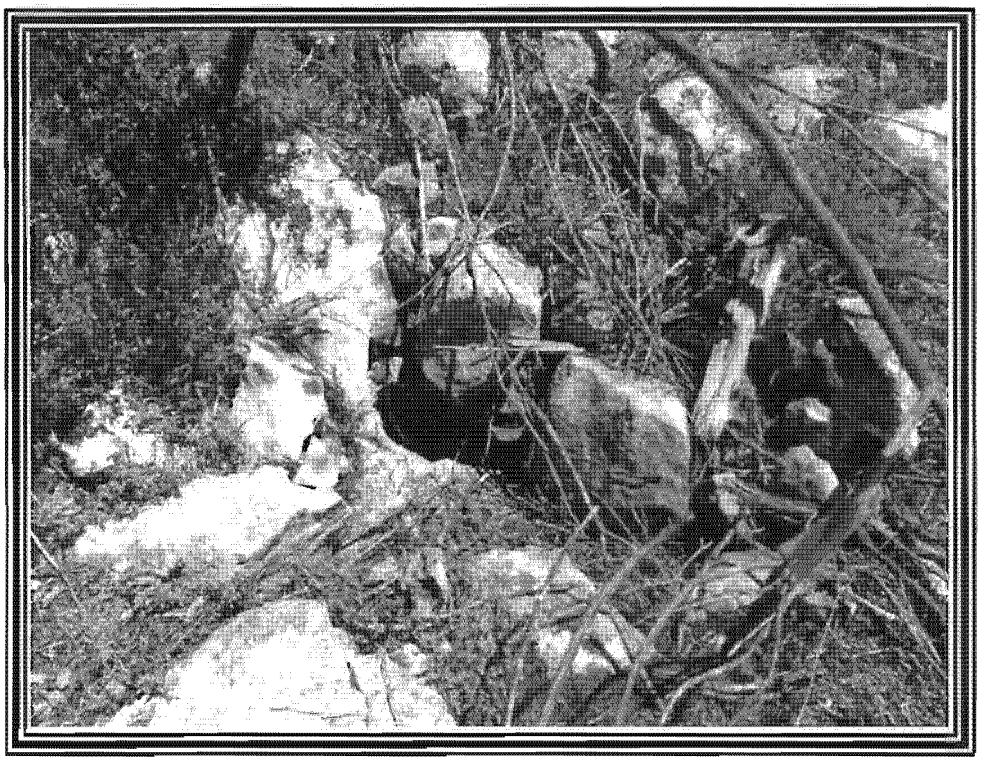
18. View of Basal Nodular outcrop in the vicinity of S-52, on the northern property line, near Cibolo Creek.



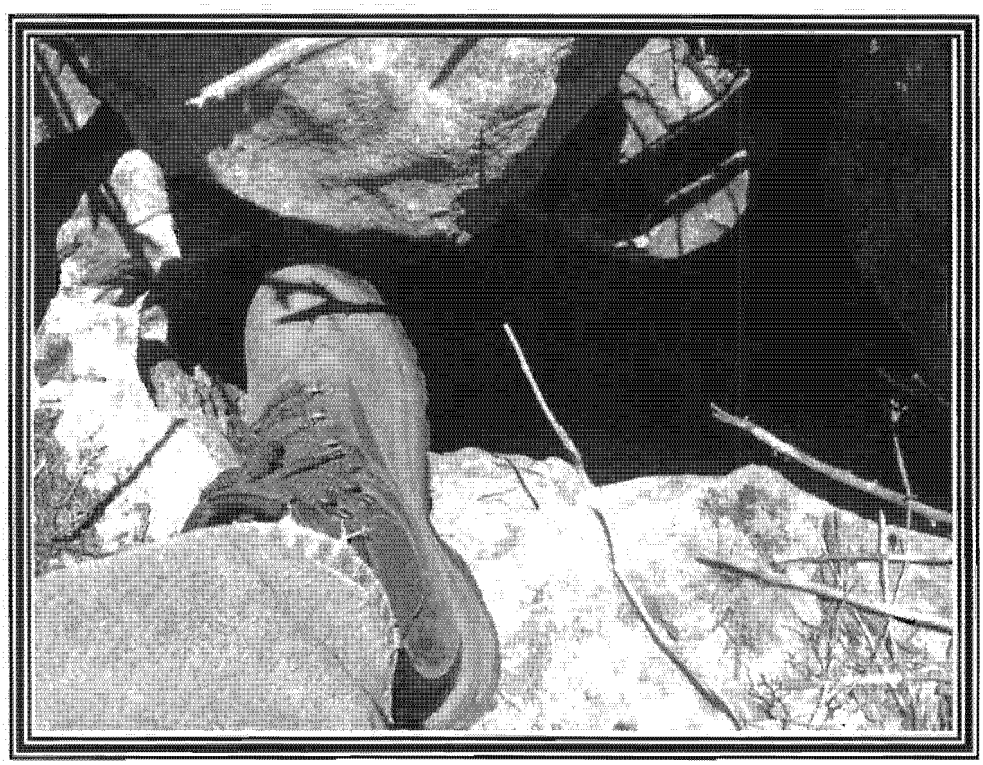
19. View of well Feature S-62, located on the north portion the site.



20. View of Feature S-57, located in the north central portion of the site at 29-42-22.7; 98-19-44.6.



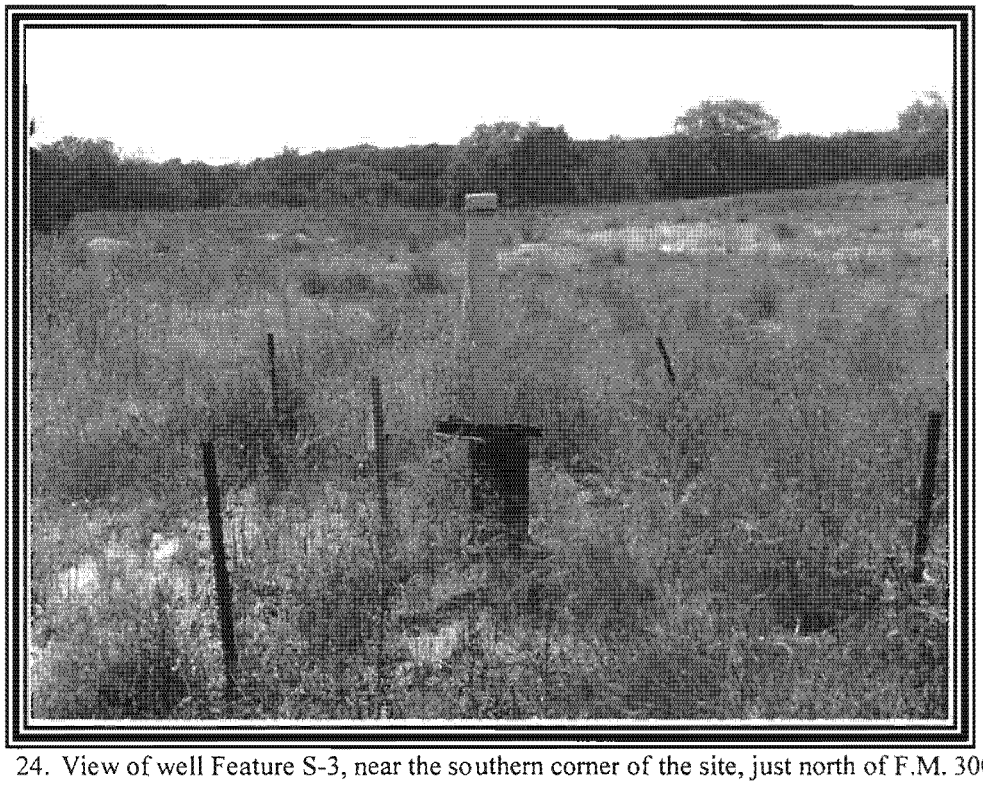
21. View of sensitive solution cavity Feature S-63, located near the southern property line at 29-42-9.4; 98-19-49.3



22. Close up view of Feature S-63, with boot for scale.



23. View of solution cavity Feature S-64, located southeast of Feature S-63 at 29-42-8.5; 98-19-47.9.



24. View of well Feature S-3, near the southern corner of the site, just north of F.M. 3009.



25. View of solution cavity Feature S-66, located near the southern corner of the property at 29-41-56.1; 98-19-25.5.



26. View of standing water in a drainage on the northern portion of the site, downstream of features S-68 and S-72, indicating limited recharge in the lower permeability Basal Nodular member encountered at lower elevations.

Updated Geologic Assessment Tables and Exhibit

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: Ramble Ridge

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	MOD 10	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-1	29-41-59.6	98-19-24.1	SC	20	Kek	1	0.5	1.5					F	15	35	X		X		Hillside
S-3	29-41-54.7	98-19-26.7	MB	30	Kek	1	1	550						0	30	X		X		2 wells
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-5	29-41-55.3	98-19-29.8	O	5	Kek	20	5	1			3	0	F	10	15	X		X		Hillside
S-6	29-41-55.6	98-19-30	SC	20	Kek	0.2	0.3	1.5						15	35	X			X	Drainage
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-11	29-41-59.6	98-19-24.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-18	29-42-11.7	98-19-21.5	SC	20	Kek	2	0.7	1.5					O	25	45		X	X		Hillside
S-19	29-42-11.2	98-19-11.5	CD	5	Kek	1.5	2	0.3					O	15	20	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-25	29-42-11.4	98-19-15.6	O	5	Kek	45	30	4			1	0.2	N	5	10	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed

* DATUM:_____

2A TYP	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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TCEQ-0585-Table (Rev. 10-01-04)

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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 ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-29	29-42-18.8	98-19-28.6	SC	20	Kek	2	2.5	1					O	20	40		X		X	Streambed
S-31	29-42-18.4	98-19-32.3	Z	30	Kek	200	150	5					C	30	60		X		X	Drainage
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-33	29-42-4.5	98-19-23.4	MB	30	Kek	1	1	700						0	30	X		X		well
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-32.1	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside
S-41	29-42-6.4	98-19-44.8	SC	20	Kek	3	2	4					N	15	35	X		X		Hillside
S-42	29-42-9.4	98-19-48.7	SC	20	Kek	5	5	2					F	15	35	X		X		Hillside
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-47	29-42-29	98-19-40.3	SC	20	Kek	6	6	1					O	20	40		X	X		Hillside
S-51	29-42-50	98-20-17.2	SC	20	Kek	2	1	3					F	15	35	X		X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	10	30	X		X		Hillside
S-55	29-42-15.8	98-19-56.8	O	5	Kek	100	50	6			1		C	10	15	X			X	Drainage

* DATUM:_____

2A TYP	TYPE	2B POINTS
C	Cave	30
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SF	Solution-enlarged fracture(s)	20
F	Fault	20
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SW	Swallow hole	30
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Z	Zone, clustered or aligned features	30

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S-57	29-42-22.7	98-19-44.6	MB	30	Kek	1	1	>300						0	30	X			X		well
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X			X		Hillside
S-59	29-42-28.9	98-20-3.7	MB	30	Kek	1	1	>300						0	30	X			X		well
S-60	29-42-19	98-19-58.7	O	5	Kek	250	60	5			2	0.2	F	12	17	X				X	Drainage
S-61	29-42-30.5	98-20-6.1	O	5	Kek	500	70	30			1	0.2	F	18	23	X				X	Drainage
S-62	29-42-48.6	98-20-20.7	MB	30	Kbn	1	1	250						0	30	X			X		Hillside
S-63	29-42-9.4	98-19-49.3	SC	20	Kek	3	1	5					F	30	50		X		X		Hillside
S-64	29-42-8.5	98-19-47.9	SC	20	Kek	5	4	1.5					F	25	45		X		X		Hillside
S-65	29-42-15.3	98-19-36.1	SC	20	Kek	6	1	3					F	12	32	X			X		Hillside
S-66	29-41-56.1	98-19-25.5	SC	20	Kek	3	2.5	2.5					N	20	40		X			X	Hillside
S-68	29-42-36.5	98-20-5	Z	30	Kek	185	35	20					C	30	50		X			X	Drainage
S-72	29-42-40.7	98-20-2	Z	30	Kek	75	30	20					C	30	50		X			X	Drainage
S-73	29-41-57.4	98-19-19.6	F	20	Kek	2250	50	650					C	15	35	X				X	Hillside

* DATUM:_____

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LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

400' 0 400' 800' 1200'
Scale: 1" = 400'

RECEIVED
MAR 2 6 2013
COUNTY ENGINEER

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

John Langan
Geology
4871

psi Information To Build On
Engineering Consulting Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 05/07/12
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

Geologic Assessment

Thornhill Group Original Geologic Assessment Dated July 25, 2006.

GEOLOGIC ASSESSMENT REPORT
RAMBLE RIDGE RANCH
COMAL COUNTY, TEXAS

INTRODUCTION

Thornhill Group, Inc. (TGI) conducted on the Ramble Ridge Ranch property in Comal and Bexar counties a geologic assessment according to the guidelines of the Texas Commission on Environmental Quality (TCEQ), specifically in accordance with form TCEQ-0585 (Rev. 10-01-04) as provided in Appendix 1. TGI conducted the assessment in association with the Water Pollution Abatement Plan (WPAP) to be prepared and submitted to the TCEQ. TGI designed and conducted the assessment work to accomplish the following tasks:

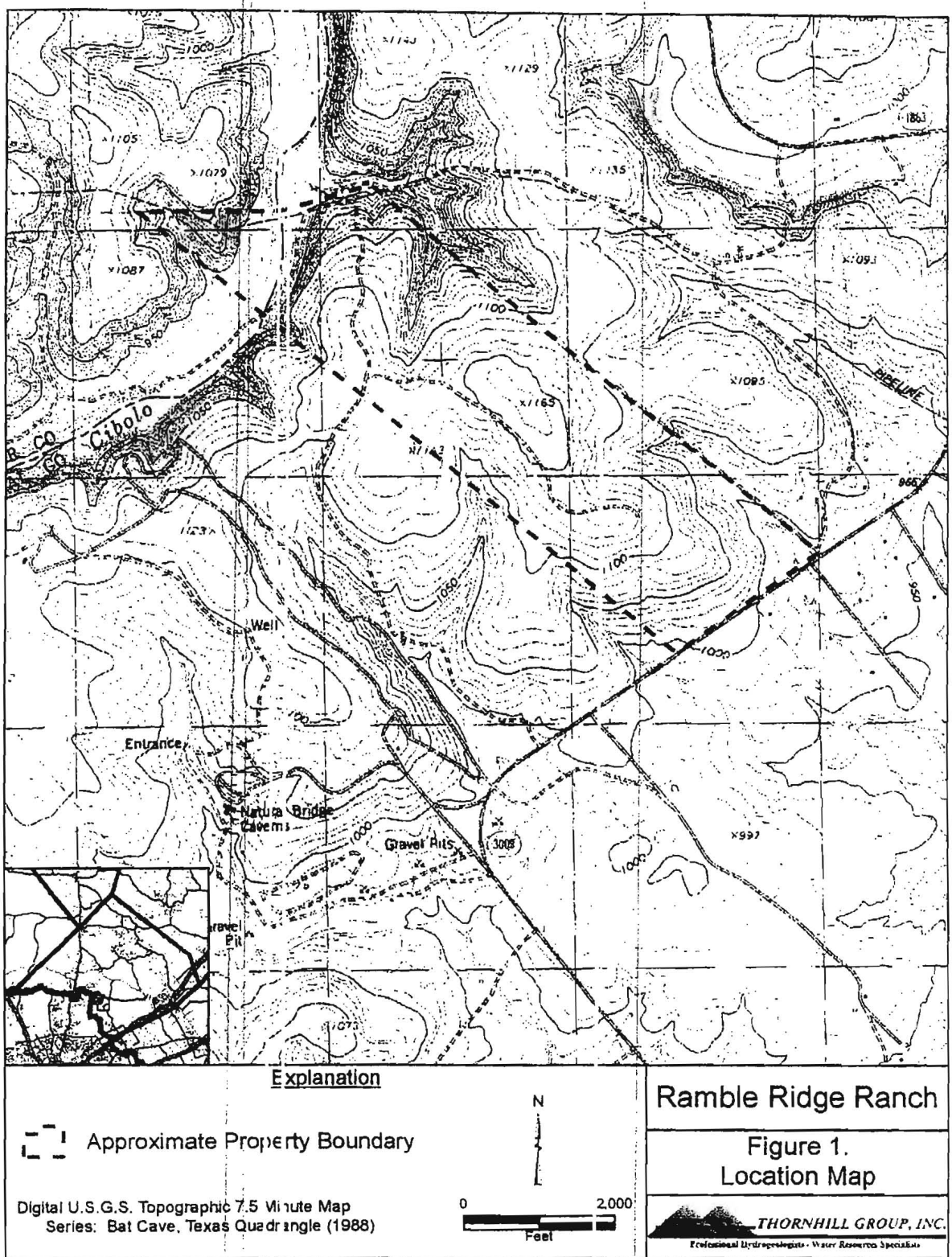
- Cataloging identifiable potentially sensitive features in the outcrop of the Edwards aquifer on the subject property;
- Verification of surface geology and soil characteristics versus existing map information; and,
- Preparation of proper geologic assessment forms, maps, diagrams, and reports as required by the TCEQ.

METHODOLOGY

TGI conducted site investigations on the Ramble Ridge Ranch between June 7, 2006 and June 14, 2006. During the investigation TGI cataloged features as defined in the *Instructions to Geologists for* ***Geologic Assessments*** *on the Edwards Aquifer Recharge/Transition Zones.* TGI also mapped, to the extent possible, the contacts of geologic members forming the portions of the Edwards and Associated Limestones (i.e, Edwards aquifer) found in the study area. TGI transected the property at 15 meter intervals with special attention paid to areas of likely feature formation. Using the ***Geologic Assessment Table*** provided by the TCEQ (Appendix 2), TGI cataloged and ranked each feature providing a relative sensitivity score.

SITE HYDROGEOLOGIC CONDITIONS

Ramble Ridge Ranch is located along FM 3009 in Comal County approximately 5.5 miles north of the city of Garden Ridge. Dense groves of cedar and oak trees between grassy plains characterize the property. Relief on the property is approximately 250 feet with the high point near the center of the property and the low occurring in the Cibolo Creek bed on the northwest side of the property. Several incised valleys emanate radially from the


Cibolo
Well
Entrance
Natural Bridge Caverns
Gravel Pits
PIPELINE
Explanation
Approximate Property Boundary
N
0
2,000
Feet
Digital U.S.G.S. Topographic 7.5 Minute Map
Series: Bat Cave, Texas Quadrangle (1988)
Ramble Ridge Ranch
Figure 1.
Location Map
THORNHILL GROUP, INC.
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property high point to drain water off the ranch. Figure 1 illustrates the location and topography of the study area.

Soils

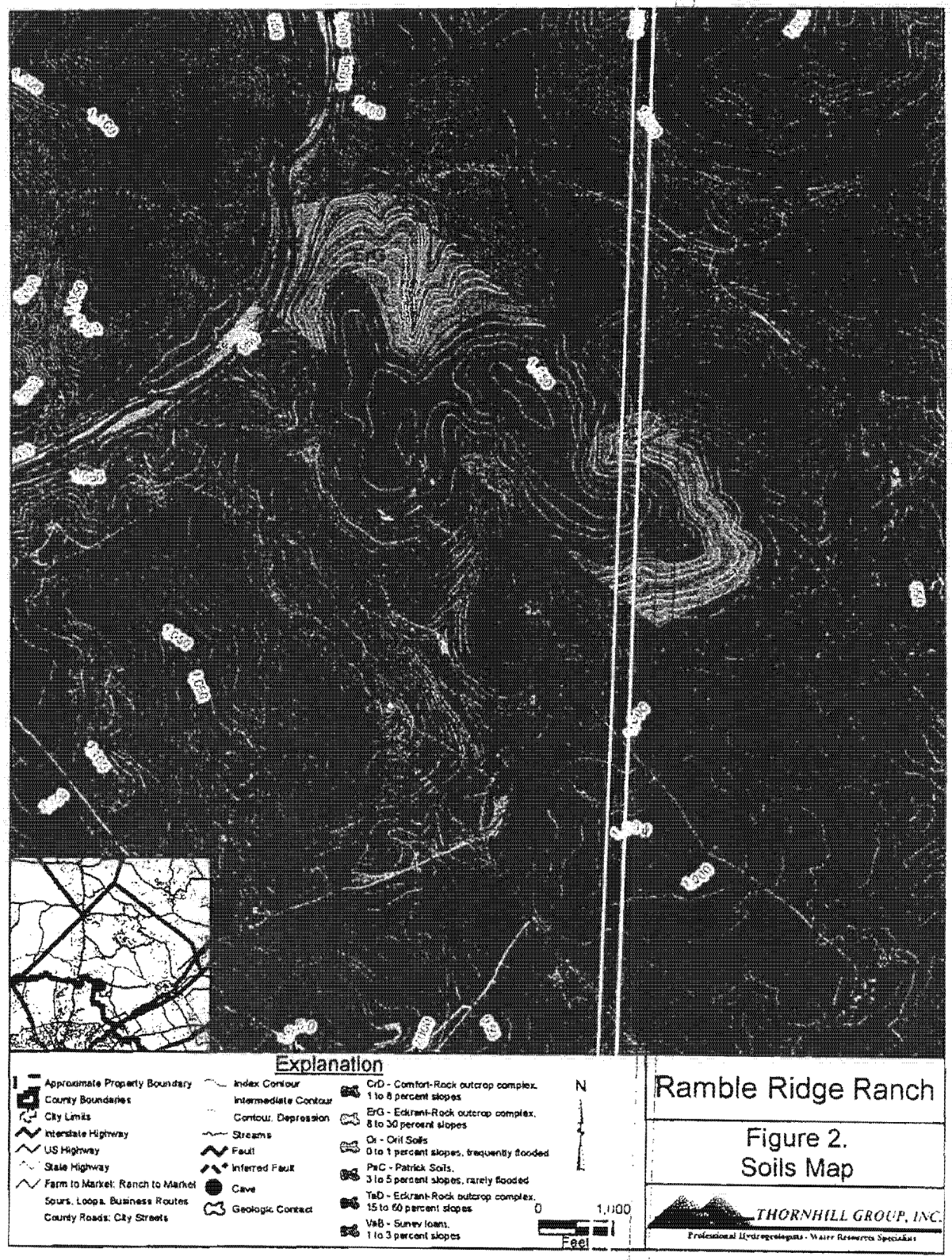
The primary soil types in the study area are Comfort (CrD) and Eckrant (ErG, TaD). These types compose approximately 52 percent and 45 percent of the study area, respectively. The CrD, ErG, and TaD are extremely stony to cobbly clays that are typically less than 18 inches thick and well drained with a hydraulic conductivity up to four (4) feet per day (ft/d) ("Soil Survey Geographic (SSURGO) database for Comal and Hays Counties, Texas", 2005 and "Soil Survey Geographic (SSURGO) database for Bexar County, Texas", 2006). The infiltration rate in the CrD, ErG, and TaD is very slow (Urban Hydrology for Small Watersheds, Technical Release 55, 1986). Figure 2 illustrates the soils mapped across the study area.

Three (3) additional soils are present in the northwest corner of the study area, namely, Orif (Or), Patrick (PaC), and Sunev (VaB). The Orif is typically a gravelly loamy sand up to 60 inches deep and well drained with a hydraulic conductivity up to 40 ft/d. The PaC is typically a gravelly loam to a gravelly sand up to 60 inches deep and well drained with a hydraulic conductivity up to 40 ft/d. The VaB is typically a loam up to 60 inches deep and well drained with a hydraulic conductivity up to 4 ft/d ("Soil Survey Geographic (SSURGO) database for Bexar County, Texas", 2006). The infiltration rate in the Or is high and in the PaC and VaB is moderate (Urban Hydrology for Small Watersheds, Technical Release 55, 1986).

Stratigraphy

In Comal County the Edwards Group is approximately 440 feet thick and consists of seven (7) distinct members (from top to bottom): the cyclic and marine (undivided), the leached and collapsed (undivided), the regional dense, the grainstone, the Kirschberg evaporite, the dolomitic, and the basal nodular (Small and Hanson, 1994). However, within the subject study area the Edwards is at most only about 200 feet thick with only the lower three (3) members of the Kainer Formation present (see Plate 1). The upper member of the Glen Rose Limestone underlies the Edwards aquifer. Figure 3 presents a stratigraphic column of the units found on the subject propery and Figure 4 illustrates the general surface geology as mapped by the Bureau of Economic Geology (BEG). Plate 1 provides a map of the surface geology showing the approximate extents of each member. Table 1 presents the general lithologic and hydrologic characteristics of the rock units found within the study area.

The uppermost member found on the property is the Kirschberg evaporite, which occurs at land surface at the highest elevations on the property. The Kirschberg consists mostly of crystalline limestone and mudstone with chert nodules and lenses, within the study area, and


Explanation
Approximate Property Boundary
County Boundaries
City Limits
Interstate Highway
US Highway
State Highway
Farm to Market; Ranch to Market
Spurs, Loops, Business Routes
County Roads; City Streets
Index Contour
Intermediate Contour
Contour, Depression
Streams
Fault
Inferred Fault
Cave
Geologic Contact
CrD - Comfort-Rock outcrop complex, 1 to 8 percent slopes
ErG - Eckrant-Rock outcrop complex, 8 to 30 percent slopes
Or - Orif Soils 0 to 1 percent slopes, frequently flooded
PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
TaD - Eckrant-Rock outcrop complex, 15 to 60 percent slopes
VaB - Survey loam, 1 to 3 percent slopes
N
0
1,000
Feet
Ramble Ridge Ranch
Figure 2.
Soils Map
THORNHILL GROUP, INC.
Professional Hydrogeologists - Water Resources Specialists

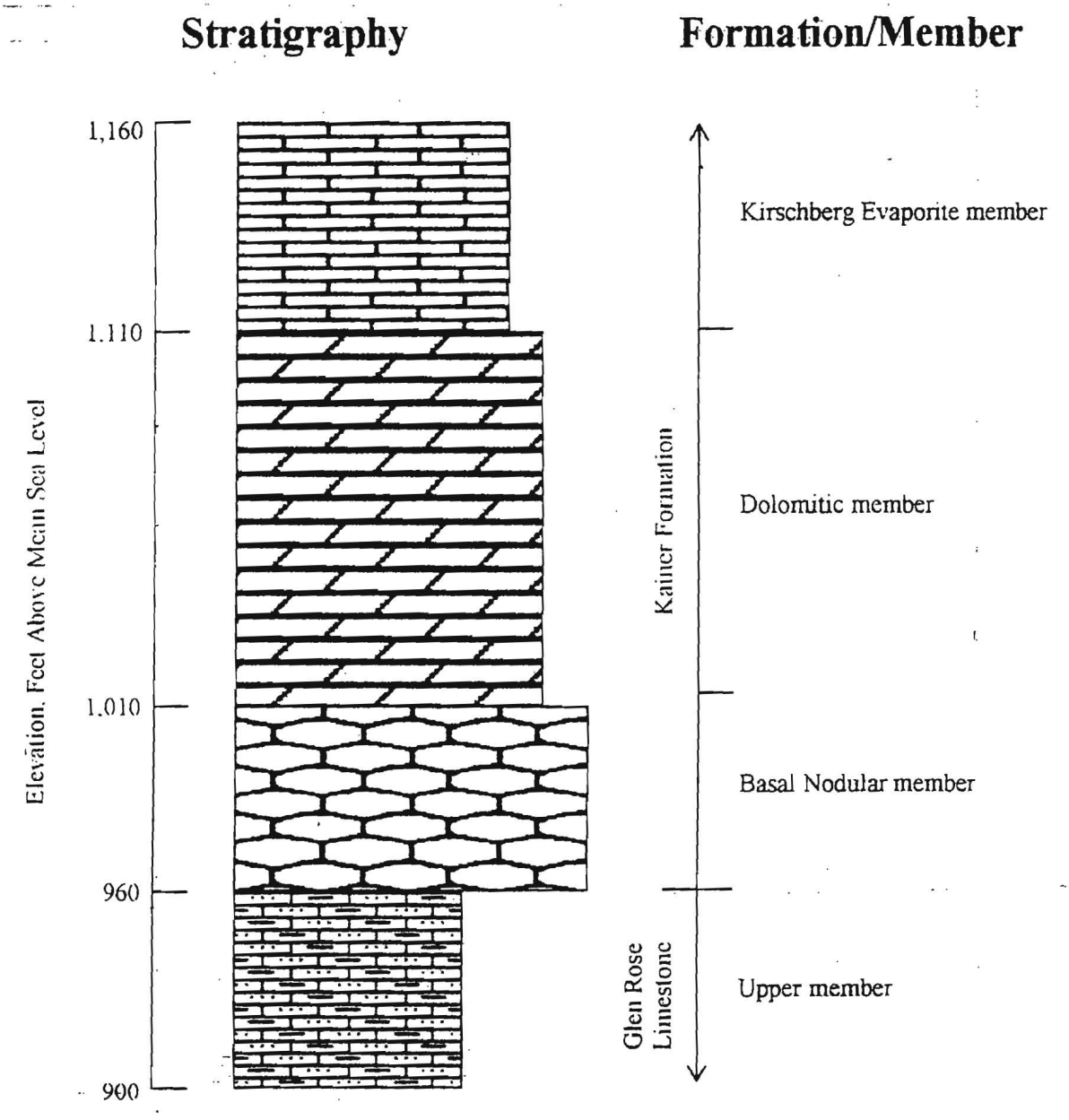


Figure 3. Stratigraphic column showing formations and members, with approximate thicknesses, encountered on the Ramble Ridge Ranch property.

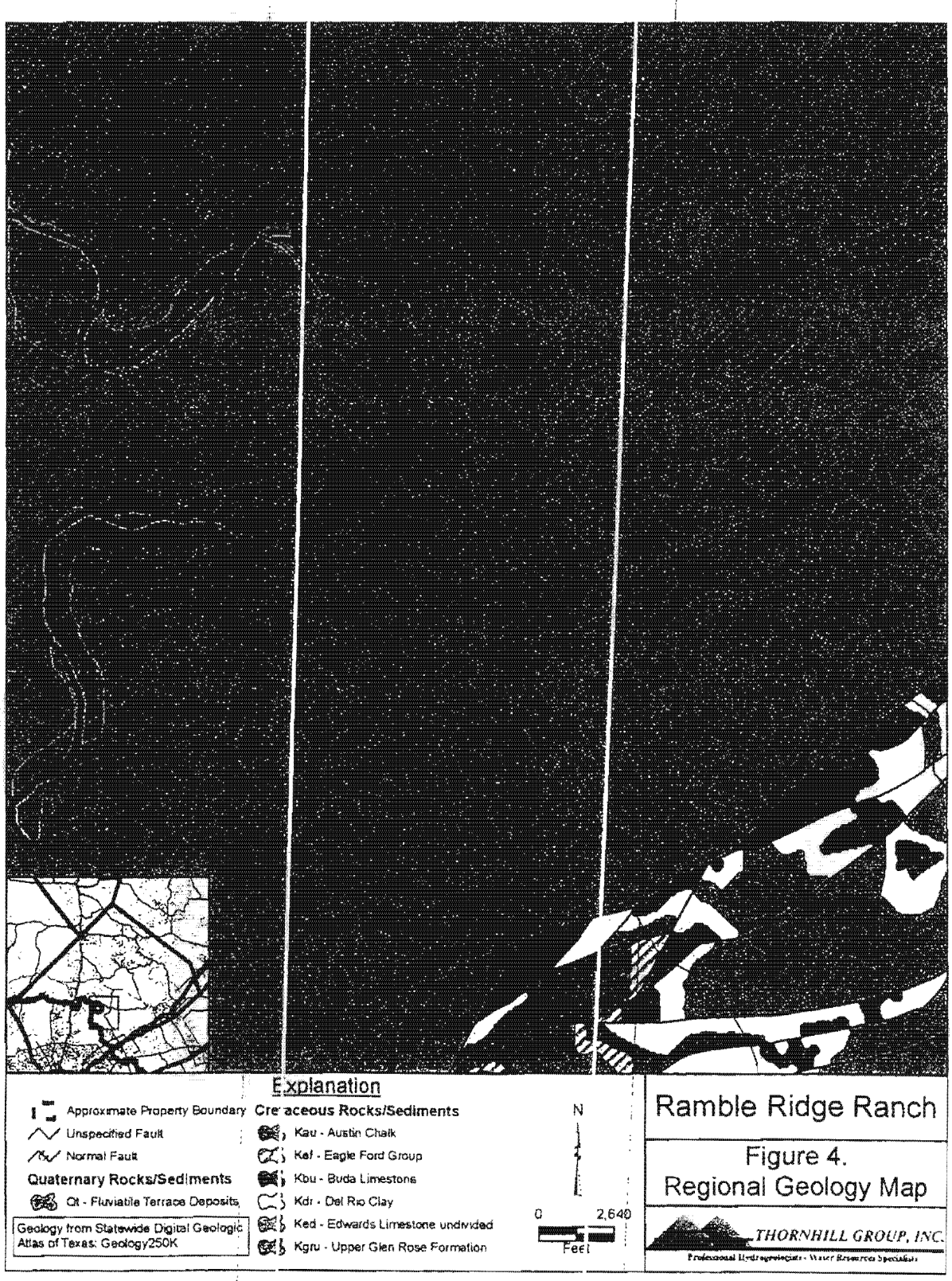

Explanation
Approximate Property Boundary
Unspecified Fault
Normal Fault
Quaternary Rocks/Sediments
Qt - Fluviatile Terrace Deposits
Geology from Statewide Digital Geologic Atlas of Texas: Geology250K
Cretaceous Rocks/Sediments
Kau - Austin Chalk
Kef - Eagle Ford Group
Kbu - Buda Limestone
Kdr - Del Rio Clay
Ked - Edwards Limestone undivided
Kgru - Upper Glen Rose Formation
N
0
2,640
Feet
Ramble Ridge Ranch
Figure 4.
Regional Geology Map
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Table 1. General Lithologic and Hydrologic Characteristics of Rock Units (modified from Small and Hanson, 1994).

System	Group	Formation	Member	Rock Characteristics	Field Identification	Porosity/ Permeability Type	Thickness, feet
Cretaceous	Fredericksburg	Kainer	Kirschberg Evaporate	Highly altered crystalline limestone, chalky mudstone, chert	Boxwork voids, with neospar and travertine frame	Majority fabric/ one of the most permeable	50-60
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Basal Nodular Member	Shaly, nodular limestone, mudstone and [illegible] glauconitic sandstone	Massive, nodular and mottled	Fabric/large conduit flow at surface; low permeability in subsurface	50-60
	Trinity	Glen Rose Limestone	Upper Member	Yellowish tan, thinly bedded limestone and marl.	Stair-step topography, alternating limestone and marl	Some water production at evaporate beds/ relatively low permeability	350-500

is approximately 60 feet thick (Small and Hanson, 1994). The dolomitic member in the study area is about 110 feet thick; this member is typically dense crystalline limestone withzones of grainstone and mudstone with rudists commonly found near the top of the member (Small and Hanson, 1994). The lowermost member of the Kainer, the basal nodular, is approximately 50 feet thick. The basal nodular is typically a marly, nodular limestone with some *miliolid* grainstone (Small and Hanson, 1994).

The Glen Rose Limestone occurs within the Cibolo Creek bed on the northwest side of the property where it conformably underlies the basal nodular member of the Edwards Group. Yellowish tan, thinly bedded limestone and marl layers compose the upper member of the Glen Rose Limestone which forms a characteristic stair-step topography due to differential weathering. The upper portion of the Glen Rose exposed on the property is Interval A. Interval A has a relatively high clay content which likely limits the potential for the formation of cave entrances. That is, as the unit erodes, the clays settle into the enlarged fractures reducing the effective permeability and potential for enlargement (Veni, 2005).

Hydrogeologic Characteristics

Small and Hanson describe the uppermost member in the study area, the Kirschberg evaporite, as the most porous and permeable subdivision in the Kainer Formation. Within the study area, the Kirschberg evaporite is an outlier, therefore the outcrop of this unit is surrounded by the outcrop of the underlying dolomitic member. TGI observed significant vuggy porosity along the outcrops of the Kirschberg evaporite. There is potential for fluid infiltration and percolation through the outcrop of this member within the study area. Water entering the Kirschberg would likely move into the underlying unit or discharge to the surface as springs fed by discontinuous perched-water zones. The dense crystalline matrix of the dolomitic member is not conducive to ground-water flow. However, numerous interconnected solution openings along bedding planes and fractures, some forming caverns, could allow water to move rapidly through the unit. The basal nodular is quite cavernous in this area around Cibolo Creek. The Texas Speleological Survey indicates that several caves are on nearby properties. Major nearby caverns include Double Decker Cave to the northeast and Natural Bridge Caverns to the southwest. While there is relatively little flow through the pore matrix of the member, the potential for significant flow through solution enlarged fractures and bedding planes is high (Small and Hanson, 1994).

Once the water enters the dolomitic member it may travel along bedding planes and vertical fractures to either discharge as springs (i.e., perched water) or enter the basal nodular; in addition, water may enter directly from the surface to follow similar flow paths. Water entering the basal nodular may flow through small to large caverns in the subsurface. A portion of the water moving through the basal nodular may enter Interval A of the upper member of the Glen Rose Limestone, where large passageways and chambers are known to exist near the study area, and recharge the Trinity aquifer.

Overall, the lithology and field investigations suggest there is potential for significant infiltration and movement of water into the Edwards aquifer beneath the property, particularly at some identified features, mostly in drainages leading to Cibolo Creek. Hydrogeologic data and information also indicate that direct infiltration of ground-water in the upland parts of the property is likely insignificant. Most of the recharge to the Edwards aquifer occurs due to streamflow losses in major streams and tributaries crossing the recharge zone, and that a small percentage of recharge occurs as direct infiltration in the interstream areas; most reports indicate recharge in the interstream areas is approximately 20 percent though some suggest it may be as high as 40 percent (Lindgren, Dutton and Hovorka, 2004) Additionally, the Edwards aquifer is mostly to completely unsaturated beneath portions the subject property based on test drilling results and the lack of springs/seeps originating from Edwards rocks. Two small springs issuing from caves located in drainages on the subject property indicate the limited and discontinuous occurrence of perched zones. Therefore, it is likely that much, if not most, of the recharge occurring within the property boundaries moves directly into the Upper Trinity aquifer (i..e., Upper Glen Rose limestone).

Potentially Sensitive Geologic and Man-Made Features

TGI found several features within the study area boundaries. TGI cataloged each feature discovered using the ***Geologic Assessment Table*** (TCEQ-0585-Table, Rev. 10-01-04) which is included in Appendix 2. As expected, many of the features are concentrated in the drainages and streambeds; however, TGI located several features on hillsides. Plate 1 shows the location of each feature corresponding to the ***Geologic Assessment Table***. In addition, Appendix 3 provides photographs of each feature cataloged during the field assessment.

TGI identified a total of 72 individual features and rated the features in accordance with the TCEQ's philosophy and guidance directing geologists to be conservative and, if in doubt, err on the side of being overly protective of the aquifer. Based on the TCEQ's rating scales in the geologic assessment form and a conservative approach, 40 of the 72 features scored more than 40 points on the sensitivity scale. Of these 40, 21 were located in drainage areas.

During the field assessment most of the features were dry but some exhibited evidence of previous flow either into or out of the feature. During TGI's field investigations, small amounts of water discharged from two (2) caves (ID: 70 and 71) identified in the drainage on the northern portion of the property in the dolomitic member. A test hole drilled uphill from these caves (ID: 59) encountered a void at the contact between the Glen Rose Limestone and Kainer Formation that was large enough to prevent returns yet did not produce water.

While several of the features encountered indicated a high potential for interconnectedness with the shallow subsurface based on dimensions and characteristics, it is likely that most recharge on the property occurs within drainages. As stated above, all hydrogeologic data and information show conclusively the majority of recharge to the local Edwards aquifer occurs due to streamflow losses from major streams and tributaries as they flow across the

outcrop. Only a small percentage of recharge occurs within upland, interstream areas. Additionally, the features identified showed openings to depths of a few feet and test drilling suggested that most of the Edwards aquifer across the upland portions of the property is unsaturated. In fact, the Edwards and Associated limestones may be completely unsaturated across much of the property with water moving directly to the underlying Trinity aquifer, except for some perched zones indicated by the very small amount of water found at the cave openings (ID: 70 and 71). Therefore, while several of the features in the upland areas were rated relatively sensitive, it is likely that these features do not contribute significantly to the recharge of the local Edwards aquifer. Therefore, most features will require minimal protection in the WPAP.

SUMMARY

TGI's investigations revealed that the majority of the Ramble Ridge Ranch lies atop the outcrop of the Kainer Formation of the Edwards Group. Within Cibolo Creek, erosion has removed the Edwards limestone entirely and exposed the upper member of the Glen Rose Limestone. Most of the features identified by TGI occur in the dolomitic member of the Kainer Formation. However, TGI did notice a trend of features along the contact of the Kirschberg evaporite member and the dolomitic member.

Under the TCEQ's guideline requiring geologists to be cautious in identifying potentially sensitive features and, if uncertain, to err by being overly protective of the aquifer, TGI observed 40 features that scored 40 or more sensitivity points based on the TCEQ's rating scale. Despite the number of sensitive features according to the TCEQ rating system, many, if not most, of these features are insignificant with respect to recharging the Edwards aquifer. Hydrogeologic evidence suggests that any water entering the subsurface on the property would likely move to the Trinity aquifer or discharge locally to drainages.

The drainages and streambeds within the study area appear to be the focal points for potential infiltration. However, the relatively thin soils and rocky hilltops could allow for percolation to the subsurface throughout the study area, depending on the intensity and duration of rainfall and antecedent conditions. Previous investigations indicate that recharge to the Edwards occurs predominantly within streambeds as streams lose water while flowing over the outcrop. While Cibolo Creek does cross the property, it flows over the less permeable upper member of the Glen Rose Limestone.

While the potential infiltration to the subsurface may be significant, lithologic information and test drilling evidence suggest that little water remains in the local Edwards aquifer. As discussed above, the hydrogeologic characteristics of the rocks underlying the property appear to direct ground-water flow to discharge features or to the underlying Trinity aquifer. Test drilling on the property indicated that these formations did not produce significant quantities of water beneath the property.

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APPENDIX 1 —
GEOLOGIC ASSESSMENT FORM

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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: Ramble Ridge Ranch

TYPE OF PROJECT: _X_ WPAP __ AST __ SCS __ UST

LOCATION OF PROJECT: X Recharge Zone __ Transition Zone __ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. X Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**. (see Appendix 2)

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)
CrD – Comfort-Rock outcrop complex	D	<1.5
ErG, TaD – Eckrant-Rock outcrop complex	D	<1.5
Or – Orif Soils	A	<5
PaC – Patrick Soils	B	<5
VaB – Sunev loam	B	<5

* 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. X 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. (see Figure 3)

4. X 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. (see Table 1)

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5. X 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" = 300'
Site Geologic Map Scale	1" = 300'
Site Soils Map Scale (if more than 1 soil type)	1" = 2,000"

6. Method of collecting positional data:

X Global Positioning System (GPS) technology.
__ Other method(s).

7. X The project site is shown and labeled on the Site Geologic Map.

8. X Surface geologic units are shown and labeled on the Site Geologic Map.

9. X 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. X The Recharge Zone boundary is shown and labeled, if appropriate.

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

X There are 4 (#) 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.
X The wells are not in use and will be properly abandoned. (2 test wells, Feature 3 & 59; 1 existing test well, Feature 33)
X The wells are in use and comply with 16 TAC Chapter 76. (1 existing windmill well, Feature 57)
__ There are no wells or test holes of any kind known to exist on the project site.

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ADMINISTRATIVE INFORMATION

12. X One (1) original and three (3) copies of the completed assessment has been provided.

Date(s) Geologic Assessment was performed: July 07, 2006 – July 14, 2006
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.

Michael R. Thornhill
Print Name of Geologist

(512) 244-2172
Telephone

(512) 244-1461
Fax

Michael R. Thornhill
Signature of Geologist

8-17-06
Date

STATE OF TEXAS
MICHAEL R. THORNHILL
GEOLOGY
858
LICENSED
PROFESSIONAL GEOSCIENTIST

Representing:

Thornhill Group, Inc
1104 South Mays Street, Suite 208
Round Rock, Texas 78664

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

APPENDIX 2 —
GEOLOGIC ASSESSMENT TABLE

PLATE —
POTENTIALLY SENSITIVE GEOLOGIC AND MAN-MADE FEATURES MAP

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	GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Ranch Geological Assessment																		
	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	OR	DENSITY (NO/FT)	APERTURE (FEET)	INFIL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	≥40	<1.6	≥1.6		
1	1	29°41'53.9"	98°19'25.9"	SF	20	K_{sd}	0.2	1.5	0.3	344				O	10	30	X			X	flat	
2	2	29°41'53.4"	98°19'27"	Z	30	K_{sd}	8	10	0.5	320		0.5	0.2	O	10	40		X		X	flat	
3	3	29°41'54.5"	98°19'26.7"	MB	30	K_{sd}	0.83	0.83	550	165				N	0	30	X			X	flat	TGI: TW-1
4	4	29°41'55.1"	98°19'22.3"	Z	30	K_{sd}	3	24	0.2	345		2	0.05	O	20	50		X		X	flat	
5	5	29°41'55.3"	98°19'29.8"	Z	30	K_{sd}	6	18	0.5	350		3	0.05	O	30	60		X		X	flat	
6	6	29°41'55.6"	98°19'29.9"	SC	20	K_{sd}	0.15	0.25	0.5	320			0.15	O	35	55		X		X	Drainage	
7	7	29°41'55.6"	98°19'29.9"	SC	20	K_{sd}	0.05	0.45	0.2	95			0.05	O	19	39	X			X	Drainage	
8	8	29°41'56.3"	98°19'27.5"	SC	20	K_{sd}	0.5	0.8	>2	350			0.5	V	35	55		X		X	Drainage	
9	9	29°41'58.6"	98°19'23.7"	SC	20	K_{sd}	1.5	2.5	1.5	335			1.5	O	30	50		X		X	Hilltop	
10	10	29°41'59"	98°19'25.9"	SC	20	K_{sd}	3.1	1.5	2	335			1.5	O	19	39	X			X	Hillside	
11-12	11	29°41'59.6"	98°19'24.5"	SC	20	K_{sd}	1	1.5	2	330			1	O	35	55		X	X		Hillside	
13	12	29°41'59.9"	98°19'23.6"	SF	20	K_{sd}	1.5	8	1	335			1.5	O	19	39	X		X		Hillside	
14	13	29°42'0.6"	98°19'22.3"	SC	20	K_{sd}	2.5	0.6	1	340			0.6	O	23	43		X		X	Hillside	
15	14	29°42'0.3"	98°19'22.1"	SC	20	K_{sd}	0.5	1	0.7	320			0.5	O	25	45		X	X		Hillside	
16-17	15	29°42'0.7"	98°19'21.9"	SF	20	K_{sd}	5	4	2	355			5	O	20	40		X	X		Hillside	
18	16	29°42'0.3"	98°19'21.8"	SF	20	K_{sd}	0.5	0.4	1.5	320			0.4	O	30	50		X	X		Hillside	
19	17	29°42'7.2"	98°19'17.6"	SC	20	K_{sd}	4	0.5	1.5	260			0.5	O	31	51		X	X		Hillside	
20	18	29°42'11.7"	98°19'21.5"	SC	20	K_{sd}	2	0.7	1.5	240			0.7	O	30	50		X	X		Stream Bed	
21	19	29°42'11.2"	98°19'21.5"	Z	30	K_{sd}	1.5	2	0.3	240		0.5	1.5	O	10	40		X		X	Stream Bed	
22	20	29°42'13"	98°19'23.8"	SF	20	K_{sd}	3	0.3	0.4	250			0.3	O	17	37	X		X		Hillside	
23	21	29°42'3.8"	98°19'31"	SW	30	K_{sd}	16	8	1	350			16	V	7	37	X		X		Hillside	
24	22	29°42'10.5"	98°19'14.3"	Z	30	K_{sd}	4	7	0.3	240		2	4	O	9	39	X			X	Stream Bed	
25	23	29°42'10.7"	98°19'14.7"	SF	20	K_{sd}	0.7	8	0.2	260			0.7	O	15	35	X			X	Stream Bed	
26	24	29°42'11.2"	98°19'15"	SF	20	K_{sd}	5.5	1	0.5	250			1	O	25	45		X		X	Stream Bed	
27	25	29°42'11.6"	98°19'15.9"	SC	20	K_{sd}	3	1	3.5	290			1	O	10	30	X			X	Stream Bed	
28	26	29°42'12.2"	98°19'15.9"	SF	20	K_{sd}	3.5	0.5	2.9	260			0.5	O	11	31	X			X	Stream Bed	
29	27	29°42'18.9"	98°19'27"	O	5	K_{sd}	5	3.5	0.3	300			5	O	10	15	X			X	Stream Bed	
30-31	28	29°42'18.8"	98°19'27.5"	SW	30	K_{sd}	4	9	2.5	290			4	O	15	45		X		X	Stream Bed	
32	29	29°42'18.8"	98°19'28.6"	SC	20	K_{sd}	2	2.5	1	290				O	20	40		X		X	Stream Bed	
33-34	30	29°42'18.5"	98°19'29.3"	O	5	K_{sd}	5	3.5	1.5	290			3.5	C	5	10	X			X	Stream Bed	

	GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Ranch Geological Assessment																		
	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B *	1C *	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	PROX	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	DENSITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	≥40	<1.8	≥1.8		
35	31	29°42'18.4"	98°19'32.3"	SC	20	K_{ed}	1.2	1	1.5	300			1	O	35	55		X		X	Drainage	
36	32	29°42'15.8"	98°19'36.7"	SC	20	K_{ed}	0.7	1	2	40			0.7	O	30	50		X		X	Drainage	
37	33	29°42'4.5"	98°19'23.4"	MB	30	K_{ed}	0.83	0.83	725	305			0.83	N	0	30	X			X	Hilltop	Existing Well
38	34	29°41'59.6"	98°19'30"	SF	20	K_{ed}	1.25	10	0.6	200			1.25	O	16	36	X		X		Drainage	
39	35	29°42'0.6"	98°19'31.1"	SC	20	K_{ed}	1	0.6	1.1	310			0.6	O	0	20	X			X	Drainage	
40	36	29°41'59.6"	98°19'32"	SC	20	K_{ed}	3	1.4	0.5	335			1.4	O	24	44		X		X	Drainage	
41	37	29°41'59.6"	98°19'32"	SC	20	K_{ed}	2.5	2	0.7	335			2	O	20	40		X		X	Drainage	
42	38	29°41'58.7"	98°19'33.1"	SC	20	K_{ed}	2.2	1.5	0.9	335			1.5	O	19	39	X			X	Drainage	
43	39	29°41'58.7"	98°19'33.8"	SF	20	K_{ed}	3.5	1	1	240			1	O	15	35	X		X		Drainage	
44	40	29°42'6"	98°19'45"	SW	30	K_{ed}	20	16	0.4	340			16	O	25	55		X		X	Hillside	
45	41	29°42'9.4"	98°19'48.7"	SC	20	K_{ed}	2	0.5	1.1	210			0.5	O	16	36	X			X	Hillside	
46-47	42	29°42'9.4"	98°19'48.7"	Z	30	K_{ed}	30	60	1	210		0.3		O	15	45		X		X	Hillside	
48	43	29°42'15.5"	98°19'56.7"	SC	20	K_{ed}	3	1	1	325			1	O	19	39	X			X	Stream Bed	
49	44	29°42'16.7"	98°19'57.3"	SF	20	K_{ed}	0.3	2.5	0.2	325			0.3	O	19	39	X			X	Stream Bed	
50	45	29°42'28.8"	98°20'15.7"	SC	20	K_{ed}	0.6	0.3	1.4	30			0.3	O	33	53		X	X		Hillside	
51	46	29°42'11.1"	98°19'38.6"	SW	30	K_{ed}	40	18	3	10				V	16	46		X		X	Hilltop	
52	47	29°42'29.4"	98°19'40.3"	SC	20	K_{ed}	1.3	1	1	260			1	O	20	40		X		X	Hillside	
53	48	29°42'30.6"	98°19'41"	SC	20	K_{ed}	0.9	0.6	0.4	260			0.6	O	16	36	X			X	Drainage	
54	49	29°42'33.8"	98°19'44.9"	O	5	K_{ed}	1.7	0.8	0.4	360			0.8	O	15	20	X		X		Hillside	
55	50	29°42'35.8"	98°19'51.9"	SF	20	K_{ed}	0.8	2	1	350			0.8	O	17	37	X			X	Hillside	
56	51	29°42'33.8"	98°19'57.8"	O	5	K_{ed}	4	1	0.7	310			1	O	9	14	X			X	Hillside	
57-59	52	29°42'50.3"	98°20'19.6"	SC	20	K_{ed}	2	4	>4.5	300			2	N	35	55		X		X	Hillside	
64	53	29°42'48.4"	98°20'42.6"	SC	20	K_{ed}	7	4.2	1.6	50			4.2	O	15	35	X			X	Stream Bed	
65	54	29°42'48.6"	98°20'41.9"	O	5	K_{ed}	3	2	1.5	50			2	O	20	25	X			X	Stream Bed	
69	55	29°42'37"	98°20'26.4"	SC	20	K_{gru}	3	4.5	1.5	300			3	O	22	42		X	X		Hillside	
72	56	29°42'47.4"	98°20'19.7"	SF	20	K_{ed}	2.5	2	3	310			2	O	18	38	X			X	Hillside	
	57	29°42'22.5"	98°19'44.3"	MB	30	K_{ed}	0.33	0.33	-	-			0.33	N	0	30	X				Hillside	Windmill
73	58	29°42'30.2"	98°20'17.9"	SC	20	K_{ed}	1	3	0.8	280			1	O	28	48		X	X		Hillside	
75	59	29°42'28.7"	98°20'4"	MB	30	K_{ed}	0.83	0.83	650	305			0.83	N	0	30	X			X	Drainage	TGI: TW-2
74	60	29°42'46.9"	98°20'23.5"	SC	20	K_{gru}	1.5	1	1.4	275			1	O	30	50		X		X	Hillside	

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Ramble Ridge Ranch Geological Assessment

	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		±0						<40	≥40	<1.6	≥1.6		
76-77	61	29°42'30.2"	98°20'5.7"	SC	20	K_{ed}	1.1	0.5	1.2	350			0.5	O	30	50		X		X	Stream Bed	
78	62	29°42'30.3"	98°20'6.2"	SF	20	K_{ed}	5.1	6.5	2	350			2	O	16	36	X			X	Stream Bed	
79-80	63	29°42'31.3"	98°20'5.8"	SC	20	K_{ed}	0.15	0.1	>1.6	350			0.1	O	35	55		X		X	Stream Bed	
81	64	29°42'31.6"	98°20'5.8"	SC	20	K_{ed}	0.4	0.2	0.4	350			0.2	O	20	40		X		X	Stream Bed	
82	65	29°42'32.4"	98°20'5.4"	SW	30	K_{ed}	4	3	1.4	310			3	O	10	40		X		X	Stream Bed	
83	66	29°42'34.4"	98°20'5.8"	O	5	K_{ed}	10	5	1.6	355			5	O	15	20	X			X	Stream Bed	
84	67	29°42'35"	98°20'3.9"	SC	20	K_{ed}	0.9	0.2	0.6	360			0.2	O	30	50		X		X	Stream Bed	
85	68	29°42'36.9"	98°20'5.1"	SC	20	K_{ed}	1.5	1	1.3	350			1	O	30	50		X		X	Stream Bed	
86	69	29°42'39.4"	98°20'4.5"	SC	20	K_{ed}	1	1	>3	10			1	N	33	53		X		X	Stream Bed	cavity w/ discharge
88,90,91-93	70	29°42'39.4"	98°20'4.5"	C	30	K_{ed}	4.5	3.5	>8	10			3.5	N	35	65		X		X	Stream Bed	cave w/ discharge
87,89,92-93	71	29°42'39.4"	98°20'4.5"	C	30	K_{ed}	5	3	>6.5	10			3.5	N	35	65		X		X	Stream Bed	cave w/ discharge
94	72	29°42'40.3"	98°20'2"	SC	20	K_{ed}	2.9	4	3	5			2.9	N	35	55		X		X	Stream Bed	

* DATUM: North American Datum 1983

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

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

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

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

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

Signature: Michael R. Thornhill Date: 8-17-06

STATE OF TEXAS
MICHAEL R. THORNHILL
GEOLOGY
858
LICENSED
PROFESSIONAL GEOSCIENTIST

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: Ramble Ridge Subdivision
Original Regulated Entity Name: _____
Assigned Regulated Entity Numbers (RN): 1) 105155808, 2) _____, 3) _____

✓ The applicant has not changed and the Customer Number (CN) is: CN 603148149
___ The applicant 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 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;
✓ 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	388.58	388.58
Type of Development	Residential	Residential
Number of Residential Lots	211	211
Impervious Cover (acres)	28.44	28.44
Impervious Cover (%)	7.32%	7.32%
Permanent BMPs	NA	NA
Other		Karst Feature Reclassification

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 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. ✓ **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.

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

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

NA 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.

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:

Richard McCallegos
Print Name of Customer/Agent

Signature of Customer/Agent

3/5/13
Date

ATTACHMENT A
ORIGINAL APPROVAL LETTER

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 20, 2007

Mr. J. W. Wood
Fiorano Ventures, LLC
17460 IH 35 North, Suite 160-350
Schertz, Texas 78154

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Ramble Ridge; Located on FM 3009, 8.2 miles northwest of IH 35, San Antonio, Texas
TYPE OF PLAN: Request for the Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer; Edwards Aquifer Protection Program ID No. 2614.00; Investigation No. 538964; Regulated Entity No. RN105155808

Dear Mr. Wood:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the San Antonio Regional Office by Bunker Engineering on behalf of Fiorano Ventures, LLC on January 22, 2006. Final review of the WPAP was completed after additional material was received on February 28, 2007 and March 8, 2007. 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 388 acres. The impervious cover will be 28.30 acres (7.28%) and will include 209 lot sites, home buildings and driveways (3,000 square foot), public roads, recreation area and utilities. Project wastewater will be disposed of by an on-site sewage facility for each individual lot. According to a letter dated

November 14, 2005, signed by Thomas Hornseth P.E. with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

The single family residential portion of the 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 submitted, 72 features were identified on site. Of those 72 features, 40 features were given a "sensitive" rating. The San Antonio Regional Office conducted an on-site inspection February 16, 2007 and the site appeared to be in general agreement with the geologic assessment.

During the site assessment on February 16, 2007, regulated activities (road clearing, brush and tree clearing, building construction) were observed at the project site. Temporary BMPs (silt fence and stabilized construction entrance) were only observed at the entrance of the project site. Throughout the remainder of the site, no temporary BMPs were observed on the downgradient side of disturbed areas. These activities had commenced prior to the issuance of this approval letter.

SPECIAL CONDITIONS

I. The holder of the approved Edwards Aquifer Water Pollution Abatement Plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the application.

II. 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.

III. The request to seal feature #2 is hereby granted. The project engineer provided justification as to why the proposed detention basin could not be relocated and still meet Comal County requirements.

IV. Temporary BMPs are necessary during all phases of construction including house construction. Silt fence and other adequate temporary BMPs are to be present along the downgradient portion of any disturbed areas from house construction. These temporary BMPs must protect water quality and inspection, maintenance and repair will need to follow the guidelines set forth in the WPAP.

V. 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.

VI. The project engineer stated the four wells (Feature ID 3, 33, 57, 59) located on site will be properly abandoned. Within 60 days of the date of this letter provide correspondence that the four wells have been properly abandoned.

VII. As stated in Attachment C of the WPAP application, all homebuyers will have made available:

a. Lot plat showing any sensitive features and recharge feature easements for sensitive features in the plat boundary.
b. The list of requirements and guidelines, presented to the TCEQ by the applicant, for creating the visual barrier to delineate the recharge feature easements as stated in the Project Description of the WPAP application.
c. Copy of Chapter 5 Section 5.1.2 Sensitive Features, of the Technical Guidance Manual (TGM, 2005), pages 5-2 through 5-3. Special highlighting of "Temporary erosion control measures should be placed as near the construction as possible to minimize disturbance within the buffer zone..." must be provided to make the homebuyer aware of the need for temporary BMPs.
d. Copy of Title 30 TAC Chapter 285, Sub Chapter E, §285.40, OSSF on the Recharge Zone of the Edwards Aquifer.

VIII. Regulated activities identified (through site assessment investigation on February 16, 2007) at the project site may constitute construction without the prior approval of the water pollution abatement plan as required by Commission rules (30 TAC §213.4(a)). Therefore, the applicant is hereby advised that the after-the-fact approval of the development, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

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 appropriate 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.

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 complete.

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 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. Four 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.

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.

<u>After Completion of Construction:</u>

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 (TCEQ-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 Charly Fritz of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4065.

Sincerely,

for Glenn Shankle
Executive Director
Texas Commission on Environmental Quality

GS/CEF

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

cc: Mr. Dan Bunker, P.E., Bunker Engineering
Mr. Thomas Hornseth, P.E., Comal County
Mr. Robert Potts, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

ATTACHMENT B – NARRATIVE OF PROPOSED MODIFICATION

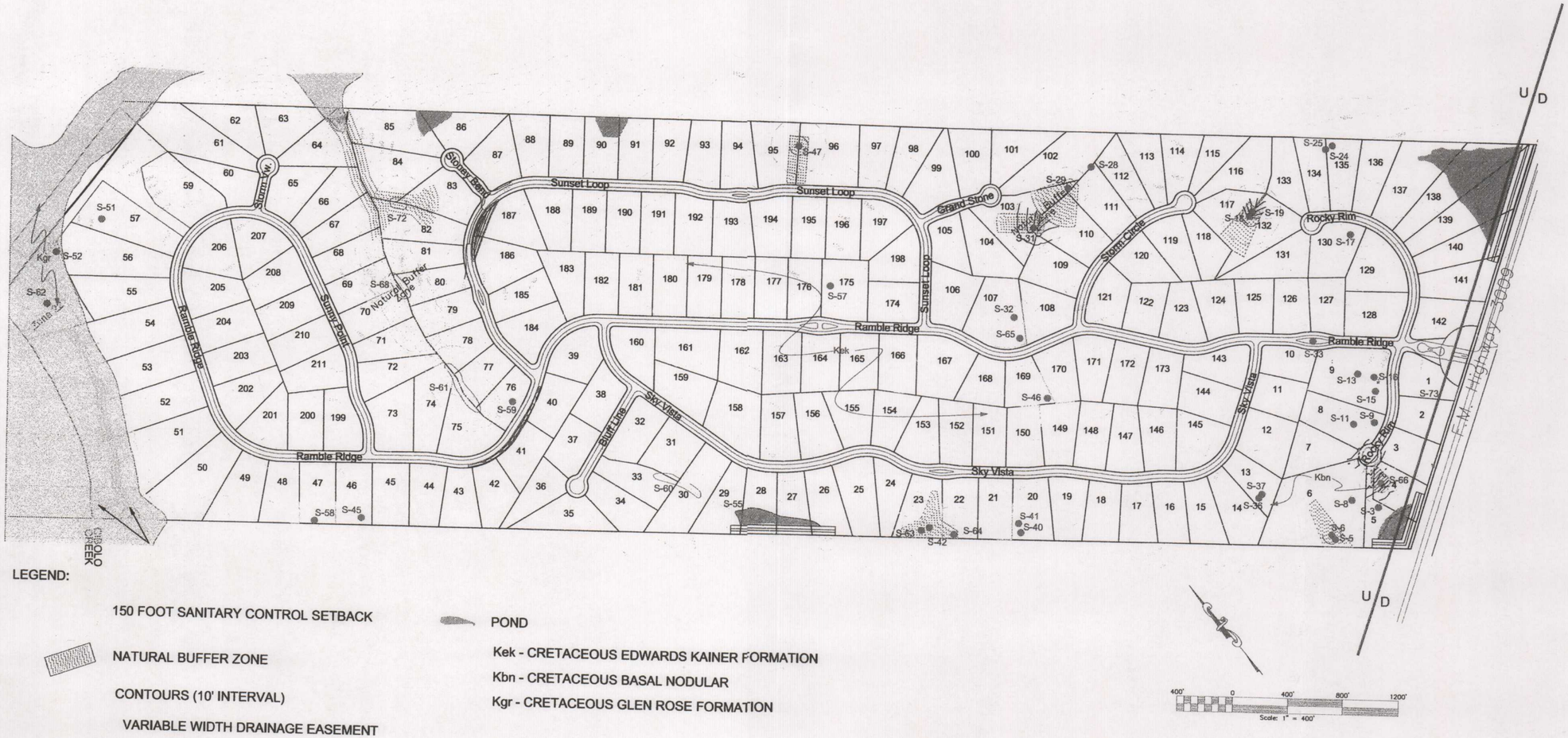
Ramble Ridge Subdivision original WPAP was approved on March 20, 2007. This modification is requesting reclassification of previously categorized sensitive features to non-sensitive features.

Here are the features we request being reclassified in numerical order: S-4 Lot 3, S-8 Lot 6, S-9 Lot 8, S-11 Lot 8, S-13 Lot 9, 14 Lot 9, S-15 Lot 9, S-16 Lot 9, S-17 Lot 132, S-19 Lot 132, S-24 Lot 143 and Lot 135, S-28 Lot 111, S-32 Lot 107, S-36 Lot 13 and Lot 14, S-37 Lot 13 and Lot 14, S-40 Lot 20 and Lot 21, S-46 Lot 169 and Lot 170 and S-52 Lot 56. See Site Plan located within WPAP section of this submittal or the Geological Assessment Site Geologic Map.

As stated in the original WPAP the buffer zones will remain in their natural state where any construction or soil disturbing is prohibited. When all or part of a buffer zone is located on a residential lot, the lot owner will mark the boundary of the buffer zone via a fence, placing large boulders, or some form of distinctive planting. The fencing used can be any visible type, boulders are to be a minimum of 12 inches in one dimension and be located no further than eight feet apart, while utilizing plants must be distinctive, and spaced no further apart than four times their height. The plants must be suitable for the climate and soil conditions of the site and must be unique so that other plants of the same species are not located on the same lot.

The purchaser of any lots having all or part of a buffer zone easement shall be given a copy of the easement delineation stated above along with a copy of the subdivision plat showing the subject lot and the easement contained thereon and including a copy of the Technical Guidance Manual RG-348.

ATTACHMENT C – CURRENT SITE PLAN



LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

John Langan
Geology
4671
LICENSED
GEOLOGIST

psi Information To Build On
Engineering Consulting Testing
THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 05/07/12
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

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: Ramble Ridge Subdivision

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ✓ Residential: # of Lots: 211
   - ___ Residential: # of Living Unit Equivalents: ___
   - ___ Commercial
   - ___ Industrial
   - ___ Other: ___

2. Total site acreage (size of property): 388.58 Ac.

3. Projected population: 836

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	474,750	÷ 43,560 =	10.90
Parking	158,250	÷ 43,560 =	3.63
Other paved surfaces	605,800	÷ 43,560 =	13.91
Total Impervious Cover	1,238,800	÷ 43,560 =	28.44
Total Impervious Cover ÷ Total Acreage x 100 =			7.32%

5. ✓ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.

6. ✓ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

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

7. Type of project:
   - ___ 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 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	62,700 gallons/day
0 % Industrial	_____ gallons/day
0 % Commingled	_____ gallons/day

TOTAL 62,700 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.

__ 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 _____ (name) Treatment Plant. The treatment facility is:
__ existing.
__ proposed.

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

SITE PLAN REQUIREMENTS

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

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

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):

_____

_____

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

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
✓ There are 4 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)
✓ The wells are not in use and have been properly abandoned.
__ The wells are not in use and will be properly abandoned.
__ The wells are in use and comply with 16 TAC §76.
__ There are no wells or test holes of any kind known to exist on the project site.

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

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

23. ✓ 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).

27. ✓ Locations where stormwater discharges to surface water or sensitive features.
— There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

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

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

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

Richard M. Gallegos
Print Name of Customer/Agent

Signature of Customer/Agent

3/5/13
Date

ATTACHMENT A – FACTORS AFFECTING WATER QUALITY

This WPAP Modification specifically asks for the TCEQ to look at certain sensitive features to see if there is a chance of reclassification from sensitive to non-sensitive. Given this information the factors affecting water quality will remain the same from the original WPAP previously approved. Therefore the following information was taken directly from the original WPAP Attachment A:

Water quality is affected by permeability of the surface. Adding impermeable cover increases the quantity, and therefore the velocity, of water run-off. Increased velocity gives the runoff a greater ability to carry pollutants. The proposed subdivision plat presently shows 211 lots. All but three of these lots are to be sold for construction of single family residences. Located on Lot 5 will be facilities for the water system (storage tank, pump house, pressure tank) with about 1,000 S.F. of impervious area. The developer has no plan to add any impervious cover to Lot 58. This lot, to be used as a private park for property owners, provides access to the Cibolo Creek for residents of the subdivision. A 1,490 S.F. building for use as a sales office has been constructed on Lot 42. Pavement for the parking area will be added when the subdivision roads are paved. The building will be removed and Lot 42 sold as a residential building site when the marketing of the subdivision is complete. To simplify the calculation these three lots are included in the total number of residential lots shown for calculation of impervious cover. The amount and type of impervious cover expected after construction as shown on the preceding sheet was estimated as follow:

Structures/Rooftops-(2,250 SF/lot)(211 lots) = 474,750 SF
Parking (driveways)-(750 SF/lot)(211 lots) = 158,250 SF
Other Paved Surfaces (23,300' road)(26' width) = 605,800 SF
Total: 1,238,800 SF

The greatest potential danger of degradation of water quality from this project will be in the roadway and utility construction phase. Waste from construction workers and equipment, along with the ever present danger of high suspended solids content in storm water during the period of when soil has been disturbed by clearing and grading operations but not yet re-stabilized after road, drainage, and utility construction is complete, will cause surface water pollution. To a lesser degree, house and driveway construction will bring similar concerns for a much longer period of time. Even when there is no longer any construction activity, low density single family development will cause a slight degradation of runoff water quality due to human activity (including chemical use and automobile wastes) and increased impervious area. Ground water degradation, if any, would occur only in isolated instances.

ATTACHMENT B – VOLUME AND CHARACTERISTIC OF STORM WATER

As stated in Attachment A prior to this page, this WPAP Modification specifically asks for the TCEQ to look at certain sensitive features to see if there is a chance of reclassification from sensitive to non-sensitive. Given this information the factors affecting water quality will remain the same from the original WPAP previously approved. Therefore the following information was taken directly from the original WPAP Attachment B:

As, above, there should be a slight degradation of storm water quality due to human activity. Quantity of storm water is estimated to increase 10.2% as shown in the calculation below.

Percent Increase in Runoff Volume

Prior to development estimated runoff coefficient "C" = 0.40
After development C = 0.40 for pervious area and 0.96 for impervious area
Impervious area = 7.32%
After development combined C = 0.40(0.9268) + 0.96(0.0732) = 0.441
Increase in runoff = (0.441-0.40)/0.40 = 0.1025 = ***10.25%***

Increase in Average Annual Runoff:

Average annual rainfall = 33 inches
Total acreage = 388.58 acres
Average annual runoff before development = 0.40(388.58)(33/12) = 427.438 acre feet
Average annual runoff after development = 0.441(388.58)(33/12) = 474.25 acre feet
Increase in average annual runoff = 471.25-427.438 = ***43.812 acre feet***

Runoff Velocity:

Runoff velocities will increase very little if any due to the Comal County requirement that Q100 (maximum runoff rate for 100 year storm) not increase above present condition.

Annual Pollutant load:

Total Suspended Solids is estimated as follows:

From pervious cover area (360.14 Ac.)(33")(0.03)(80)(0.226) =	*6,446 pounds*
From impervious area (28.44 Ac.)(33")(0.90)(170)(0.226) =	*32, 452 pounds*
Total Annual Suspended Solids =	*38,898 pounds*

ATTACHMENT C – SUITABILITY LETTER FROM AUTHORIZED AGENT



Comal County

OFFICE OF COMAL COUNTY ENGINEER

November 14, 2005

Ramble Ridge, L.L.C.
17460 IH35N, Ste. 160-350
Schertz, TX 78154

Re: Proposed subdivision of RAMBLE RIDGE SUBDIVISION, within Comal County, Texas

Dear Property Owner:

We have completed the field inspection of the referenced for the recommendation for private sewage facilities and have found the property to be approved with the conditions that individual septic systems permits shall be required for the lots within this subdivision.

Please be advised that these individual permits will be required to meet 30 TAC 285.40, subchapter E (copy attached). Please specifically reference the one acre minimum lot size and 150 foot distance requirement to recharge features.

Should you have any questions, please feel free to contact us.

Sincerely,

Thomas H. Hornseth, P.E.
Comal County Engineer

xc: Mr. Mike Harris, R.P.L.S.,
ACS, Inc.

SUBCHAPTER E : SPECIAL REQUIREMENTS FOR OSSFS LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE
§285.40

§285.40. OSSFs on the Recharge Zone of the Edwards Aquifer.

(a) Applicability. In addition to the requirements given in this chapter, the following additional provisions apply to the Edwards Aquifer recharge zone as defined in §285.2 of this title (relating to Definitions) and is not intended to be applied to any other areas in the State of Texas.

(b) Additional application requirements for new OSSFs.

(1) All planning and design materials shall be submitted by a professional engineer or sanitarian registered in Texas.

(2) Site evaluation to be conducted by a certified site evaluator possessing a valid certificate.

(c) Conditions for obtaining a permit to construct. In order to obtain a permit to construct in the Edwards Aquifer recharge zone, the following conditions must be met.

(1) Minimum lot sizes. Each lot or tract of land on the recharge zone on which OSSFs are to be located must have an area of at least one acre (43,560 square feet) per single family dwelling.

(2) Minimum separation distances from recharge features. The following separation distances shall be maintained from recharge features found during a site evaluation or in accordance with a geologic assessment performed in accordance with Chapter 213 of this title (relating to Edwards Aquifer). No sewage treatment tank or holding tank may be located within 50 feet of a recharge feature. No soil absorption system may be located within 150 feet of a recharge feature.

(3) No OSSF may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde county line to the recharge zone.

(d) Existing OSSFs. OSSFs licensed by, or registered with, the appropriate permitting authority at the time of adoption of this section shall remain licensed or registered under the terms and conditions of the current license or registration. Any relicensing shall be performed in accordance with §285.3 of this title (relating to Applicability). An OSSF installed on the recharge zone prior to April 11, 1977, in either Uvalde or Kinney Counties is not required to be permitted or licensed, provided the OSSF is not causing pollution, is not a threat to the public health, or is not a nuisance, and has not been substantially modified.

(e) Exceptions for certain lots. Lots platted and recorded with the county in its official plat record, deed, or tax records of the following counties prior to the dates for the counties indicated in this

subsection, are exempted from the one-acre minimum lot size requirement, pursuant to the conditions of subsection (f) of this section.

(1) Kinney, Uvalde, Medina, Bexar, and Comal Counties–March 26, 1974;

(2) Hays County–June 21, 1984;

(3) Travis County–November 21, 1983; and

(4) Williamson County–May 21, 1985

(f) Notice. Any person, or his agents or assignees, desiring to construct a residential development with two or more lots in which OSSFs will be utilized in whole or in part on the recharge zone and desiring to sell, lease, or rent the lots therein, must inform in writing each prospective purchaser, lessee, or renter of the following.

(1) Each lot within the regulated development is subject to the terms and conditions of this section.

(2) A permit to construct shall be required before an OSSF can be constructed in the subdivision.

(3) A license to operate shall be required for the operation of an OSSF.

(4) Whether or not an application for a water pollution abatement plan as defined in Chapter 213 of this title (relating to Edwards Aquifer), has been made, and whether or not it has been approved, and whether any restrictions or conditions have been placed on that approval.



LEGEND:

- 150 FOOT SANITARY CONTROL SETBACK
- NATURAL BUFFER ZONE
- CONTOURS (10' INTERVAL)
- VARIABLE WIDTH DRAINAGE EASEMENT
- SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN
- POND
- Kek - CRETACEOUS EDWARDS KAINER FORMATION
- Kbn - CRETACEOUS BASAL NODULAR
- Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

John Langan
Geology
LICENSED

psi Information To Build On
Engineering Consulting Testing

THREE BURWOOD LANE
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 05/07/12
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

Temporary Stormwater Section

Not applicable for this karst re-classification modification.

Permanent Stormwater Section

Not applicable for this karst re-classification modification.

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

I Virgil Knowlton,
Print Name

Managing Partner,
Title - Owner/President/Other

of TKO Real Estate II, L.P.,
Corporation/Partnership/Entity Name

have authorized Richard M. Gallegos
Print Name of Agent/Engineer

of Gallegos Engineering, 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:

Virgil K. Knowlton
Applicant's Signature

3/5/13
Date

THE STATE OF TEXAS §

County of COMAL §

BEFORE ME, the undersigned authority, on this day personally appeared VIRGIL K. KNOWLTON 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 5th day of MARCH, 2013.

NOTARY PUBLIC

MAUREEN K. McNERTNEY
NOTARY PUBLIC STATE OF TEXAS
COMMISSION EXPIRES:
08-08-2014

MAUREEN K. McNERTNEY
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 8/8/2014

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

NAME OF PROPOSED REGULATED ENTITY: Rumble Ridge Subdivision
REGULATED ENTITY LOCATION: 26,000 Block of Natural Bridge Caverns Rd (FM3009)
NAME OF CUSTOMER: TKO Real Estate II, L.P.
CONTACT PERSON: Virgil Knowlton PHONE: 210-651-6860
(Please Print)

Customer Reference Number (if issued): CN 603 148 149 (nine digits)
Regulated Entity Reference Number (if issued): RN 105 155 808 (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
512/239-1278

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	388.58 Acres	$ 8,000.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Virgil K. Knowlton
Signature

3/5/2013
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

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

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

☑ Yes ☐ No — WPAP Modification

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		RN 105 155 808

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 03/05/2013

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:			
☐ 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:*

TKO Real Estate II, L.P.

10. Mailing Address: 1100 N.E. Loop 410, Suite 900

City: San Antonio State: Texas ZIP: 78209 ZIP + 4: 1574

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)*
(210) 651-6860	—	(210) 494-9840

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)*
45-326 1141	32045044354	—	0801478276

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)*

Ramble Ridge Subdivision

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	26000 Block FM 3009							
	City	San Antonio	State	Texas	ZIP	78266	ZIP + 4	
25. Mailing Address:	TKO Real Estate, II, L.P.							
	1100 N.E. Loop 410, Suite 900							
	City	San Antonio	State	Texas	ZIP	78209	ZIP + 4	1574
26. E-Mail Address:	-							

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(210) 651-6860	—	(210) 494-9840

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		236115	

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

Single Family Residential Subdivision

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

35. Description to Physical Location:	Westside of 3009 - 8.2 miles northwest from IH35/FM3009 Intersection

36. Nearest City	County	State	Nearest ZIP Code
Garden Ridge	Comal	Texas	78266

37. Latitude (N) In Decimal:	29.7058	38. Longitude (W) In Decimal:	98.3306

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	42	20	98	19	50

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:	Richard M. Gallegos	41. Title:	President

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 641-0812	—	(210) 641-2037	rgegallegoseng.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:	Gallegos Engineering, Inc.	Job Title:	Consulting Engineer
Name *(In Print)*:	Richard M. Gallegos	Phone:	(210) 641-0812
Signature:		Date:	3/16/13

GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

April 26, 2013

RECEIVED
MAY 2 4 2013
COUNTY ENGINEER

RECEIVED TCEQ
SAN ANTONIO
REGION
2013 MAY -1 PM 1:47

Ms. Dianne Pavlicek, P.G.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

Re: Response to April 9, 2013 Comments to Application for WPAP Modification
Ramble Ridge Subdivision, Comal County
San Antonio File No. 2614.01

Dear Ms. Pavlicek:

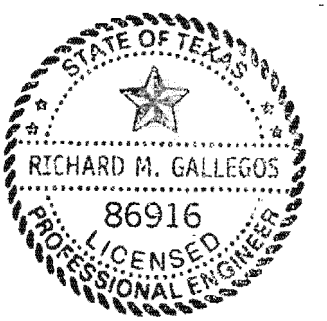
We are responding to your April 9, 2013 letter requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

1. The attached revised Geologic Assessment tables (3 pages) by John Langan, P.G., have modified features S-9, S-13 and S-15 to not sensitive. Please replace the original Geologic Assessment tables (3 pages) dated January 25, 2013 with the enclosed Geologic Assessment tables (3 pages) dated April 19, 2013.

2-1. S-4 has been added to Lot 3. Please replace the original Geologic Assessment map dated January 25, 2013 with the enclosed Geologic Assessment map dated April 19, 2013.
2-2. S-3 on Lot 5 has been removed since it was rated MB 30.
2-3. As stated above S-9 has been added to the Geologic Assessment table.
2-4. As stated above S-13 has been added to the Geologic Assessment table.
2-5. S-14 has been added to Lot 9.
2-6. S-33 in street ROW has been removed since it was rated MB 30.
2-7. S-25 on Lot 134 has been removed.
2-8. S-65 remains rated SC 38 and did not change on the Geologic Assessment table or map.
2-9. S-41 was removed from the Geologic Assessment table.
2-10. S-57 on Lot 175 has been removed since it was rated MB 30.
2-11. S-42, S-63 on Lot 23 and S-64 on Lot 22 remain the same as original.
2-12. S-55 on Lot 29 and S-60 on Lot 33 remain the same as original.
2-13. S-59 on Lot 76 has been removed since it was rated MB 30.
2-14. S-58 on Lot 47 remains the same as original.
2-15. S-45 on Lot 46 remains the same as original.
2-16. S-51 on Lot 57 has been removed since it was rated SC 35.
2-17. S-61 on Lot 74, S-68 on Lot 69 and S-72 on Lot 82 has been removed.
2-18. Items 2-3, 2-4, 2-5, 2-8, 2-14 and 2-15 have been addressed above.
2-19. Geologic Assessment map has been revised and enclosed with this submittal.

Also included in this submittal is a replacement Geologic Assessment map for two sections in the original WPAP package that require updating of the map due to the changes listed above. The two sections are the "Modification of a Previously Approved Plan" and the "Water Pollution Abatement Plan". With this cover letter there is one original copy of the Geologic Assessment map and tables (3 pages) with two additional copies of the GA map. Four additional copies of this entire package have been included for your use. We have addressed all items per your April 9, 2013 letter. Please let us know if you have any questions, comments or require any additional information.

Sincerely,
GALLEGOS ENGINEERING, INC.



Richard M. Gallegos, P.E.
President

cc: Mr. Virgil Knowlton
TKO Real Estate II, L.P.

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge																
LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C *	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES,	MOD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-1	29-41-59.6	98-19-24.1	SC	20	Kek	1	0.5	1.5					F	15	35	X		X		Hillside
S-3	29-41-54.7	98-19-26.7	MB	30	Kek	1	1	550						0	30	X		X		2 wells
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-5	29-41-55.3	98-19-29.8	O	5	Kek	20	5	1			3	0	F	10	15	X		X		Hillside
S-6	29-41-55.6	98-19-30	SC	20	Kek	0.2	0.3	1.5						15	35	X			X	Drainage
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-9	29-41-58.6	98-19-23.8	SC	20	Kek	1.5	2.5	1.5					F	12	32	X		X		Hillside
S-11	29-41-59.6	98-19-24.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside
S-14	29-42-0.3	98-19-22.1	SC	20	Kek	1	0.5	0.7					F	12	32	X		X		Hillside
S-15	29-42-0.7	98-19-22	O	5	Kek	5	4	2			2	0.1		10	15	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-18	29-42-11.7	98-19-21.5	SC	20	Kek	2	0.7	1.5					O	25	45		X	X		Hillside
S-19	29-42-11.2	98-19-11.5	CD	5	Kek	1.5	2	0.3					O	15	20	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

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

Date: April 19, 2013

Sheet ___1___ of ___: 3

STATE OF TEXAS
4/19/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST

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

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge																
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING	
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11	12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)	TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-29	29-42-18.8	98-19-28.6	SC	20	Kek	2	2.5	1					O	20	40		X		X	Streambed
S-31	29-42-18.4	98-19-32.3	Z	30	Kek	200	150	5					C	30	60		X		X	Drainage
S-32	29-42-15.8	98-19-36.7	SC	20	Kek	1	0.7	2					O	15	35	X			X	Drainage
S-36	29-41-59.5	98-19-32	O	5	Kek	3	1.5	0.5			3	0.2	O	10	15	X			X	Drainage
S-37	29-41-59.6	98-19-32.1	O	5	Kek	2.5	2	0.7			3	0.2	O	10	15	X		X		Hillside
S-40	29-42-6	98-19-45	CD	5	Kek	3	2	1					O	5	10	X		X		Hillside
S-42	29-42-9.4	98-19-48.7	SC	20	Kek	5	5	2					F	15	35	X		X		Hillside
S-45	29-42-28.3	98-20-16.2	CD	5	Kek	1.5	1	1.5					F	5	10	X		X		Hillside
S-46	29-42-10.2	98-19-37.6	MB	30	Kek	45	30	4					F	0	30	X		X		Hillside
S-47	29-42-29	98-19-40.3	SC	20	Kek	6	6	1					O	20	40		X	X		Hillside
S-52	29-42-50.3	98-20-19.6	SC	20	Kbn	1.5	1	1					N	10	30	X		X		Hillside

* DATUM:_____

2A TYP	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

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Date: April 19, 2013

Sheet 2 of 3

STATE OF TEXAS
4/19/13
John Langan
Geology
48
LICENSED PROFESSIONAL SCIENTIST

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

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge																
LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ROSE	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-55	29-42-15.8	98-19-56.8	O	5	Kek	100	50	6			1		C	10	15	X			X	Drainage
S-58	29-42-30.2	98-20-17.9	SC	20	Kek	3	1	0.8					O	12	32	X		X		Hillside
S-60	29-42-19	98-19-58.7	O	5	Kek	250	60	5			2	0.2	F	12	17	X			X	Drainage
S-62	29-42-48.6	98-20-20.7	MB	30	Kbn	1	1	250						0	30	X		X		Hillside
S-63	29-42-9.4	98-19-49.3	SC	20	Kek	3	1	5					F	30	50		X	X		Hillside
S-64	29-42-8.5	98-19-47.9	SC	20	Kek	5	4	1.5					F	25	45		X	X		Hillside
S-65	29-42-15.3	98-19-36.1	SC	20	Kek	6	1	3					F	12	32	X		X		Hillside
S-66	29-41-56.1	98-19-25.5	SC	20	Kek	3	2.5	2.5					N	20	40		X		X	Hillside
S-73	29-41-57.4	98-19-19.8	F	20	Kek	2250	50	650					C	15	35	X			X	Hillside

* DATUM: _____

2A TYP	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

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X	Other materials

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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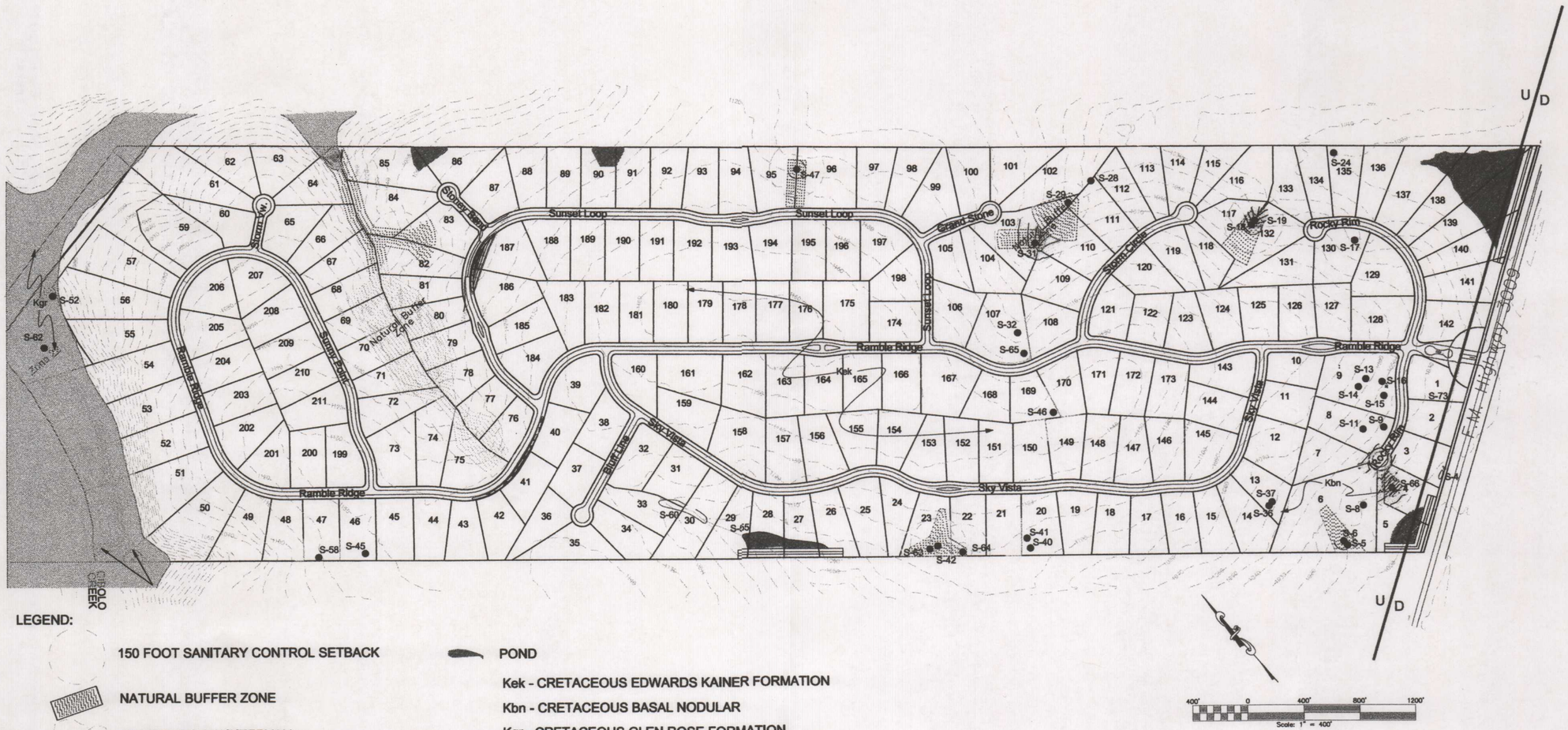
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date: April 19, 2013

Sheet 2 3 3

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

THE STATE OF TEXAS
JL 4/19/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL GEOSCIENTIST



LEGEND:

- 150 FOOT SANITARY CONTROL SETBACK
- NATURAL BUFFER ZONE
- CONTOURS (10' INTERVAL)
- VARIABLE WIDTH DRAINAGE EASEMENT
- SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN
- POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

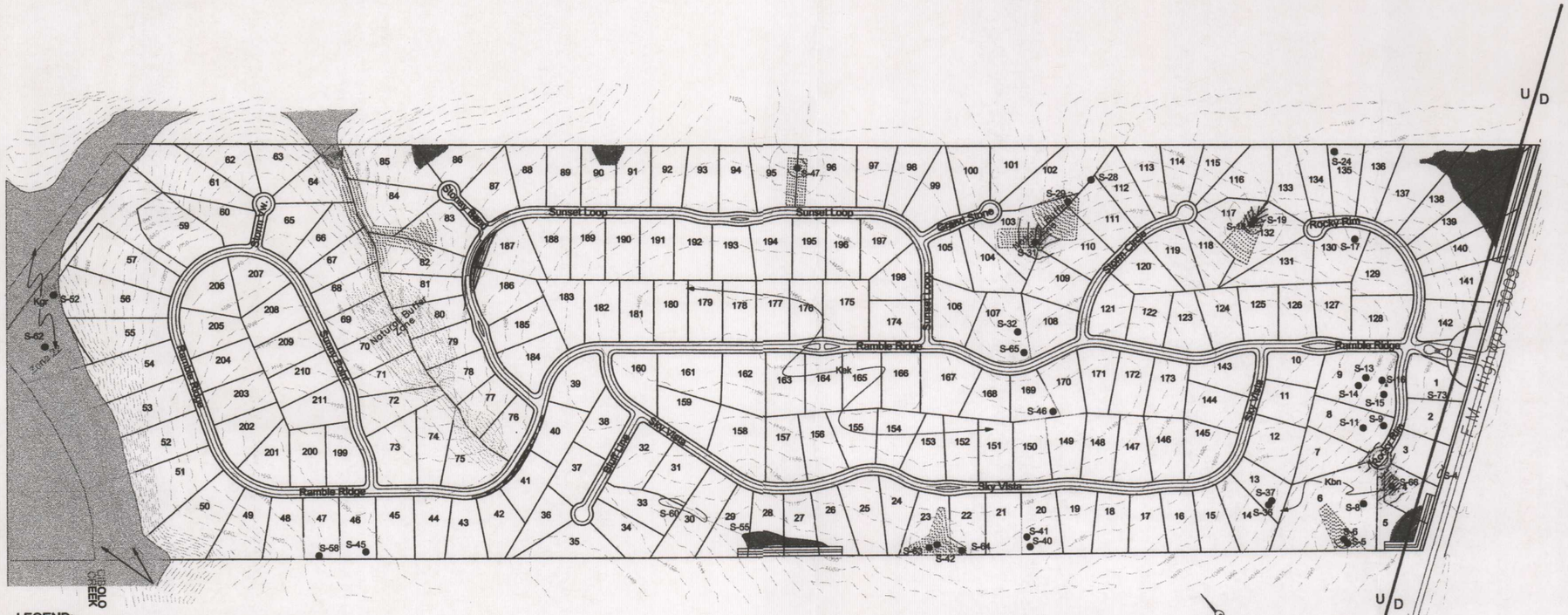
psi Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: a
DATE: 04/19/13
DESIGN: --
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

REVISED GEOLOGIC ASSESSMENT MAP
DATED APRIL 19, 2013
TO REPLACE ORIGINAL GA MAP
DATED JANUARY 25, 2013
FOUND IN SECTION:

MODIFICATION OF A PREVIOUSLY APPROVED PLAN



LEGEND:

150 FOOT SANITARY CONTROL SETBACK

NATURAL BUFFER ZONE

CONTOURS (10' INTERVAL)

VARIABLE WIDTH DRAINAGE EASEMENT

SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN

POND

Kek - CRETACEOUS EDWARDS KAINER FORMATION

Kbn - CRETACEOUS BASAL NODULAR

Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

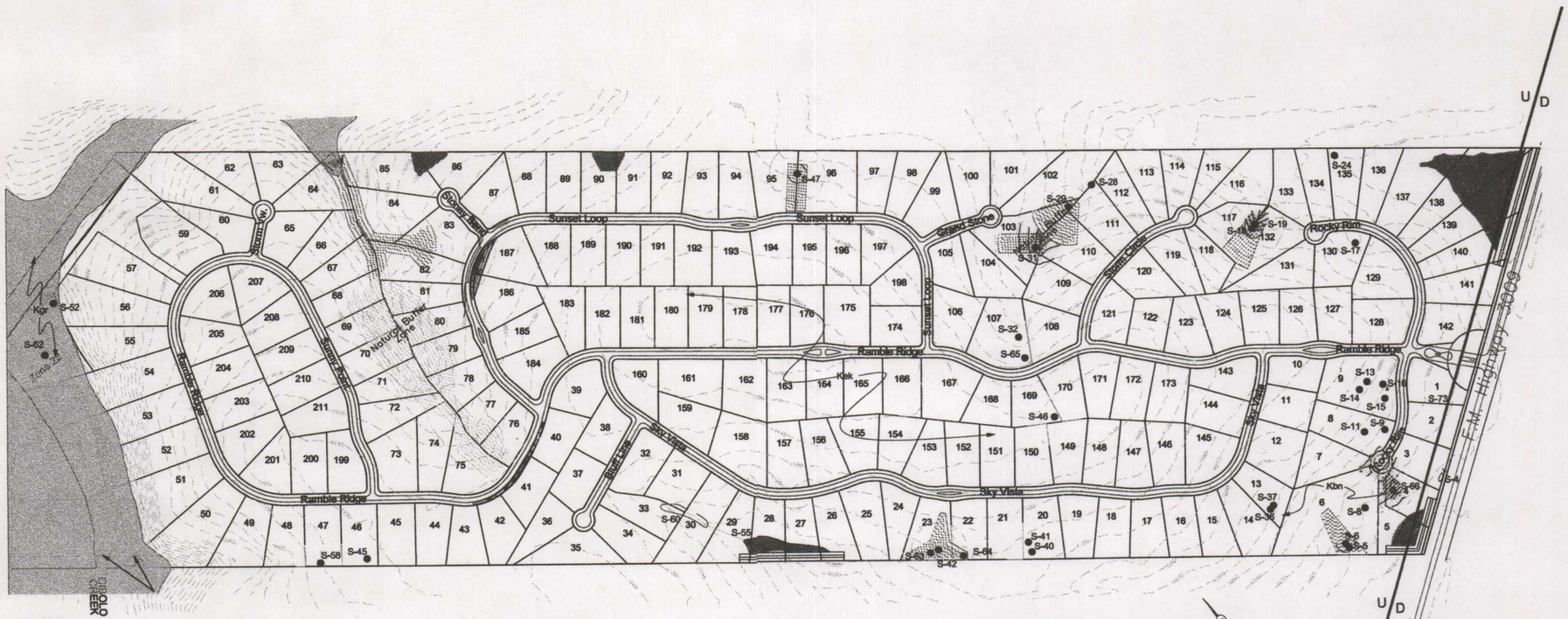
psi Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 04/19/13
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

REVISED GEOLOGIC ASSESSMENT MAP
DATED APRIL 19, 2013
TO REPLACE ORIGINAL GA MAP
DATED JANUARY 25, 2013
FOUND IN SECTION:

WATER POLLUTION ABATEMENT PLAN APPLICATION



LEGEND:

- 150 FOOT SANITARY CONTROL SETBACK
- NATURAL BUFFER ZONE
- CONTOURS (10' INTERVAL)
- VARIABLE WIDTH DRAINAGE EASEMENT
- SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN
- POND
- Kek - CRETACEOUS EDWARDS KAINER FORMATION
- Kbn - CRETACEOUS BASAL NODULAR
- Kgr - CRETACEOUS GLEN ROSE FORMATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

psi Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: --
DATE: 04/19/13
DESIGN: --
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

April 29, 2013

Ms. Dianne Pavlicek, P.G.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

Re: Response to April 19, 2013 Comments to Application for WPAP Modification
Ramble Ridge Subdivision, Comal County
San Antonio File No. 2614.01

Dear Ms. Pavlicek:

We are responding to your April 19, 2013 letter requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

1. We have revised Attachment C - Project Description. See enclosed General Information Attachment C - Project Description that has been updated and replaces the original General information Attachment C - Project Description found in the original WPAP package submitted March 5, 2013.

We have addressed all items per your April 19, 2013 letter. Please let us know if you have any questions, comments or require any additional information.

Sincerely,
GALLEGOS ENGINEERING, INC.

Richard M. Gallegos, P.E.
President

STATE OF TEXAS
RICHARD M. GALLEGOS
86916
LICENSED
PROFESSIONAL ENGINEER

cc: Mr. Virgil Knowlton
TKO Real Estate II, L.P.

RECEIVED TCEQ
SAN ANTONIO
REGION
2013 APR 29 PM 4:04

ATTACHMENT C – PROJECT DESCRIPTION

Ramble Ridge Subdivision original WPAP was approved on March 20, 2007. This modification is requesting reclassification of previously categorized sensitive features to non-sensitive features. The main reason to re-look at the sensitive features and to have them possibly described as non-sensitive will make the lot buildable for a home residence. Currently some of the lots are not buildable due to some of the sensitive features and there locations.

Here are the features we request being reclassified in numerical order: S-4 Lot 3, S-8 Lot 6, S-9 Lot 8, S-11 Lot 8, S-13 Lot 9, 14 Lot 9, S-15 Lot 9, S-16 Lot 9, S-17 Lot 132, S-19 Lot 132, S-24 Lot 143 and Lot 135, S-28 Lot 111, S-32 Lot 107, S-36 Lot 13 and Lot 14, S-37 Lot 13 and Lot 14, S-40 Lot 20 and Lot 21, S-46 Lot 169 and Lot 170 and S-52 Lot 56. See Site Plan located within WPAP section of this submittal or the Geological Assessment Site Geologic Map.

As stated in the original WPAP the buffer zones will remain in their natural state where any construction or soil disturbing is prohibited. When all or part of a buffer zone is located on a residential lot, the lot owner will mark the boundary of the buffer zone via a fence, placing large boulders, or some form of distinctive planting. The fencing used can be any visible type, boulders are to be a minimum of 12 inches in one dimension and be located no further than eight feet apart, while utilizing plants must be distinctive, and spaced no further apart than four times their height. The plants must be suitable for the climate and soil conditions of the site and must be unique so that other plants of the same species are not located on the same lot.

The purchaser of any lots having all or part of a buffer zone easement shall be given a copy of the easement delineation stated above along with a copy of the subdivision plat showing the subject lot and the easement contained thereon and including a copy of the Technical Guidance Manual RG-348.

GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

May 14, 2013

RECEIVED
MAY 2 2 2013
COUNTY ENGINEER

2013 MAY 14 AM 10:

RECEIVED TCEQ
SAN ANTONIO
REGION

Ms. Dianne Pavlicek, P.G.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

Re: Response to April 30, 2013 Comments to Application for WPAP Modification
Ramble Ridge Subdivision, Comal County
San Antonio File No. 2614.01

Dear Ms. Pavlicek:

We are responding to your April 30, 2013 letter requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

1. The response to the April 9, 2013 comments incorrectly referenced S-15 which should have been referencing S-14. Please replace the Geologic Assessment table page 1 of 3 dated April 19, 2013 with the enclosed updated Geologic Assessment table page 1 of 3 dated May 8, 2013.

2-1. S-4 on Lot 3 has been shown as a solid red circle. Please replace the original Geologic Assessment map dated April 19, 2013 with the enclosed Geologic Assessment map dated May 8, 2013.

2-8. S-65 on Lot 107 is a new feature and was not mapped previously.

2-9. S-41 on Lot 20 is a new feature.

2-12. S-55 on Lot 29 and S-60 on Lot 33 have been removed on the May 8, 2013 map.

3-1. Buffer zones have been added to the map as previously shown.

3-2. Feature S-52 on Lot 56 is non-sensitive since it is in the Basal Nodular member which is considered more of a lower confining unit than a recharge unit.

3-3. We acknowledge the revisits as S-4,8,11,15,16,17,19,24,28,32,36,37,40, and 46. And first time visits as S-9, 13, 14, 65, 58, 45, 52.

Also included in this submittal is a replacement Geologic Assessment map for two sections in the original WPAP package that require updating of the map due to the changes listed above. The two sections are the "Modification of a Previously Approved Plan" and the "Water Pollution Abatement Plan". With this cover letter there is one original copy of the Geologic Assessment map and table (only page 1 of 3) with two additional copies of the GA map. Four additional copies of this entire package have been included for your use. We have addressed all items per your April 30, 2013 letter. Please let us know if you have any questions, comments or require any additional information.

Sincerely,
GALLEGOS ENGINEERING, INC.



Richard M. Gallegos, P.E.
President

cc: Mr. Virgil Knowlton
TKO Real Estate II, L.P.

TCEQ
Protecting Texas by Reducing and Preventing Pollution

Fax Cover Sheet

Number of Pages: *(including this sheet)* 3

Date: April 30, 2013
To: Richard M. Gallegos, P.E.
Organization: Gallegos Engineering, Inc.
Fax: 210-641-2037

To: Virgil Knowlton
Organization: TKO Real Estate II, L.P.
Fax: 210-494-9840

From: Dianne Pavlicek, P.G.
Division : Edwards Aquifer Protection Program – San Antonio Region
Texas Commission on Environmental Quality
Phone: 210-403-4074
Fax: 210-545-4329

Re: Edwards Aquifer, Comal County

Name of Project: Ramble Ridge Subdivision; Located 8.2 miles west of intersection of FM 3009 and IH-35, San Antonio, Texas

Plan Type: Request for the Modification of the Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213

San Antonio File No. 2614.01

Dear Mr. Gallegos:

We are in the process of technically reviewing the WPAP you submitted on the above-referenced project. Before we can proceed with our review, the following comments relating to the application must be addressed.

1. In item #1 of the response to the first issue of technical review comments (April 9, 2013), note that feature S-15 is denoted and it should be feature S-14.

2. The following comments are specifically addressed to John Langan, P.G., regarding his response to comments (April 9, 2013) about the map that was submitted:

   2-1. S-4 needs to be a solid, red circle.

   2-8. "S-65 remains rated SC 38", should be SC 32.

2-9. S-41 needs to be removed from map.

2-12. Your plotting of S-55 and S-60 are not in the same location as Thornhill's S-55 (Lot 50) and S-60 (Lot 54). See Sheet B in original WPAP. Thornhill's S-55 and S-60 are within the 300' buffer protective easement for Cibolo Creek and will not be re-evaluated, but will remain as sensitive. Please remove S-55 and S-60 from your map.

3. Additional comments regarding map and site assessment:

   1. The map that was submitted removed several previously mapped buffer zones. Please revise map to include all of Thornhill's buffer zones for ***ALL features in question*** as the map must reflect existing conditions.

   2. Note that feature S-52 (Lot 56) has not been visited yet and was not addressed in the first issue of review comments. You rate it as SC 30 and Thornhill rates as SC 55.

   3. Note that ALL features in question will need to be re-visited and others visited for the first time. Results from the evaluation of features from the October 16, 2013 site visit with John Langan, P.G., are subject to change due to additional considerations and information.

      Features to be re-visited by me include:

      S-4
      S-8
      S-11
      S-15
      S-16
      S-17
      S-19
      S-24
      S-28
      S-32
      S-36
      S-37
      S-40
      S-46

      Features to be visited for the first time for me include:

      S-9
      S-13
      S-14
      S-65
      S-58
      S-45
      S-52

Note that this listing of 21 features is considered the ***final listing*** of features being considered for re-evaluation.

We ask that you submit one original and four copies of the amended materials to supplement the WPAP to this office by no later than **14 days from the date of this fax** to avoid denial of the plan. If the response to this notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, a second notice will be sent to you requiring a response within 14 days from the notice date. 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 will be denied unless you provide written notification that the application is being withdrawn. Please note that the application fee will be forfeited if the plan is not withdrawn. If you have any questions or require additional information, please contact Dianne Pavlicek, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4074.

GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge																	
LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B*	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOME	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		ATTACHMENT AREA ACRE		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.8	>1.8	
S-1	29-41-59.6	98-19-24.1	SC	20	Kek	1	0.5	1.5					F	15	35	X		X		Hillside
S-3	29-41-54.7	98-19-26.7	MB	30	Kek	1	1	550						0	30	X		X		2 wells
S-4	29-41-55.1	98-19-22.3	O	5	Kek	25	8	1			2	0.2	O	5	10	X		X		Hillside
S-5	29-41-55.3	98-19-29.8	O	5	Kek	20	5	1			3	0	F	10	15	X		X		Hillside
S-6	29-41-55.6	98-19-30	SC	20	Kek	0.2	0.3	1.5						15	35	X			X	Drainage
S-8	29-41-56.4	98-19-27.6	SC	20	Kek	0.8	0.5	0.5					F	15	35	X			X	Drainage
S-11	29-41-59.6	98-19-59.6	SC	20	Kek	3	2	2					F	12	32	X		X		Hillside
S-13	29-42-0.6	98-19-22	SC	20	Kek	2.5	0.5	1					F	12	32	X		X		Hillside
S-14	29-42-0.3	98-19-22.1	SC	20	Kek	0.5	1	0.7					F	15	35	X		X		Hillside
S-16	29-42-0.3	98-19-22.1	SC	20	Kek	0.6	0.3	1.5					F	12	32	X		X		Hillside
S-17	29-42-7.1	98-19-18	SC	20	Kek	4	0.5	1.5						15	35	X		X		Hillside
S-18	29-42-11.7	98-19-21.5	SC	20	Kek	2	0.7	1.5					O	25	45		X	X		Hillside
S-19	29-42-11.2	98-19-11.5	SC	20	Kek	1.5	2	0.3					O	15	35	X		X		Hillside
S-24	29-42-11.2	98-19-15.1	SF	20	Kek	5.5	1	0.5					O	5	25	X			X	Streambed
S-28	29-42-18.8	98-19-27.5	O	5	Kek	4	9	2.5			3	0.2	O	5	10	X			X	Streambed
S-29	29-42-18.8	98-19-28.6	SC	20	Kek	2	2.5	1					O	20	40		X		X	Streambed

* DATUM:_____

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

Date: May 3, 2012

Sheet 1 of 3

STATE OF TEXAS
JL 5/8/13
John Langan
Geology
4871
LICENSED
PROFESSIONAL

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

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

LEGEND:

- 150 FOOT SANITARY CONTROL SETBACK
- NATURAL BUFFER ZONE
- CONTOURS (10' INTERVAL)
- VARIABLE WIDTH DRAINAGE EASEMENT
- SCALED LIMITS OF F.E.M.A. 100 YEAR FLOODPLAIN
- POND
- Kek - CRETACEOUS EDWARDS KAINER FORMATION
- Kbn - CRETACEOUS BASAL NODULAR
- Kgr - CRETACEOUS GLEN ROSE FORMATION

psi Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

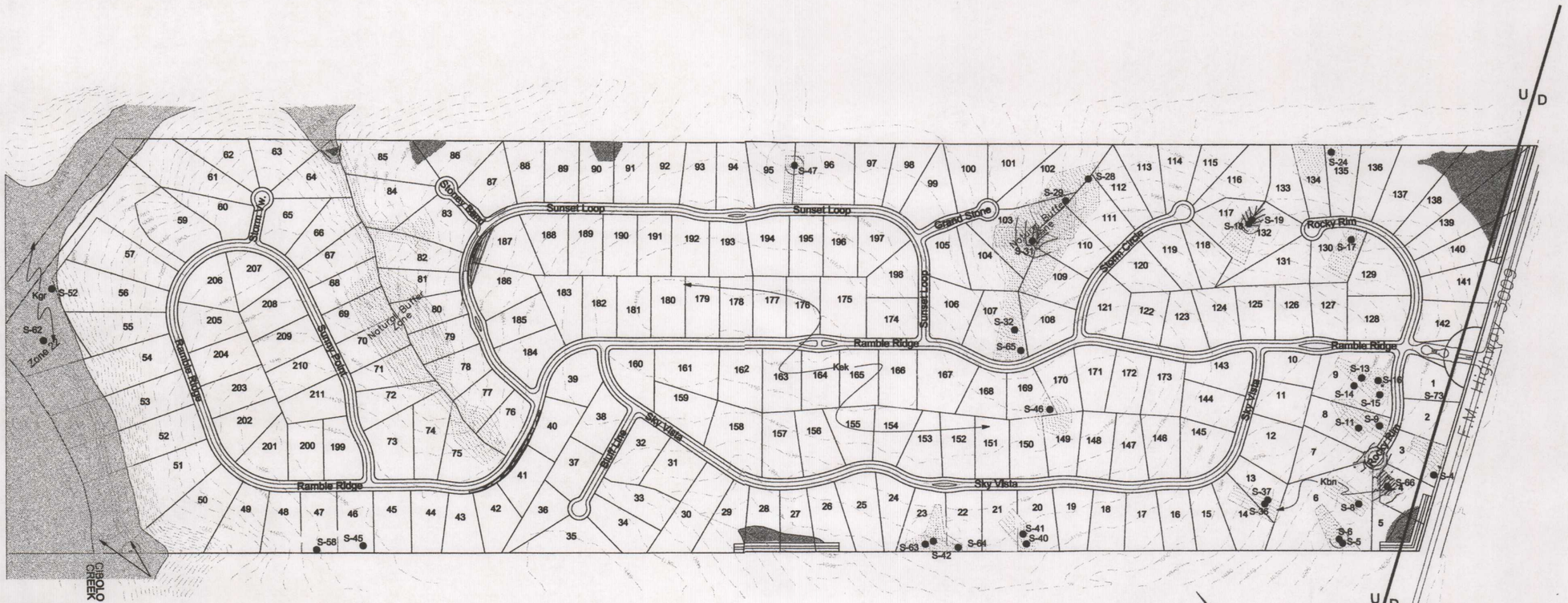
REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 05/10/13
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

REVISED GEOLOGIC ASSESSMENT MAP
DATED MAY 8, 2013
TO REPLACE GA MAP
DATED APRIL 19, 2013
FOUND IN SECTION:

MODIFICATION OF A PREVIOUSLY APPROVED PLAN

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS



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JOB NO. 04351030

FILE: -

DATE: 05/10/13

DESIGN: -

DRAWN: J LEAL

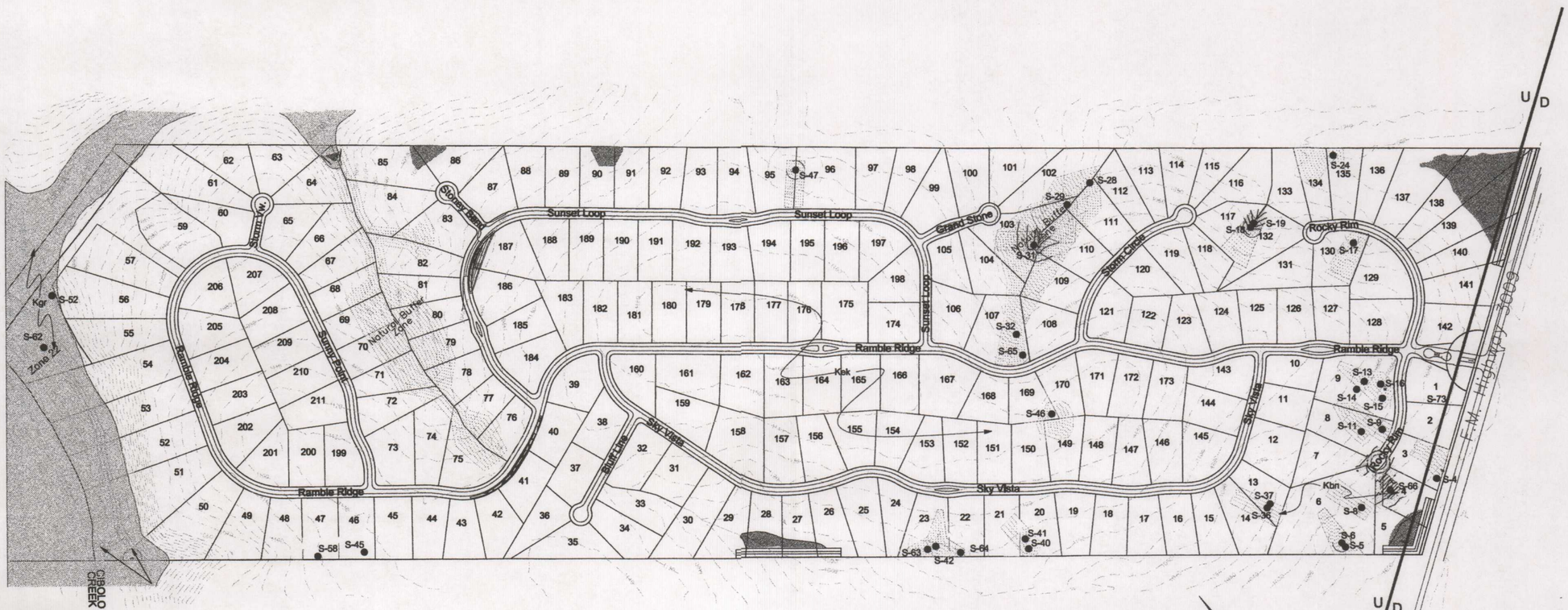
CHECKED: J LANGAN

SHEET 1 OF 1

REVISED GEOLOGIC ASSESSMENT MAP
DATED MAY 8, 2013
TO REPLACE GA MAP
DATED APRIL 19, 2013
FOUND IN SECTION:

WATER POLLUTION ABATEMENT PLAN APPLICATION

GEOLOGIC ASSESSMENT
for
RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS



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400' 0 400' 800' 1200'
Scale: 1" = 400'

PSI
Information To Build On
Engineering • Consulting • Testing
7400 BLANCO ROAD, SUITE 257
SAN ANTONIO, TEXAS 78216

REVISIONS: 01
REVISED 01/25/13

JOB NO. 04351030
FILE: -
DATE: 05/10/13
DESIGN: -
DRAWN: J LEAL
CHECKED: J LANGAN
SHEET 1 OF 1

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 20, 2007

Mr. J. W. Wood
Fiorano Ventures, LLC
17460 IH 35 North, Suite 160-350
Schertz, Texas 78154

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Ramble Ridge; Located on FM 3009, 8.2 miles northwest of IH 35, San Antonio, Texas .
TYPE OF PLAN: Request for the Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer; Edwards Aquifer Protection Program ID No. 2614.00; Investigation No. 538964; Regulated Entity No. RN105155808

Dear Mr. Wood:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the San Antonio Regional Office by Bunker Engineering on behalf of Fiorano Ventures, LLC on January 22, 2006. Final review of the WPAP was completed after additional material was received on February 28, 2007 and March 8, 2007. 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 388 acres. The impervious cover will be 28.30 acres (7.28%) and will include 209 lot sites, home buildings and driveways (3,000 square foot), public roads, recreation area and utilities. Project wastewater will be disposed of by an on-site sewage facility for each individual lot. According to a letter dated

November 14, 2005, signed by Thomas Hornseth P.E. with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

The single family residential portion of the 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 submitted, 72 features were identified on site. Of those 72 features, 40 features were given a "sensitive" rating. The San Antonio Regional Office conducted an on-site inspection February 16, 2007 and the site appeared to be in general agreement with the geologic assessment.

During the site assessment on February 16, 2007, regulated activities (road clearing, brush and tree clearing, building construction) were observed at the project site. Temporary BMPs (silt fence and stabilized construction entrance) were only observed at the entrance of the project site. Throughout the remainder of the site, no temporary BMPs were observed on the downgradient side of disturbed areas. These activities had commenced prior to the issuance of this approval letter.

SPECIAL CONDITIONS

I. The holder of the approved Edwards Aquifer Water Pollution Abatement Plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the application.

II. 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.

III. The request to seal feature #2 is hereby granted. The project engineer provided justification as to why the proposed detention basin could not be relocated and still meet Comal County requirements.

IV. Temporary BMPs are necessary during all phases of construction including house construction. Silt fence and other adequate temporary BMPs are to be present along the downgradient portion of any disturbed areas from house construction. These temporary BMPs must protect water quality and inspection, maintenance and repair will need to follow the guidelines set forth in the WPAP.

V. 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.

VI. The project engineer stated the four wells (Feature ID 3, 33, 57, 59) located on site will be properly abandoned. Within 60 days of the date of this letter provide correspondence that the four wells have been properly abandoned.

VII. As stated in Attachment C of the WPAP application, all homebuyers will have made available:

a. Lot plat showing any sensitive features and recharge feature easements for sensitive features in the plat boundary.
b. The list of requirements and guidelines, presented to the TCEQ by the applicant, for creating the visual barrier to delineate the recharge feature easements as stated in the Project Description of the WPAP application.
c. Copy of Chapter 5 Section 5.1.2 Sensitive Features, of the Technical Guidance Manual (TGM, 2005), pages 5-2 through 5-3. Special highlighting of "Temporary erosion control measures should be placed as near the construction as possible to minimize disturbance within the buffer zone..." must be provided to make the homebuyer aware of the need for temporary BMPs.
d. Copy of Title 30 TAC Chapter 285, Sub Chapter E, §285.40, OSSF on the Recharge Zone of the Edwards Aquifer.

VIII. Regulated activities identified (through site assessment investigation on February 16, 2007) at the project site may constitute construction without the prior approval of the water pollution abatement plan as required by Commission rules (30 TAC §213.4(a)). Therefore, the applicant is hereby advised that the after-the-fact approval of the development, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

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 appropriate 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.

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 complete.

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 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. Four 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.

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.

<u>After Completion of Construction:</u>

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 (TCEQ-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 Charly Fritz of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4065.

Sincerely,

Richard Garcia for

Glenn Shankle
Executive Director
Texas Commission on Environmental Quality

GS/CEF

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

cc: Mr. Dan Bunker, P.E., Bunker Engineering
Mr. Thomas Hornseth, P.E., Comal County
Mr. Robert Potts, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

WATER POLLUTION ABATEMENT PLAN APPLICATION

FOR

RAMBLE RIDGE SUBDIVISION
COMAL COUNTY, TEXAS

RECEIVED
JAN 31 2007
COUNTY ENGINEER

SUBMITTED TO:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
REGION 13 – SAN ANTONIO

SUBMITTED BY:

FIORANO VENTURES L.L.C.
17460 I.H. 35 N, SUITE 160-350
SCHERTZ, TEXAS 78154

TCEQ-R13
22 2007
SAN ANTONIO

CONTACT PERSON:

J. W. WOOD
PHONE: (210) 651-6931

PREPARED FOR ACS INC.
15315 SAN PEDRO
P.O. BOX 160609
SAN ANTONIO, TX 78280-2809
PHONE: (210) 494 6405
BY: DAN B. BUNKER P.E.

TCEQ-R13
JAN 22 2007
SAN ANTONIO



Dan B. Bunker
22 January 2007

FIORANO VENTURES, LLC

RECEIVED TCEQ
SAN ANTONIO
REGION

2007 JAN 23 PM 3:25

January 23, 2007

Mr. John Mauser
Environmental Investigator
TCEQ
Region 13 – San Antonio, TX

RE: Ramble Ridge Subdivision Berm Maintenance

Dear Mr. Mauser:

This letter is to confirm that the developer, Fiorano Ventures, LLC, will be the responsible party for the temporary maintenance of all constructed berms and detention pond structures during the road construction phase and that the Ramble Ridge Property Owners Association will assume responsibility for the permanent maintenance of berms and detention pond structures after construction.

Please let me know if additional information is needed.

Sincerely,

J.W.Wood
Managing Partner
Fiorano Ventures, LLC

17460 IH 35 N. #160-350
Schertz, TX 78154
210-651-6931 Off. Tel.
512-913-2338 Cell.
210-651-5445 Fax
Jwood53377@aol.com

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

I J. W. Wood,
Print Name

Managing Partner
Title - Owner/President/Other

of Fiorano Ventures L.L.C.
Corporation/Partnership/Entity Name

have authorized Dan B. Bunker
Print Name of Agent/Engineer

of Bunker Engineering
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.

Applicant's Signature

9-6-06
Date

THE STATE OF Texas §

County of Guadalupe §

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 8th day of September, 2006

Shawn Hungate
NOTARY PUBLIC

SHAWN HUNGATE
Notary Public
State of Texas
Comm. Expires 03-06-2010

Shawn Hungate
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 3-6-2010

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: Ramble Ridge Subdivision
COUNTY: _____ STREAM BASIN: Cibolo Creek
Bear Creek

EDWARDS AQUIFER: X RECHARGE ZONE
__ TRANSITION ZONE

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

SAN ANTONIO
SEP 06 2006
TCEQ-R13

CUSTOMER INFORMATION

1. Customer (Applicant): Fiorano Ventures, L.L.C.

Contact Person: J. W. Wood
Entity: Ramble Ridge Subdivision
Mailing Address: 17460 IH 35 N, Suite 160-350
City, State: Schertz, Texas Zip: 78154
Telephone: (210) 651-6931 FAX: _____

Agent/Representative (If any):

Contact Person: Dan B. Bunker
Entity: Bunker Engineering
Mailing Address: 127 Sabine Road
City, State: Boerne, TX Zip: 78006
Telephone: (210) 494-6405 FAX: _____

2. __ This project is inside the city limits of _____.
X This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of San Antonio.
__ 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.

From IH 35 Exit FM 3009, Travel Northwest on FM 3009 a distance of 8.2 miles. Ramble Ridge Subdivision is on the left (west side)

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
__ Existing residential site
X Existing paved and/or unpaved roads
X Undeveloped (Cleared)
__ 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) 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:

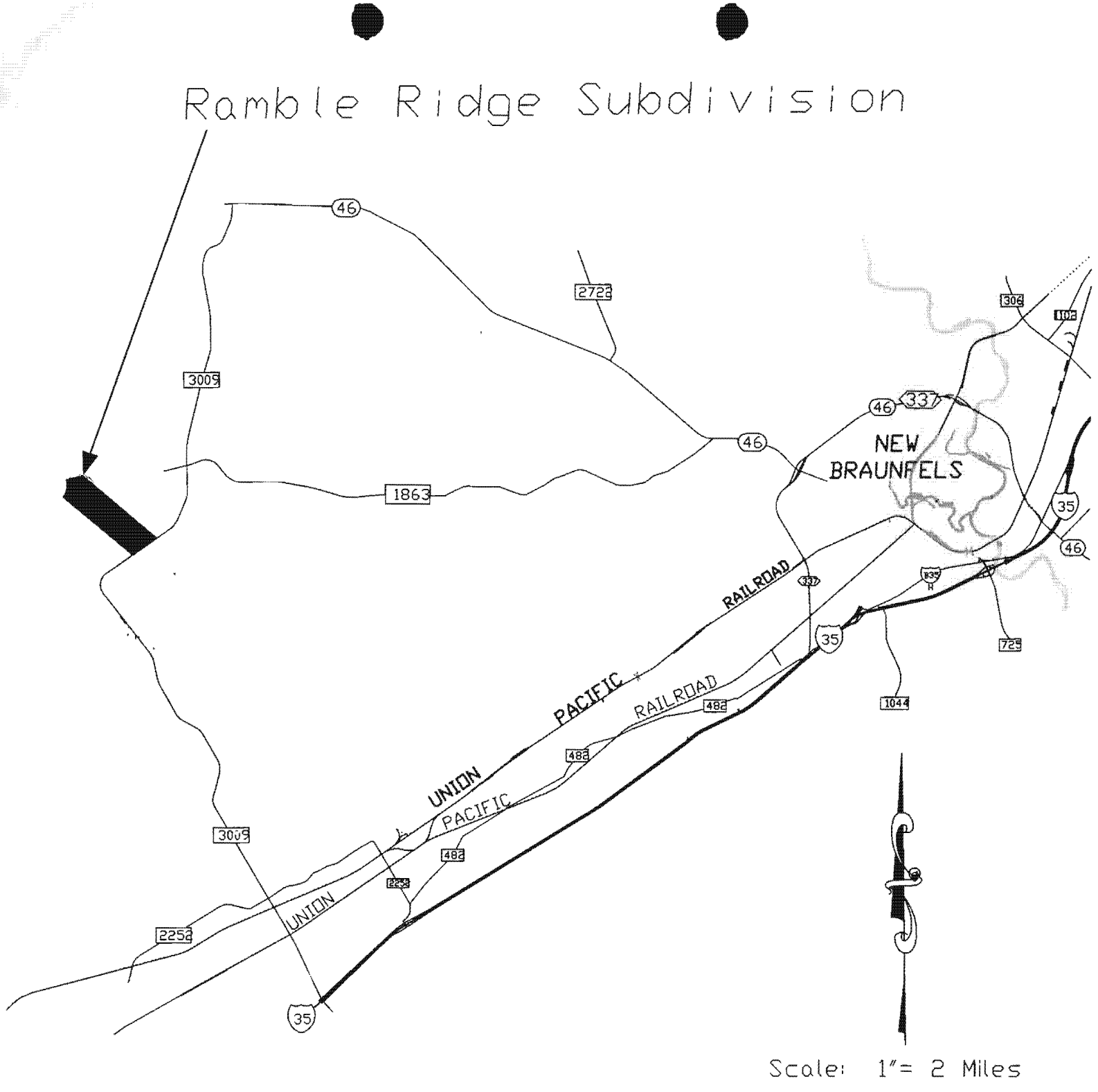
J. W. Wood
Print Name of Customer/Agent

Signature of Customer/Agent

9.5.06
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.



ATTACHMENT A

RAMBLE RIDGE SUBDIVISION

LOCATION MAP

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BAT CAVE QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

Contributing Zone

Contributing Zone

Recharge Zone

Contributing Zone within the Transition Zone

Transition Zone

Transition Zone

Transition Zone

Mapped, edited, and published by the Geological Survey
Revised in cooperation with the Texas Water Development Board

Control by USGS and NOS/NOAA

Topography by the Army Map Service by photogrammetric methods from aerial photographs taken 1952. Field checked 1953. Revised by USGS 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 29 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Red tint indicates areas in which only landmark buildings are shown

UTM GRID AND 1988 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

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

QUADRANGLE LOCATION

2998-424

ROAD CLASSIFICATION

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

BAT CAVE, TEX.
29098-F3-TF-024

1988

DMA 6345 III NE-SERIES V882

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program

Regulatory Zones, September 2005

Chapter 213- Edwards Aquifer

SAN ANTONIO
SEP 06 2006
TCEQ R13

2006 DEC 27 PM 2:11
SAN ANTONIO REGION

Attachment C – Project Description

Ramble Ridge Subdivision is a proposed 388.58 acre, 211 lot, gated, private road, residential subdivision located on the west side of F. M. Highway 3009 (8.2 miles in a northwesterly direction along F. M. Highway 3009 from its intersection with Interstate Highway 35)in southern Comal County, Texas. It is on the Edwards Aquifer Recharge Zone. The proposed roads are to be surfaced with asphalt and total 23,300 feet in length. Lot sizes range from 1.30 to 5.12 acres with the average lot size being 1.63 acres. Total impervious cover added due to the proposed development is estimated to be 47.81 acres or 12.3% of the 388.58 acres being developed. The subdivision is to have a central water system and individual on-site sewage facilities. The U. S. Department of Agriculture Soil Conservation Service Soil Survey of Comal and Hays Counties Texas classifies the soils in this subdivision as CrD – Comfort-Rock outcrop and ErG – Eckrant-Rock outcrop. Both soils are very rocky clay soils over very shallow limestone bedrock and are in hydrologic group D. Ground surface elevations range from approximately 906 to 1167 feet above sea level. The property is about 2600 feet wide and 8000 feet long, stretching from F.M. Highway 3009 on the southeast to the Cibolo Creek on the Northwest.

THORNHILL GROUP, INC.

Professional Hydrogeologists • Water Resources Specialists

Report of

GEOLOGIC ASSESSMENT REPORT
RAMBLE RIDGE RANCH
COMAL COUNTY, TEXAS

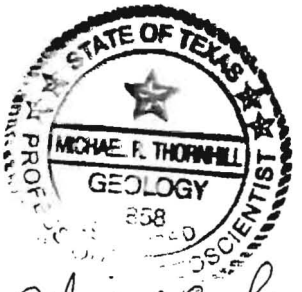
Prepared For:

Florano Ventures, LLC
17460 IH 35N, Suite 160-350
Schertz, Texas 78154

Prepared By:

Thornhill Group, Inc.
1104 South Mays Street, Suite 208
Round Rock, Texas 78664

July 25, 2006



Michael R. Thornhill
7-25-06

1104 South Mays Street, Suite 208 • Round Rock, Texas 78664
(512) 244-2172 • Fax: (512) 244-1461 • E-mail: consult@thornhillgroupinc.com

GEOLOGIC ASSESSMENT REPORT
RAMBLE RIDGE RANCH
COMAL COUNTY, TEXAS

INTRODUCTION

Thornhill Group, Inc. (TGI) conducted on the Ramble Ridge Ranch property in Comal and Bexar counties a geologic assessment according to the guidelines of the Texas Commission on Environmental Quality (TCEQ), specifically in accordance with form TCEQ-0585 (Rev. 10-01-04) as provided in Appendix 1. TGI conducted the assessment in association with the Water Pollution Abatement Plan (WPAP) to be prepared and submitted to the TCEQ. TGI designed and conducted the assessment work to accomplish the following tasks:

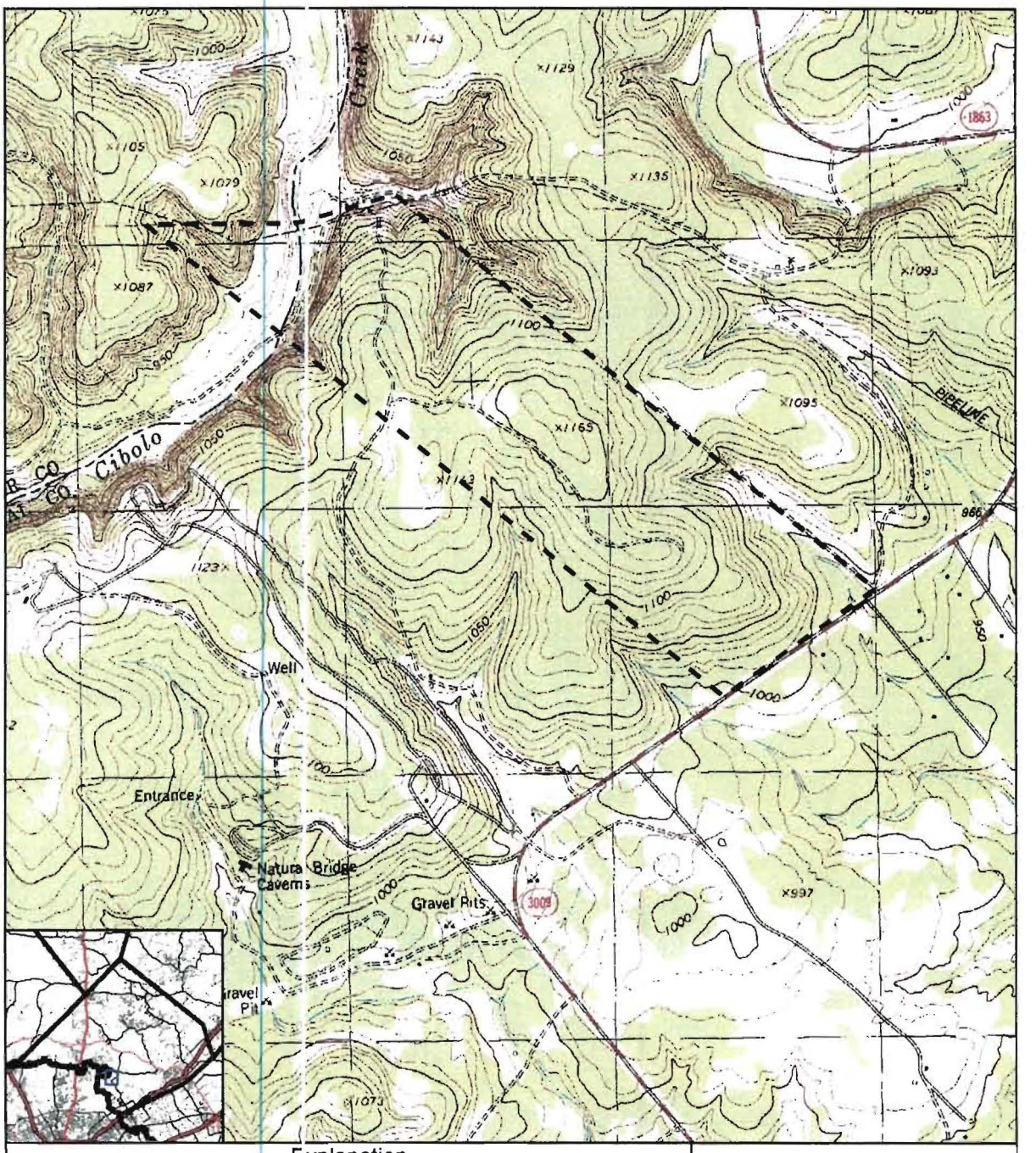
- Cataloging identifiable potentially sensitive features in the outcrop of the Edwards aquifer on the subject property;
- Verification of surface geology and soil characteristics versus existing map information; and,
- Preparation of proper geologic assessment forms, maps, diagrams, and reports as required by the TCEQ.

METHODOLOGY

TGI conducted site investigations on the Ramble Ridge Ranch between June 7, 2006 and June 14, 2006. During the investigation TGI cataloged features as defined in the *Instructions to Geologists for* ***Geologic Assessments*** *on the Edwards Aquifer Recharge/Transition Zones.* TGI also mapped, to the extent possible, the contacts of geologic members forming the portions of the Edwards and Associated Limestones (i.e, Edwards aquifer) found in the study area. TGI transected the property at 15 meter intervals with special attention paid to areas of likely feature formation. Using the ***Geologic Assessment Table*** provided by the TCEQ (Appendix 2), TGI cataloged and ranked each feature providing a relative sensitivity score.

SITE HYDROGEOLOGIC CONDITIONS

Ramble Ridge Ranch is located along FM 3009 in Comal County approximately 5.5 miles north of the city of Garden Ridge. Dense groves of cedar and oak trees between grassy plains characterize the property. Relief on the property is approximately 250 feet with the high point near the center of the property and the low occurring in the Cibolo Creek bed on the northwest side of the property. Several incised valleys emanate radially from the


Creek
Cibolo
Well
Entrance
Natural Bridge Caverns
Gravel Pits
PIPELINE
Explanation
Approximate Property Boundary
N
0
2,000
Feet
Digital U.S.G.S. Topographic 7.5 Minute Map
Series: Bat Cave, Texas Quadrangle (1988)
Ramble Ridge Ranch
Figure 1.
Location Map
THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

property high point to drain water off the ranch. Figure 1 illustrates the location and topography of the study area.

Soils

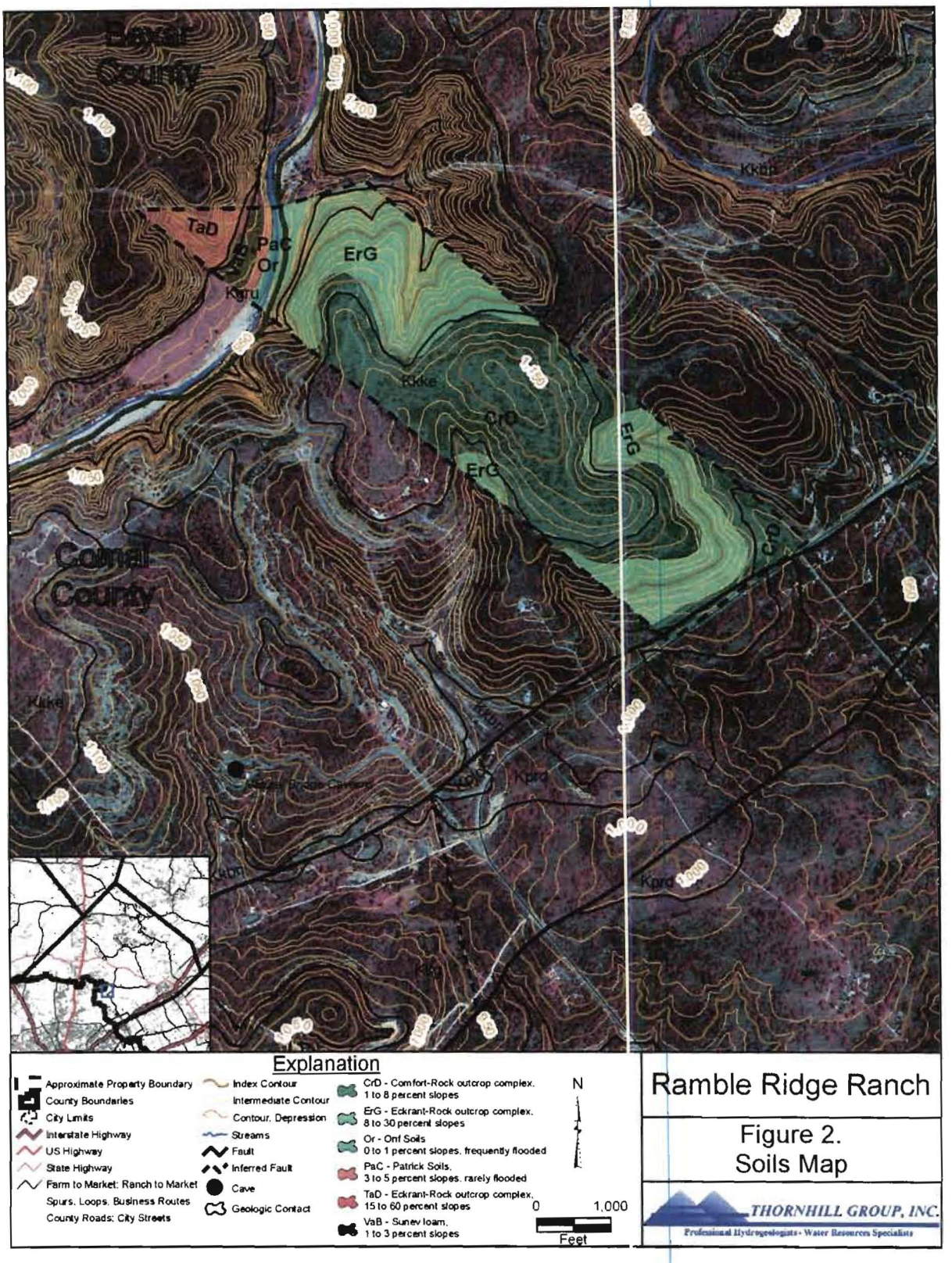
The primary soil types in the study area are Comfort (CrD) and Eckrant (ErG, TaD). These types compose approximately 52 percent and 45 percent of the study area, respectively. The CrD, ErG, and TaD are extremely stony to cobbly clays that are typically less than 18 inches thick and well drained with a hydraulic conductivity up to four (4) feet per day (ft/d) ("Soil Survey Geographic (SSURGO) database for Comal and Hays Counties, Texas", 2005 and "Soil Survey Geographic (SSURGO) database for Bexar County, Texas", 2006). The infiltration rate in the CrD, ErG, and TaD is very slow (Urban Hydrology for Small Watersheds, Technical Release 55, 1986). Figure 2 illustrates the soils mapped across the study area.

Three (3) additional soils are present in the northwest corner of the study area, namely, Orif (Or), Patrick (PaC), and Sunev (VaB). The Orif is typically a gravelly loamy sand up to 60 inches deep and well drained with a hydraulic conductivity up to 40 ft/d. The PaC is typically a gravelly loam to a gravelly sand up to 60 inches deep and well drained with a hydraulic conductivity up to 40 ft/d. The VaB is typically a loam up to 60 inches deep and well drained with a hydraulic conductivity up to 4 ft/d ("Soil Survey Geographic (SSURGO) database for Bexar County, Texas", 2006). The infiltration rate in the Or is high and in the PaC and VaB is moderate (Urban Hydrology for Small Watersheds, Technical Release 55, 1986).

Stratigraphy

In Comal County the Edwards Group is approximately 440 feet thick and consists of seven (7) distinct members (from top to bottom): the cyclic and marine (undivided), the leached and collapsed (undivided), the regional dense, the grainstone, the Kirschberg evaporite, the dolomitic, and the basal nodular (Small and Hanson, 1994). However, within the subject study area the Edwards is at most only about 200 feet thick with only the lower three (3) members of the Kainer Formation present (see Plate 1). The upper member of the Glen Rose Limestone underlies the Edwards aquifer. Figure 3 presents a stratigraphic column of the units found on the subject propery and Figure 4 illustrates the general surface geology as mapped by the Bureau of Economic Geology (BEG). Plate 1 provides a map of the surface geology showing the approximate extents of each member. Table 1 presents the general lithologic and hydrologic characteristics of the rock units found within the study area.

The uppermost member found on the property is the Kirschberg evaporite, which occurs at land surface at the highest elevations on the property. The Kirschberg consists mostly of crystalline limestone and mudstone with chert nodules and lenses, within the study area, and


Bexar County
Comal County
TaD
PaC
Or
ErG
Kgru
Kkke
CrD
Kkbn
Kprd
Explanation
Approximate Property Boundary
County Boundaries
City Limits
Interstate Highway
US Highway
State Highway
Farm to Market: Ranch to Market
Spurs, Loops, Business Routes
County Roads; City Streets
Index Contour
Intermediate Contour
Contour, Depression
Streams
Fault
Inferred Fault
Cave
Geologic Contact
CrD - Comfort-Rock outcrop complex, 1 to 8 percent slopes
ErG - Eckrant-Rock outcrop complex, 8 to 30 percent slopes
Or - Orif Soils 0 to 1 percent slopes, frequently flooded
PaC - Patrick Soils, 3 to 5 percent slopes, rarely flooded
TaD - Eckrant-Rock outcrop complex, 15 to 60 percent slopes
VaB - Sunev loam, 1 to 3 percent slopes
N
0
1,000
Feet
Ramble Ridge Ranch
Figure 2.
Soils Map
THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

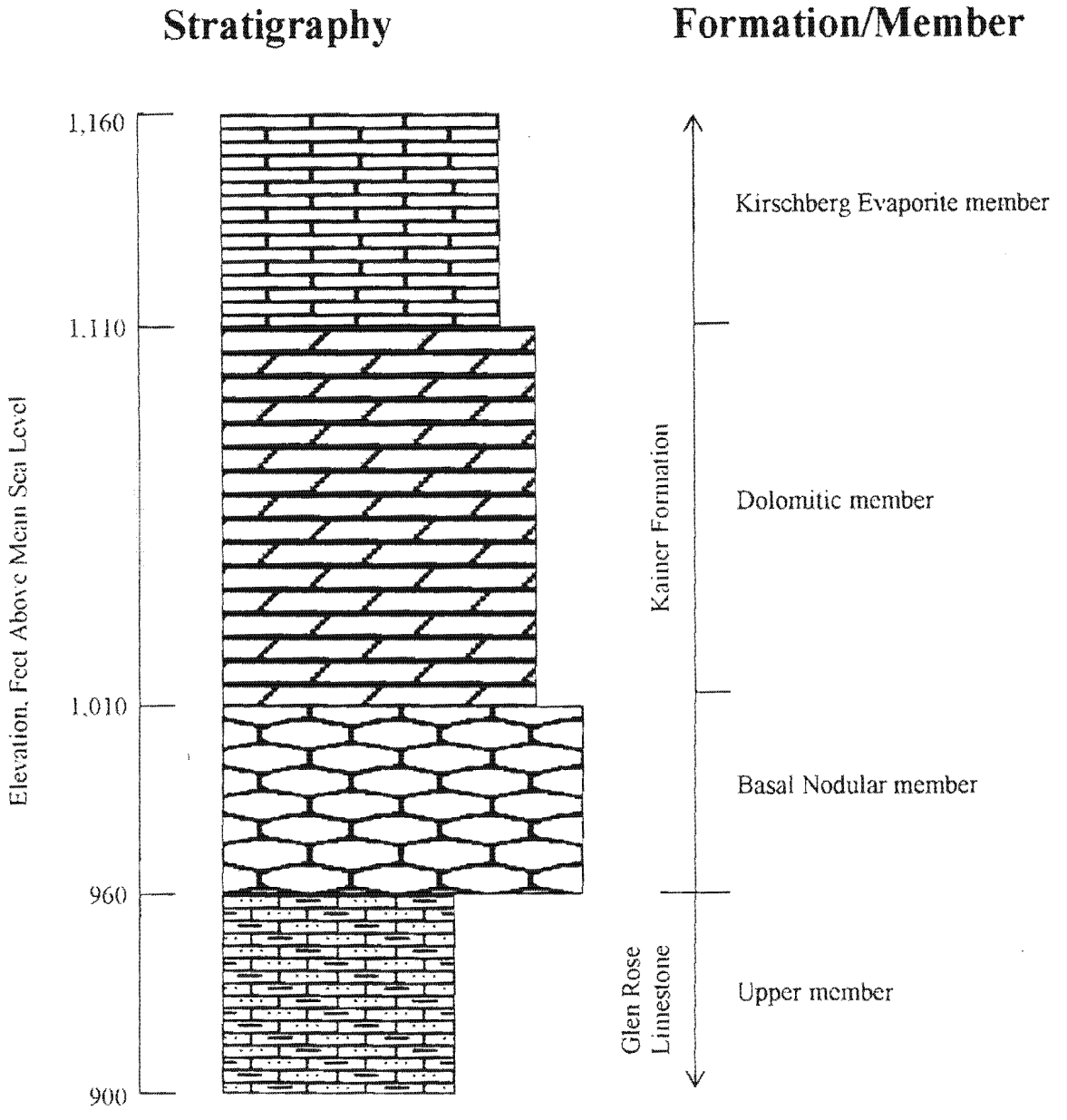


Figure 3. Stratigraphic column showing formations and members, with approximate thicknesses, encountered on the Ramble Ridge Ranch property.

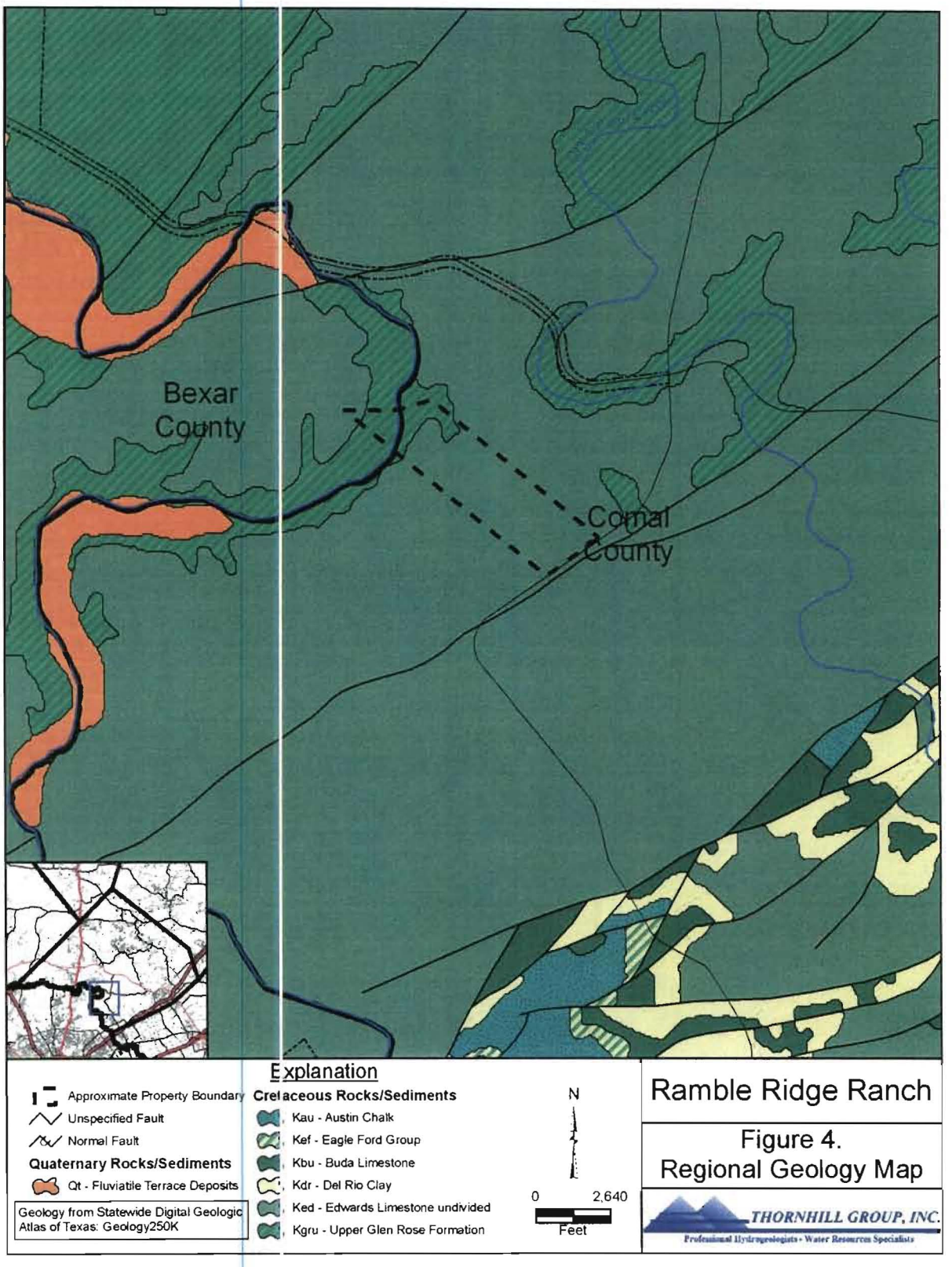

Bexar County
Comal County
Explanation
Approximate Property Boundary
Unspecified Fault
Normal Fault
Quaternary Rocks/Sediments
Qt - Fluviatile Terrace Deposits
Geology from Statewide Digital Geologic Atlas of Texas: Geology250K
Cretaceous Rocks/Sediments
Kau - Austin Chalk
Kef - Eagle Ford Group
Kbu - Buda Limestone
Kdr - Del Rio Clay
Ked - Edwards Limestone undivided
Kgru - Upper Glen Rose Formation
N
0
2,640
Feet
Ramble Ridge Ranch
Figure 4.
Regional Geology Map
THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

Table 1. General Lithologic and Hydrologic Characteristics of Rock Units (modified from Small and Hanson, 1994).

System	Group	Formation	Member	Rock Characteristics	Field Identification	Porosity/ Permeability Type	Thickness, feet
Cretaceous	Edwards	Kainer	Kirschberg Evaporate	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame	Majority fabric/ one of the most permeable	50-60
			Dolomitic Member	Mudstone to Grainstone; crystalline limestone; chert	Massively bedded light gray	Mostly not fabric; some bedding plane-fabric/water-yielding; locally permeable	110-130
			Basal Nodular Member	Shaly, nodular limestone, mudstone and *miliolid* grainstone	Massive, nodular and mottled	Fabric/large conduit flow at surface; low permeability in subsurface	50-60
	Trinity	Glen Rose Limestone	Upper Member	Yellowish tan, thinly bedded limestone and marl.	Stair-step topography, alternating limestone and marl	Some water production at evaporate beds/ relatively low permeability	350-500

is approximately 60 feet thick (Small and Hanson, 1994). The dolomitic member in the study area is about 110 feet thick; this member is typically dense crystalline limestone withzones of grainstone and mudstone with rudists commonly found near the top of the member (Small and Hanson, 1994). The lowermost member of the Kainer, the basal nodular, is approximately 50 feet thick. The basal nodular is typically a marly, nodular limestone with some *miliolid* grainstone (Small and Hanson, 1994).

The Glen Rose Limestone occurs within the Cibolo Creek bed on the northwest side of the property where it conformably underlies the basal nodular member of the Edwards Group. Yellowish tan, thinly bedded limestone and marl layers compose the upper member of the Glen Rose Limestone which forms a characteristic stair-step topography due to differential weathering. The upper portion of the Glen Rose exposed on the property is Interval A. Interval A has a relatively high clay content which likely limits the potential for the formation of cave entrances. That is, as the unit erodes, the clays settle into the enlarged fractures reducing the effective permeability and potential for enlargement (Veni, 2005).

Hydrogeologic Characteristics

Small and Hanson describe the uppermost member in the study area, the Kirschberg evaporite, as the most porous and permeable subdivision in the Kainer Formation. Within the study area, the Kirschberg evaporite is an outlier, therefore the outcrop of this unit is surrounded by the outcrop of the underlying dolomitic member. TGI observed significant vuggy porosity along the outcrops of the Kirschberg evaporite. There is potential for fluid infiltration and percolation through the outcrop of this member within the study area. Water entering the Kirschberg would likely move into the underlying unit or discharge to the surface as springs fed by discontinuous perched-water zones. The dense crystalline matrix of the dolomitic member is not conducive to ground-water flow. However, numerous interconnected solution openings along bedding planes and fractures, some forming caverns, could allow water to move rapidly through the unit. The basal nodular is quite cavernous in this area around Cibolo Creek. The Texas Speleological Survey indicates that several caves are on nearby properties. Major nearby caverns include Double Decker Cave to the northeast and Natural Bridge Caverns to the southwest. While there is relatively little flow through the pore matrix of the member, the potential for significant flow through solution enlarged fractures and bedding planes is high (Small and Hanson, 1994).

Once the water enters the dolomitic member it may travel along bedding planes and vertical fractures to either discharge as springs (i.e., perched water) or enter the basal nodular; in addition, water may enter directly from the surface to follow similar flow paths. Water entering the basal nodular may flow through small to large caverns in the subsurface. A portion of the water moving through the basal nodular may enter Interval A of the upper member of the Glen Rose Limestone, where large passageways and chambers are known to exist near the study area, and recharge the Trinity aquifer.

Overall, the lithology and field investigations suggest there is potential for significant infiltration and movement of water into the Edwards aquifer beneath the property, particularly at some identified features, mostly in drainages leading to Cibolo Creek. Hydrogeologic data and information also indicate that direct infiltration of ground-water in the upland parts of the property is likely insignificant. Most of the recharge to the Edwards aquifer occurs due to streamflow losses in major streams and tributaries crossing the recharge zone, and that a small percentage of recharge occurs as direct infiltration in the interstream areas; most reports indicate recharge in the interstream areas is approximately 20 percent though some suggest it may be as high as 40 percent (Lindgren, Dutton and Hovorka, 2004) Additionally, the Edwards aquifer is mostly to completely unsaturated beneath portions the subject property based on test drilling results and the lack of springs/seeps originating from Edwards rocks. Two small springs issuing from caves located in drainages on the subject property indicate the limited and discontinuous occurrence of perched zones. Therefore, it is likely that much, if not most, of the recharge occurring within the property boundaries moves directly into the Upper Trinity aquifer (i..e., Upper Glen Rose limestone).

Potentially Sensitive Geologic and Man-Made Features

TGI found several features within the study area boundaries. TGI cataloged each feature discovered using the ***Geologic Assessment Table*** (TCEQ-0585-Table, Rev. 10-01-04) which is included in Appendix 2. As expected, many of the features are concentrated in the drainages and streambeds; however, TGI located several features on hillsides. Plate 1 shows the location of each feature corresponding to the ***Geologic Assessment Table***. In addition, Appendix 3 provides photographs of each feature cataloged during the field assessment.

TGI identified a total of 72 individual features and rated the features in accordance with the TCEQ's philosophy and guidance directing geologists to be conservative and, if in doubt, err on the side of being overly protective of the aquifer. Based on the TCEQ's rating scales in the geologic assessment form and a conservative approach, 40 of the 72 features scored more than 40 points on the sensitivity scale. Of these 40, 21 were located in drainage areas.

During the field assessment most of the features were dry but some exhibited evidence of previous flow either into or out of the feature. During TGI's field investigations, small amounts of water discharged from two (2) caves (ID: 70 and 71) identified in the drainage on the northern portion of the property in the dolomitic member. A test hole drilled uphill from these caves (ID: 59) encountered a void at the contact between the Glen Rose Limestone and Kainer Formation that was large enough to prevent returns yet did not produce water.

While several of the features encountered indicated a high potential for interconnectedness with the shallow subsurface based on dimensions and characteristics, it is likely that most recharge on the property occurs within drainages. As stated above, all hydrogeologic data and information show conclusively the majority of recharge to the local Edwards aquifer occurs due to streamflow losses from major streams and tributaries as they flow across the

outcrop. Only a small percentage of recharge occurs within upland, interstream areas. Additionally, the features identified showed openings to depths of a few feet and test drilling suggested that most of the Edwards aquifer across the upland portions of the property is unsaturated. In fact, the Edwards and Associated limestones may be completely unsaturated across much of the property with water moving directly to the underlying Trinity aquifer, except for some perched zones indicated by the very small amount of water found at the cave openings (ID: 70 and 71). Therefore, while several of the features in the upland areas were rated relatively sensitive, it is likely that these features do not contribute significantly to the recharge of the local Edwards aquifer. Therefore, most features will require minimal protection in the WPAP.

SUMMARY

TGI's investigations revealed that the majority of the Ramble Ridge Ranch lies atop the outcrop of the Kainer Formation of the Edwards Group. Within Cibolo Creek, erosion has removed the Edwards limestone entirely and exposed the upper member of the Glen Rose Limestone. Most of the features identified by TGI occur in the dolomitic member of the Kainer Formation. However, TGI did notice a trend of features along the contact of the Kirschberg evaporite member and the dolomitic member.

Under the TCEQ's guideline requiring geologists to be cautious in identifying potentially sensitive features and, if uncertain, to err by being overly protective of the aquifer, TGI observed 40 features that scored 40 or more sensitivity points based on the TCEQ's rating scale. Despite the number of sensitive features according to the TCEQ rating system, many, if not most, of these features are insignificant with respect to recharging the Edwards aquifer. Hydrogeologic evidence suggests that any water entering the subsurface on the property would likely move to the Trinity aquifer or discharge locally to drainages.

The drainages and streambeds within the study area appear to be the focal points for potential infiltration. However, the relatively thin soils and rocky hilltops could allow for percolation to the subsurface throughout the study area, depending on the intensity and duration of rainfall and antecedent conditions. Previous investigations indicate that recharge to the Edwards occurs predominantly within streambeds as streams lose water while flowing over the outcrop. While Cibolo Creek does cross the property, it flows over the less permeable upper member of the Glen Rose Limestone.

While the potential infiltration to the subsurface may be significant, lithologic information and test drilling evidence suggest that little water remains in the local Edwards aquifer. As discussed above, the hydrogeologic characteristics of the rocks underlying the property appear to direct ground-water flow to discharge features or to the underlying Trinity aquifer. Test drilling on the property indicated that these formations did not produce significant quantities of water beneath the property.

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APPENDIX 1 —
GEOLOGIC ASSESSMENT FORM

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: Ramble Ridge Ranch

TYPE OF PROJECT: _X_ WPAP __ AST __ SCS __ UST

LOCATION OF PROJECT: _X_ Recharge Zone __ Transition Zone __ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. _X_ Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**. (see Appendix 2)

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)
CrD – Comfort-Rock outcrop complex	D	<1.5
ErG, TaD – Eckrant-Rock outcrop complex	D	<1.5
Or – Orif Soils	A	<5
PaC – Patrick Soils	B	<5
VaB – Sunev loam	B	<5

* 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. _X_ 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. (see Figure 3)

4. _X_ 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. (see Table 1)

5. X 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" = 300 '
Site Geologic Map Scale	1" = 300' '
Site Soils Map Scale (if more than 1 soil type)	1" = 2,000"

6. Method of collecting positional data:

X Global Positioning System (GPS) technology.
__ Other method(s).

7. X The project site is shown and labeled on the Site Geologic Map.

8. X Surface geologic units are shown and labeled on the Site Geologic Map.

9. X 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. X The Recharge Zone boundary is shown and labeled, if appropriate.

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

X There are 4 (#) 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.
X The wells are not in use and will be properly abandoned. (2 test wells, Feature 3 & 59; 1 existing test well, Feature 33)
X The wells are in use and comply with 16 TAC Chapter 76. (1 existing windmill well, Feature 57)
__ There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

12. X One (1) original and three (3) copies of the completed assessment has been provided.

Date(s) Geologic Assessment was performed: July 07, 2006 – July 14, 2006
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.

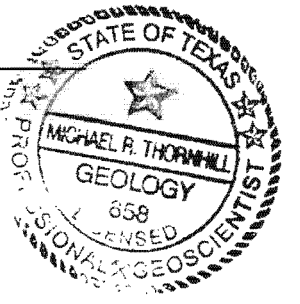
Michael R. Thornhill
Print Name of Geologist

(512) 244-2172
Telephone

(512) 244-1461
Fax

Michael R. Thornhill
Signature of Geologist

8-17-06
Date



Representing:

Thornhill Group, Inc
1104 South Mays Street, Suite 208
Round Rock, Texas 78664

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

APPENDIX 2 —
GEOLOGIC ASSESSMENT TABLE

	GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Ranch Geological Assessment																		
	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B	1C	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ADD 90	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	>40	<1.6	>1.6		
1	1	29°41'53.9"	98°19'25.9"	SF	20	K_{ed}	0.2	1.5	0.3	344				O	10	30	X			X	flat	
2	2	29°41'53.4"	98°19'27"	Z	30	K_{ed}	8	10	0.5	320		0.5	0.2	O	10	40		X		X	flat	
3	3	29°41'54.5"	98°19'26.7"	MB	30	K_{ed}	0.83	0.83	550	165				N	0	30	X			X	flat	TGI: TW-1
4	4	29°41'55.1"	98°19'22.3"	Z	30	K_{ed}	3	24	0.2	345		2	0.05	O	20	50		X		X	flat	
5	5	29°41'55.3"	98°19'29.8"	Z	30	K_{ed}	6	18	0.5	350		3	0.05	O	30	60		X		X	flat	
6	6	29°41'55.6"	98°19'29.9"	SC	20	K_{ed}	0.15	0.25	0.5	320			0.15	O	35	55		X		X	Drainage	
7	7	29°41'55.6"	98°19'29.9"	SC	20	K_{ed}	0.05	0.45	0.2	95			0.05	O	19	39	X			X	Drainage	
8	8	29°41'56.3"	98°19'27.5"	SC	20	K_{ed}	0.5	0.8	>2	350			0.5	V	35	55		X		X	Drainage	
9	9	29°41'58.6"	98°19'23.7"	SC	20	K_{ed}	1.5	2.5	1.5	335			1.5	O	30	50		X		X	Hilltop	
10	10	29°41'59"	98°19'25.9"	SC	20	K_{ed}	3.1	1.5	2	335			1.5	O	19	39	X			X	Hillside	
11-12	11	29°41'59.6"	98°19'24.5"	SC	20	K_{ed}	1	1.5	2	330			1	O	35	55		X	X		Hillside	
13	12	29°41'59.9"	98°19'23.6"	SF	20	K_{ed}	1.5	8	1	335			1.5	O	19	39	X		X		Hillside	
14	13	29°42'0.6"	98°19'22.3"	SC	20	K_{ed}	2.5	0.6	1	340			0.6	O	23	43		X		X	Hillside	
15	14	29°42'0.3"	98°19'22.1"	SC	20	K_{ed}	0.5	1	0.7	320			0.5	O	25	45		X	X		Hillside	
16-17	15	29°42'0.7"	98°19'21.9"	SF	20	K_{ed}	5	4	2	355			5	O	20	40		X	X		Hillside	
18	16	29°42'0.3"	98°19'21.8"	SF	20	K_{ed}	0.5	0.4	1.5	320			0.4	O	30	50		X	X		Hillside	
19	17	29°42'7.2"	98°19'17.6"	SC	20	K_{ed}	4	0.5	1.5	260			0.5	O	31	51		X	X		Hillside	
20	18	29°42'11.7"	98°19'21.5"	SC	20	K_{ed}	2	0.7	1.5	240			0.7	O	30	50		X	X		Stream Bed	
21	19	29°42'11.2"	98°19'21.5"	Z	30	K_{ed}	1.5	2	0.3	240		0.5	1.5	O	10	40		X		X	Stream Bed	
22	20	29°42'13"	98°19'23.8"	SF	20	K_{ed}	3	0.3	0.4	250			0.3	O	17	37	X		X		Hillside	
23	21	29°42'3.6"	98°19'31"	SW	30	K_{ed}	16	8	1	350			16	V	7	37	X		X		Hillside	
24	22	29°42'10.5"	98°19'14.3"	Z	30	K_{ed}	4	7	0.3	240		2	4	O	9	39	X			X	Stream Bed	
25	23	29°42'10.7"	98°19'14.7"	SF	20	K_{ed}	0.7	8	0.2	260			0.7	O	15	35	X			X	Stream Bed	
26	24	29°42'11.2"	98°19'15"	SF	20	K_{ed}	5.5	1	0.5	250			1	O	25	45		X		X	Stream Bed	
27	25	29°42'11.6"	98°19'15.9"	SC	20	K_{ed}	3	1	3.5	290			1	O	10	30	X			X	Stream Bed	
28	26	29°42'12.2"	98°19'15.9"	SF	20	K_{ed}	3.5	0.5	2.9	280			0.5	O	11	31	X			X	Stream Bed	
29	27	29°42'18.9"	98°19'27"	O	5	K_{ed}	5	3.5	0.3	300			5	O	10	15	X			X	Stream Bed	
30-31	28	29°42'18.8"	98°19'27.5"	SW	30	K_{ed}	4	9	2.5	290			4	O	15	45		X		X	Stream Bed	
32	29	29°42'18.8"	98°19'28.6"	SC	20	K_{ed}	2	2.5	1	290				O	20	40		X		X	Stream Bed	
33-34	30	29°42'18.5"	98°19'29.3"	O	5	K_{ed}	5	3.5	1.5	290			3.5	C	5	10	X			X	Stream Bed	

	GEOLOGIC ASSESSMENT TABLE			PROJECT NAME: Ramble Ridge Ranch Geological Assessment																	
	LOCATION			FEATURE CHARACTERISTICS												EVALUATION		PHYSICAL SETTING			
	1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	ADD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z		10						<40	≥40	<1.8	≥1.8		
35	31	29°42'18.4"	98°19'32.3"	SC	20	K_{ed}	1.2	1	1.5	300			1	O	35	55		X		X	Drainage	
36	32	29°42'15.8"	98°19'36.7"	SC	20	K_{ed}	0.7	1	2	40			0.7	O	30	50		X		X	Drainage	
37	33	29°42'4.5"	98°19'23.4"	MB	30	K_{ed}	0.83	0.83	725	305			0.83	N	0	30	X			X	Hilltop	Existing Well
38	34	29°41'59.6"	98°19'30"	SF	20	K_{ed}	1.25	10	0.8	200			1.25	O	18	36	X		X		Drainage	
39	35	29°42'0.6"	98°19'31.1"	SC	20	K_{ed}	1	0.6	1.1	310			0.6	O	0	20	X			X	Drainage	
40	36	29°41'59.6"	98°19'32"	SC	20	K_{ed}	3	1.4	0.5	335			1.4	O	24	44		X		X	Drainage	
41	37	29°41'59.6"	98°19'32"	SC	20	K_{ed}	2.5	2	0.7	335			2	O	20	40		X		X	Drainage	
42	38	29°41'58.7"	98°19'33.1"	SC	20	K_{ed}	2.2	1.5	0.9	335			1.5	O	19	39	X			X	Drainage	
43	39	29°41'58.7"	98°19'33.8"	SF	20	K_{ed}	3.5	1	1	240			1	O	15	35	X		X		Drainage	
44	40	29°42'6"	98°19'45"	SW	30	K_{ed}	20	16	0.4	340			16	O	25	55		X		X	Hillside	
45	41	29°42'9.4"	98°19'48.7"	SC	20	K_{ed}	2	0.5	1.1	210			0.5	O	18	38	X			X	Hillside	
46-47	42	29°42'9.4"	98°19'48.7"	Z	30	K_{ed}	30	60	1	210		0.3		O	15	45		X		X	Hillside	
48	43	29°42'15.5"	98°19'56.7"	SC	20	K_{ed}	3	1	1	325			1	O	19	39	X			X	Stream Bed	
49	44	29°42'16.7"	98°19'57.3"	SF	20	K_{ed}	0.3	2.5	0.2	325			0.3	O	19	39	X			X	Stream Bed	
50	45	29°42'28.8"	98°20'15.7"	SC	20	K_{ed}	0.6	0.3	1.4	30			0.3	O	33	53		X	X		Hillside	
51	46	29°42'11.1"	98°19'38.6"	SW	30	K_{ed}	40	18	3	10				V	18	46		X		X	Hilltop	
52	47	29°42'29.4"	98°19'40.3"	SC	20	K_{ed}	1.3	1	1	260			1	O	20	40		X		X	Hillside	
53	48	29°42'30.8"	98°19'41"	SC	20	K_{ed}	0.9	0.6	0.4	260			0.6	O	18	36	X			X	Drainage	
54	49	29°42'33.8"	98°19'44.9"	O	5	K_{ed}	1.7	0.8	0.4	360			0.8	O	15	20	X		X		Hillside	
55	50	29°42'35.8"	98°19'51.9"	SF	20	K_{ed}	0.8	2	1	350			0.8	O	17	37	X			X	Hillside	
56	51	29°42'33.8"	98°19'57.8"	O	5	K_{ed}	4	1	0.7	310			1	O	9	14	X			X	Hillside	
57-59	52	29°42'50.3"	98°20'19.6"	SC	20	K_{ed}	2	4	>4.5	300			2	N	35	55		X		X	Hillside	
64	53	29°42'48.4"	98°20'42.6"	SC	20	K_{ed}	7	4.2	1.6	50			4.2	O	15	35	X			X	Stream Bed	
65	54	29°42'48.6"	98°20'41.9"	O	5	K_{ed}	3	2	1.5	50			2	O	20	25	X			X	Stream Bed	
69	55	29°42'37"	98°20'26.4"	SC	20	K_{gru}	3	4.5	1.5	300			3	O	22	42		X	X		Hillside	
72	56	29°42'47.4"	98°20'19.7"	SF	20	K_{ed}	2.5	2	3	310			2	O	18	38	X			X	Hillside	
	57	29°42'22.5"	98°19'44.3"	MB	30	K_{ed}	0.33	0.33	-	-			0.33	N	0	30	X				Hillside	Windmill
73	58	29°42'30.2"	98°20'17.9"	SC	20	K_{ed}	1	3	0.8	280			1	O	28	48		X	X		Hillside	
75	59	29°42'28.7"	98°20'4"	MB	30	K_{ed}	0.83	0.83	650	305			0.83	N	0	30	X			X	Drainage	TGI; TW-2
74	60	29°42'46.9"	98°20'23.5"	SC	20	K_{gru}	1.5	1	1.4	275			1	O	30	50		X		X	Hillside	

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Ramble Ridge Ranch Geological Assessment

	LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING			
	1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
PHOTO NUMBER	FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP 10	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY	REMARKS
							X	Y	Z								<40	≥40	<1.6	≥1.6		
76-77	61	29°42'30.2"	98°20'5.7"	SC	20	K_{ed}	1.1	0.5	1.2	350			0.5	O	30	50		X		X	Stream Bed	
78	62	29°42'30.3"	98°20'6.2"	SF	20	K_{ed}	5.1	6.5	2	350			2	O	16	36	X			X	Stream Bed	
79-80	63	29°42'31.3"	98°20'5.8"	SC	20	K_{ed}	0.15	0.1	>1.6	350			0.1	O	35	55		X		X	Stream Bed	
81	64	29°42'31.6"	98°20'5.8"	SC	20	K_{ed}	0.4	0.2	0.4	350			0.2	O	20	40		X		X	Stream Bed	
82	65	29°42'32.4"	98°20'5.4"	SW	30	K_{ed}	4	3	1.4	310			3	O	10	40		X		X	Stream Bed	
83	66	29°42'34.4"	98°20'5.8"	O	5	K_{ed}	10	5	1.6	355			5	O	15	20	X			X	Stream Bed	
84	67	29°42'35"	98°20'3.9"	SC	20	K_{ed}	0.9	0.2	0.6	360			0.2	O	30	50		X		X	Stream Bed	
85	68	29°42'36.9"	98°20'5.1"	SC	20	K_{ed}	1.5	1	1.3	350			1	O	30	50		X		X	Stream Bed	
86	69	29°42'39.4"	98°20'4.5"	SC	20	K_{ed}	1	1	>3	10			1	N	33	53		X		X	Stream Bed	cavity w/ discharge
88,90,91-93	70	29°42'39.4"	98°20'4.5"	C	30	K_{ed}	4.5	3.5	>8	10			3.5	N	35	65		X		X	Stream Bed	cave w/ discharge
87,89,92-93	71	29°42'39.4"	98°20'4.5"	C	30	K_{ed}	5	3	>6.5	10			3.5	N	35	65		X		X	Stream Bed	cave w/ discharge
94	72	29°42'40.3"	98°20'2"	SC	20	K_{ed}	2.9	4	3	5			2.9	N	35	55		X		X	Stream Bed	

* DATUM. North American Datum 1983

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

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

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



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

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

Signature. Michael R. Thornhill Date 8-17-06

APPENDIX 3 —
POTENTIALLY SENSITIVE GEOLOGIC AND MAN-MADE FEATURE PHOTOGRAPHS

Ramble Ridge Geological Assessmen
Photograph Reference Document



Feature ID: 1, Photo 1.



Feature ID: 2, Photo 2.



Feature ID: 3, Photo 3. Test Well No. 1,
Depth = 550 feet BGL



Feature ID: 4, Photo 4.



Feature ID: 5, Photo 5.



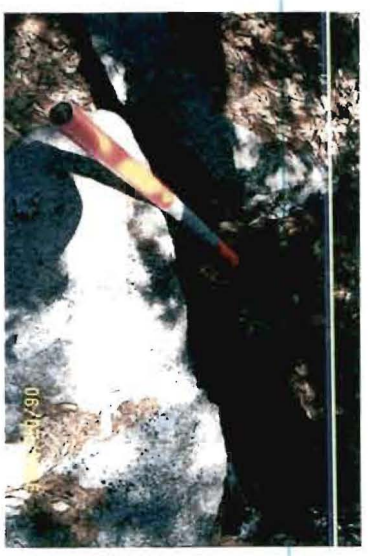
Feature ID: 6, Photo 6.



Feature ID: 7, Photo 7.



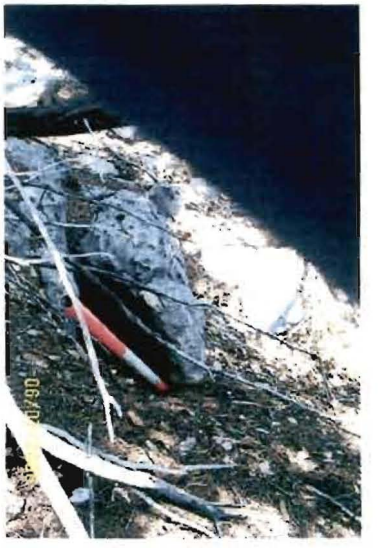
Feature ID: 8, Photo 8.



Feature ID: 9, Photo 9.



Feature ID: 10, Photo 10.



Feature ID: 11, Photo 11.



Feature ID: 11, Photo 12.



Feature ID: 12, Photo 13.



Feature ID: 13, Photo 14.



Feature ID: 14, Photo 15.



Feature ID: 15, Photo 16.



Feature ID: 15, Photo 17.



Feature ID: 16, Photo 18.



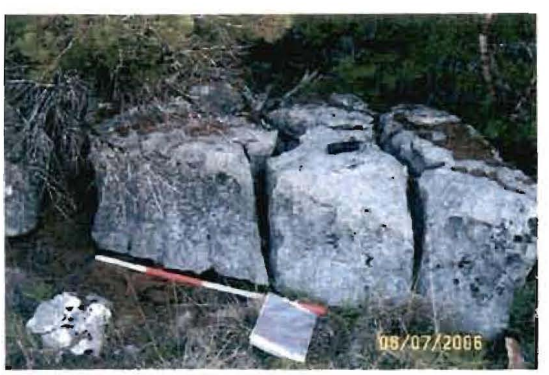
Feature ID: 17, Photo 19.



Feature ID: 18, Photo 20.



Feature ID: 19, Photo 21.



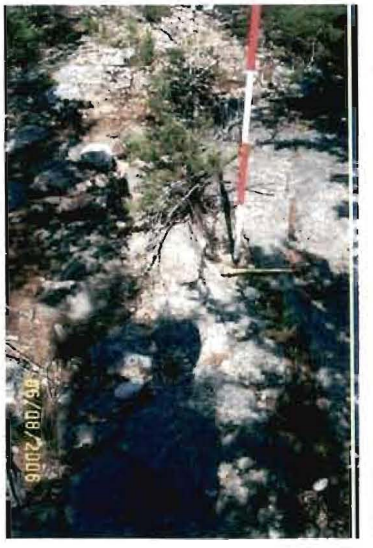
Feature ID: 20, Photo 22.



Feature ID: 21, Photo 23.



Feature ID: 22, Photo 24.



Feature ID: 23, Photo 25.



Feature ID: 24, Photo 26.



Feature ID: 25, Photo 27.



Feature ID: 27, Photo 29.



Feature ID: 26, Photo 28.



Feature ID: 28, Photo 30.



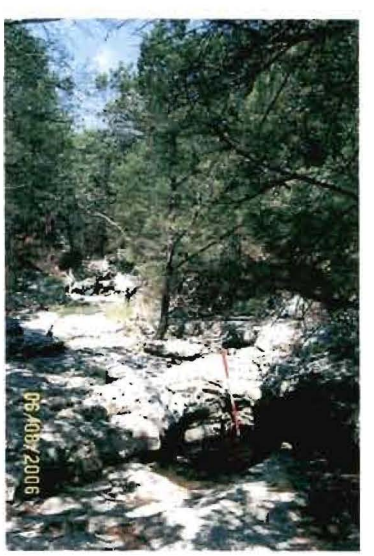
Feature ID: 29, Photo 32.



Feature ID: 28, Photo 31.



Feature ID: 30, Photo 33.



Feature ID: 30, Photo 34.



Feature ID: 31, Photo 35.



Feature ID: 32, Photo 36.



Feature ID: 33, Photo 37.



Feature ID: 34, Photo 38.



Feature ID: 35, Photo 39.



Feature ID: 36, Photo 40.



Feature ID: 37, Photo 41.



Feature ID: 38, Photo 42.



Feature ID: 39, Photo 43.



Feature ID: 40, Photo 44.



Feature ID: 41, Photo 45.



Feature ID: 42, Photo 46.



Feature ID: 42, Photo 47.



Feature ID: 43, Photo 48.



Feature ID: 44, Photo 49.



Feature ID: 45, Photo 50.



Feature ID: 46, Photo 51.



Feature ID: 47, Photo 52.



Feature ID: 48 Photo 53.



Feature ID: 49, Photo 54.



Feature ID: 50 Photo 55.



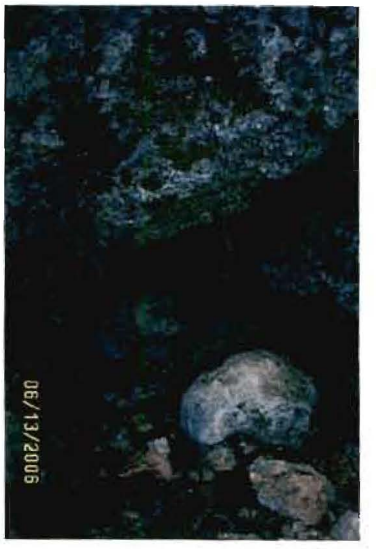
Feature ID: 51, Photo 56.



Feature ID: 52 Photo 57.



Feature ID: 52, Photo 58.



Feature ID: 52, Photo 59.

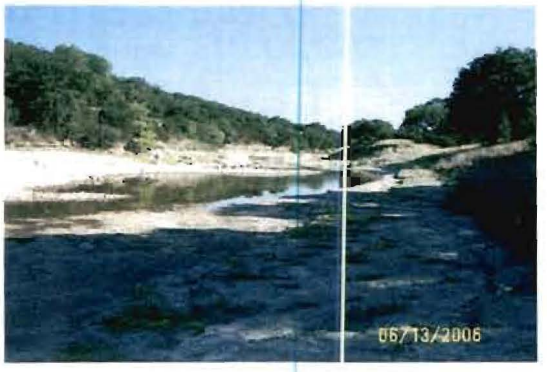


Photo 60.



Photo 61.



Photo 62.



Photo 63.



Feature ID: 53, Photo 64.



Feature ID: 54, Photo 65.



Photo 66.



Photo 67.



Photo 68.



Feature ID: 55, Photo 69.



Feature ID: 56, Photo 70.



Photo 71.



Photo 72.



Feature ID: 58 Photo 73.



Feature ID: 60, Photo 74.



Feature ID: 59 Photo 75.
Test Well No. 2



Feature ID: 61, Photo 76.



Feature ID: 61, Photo 77.



Feature ID: 62, Photo 78.



Feature ID: 63, Photo 79.



Feature ID: 63, Photo 80.



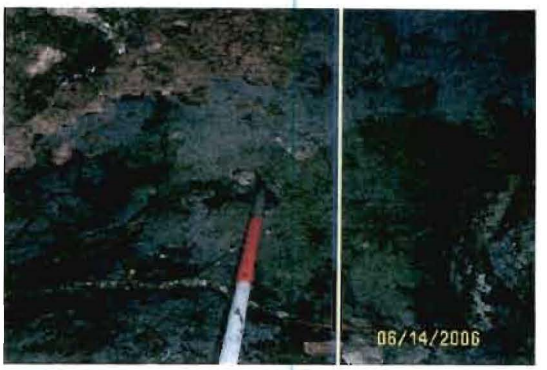
Feature ID: 64, Photo 81.



Feature ID: 65, Photo 82.



Feature ID: 66, Photo 83.



Feature ID: 67, Photo 84.



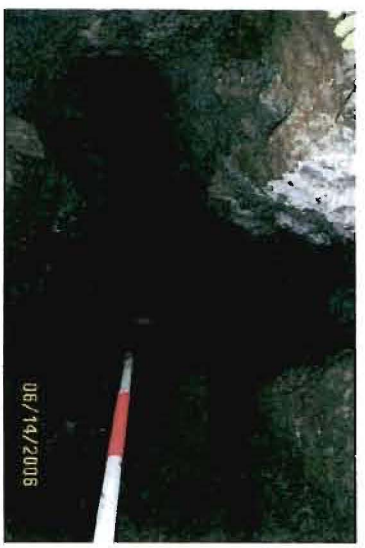
Feature ID: 68, Photo 85.



Feature ID: 69, Photo 86.



Feature ID: 70, Photo 88.



Feature ID: 70, Photo 90.



Feature ID: 70, Photo 91.



Feature ID: 71, Photo 87.



Feature ID: 71, Photo 89.



Feature ID: 70 and 71, Photo 92.



Feature ID: 70 and 71, Photo 93.



Feature ID: 72. Photo 94.

PLATE —
POTENTIALLY SENSITIVE GEOLOGIC AND MAN-MADE FEATURES MAP

Edwards Aquifer
Contributing Zone

Edwards Aquifer
Recharge Zone

Comal
County

Double Decker Cave

Natural Bridge Caverns

Cibolo Creek

Dry Comal Creek

Kkbn
Kkd
Kkke
Kgru
Kkg
Kplc
Kprd

1000

Explanation

- Approximate Property Boundary
- Feature Locations - Number Identifies feature in the Geologic Assessment Table in Appendix 2
- County Boundaries
- City Limits
- Interstate Highway
- US Highway
- State Highway
- Farm to Market; Ranch to Market
- Spurs, Loops, Business Routes
- County Roads; City Streets
- Index Contour
- Intermediate Contour
- Contour, Depression
- Streams
- Fault
- Inferred Fault
- Cave
- Edwards aquifer zone boundaries

Person Formation
- Kplc - Leached and collapsed member
- Kprd - Regional dense member

Kainer Formation
- Kkg - Grainstone member
- Kkke - Kirschberg Evaporite member
- Kkd - Dolomitic member
- Kkbn - Basal nodular member

Glen Rose Limestone
- Kgru - Upper member

Geology after Bloom,D., Faith, J.R., Pedraza, D.E., Ozuna, G.B., Cole, , Clark, A.K., Small, T.A., and Morris, R.R., compil.2005, Geologic map of the Edwards aquifer rege zone, south-central Texas: U.S. Geological Sur Scientific Investigations Map 2873, scale 1:200,0

N

0 600 1,200

Feet

STATE OF TEXAS
MICHAEL R. THORNHILL
GEOLOGY
858
LICENSED
PROFESSIONAL GEOSCIENTIST

Ramble Ridge Ranch

Plate 1.
Potentially Sensitive Geologic and Man-Made Features

THORNHILL GROUP, INC.
Professional Hydrogeologists • Water Resources Specialists

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: Ramble Ridge Subdivision

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ___ Residential: # of Lots: 211
   - ___ Residential: # of Living Unit Equivalents: ___
   - ___ Commercial
   - ___ Industrial
   - ___ Other: _____

2. Total site acreage (size of property): 388.58

3. Projected population: 844

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	1,477,000	÷ 43,560 =	33.91
Parking		÷ 43,560 =	
Other paved surfaces	605,800	÷ 43,560 =	13.91
Total Impervious Cover	2,082,800	÷ 43,560 =	47.81
Total Impervious Cover ÷ Total Acreage x 100 =			12.30 %

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
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 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	63,300 gallons/day
0 % Industrial	0 gallons/day
0 % Commingled	0 gallons/day
TOTAL	63,300 gallons/day

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

__ 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 _____ (name) Treatment Plant. The treatment facility is :

__ existing.

__ proposed.

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

SITE PLAN REQUIREMENTS

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

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 300 '.

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):
FEMA FIRM Map Number 485463 0075 D, dated July 17, 1995, Comal County, Texas

19. X The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.

__ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

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

X There are 4 (#) 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.

X The wells are not in use and will be properly abandoned. 2 wells

X The wells are in use and comply with 30 TAC §238. 1 - existing well in use
1 - to be deepened & then developed or properly abandoned

__ 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 Tne drainage patterns and approximate slopes anticipated after major grading activities.

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

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

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

26. X Surface waters (including wetlands).

27. X Locations where stormwater discharges to surface water or sensitive features.
__ There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

28. X One (1) original and three (3) 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:

J. W. Wood
Print Name of Customer/Agent

Signature of Customer/Agent

9.5.06
Date

Attachment A – Factors Affecting Water Quality

Water quality is affected by permeability of the surface. Adding impermeable cover increases the quantity, and therefore the velocity, of water runoff. Increased velocity gives the runoff a greater ability to carry pollutants. The amount and type of impervious cover expected after construction as shown on the preceding sheet was estimated as follow:

Structures/Rooftops	(211 lots)(7000 s.f.) = 1,477,000 s.f.
Other paved surfaces	(23,300' road)(26' width) = 605,800 s.f.

The greatest potential danger of degradation of water quality from this project will be in the construction phase. Waste from construction workers and equipment , along with the ever present danger of high suspended solids content in stormwater during the period of when soil has been disturbed by clearing and grading operations but not yet is re-stabilized after road, drainage, and utility construction is complete, will cause surface water pollution. To a lesser degree, house and driveway construction will bring similar concerns for a much longer period of time. Even when there is no longer any construction activity, low density single family development will cause a slight degradation of runoff water quality due to human activity (including chemical use and automobile wastes) and increased impervious area. Ground water degradation, if any, would occur only in isolated instances.

Attachment B – Volume and Character of Stormwater

As above, there should be a slight degradation of stormwater quality due to human activity. Quantity of stormwater is estimated to increase 12.5% as shown in the calculation below.

Percent Increase in Runoff Volume

prior to development estimated runoff coefficient "C" = 0.40
after development C = 0.40 for pervious area and 0.96 for impervious area
impervious area = 9%
after development combined C = 0.40(0.91) + 0.96(0.09) = 0.45
increase in runoff = (0.45-0.40)/0.40 = 0.125 = **12.5%**

Increase in Average Annual Runoff:

average annual rainfall = 33.19 inches
total acreage = 388.58 acres
average annual runoff before development = 0.40(388.58)(33.19/12) = 429.9 acre feet
average annual runoff after development = 0.45(388.58)(33.19/12) = 483.6 acre feet
increase in average annual runoff:= 483.6 - 429.9 = **53.7 acre feet**

Runoff Velocity:

Runoff velocities will increase very little if any due to the Comal County requirement that **Q**100 (maximum runoff rate for 100 year storm) not increase above present condition.

Annual Pollutant load:

Total Suspended Solids is estimated as follows:

From pervious area (340.75 Ac.)(33")(0.03)(80)(0.226) =	6,099 pounds
From impervious area (47.83 Ac)(33")(0.90)(170)(0.226) =	54,578 pounds
Total Annual Suspended Solids =	60,667 pounds



Comal County

OFFICE OF COMAL COUNTY ENGINEER

November 14, 2005

Ramble Ridge, L.L.C.
17460 IH35N, Ste. 160-350
Schertz, TX 78154

Re: Proposed subdivision of RAMBLE RIDGE SUBDIVISION, within Comal County, Texas

Dear Property Owner:

We have completed the field inspection of the referenced for the recommendation for private sewage facilities and have found the property to be approved with the conditions that individual septic systems permits shall be required for the lots within this subdivision.

Please be advised that these individual permits will be required to meet 30 TAC 285.40, subchapter E (copy attached). Please specifically reference the one acre minimum lot size and 150 foot distance requirement to recharge features.

Should you have any questions, please feel free to contact us.

Sincerely,

Thomas H. Hornseth, P.E.
Comal County Engineer

xc: Mr. Mike Harris, R.P.L.S.,
ACS, Inc.

195 David Jonas Drive • New Braunfels, Texas 78130 • (830) 608-2090 FAX (830) 608-2009

SUBCHAPTER E : SPECIAL REQUIREMENTS FOR OSSFS LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE §285.40

§285.40. OSSFs on the Recharge Zone of the Edwards Aquifer.

(a) Applicability. In addition to the requirements given in this chapter, the following additional provisions apply to the Edwards Aquifer recharge zone as defined in §285.2 of this title (relating to Definitions) and is not intended to be applied to any other areas in the State of Texas.

(b) Additional application requirements for new OSSFs.

(1) All planning and design materials shall be submitted by a professional engineer or sanitarian registered in Texas.

(2) Site evaluation to be conducted by a certified site evaluator possessing a valid certificate.

(c) Conditions for obtaining a permit to construct. In order to obtain a permit to construct in the Edwards Aquifer recharge zone, the following conditions must be met.

(1) Minimum lot sizes. Each lot or tract of land on the recharge zone on which OSSFs are to be located must have an area of at least one acre (43,560 square feet) per single family dwelling.

(2) Minimum separation distances from recharge features. The following separation distances shall be maintained from recharge features found during a site evaluation or in accordance with a geologic assessment performed in accordance with Chapter 213 of this title (relating to Edwards Aquifer). No sewage treatment tank or holding tank may be located within 50 feet of a recharge feature. No soil absorption system may be located within 150 feet of a recharge feature.

(3) No OSSF may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde county line to the recharge zone.

(d) Existing OSSFs. OSSFs licensed by, or registered with, the appropriate permitting authority at the time of adoption of this section shall remain licensed or registered under the terms and conditions of the current license or registration. Any relicensing shall be performed in accordance with §285.3 of this title (relating to Applicability). An OSSF installed on the recharge zone prior to April 11, 1977, in either Uvalde or Kinney Counties is not required to be permitted or licensed, provided the OSSF is not causing pollution, is not a threat to the public health, or is not a nuisance, and has not been substantially modified.

(e) Exceptions for certain lots. Lots platted and recorded with the county in its official plat record, deed, or tax records of the following counties prior to the dates for the counties indicated in this

subsection, are exempted from the one-acre minimum lot size requirement, pursuant to the conditions of subsection (f) of this section.

(1) Kinney, Uvalde, Medina, Bexar, and Comal Counties--March 26, 1974;

(2) Hays County--June 21, 1984;

(3) Travis County--November 21, 1983; and

(4) Williamson County--May 21, 1985.

(f) Notice. Any person, or his agents or assignees, desiring to construct a residential development with two or more lots in which OSSFs will be utilized in whole or in part on the recharge zone and desiring to sell, lease, or rent the lots therein, must inform in writing each prospective purchaser, lessee, or renter of the following.

(1) Each lot within the regulated development is subject to the terms and conditions of this section.

(2) A permit to construct shall be required before an OSSF can be constructed in the subdivision.

(3) A license to operate shall be required for the operation of an OSSF.

(4) Whether or not an application for a water pollution abatement plan as defined in Chapter 213 of this title (relating to Edwards Aquifer), has been made, and whether or not it has been approved, and whether any restrictions or conditions have been placed on that approval.

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 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. 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.

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.

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 practice. 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 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 discharge (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 constructions 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 temporarily or permanently ceases 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 the site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal 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 Edwards Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

   A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, 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;

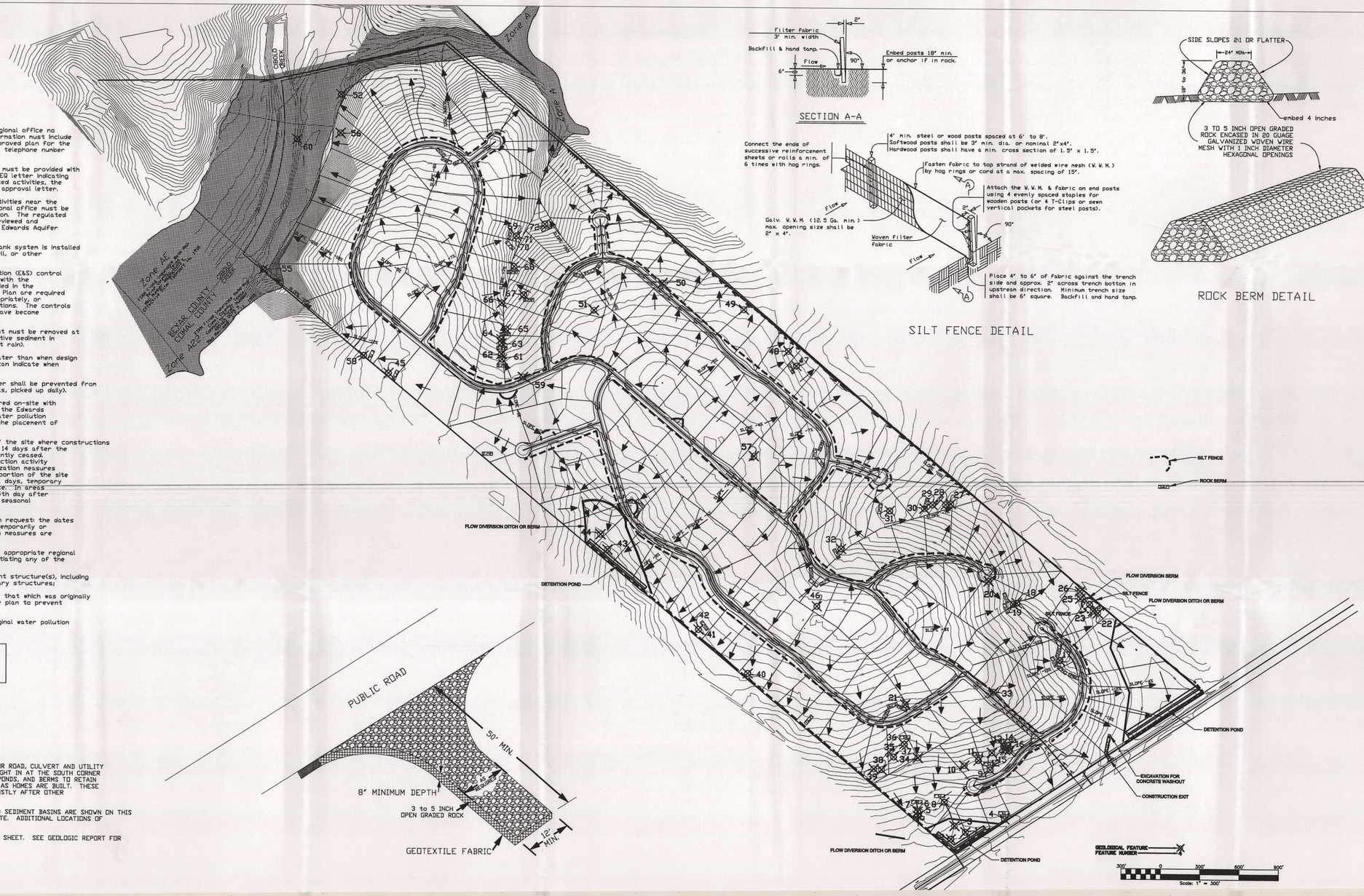
   C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office	San Antonio Regional Office
1921 Cedar Bend, Suite 150	14250 Judson Road
Austin, Texas 78758-5338	San Antonio, Texas 78233-4480
Phone (512) 339-2929	Phone (210) 490-3096
Fax (512) 339-3795	Fax (210) 545-4329

THE PRIMARY AREAS OF SOIL DISTURBANCE ARE IN THE ROAD RIGHT-OF-WAY FOR ROAD, CULVERT AND UTILITY CONSTRUCTION. OTHER DISTURBED AREAS INCLUDE A WATER SUPPLY LINE BROUGHT IN AT THE SOUTH CORNER OF THE SITE, THE CONSTRUCTION ENTRANCE, CONCRETE WASHOUT, DETENTION PONDS, AND BERMS TO RETAIN DRAINAGE ON THE PROPERTY. THERE WILL BE AREAS DISTURBED ON EACH LOT AS HOMES ARE BUILT. THESE AREAS WILL BE LOCATED BY THE INDIVIDUAL LOT OWNER AND WILL OCCUR MOSTLY AFTER OTHER CONSTRUCTION IS FINISHED.

CONTRUCTION ENTRANCE, CONCRETE WASHOUT, SILT FENCES , ROCK BERMS, AND SEDIMENT BASINS ARE SHOWN ON THIS LAYOUT. ACTUAL LOCATION AND SIZING IS TO BE DONE ON SITE AS APPROPRIATE. ADDITIONAL LOCATIONS OF THESE AND ANY OTHER BMPS ARE TO BE USED AS NEEEDED.

FEATURES FOUND IN THE GEOLOGIC REPORT ARE SHOWN AND NUMBERED ON THIS SHEET. SEE GEOLOGIC REPORT FOR DESCRIPTIONS



SECTION A-A

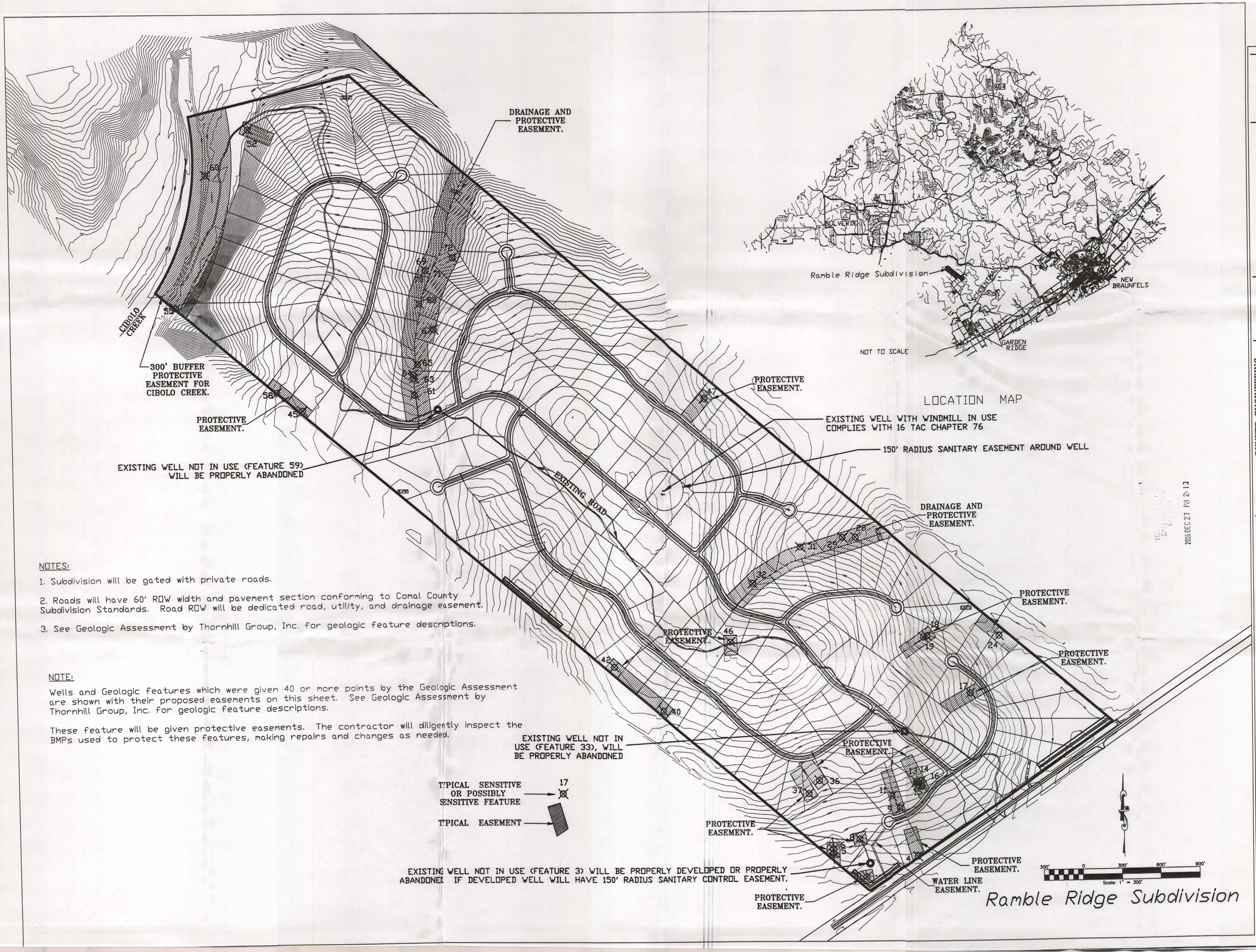
SILT FENCE DETAIL

ROCK BERM DETAIL

Dan B. Bunker, P.E.
Reg. No. 22550
127 Sabine Road
Boerne, Texas 78006-6217
PHONE: 830-537-9100

ACS Land Surveying Land Planning
INCORPORATED

SITE PLAN SHEET A
RAMBLE RIDGE SUBDIVISION
PLANNED UNIT DEVELOPMENT
COMAL COUNTY, TEXAS



NOTES:

1. Subdivision will be gated with private roads.

2. Roads will have 60' ROW width and pavement section conforming to Comal County Subdivision Standards. Road ROW will be dedicated road, utility, and drainage easement.

3. See Geologic Assessment by Thornhill Group, Inc. for geologic feature descriptions.

NOTE:

Wells and Geologic features which were given 40 or more points by the Geologic Assessment are shown with their proposed easements on this sheet. See Geologic Assessment by Thornhill Group, Inc. for geologic feature descriptions.

These feature will be given protective easements. The contractor will diligently inspect the BMPs used to protect these features, making repairs and changes as needed.

BUNKER ENGINEERING
Dan B. Bunker, P.E.
Reg. No. 22550
127 Sabine Road
Boerne, Texas 78006-6217
PHONE: 830-537-9100

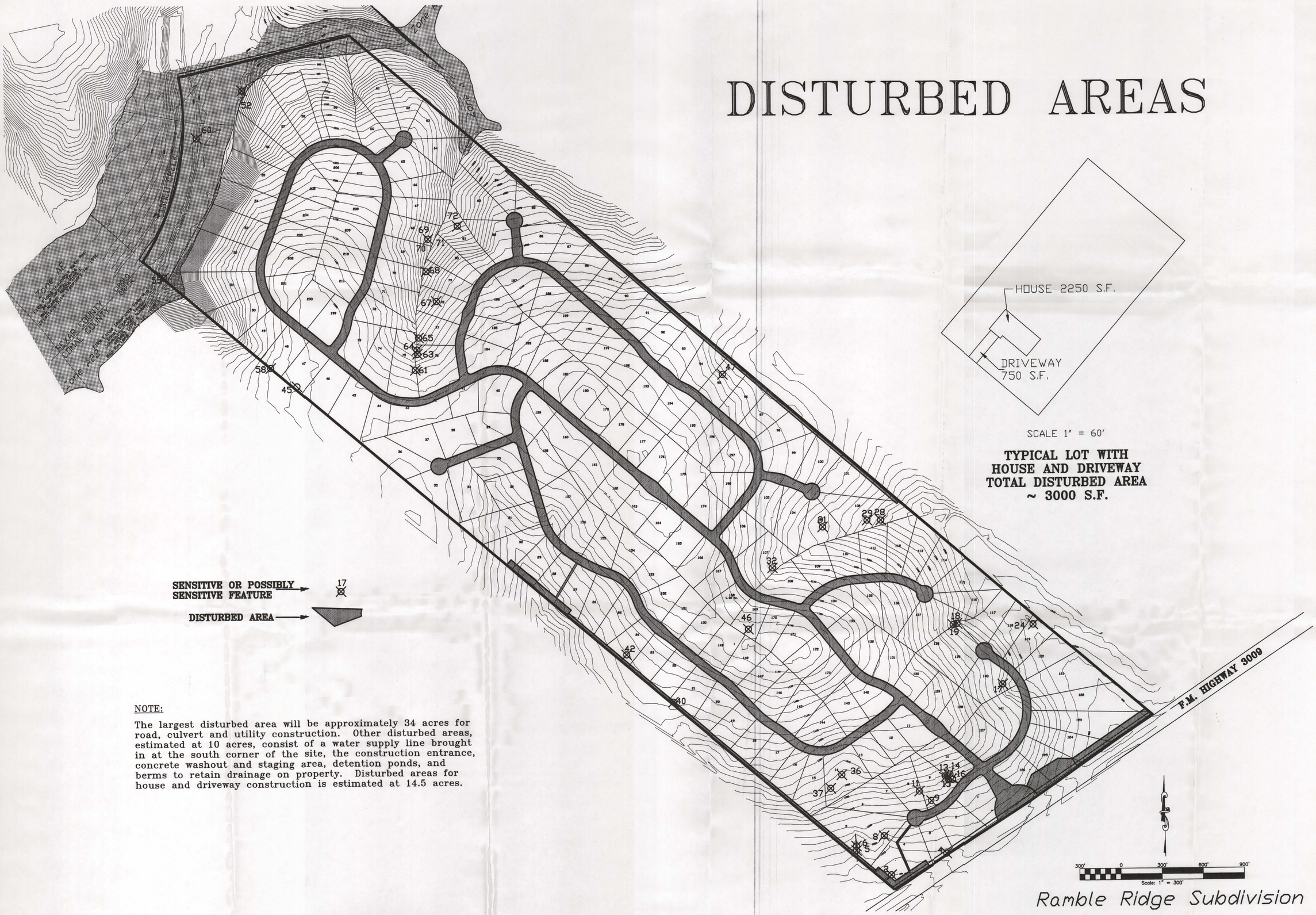
ACS INCORPORATED
Land Surveying
Land Planning
15315 San Pedro, San Antonio, Texas (210) 494 - 6405
P.O. Box 160600, San Antonio, Texas 78280 - 2800 fax(210) 494 - 9640

DRAWN BY:
CHECKED BY:
APPROVED BY:
DATE:
Revisions:
PROJECT NO.

26 Dec 2006

SITE PLAN SHEET B
RAMBLE RIDGE SUBDIVISION
PLANNED UNIT DEVELOPMENT
COMAL COUNTY, TEXAS

DISTURBED AREAS



TYPICAL LOT WITH HOUSE AND DRIVEWAY TOTAL DISTURBED AREA ~ 3000 S.F.

NOTE:

The largest disturbed area will be approximately 34 acres for road, culvert and utility construction. Other disturbed areas, estimated at 10 acres, consist of a water supply line brought in at the south corner of the site, the construction entrance, concrete washout and staging area, detention ponds, and berms to retain drainage on property. Disturbed areas for house and driveway construction is estimated at 14.5 acres.

Ramble Ridge Subdivision

SITE PLAN SHEET C
RAMBLE RIDGE SUBDIVISION
PLANNED UNIT DEVELOPMENT
COMAL COUNTY, TEXAS

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Dan B. Bunker, P.E.
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127 Sabine Road
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15315 San Pedro, San Antonio, Texas (210) 494 - 6405
P.O. Box 180609, San Antonio, Texas 78280 - 2809 fax(210) 494 - 9840

DRAWN BY:
CHECKED BY:
APPROVED BY:
DATE:
Revisions:
PROJECT NO.

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: Ramble Ridge 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. N/A 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: Cibolo Creek
   Bear 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.

— **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.

X 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.

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:

J. W. Wood
Print Name of Customer/Agent

JWWood
Signature of Customer/Agent

9.5.06
Date

Attachment A – Spill Response Actions

There will be no above ground fuel storage tanks allowed on this project. Equipment will be fueled using mobile fuel trucks. Section 1.4.16 of the TCEQ **EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL** is copied on the following three pages and will be used for guidance on spill prevention and control. A copy of section 1.4.16 of the **GUIDANCE MANUAL** will be given to the contractor for his information and as a reference in case of a spill.

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

Attachment B – Potential Sources of Contamination

1. **Potential Source:** Contamination from construction equipment and vehicle leaks and spills(oil, grease, fuel, hydraulic fluid, antifreeze, etc.)

   Preventive Measure: Vehicle maintenance, when possible, will be performed in the construction staging area.

2. **Potential Source:** Construction trash and litter

   Preventive Measure: Containers for trash will be placed in work areas and emptied weekly.

3. **Potential Source:** Construction debris

   Preventive Measure: Construction debris will be monitored daily by the contractor, picked in a timely manner and placed in disposal bins.

4. **Potential Source:** Suspended solids in stormwater runoff.

   Preventive Measure: Storm water runoff will be slowed using various TBMPs to allow sediment to settle out and will be diverted away from active disturbed construction areas by diversion ditches and earth berms. Sensitive features will be protected by strategically placed silt fence and rock berms to slow and filter runoff.

Attachment C – Sequence of Major Activities

1. Provide construction entrance and staging area ~ disturbed area = 1 acre
2. Install TBMPs for peripheral earth berms & detention ponds
3. Construct peripheral earth berms & detention ponds = 5 acres
4. Remove drainage diversion ditches and or berms for detention ponds
5. Install TBMPs for road, utility construction & sensitive feature protection
6. Clearing & grubbing of road right-of-way~ disturbed area = 34 acres.
7. Grading & culvert installation ~ disturbed area = same 34 acres as preceding
8. Utilities – underground water, telephone, & electric ~ disturbed = 6 acres
9. Base & Pavement ~ disturbed area = 15 acres(part of 34 acres above)
10. Mulch & seed uncovered disturbed road area.
11. Cleanup job site and remove TBMPs as necessary.
12. Residential Construction - a long continuing process TBMPs installed and removed as needed at each individual site ~ disturbed area = 14.5 acres

Residential Construction includes areas for houses and for driveways. It may start before the other construction is completed and is expected to continue for a long time after the other construction is finished. It will encompass only small areas at any one time.

Attachment D – Temporary Best Management Practices and Measures

Temporary best management practices and measures will be applied to this project in accordance with the recommendations found in TCEQ Edwards Aquifer Technical Guidance Manual

a. The Cibolo Creek, flowing along the northwest boundary of the site, is the only surface water directly affected by this project. All of the TBMPs used on this project work in concert to either prevent contact of stormwater with disturbed areas, Strain or filter water that has contacted disturbed areas or slow the flow of stormwater to allow sediment to settle out before leaving the site. Stormwater from adjoining ranches originating upgradient, flows that briefly cross the outside edges of the property and then flow back off the site, will not be affected by road construction. Before the beginning of the detention pond construction, this flow will be diverted around the detention pond construction sites until the completion of detention pond construction. All upgradient stormwater flow will then be routed thru detention ponds.

b. Temporary Best Management Practices selected for this site have been designed to retain sediment on site to prevent stormwater from leaving the site with high levels of suspended solids. Measures that will be implemented on this site include construction entrance, silt fence, rock berms, concrete washout excavation, and flow diversion ditches or berms. Silt fence will be employed adjacent to disturbed areas at the perimeter of the property to filter stormwater leaving the site at that point.

c. Water flow will be diverted around or away from disturbed areas. Flow from disturbed areas will be filtered thru silt fence before continuing on its path. Silt fence and rock berms will reduce the velocity of flowing water, allowing more pollutants to settle out before it enters surface streams, sensitive features, or the aquifer.

d. Flow will be maintained to naturally-occurring sensitive features by placing silt fence and/or rock berms in the natural flow path to slow and filter the water before it reaches the feature.

Attachment F – Structural Practices

Structural practices will include rock berms, silt fence, and grading (diversion ditches and berms) to suppress the velocity of water flow and divert it around active construction activities.

Attachment G – Drainage Area Map

See following sheet.

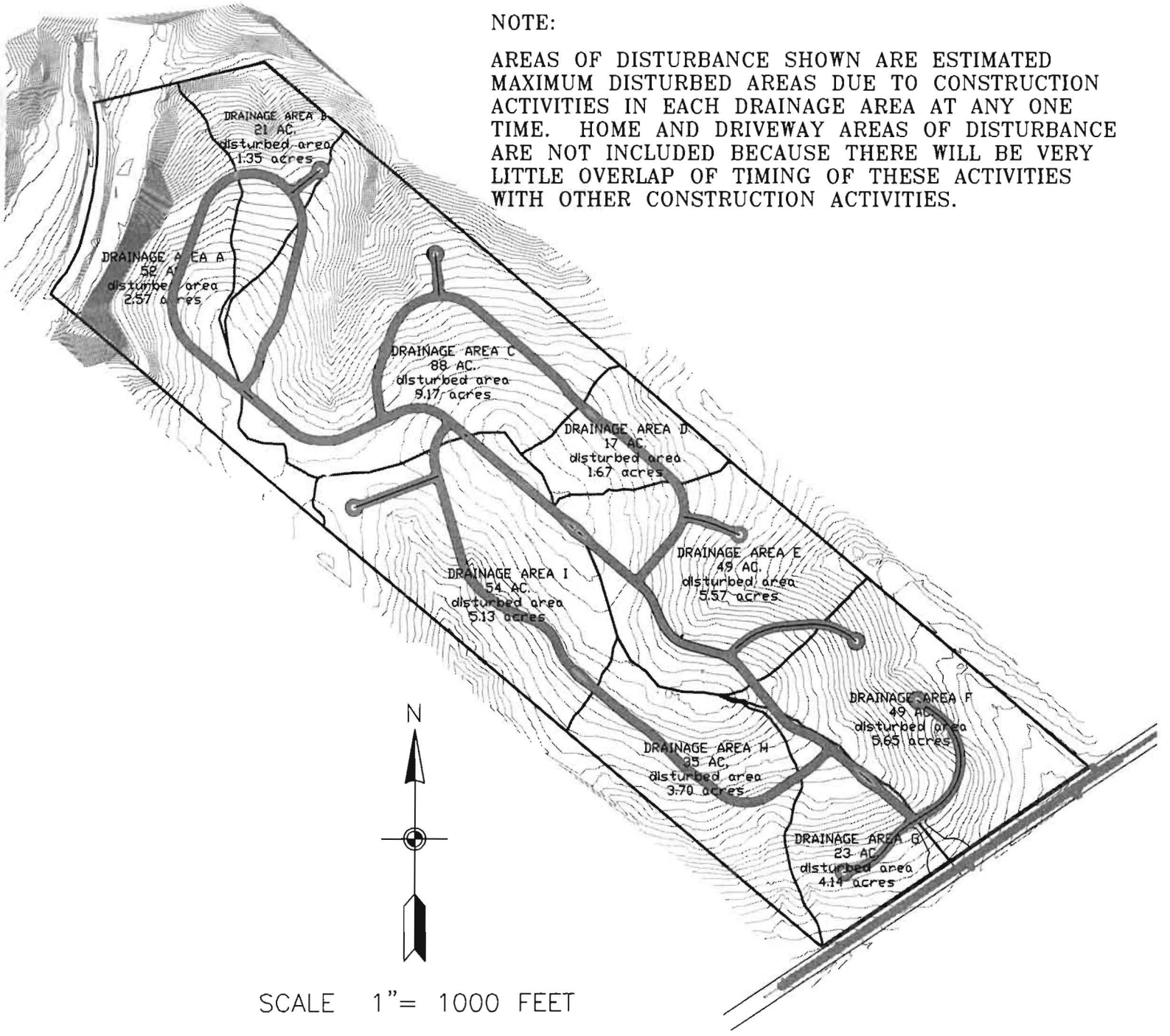
Attachment H – Temporary Sediment Pond(s) Plans and calculations

There will be no temporary sediment ponds on this project. There will not be more than 10 acres of disturbed soil in a common drainage area that will occur at one time.

Temporary Stormwater Section

NOTE:

AREAS OF DISTURBANCE SHOWN ARE ESTIMATED MAXIMUM DISTURBED AREAS DUE TO CONSTRUCTION ACTIVITIES IN EACH DRAINAGE AREA AT ANY ONE TIME. HOME AND DRIVEWAY AREAS OF DISTURBANCE ARE NOT INCLUDED BECAUSE THERE WILL BE VERY LITTLE OVERLAP OF TIMING OF THESE ACTIVITIES WITH OTHER CONSTRUCTION ACTIVITIES.



SCALE 1"= 1000 FEET

DRAINAGE AREA MAP

SHOWING MAXIMUM EXPECTED AREAS OF DISTURBANCE AT ANY ONE TIME IN EACH DRAINAGE AREA.

ATTACHMENT G

Attachment I – Tempory Inspection and Maintenance for BMP's

Inspection and Maintenance Plan

- The contractor is required to inspect the controls and fences at weekly intervals and after significant rainfall events to insure that they are functioning properly. The person(s) responsible for maintenance of controls and fences shall immediately make any necessary repairs to damaged areas. Silt accumulation at controls must be removed when the depth reaches six inches. The contractor is required to maintain the construction entrance/exit in a condition that prevents soil from tracking onto public roads via construction equipment and traffic. An inspection form is included on the following sheet for the contractor's use in logging inspections of BMP,s
- TCEQ staff will be allowed full access to the property during construction of the project for inspecting controls and fences and to verify that the accepted plan is being utilized in the field. TCEQ staff has the right to speak with the contractor to verify plan changes and modifications.
- Any changes made to the location or type of controls shown on the accepted plans due to onsite conditions shall be documented on the site plan that is part of this Water Pollution Abatement Plan. No other changes shall be made unless approved by the TCEQ. Documentation shall clearly show changes made, date, person responsible, and reason for change.

Owner's Information:

Owner: Fiorano Ventures, L.L.C. Phone # (210) 651-6931
Contact: J. W. Wood, Managing Partner
Address: 17460 I.H. 35 North, Suite 160-350
Schertz, Texas 78266

Person or Firm Responsible For Erosion/Sedimentation Control Maintenance:

Company: _____ Phone # _____
Contact: _____
Address _____
_____

Signature of Responsible Party: _____

This portion of the form shall be filled out and signed by the responsible party prior to construction.

Attachment J – Schedule of Interim and Permanent Stabilization Practices

The ground surface area is generally very rocky with a minimal amount of overlying soil. Areas of soil disturbed by construction operations that do not receive impervious cover will be hydro mulched with the appropriate seed mixture. All areas between the edge of roadway base and the right-of-way line where a soil layer exists will be hydro mulched. Areas within islands and the entrance will be landscaped with appropriate plants and mulched. No fill slopes are to have a horizontal to vertical ratio less than 3. All fill slopes are to be hydro mulched.

Installation of hydro mulch shall be as follows:

- Final grading will be completed and all necessary BMP's in place prior to placing hydro mulch.
- Hydro mulch seed mixture and application rate shall be as shown in Table 1 below or as recommended by the County Agriculture Extension Agent.
- Irrigation amount and frequency shall be as shown in Table 2 below or as recommended by the County Agriculture Extension Agent. Actual frequency and amount of irrigation water used will be weather dependent.
- Other types of seeding applications may be used if approved by the TCEQ.
- If blankets or matting are used, they shall conform to the Texas Department of Transportation specifications.

TABLE 1

Dates	Climate	Species	(lb/ac)
Sept 1 to Nov 30	Temporary Cool Season	Tall Fescue Oats Wheat(Red,Winter) **Total**	4.0 21.0 30.0 **55.0**
Sept 1 to Nov 30	Cool Season Legume	Hairy Vetch	8.0
May 1 to Aug 31	Temporary Warm Season	Foxtail Millet	30.0

TABLE 2

Time Period	Irrigation Amount and Frequency
Within 2 hours of installation	Irrigate entire root depth, or to germinate seed
During the next 10 business days	Irrigate entire root depth every Monday, Wednesday, and Friday
During the next 30 business days or until Substantial Completion	Irrigate entire root depth a minimum of once per week, or as necessary to ensure vigorous growth
During the next 4 months or until Final Acceptance of the Project	Irrigate entire root depth once every two weeks, or as necessary to ensure vigorous growth

RAMBLE RIDGE SUBDIVISION WATER POLLUTION ABATEMENT PLAN

TEMPORARY BMP INSPECTION REPORT FORM

✓	OBSERVATIONS/COMMENTS/CORRECTIVE ACTIONS:
☐ CONST. ENTRANCE ☐ CONC. WASHOUT ☐ SILT FENCE ☐ ROCK BERMS	
DATE:	INSPECTED BY:

	OBSERVATIONS/COMMENTS/CORRECTIVE ACTIONS:
☐ CONST. ENTRANCE ☐ CONC. WASHOUT ☐ SILT FENCE ☐ ROCK BERMS	
DATE:	INSPECTED BY:

	OBSERVATIONS/COMMENTS/CORRECTIVE ACTIONS:
☐ CONST. ENTRANCE ☐ CONC. WASHOUT ☐ SILT FENCE ☐ ROCK BERMS	
DATE:	INSPECTED BY:

	OBSERVATIONS/COMMENTS/CORRECTIVE ACTIONS:
☐ CONST. ENTRANCE ☐ CONC. WASHOUT ☐ SILT FENCE ☐ ROCK BERMS	
DATE:	INSPECTED BY:

	OBSERVATIONS/COMMENTS/CORRECTIVE ACTIONS:
☐ CONST. ENTRANCE ☐ CONC. WASHOUT ☐ SILT FENCE ☐ ROCK BERMS	
DATE:	INSPECTED BY:

	OBSERVATIONS/COMMENTS/CORRECTIVE ACTIONS:
☐ CONST. ENTRANCE ☐ CONC. WASHOUT ☐ SILT FENCE ☐ ROCK BERMS	
DATE:	INSPECTED BY:

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

REGULATED ENTITY NAME: Ramble Ridge Subdivision

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

1. X 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.

   ___ This site will be used for low density single-family residential development but has more than 20% impervious cover.

   ___ This site will not be used for low density single-family residential development.

5. X 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.

X **ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.

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

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

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

__ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is identified as **ATTACHMENT B** at the end of this form.

__ If no surface water, groundwater or stormwater originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

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

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

__ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is identified as **ATTACHMENT C** at the end of this form.

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

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

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

10. N/A **ATTACHMENT F - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and measures are provided at the end of this form. Design Calculations, TCEQ Construction Notes, all man-made or naturally occurring geologic features, all proposed structural measures, and appropriate details must be shown on the construction plans.

11. N/A **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.

12. N/A The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

__ Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.

__ **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.

13. X **ATTACHMENT I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is provided at the end of this form. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity which increase erosion that results in water quality degradation.

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

14. N/A 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:

J. W. Wood
Print Name of Customer/Agent

J W WOOD
Signature of Customer/Agent

9-5-06
Date

Attachment A – 20% or Less Impervious Cover Waver

The development will be low density single family residential with less than 0.6 dwelling units per acre. The total impervious cover for the site is approximately 12.3% at full development. This assumes 26-feet impervious roadway width 7000 square feet of impervious area per lot.

Attachment B – BMPs for Up-gradient Stormwater

Upgradient stormwater from adjoining ranches, flows that briefly cross the outside edges of the property, will be routed around the disturbed area from detention pond construction and then included in the flow routed thru detention ponds.

Attachment C – BMPs for On-site Stormwater

No permanent BMPs will be constructed to treat stormwater runoff. Much of the site will remain in its native state. The site, when fully developed, will have about 12.3% impervious cover. There will be appropriate sanitary setback easements placed around all recharge features identified in the Geologic Assessment as having significant recharge potential.

Attachment D – BMPs for Surface Streams

Flow from the site is divided and goes to two separate watersheds. Cibolo Creek, the only contiguous surface stream, is the northwestern boundary of the development and receives runoff directly. No sensitive features were identified in the streambed. The southeastern part of Ramble Ridge Subdivision is in the Bear Creek watershed. Energy dissipaters will be installed at the downstream end of all culverts to reduce flow velocities Comal County has mandated that the maximum rate of flow from a development for a 100 year frequency storm cannot exceed that of the pre-developed condition. Attenuating the flow to meet this requirement will normally hold flows at all frequencies to near their previous maximum rates.

Attachment E – Request to seal features

There are several existing trial wells on the property. These wells will be either developed or permanently sealed. There are no plans to seal any other features. None of the features deemed sensitive or possibly sensitive fall directly in an area to be disturbed. However there are a number of these features which fall in close proximity to areas of disturbance. These features are to be protected by temporary BMPs during construction and given protective easements as practicable. The severe topography dictates road alignment, major changes would be difficult. Where practical, road alignment has been changed to distance areas of disturbance from sensitive features (features 8, 18, 19, 32, & 61). It is noted that, in the opinion of the geologist expressed in the **GEOLOGIC ASSESSMENT REPORT,** very little if any of the water entering features on this ranch will reach the Edwards Aquifer.

Attachment I – Measures for Minimizing Surface Stream Contamination

All surface streams will be protected from erosion by not allowing runoff to exceed existing velocities. This will be accomplished by adding energy dissipaters to the downstream side of culverts.

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

NAME OF PROPOSED REGULATED ENTITY: Ramble Ridge Subdivision
REGULATED ENTITY LOCATION: 26,000 Block of Natural Bridge Caverns Road (FM 3009)
NAME OF CUSTOMER: Fiorano Ventures LLC
CONTACT PERSON: J.W. Wood PHONE: (210) 651-6931
(Please Print)

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

AUSTIN REGIONAL OFFICE (3373)
☐ Hays
☐ Travis
☐ Williamson

SAN ANTONIO REGIONAL OFFICE (3362)
☐ Bexar ☐ Medina
☒ Comal ☐ Uvalde
☐ 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 (CHECK ONE):

☒ **SAN ANTONIO REGIONAL OFFICE**
☐ **Mailed to TCEQ**:
TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ **AUSTIN REGIONAL OFFICE**
☐ **Overnight Delivery to TCEQ**:
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347

Type of Plan	Size	Fee Due
Water Pollution Abatement, One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement, Multiple Single Family Residential and Parks	388.58 Acres	$ 5,000
Water Pollution Abatement, 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

9-5-06
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 §213.14 (effective 11/14/97) & 30 TAC §213.9 (effective 6/1/99)

Water Pollution Abatement Plans and Modifications

PROJECT	PROJECT AREA IN ACRES	FEE
One Single Family Residential Dwelling	<5	$500
Multiple Single Family Residential and Parks	<5 5 < 10 10 < 50 ≥50	$1,000 $2,000 $3,000 $5,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 ≥10	$2,000 $3,000 $4,000 $5,000

Organized Sewage Collection Systems and Modifications

PROJECT	COST PER LINEAR FOOT	MINIMUM FEE MAXIMUM FEE
Sewage Collection Systems	$0.50	$500 - $5,000

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	$500	$500 - $5,000

Exception Requests

PROJECT	FEE
Exception Request	$250

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$100

FIORANO VENTURES LLC
17460 I.H. 35 N. SUITE 160-350
SCHERTZ, TX 78154

1152

88-2141-1149

DATE 9.5.06

PAY TO THE ORDER OF T.C.E.Q. $5000 XX/100

Five Thousand and XX/100 DOLLARS

Security Features Included. Details on Back.

FIRST NATIONAL BANK MEMBER FDIC
CHECK VERIFICATION 1(866)380-5255
CUSTOMER SERVICE (210)304-3100

FOR Process fee - WPAP - Ramble Ridge Subdivision JWWXD

MP

⑈001152⑈ ⑆114921415⑆ ⑈0350002541⑈

Texas Commission on Environmental Quality
Region 13 – San Antonio
14250 Judson Road
San Antonio, TX 78233

Submitted herewith are:

Application Fee Form (TCEQ-574)
Check for $5000
Core Data Form (TCEQ-10400)
4 copies of Water Pollution Abatement Plan for Ramble Ridge Subdivision

If there are any deficiencies with this submittal please call Dan Bunker @ 494-6405 or J. W. Wood @ 651-6931

"RECEIVED TCEQ"
SAN ANTONIO
REGION
2006 SEP -6 AM 10: 50

ck
Locked
up
9-6-06
Bobby

1152

FIORANO VENTURES LLC
17460 I.H. 35 N. SUITE 160-350
SCHERTZ, TX 78154

88-2141-1149

DATE 9.5.06

PAY TO THE ORDER OF T.C.E.Q. $5,000 XX/100

Five Thousand and XX/100 DOLLARS

Security Features Included. Details on Back.

FIRST NATIONAL BANK MEMBER FDIC
CHECK VERIFICATION 1 (866)380-5255
CUSTOMER SERVICE (210)304-3100

FOR Process fee - WPAP - Ramble Ridge Subdivision

JWWOOD

MP

⑈001152⑈ ⑆114921415⑆ ⑈0350002541⑈

© DELUXE RBF

TCEQ Core Data Form

TCEQ Use Only

If you have questions on how to fill out this form or about our Central Registry, please contact us at 512-239-5175.

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.

SECTION I: General Information

1. Reason for Submission *Example: new wastewater permit; IHW registration; change in customer information; etc.*

New Edwards Aquifer Recharge Zone Water Pollution Abatement Plan

2. Attachments				**Describe Any Attachments:** *(ex: Title V Application, Waste Transporter Application, etc.)*
X	**YES**		**NO**	**Water Pollution Abatement Plan**

3. Customer Reference Number-*if issued*			**4. Regulated Entity Reference Number-*if issued***		
CN		***(9 digits)***	**RN**		***(9 digits)***

SECTION II: Customer Information

5. Customer Role *(Proposed or Actual)* -- As It Relates to the Regulated Entity Listed on This Form

Manager

Please check one of the following:		Owner		Operator	X	Owner and Operator
	Occupational Licensee		Volunteer Cleanup Applicant			Other
TCEQ Use Only		**Superfund**		**PST**		**Respondent**

6. General Customer Information

X	New Customer		Change to Customer Information
	Change in Regulated Entity Ownership		No Change *

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

7. Type of Customer:					
X	Partnership		Corporation		Federal Government
	State Government		County Government		City Government
	Other Government		Other:		

8. Customer Name *(If an individual, please print last name first)*	*If new name, enter previous name:*
Fiorano Ventures L.L.C.	

9. Mailing Address:	17460 IH 35 NORTH			
	SUITE 160-350			
	City	State	ZIP	ZIP + 4
	SCHERTZ	TEXAS	78154	

10. Country Mailing Information *if outside USA*	**11. E-Mail Address *if applicable***

12. Telephone Number	**13. Extension or Code**	**14. Fax Number *if applicable***
(210) 651-6931		

15. Federal Tax ID *(9 digits)*	**16. State Franchise Tax ID Number** *if applicable*	**17. DUNS Number** *if applicable* *(9 digits)*
20-1745490		

18. Number of Employees										**19. Independently Owned and Operated?**			
X	**0-20**		**21-100**		**101-250**		**251-500**		**501 and higher**	X	**Yes**		**No**

SECTION III: Regulated Entity Information

20. General Regulated Entity Information

X	New Regulated Entity		Change to Regulated Entity Information		No Change*

*If "No Change" and Section I is complete, skip to Section IV - Preparer Information.

21. Regulated Entity Name *(If an individual, please print last name first)*				
RAMBLE RIDGE SUBDIVISION				
22. Street Address (No PO Boxes)	BLOCK			
	26000 BLOCK F.M. HIGHWAY 3009			
	City	State	ZIP	ZIP + 4
	SAN ANTONIO	TX	78266	
23. Mailing Address				
	City	State	ZIP	ZIP + 4
24. E-Mail Address:				

25. Telephone Number	26. Extension or Code	27. Fax Number *if applicable*

28. Primary SIC Code (4 digits)	29. Secondary SIC Code (4 digits)	30. Primary NAICS Code	31. Secondary NAICS Code (5 or 6 digits)
6552		237210	

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

SINGLE FAMILY RESIDENTIAL SUBDIVISION

Questions 33 - 37 address geographic location. Please refer to the instructions for applicability.

33. County COMAL

34. Description of Physical Location West Side of FM Highway 3009 – 8.2 miles northwest from IH 35

FM 3009 Intersection.

35. Nearest City	State	Nearest Zip
Garden Ridge	TX	78266

36. Latitude (N)			*37. Longitude (W)*		
Degrees	*Minutes*	*Seconds*	*Degrees*	*Minutes*	*Seconds*
29	42	20	98	19	50

38. TCEQ Programs In Which This Regulated Entity Participates *Not all programs have been listed. Please add to this list as needed. If you don't know or are unsure, please mark "Unknown".* If you know a permit or registration # for this entity, please write it below the program."

	Animal Feeding Operation		Petroleum Storage Tank		Water Rights
	Title V - Air		Wastewater Permit		
	Industrial & Hazardous Waste		Water Districts		
	Municipal Solid Waste		Water Utilities		Unknown
				X	Edwards Aquifer Protection Program
	New Source Review - Air		Licensing - TYPE(s)		

Section IV: Preparer Information

39. Name	40. Title
J. W. Wood	Managing Partner

41. Telephone Number	42. Extension or Code	43. Fax Number *if applicable*
210-651-6931		

44. E-mail Address:	