

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



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JUN 04 2012

COUNTY ENGINEER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 14, 2012

Mr. Thomas R. Powers
Avalon Lakes, Ltd.
1929 Olympia St.
Houston, Texas 77019

Re: Edwards Aquifer, Comal County

Name of Project: Ranches of Comal; Located northeast of Highway 306 and Hoffman Lane; New Braunfels, Texas

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

Edwards Aquifer Protection Program (EAPP) San Antonio File No. 3034.00; Investigation No. 988983; Regulated Entity No. RN106349905

Dear Mr. Powers:

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 The Shultz Group, Inc. on behalf of Avalon Lakes, Ltd. on February 17, 2012. Final review of the WPAP was completed after additional material was received on April 27, May 2, May 4, and May 7, 2012. 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 residential project will have an area of approximately 657.24 acres. It will include the construction of 36 residential lots, approximately 17,550 linear feet of roadway, associated utilities, 12 culvert crossings, an emergency access road, and 3 stormwater detention ponds. A 42.29 acre tract within the site has been designated for future commercial development and has

not been included in the overall impervious cover percentage. The impervious cover will be 24.36 acres (3.96 percent). According to a letter dated, December 20, 2011, signed by Mr. Robert Boyd, P.E., with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

Permanent Pollution Abatement Measures

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

Geology

According to the geologic assessment included with the application, the majority of the site is located on the Edwards Person Formation, while a southern portion of the site is located in the Edwards Kainer Formation, and a small area in the northwest corner of the site lies within the Del Rio Clay Formation. The geologic assessment identified 4 man-made features and 163 geologic features within the site, of which 14 were assessed as sensitive. The San Antonio Regional Office site assessment conducted on April 30, 2012 revealed one additional feature (HS172), which was assessed as sensitive by the project geologist and included in the geologic assessment. The site was generally as described in the geologic assessment.

Sensitive Features

Natural buffers were proposed for 14 naturally occurring geologic features; see table below. No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffers. The size of the buffer areas are generally based on the drainage area for each sensitive feature. Physical barriers and sediment controls such as fencing, rock berms and/or silt fences are required at the edges of these buffers prior to the commencement of construction. A permanent fence will separate the natural buffer areas from the residential lots.

ID No.	Name/ Feature Type	Buffer Description
HS31	Zone of solution cavities	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet*; shares a buffer are with HS32
HS32	Zone of solution cavities	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet *; shares a buffer are with HS31
HS52	Zone of closed depressions	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet *; shares a buffer are with HS68
HS57	Zone of fractures within a closed depression	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet *
HS67	Zone of fractures within a closed depression	50ft around the extent of the feature

Mr. Thomas R. Powers

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HS68	Zone of fractures within a closed depression	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet *; shares a buffer are with HS52
HS75	Zone of fractures within a closed depression	50ft around the extent of the feature and extending upgradient to the property line*
HS87	Zone of fractures	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet *
HS95	Zone of solution cavities	50ft around the extent of the feature
HS98	Zone of closed depressions	50ft around the extent of the feature
HS100	Sinkhole	50ft around the extent of the feature
HS104	Zone of closed depressions	50ft around the extent of the feature and extending to the edge of the feature's drainage area a maximum 200 feet *
HS106	Zone of solution cavities	50ft around the extent of the feature
HS151	Zone of solution cavities	50ft around the extent of the feature
HS172	Zone of solution cavities	50ft around the extent of the feature

* The odd shaped natural buffer for the feature is illustrated on the construction plans.

Special Conditions

1. Since this project will not have more than 20 percent impervious cover, an exemption from additional permanent BMPs is approved. If the percent impervious cover ever increases above 20 percent or the land use changes, the exemption for the whole site as described in the property boundaries required by §213.4(g), may no longer apply and the property owner must notify the appropriate regional office of these changes.
2. This approval letter is being issued for regulated activities (as defined in Chapter 213) and for best management practices presented in the application. This approval does not constitute a water right permit or authorization from the TCEQ Dam Safety Program. Failure to obtain all necessary authorizations could result in enforcement actions. For more information on Water Rights Permits, please refer to:
http://www.tceq.state.tx.us/permitting/water_supply/water_rights/wr_amiregulated.html
 For more information on the Dam Safety program, please refer to:
http://www.tceq.state.tx.us/compliance/field_ops/dam_safety/damsafetyprog.html
3. As proposed, a permanent fence shall separate the natural buffer areas from the residential lots and the listed sensitive features.
4. Notification shall be made to all purchasers of lots containing and adjacent to lots containing sensitive features where the purchased lot will be affected by the OSSF separation distances and/or natural buffer areas for the associated sensitive features. The notification shall include a copy of this letter and a copy of the approved site plan or plat detailing all OSSF separation distances and natural buffer areas on the approved site.

5. Pursuant to 30 TAC 285.42, if any feature is discovered during construction of an OSSF, all regulated activities near the feature shall be suspended immediately and the owner or his agent must immediately notify the San Antonio Regional Office of the discovery and adhere to the requirements discussed in Standard Condition 12 of this letter.
6. The water well located onsite (Feature HS171) shall be properly plugged and abandoned, in accordance with Standard Condition 13, prior to the commencement of any regulated activities within 150 feet of the well's location.
7. This approval does not authorize regulated activities within the future 42.29 acre commercial tract. A separate WPAP shall be submitted and approved prior to the commencement of any regulated activities within the commercial tract.

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

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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. One well exists on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity

has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.

15. Intentional discharges of sediment laden storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

Mr. Thomas R. Powers
May 14, 2012
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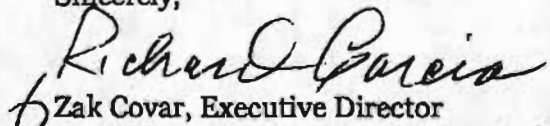
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If you have any questions or require additional information, please contact Mr. Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 490-3096.

Sincerely,


Zak Covar, Executive Director
Texas Commission on Environmental Quality

ZC/JA/eg

Enclosure: Deed Recordation Affidavit, Form TCEQ-0625

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

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**WATER POLLUTION ABATEMENT PLAN
FOR
THE RANCHES OF COMAL**

February 2012

Prepared for:

**Avalon Lakes Ltd.
555 Porter Street
New Braunfels, Texas 78130**

Project No. 040111

Prepared By:

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

TCEQ-R13
FEB 17 2012
SAN ANTONIO

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

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COUNTY ENGINEER

February 21, 2012

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: The Ranches of Comal, located northeast of Highway 306 and Hoffman Lane, New Braunfels, Texas
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 3034.00

Dear Mr. Hornseth:

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

Please forward your comments to this office by March 20, 2012.

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

Sincerely

A handwritten signature in blue ink that reads "Todd Jones".

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

Water Pollution Abatement Plan Checklist

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- ✓ 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)
- ✓ Water Pollution Abatement Plan Application Form (TCEQ-0584)
 - ATTACHMENT A - Factors Affecting Water Quality
 - ATTACHMENT B - Volume and Character of Stormwater
 - ATTACHMENT C - Suitability Letter from Authorized Agent (if OSSF is proposed)
 - ATTACHMENT D - Exception to the Required Geologic Assessment (if requesting an exception)
 - Site Plan
- ✓ Temporary Stormwater Section (TCEQ-0602)
 - ATTACHMENT A - Spill Response Actions
 - ATTACHMENT B - Potential Sources of Contamination
 - ATTACHMENT C - Sequence of Major Activities
 - ATTACHMENT D - Temporary Best Management Practices and Measures
 - ATTACHMENT E - Request to Temporarily Seal a Feature, if sealing a feature
 - ATTACHMENT F - Structural Practices
 - ATTACHMENT G - Drainage Area Map
 - ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations
 - ATTACHMENT I - Inspection and Maintenance for BMPs
 - ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices
- ✓ Permanent Stormwater Section (TCEQ-0600)
 - 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
- ✓ Agent Authorization Form (TCEQ-0599), if application submitted by agent
- ✓ Application Fee Form (TCEQ-0574)
- ✓ Check Payable to the "Texas Commission on Environmental Quality"
- ✓ Core Data Form (TCEQ-10400)

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

REGULATED ENTITY NAME: The Ranches of Comal
COUNTY: Comal County STREAM BASIN: Alligator Creek

EDWARDS AQUIFER: ☒ RECHARGE ZONE
☐ TRANSITION ZONE

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

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Thomas R. Powers
Entity: Avalon Lakes Ltd.
Mailing Address: 1929 Olympia St.
City, State: Houston, Texas Zip: 77019
Telephone: (713) 822-3512 FAX: (713) 822-3512

Agent/Representative (If any):

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

2. ☐ This project is inside the city limits of _____.
☒ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of
The City of New Braunfels, Texas.
☐ 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 San Antonio: Take IH 35 North into New Braunfels Texas, once you are in New Braunfels take the Canyon Lake/Hwy 306 exit, take a left onto Hwy 306, go approximately 8 miles on Hwy 306, and the project is located at the intersection of Hwy 306 and Hoffman Lane

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

5. ☒ **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP.** A copy of the official 7 1/2 minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind this sheet. The map(s) should clearly show:

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

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

PROHIBITED ACTIVITIES

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

ADMINISTRATIVE INFORMATION

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

footage of all collection system lines.

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

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

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

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

☐ TCEQ cashier

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

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

13. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
14. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

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

Michael G. Short, P.E.

Print Name of Customer/Agent

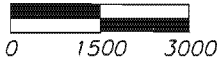

Signature of Customer/Agent

2/13/12
Date

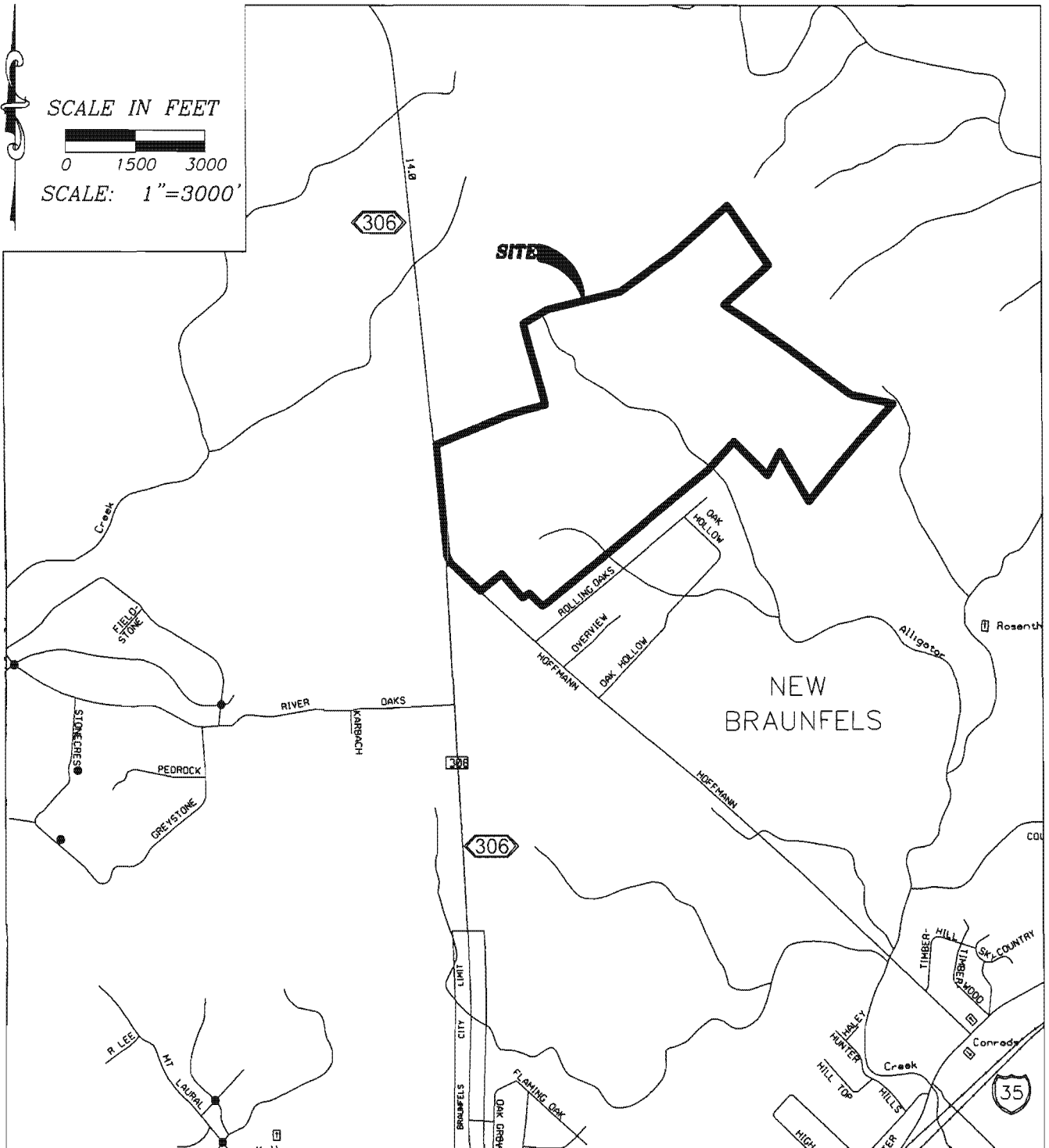
If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

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.

SCALE IN FEET



SCALE: 1"=3000'



ATTACHMENT A ROAD MAP

THE **Schultz Group**, INC.

CONSULTING ENGINEERS LAND SURVEYORS

P.O. BOX 310483

NEW BRAUNFELS, TEXAS 78131

(830) 606-3913

FAX (830) 625-2204

DRAWN BY: S.T.S.

DATE: SEPTEMBER 2011

CHECKED BY: M.G.S.

JOB NO.: 040111

Edwards Aquifer Recharge Zone Map

Edwards Aquifer Authority Rule Chapter 713

HUNTER QUADRANGLE
TEXAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Produced by the United States Geological Survey
Control by USGS, NOS/NOAA and Texas Department of Highways
& Public Transportation
Compiled from aerial photographs taken 1958. Revisions shown
in purple compiled from aerial photographs taken 1968 and
other sources and have been field checked. Map edited 1994.
Conflicts may exist between some updated features and previously
mapped contours.
North American Datum of 1927 (NAD 27). Projection and
1000-foot ticks: Texas Coordinate System, south central zone
(Lambert Conformal Conic).
Blue 1000-meter Universal Transverse Mercator ticks, zone 14
North American Datum of 1983 (NAD 83) is shown by dashed
corner ticks. The values of the shift between NAD 27 and NAD 83
for 7.5-minute intersections are obtainable from National Geodetic
Survey NADCON software.

UTM GRID AND 1984 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 2 3 4 5 6 KILOMETER
CONTOUR INTERVAL 20 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

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2938-441-4
COUNTY ENGINEER

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

HUNTER, TEX.
2938-G1-TF-024
REVISED 1994
DMA 6343 1 SE-SE085 V882

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

ATTACHMENT B
USGS/EDWARDS RECHARGE
ZONE MAP

Attachment C – Project Description

It is proposed that this development be a low density multi use subdivision consisting of 1 commercial and 36 residential lots on approximately 657.239 acres. The proposed development will have approximately 3.57% impervious cover. Proposed improvements to the site will include the installation of approximately 17,550 LF of roadway and electrical line, 20,050 LF of water main, 12 culvert crossings, and 3 detention ponds. Individuals who purchase these lots will be responsible for the respective lot improvements. These lot improvements may include the installation of driveways, residential structures, parking areas, barns, etc...

This development will have less than 20% impervious cover, therefore; no permanent best management practices are required.

There are no improvements proposed for the commercial lot at this time. Upon development of the commercial lot, a WPAP modification will be required. The commercial lot may have more than 20% impervious cover under ultimate buildout conditions. The developer of the commercial lot shall be responsible for mitigating his/hers impervious cover onsite with the use of permanent best management practices where applicable.

RECEIVED

FEB 24 2012

COUNTY ENGINEER

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

REGULATED ENTITY NAME: The Ranches of Comal

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

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

PROJECT INFORMATION

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

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
<i>Rumple-Comfort association, 1-8% slopes</i>	C & D	2
<i>Brackett-Rock outcrop-Comfort complex, 1 to 8% slopes</i>	C & D	2
<i>Comfort-Rock outcrop complex, 1-8% slopes</i>	D	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. ☒ A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.
4. ☒ A **NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY** is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.
5. ☒ Appropriate **SITE GEOLOGIC MAP(S)** are attached:

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

Applicant's Site Plan Scale	1" = 400'
Site Geologic Map Scale	1" = 400'
Site Soils Map Scale (if more than 1 soil type)	1" = 1683'

6. Method of collecting positional data:

☒ Global Positioning System (GPS) technology.
☐ Other method(s).

7. ☒ The project site is shown and labeled on the Site Geologic Map.
8. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
9. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
☐ Geologic or manmade features were not discovered on the project site during the field investigation.
10. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):
☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
☐ The wells are not in use and have been properly abandoned.
☒ The wells are not in use and will be properly abandoned.
☒ The wells are in use and comply with 16 TAC Chapter 76.
☐ There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

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

Date(s) Geologic Assessment was performed: September 1, 2011
Date(s)

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

Timothy Jay Duduit
Print Name of Geologist

(210) 887-6676
Telephone

(210) 340-8535
Fax

Signature of Geologist

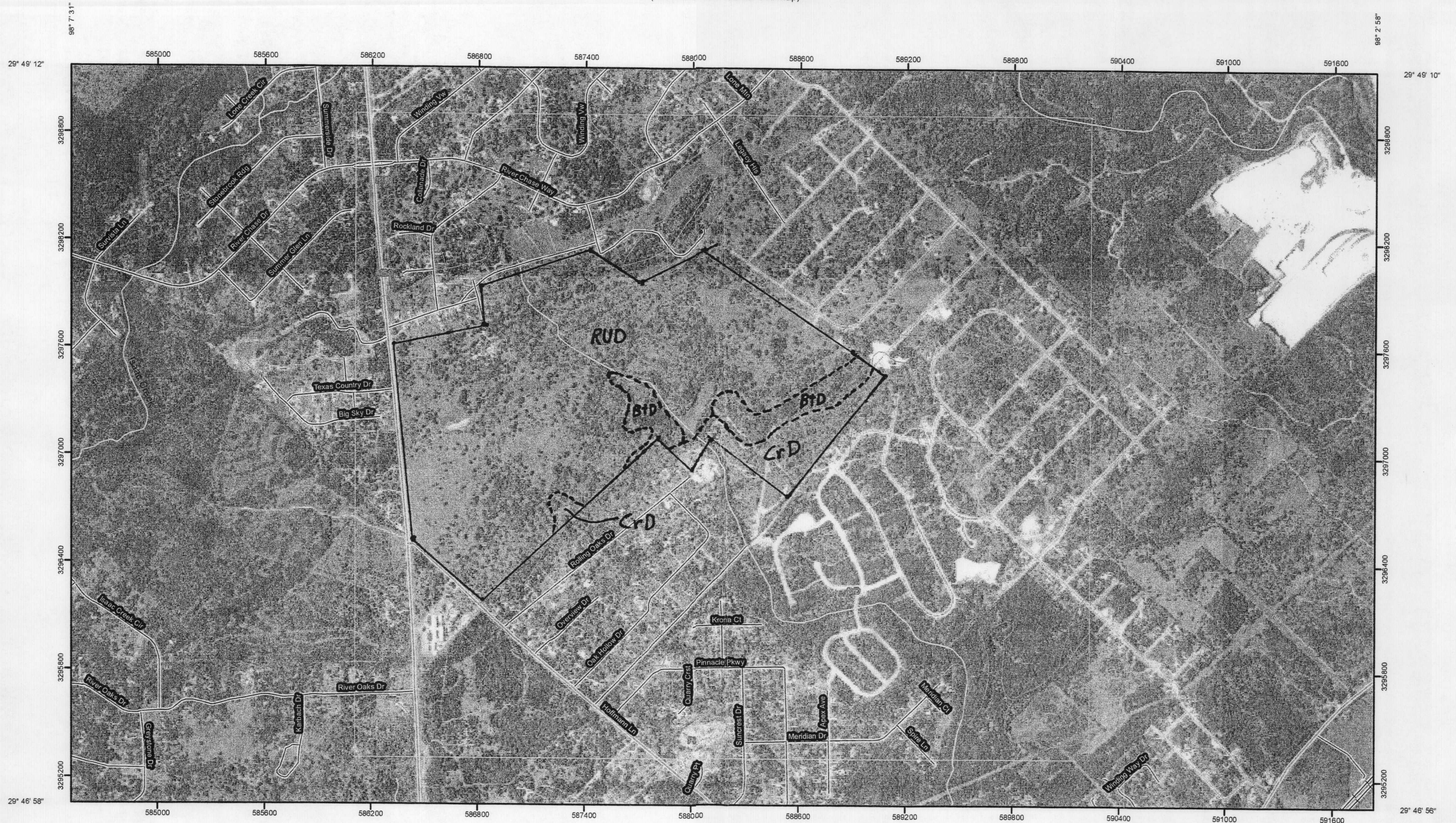
September 1, 2011
Date

Representing: self-employed
(Name of Company)

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

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

Soil Map—Comal and Hays Counties, Texas
(The Ranches of Comal Soil Map)



Map Scale: 1:20,200 if printed on B size (11" x 17") sheet




Map Unit Legend

Comal and Hays Counties, Texas (TX604)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AnB	Anhalt clay, 1 to 3 percent slopes	56.6	1.5%
BtD	Brackett-Rock outcrop-Comfort complex, 1 to 8 percent slopes	150.8	4.1%
CrD	Comfort-Rock outcrop complex, 1 to 8 percent slopes	1,415.4	38.6%
DeB	Denton silty clay, 1 to 3 percent slopes	37.6	1.0%
DeC3	Denton silty clay, 1 to 5 percent slopes, eroded	8.8	0.2%
ErG	Eckrant-Rock outcrop complex, 8 to 30 percent slopes	19.4	0.5%
MEC	Medlin-Eckrant association, 1 to 8 percent slopes	77.7	2.1%
Pt	Pits	17.3	0.5%
PuC	Purves clay, 1 to 5 percent slopes	23.8	0.6%
RUD	Rumple-Comfort association, 1 to 8 percent slopes	1,859.3	50.7%
Totals for Area of Interest		3,666.7	100.0%


Soil Map—Comal and Hays Counties, Texas
(The Ranches of Comal Soil Map)

MAP LEGEND






Area of Interest (AOI)


 Area of Interest (AOI)


Soils


 Soil Map Units

Special Point Features




-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

 Very Stony Spot

 Wet Spot

 Other


Special Line Features

-  Gully
-  Short Steep Slope
-  Other





Political Features

 Cities

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads

MAP INFORMATION

Map Scale: 1:20,200 if printed on B size (11" × 17") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>

Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Comal and Hays Counties, Texas

Survey Area Data: Version 7, Oct 27, 2009

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL												
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)	Q	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	
HS01	29.80313333	-98.1023	CD	5	Kep	30	15	1.5					F	5	10	10			x		HILLSIDE
HS02	29.80325	-98.1024	CD	5	Kep	15	10	1					F	5	10				x		HILLSIDE
HS03	29.80236667	-98.1046833	SC	20	Kep	1	1	1.5					F	5	25	25			x		HILLSIDE
HS04	29.80176667	-98.1034	SF	20	Kep	75	20		070°	X	1	0.042	N	5	25	25			x		HILLSIDE
HS05	29.79923333	-98.10395	Z-SC	30	Kep	2	1	3						5	35	35			x		HILLTOP
						10	5	2													
HS06	29.79933333	-98.1043	O	5	Kep	5	5				3	0.25		10	15	15			x		HILLTOP
HS07A	29.80118333	-98.1048833	CD	5	Kep	100	100	2					F	5	15				x		HILLSIDE
HS07B	29.80105	-98.10495																			
HS07C	29.80115	-98.1051																			
HS07D	29.80125	-98.10505																			
HS08	29.8013	-98.1048667	CD	5	Kep	45	45	2					F	5	10	10			x		HILLSIDE
HS09	29.80013333	-98.10515	SC	20	Kep	2	1.5	1					F	5	25	25			x		HILLSIDE
HS10	29.80083333	-98.1060833	Z-SC	30	Kep	3	1.5	3					F	5	35	35			x		HILLSIDE
HS10						3	2	3													
HS10						2	2	3													
HS10						2	0.5	2													

DATUM: NAD 83

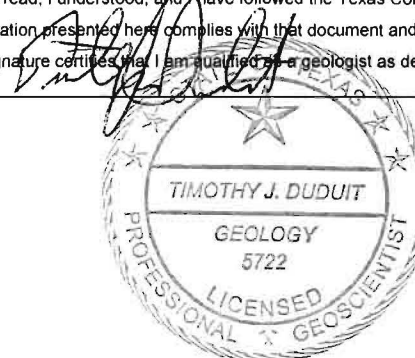
2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

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

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

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Date

Sheet 1 of 14

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: THE RANCHES OF COMAL														
LOCATION			FEATURE CHARACTERISTICS											EVALUATION		PHYSICAL SETTING				
1A	1B *	1C*	2A	2B	3	4			5	5A	8	7	8A	8B	9	10	11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DO	DENSITY (ND/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)		TOPOGRAPHY	
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
HS11	29.8	-98.106	SC	20	Kep	2	2	2										x		HILLSIDE
HS12	29.798	-98.1042	SC	20	Kep	2	2	0.5										x		HILLSIDE
HS13	29.798	-98.1046	CD	5	Kep	15	10	1										x		HILLSIDE
HS14	29.795	-98.1028	SC	20	Kep	3	2	2										x		HILLSIDE
HS15	29.8	-98.1008	SC	20	Kep	3	2	4										x		HILLSIDE
HS16	29.798	-98.0982	CD	5	Kep	10	3	1											x	STREAMBED
HS17	29.798	-98.0985	CD	5	Kep	50	15	3										x		FLOODPLAIN
HS18	29.798	-98.0988	SF	20	Kek	100	40		240°	10	1	0.17	F	5	35	35		x		STREAMBED
HS19	29.797	-98.0997	CD	5	Kep	15	10	2					C	10	15	15		x		FLOODPLAIN
HS20	29.797	-98.1033	SC	20	Kep	3	2	2					F	5	25	25		x		HILLSIDE
HS21	29.798	-98.1023	SC	20	Kep	3	2	4					F	5	25	25		x		HILLSIDE
HS22	29.797	-98.102	SC	20	Kep	2	1	2					F	15	35	35		x		HILLSIDE
HS23	29.8	-98.1018	SC	20	Kep	3	1	3					F	10	30	30		x		HILLTOP
HS24	29.798	-98.1001	Z	30	Kep	2	2	1					F	5	35	35		x		HILLSIDE
HS25	29.8	-98.0997	SC	20	Kep	1	0.5	1					F	10	30	30		x		HILLSIDE
HS26	29.799	-98.1001	SC	20	Kep	6	0.5	3					F	10	30	30		x		HILLSIDE

* DATUM: NAD 83

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

8A INFILLING	
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F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

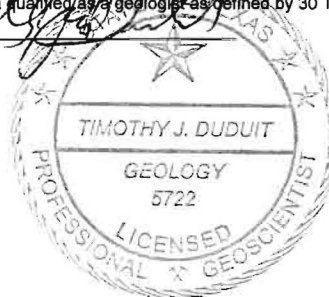
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Sheet 2 of 14



GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: THE RANCHES OF COMAL														
LOCATION			FEATURE CHARACTERISTICS											EVALUATION		PHYSICAL SETTING				
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10	11		12	
FEATURE IO	LATIUOUE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	MOO	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	
HS27	29.7944	-98.1002	SH	20	Kep	10	10	3					F	15	35	35		x		HILLSIDE
HS28	29.7951	-98.1008	Z	30	Kep	1	1	2					F	15	35	35		x		HILLTOP
HS29	29.7949	-98.1008	Z	30	Kep	60	40				1	0.17	F	5	35	3.5		x		HILLTOP
HS30	29.795	-98.1014	SC	20	Kep	1.5	1	3					F	10	30	30		x		HILLSIDE
HS31	29.7961	-98.102	Z	30	Kep	5	2	2					F	15	45	45		x		STREAMBED
						2	2	2												
						3	1	2												
						2	2	2												
HS32	29.7957	-98.1015	Z	30	Kep	3	2	3					F	15	45	45		x		HILLSIDE
						1	1	1												
						3	2	1												
						1	0.5	0.5												
HS33	29.8006	-98.102	Z	30	Kep	0.4	0.4	1					F	5	35	35		x		HILLTOP
						3	1	3												
HS34	29.8009	-98.1011	SH	20	Kep	5	5	3					F	15	35	35		x		HILLTOP
HS35	29.802	-98.0985	O	5	Kep	50	50				1	0.04	F	5	10	10		x		HILLTOP
HS36	29.8046	-98.0993	CD	5	Kep	10	10	1					F	5	10	10		x		HILLSIDE

* DATUM: NAD 83

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
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FS Flowstone, cements, cave deposits
X Other materials

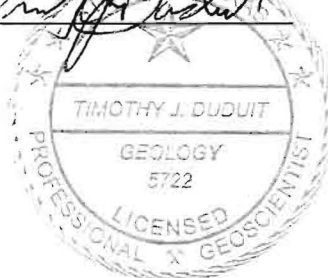
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Date

Sheet 3 of 14



GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: THE RANCHES OF COMAL														
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 (DEGREES)	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)	TOPOGRAPHY	
						X	Y	Z												<40
HS37	29.80185	-98.10201667	SF	20	Kep	100	30		250°	10	1	<0.01	FS	5	35	35		x		HILLSIDE
HS38	29.8033333	-98.10198333	CD	5	Kep	90	40	1					F	5	10	10		x		HILLSIDE
HS39	29.8038833	-98.10135	CD	5	Kep	40	40	1					F	5	10	10		x		HILLSIDE
HS40	29.80365	-98.10151667	CD	5	Kep	50	50	1					F	5	10	10		x		HILLSIDE
HS41	29.803631	-98.101693	CD	5	Kep	40	10	1					F	5	10			x		HILLSIDE
HS42	29.8036	-98.1018	CD	5	Kep	50	20	1					F	5	10	10		x		HILLSIDE
HS43	29.80355	-98.10193333	CD	5	Kep	40	30	1					F	5	10	10		x		HILLSIDE
HS44	29.7954333	-98.09976667	SF	20	Kep	60	40				1	0.3	N	15	35	35		x		HILLSIDE
HS45	29.7967	-98.09935	SC	20	Kep	1	0.5	3					F	5	25	25		x		HILLSIDE
HS46	29.796	-98.09886667	SH	20	Kep	10	10	3					F	15	35	35		x		HILLSIDE
HS47	29.7971167	-98.09676667	CD	5	Kek	75	25	5					F	5	10	10			x	STREAMBED
HS48	29.7971333	-98.09693333	SF	20	Kek	40	30		260°	10	2	<0.01	FS	5	35	35			x	STREAMBED
HS49	29.7977333	-98.09788333	SF	20	Kek	20	10		278°	10	1	<0.01	FS	5	35	35			x	STREAMBED
HS50	29.79785	-98.09753333	SF	20	Kek	20	10		224°	10	3	<0.01	FS	5	35	35			x	STREAMBED
HS51	29.8057833	-98.09645	CD	5	Kep	40	10	1					F	5	10	10			x	STREAMBED
HS52	29.8047667	-98.09473333	Z	30	Kek	40	10				1	0.25	N	15	45		45		x	STREAMBED
						40	10				6	0.4	N							
HS53	29.8043833	-98.09398333	SF	20	Kek	30	30		257°	10	1	0.4	N	5	35	35			x	FLOODPLAIN

* DATUM: NAD 83

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

[Signature]

STATE OF TEXAS
COMMISSION ON ENVIRONMENTAL QUALITY
GEOSCIENCE DIVISION
LISENSES
3722

Date

Sheet 4 of 14

GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL											
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)	Q	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	
HS54	29.804	-98.0929	SF	20	Kek	60	10		252°	10	1	<0.01	FS	5	35				x	STREAMBED
HS55	29.804067	-98.0928	CD	5	Kek	30	5	1					N	15	20				x	STREAMBED
HS56	29.804067	-98.0927	CD	5	Kek	40	10	2					N	10	15				x	STREAMBED
HS57	29.804033	-98.09212	Z	30	Kek	30	10	3					N	15	45		45		x	STREAMBED
HS58	29.8012	-98.08937	Z	30	Kek	60	20	3					N	5	35	35			x	STREAMBED
						10	10				1	<0.01	N						x	
HS59	29.802117	-98.09772	CD	5	Kep	10	10	2					F	5	10	10			x	HILLTOP
HS60	29.80065	-98.09468	SH	20	Kep	8	2	2					F	10	30	30			x	HILLSIDE
HS61	29.800117	-98.09132	CD	5	Kek	40	20	2					F	5	35	35			x	HILLSIDE
HS62	29.80025	-98.09108	CD	5	Kek	50	40	1					F	5	35	35			x	HILLSIDE
HS63	29.800233	-98.09092	CD	5	Kek	45	10	1					F	5	35	35			x	HILLSIDE
HS64	29.800283	-98.09087	CD	5	Kek	25	15	1					F	5	35	35			x	HILLSIDE
HS65	29.800583	-98.0902	CD	5	Kek	60	40	1.5					F	5	35	35			x	HILLSIDE
HS66	29.801283	-98.09163	SC	20	Kep	3	1.5	1.5					F	5	25	25			x	HILLSIDE
HS67	29.801333	-98.09177	Z	30	Kep	3	1	2					N	15	45		45		x	HILLSIDE
HS68	29.80435	-98.09525	Z	30	Kep	2	2	3					N	15	45		45		x	HILLSIDE
HS69	29.803117	-98.09368	SC	20	Kep	1.5	1	1.5					F	10	30	30			x	HILLSIDE

* DATUM: NAD 83

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

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

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

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Sheet 5 of 14



GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: THE RANCHES OF COMAL														
LOCATION			FEATURE CHARACTERISTICS											EVALUATION		PHYSICAL SETTING				
1A	1B *	1C *	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DENSITY (NO/FT)	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	
HS70	29.80166667	-98.0903	SF	20	Kek	20	20		287°	10	1	<0.01	FS	5	35	35		x		HILLSIDE
HS71	29.8072	-98.09423333	SF	20	Kep	100	60		262°	10	1	<0.01	FS	5	35	35		x		HILLSIDE
HS75	29.80868333	-98.08956667	Z	30	Kep	10	5	1					N	15	45		45	x		STREAMBED
						15	10	1					N							
						30	15	3					N							
						40	30				6	0.04	N							
HS76	29.80811667	-98.08951667	Z	30	Kep	10	8	2					N	8	38	38		x		STREAMBED
						30	30				1	0.04	N							
						30	30				1	0.04	N							
HS77	29.80741667	-98.0893	CD	5	Kep	25	15	3					F	5	10	10		x		STREAMBED
HS78	29.80666667	-98.08911667	O	5	Kep	80	40				6	0.08	N	10	15	15		x		STREAMBED
HS79	29.80651667	-98.08921667	O	5	Kep	75	25				4	0.17	N	10	15	15		x		STREAMBED
HS80	29.8062	-98.08925	O	5	Kep	75	25				4	0.17	N	10	15	15		x		HILLSIDE
HS81	29.80555	-98.08893333	Z	30	Kep	50	40				3	0.17	N	5	35	35		x		STREAMBED

* DATUM: NAD 83


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
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O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
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 TIMOTHY J. DUDUIT
 GEOLOGY
 5722
 LICENSED PROFESSIONAL GEOSCIENTIST

Date

Sheet 6 of 14

GEOLOGIC ASSESSMENT TABLE						PROJECT NAME: THE RANCHES OF COMAL													
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)	Q	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
HS82U	29.8051	-98.08886667	SF	20	Kek	70	20		176°	10	1	<0.01	FS	5	35	35		x	STREAMBED
HS82L	29.8049833	-98.08863333			Kek													x	STREAMBED
HS83	29.8029833	-98.09098333	SC	20	Kek	2.5	1	2					F	10	30	30		x	HILLSIDE
HS84	29.80165	-98.08925	SF	20	Kek	60	20		275°	10	1	0.17	N	7	37	37		x	STREAMBED
HS85	29.8022833	-98.08888333	Z	30	Kek	75	25		260°	10	1	0.17	F	5	35	35		x	HILLSIDE
HS86	29.80325	-98.08836667			Kek	30	10	1			1	0.08	C	7	37	37		x	STREAMBED
						50	15	2											
						40	10	2											
HS87	29.8043	-98.08831667	Z	30	Kek	150	25		270°	10	2	0.17	N	7	37	37		x	STREAMBED
											6	0.08	N					x	
HS88	29.8029667	-98.09055	O	5	Kek	50	10				5	0.17	N	10	15	15		x	HILLSIDE
HS89A	29.8040333	-98.09133333	O	5	Kek	170	50				5	0.17	N	15	20	20			HILLSIDE
HS89B	29.80375	-98.09125																	
HS89C	29.8042667	-98.09143333																	
HS90	29.8054833	-98.09383333	SF	20	Kep	50	30		210°	10	6	0.08	N	5	35	35		x	HILLSIDE
HS91	29.8031167	-98.09033333	SH	20	Kek	2	1						O	15	35	35		x	HILLSIDE

* DATUM: NAD 83

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
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Sheet 7 of 14



GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL											
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)	DI	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	
HS92	29.8046	-98.09113333	SF	20	Kep	50	10		220°	10	1		N	7	37	37		x		HILLSIDE
HS93	29.80643333	-98.09321667	SC	20	Kep	2	2	3					F	15	35	35		x		HILLSIDE
HS94	29.80618333	-98.09273333	SC	20	Kep	1	1	2					F	10	30	30		x		HILLSIDE
HS95	29.80418333	-98.08913333	Z	30	Kep	0.8	0.8	1					F	15	45		45	x		HILLSIDE
						2	1	0.5					F							
						0.5	0.5	0.5					F							
HS96	29.80816667	-98.0902	SC	20	Kep	1	1	1.5					F	15	35	35		x		HILLSIDE
HS97A	29.80813333	-98.09045	O	5	Kep	150	20				4	0.08	N	15	20	20		x		HILLSIDE
HS97B	29.80783333	-98.09073333																		
HS97C	29.80811667	-98.09065																		
HS97D	29.80821667	-98.09043333																		
HS98	29.80573333	-98.0906	Z	30	Kep	6	1	1					N	10	40		40	x		HILLSIDE
						3	1	1					N							
						1	1	1					N							
HS99	29.80615	-98.09146667	SC	20	Kep	2	2	3					F	15	35	35		x		HILLTOP
HS100	29.80715	-98.0916	SH	20	Kep	10	5	3					F	20	40		40	x		HILLTOP
HS101	29.80701667	-98.09156667	SC	20	Kep	3	1	3					F	15	35	35		x		HILLTOP

* DATUM: NAD 83

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
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Sheet 8 of 14

GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL											
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)	Q	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	
HS102A	29.80451667	-98.0894667	O	5	Kep	200	20				4	0.17	N	15	20	20		x		HILLSIDE
HS102B	29.80475	-98.0892333																		
HS102C	29.80491667	-98.0891833																		
HS102D	29.80521667	-98.08925																		
HS103	29.80766667	-98.0851	SC	20	Kep	1.5	1.5	2					F	10	30	30		x		HILLSIDE
HS104	29.80546667	-98.0869333	Z	30	Kep	5	5	1					C	15	45		45	x		FLOODPLAIN
						10	10	1					C							
						20	10	1			4	0.25	C							
HS105	29.80701667	-98.08695	CD	5	Kep	10	5	1					C	15	20	20		x		STREAMBED
HS106	29.80578333	-98.0883833	Z	30	Kep	0.5	0.5	0.5					F	10	40		40	x		HILLSIDE
						2	0.2	1					F							
						0.5	0.2	1					F							
						1	1	2					F							
HS107	29.8073	-98.0884	CD	5	Kep	10	10	1					F	5	10	10		x		HILLSIDE
HS108	29.8025	-98.08505	O	5	Kep	40	20				10	0.4	N	15	20	20		x		HILLSIDE
HS109	29.8026	-98.0847167	SF	20	Kep	50	10		089°	10	1	0.02	N	5	35	35		x		HILLSIDE
HS110	29.80478333	-98.0834333	CD	5	Kep	10	10	1					F	5	10	10		x		HILLSIDE

* DATUM: NAD 83

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
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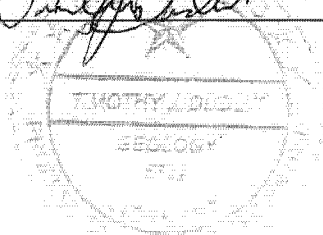
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LOCATION			FEATURE CHARACTERISTICS										EVALUATION		PHYSICAL SETTING						
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	POG	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)		TOPOGRAPHY		
						X	Y	Z		10						<40	≥40	<1.6	≥1.6		
HS111	29.806	-98.0848833	SH	20	Kep	10	10	2					F	15	35	35		x			HILLSIDE
HS112	29.8054	-98.08485	SC	20	Kep	3	2	2					F	10	30	30		x			HILLSIDE
HS113	29.8048	-98.0847	SC	20	Kep	1	0.5	1.5					F	10	30	30		x			HILLSIDE
HS114	29.80145	-98.0815	SH	20	Kek	10	10	2					F	15	35	35		x			HILLSIDE
HS115	29.80111667	-98.0826833	SF	20	Kek	60	10		210°	10	1	<0.01	FS	5	35	35			x		STREAMBED
HS116	29.80008333	-98.0828167	Z	30	Kek	40	10	1					N	5	35	35			x		STREAMBED
						20	5														
HS117	29.80023333	-98.083	SC	20	Kek	3	2	2					F	15	35	35			x		FLOODPLAIN
HS118	29.80041667	-98.0833	SF	20	Kek	30	20		250°	10	2	0.02	N	7	37	37		x			FLOODPLAIN
HS119	29.80108333	-98.0840167	CD	5	Kek	50	30	2					F	5	10	10			x		STREAMBED
HS120	29.80118333	-98.0841333	CD	5	Kek	10	5	1.5					F	5	10	10			x		STREAMBED
HS121	29.80111667	-98.0841333	CD	5	Kek	20	20	2					F	5	10	10			x		STREAMBED
HS122	29.80105	-98.0840667	CD	5	Kek	30	15	3					F	5	10	10			x		STREAMBED
HS123	29.79988333	-98.0830833	SF	20	KeK	40	20		220°	10	5	<0.01	FS	5	35	35			x		FLOODPLAIN
HS124	29.79956667	-98.08295	CD	5	Kek	50	10	1					F	5	5	5			x		STREAMBED
HS125	29.80123333	-98.0852167	CD	5	Kek	60	20	4					F	5	10	10		x			HILLSIDE
HS126	29.80113333	-98.0853	CD	5	Kek	25	15	2					F	5	10	10		x			HILLSIDE

* DATUM: NAD 83

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
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Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
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GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL											
LOCATION			FEATURE CHARACTERISTICS										EVALUATION		PHYSICAL SETTING					
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10	11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	8	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)		TOPOGRAPHY	
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
HS127	29.80105	-98.08526667	CD	5	Kek	20	10	5					F	5	10	10		x		HILLSIDE
HS128	29.80096667	-98.08553333	CD	5	Kek	150	70	5					F	5	10	10		x		HILLSIDE
HS129	29.80255	-98.08843333	CD	5	Kek	175	75	5					F	5	10	10		x		HILLSIDE
HS130	29.80248333	-98.0862	SC	20	Kep	3	2	1.5					F	10	30	30		x		HILLSIDE
HS131	29.80223333	-98.08686667	SC	20	Kep	2	1	2					F	15	35	35		x		HILLSIDE
HS132	29.8025	-98.08738333	SC	20	Kek	2	2	3					F	15	35	35		x		HILLSIDE
HS135	29.80733333	-98.10023333	Z	30	Kep	10	4	1					N	5	35	35		x		STREAMBED
						25	25				2	0.04	N							
HS136	29.80886667	-98.10063333	Z	30	Kep	3	1	2					F	15	35	35		x		HILLSIDE
						1	0.5	3					F							
						1	0.5	1					F							
HS137	29.80758333	-98.09968333	CD	5	Kep	80	40	3					F	5	10	10		x		STREAMBED
HS138	29.8073	-98.09948333	CD	5	Kep	50	50	5					F	10	10	10		x		HILLSIDE
HS139A	29.80668333	-98.0992	O	5	Kep	300	20						F	10	15	15		x		HILLSIDE
HS139E	29.8063	-98.0996											N					x		
HS139C	29.80715	-98.09883333																x		

* DATUM: NAD 83

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

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

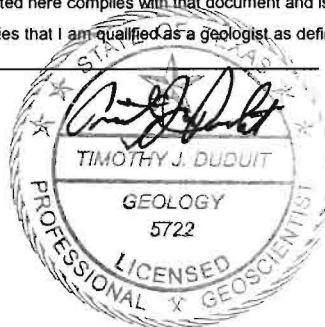
12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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Date

Sheet 11 of 14



GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL												
LOCATION			FEATURE CHARACTERISTICS											EVALUATION		PHYSICAL SETTING					
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12	
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY	CATCHMENT AREA (ACRES)		TOPOGRAPHY			
						X	Y	Z		10						<40	≥40	<1.6	≥1.6		
HS140	29.80723333	-98.09885	SH	20	Kep	10	10	2					F	10	30	30		X			HILLSIDE
HS141	29.80931667	-98.09931667	Z	30	Kep	20	20	1			1	0.04	F	5	35	35			X		STREAMBED
						30	20	1													
HS142	29.80895	-98.09911667	CD	5	Kep	40	5	1					C	10	15	15			X		STREAMBED
HS143	29.80831667	-98.09905	SF	20	Kep	20	20		245°	10	1	<0.01	FS	5	35	35			X		STREAMBED
HS144	29.80815	-98.09898333	Z	30	Kep	20	20	2			4	0.17	N	5	35	35					
						20	20	2													
HS145	29.8075	-98.09813333	SF	20	Kep	20	10		245°	10	2	<0.01	FS	5	35	35			X		STREAMBED
HS146	29.8069	-98.09745	SF	20	Kep	150	20		245°	10	1	<0.01	FS	5	35	35			X		STREAMBED
HS147	29.8062	-98.09718333	Z	30	Kep	100	30	4						5	35	35			X		STREAMBED
						10	10				4	0.17	N								
HS148	29.80915	-98.094	CD	5	Kdr	40	20	2					F	5	10	10			X		HILLSIDE
HS149	29.8088	-98.09383333	O	5	Kep	10	10				3	0.25	N	15	20	20			X		HILLSIDE
HS150	29.80878333	-98.09425	SC	20	Kep	1	1	2					F	5	25	25			X		HILLSIDE
HS151	29.80755	-98.09438333	Z	30	Kep	2	2	3					F	15	45		45	X			HILLSIDE
						0.5	0.5	2													

* DATUM: NAD 83

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
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8A INFILLING	
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V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

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Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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Sheet 12 of 14

GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: THE RANCHES OF COMAL												
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)	CLIFF	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		
HS152	29.80815	-98.09505	SC	20	Kep	2	1	3					F	5	25	25		x			HILLSIDE
HS153	29.80661667	-98.0967	SF	20	Kep	5	2		229°	10	1	<0.01	FS	5	35	35		x			HILLSIDE
HS154	29.80788333	-98.0968667	CD	5	Kep	100	75	3					F	5	10	10			x		STREAMBED
HS155	29.80743333	-98.0975833	SC	20	Kep	2	1.5	1					F	10	30	30		x			HILLSIDE
HS158 (see geologic map)			F	20	Kep/Kdr	2100	10		050°	10			F	5	35	35			x		STREAMBED
HS159 (see geologic map)			F	20	Kep/Kdr	3100	10		various	10			F	5	35	35			x		HILLSIDE
HS-160 (see geologic map)			CD	5	Kep	1800	600	20					F	10	15	15			x		DRAINAGE
HS-161	29.79899	-98.10583	O	5	Kep	5	5						F	5	10	10		x			HILLSIDE
HS-162	29.80032	-98.1059	SC	20	Kep	3	0.5	1					F	10	30	30		x			HILLSIDE
HS-163	29.80075	-98.1051	CD	5	Kep	20	10	0.5					F	5	10	10		x			HILLSIDE
HS-164	29.80068	-98.10486	SC	20	Kep	5	1	3					F	10	30	30		x			HILLSIDE
HS-165	29.80085	-98.10509	CD	5	Kep	30	10	1					F	5	10	10		x			HILLSIDE
HS-166	29.80069	-98.10623	Z	30	Kep	1	1	1					F	5	35	35		x			HILLSIDE
						2	2	1					F								

* DATUM: NAD 83

2A TYPE	TYPE	2B POINTS
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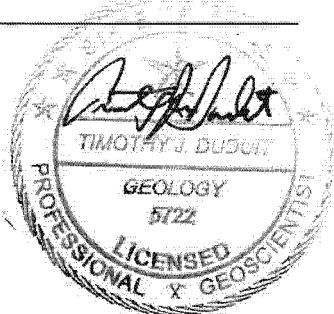
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Date

Sheet 13 of 14

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



[illegible]

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SITE SPECIFIC STRATIGRAPHIC COLUMN

System	Group	Formation	Function	Member or Informal Unit	Function	Thickness Feet	Lithology	Hydrostratigraphy
Cretaceous		Buda Limestone	CB		CB	60	Dense, hard, yellowish gray, semi-porcellaneous limestone with sparry calcite fossils.	Yields sufficient water near the outcrop for stock and domestic use.
		Del Rio Clay	CB		CB	40 - 60	Calcareous clay and shale.	Not a water-bearing unit.
	Edwards	Person (Edwards Aquifer)	AQ	Marine	AQ	90 - 150	Limestone and dolomite; honeycombed limestone interbedded with chalky porous limestone and massive, recrystallized limestone	Reefal limestone and carbonate deposits under normal open marine conditions. Zones with significant porosity and permeability are laterally extensive. Karstified unit.
				Leached and collapsed members	AQ	60 - 90	Limestone and dolomite. Recrystallized limestone occurs predominantly in the freshwater zone of the Edwards Aquifer. Dolomite occurs in the saline zone.	Tidal land supratidal deposits, conforming porous beds of collapsed breccias and burrowed biomicrites. Zones of honeycombed porosity are laterally extensive.
				Regional dense bed	CB	20 - 30	Dense argillaceous limestone.	Deep water limestone. Negligible permeability and porosity. Laterally extensive bed that is a barrier to vertical flow in the Edwards Aquifer.
	Edwards	Kainer (Edwards Aquifer)	AQ	Grainstone	AQ	50 - 60	Limestone, hard, millolid grainstone with associated beds of marly mudstones and wackestones.	Shallow water, lagoonal sediment deposited in a moderately high energy environment. A cavernous honeycombed layer commonly occurs near the middle of the subdivision. Interparticle porosity is locally significant.
				Dolomitic (includes Kirschberg evaporite)	AQ	150 - 200	Limestone, calcified dolomite, and dolomite. Leached, evaporitic rocks with breccias toward top. Dolomite occurs principally in the saline zone of the aquifer.	Supratidal deposits towards top. Mostly tidal to subtidal deposits below. Very porous and permeable zones formed by boxwork porosity in breccias or by burrowed zones.
				Basal Nodular Bed	CB	40 - 70	Limestone, hard, dense clayey; nodular, mottled, stylolitic.	Subtidal deposits. Negligible porosity and permeability.
	Trinity	Glen Rose	CB	Upper part of Glen Rose	CB	300 - 400	Limestone, dolomite, shale and marl. Alternating beds of carbonates and marls. Evaporites and dolomites toward top; variable bedding.	Supratidal and shoreline deposits towards top. Tidal to subtidal deposits below. Unit has little vertical permeability but has moderate lateral permeability.
				Lower part of Glen Rose	AQ	200 - 250	Massive limestone with few thin beds of marl.	Marine deposits - caprinid reef zones and porous and permeable honeycomb porosity near the base.

AQ - Aquifer

CB - Confining Bed

(Modified from U.S. Geological Survey Open-File Report 83-537, R. W. Maclay and T. A. Small, 1984)

Site Specific Geology and Soil Characteristics

The Ranches of Comal, NEC FM 306 & Hoffman Lane, Comal County, Texas

Area Geologic Setting

The site is located within the outcrop of the Cretaceous age Edwards Group limestone, which was deposited approximately 90 million years ago. The Edwards Group limestone comprises the Edwards Aquifer, the sole source of drinking water for San Antonio and other communities in central Texas.

The site is located in the Balcones fault zone, which separates the Edwards Plateau from the Gulf Coastal Plain physiographic province. The Balcones fault zone is a series of steep angle, normal faults that generally strike northeast-southwest. Active movement in the Balcones fault zone ceased during the Miocene Epoch. The intense, close spaced faulting along the Balcones fault zone combined with the various rock types of the upper Cretaceous section exposed in central Texas makes rapid changes in rock and soil type the norm rather than the exception.

The depositional environment and lithology of the Edwards Group limestones changes from Kinney County in southwest Texas to Hays County east of San Antonio. The site is located in the San Marcos Arch depositional province.

The entire Edwards Formation is approximately 350 feet thick in the area. The rocks that comprise the Edwards Group include hard, dense calcium carbonate limestone and some magnesium carbonate limestone called dolomite. These limestones are made up of the shells of invertebrate animals that inhabited the shallow seas of the lower Cretaceous period. These shells range from large, reef forming clams to microscopic foraminifers that secrete shells of the mineral calcite or aragonite, which is composed of calcium carbonate. Aragonite shells are more soluble in water, especially the slightly acid, normal rainwater that contains a weak carbonic acid. The wide ranges of specific minerals making up the shells that compose the limestone are soluble in water in differing amounts. The preferential dissolution of fossil shells gives rise to many of the geologic features observed in rocks of the Edwards Group limestone.

The intense faulting and fracturing of the limestone rocks in the Balcones fault zone and the varying ability of minerals to be dissolved by groundwater lead to the formation of the geologic features that are mapped within the Edwards Aquifer Recharge Zone. The combination of faulting, fracturing, rock dissolution, mineral deposition, erosion, and geologic time produce the caves, closed depressions, fractured rock outcrops, fault zones, solution cavities, and vugular rock features which are mapped during a Geologic Assessment. The characteristics and physical settings of these geologic features are described to assign a relative infiltration rate and potential recharge ranking to assist in managing the resource of the Edwards Aquifer.

Site Geology

The site is located in the outcrop of the Edwards Group with a small area of the Del Rio Clay in the northwest corner of the site, according to the Geologic Atlas of Texas, San Antonio Sheet by Virgil E. Barnes, Bureau of Economic Geology, Austin, Texas 1974. The site is located on the outcrop of the Person and Kainer Formations of the Edwards Group,

according to Structure Map of the San Antonio Segment of the Edwards Aquifer and Balcones Fault Zone, South-Central Texas: Structural Framework of a Major Limestone Aquifer: Kinney, Uvalde, Medina, Bexar, Comal, and Hays Counties; Edward W. Collins and Susan D. Hovorka, Bureau of Economic Geology, Miscellaneous Map No. 38, 1997. Both maps show northeast-southwest trending faults in the northwest portion of the site.

Geologic mapping of the site confirmed the basic stratigraphy and structure outlined above. The Regional Dense Member (the lowermost unit of the Person Formation) was visible in outcrop along the southeast portion of the site. A series of GPS points along the outcrop was used to place the contact between the Person and Kainer formations on the geologic map. The Buda Limestone and Del Rio Clay were directly observed in outcrop in the areas shown on the geologic map.

Site Soil Characteristics

The soil cover at the site is very thick and has been influenced by the range management practices in the past. There is a notable lack of mesquite and juniper trees on the site due to active tree removal and the almost complete lack of soil erosion points to careful range management practices to prevent overgrazing. Many of the geologic features at the site, including solution cavities, vugular rock, and sinkholes, appear to have been "protected" by selectively allowing short trees and bushes to grow around the features to discourage range animals from injuring themselves. Also, there is a high occurrence of animal burrowing due to the thick soil profile. Most of the solution cavities, the cave, and the sinkholes have been modified by animal burrowing that raises the elevation of the opening above the surrounding land surface. For these features which are outside the streambeds, this has the effect of cutting off stormwater runoff from entering most of the features, decreasing the drainage area of the features to the size of the opening, effectively reducing recharge to the rainfall that enters the feature opening directly.

The site is covered with clay soil up to two feet thick throughout much of the area. According to the Soil Survey of Comal and Hays Counties, Texas, US Department of Agriculture, the predominant soil at the site is the *Rumple-Comfort association, 1 to 8 percent slopes*. Other soil types in decreasing order of occurrence are as follows: *Brackett-Rock outcrop-Comfort complex, 1 to 8 percent slopes*; and *Comfort-Rock outcrop complex, 1 to 8 percent slopes*. A copy of the soil map showing the site boundary and the specific soil type locations are presented elsewhere in this report. The above soils listed in Appendix B of Urban Hydrology for Small Watersheds, by the United States Department of Agriculture, Natural Resources Conservation Service, Conservation Engineering Division, Technical Release 55, June, 1986 are classified under the Hydrologic Soil Groups as shown below.

HYDROLOGIC SOIL GROUP C	HYDROLOGIC SOIL GROUP D
Brackett	Rock outcrop
Rumple	Comfort
	Eckrant

Structural Geology

The majority of the site appears to be unaffected by faulting, as no evidence of offset was noted over most of the site during the field mapping or aerial photograph review. The notable exception is along the northwest portion of the site. As shown on the geologic map, two faults form a small graben that is downthrown in relation to adjacent rocks, as evidenced by the exposure of the Del Rio Clay juxtaposed to the stratigraphically lower Person Formation. The northwestern fault (Feature ID HS-158) is visible on the ground in two places off site where the Buda Formation is exposed immediately adjacent to the Person Formation. The beds of the Person Formation immediately adjacent to this fault (along its northwest edge) are visibly folded downward by the movement of the fault. The southeastern fault (Feature ID HS-159) location cannot be observed directly due to the thick soil profile, but can be inferred by interpolating between the exposures of Del Rio Clay and the Person Formation. The location and extent of the two faults cannot be confirmed by surficial mapping southeast of the graben due to limited rock exposures, so the location of the faults are inferred in this area.

Geologic Features

As noted above, most of the features outside of the streambeds have their openings modified by animal burrowing which raises the opening of these features above the surrounding terrain. This has the effect of preventing stormwater runoff from entering most of these features. The sinkholes are generally very small, and although they show signs of structural collapse, their small size limits the opportunities for recharge. Many of the solution cavities that occur in zones appear to be quite permeable, although most of them are raised above the surrounding terrain. Many of the features that occur in the streambeds show evidence of extensive ponding of water after rainfall events, especially the closed depressions that are a result of stream scour. All of the closed depressions at the site are caused either by stream scour, animal activity, or human activity. The faulting in the northwest portion of the site is no doubt more complex than shown on the geologic map, however, there is no surficial evidence for offset of beds outside the two faults shown on the geologic map. If the soil cover were not so thick, additional faults would probably be visible.

HS-31: This feature is a zone of solution cavities in a streambed. The solution cavities are filled with clay and appear to be able to accept more water than the surrounding terrain, although the clay in the bottom appears to limit the amount of recharge that can be accepted by the features.

HS-32: This feature is a zone of solution cavities on a hillside. The solution cavities are filled with clay and appear to be able to accept more water than the surrounding terrain, although the clay in the bottom and the raising of the openings above the immediate ground surface appears to limit the amount of recharge that can be accepted by the features.

HS-52: This feature is a zone of two closed depressions that have no infilling so the bottom is solid limestone. These two closed depressions may allow more water to recharge than the surrounding area, but the solid nature of the limestone and evidence of ponding appears to limit the amount of water these features can receive.

HS-57: This feature is a closed depression in a streambed with small fractures in the bottom. These fractures are not solution enlarged and small and there is evidence of ponding which appears to limit the amount of recharge that this feature can accept.

HS-67: This feature is a closed depression on a hillside with scattered small fractures in the bottom. These fractures are not solution enlarged and small which appears to limit the amount of recharge that this feature can accept.

HS-68: This feature is a closed depression on a hillside with scattered small fractures in the bottom. These fractures are not solution enlarged and small which appears to limit the amount of recharge that this feature can accept.

HS-75: This feature is comprised of two closed depressions that coincide with an area of fractured rock. The fractures are small, which appears to limit the amount of water that this feature can accept.

HS-95: This feature is comprised of three solution cavities on a hillside. The solution cavities appear to be able to accept more recharge than the surrounding ground, but the filling of the cavities with clay soil appears to limit their ability to accept recharge.

HS-98: This feature is a zone of three closed depressions that have no infilling so the bottom is solid limestone. These closed depressions may allow more water to recharge than the surrounding area, but the solid nature of the limestone appears to limit the amount of water these features can receive.

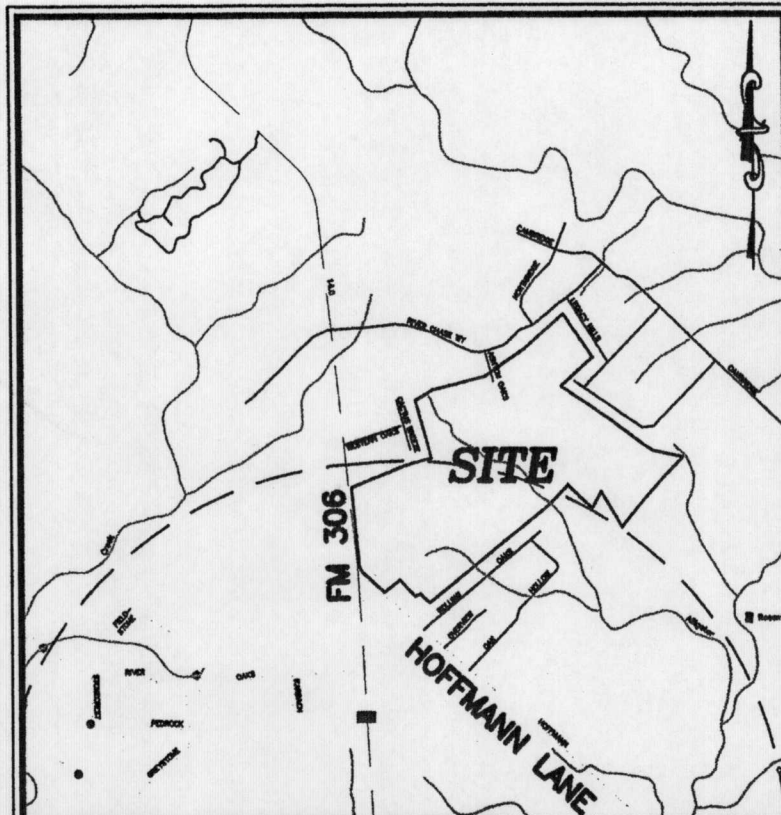
HS-100: This feature is a small sinkhole that is located on a hilltop and is filled with clay. It may allow more recharge than the surrounding area, but the infilling with clay and it's location on a hilltop appears to limit the amount of recharge that this feature can receive.

HS-104: This is a collection of three closely spaced closed depressions in the floodplain of a streambed. The infilling of these closed depressions by coarse fill may allow these closed depressions to accept more water than the surrounding ground, but their location above the streambed appears to limit how much water they will accept as recharge.

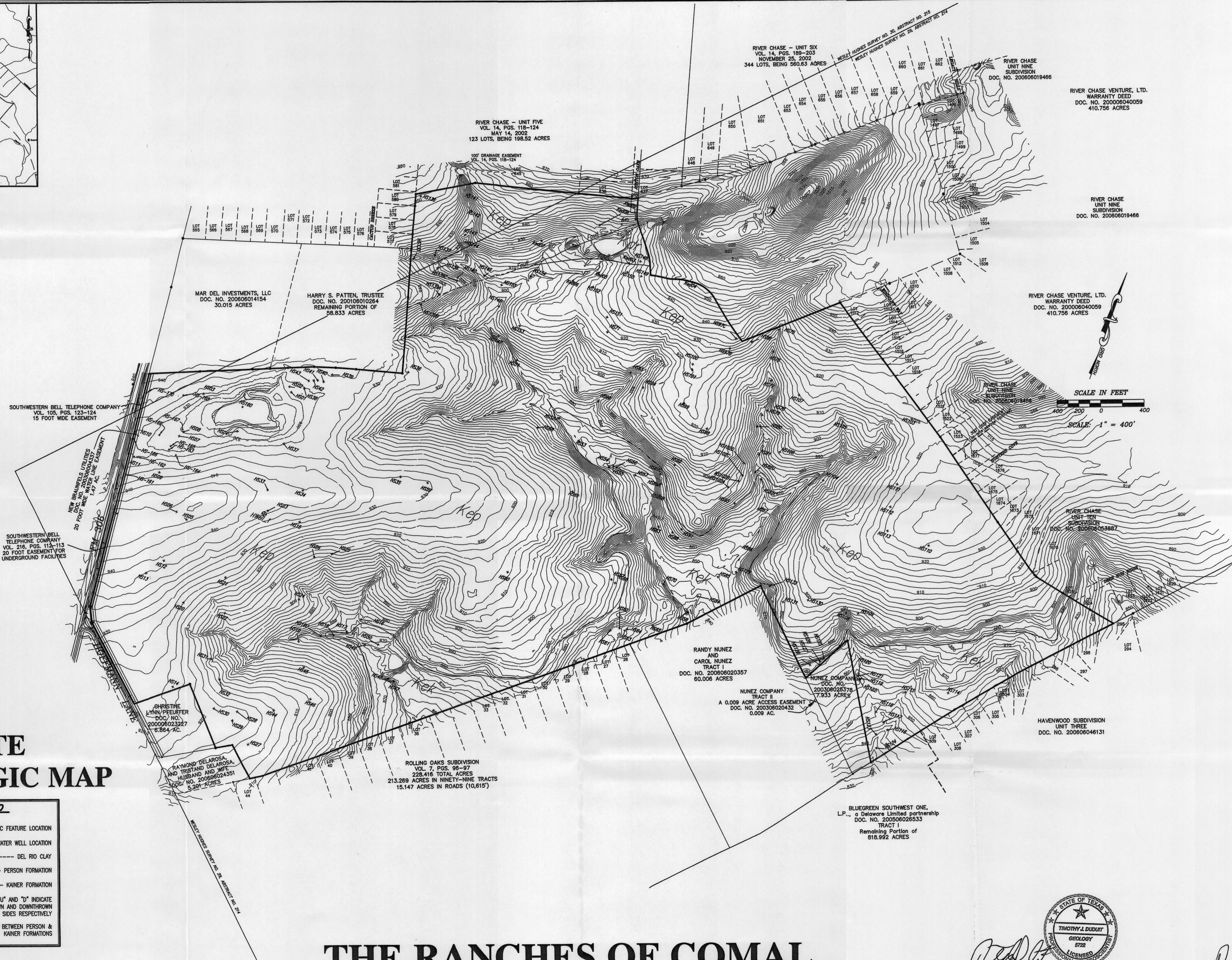
HS-106: This is a collection of three solution cavities on a hillside. While they appear to be able to accept more recharge than the surrounding ground, the infilling with clay and their location on a hillside appears to limit the amount of water they will accept as recharge.

HS-151: This is a collection of two solution cavities on a hillside. While they appear to be able to accept more recharge than the surrounding ground, the infilling with clay and their location on a hillside appears to limit the amount of water they will accept as recharge.

In general, there does not appear to be much potential for fluid movement from the surface of the site to the Edwards Aquifer due to the small number of features relative to the size of the site, the small number of sensitive features, the elevation of the entrance to most of the features outside the streambeds above the surrounding terrain, the thick soil cover, and the evidence of water ponding in the streambeds.



LOCATION MAP
SCALE: 1"=1 MILE

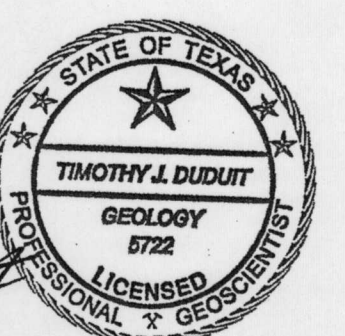


SITE GEOLOGIC MAP

LEGEND	
HS01	----- GEOLOGIC FEATURE LOCATION
HWell1	----- WATER WELL LOCATION
Kdr	----- DEL RIO CLAY
kep	----- PERSON FORMATION
Kek	----- KAINER FORMATION
U/D	----- FAULT "U" AND "D" INDICATE UPTHROWN AND DOWNTOWN SIDES RESPECTIVELY
kep Kek	----- CONTACT BETWEEN PERSON & KAINER FORMATIONS

THE RANCHES OF COMAL

COMAL COUNTY, TEXAS


TIMOTHY J. DUDUT
LICENSED PROFESSIONAL GEOSCIENTIST #5722

December 7, 2011
DATE

RECEIVED
FEB 24 2012
COUNTY ENGINEER

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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: The Ranches of Comal

REGULATED ENTITY INFORMATION

1. The type of project is:
36 Residential: # of Lots: 614,949
— Residential: # of Living Unit Equivalents:
— Commercial
— Industrial
1 Other: Future Commercial Lot 42,290
2. Total site acreage (size of property): 657.239 Acres
3. Projected population: 36 Lots X 5 People/Lot = 180 People
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	324,000	÷ 43,560 =	7.44
Parking	172,800	÷ 43,560 =	3.96
Other paved surfaces	525,626	÷ 43,560 =	12.07
Total Impervious Cover	597,676	÷ 43,560 =	23.47
Total Impervious Cover ÷ Total Acreage x 100 =			3.57%

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 Not Applicable

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.
 $L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres}.$
10. Length of pavement area: _____ feet.
 Width of pavement area: _____ feet.
 $L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres}.$
 Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 = \text{_____ \%}$ impervious cover.
11. _____ 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. X **ATTACHMENT B - Volume and Character of Stormwater.** A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is provided at the end of this form. The estimates of stormwater runoff quality and quantity should be based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

100% Domestic	27,000	gallons/day
____% Industrial	_____	gallons/day
____% Commingled	_____	gallons/day

TOTAL 27,000 gallons/day
15. Wastewater will be disposed of by:
X **On-Site Sewage Facility (OSSF/Septic Tank):**
X **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.
- N/A 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):

FIRM Map Number 48091C0290F, Comal County Texas

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 1 (#) 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. X Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. X Locations where soil stabilization practices are expected to occur.
26. N/A Surface waters (including wetlands).
27. X Locations where stormwater discharges to surface water or sensitive features.
X There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

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

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

Michael G. Short, P.E.

Print Name of Customer/Agent



Signature of Customer/Agent

2/13/12

Date

WATER POLLUTION ABATEMENT PLAN APPLICATION

5. ATTACHMENT A - Factors Affecting Water Quality.

The various facets of construction with this project consist of site clearing, site grading, and infrastructure installation, etc. for this 657.239 acre project site. The disturbance of the existing site during construction is a factor that could affect surface water and groundwater quality. To assist in the preservation of the quality of surface water exiting the site during construction, which in turns assists in the preservation of the groundwater quality, temporary pollution controls will be installed. Some possible sources of contamination during construction would be from machinery or equipment in the form of oil or fuel and spillage of temporary restroom facilities. Containment and cleanup is addressed in the Temporary Pollution Control section of this submittal.

13. ATTACHMENT B - Volume and Character of Stormwater.

The stormwater runoff generated from this site will consist of rooftops, concrete driveways, paved areas and landscape areas. The runoff will be of a domestic nature and may contain small amounts of oil, suspended solids, fertilizers, and household pesticides. This site will be low density single family development with less than 20% impervious cover. Therefore, no structural permanent Best Management Practices are being proposed to capture a specific volume of storm water runoff. However, the sensitive features located on the site will be protected by native environment buffer zones which are shown on the Site Plan. The average Pre-Construction runoff coefficient for the site is $C_{pre} = 0.36$ and the average Post-Construction runoff coefficient is $C_{post} = 0.37$.

For volume of stormwater; see drainage node summary on the attached drainage area map.



Comal County

OFFICE OF COMAL COUNTY ENGINEER

December 20, 2011

Mr. Shawn Schorn, P.E.
The Schultz Group, Inc.
2461 Loop 337
New Braunfels, TX 78130

Re: The Ranches of Comal On-Site Sewage Facility Suitability Letter, within Comal County, Texas

Dear Mr. Schorn:

In accordance with TAC §213.5(b)(4)(F)(ii), Comal County has found that the entire referenced site (except for areas listed below) is suitable for the use of private sewage facilities and will meet the special requirements for on-site sewage facilities located on the Edwards Aquifer recharge zone as specified in TAC §285.40-42 based on the following information submitted to our office on December 19, 2011:

- The Geologic Assessment, prepared by Timothy Jay Duduit, P.G.
- The Water Pollution Abatement Plan, prepared by The Schultz Group, Inc.

Areas that are not Suitable

The Geologic Assessments identified 13 recharge features as sensitive. The Water Pollution Abatement Plan gave the following Permanent Pollution Abatement Measures to prevent pollutants from entering said features:

Feature ID	Latitude	Longitude	Permanent Pollution Abatement Measure
HS31	N 29.7961	W 98.102	50' Buffer
HS32	N 29.7657	W 98.1015	50' Buffer
HS52	N 29.8048	W 98.0947	50' Buffer
HS57	N 29.8040	W 98.0921	50' Buffer
HS67	N 29.8013	W 98.0918	50' Buffer
HS68	N 29.8043	W 98.0953	50' Buffer
HS75	N 29.8087	W 98.0896	50' Buffer
HS95	N 29.8042	W 98.0891	50' Buffer
HS98	N 29.8057	W 98.0906	50' Buffer
HS100	N 29.8072	W 98.0916	50' Buffer
HS104	N 29.8055	W 98.0869	50' Buffer
HS106	N 29.8058	W 98.0884	50' Buffer
HS151	N 29.8076	W 98.0944	50' Buffer

Comal County

OFFICE OF COMAL COUNTY ENGINEER

Mr. Schorn, P.E.
December 20, 2011
Page 2

In accordance with the Water Pollution Abatement Plan, the areas within these 50' buffers are not suitable for the use of private sewage facilities. In addition, in accordance with TAC §285.91, Table X, Minimum Required Separation Distances for On-Site Sewage Facilities, soil absorption systems, unlined ET beds, surface application (edge of spray area), and drip irrigation disposal systems are not suitable within 150' of these sensitive features.

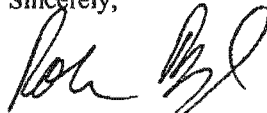
Moreover, according to TAC §285.41(b), Avalon Lakes Ltd., the owner of the referenced site, must inform, in writing, each prospective purchaser, lessee, or renter of the following:

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

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

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

Sincerely,



Robert Boyd, P.E.
Comal County Assistant Engineer

cc: Jan Kennady, Comal County Commissioner, Precinct No. 4
Betty Lien, Comal County Subdivision Coordinator

SITE PLAN



RECEIVED
FEB 24 2012
COUNTY ENGINEER

DRAWN BY: M.H.
CHECKED BY: S.E.S.
DATE: OCTOBER 2011
JOB NO.: 040111

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

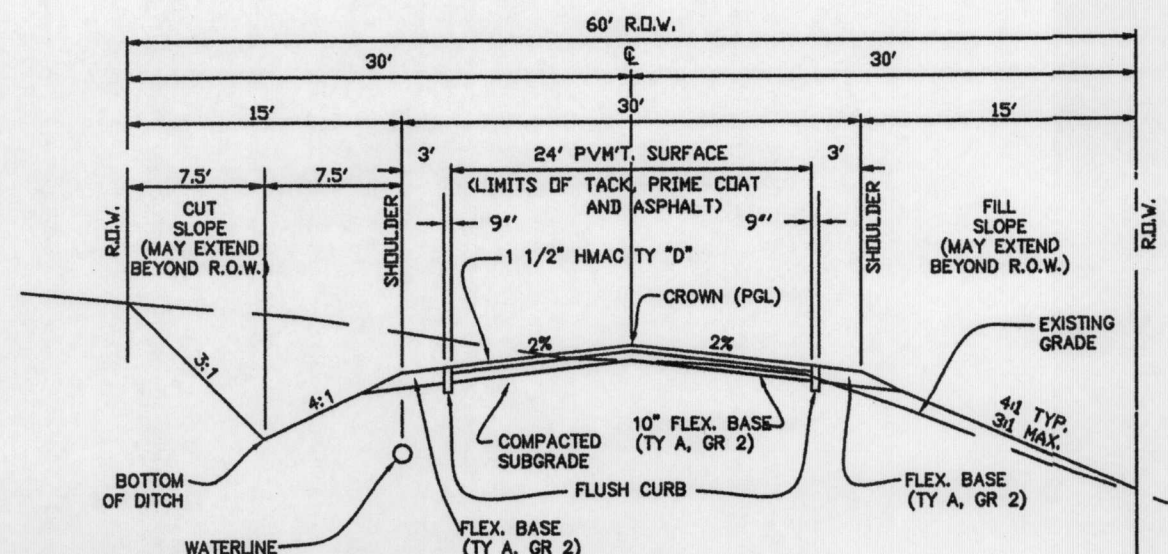
EXISTING SITE PLAN
FOR
THE RANCHES OF COMAL
NEW BRAUNFELS, TEXAS



REVISIONS	
DATE	DESCRIPTION

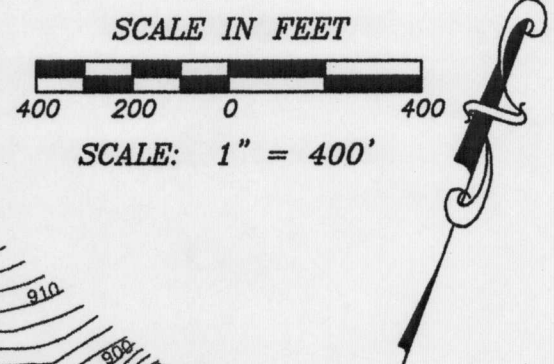
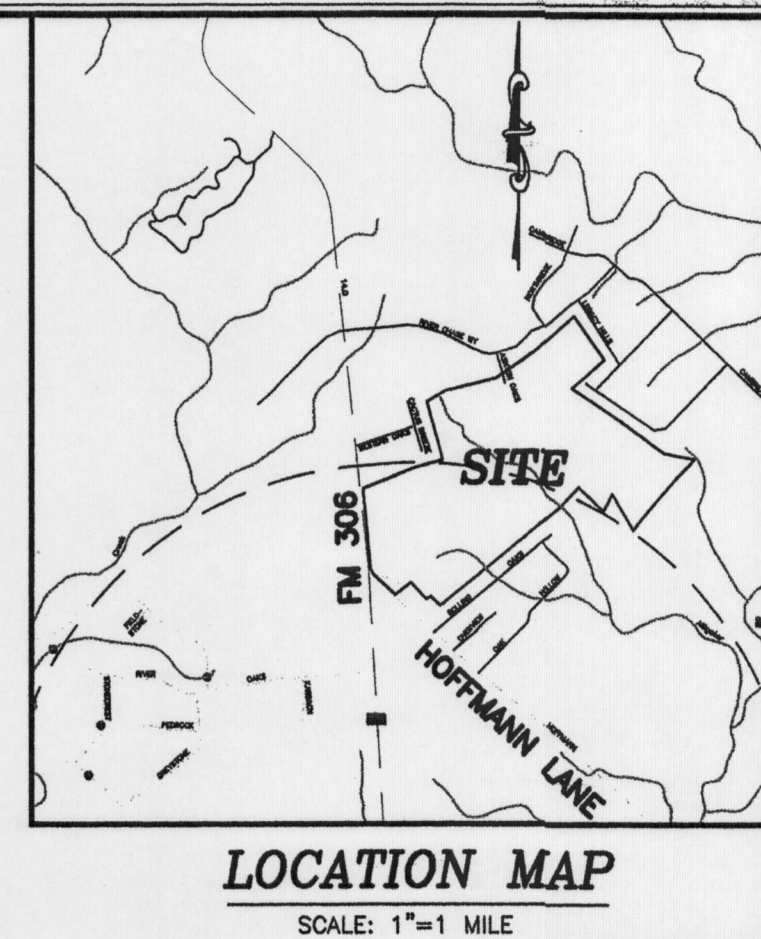
**** FOR CONTRACTOR'S INFORMATION ONLY ****

NOTE: EXCAVATION (ROADWAY AND CHANNEL) QUANTITIES ARE BASED ON THE TYPICAL STREET SECTION AND CHANNEL SECTIONS SHOWN IN PLANS.



- BASIS FOR ESTIMATE**
1. IF CUT DEPTH IS LESS THAN 2' LAY SLOPE BACK @ 3:1 MAX.
 2. IF CUT DEPTH IS 2' OR GREATER AND ROCK ENCOUNTERED, THEN STAND SLOPE UP @ 0.125:1. HOWEVER, IF MATERIAL ENCOUNTERED @ > 2' CUTS IS NOT ROCK, THEN LAY SLOPE BACK @ 3:1 MAX. (SUBSIDIARY TO ITEM 110)
 3. AT SEVERAL LOCATIONS, THE CONTRACTOR WILL BE REQUIRED TO EXCAVATE TO ALLOW FOR POSITIVE DRAINAGE. PAYMENT FOR THIS WILL BE CONSIDERED SUBSIDIARY TO EXCAVATION ITEM 110.

TYPICAL STREET SECTION
NOT TO SCALE



IMPERVIOUS COVER SUMMARY

IMPERVIOUS COVER OF PROPOSED PROJECT	SQUARE-FOOT	ACRES
STRUCTURES / ROOF TOPS (9,000 SQFT PER RESIDENTIAL LOT)	324,000	7.44
DRIVEWAYS (4,800 SQFT PER RESIDENTIAL LOT)	172,800	3.96
STREETS	515,626	11.84
OTHER PAVED SURFACES / DRAINAGE	10,000	0.23
TOTAL / IMPERVIOUS COVER	1,022,426	23.47

TOTAL SITE ACREAGE = 657.239 AC.

TOTAL IMPERVIOUS COVER + TOTAL ACREAGE = 3.57%

TOTAL NUMBER OF RESIDENTIAL LOTS = 36

TOTAL NUMBER OF COMMERCIAL LOTS = 1

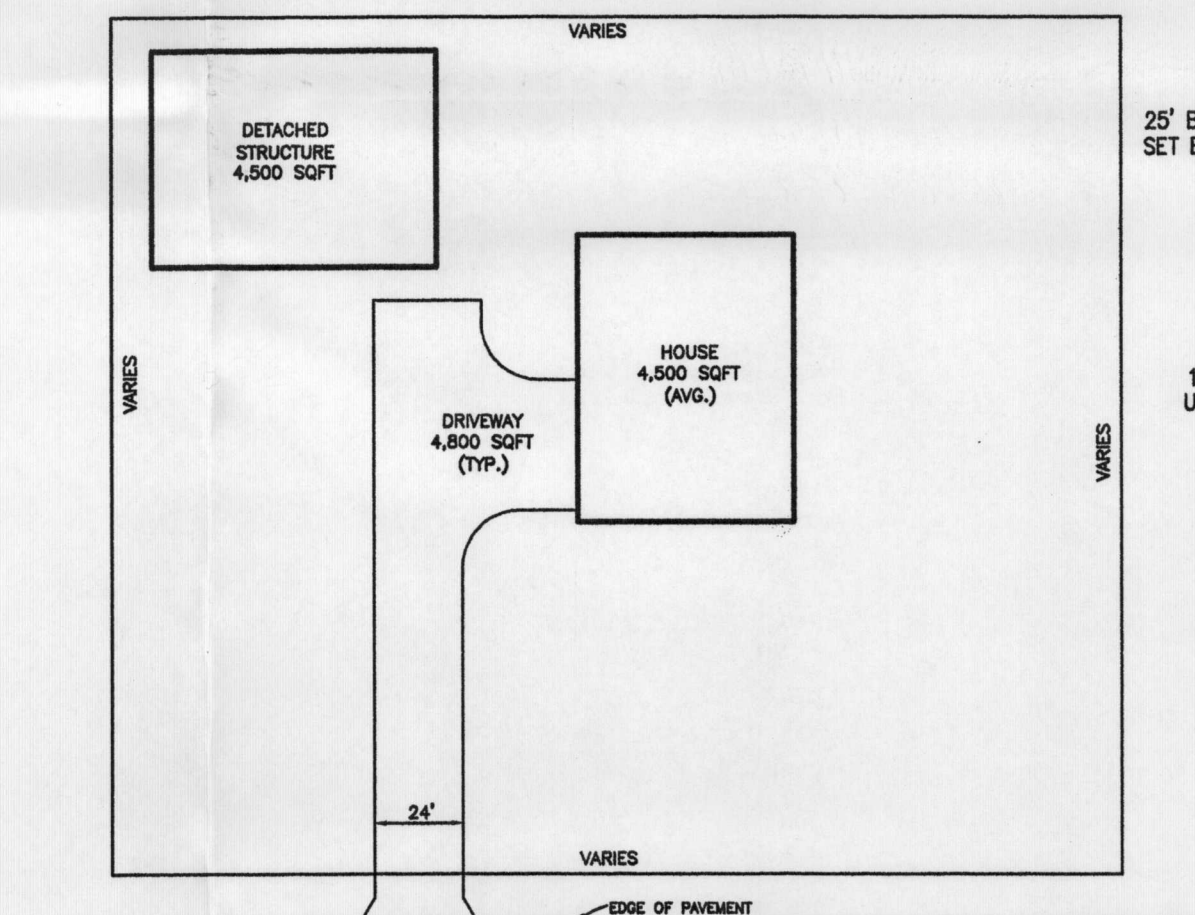
LOT 100 IS FOR THE STREET ROW AND WILL BE OWNED/MAINTAINED BY THE HOME OWNERS ASSOCIATION.

**** NOTE ****

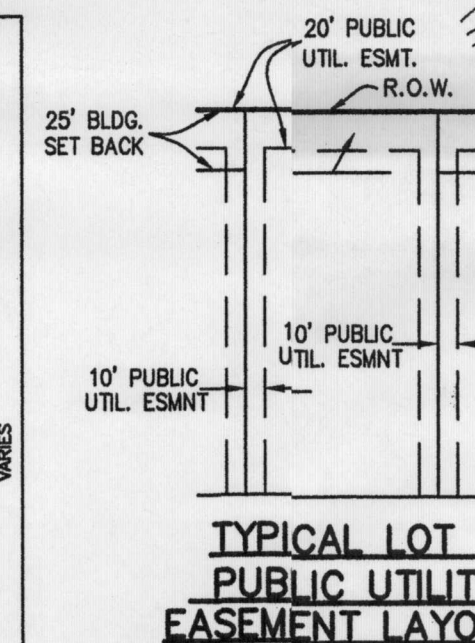
1. THIS SITE WILL BE USED FOR A MULTI USE LOW DENSITY SINGLE-FAMILY RESIDENTIAL/COMMERCIAL DEVELOPMENT AND HAS 20% OR LESS IMPERVIOUS COVER. THEREFORE, NO OTHER PERMANENT BMP'S WITH SUPPORTING CALCULATIONS ARE REQUIRED / PRESENT.
2. WATER AND ELECTRICAL INFRASTRUCTURE WILL BE INSTALLED WITHIN ROAD R.O.W. AND 30' WIDE HOMEOWNERS GENERAL USE EASEMENT.
3. THERE ARE NO PROPOSED IMPROVEMENTS FOR THE COMMERCIAL LOT AT THIS TIME.

NATIVE BUFFER ZONE NOTE:

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



TYPICAL LARGE LOT IMPERVIOUS COVER
(AVERAGE PER LOT 13,800 SF)
NOT TO SCALE



LEGEND:

- 3.0% DIRECTIONAL FLOW ARROW
- S-00 GEOLOGIC FEATURE
- 50 FT. MIN., 200 FT. MAX NATURAL VEGETATIVE BUFFER ZONE AROUND SENSITIVE GEOLOGIC FEATURE w/ TEMPORARY HIGH SERVICE ROCK BERM AROUND PERIMETER
- S.F. SILT FENCE
- ROCK BERM
- TEMPORARY CONSTRUCTION ENTRANCE / EXIT (12'x50')
- AREAS TO BE DISTURBED
- H898 8'x11' FEATURE IDENTIFICATION DIMENSIONS (FEET)

SITE PLAN FOR

THE RANCHES OF COMAL
NEW BRAUNFELS, TEXAS

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

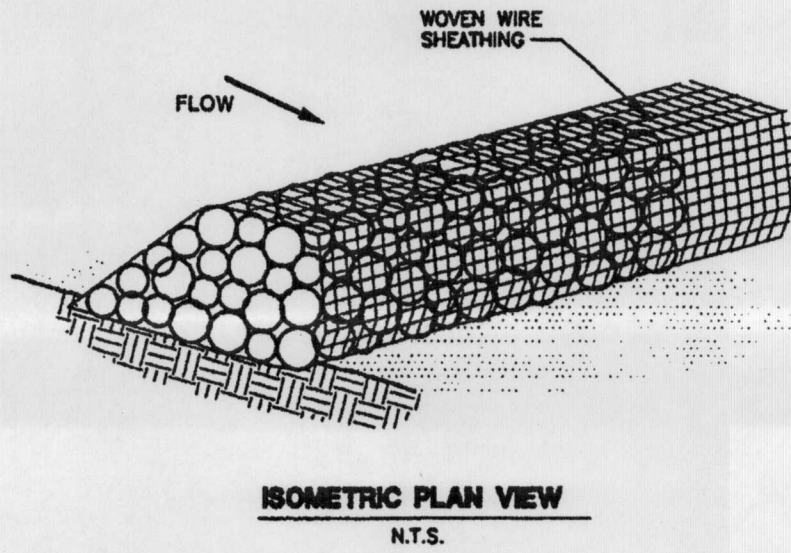
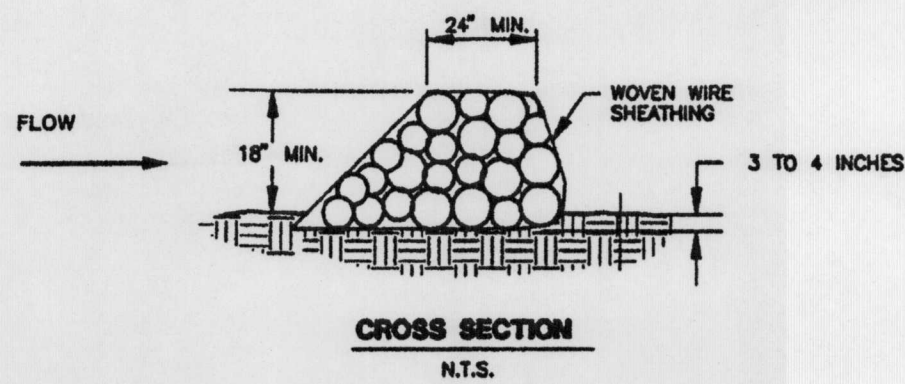
DRAWN BY: M.H.
CHECKED BY: S.E.S.
DATE: OCTOBER 2011
JOB NO.: 040111

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

Austin Regional Office
1921 Cedar Bend, Suite 150
Austin, Texas 78758-5338
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) 445-4329

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



Materials:

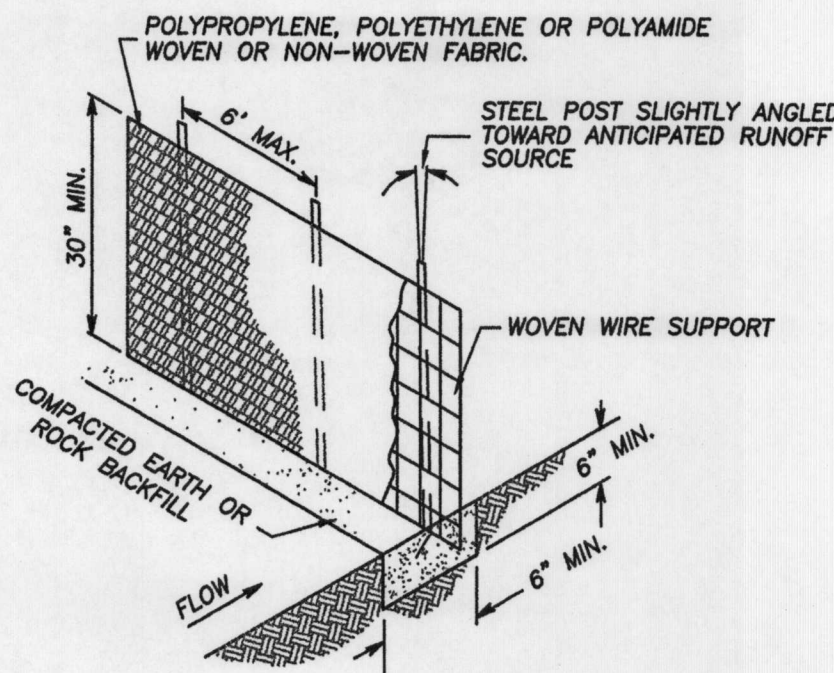
- The berm structure shall be secured with a woven wire sheathing having maximum opening of 1 inch a minimum wire diameter of 20 gauge galvanized and should be secured with shoot rings.
- Clean, open graded 3- to 5-inch diameter rock shall be used.

Installation:

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

ROCK BERM DETAIL

N.T.S.



Materials:

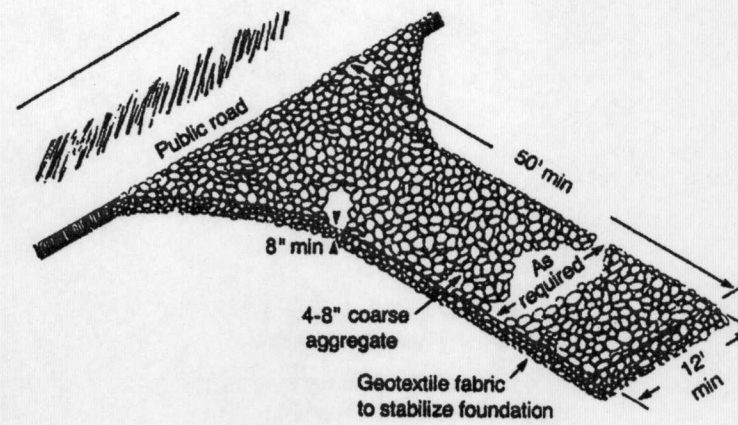
- Silt fence material shall be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in², ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve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

Installation:

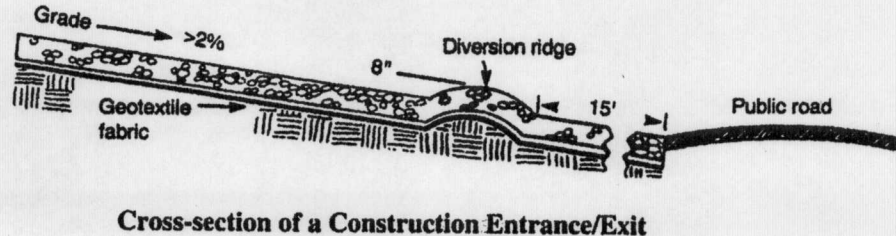
- Steel posts, which support the silt fence, shall be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing shall be 6 feet.
- Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence shall be sited so that the maximum drainage area is 1/4 acre/100 feet of fence.
- The toe of the silt fence shall be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.
- The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.
- Silt fence shall be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There shall be a 3-foot overlap, securely fastened where ends of fabric meet.
- Silt fence shall be removed when the site is completely stabilized so as not to block or impede storm flow drainage.

SILT FENCE

N.T.S.



Schematic of Temporary Construction Entrance/Exit



Materials:

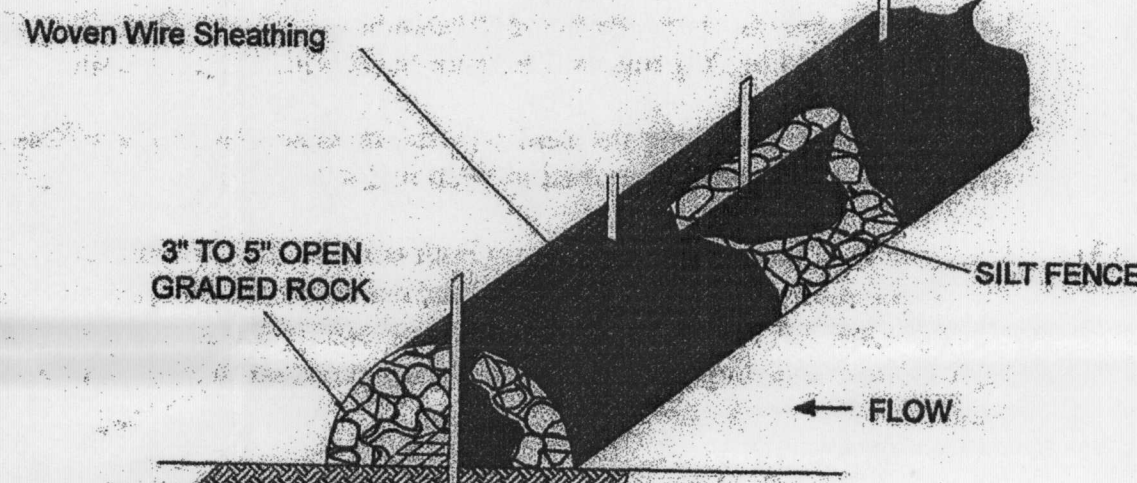
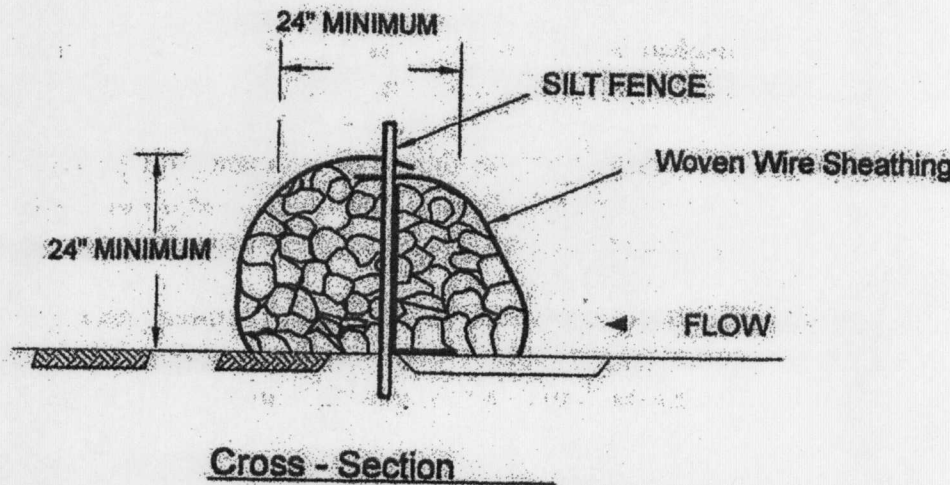
- The aggregate shall consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
- The aggregate shall be placed with a minimum thickness of 8 inches.
- The geotextile fabric shall be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd², a mullen burst rating of 140 lb/in², and an equivalent opening size greater than a number 50 sieve.
- If vehicle(s) require washing, a washing facility with a level area and a minimum of 4 inch washed stone or commercial rock shall be constructed in an approved area. Divert wastewater to sedimentation controlled areas.

Installation:

- Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
- The minimum width of the entrance/exit shall be 12 feet or the full width of exit roadway, whichever is greater.
- The construction entrance shall be at least 50 feet long.
- If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.
- Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.
- Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
- Divert all surface runoff and drainage from the stone pad to sedimentation controlled areas.
- Top of Temporary Construction Entrance/Exit Shall Project no more than 4" above Natural Ground.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

N.T.S.



Materials:

- Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in², ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.
- Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft², and Brinell hardness exceeding 140. Rebar (either #5 or #6) may also be used to anchor the berm.
- Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.
- The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoot rings.
- Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

- Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1-inch openings.
- Install the silt fence along the center of the proposed berm placement, as with a normal silt fence described in Section 2.4.3.
- Place the rock along the sheathing on both sides of the silt fence as shown in the diagram (Figure 1.30), to a height not less than 24 inches. Clean, open graded 3-5" diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rock may be used.
- Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.
- The high service rock berm should be removed when the site is revegetated or otherwise stabilized or it may remain in place as a permanent BMP if drainage is adequate.

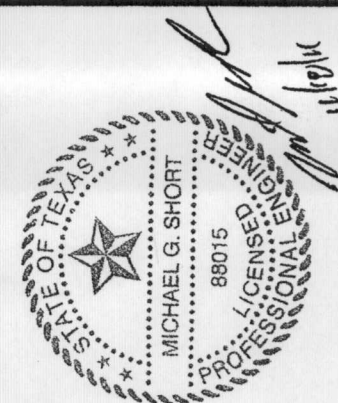
HIGH SERVICE ROCK BERM

N.T.S.

REVISIONS

DESCRIPTION

DATE



WATER POLLUTION ABATEMENT PLAN

GENERAL NOTES AND DETAILS

THE RANCHES OF COMAL
NEW BRAUNFELS, TEXAS



DRAWN BY: M.H.

CHECKED BY: S.E.S.

DATE: OCTOBER 2011

JOB NO.: 040111

S-3

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: The Ranches of Comal

POTENTIAL SOURCES OF CONTAMINATION

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

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

SEQUENCE OF CONSTRUCTION

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

TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)

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

on the site plan.

7. X **ATTACHMENT D - Temporary Best Management Practices and Measures.** A description of the TBMPs and measures that will be used during and after construction are provided at the end of this form. For each activity listed in the sequence of construction, include appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

X TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information has been provided in the attachment at the end of this form

- a. A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
- b. A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
- c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
- d. A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

N/A **ATTACHMENT E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is provided at the end of this form. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

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

9. X **ATTACHMENT F - Structural Practices.** Describe the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site. Placement of structural practices in floodplains has been avoided.

10. X **ATTACHMENT G - Drainage Area Map.** A drainage area map is provided at the end of this form to support the following requirements.

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

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

11. N/A **ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.
12. X **ATTACHMENT I - Inspection and Maintenance for BMPs.** A plan for the inspection of temporary BMPs and measures and for their timely maintenance, repairs, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and recordkeeping practices is included in the plan.
13. X All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. X If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. X Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. X Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

SOIL STABILIZATION PRACTICES

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

17. X **ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached at the end of this form.
18. X Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
19. X Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

ADMINISTRATIVE INFORMATION

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

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

MICHAEL G. SHORT

Print Name of Customer/Agent



Signature of Customer/Agent

2/13/12

Date

TEMPORARY STORMWATER SECTION

2. ATTACHMENT A -Spill Response Actions.

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

4. ATTACHMENT B -Potential Sources of Contamination.

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

5. ATTACHMENT C - Sequence of Major Activities.

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

Sequence No.	Description of Soil Disturbing Activity	Estimated Area to be Disturbed by each Activity (Acres) (Total)
1	Clearing and Grubbing (Street/Drainage/Utilities)	25
2	Excavation/Grading/Installation (Streets/Drainage/Utilities)	25
3	Final Structures Installation (Including Houses & Driveways, etc...)	10
4	Excavation/Installation of Detention Ponds	3



RG-348
Revised July 2005

Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices

printed on
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Field Operations Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

1.4.16 Spill Prevention and Control

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

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

Education

- (1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.
- (2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- (3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- (4) Establish a continuing education program to indoctrinate new employees.
- (5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- (1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- (2) Store hazardous materials and wastes in covered containers and protect from vandalism.
- (3) Place a stockpile of spill cleanup materials where it will be readily accessible.
- (4) Train employees in spill prevention and cleanup.
- (5) Designate responsible individuals to oversee and enforce control measures.
- (6) Spills should be covered and protected from stormwater runoff during rainfall to the extent that it doesn't compromise clean up activities.
- (7) Do not bury or wash spills with water.

- (8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- (9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.
- (10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- (11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- (12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

- (1) Clean up leaks and spills immediately.
- (2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.
- (3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

- (1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- (2) Use absorbent materials on small spills rather than hosing down or burying the spill.
- (3) Absorbent materials should be promptly removed and disposed of properly.
- (4) Follow the practice below for a minor spill:
- (5) Contain the spread of the spill.
- (6) Recover spilled materials.
- (7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

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

Spills should be cleaned up immediately:

- (1) Contain spread of the spill.
- (2) Notify the project foreman immediately.
- (3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
- (4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
- (5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

- (1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
- (2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
- (3) Notification should first be made by telephone and followed up with a written report.
- (4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
- (5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

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

Vehicle and Equipment Maintenance

- (1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
- (2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately
- (3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- (4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- (5) Place drip pans or absorbent materials under paving equipment when not in use.
- (6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
- (7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
- (8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
- (9) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- (1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
- (2) Discourage "topping off" of fuel tanks.
- (3) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

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

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

The silt fences, rock berms, high service rock berms, and temporary construction entrance/exit shown on the Site Plan shall be in place prior to any construction activities. These temporary measures will remain in place throughout clearing and grubbing, excavation and grading and underground utility service installation. Upon completion of street and utility construction, silt fences shall be installed down gradient of all proposed home building and driveway construction operations to contain any sediment from leaving the individual lots. The temporary construction entrance/exit shall be adjusted/relocated prior to the construction of each new unit of development and will be removed just prior to final pavement placement.

- a. Stormwater that is flowing upstream of the project limits from River Chase Subdivision will continue to pass through the project limits in its current manner. High service rock berms will be installed downstream of the proposed construction within the natural drainage way draining River Chase. The high service rock berms will slow the velocity of the water down and the sediment will settle out. It will be the contractor's responsibility to remove the sediment that builds up after significant rainfall events.
- b. Stormwater that originates on-site will be filtered by silt fences and/or rock berms on the downgradient side of the property. The silt fences and rock berms will slow the velocity of the water down and the sediment will settle out. It will be the contractor's responsibility to remove the sediment that builds up after significant rainfall events. There will be no contaminated/polluted runoff coming off this site other than sediment which will be handled with silt fence, rock berms and the temporary construction entrance/exit.
- c. Stormwater runoff that originates on-site and upgradient of the site will be filtered by silt fences and rock berms on the downgradient side of the property. The silt fences and rock berms will slow the velocity of the water down and the sediment will settle out. It will be the contractor's responsibility to remove the sediment that builds up after significant rainfall events. The silt fences and rock berms will capture the sediment that would otherwise be conveyed to streams, sensitive features, etc.

- d. There were thirteen sensitive features located on the site. These features are HS-31, 32, 52, 57, 67, 68, 75, 95, 98, 100, 104, 106, and HS-151. The majority of these sensitive features are located along the banks of very defined natural channels with drainage areas greater than 1.6 acres. The predominant recharge of these features appears to be the natural water way that drains to these locations with limited drainage contributing via sheet flow. There will be a native environment buffer zone around each sensitive feature. The buffer around a each sensitive feature have been extended a minimum of 50 feet in all directions. Where the boundary of the drainage area to the feature lies more than 50 feet from the feature, the buffer has been extended to the boundary of the drainage area or 200 feet, whichever is less. The buffer zones shown on the site plan are measured from the center of the sensitive features as shown on the geologic map. All sensitive features will be protected during construction by the installation of high service rock berms around the environmental buffer perimeter. There are no sensitive features being proposed to be sealed and the non-sensitive features are either located in the proposed yards of platted lots which will be covered by topsoil and grass or they will be covered by concrete (house pad/driveway).

9. ATTACHMENT F - Structural Practices.

The structural practices that will be used for temporary control of erosion/sediment on this site are silt fences, rock berms, high service rock berms, and a temporary construction entrance/exit.

10. ATTACHMENT G - Drainage Area Map.

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

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

Silt Fence Inspection and Maintenance Guidelines:

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

Rock Berm Inspection and Maintenance Guidelines:

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

High Service Rock Berm Inspection and Maintenance Guidelines:

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

Temporary Construction Entrance/Exit:

- a. The entrance shall be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way.
- b. All sediment spilled, dropped, washed or tracked on to public rights-of-way shall be removed immediately by the contractor.
- c. When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way.

- d. When washing is required, it shall be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- e. All sediment shall be prevented from entering any storm drain, ditch or water course by using approved methods.

**TEMPORARY CONSTRUCTION ENTRANCE/EXIT
INSPECTION FORM**

GENERAL NOTES

1. STONE SIZE - 4 TO 8 INCHES CRUSHED ROCK.
2. LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN 8 INCHES.
4. WIDTH - NOT LESS THAN 12 FEET.
5. WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO THAT NO SEDIMENT LEAVES THE SITE. ALL UNFILTERED SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE - ENTRANCE MUST BE PROPERLY GRADED TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

SILT FENCE
INSPECTION FORM

GENERAL NOTES

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT), WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED AND COMPACTED.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST AND TO WOVEN WIRE, WHICH IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT DOUBLE OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR SILT FENCE:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

ROCK BERMS
INSPECTION FORM

GENERAL NOTES:

1. WOVEN WIRE SHEATHING SHALL BE PERPENDICULAR TO THE FLOW LINE AND THE SHEATHING SHALL BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
2. BERM SHALL HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
3. PLACEMENT OF THE ROCK ALONG THE SHEATHING SHALL NOT BE LESS THAN 18 INCHES.
4. THE WIRE SHEATHING SHALL BE WRAPPED AROUND THE ROCK AND SECURED WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
5. BERM SHALL BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
6. THE ENDS OF THE BERM SHALL BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR ROCK BERMS:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

HIGH SERVICE ROCK BERMS
INSPECTION FORM

GENERAL NOTES:

1. WOVEN WIRE SHEATHING SHALL BE PERPENDICULAR TO THE FLOW LINE AND THE SHEATHING SHALL BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
2. BERM SHALL HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
3. PLACEMENT OF THE ROCK ALONG THE SHEATHING SHALL NOT BE LESS THAN 18 INCHES.
4. THE WIRE SHEATHING SHALL BE WRAPPED AROUND THE ROCK AND SECURED WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

BERM SHALL BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

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

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR HIGH SERVICE ROCK BERMS:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

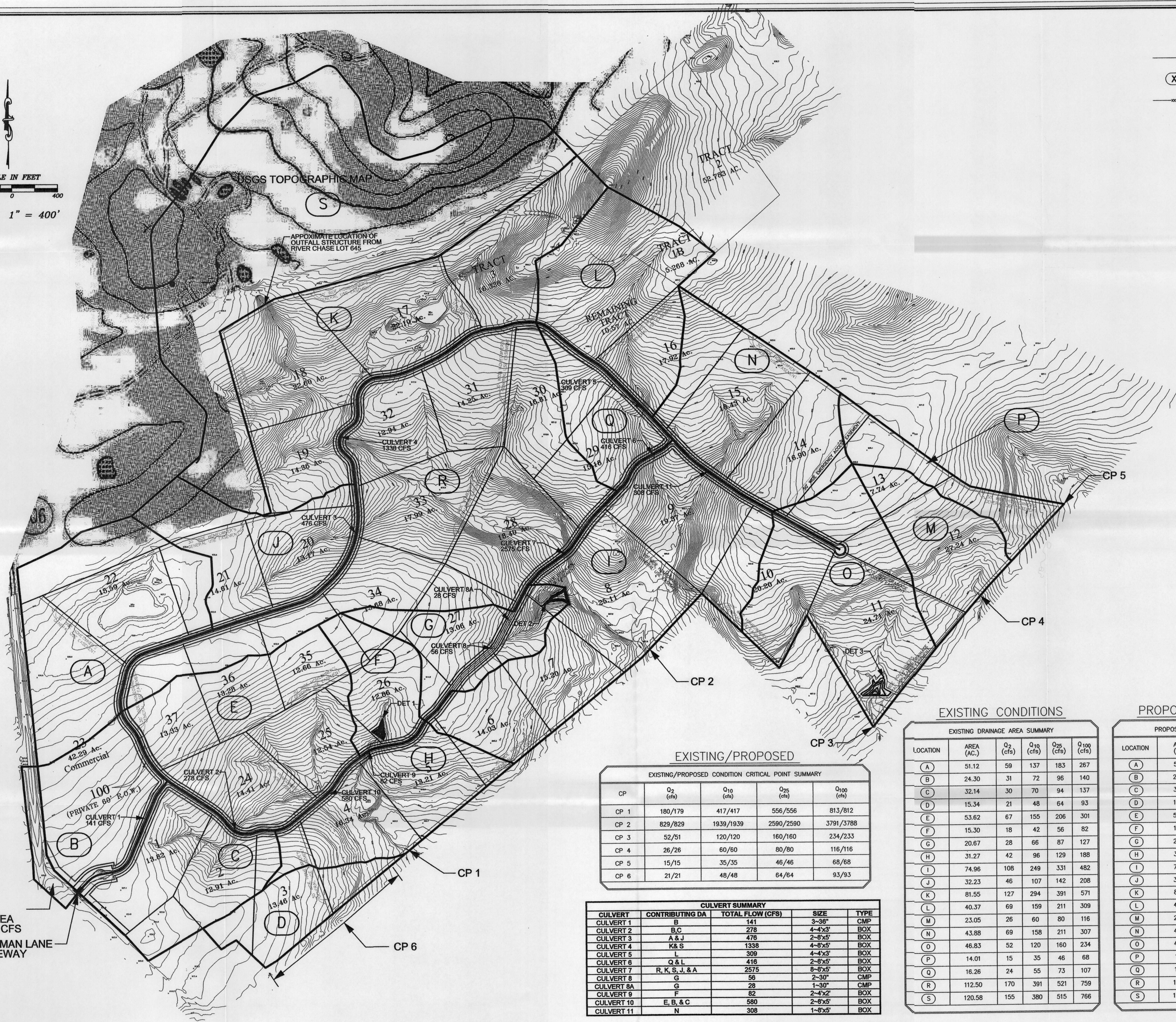
17. ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices.

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

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

ATTACHMENT G

MASTER DRAINAGE AREA MAP



EXISTING/PROPOSED CONDITION CRITICAL POINT SUMMARY				
CP	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)
CP 1	180/179	417/417	556/556	813/812
CP 2	829/829	1939/1939	2590/2590	3791/3788
CP 3	52/51	120/120	160/160	234/233
CP 4	26/26	60/60	80/80	116/116
CP 5	15/15	35/35	46/46	68/68
CP 6	21/21	48/48	64/64	93/93

CULVERT SUMMARY				
CULVERT	CONTRIBUTING DA	TOTAL FLOW (CFS)	SIZE	TYPE
CULVERT 1	B	141	3'-36"	CMP
CULVERT 2	B, C	278	4'-4x3'	BOX
CULVERT 3	A & J	476	2'-8x5'	BOX
CULVERT 4	K & S	1338	4'-6x5'	BOX
CULVERT 5	L	309	4'-4x3'	BOX
CULVERT 6	Q & L	416	2'-8x5'	BOX
CULVERT 7	R, K, S, J, & A	2575	8'-8x5'	BOX
CULVERT 8	G	56	2'-30"	CMP
CULVERT 8A	G	28	1'-30"	CMP
CULVERT 9	F	82	2'-4x2'	BOX
CULVERT 10	E, B, & C	580	2'-8x5'	BOX
CULVERT 11	N	308	1'-8x5'	BOX

EXISTING DRAINAGE AREA SUMMARY					
LOCATION	AREA (AC.)	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)
(A)	51.12	59	137	183	267
(B)	24.30	31	72	96	140
(C)	32.14	30	70	94	137
(D)	15.34	21	48	64	93
(E)	53.62	67	155	206	301
(F)	15.30	18	42	56	82
(G)	20.67	28	66	87	127
(H)	31.27	42	96	129	188
(I)	74.96	108	249	331	482
(J)	32.23	46	107	142	208
(K)	81.55	127	294	391	571
(L)	40.37	69	159	211	309
(M)	23.05	26	60	80	116
(N)	43.88	69	158	211	307
(O)	46.83	52	120	160	234
(P)	14.01	15	35	46	68
(Q)	16.28	24	55	73	107
(R)	112.50	170	391	521	759
(S)	120.58	155	380	515	766

PROPOSED DRAINAGE AREA SUMMARY					
LOCATION	AREA (AC.)	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₁₀₀ (cfs)
(A)	51.12	60	138	184	266
(B)	24.30	32	73	96	141
(C)	32.14	31	71	94	137
(D)	15.34	21	48	64	93
(E)	53.62	68	156	207	302
(F)	15.30	19	42	56	82
(G)	20.67	29	66	88	128
(H)	31.27	43	97	129	188
(I)	74.96	110	250	332	484
(J)	32.23	47	108	143	208
(K)	81.55	130	296	393	572
(L)	40.37	70	160	213	309
(M)	23.05	26	60	80	116
(N)	43.88	70	159	212	308
(O)	46.83	53	121	161	235
(P)	14.01	15	35	46	68
(Q)	16.26	24	55	73	107
(R)	112.50	173	394	523	761
(S)	120.58	155	380	515	766

LEGEND

DRAINAGE AREA BOUNDARY

DRAINAGE AREA

EXISTING CONTOUR

REVISIONS

DESCRIPTION

DATE _____



DRAINAGE AREA MAP FOR

RANCHES OF COMAL COUNTY



THE **Schultz Group.** INC.

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

DRAWN BY: STS

CHECKED BY: MGS

DATE: FEBRUARY 2012

JOB NO.: 040111

DRAINAGE EXHIBIT

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: The Ranches of Comal

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

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

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

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

 X This site will be used for low density single-family residential development and has 20% or less impervious cover.
 — 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. N/A The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

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

9. ☐ **N/A** 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.

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

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

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

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

11. N/A **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.
12. N/A The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
N/A Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.
— **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.
13. 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:

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


Signature of Customer/Agent

2/13/12
Date

ATTACHMENT A - EXEMPTION FROM PERMANENT BMP'S NOTIFICATION

Due to this site containing less than 20% impervious cover, other permanent BMP's are not required. If the percent impervious cover increases above 20% or land use changes, the exemption of the whole site as described in the property boundaries required by 30 TAC 213.4(g)(relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

ATTACHMENT B - BMP's for Upgradient Stormwater.

Permanent BMP's or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site because this stormwater consists primarily of runoff from surrounding properties that are adjacent to the project site and are of different ownership.

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

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

ATTACHMENT D - BMP's for Surface Streams.

The proposed Temporary BMP's for this site will consist of silt fence, high service rock berms and temporary construction entrance/exit. Due to this site having less than 20% impervious cover; no other permanent BMP's are required. However, a minimum of 50 ft. native environment buffer zones have been shown around all sensitive features and this can be found on the Site Plan in the Water Pollution Abatement Plan section of this report. The sensitive features are: Features: HS-31, 32, 52, 57, 67, 68, 75, 95, 98, 100, 104, 106, and HS-151.

ATTACHMENT I - Measures for Minimizing Surface Stream Contamination

As a result of the proposed 3.57% increase in impervious cover, there will be a minor increase in stormwater runoff that will make its way through the site and downstream of the site. There will be 3 detention ponds constructed as part of this development. These detention ponds will mitigate the increase in runoff and will meter back flows to the existing conditions during the 2, 10, 25, and 100-year storms events.

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

I _____ Thomas R. Powers _____
Print Name

_____ Managing Partner _____
Title - Owner/President/Other

of _____ Avalon Lakes, Ltd. _____
Corporation/Partnership/Entity Name

have authorized _____ Michael G. Short, P.E. _____
Print Name of Agent/Engineer

of _____ The Schultz Group, Inc. _____
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For 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:

Thomas R. Fowles
Applicant's Signature

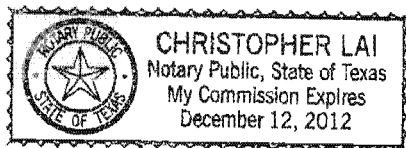
2/8/2012
Date

THE STATE OF TEXAS §

County of HARRIS §

BEFORE ME, the undersigned authority, on this day personally appeared THOMAS R. FOWLES 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 8 day of FEBRUARY, 2012.



Christopher Lai
NOTARY PUBLIC
CHRISTOPHER LAI
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12/12/2012

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

NAME OF PROPOSED REGULATED ENTITY: The Ranches of Comal
REGULATED ENTITY LOCATION: New Braunfels, Comal County, Texas.
NAME OF CUSTOMER: Avalon Lakes, LTD.
CONTACT PERSON: Michael G. Short, P.E. PHONE: 830-606-3913
(Please Print)

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

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

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

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

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

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

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	657.239 Acres	\$10,000.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	\$
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$


Signature

2/13/12
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	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$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



22-NOV-11 09:35 AM

TCEQ - A/R RECEIPT REPORT BY ACCOUNT NUMBER

<u>Fee Description</u>	<u>Fee Code</u> <u>Account#</u> <u>Account Name</u>	<u>Ref#1</u> <u>Ref#2</u> <u>Paid In By</u>	<u>Check Number</u> <u>Card Auth.</u> <u>User Data</u>	<u>CC Type</u> <u>Tran Code</u> <u>Rec Code</u>	<u>Slip Key</u> <u>Document#</u>	<u>Tran Date</u>	<u>Tran Amount</u>
EDWARDS AQUIF.	EAS	R209536	1141		BS00020082	22-NOV-11	-\$10,000.00
FEE/SAN ANTONIO	EAS		111711	N	D2801372		
	WQ EDWARDS AQUIFER/SAN	AVALON	KPREW	CK			
	ANTONIO	LAKES LTD					
					Total (Fee Code):		-\$10,000.00



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)			
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application)			
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input type="checkbox"/> Other	
2. Attachments Describe Any Attachments: (ex. Title V Application, Waste Transporter Application, etc.)			
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No The Ranches of Comal			
3. Customer Reference Number (if issued)		4. Regulated Entity Reference Number (if issued)	
CN		RN	

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)							
6. Customer Role (Proposed or Actual) – as it relates to the <u>Regulated Entity</u> listed on this form. Please check only <u>one</u> of the following:							
<input checked="" type="checkbox"/> Owner		<input checked="" type="checkbox"/> Operator		<input checked="" type="checkbox"/> Owner & Operator			
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party		<input type="checkbox"/> Voluntary Cleanup Applicant		<input type="checkbox"/> Other: _____	
7. General Customer Information							
<input checked="" type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information		<input type="checkbox"/> Change in Regulated Entity Ownership			
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State)				<input type="checkbox"/> No Change**			
**If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.							
8. Type of Customer:							
<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual		<input type="checkbox"/> Sole Proprietorship- D.B.A			
<input type="checkbox"/> City Government		<input type="checkbox"/> County Government		<input type="checkbox"/> Federal Government		<input type="checkbox"/> State Government	
<input type="checkbox"/> Other Government		<input type="checkbox"/> General Partnership		<input checked="" type="checkbox"/> Limited Partnership		<input type="checkbox"/> Other: _____	
9. Customer Legal Name (If an individual, print last name first: ex: Doe, John)				<i>If new Customer, enter previous Customer below</i> End Date:			
Avalon Lakes, Ltd.							
10. Mailing Address:		Thomas R. Powers					
		1929 Olympia St.					
City		Houston		State		TX	
ZIP		77019		ZIP + 4		3025	
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)			
(713) 822-3512				(713) 822-3512			
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)	
161726573		32035407157		N/A		0800489516	
20. Number of Employees						21. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

SECTION III: Regulated Entity Information

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

24. Street Address of the Regulated Entity: (No P.O. Boxes)	1312 Black Jack Oak							
	City	New Braunfels	State	TX	ZIP	78132	ZIP + 4	2437
25. Mailing Address:	Thomas R. Powers							
	1929 Olympia							
	City	Houston	State	TX	ZIP	77019	ZIP + 4	3025
26. E-Mail Address:								
27. Telephone Number			28. Extension or Code		29. Fax Number (if applicable)			
(713) 822-3512					(713) 822-3512			
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		8741		236115		236118		
34. What is the Primary Business of this entity? (Please do not repeat the SIC or NAICS description.)								
Residential Subdivision								

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

35. Description to Physical Location:	From San Antonio: Take IH 35 North into New Braunfels Texas, once you are in New Braunfels take the Canyon Lake/Hwy 306 exit, take a left onto Hwy 306, go approximately 8 miles on Hwy 306, and the project is located northeast of the corner of Hwy 306 and Hoffman Lane				
36. Nearest City		County		State	Nearest ZIP Code
New Braunfels		Comal		TX	78132
37. Latitude (N) In Decimal:		29.7999		38. Longitude (W) In Decimal: -98.0996	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	47	59.6796	-98	5	58.6566

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

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

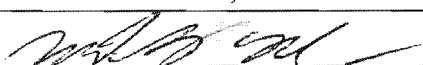
SECTION IV: Preparer Information

40. Name:	Michael G. Short, P.E.	41. Title:	Senior Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830) 606-3913		(830) 625-2204	mshort@schultzgroupinc.com

SECTION V: Authorized Signature

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

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

Company:	The Schultz Group, Inc.	Job Title:	Senior Engineer
Name (In Print):	Michael G. Short, P.E.	Phone:	(830) 606-3913
Signature:		Date:	2/13/12

