

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*

August 11, 2011

RECEIVED

AUG 15 2011

COUNTY ENGINEER

Mr. Ralph L. Mason  
MGCC Texas Enterprises, LLC  
P.O. Box 22775  
Oklahoma City, OK 73123-1775

Re: Edwards Aquifer, Comal County

Name of Project: **Sonic Drive In – New Braunfels**; Located approximately 300 feet west of the intersection of **SH 46 and Oak Sprawl**; 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 San Antonio File No. 2988.00; Investigation No. 932592; Regulated Entity No. RN106154206

Dear Mr. Mason:

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 Moeller & Associates on behalf of MGCC Texas Enterprises, LLC on May 31, 2011. Final review of the WPAP was completed after additional material was received on August 5, 2011. 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 commercial project will have an area of approximately 0.83 acres. It will include a restaurant building with associated parking, access drives, utilities, and water quality basin. The impervious cover will be 0.68 acres (82 percent). Project wastewater will be disposed of by

conveyance to the existing Gruene Road Water Recycling Center owned by the New Braunfels Utilities.

### **Permanent Pollution Abatement Measures**

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, a partial sedimentation/filtration basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 610 pounds of TSS generated from the 0.68 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measures will consist of a clay-lined partial sedimentation/filtration basin sized to capture the first 1.50 inches of stormwater run-off from 0.68 acres of impervious cover within a 0.83 acre catchment area, providing a total capture volume of 4,710 cubic feet (3,532 required). The filtration system for the basin will consist of 298 square feet of sand (294 square feet required) with an ASTM rating of C-33, which is 18 inches thick and an underdrain piping system covered with a minimum two inch gravel layer.

### **Geology**

According to the geologic assessment included with the application, the site is within the Cyclic and Marine Member of the Person Formation. One man-made feature was reported and assessed as not sensitive. The San Antonio Regional Office did not conduct a site assessment for this project.

### **Special Conditions**

1. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.
2. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

### **Standard Conditions**

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

*Prior to Commencement of Construction:*

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

*During Construction:*

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

approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. No wells exist on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden 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~~

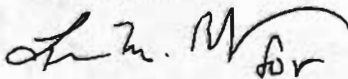
Mr. Ralph L. Mason  
August 11, 2011  
Page 5

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

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

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

Sincerely,



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

MRV/JA/eg

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

cc: Mr. Jeffery D. Moeller, P.E., Moeller & Associates  
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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Mr. Ralph L. Mason

August 11, 2011

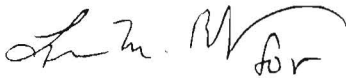
Page 5

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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,



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

MRV/JA/eg

Enclosures: Deed Recordation Affidavit, Form TCEQ-0625

Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Jeffery D. Moeller, P.E., Moeller & Associates  
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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COUNTY ENGINEER

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## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

June 6, 2011

RECEIVED

JUN 08 2011

COUNTY ENGINEER

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

Re: Edwards Aquifer, Comal County  
PROJECT NAME: Sonic Drive-in – New Braunfels, located near Loop 337 and Oak Run Parkway, New Braunfels, Texas  
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan, 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program  
EAPP File No.: 2988.00

Dear Mr. Hornseth:

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

Please forward your comments to this office by July 5, 2011.

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

Sincerely

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

Todd Jones  
Water Section Work Leader  
San Antonio Regional Office

TJ/eg

**WATER POLLUTION ABATEMENT PLAN**

**FOR**

**SONIC DRIVE IN – NEW BRAUNFELS**

PREPARED FOR

**Texas Commission on Environmental Quality**

Region 13 – San Antonio  
14250 Judson Road  
San Antonio, Texas 78233  
210-490-3096 (office)  
210-545-4329 (fax)

TCEQ-R13  
MAY 8 2011  
SAN ANTONIO

PREPARED BY



F-13351

Jeffrey D. Moeller, P.E.  
1040 N. Walnut Ave., Ste B  
New Braunfels, TX 78130

Prepared  
May 31, 2011





TCEQ Use Only

# TCEQ Core Data Form

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

## SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided)		
<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		
3. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number (if issued)
CN 603257791		RN

## SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)		
6. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check only one of the following:		
<input checked="" type="checkbox"/> Owner	<input type="checkbox"/> Operator	<input type="checkbox"/> Owner & Operator
<input type="checkbox"/> Occupational Licensee	<input type="checkbox"/> Responsible Party	<input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other: _____
7. General Customer Information		
<input 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 checked="" type="checkbox"/> No Change**	
<b>**If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.</b>		
8. Type of Customer:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual
<input type="checkbox"/> City Government	<input type="checkbox"/> County Government	<input type="checkbox"/> Federal Government
<input type="checkbox"/> Other Government	<input type="checkbox"/> General Partnership	<input type="checkbox"/> Limited Partnership
<input type="checkbox"/> Sole Proprietorship- D.B.A	<input type="checkbox"/> State Government	<input type="checkbox"/> Other: _____
9. Customer Legal Name (If an individual, print last name first: ex: Doe, John)		If new Customer, enter previous Customer below
		End Date:
10. Mailing Address:		
	City	State
	ZIP	ZIP + 4
11. Country Mailing Information (if outside USA)		12. E-Mail Address (if applicable)
13. Telephone Number	14. Extension or Code	15. Fax Number (if applicable)
( ) -		( ) -
16. Federal Tax ID (9 digits)	17. TX State Franchise Tax ID (11 digits)	18. DUNS Number (if applicable)
19. TX SOS Filing Number (if applicable)		
20. Number of Employees		21. Independently Owned and Operated?
<input 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 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)	
Sonic Drive In - New Braunfels	

24. Street Address of the Regulated Entity: (No P.O. Boxes)	1794 State Highway 46 W							
	City	New Braunfels	State	TX	ZIP	78132	ZIP + 4	3707
25. Mailing Address:	P.O. Box 22775							
	City	Oklahoma City	State	OK	ZIP	73123	ZIP + 4	1775
26. E-Mail Address:								
27. Telephone Number	28. Extension or Code			29. Fax Number (if applicable)				
( 405 ) 722-9390				( 405 ) 720-9113				
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)			
5812	N/A		722211		N/A			
34. What is the Primary Business of this entity? (Please do not repeat the SIC or NAICS description.)								
Drive in Restaurant								

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

35. Description to Physical Location:	Site is located on the north side of SH 46 approximately 300 feet west of the intersection of SH 46 and Oak sprawl.							
36. Nearest City	County			State		Nearest ZIP Code		
New Braunfels	Comal			TX		78132		
37. Latitude (N) In Decimal:	29.719414			38. Longitude (W) In Decimal:		98.163406		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
29	43	9.89	98	09	48.26			

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:

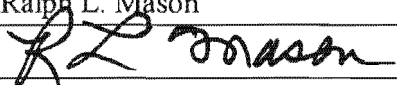
#### SECTION IV: Preparer Information

40. Name:	Jeff Moeller, P.E.	41. Title:	Authorized Agent
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
( 830 ) 358-7127		( 830 ) 515-5611	jeffm@ma-tx.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:	MGCC Texas Enterprises, LLC.	Job Title:	Manager
Name (In Print):	Ralph L. Mason	Phone:	( 405 ) 722-9390
Signature:		Date:	5-25-11

**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: Sonic Drive In – New Braunfels  
 COUNTY: Comal STREAM BASIN: Un-named Tributary of Blieders Creek  
 EDWARDS AQUIFER:  RECHARGE ZONE  
                            TRANSITION ZONE  
 PLAN TYPE:  WPAP                    AST                    EXCEPTION  
                   SCS                            UST                    MODIFICATION

**CUSTOMER INFORMATION**

1. Customer (Applicant):

Contact Person: Ralph L. Mason  
 Entity: MGCC Texas Enterprises, LLC.  
 Mailing Address: P.O. Box 22775  
 City, State: Oklahoma City, OK Zip: 73123-1775  
 Telephone: (405) 722-9390 FAX: (405) 720-9113  
 Agent/Representative (If any):

Contact Person: Jeffrey D. Moeller, P.E.  
 Entity: Moeller & Associates  
 Mailing Address: 1040 N. Walnut Ave., Ste B  
 City, State: New Braunfels, Texas Zip: 78130-5317  
 Telephone: (830) 358-7127 FAX: (830) 515-5611

2.  This project is inside the city limits of New Braunfels.  
 This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of \_\_\_\_\_.  
 This project is not located within any city's limits or ETJ.

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

The project site is located on the north side of SH 46 approximately 300 feet west of the intersection of SH 46 and Oak sprawl.

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

5.  **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind 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.  N/A 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 Contributing Zone Plan.
  - A request for an exception to any substantive portion of the regulations related to the protection of water quality.
  - A request for an extension to a previously approved plan.
12. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:
- TCEQ cashier
  - Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
  - San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)
13.  Submit one (1) original and three (3) copies of the completed application to the appropriate regional office for distribution by the TCEQ to the local municipality or county, groundwater conservation districts, and the TCEQ's Central Office.
14.  No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the executive director.
- No person shall commence any regulated activity until the Contributing Zone Plan for the activity has been filed with the executive director.

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

Jeffrey D. Moeller, P.E.  
 Print Name of Customer/Agent

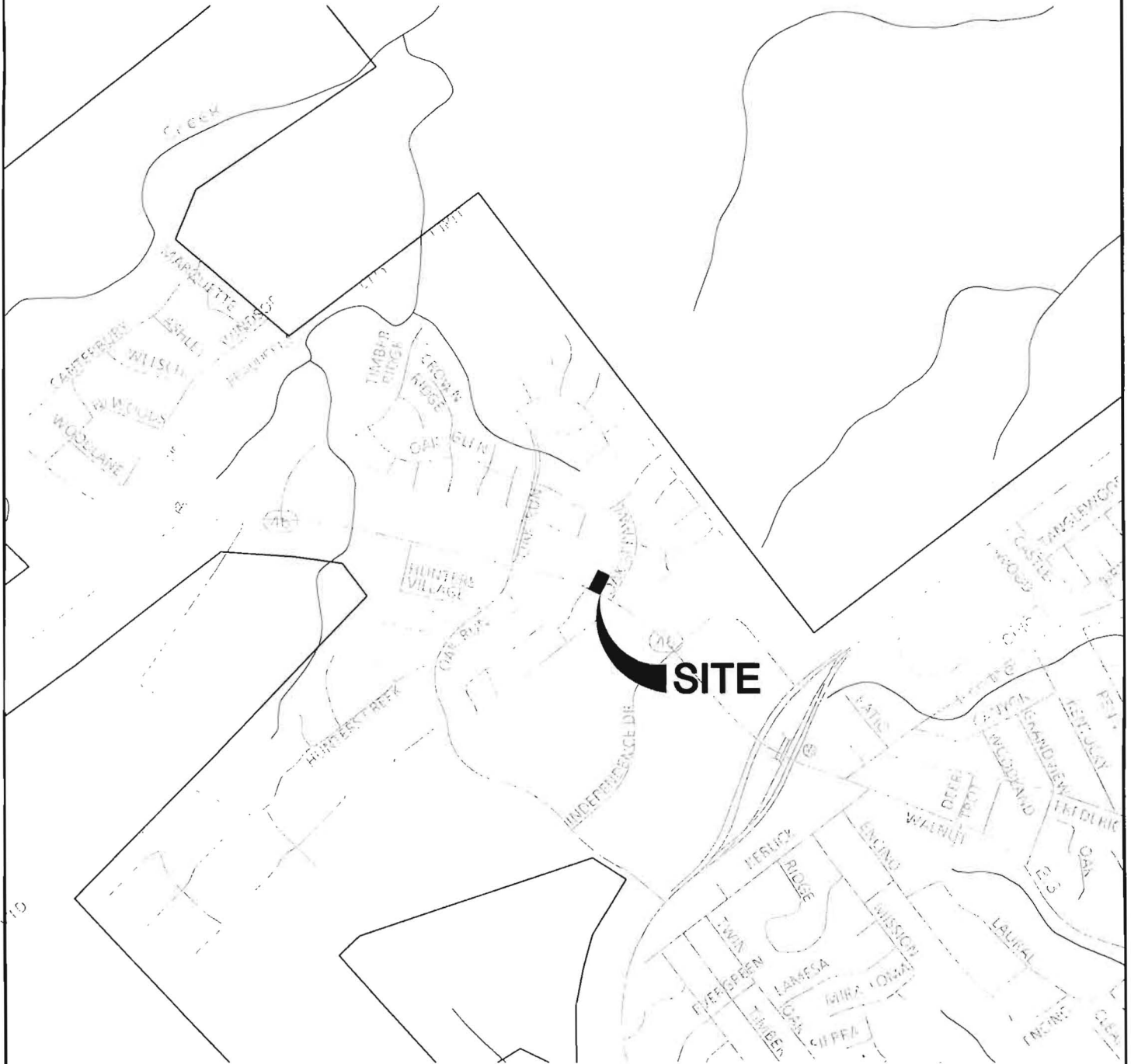
  
 Signature of Customer/Agent

5-31-11  
 Date

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

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

ATTACHMENT A



NOT-TO-SCALE



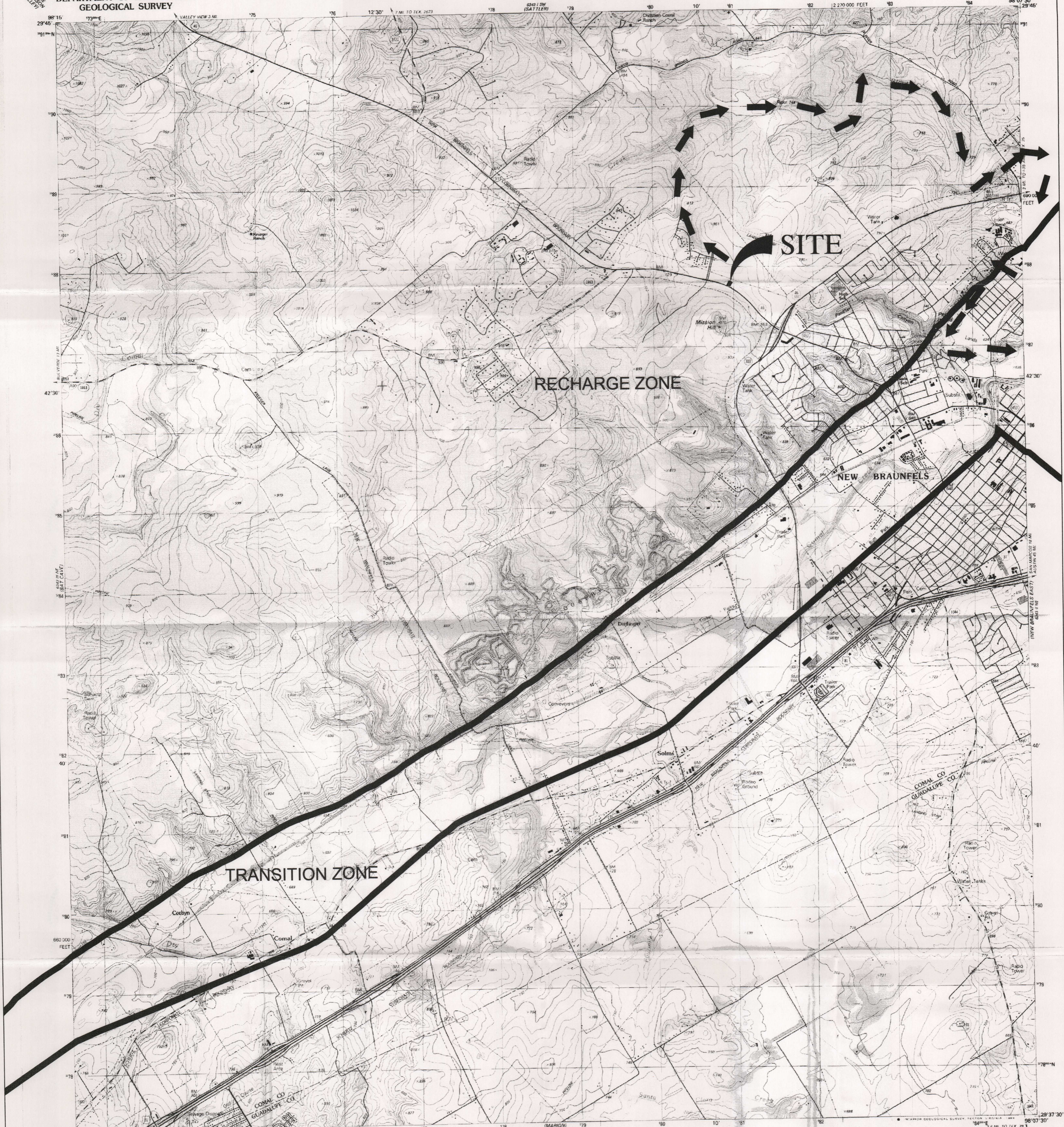
1040 N. WALNUT AVE. STE B, NEW BRAUNFELS, TX. 78130  
PH: 830-358-7127 www.mo-tx.com  
TBPE FIRM F-13351

LOCATION MAP  
SONIC DRIVE IN - NEW BRAUNFELS

DRAWN BY: SAK CHECKED BY: JDM

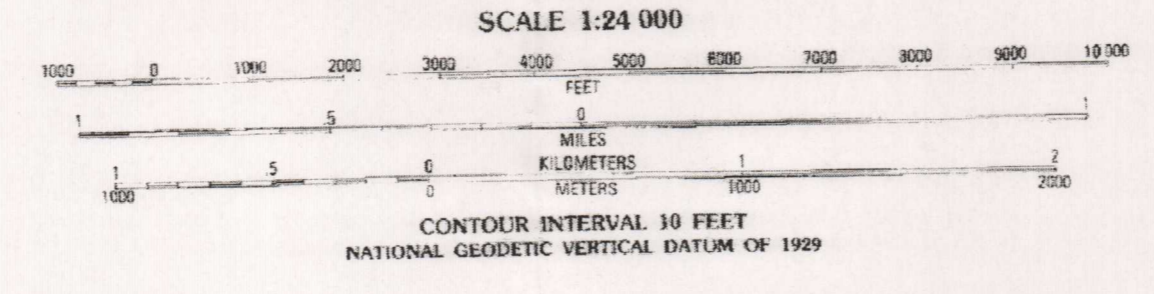
DATE: 5/2011

SHEET  
1  
OF  
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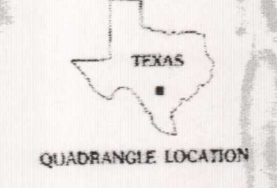


Produced by the United States Geological Survey  
Revised in cooperation with the Texas Water Development Board  
Control by USGS, NOS/NOAA, and USCE  
Compiled by the Army Map Service by photogrammetric methods  
from aerial photographs taken 1956. Field checked 1958  
Revised from aerial photographs taken 1986. Field checked 1987  
Map edited 1988  
Projection and 10,000-foot grid ticks: Texas coordinate  
system, south central zone (Lambert conformal conic)  
1000-meter Universal Transverse Mercator grid, zone 14  
1927 North American Datum  
To place on the predicted North American Datum 1983  
move the projection lines 20 meters south and  
28 meters east as shown by dashed corner ticks  
Fine red dashed lines indicate selected fence and field lines  
generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1983 MAGNETIC NORTH  
DECLINATION AT CENTER OF MAP  
DIAGRAM IS APPROXIMATE



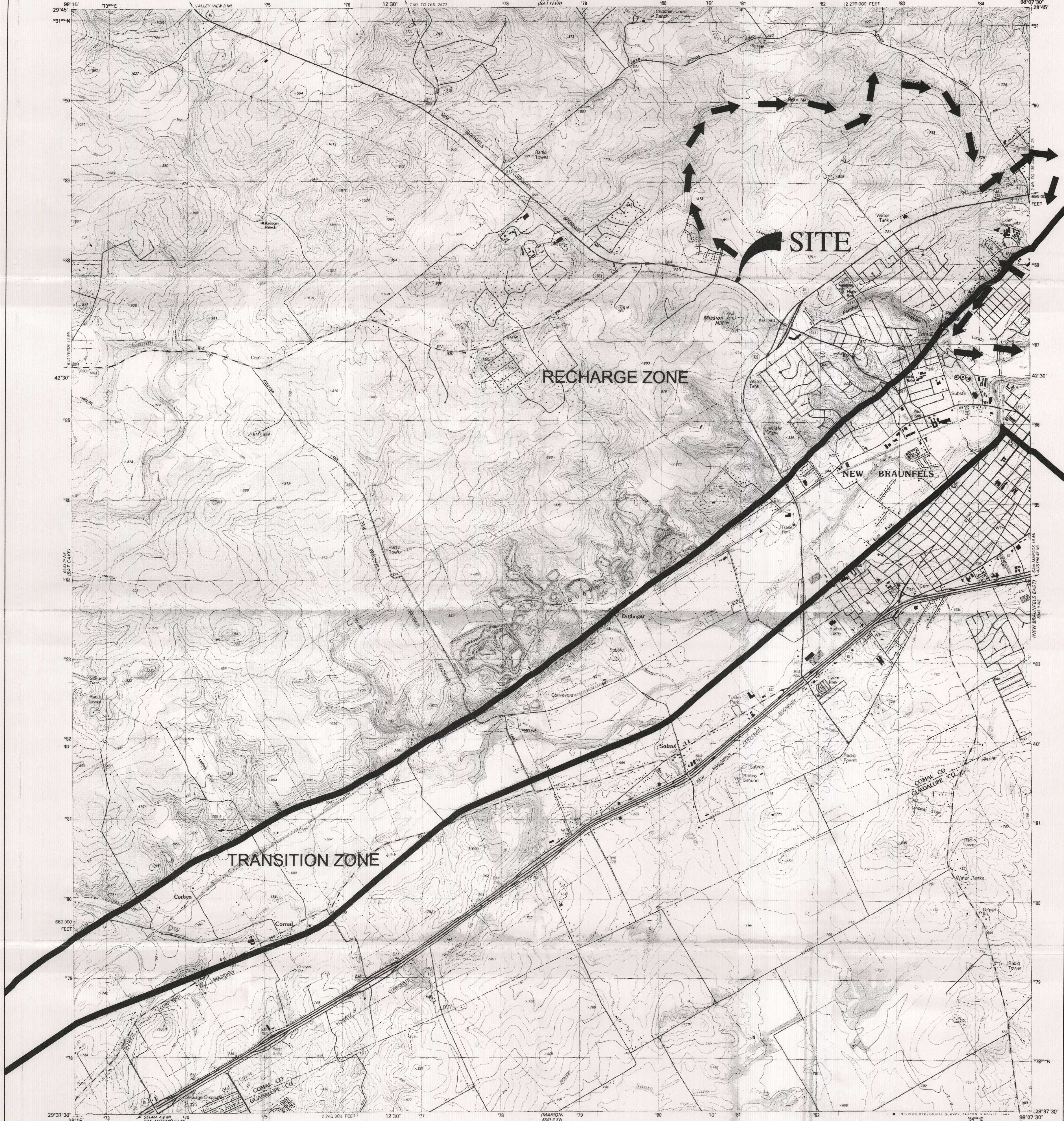
ROAD CLASSIFICATION  
Primary highway, hard surface ..... Light-duty road, hard or improved surface .....  
Secondary highway, hard surface ..... Unimproved road .....  
Interstate Route U. S. Route State Route



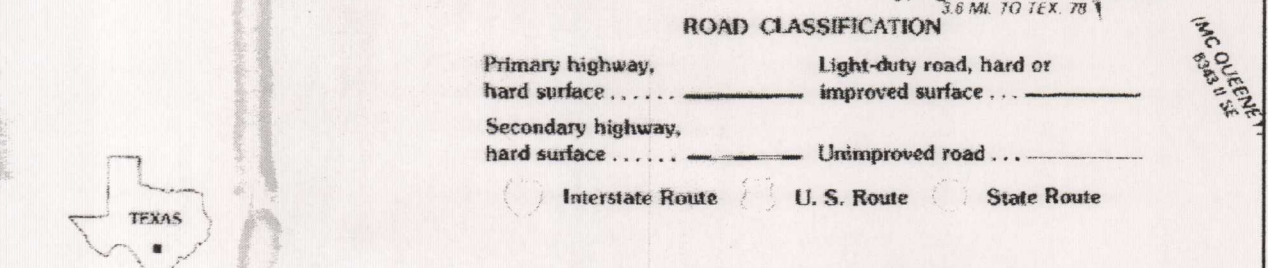
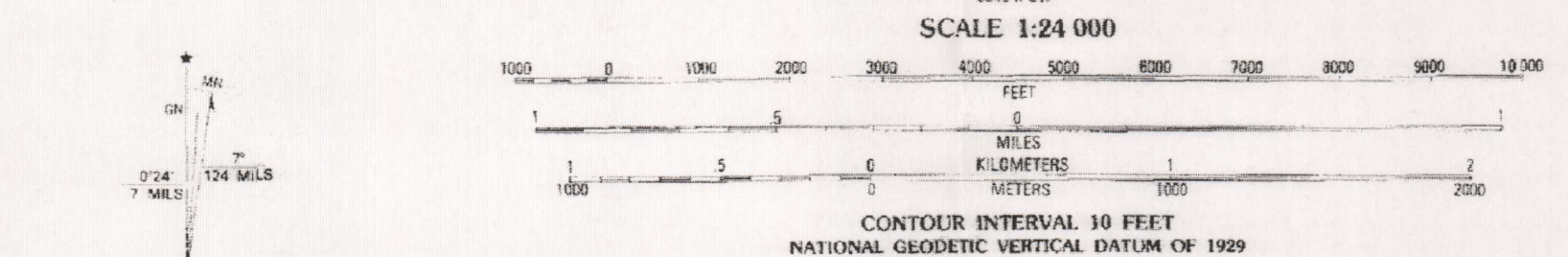
NEW BRAUNFELS WEST, TEX.  
25098-F2-TF-024  
1988  
DMA 6343 II NW-SERIES V822

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

2998-413



Produced by the United States Geological Survey  
Revised in cooperation with the Texas Water Development Board  
Control by USGS, NOS/NOAA, and USCE  
Compiled by the Army Map Service by photogrammetric methods  
from aerial photographs taken 1956. Field checked 1958  
Revised from aerial photographs taken 1966. Field checked 1967  
Map edited 1968  
Projection and 10,000-foot grid ticks: Texas coordinate  
system, south central zone (Lambert conformal conic)  
1000-meter Universal Transverse Mercator grid, zone 14  
1927 North American Datum  
To place on the predicted North American Datum 1983  
move the projection lines 20 meters south and  
28 meters east as shown by dashed corner ticks  
Fine red dashed lines indicate selected fence and field lines  
generally visible on aerial photographs. This information is unchecked



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

**ATTACHMENT “C”**  
**Project Description**

The proposed site is located on a 0.83 acre lot within Oak Run Commercial Reserve Unit 2. The proposed area to be disturbed is 0.81 acres with 0.68 acres (82%) of proposed impervious cover. The lot is located within the New Braunfels city limits on the north side of SH 46 approximately 300 feet west of the intersection of SH 46 and Oak sprawl. The site is served by New Braunfels Utilities for electric, water and wastewater. The site is currently cleared and there are no above ground improvements. A geologic assessment was prepared for this area with the WPAP submittal for Oak Run Commercial Reserve Unit 2 and that WPAP was approved on November 24, 2010 under TCEQ EAPP file number 2947.00. The same geologic assessment is included with this submittal. There were no sensitive features identified within the limits of this proposed project site.

The proposed use for the project is a 1,521 square foot Drive In Restaurant. No other planned uses are proposed for the site.

The proposed construction will include minor grading for the parking areas and building pad, utility service lines and building infrastructure.

According to the Flood Insurance Rate Map No. 48091C0435F the site is outside of the flood plain. The entire site drains to an unnamed tributary of Blieders creek. Stormwater runoff will be treated with a Sand Filtration Pond. The Sand Filtration Pond will ensure the quality of water exiting without adversely affecting the downstream drainage patterns. The treated stormwater is proposed to discharge into an existing underground storm drain system that conveys the runoff off-site.

The lot lies within the boundary of Oak Run Commercial Reserve Unit 2 WPAP. The Geologic Assessment performed for the Oak Run Commercial Reserve Unit 2 WPAP covered the entire commercial subdivision, including the proposed 0.83 acre lot. Therefore, an independent Geologic Assessment was not performed for this lot.

*Geologic Site Assessment (WPAP)  
for Regulated Activities / Development  
on the Edwards Aquifer Recharge / Transition Zone*

**The Oak Run Commercial Reserve  
Unit 2, 6.27 Acres  
New Braunfels, Texas**

*FROST GEOSCIENCES CONTROL # FGS-E10154*

*August 30, 2010*

---

*Prepared exclusively for*

*New Braunfels Investment Joint Venture  
2501 Oak Run Parkway  
New Braunfels, Texas 78132*

***Frost GeoSciences***

***Geotechnical ■ Construction Materials  
Forensics ■ Environmental***

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

**Frost GeoSciences**  
Geotechnical • Construction Materials  
Forensics • Environmental

13402 Western Oak  
Helotes, Texas 78023  
Phone (210) 372-1315  
Fax (210) 372-1318  
www.frostgeosciences.com  
TBPE Firm Registration # F-9227  
TBPG Firm Registration # 50040

August 30, 2010

New Braunfels Investment Joint Venture  
2501 Oak Run Parkway  
New Braunfels, Texas 78132

Attn: Mr. Rob Eversberg

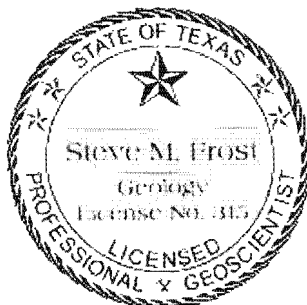
Re: Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
The Oak Run Commercial Reserve  
Unit 2, 6.27 Acres  
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-EI0154

Dear Sir:

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

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



Sincerely,  
Frost GeoSciences, Inc.

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

Distribution: (5) Pawelek & Moy, Inc.  
(1) New Braunfels Investment Joint Venture

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APPENDIX

A:    Plate 1:    Site Plan

        Plate 2:    Street Map

        Plate 3:    USGS Topographic Map

        Plate 4:    Official Edwards Aquifer Recharge Zone Map

        Plate 5:    FEMA Flood Map

        Plate 6:    Geologic Map

        Plate 7:    2009 Aerial Photograph, 1"=500'

        Plate 8:    2009 Aerial Photograph with PRF's, 1"=200'

        Plate 9:    1973 Aerial Photograph, 1"=500'

B:    Site Photographs

C:    Site Geologic Map



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

REGULATED ENTITY NAME: The Oak Run Commercial Reserve, Unit 2, 6.27 Acres

TYPE OF PROJECT:  WPAP  AST  SCS  UST

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

PROJECT INFORMATION

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

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
Rumple-Comfort Association	C/D	1 to 2

* Soil Group Definitions (Abbreviated)
A. Soils having a <u>high infiltration</u> rate when thoroughly wetted
B. Soils having a <u>moderate infiltration</u> rate when thoroughly wetted
C. Soils having a <u>slow infiltration</u> rate when thoroughly wetted
D. Soils having a <u>very slow infiltration</u> rate when thoroughly wetted

- 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.
- 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.
- 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" = 40'  
 Site Geologic Map Scale                        1" = 40'  
 Site Soils Map Scale (if more than 1 soil type) 1" = 500'

- Method of collecting positional data:

- Global Positioning System (GPS) technology.
- Other method(s): 2009 Aerial Photograph
- 7.  The project site is shown and labeled on the Site Geologic Map
- 8.  Surface geologic units are shown and labeled on the Site Geologic Map
- 9.  Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- Geologic or manmade features were not discovered on the project site during the field investigation.
- 10.  The Recharge Zone boundary is shown and labeled, if appropriate.
- 11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):
  - There are \_\_\_ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    - The wells are not in use and have been properly abandoned.
    - The wells are not in use and will be properly abandoned.
    - The wells are in use and comply with 16 TAC Chapter 76.
  - There are no wells or test holes of any kind known to exist on the project site.

**ADMINISTRATIVE INFORMATION**

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

Date(s) Geologic Assessment was performed: August 26, 2010  
Date(s)

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

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

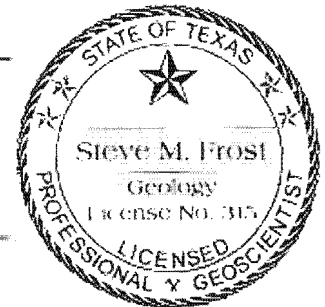
(210) 372-1315  
Telephone

*Steve Frost*  
Signature of Geologist

(210) 372-1318  
Fax

August 30, 2010  
Date

Representing Frost GeoSciences, Inc.  
(Name of Company)



If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210480-3096 for projects located in the San Antonio Region or 512/339-2829 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 512/339-3282.

## Stratigraphic Column

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

Hydrogeologic subdivision	Group, formation, or member	Hydro-logic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity, permeability type				
Upper Cenozoic	Eagle Feed Gossip	CU	30 - 50	Brown, flaggy shale and argillaceous limestone	Thin flagstones, percoliferous	None	Primary porosity lost/ low permeability				
	Budd Limestone	CU	40 - 50	Buff, light gray, dense mudstone	Porcelaneous limestone with calcite filled veins	Minor surface karst	Low porosity/low permeability				
	Del Rio Clay	CU	40 - 50	Blue-green to yellow-brown clay	Fossiliferous, <i>Drymonia attenuata</i>	None	None/primary upper confining unit				
Lower Cenozoic	Edwards aquifer	Edwards Group	Person Formation	I	Georgetown Formation	Karst AQ, not karst CU	2 - 20	Reddish-brown, gray to light tan marly limestone	Marker fossil <i>Murchisonella mucronata</i>	None	Low porosity/low permeability
				II	Cyclic and marine members, undivided	AQ	80 - 90	Mudstone to packstone; <i>mitisidol</i> grainstone; chert	Thin graded cycles; massive beds to relatively thin beds; crossbeds	Misty subsurface; might be associated with earlier karst development	Laterally extensive; both fabric and no fabric/water yielding
			III	Leached and collapsed members, undivided	AQ	70 - 90	Crystalline limestone; mudstone to grainstone; chert collapsed horizons	Disturbed iron-stained beds separated by massive limestone beds; stromatolite limestone	Extensive lateral development; large rooms	Majority not fabric; one of the most permeable	
			IV	Regional dense member	CU	20 - 24	Dense, argillaceous mudstone	Wavy iron-oxide stains	Very few; only vertical fracture enlargement	Not fabric/low permeability; vertical barrier	
			V	Grainstone member	AQ	50 - 60	<i>Mitisidol</i> grainstone; mudstone to wackestone; chert	White crossbedded grainstone	Few	No fabric/ recrystallization reduces permeability	
			VI	Karschberg evaporitic member	AQ	50 - 60	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids with neopore and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable	
			VII	Dolomitic member	AQ	110 - 130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, <i>Trematis</i> abundant	Caves related to structure or bedding planes	Mostly not fabric; some bedding plane fabric/water yielding	
			VIII	Basal nodular member	Karst AQ, not karst CU	50 - 60	Steady, nodular limestone; mudstone and <i>mitisidol</i> grainstone	Massive, nodular and mottled, <i>Elogona</i> common	Large lateral caves at surface, a few caves near Cibola Creek	Fabric; stratigraphically controlled large conduit flow at surface; no permeability in subsurface	
	Lower confining unit	Upper member of the Glen Rose Limestone	CU; evaporitic beds AQ	350 - 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporitic beds/relatively impermeable			



## LOCATION

The project site consists of 6.27 acres of land located along and north of State Highway 46 near the northeastern corner of the intersection of Oak Run Parkway and State Highway 46 in New Braunfels, Texas. An overall view of the area is shown on copies of the site plan, a street map, the USGS Topographic Map, the Official Edwards Aquifer Recharge Zone Map, the Flood Insurance Rate Map (FIRM), a geologic map, a 2009 aerial photograph at a scale of 1"=500', a 2009 aerial photograph at a scale of 1"=200', and a 1973 aerial photograph at a scale of 1"=500', Plates I through 9 in Appendix A.

## METHODOLOGY

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

Frost GeoSciences, Inc. researched the geology of the area in the immediate vicinity of the project site. The research included, but was not limited to, the Geologic Atlas of Texas, San Antonio Sheet, FIRM maps, Edwards Aquifer Recharge Zone Maps, USGS 7.5 Minute Quadrangle Maps, the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the USGS Water-Resources Investigations Report 94-4117 and the USDA Soil Survey of Comal & Hays County, Texas.

After reviewing the available information, a field investigation was performed to identify any geologic or man-made potential recharge features. A transect spacing of approximately 50 feet or less, depending on vegetation thickness, was used to inspect the project site. A 2009 aerial photograph, in conjunction with a hand held Garmin eTrex Summit Global Positioning System with an Estimated Potential Error ranging from 10 to 15 feet, was used to navigate around the property and identify the locations of potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The locations of any potential recharge features noted in the field were identified with blue and white flagging. The flagging is

numbered with the same potential recharge feature I.D. # that is used on the Site Geologic Map in Appendix C of this report. The Site Geologic Map indicating the limits of the project site is included in Appendix C. A copy of a 2009 aerial photograph at an approximate scale of 1"=200', indicating the locations of the potential recharge features, is included on Plate 8 in Appendix A. The Geologic Assessment Form, Stratigraphic Column and the Geologic Assessment Table have been filled with the appropriate information for this project site and are included on pages 1-4 of this report.

## **RESEARCH & OBSERVATIONS**

### **7.5 Minute Quadrangle Map Review**

According to the USGS 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988), the elevation of the project site is approximately 870 feet. This elevation is calculated above mean sea level (AMSL). The surface runoff from the project site flows to the west into an unnamed tributary of Blieders Creek. State Highway 46 is located immediately south of the project site. Oak Run Parkway is located west of the project site. A copy of the above referenced USGS 7.5 Minute Quadrangle Map, indicating the location of the project site, is included in this report on Plate 3 in Appendix A.

### **Recharge / Transition Zone**

According to Official Edwards Aquifer Recharge Zone Map 31, New Braunfels West, Texas Sheet (1996), the project site is located within the Recharge Zone of the Edwards Aquifer. A copy of Official Edwards Aquifer Recharge Zone Map 31, indicating the location of the project site, is included on Plate 4 in Appendix A.

### **100-Year Floodplain**

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Comal County, Texas, Community Panel Number 48091C0435F (Revised 9/02/09) was reviewed to determine if the project site is located in areas prone to flooding. A review of the above-

mentioned panel indicates that no portion of the project site is located within the 100 year floodplain. The project site is located within Zone X. According to the panel legend, Zone X represents areas determined to be outside the 0.2% annual chance floodplain. A copy of the Comal County, Texas, FIRM map, indicating the location of the project site, is included in this report on Plate 5 in Appendix A.

### Soils

According to the United States Department of Agriculture, Soil Conservation Service, Soil Survey of Comal & Hays County, Texas (1982), the project site is located on the Rumple-Comfort Association (RUD). A copy of the 1973 aerial photograph (approximate scale: 1"=500') from the USDA Soil Survey of Comal & Hays County, Texas indicating the location of the project site and the soil types is included on Plate 9 in Appendix A.

The Rumple-Comfort Association (RuD) consists of shallow and moderately deep soils on uplands in the Edwards Plateau Land Resource Area. The surface layer of the Rumple Soil is dark reddish brown very cherty clay loam about 10 inches thick. Rounded chert and limestone cobbles and gravel cover about 20 percent of the surface. The subsoil to a depth of 14 inches is dark reddish-brown very cherty clay, and to a depth of 28 inches it is dark reddish-brown extremely stony clay. The underlying material is indurated fractured limestone. The Comfort Soil is dark brown, neutral, extremely stony clay about 7 inches thick. The subsoil to a depth of 12 inches is dark reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated fractured limestone. The soil is noncalcareous throughout. The soils in this association are well drained. Surface runoff is medium, but varies due to the occurrence of caves, fracture zones, and sinks. Permeability is moderately slow. Water erosion is a moderate hazard.

### Narrative Description of the Site Geology

The project site exists as undeveloped land. The site was mowed and supported only minor amounts of vegetative cover with a thick stand of cut native grasses. No areas of natural rock outcrops were noted during the on-site inspection. The site appears to support a

thick soil cover. The variations in the vegetative cover across the project site are visible in the 2009 aerial photographs on Plates 7 and 8 in Appendix A and in the site visit photographs included in Appendix B. One PRF's was identified during our site inspection.

S-1 consists of a manmade feature in bedrock (MB) located along the northern fence line. This feature is a storm drain collector consisting of an area of internal drainage approximately 30 feet wide and 40 feet long. The feature is approximately 5 feet deep and empties into a storm drain pipe. The feature is lined with course boulder rubble to prevent erosion into the storm drain collector. This feature is not considered sensitive by FGS. These feature scores a 37 on the feature assessment table on page 4.

According to the USGS 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988), the elevation of the project site is approximately 870 feet. This elevation is calculated above mean sea level (AMSL). According to topographic data obtained from Pawelek & Moy, Inc., the elevations on the project site range from 860 near the northwestern property corner to 875 feet near the southeastern property corner. A copy of the site plan, indicating the boundary of the project site and the elevations, is included on Plate 1 in Appendix A and on the Site Geologic Map in Appendix C of this report.

According to the WRI 94-4117 Geologic Map of Comal County, Texas, and the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the project site is covered by the Cyclic and Marine Member of the Cretaceous Edwards Person Limestone.

The Cyclic and Marine Member of the Cretaceous Edwards Person Limestone consists of mudstone to packstone and miliolid grainstone with chert. The member is characterized by massive beds of limestone to relatively thin beds of limestone with some crossbedding. The Cyclic and Marine Member forms a few caves some that are laterally extensive. Overall thickness ranges from 80 to 90 feet thick.

A copy of the WRI 94-4117 Geologic Map, indicating the location of the project site, is included on Plate 6a in Appendix A. A copy of the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, indicating the location of the project site, is included on Plate 6b in Appendix A.



**BEST MANAGEMENT PRACTICE (BMP)**

Based on a visual inspection of the ground surface the overall potential for fluid flow from the project site into the Edwards Aquifer appears to be low. The potential always exists to encounter subsurface features that lack a surface expression. Frost GeoSciences, Inc. recommends that we be included in the pre-construction meeting to inform construction personnel of the potential to encounter subsurface karst features during excavating activities. Construction personnel should also be informed of the proper protocol to follow in the event that a solution cavity and/or cave is encountered during the excavation and development of the property.

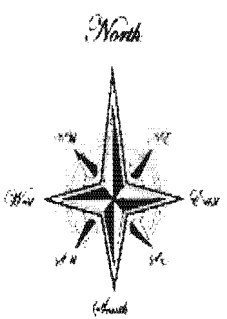
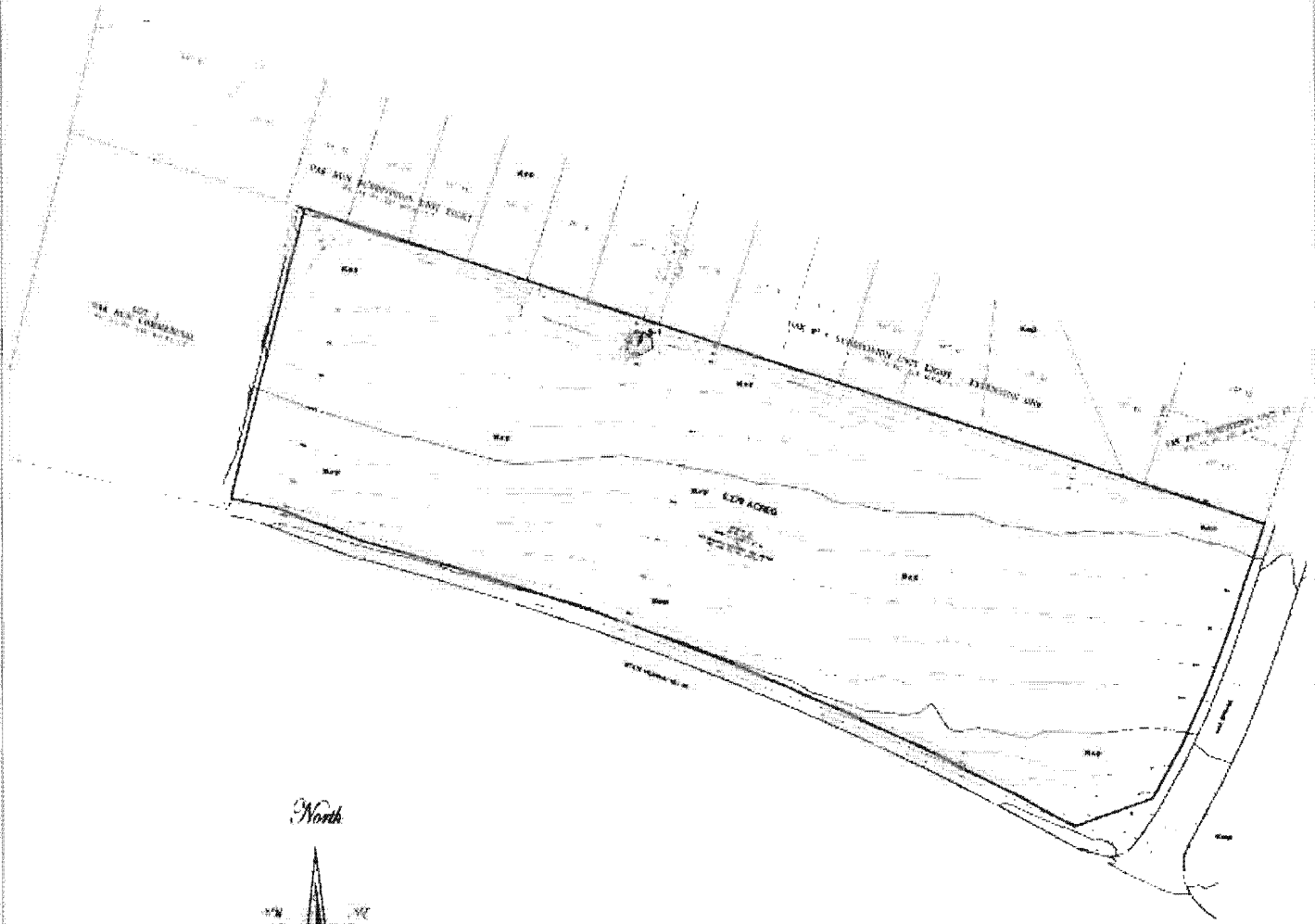
**DISCLAIMER**

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

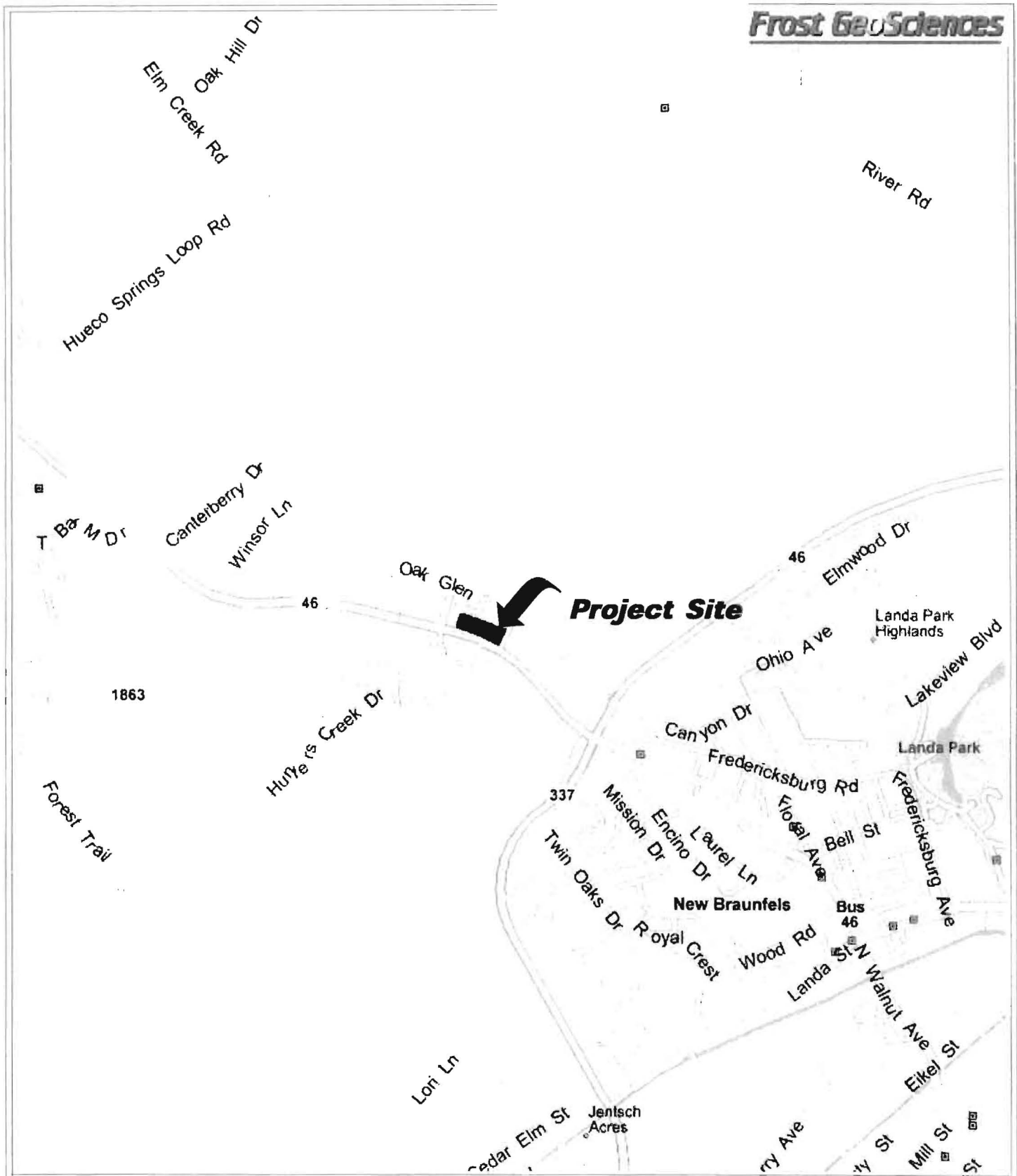
This report has been prepared for and may be relied upon by New Braunfels Investment Joint Venture, and Pawelek & Moy, Inc. This report is based on available known records, a visual inspection of the project site and the work generally accepted for a Geologic Assessment TAC §213.5(b)(3), effective June 1, 1999.

**REFERENCES**

- 1) USGS 7.5 Minute Quadrangle Map, New Braunfels West, Texas Sheet (1988),
- 2) Official Edwards Aquifer Recharge Zone Map 31, New Braunfels West, Texas Sheet (1996).
- 3) Stein, W.G. and Ozuna, G.B., 1995, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Comal County, Texas. U.S. Geological Survey Water Resources Investigations 94-4117.
- 4) Collins, Edward, W., 2000, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle.
- 5) Federal Emergency Management Agency (FEMA), Bexar County, Texas and Incorporated Areas, Flood Insurance Rate Map (FIRM), Panel 48091C0435F (9/02/09) FEMA, Washington D.C.
- 7) USDA Soil Conservation Service, Soil Survey of Comal & Hays Counties, Texas (1982).
- 8) TCEQ-0585-Instructions (Rev. 10-1-04). "Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zone".



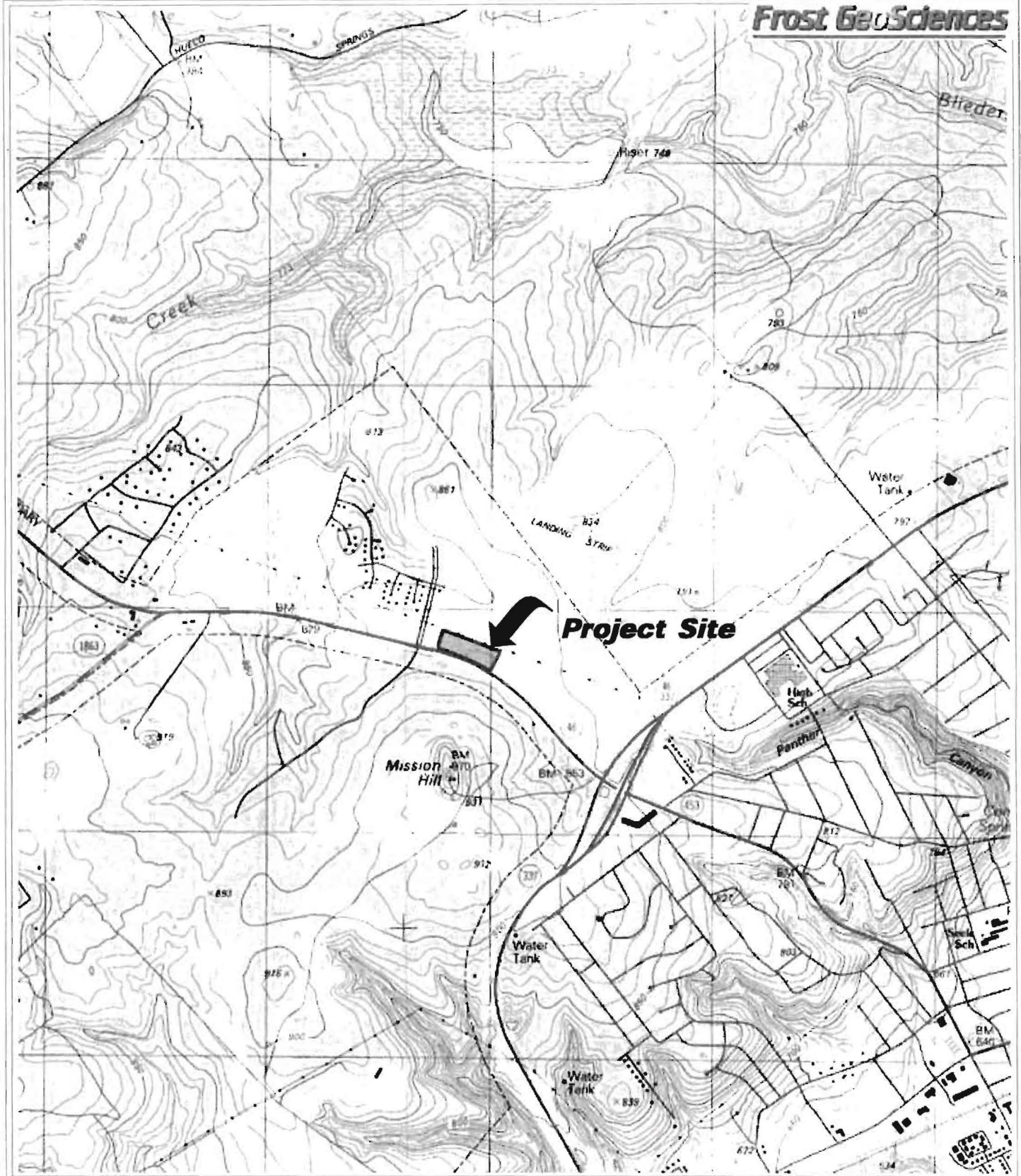
<p><b>PROJECT NAME:</b>                  Geologic Site Assessment (WPAP)                  for Regulated Activities / Development on the                  Edwards Aquifer Recharge / Transition Zone                  The Oak Run Commercial Reserve, 6.27 Acres                  New Braunfels, Texas</p>	<p>Site Plan</p>	
	<p><b>PROJECT NO.:</b>                  FGS-E10154</p>	<p><b>DATE:</b>                  August 30, 2010</p>



**PROJECT NAME:**  
 Geologic Site Assessment (WPAP)  
 for Regulated Activities / Development on the  
 Edwards Aquifer Recharge / Transition Zone  
 The Oak Run Commercial Reserve, 6.27 Acres  
 New Braunfels, Texas

**Street Map**

<b>PROJECT NO.:</b> FGS-E10154	<b>DATE:</b> August 30, 2010
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**PROJECT NAME:**

Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
The Oak Run Commercial Reserve, 6.27 Acres  
New Braunfels, Texas

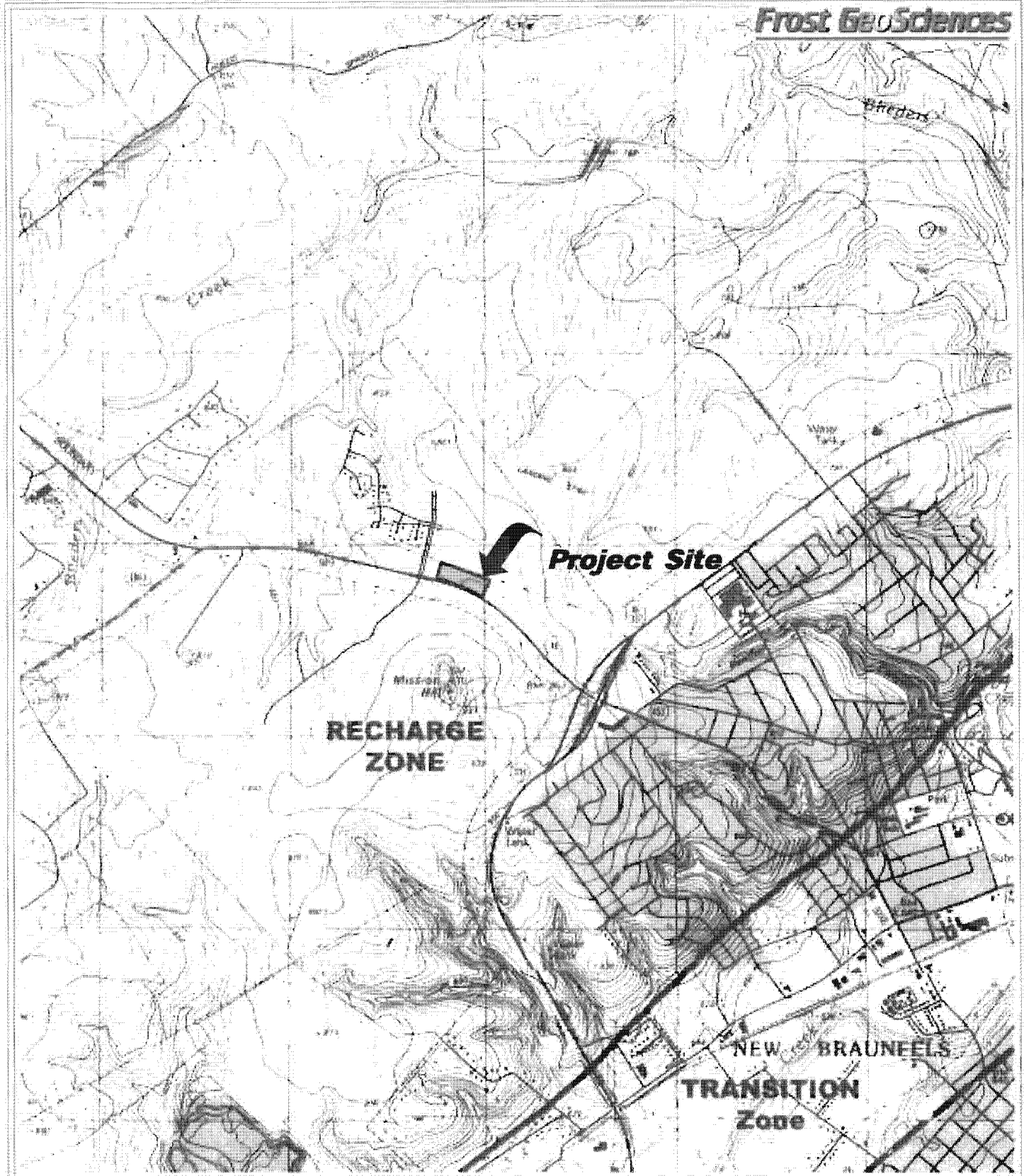
U.S.G.S. 7.5 Minute Quadrangle Map  
New Braunfels West, Texas Sheet (1988)

**PROJECT NO.:**

FGS-E10154

**DATE:**

August 30, 2010



**PROJECT NAME:**

Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
The Oak Run Commercial Reserve, 6.27 Acres  
New Braunfels, Texas

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

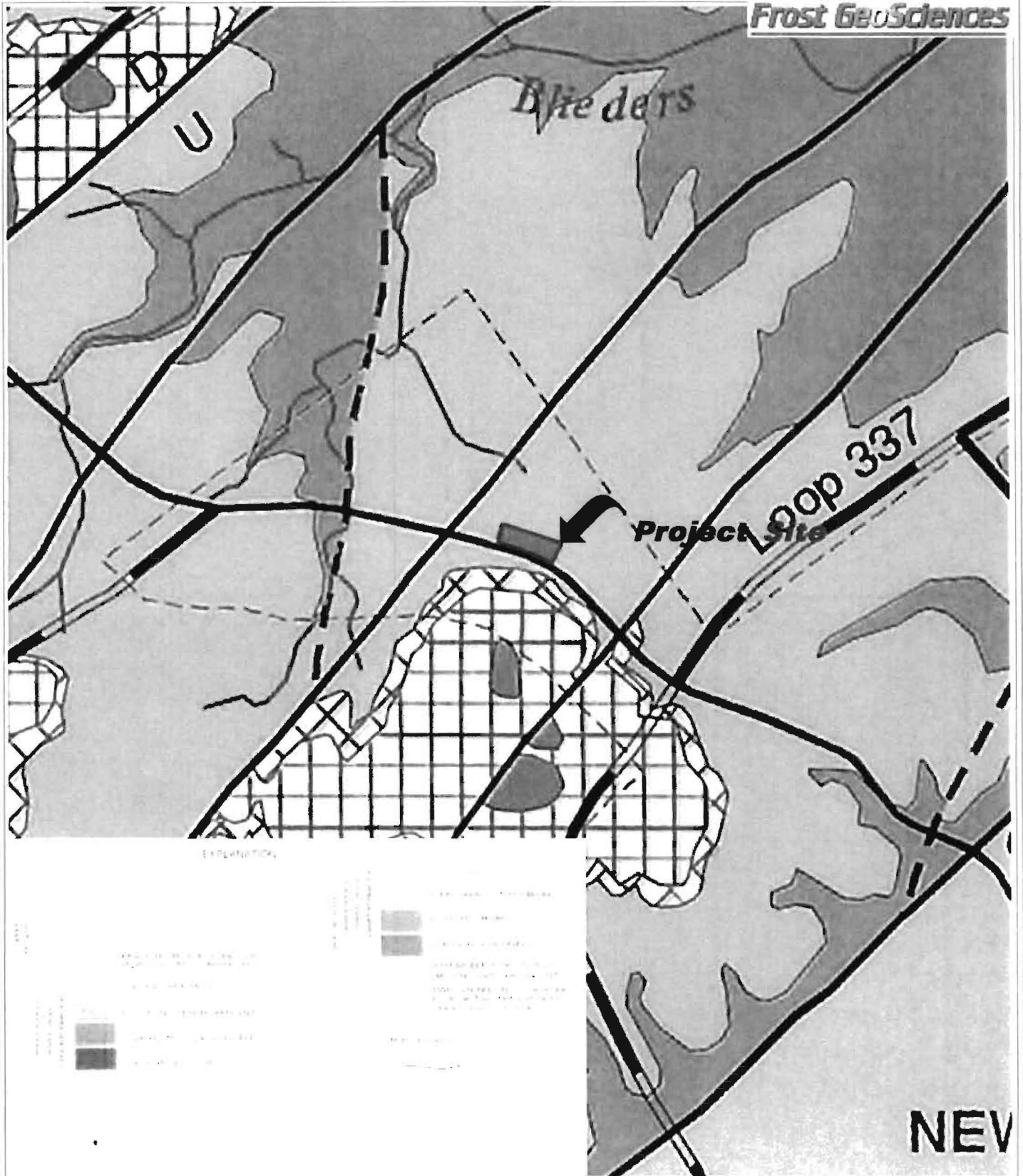
**PROJECT NO.:**

FGS-E10154

**DATE:**

August 30, 2010





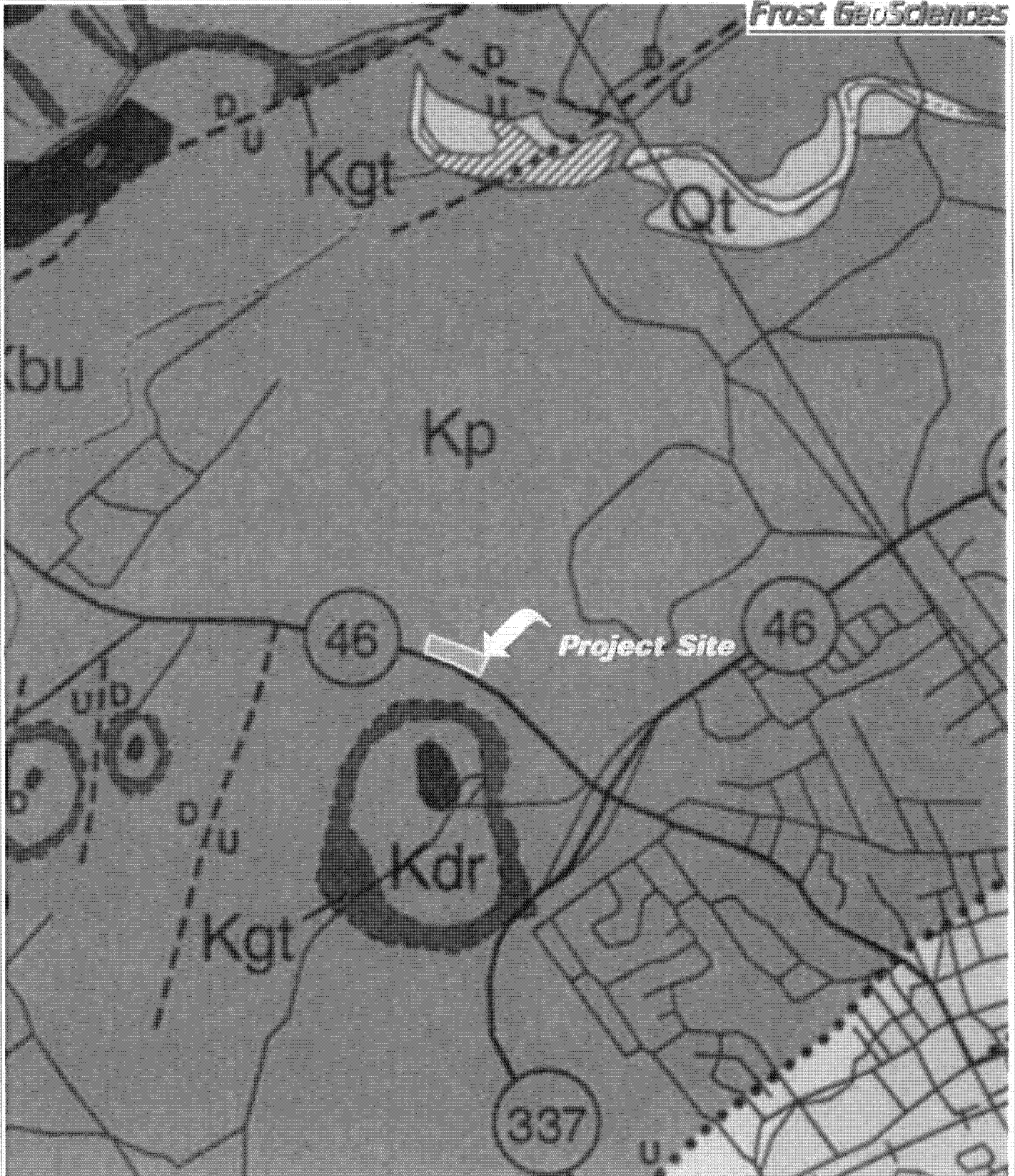
**PROJECT NAME:**  
 Geologic Site Assessment (WPAP)  
 for Regulated Activities / Development on the  
 Edwards Aquifer Recharge / Transition Zone  
 The Oak Run Commercial Reserve, 6.27 Acres  
 New Braunfels, Texas

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

**PROJECT NO.:**  
 FGS-E10154

**DATE:**  
 August 30, 2010





**PROJECT NAME:**

Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
The Oak Run Commercial Reserve, 6.27 Acres  
New Braunfels, Texas

Bureau of Economic Geology  
Geologic Map of the New Braunfels, Texas  
30 X 60 Minute Quadrangle (2000)

**PROJECT NO.:**

FGS-EI0154

**DATE:**

August 30, 2010



**PROJECT NAME:**

Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
The Oak Run Commercial Reserve, 6.27 Acres  
New Braunfels, Texas

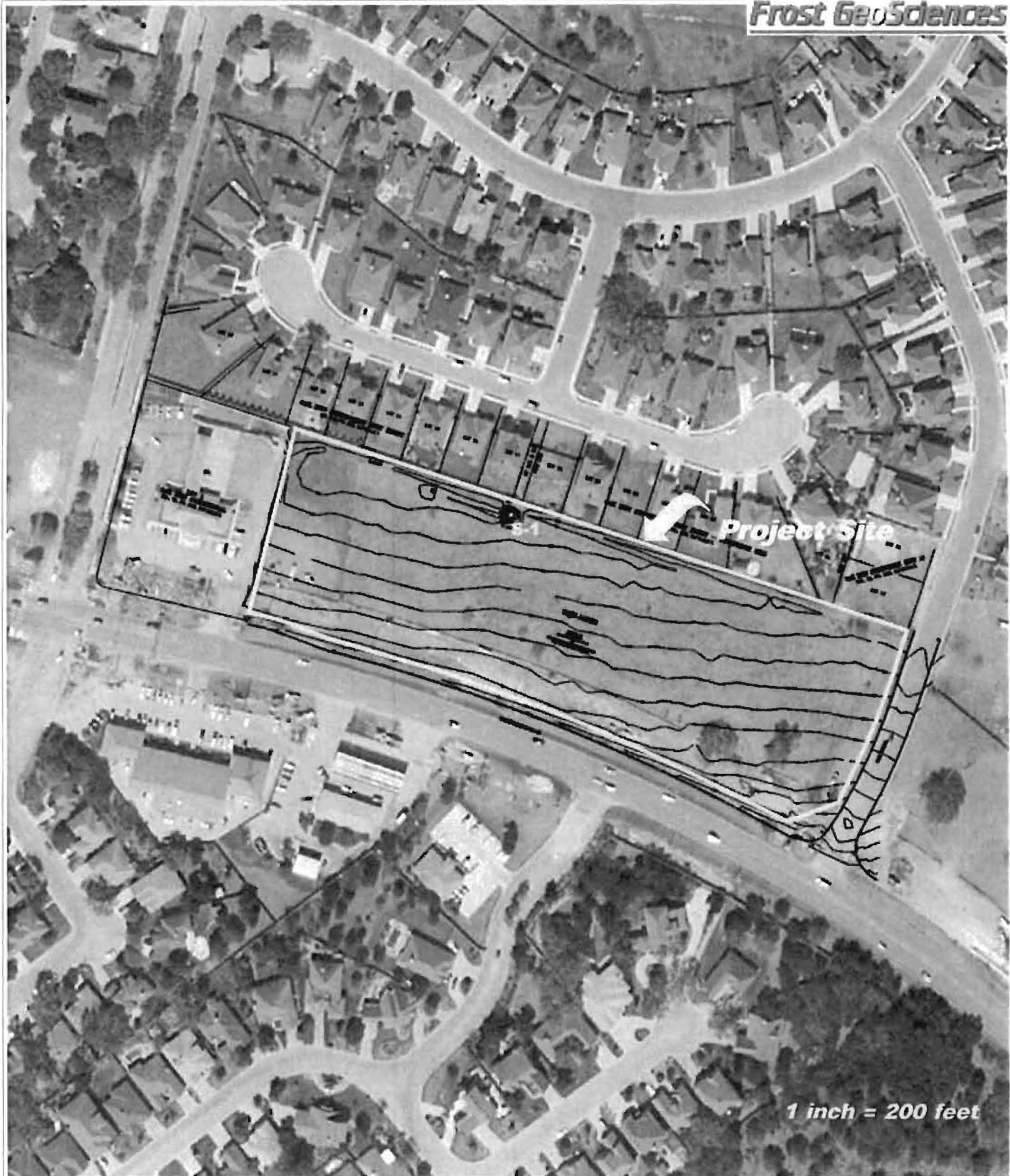
**2009 Aerial Photograph**  
Landiscor Aerial Information

**PROJECT NO.:**

FGS-E10154

**DATE:**

August 30, 2010



**PROJECT NAME:**

Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
The Oak Run Commercial Reserve, 6.27 Acres  
New Braunfels, Texas

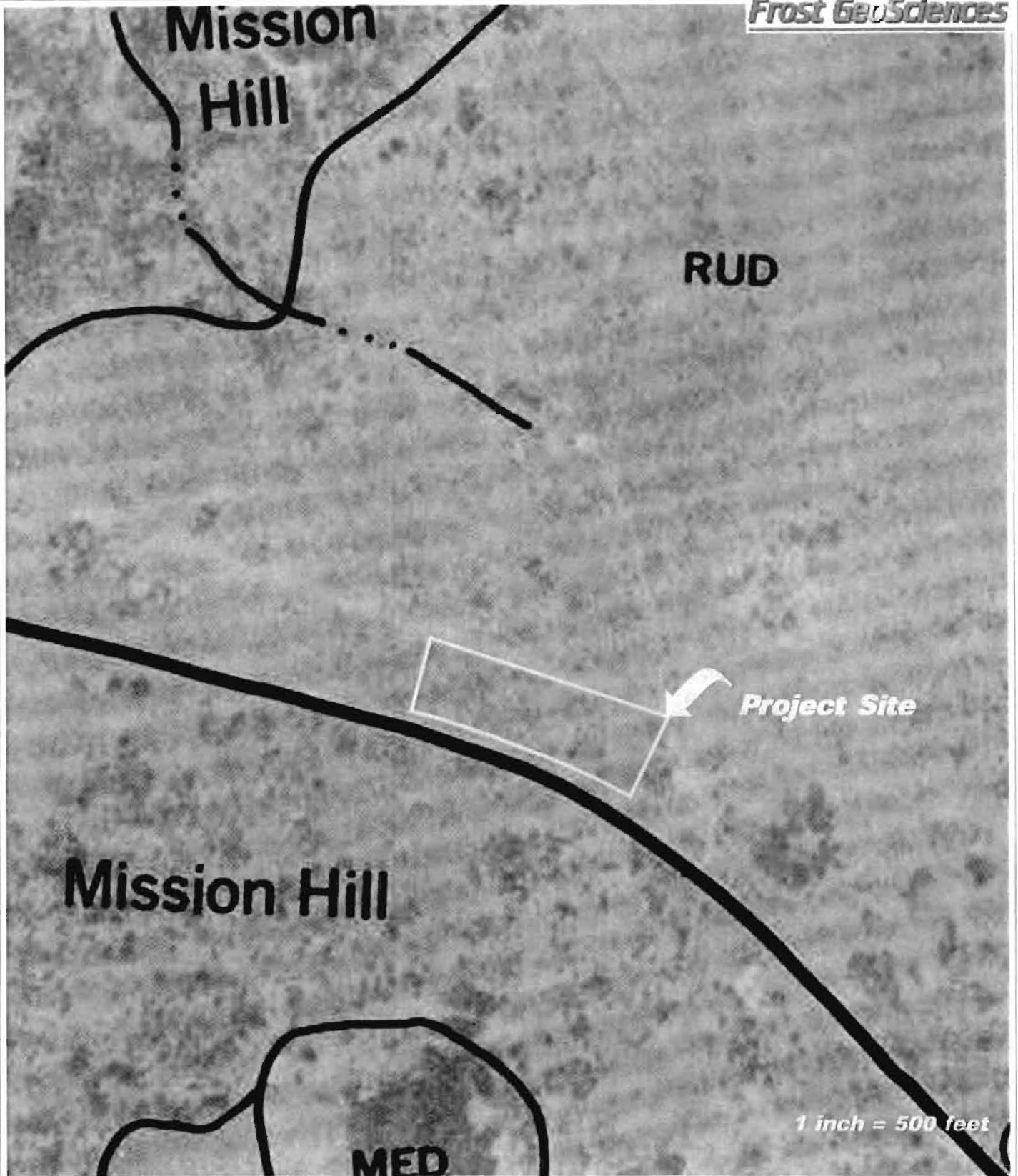
2009 Aerial Photograph with PRF's  
Landiscor Aerial Information

**PROJECT NO.:**

FGS-E10154

**DATE:**

August 30, 2010



**PROJECT NAME:**

Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone The Oak Run Commercial Reserve, 6.27 Acres New Braunfels, Texas

**1973 Aerial Photograph**  
United States Department of Agriculture

**PROJECT NO.:**

FGS-E10154

**DATE:**

August 30, 2010



View to the west, of the project site along the southern property line.



View to the north, of the project site along the eastern property line.



View to the northeast, of the project site from the southern property line.



View to the northwest, of the project site from the southern property line.



View to the east, of the project site along the northern property line.

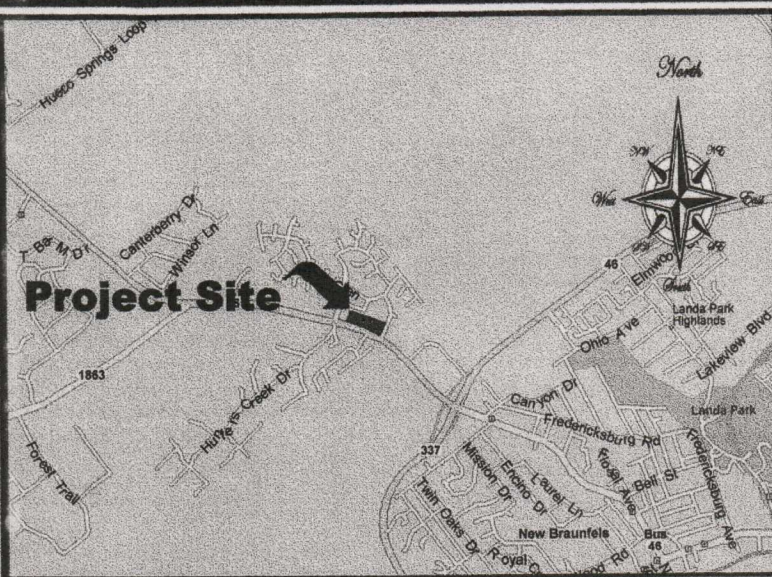


View to the west, of the project site along the northern property line.



View of Potential Recharge Feature # S-1.

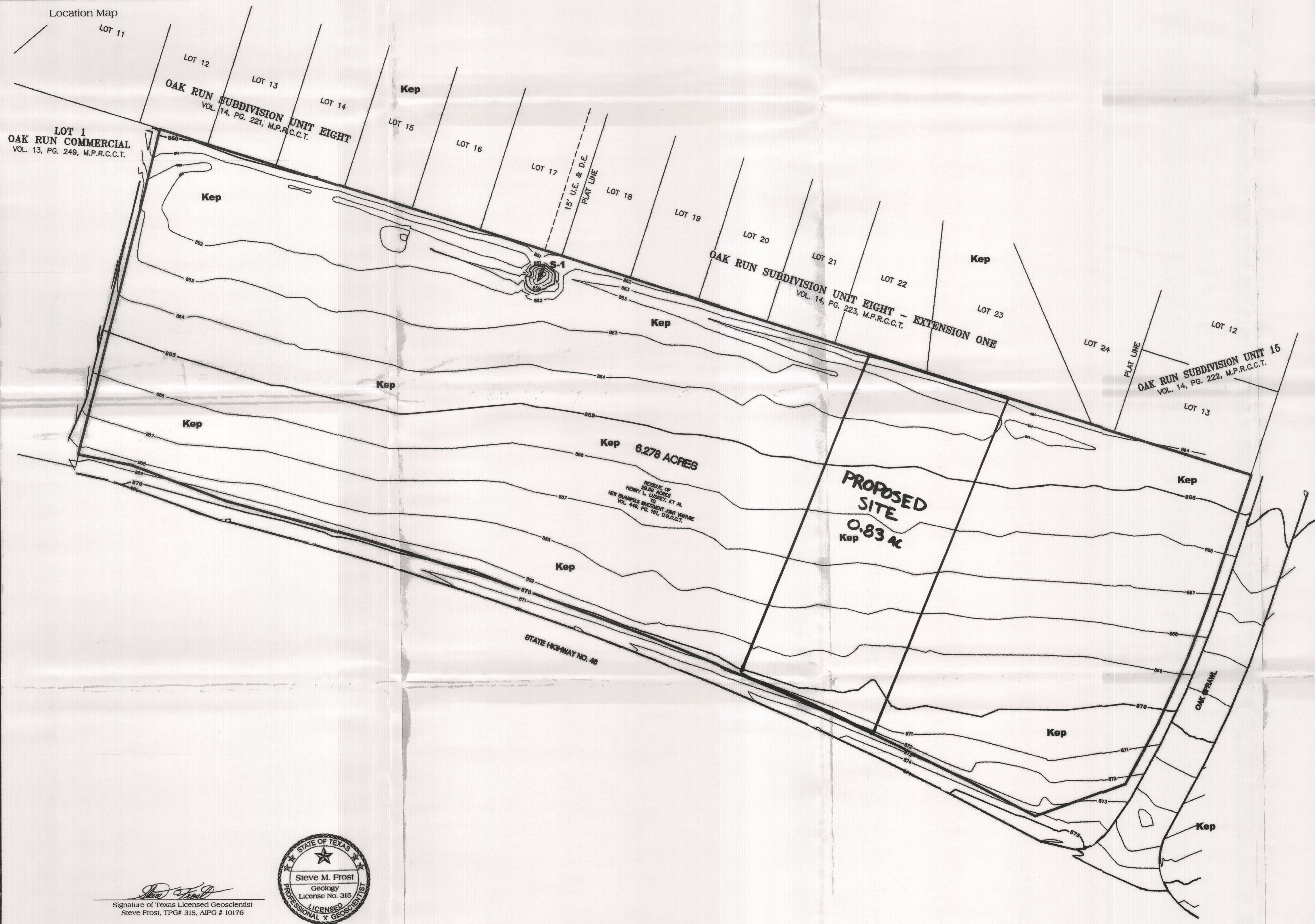




# Site Geologic Map

Geologic Site Assessment (WPAP)  
for Regulated Activities / Development on the  
Edwards Aquifer Recharge / Transition Zone  
for  
The Oak Run Commercial Reserve  
Unit 2, 6.27 Acres  
New Braunfels, Texas

Frost GeoSciences, Inc. Control # FGS-E10154

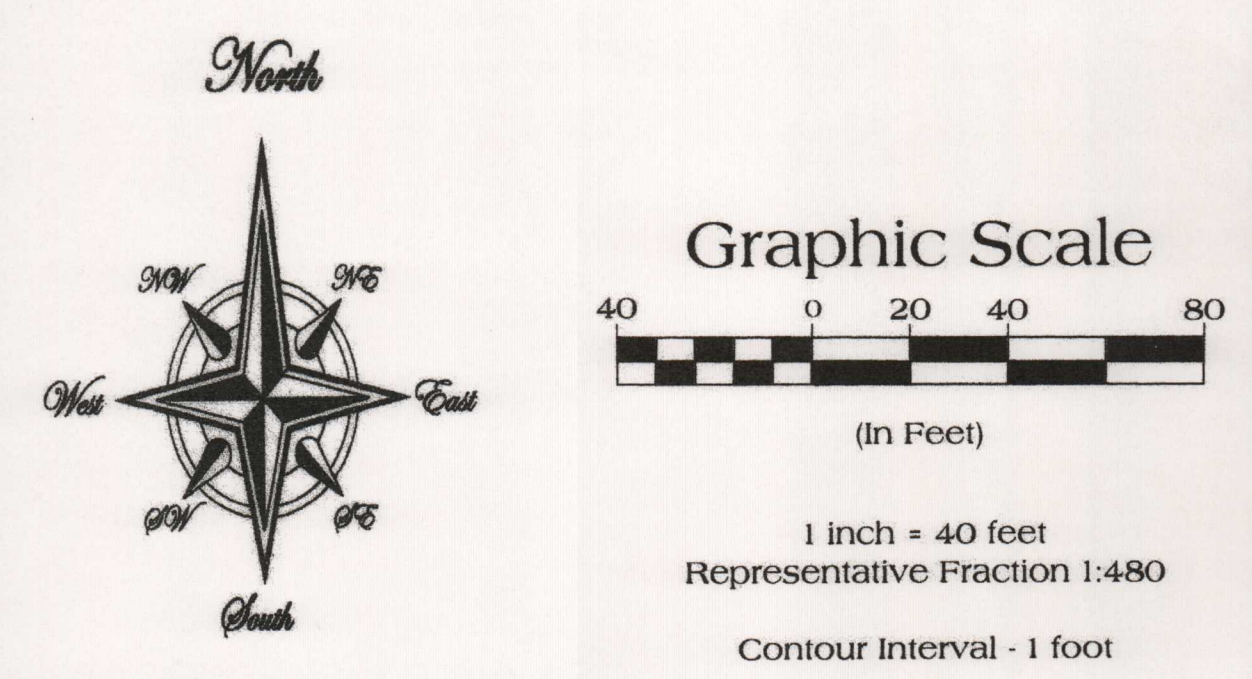


### Legend

- Fill - Fill Material
- Qal - Alluvium
- Kau - Austin Chalk
- Kef - Eagle Ford Shale
- Kbu - Buda Limestone
- Kdr - Del Rio Clay
- Kgt - Georgetown Limestone
- Kep - Edwards Person Limestone
- Kek - Edwards Kainer Limestone
- Kgr - Glen Rose Formation
  
- S# - Potential Recharge Feature (PRF)
- - Formation Contact
- ..... - 100-Year Floodplain - Zone A
- - 100-Year Floodplain - Zone AE
- - Other Flood Hazard Area - Zone X (shaded)

Floodplain Information Obtained From  
FIRM: Flood Insurance Rate Map  
Bexar County, Texas: Panel # 48091C0435F, Revised 9/02/09

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



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

**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: Sonic Drive In – New Braunfels

**REGULATED ENTITY INFORMATION**

1. The type of project is:  
 Residential: # of Lots: \_\_\_\_\_  
 Residential: # of Living Unit Equivalents: \_\_\_\_\_  
 Commercial  
 Industrial  
 Other: \_\_\_\_\_
2. Total site acreage (size of property): 0.83 acres
3. Projected population: 0
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 (Residential)	1,521	÷ 43,560 =	0.04 acres
Parking (Driveways)	24,986	÷ 43,560 =	0.57 acres
Other paved surfaces (Sidewalk/Sport Court)	3,156	÷ 43,560 =	0.07 acres
Total Impervious Cover	29,663	÷ 43,560 =	0.68 acres
Total Impervious Cover ÷ Total Acreage x 100 =			82%

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

**FOR ROAD PROJECTS ONLY**

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

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

\_\_\_ Other: \_\_\_\_\_

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

### STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

### WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

14. The character and volume of wastewater is shown below:
- |                    |           |             |
|--------------------|-----------|-------------|
| ___ 100 % Domestic | ___ 1,700 | gallons/day |
| ___ % Industrial   | ___       | gallons/day |
| ___ % Commingled   | ___       | gallons/day |
- TOTAL \_\_\_ 1,700 \_\_\_ gallons/day

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

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

The sewage collection system will convey the wastewater to the Gruene Rd WWTP (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" = 40'.

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

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

FEMA Panel Number 48091C0435F Dated 09/02/2009

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

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):  
 There are 0 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)  
 The wells are not in use and have been properly abandoned.  
 The wells are not in use and will be properly abandoned.  
 The wells are in use and comply with 30 TAC §238.  
 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 and possibly sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.  
 No **sensitive and possibly sensitive** geologic or manmade features were identified in the Geologic Assessment.  
 **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained in ATTACHMENT D provided at the end of this form. Geologic or manmade features were found and are shown and labeled.  
 **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained in ATTACHMENT D provided at the end of this form. No geologic or manmade features were found.

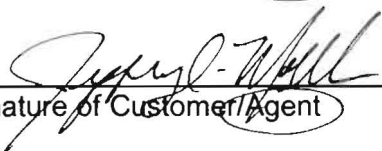
- 22.  The drainage patterns and approximate slopes anticipated after major grading activities.
- 23.  Areas of soil disturbance and areas which will not be disturbed.
- 24.  Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- 25.  Locations where soil stabilization practices are expected to occur.
- 26.  Surface waters (including wetlands).
- 27.  Locations where stormwater discharges to surface water or sensitive features.  
 There will be no discharges to surface water or sensitive features.

**ADMINISTRATIVE INFORMATION**

- 28.  One (1) original and three (3) copies of the completed application have been provided.
- 29.  Any modification of this WPAP will require TCEQ executive director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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

Jeffrey D. Moeller, P.E.  
 Print Name of Customer/Agent

  
 Signature of Customer/Agent

5.31.11  
 Date

**ATTACHMENT “A”**

**Factors Affecting Water Quality**

The development will consist of a concrete parking lot and a building structure of approximately 1,521 square feet. This will result in minimal to no pollution from the site. Some pollution may originate from automobile wastes and cleaning chemicals, which may have an effect on surface water by sediments leaving the site after a rainfall event.

**ATTACHMENT “B”**

**Volume and Character of Stormwater**

The development of this site will result in a minimal increase in stormwater run-off. The hydrology calculations for existing and proposed conditions are broken out in the tables below. Onsite stormwater will drain to an existing underground storm drain system that conveys runoff to an existing detention pond at the back of the site.

<b>Table 1 - Sonic Drive In Existing Conditions Hydrology Calculations</b>							
<b>Area ID</b>	<b>Area</b>	<b>"C" Value</b>	<b>T<sub>c</sub></b>	<b>I<sub>10</sub></b>	<b>I<sub>100</sub></b>	<b>Q<sub>10</sub></b>	<b>Q<sub>100</sub></b>
A1	0.83	0.38	20	5.42	8.48	1.71	3.34

<b>Table 2 - Sonic Drive In Proposed Conditions Hydrology Calculations</b>							
<b>Area ID</b>	<b>Area</b>	<b>"C" Value</b>	<b>T<sub>c</sub></b>	<b>I<sub>10</sub></b>	<b>I<sub>100</sub></b>	<b>Q<sub>10</sub></b>	<b>Q<sub>100</sub></b>
A1	0.83	0.75	13	6.80	10.66	4.23	8.28

The drainage on site will continue to drain from SH 46 to the back of the site, into an existing storm drain system which conveys runoff into the existing detention pond. Before entering the existing detention pond, stormwater will be treated via sand filtration.

**ATTACHMENT “C”**

**Suitability Letter from Authorized Agent**

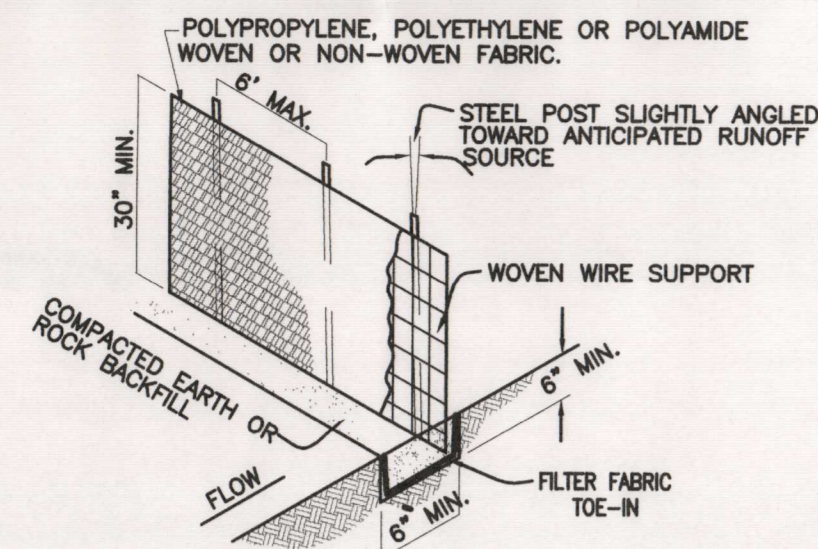
There is no proposed OSSF.

**ATTACHMENT “D”**

**Exception to the Required Geologic Assessment**

No exception will be requested.

Drawing Name: N:\Projects\3\Sonic Drive Ins - SONXXX\SON01-101-Sonic NB SH46\Engineering Reports\WPAP SITE PLAN.dwg User: KiraSA May 31, 2011 1:32pm

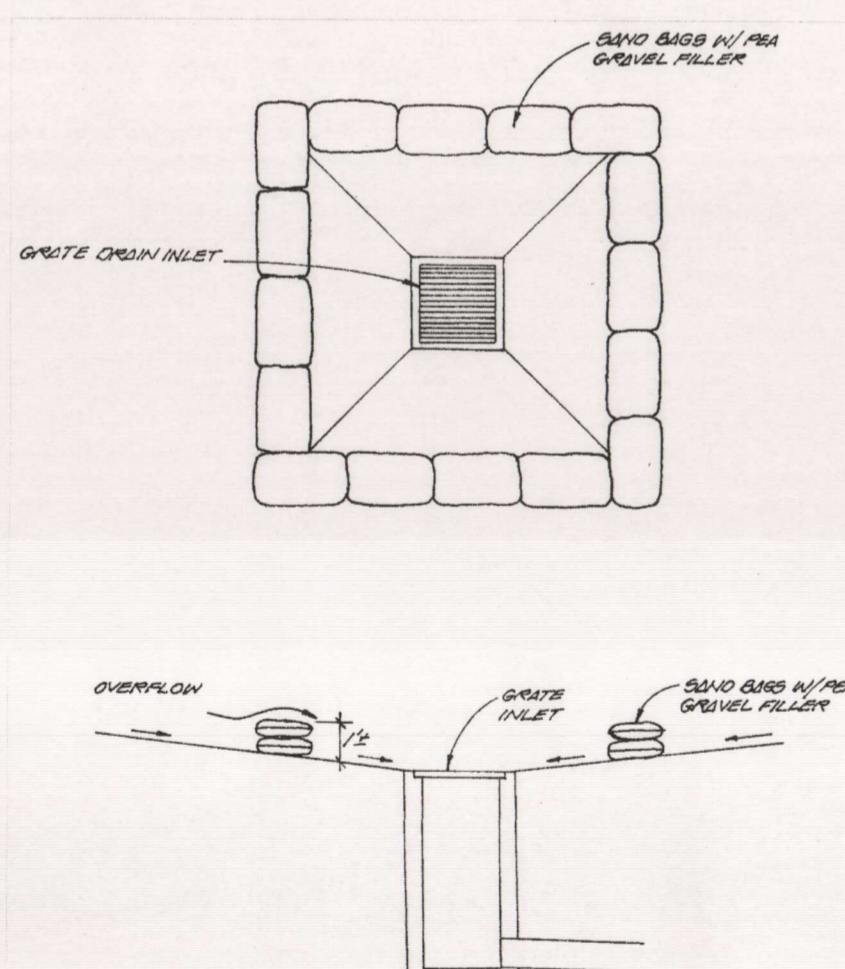


### SILT FENCE

- 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/in<sup>2</sup>, 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 Ybar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft<sup>2</sup>, and Brinell hardness exceeding 140.
  - Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.
- Installation:**
- Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1-foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.
  - Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is 1/4 acre/100 feet of fence.
  - The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or 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 should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.
  - Silt fence should be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

#### Inspection and Maintenance Guidelines:

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



### BAGGED GRAVEL INLET FILTER

- Materials/Installation:**
- The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier around the inlets. The bags should be tightly abutted against each other to prevent runoff from flowing between the bags.
- Inspection and Maintenance Guidelines:**
- Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
  - Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
  - Check placement of device to prevent gaps between device and curb.
  - Inspect filter fabric and patch or replace if torn or missing.
  - Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

### STABILIZED CONSTRUCTION ENTRANCE / EXIT

- Materials:**
- The aggregate should consist of 4 to 8 inch washed stone over a stable foundation as specified in the plan.
  - The aggregate should be placed with a minimum thickness of 8 inches.
  - The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd<sup>2</sup>, a mullen burst rating of 140 lb/in<sup>2</sup>, and an equivalent opening size greater than a number 50 sieve.
  - If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.
- Installation:**
- Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.
  - The minimum width of the entrance/exit should be 12 feet or the full width of exit roadway, whichever is greater.
  - The construction entrance should be at least 50 feet long.
  - If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.
  - Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.
  - Place stone to dimensions and grade shown on plans. Leave surface smooth and slope for drainage.
  - Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
  - Install pipe under pad as needed to maintain proper public road drainage.

#### Inspection and Maintenance Guidelines:

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

TOTAL LAND AREA	=	0.83 AC
TOTAL DISTURBED AREA	=	0.81 AC
TOTAL IMPERVIOUS AREA	=	0.68 AC
% IMPERVIOUS	=	82%

#### SOIL STABILIZATION NOTE

ALL DISTURBED SOILS SHOULD BE SEEDED OR OTHERWISE STABILIZED WITH 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.

### HYDRAULIC MULCH

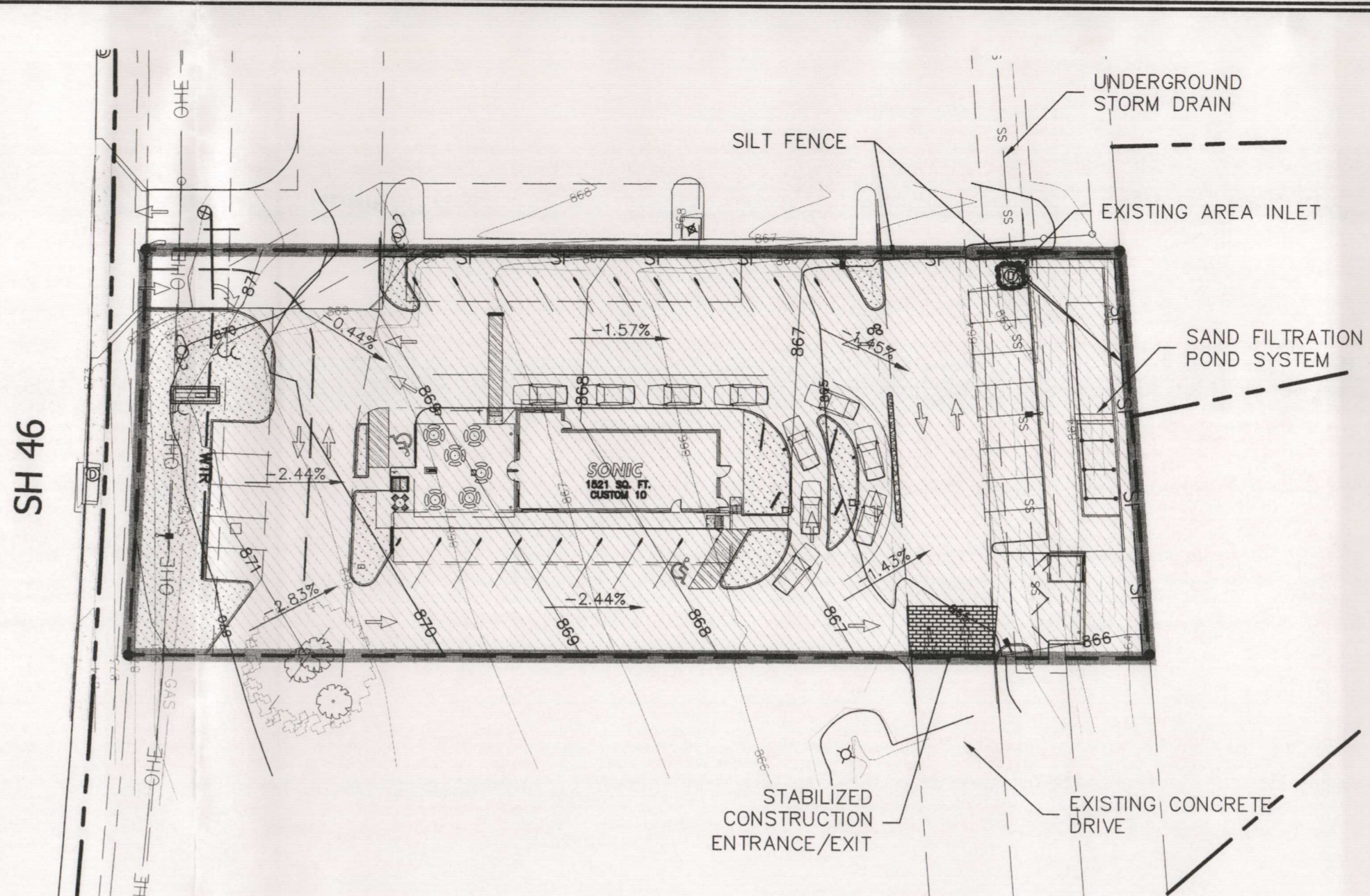
- Materials:**
- Hydraulic Mulches:** Wood fiber mulch can be applied alone or as a component of hydraulic matrices. Wood fiber applied alone is typically applied at the rate of 2,000 to 4,000 lb/acre. Wood fiber mulch is manufactured from wood or wood waste from lumber mills or from urban sources.
- Hydraulic Matrices:** Hydraulic matrices include a mixture of wood fiber and acrylic polymer or other tackifier as binder. Apply as a liquid slurry using a hydraulic application machine (i.e., hydro seeder) at the following minimum rates, or as specified by the manufacturer to achieve complete coverage of the target area: 2,000 to 4,000 lb/acre wood fiber mulch, and 5 to 10% (by weight) of tackifier (acrylic copolymer, guar, psyllium, etc.)
- Bonded Fiber Matrix:** Bonded fiber matrix (BFM) is a hydraulically applied system of fibers and adhesives that upon drying forms an erosion resistant blanket that promotes vegetation, and prevents soil erosion. BFMs are typically applied at rates from 3,000 lb/acre to 4,000 lb/acre based on the manufacturer's recommendation. A biodegradable BFM is composed of materials that are 100% biodegradable. The binder in the BFM should also be biodegradable and should not dissolve or disperse upon re-wetting. Typically, biodegradable BFMs should not be applied immediately before, during or immediately after rainfall if the soil is saturated. Depending on the product, BFMs typically require 12 to 24 hours to dry and become effective.

#### Installation:

- Prior to application, roughen embankment and fill areas by rolling with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical.
- To be effective, hydraulic matrices require 24 hours to dry before rainfall occurs.
- Avoid mulch over spray onto roads, sidewalks, drainage channels, existing vegetation, etc.

#### Inspection and Maintenance Guidelines:

- Mulched areas should be inspected weekly and after each rain event to locate and repair any damage.
- Areas damaged by storms or normal construction activities should be regraded and hydraulic mulch reapplied as soon as practical.



### LEGEND

- LEGAL BOUNDARY
- LIMITS OF DRAINAGE AREA
- BAGGED GRAVEL INLET FILTER
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- DISTURBED AREA
- EXISTING CONTOURS
- PROPOSED CONTOURS
- SLOPE/FLOW ARROW

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

- Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, and the name of the prime contractor and the name and telephone number of the contact person.
- All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
- If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. The regulated activities near the sensitive feature may not proceed until the TCEQ has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality.
- No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
- Prior to commencement of construction, all temporary erosion and sedimentation (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 the 14th day after construction activity temporary or permanently ceases is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.
- The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and the dates when stabilization measures are initiated.
- The holder of any approved Edwards Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
  - any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
  - any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
  - any development of land previously identified as undeveloped in the original water pollution abatement plan.

Austin Regional Office  
2800 S. IH 35, Suite 100  
Austin, Texas 78704-5712  
Phone (512) 339-2929  
Fax (512) 339-3795

San Antonio Regional Office  
14250 Judson Road  
San Antonio, Texas 78233-4480  
Phone (210) 490-3096  
Fax (210) 545-4329

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Call before you dig.

NO.	DATE	ISSUES AND REVISIONS	NOTE DATE	NOTE DATE	NOTE DATE

**MOELLER & ASSOCIATES**  
Engineering Solutions

1040 N. WALNUT AVE., STE. B, NEW BRAUNFELS, TX. 78130  
PH: 830-358-7127, WWW.MO-TO.COM  
EPCERFIRM F-13851

**MGCC TEXAS ENTERPRISES, LLC.**  
P.O. BOX 22775  
OKLAHOMA CITY, OK 73123

**SONIC DRIVE IN NEW BRAUNFELS**  
WPAP SITE PLAN

SHEET **1** OF **1**

DWG: **SHTSHORTDESC**

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**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: Sonic Drive In – New Braunfels

**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: Un-named Tributary of Blieders Creek

**TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)**

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the



Technical Guidance Manual for guidelines and specifications. **All structural BMPs must be shown on the site plan.**

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

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

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

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

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

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

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

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

For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

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

For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to

protect down slope and side slope boundaries of the construction area.

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

11. N/A **ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.
12. X **ATTACHMENT I - Inspection and Maintenance for BMPs.** A plan for the inspection of temporary BMPs and measures and for their timely maintenance, repairs, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and recordkeeping practices is included in the plan.
13. X All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. X If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. N/A 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:

Jeffrey D. Moeller, P.E.  
Print Name of Customer/Agent

  
Signature of Customer/Agent

5.31.11  
Date

**ATTACHMENT “A”**  
**Spill Response Actions**

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, and 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 BMP's.

(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 BMP's in this section for specific information.

### ***Minor Spills***

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

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

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

- (4) Follow the practice below for a minor spill:
- (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.tnrc.state.tx.us/enforcement/emergency\\_response.html](http://www.tnrc.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 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.

## **ATTACHMENT “B”**

### **Potential Sources of Contamination**

The only potential sources of contamination are construction equipment leaks, re-fueling spills, as well as potential from port-o-lets, and the total suspended solids (TSS) due to the construction activities on-site. There are no other anticipated potential sources of contamination.

## **ATTACHMENT “C”**

### **Sequence of Major Activities**

Stages of Construction:

1. Installation of temporary BMP's.
2. Minor site grading: This includes the removal of organic material and other debris within the proposed parking and building site. Approximate total disturbed area = 0.83 acres
3. Grading: Cutting and filling of the proposed site to prepare the site for parking and foundation construction. Approximate total disturbed area = 0.83 acres.
4. Sand Filter Pond Installation: Structure will be installed at the northern portion of the site, see Permanent Stormwater Section
5. Utility Installation: All primary utility mains have already been installed and are available at the site. Sewer, water, gas and electrical services will be installed at this time.
6. Finished Grading: Final landscaping, concrete parking and building infrastructure are installed. Approximate total disturbed area = 0.68 acres

## **ATTACHMENT “D”**

### **Temporary BMP's and Measures**

The following sequence will be followed for installing temporary BMP's:

1. Silt fence will be constructed on the downgradient side of proposed site.
2. A stabilized construction exit will be installed prior to any site work.
3. Sand Bags surrounding the existing inlet on the northern portion of the site will remain as specified under the approved WPAP for Oak Run Commercial Unit 2 until the inlet is modified per construction plans.

A. There is no upgradient stormwater that enters the proposed site. A stabilized construction exit will be constructed at the entrance of the site, this will reduce the amount of contaminants leaving the site.

B. Silt fence will be placed on the downgradient side of each proposed improvement to contain pollutants generated from onsite runoff. Disturbed areas will be seeded to replace destroyed vegetation. The existing vegetation located downgradient of each proposed improvement will work in conjunction with the silt fence, inlet protection, and stabilized construction entrance to prevent pollution of water originating onsite and/or flowing offsite.



C. The proposed silt fences, inlet protection, and stabilized construction entrances constructed upgradient of the existing streams will prevent pollutants from entering them as well as the aquifer. According to the Geologic Assessment, there are no sensitive features with the project boundary.

D. There were no sensitive features identified in the Geologic Assessment.

#### **ATTACHMENT “E”**

##### **Request to Temporarily Seal a Feature**

There will be no request to temporarily seal a feature.

#### **ATTACHMENT “F”**

##### **Structural Practices**

Bagged Gravel inlet protection and silt fence will be used to protect disturbed soils and to prevent contamination from leaving the project site.

#### **ATTACHMENT “G”**

##### **Drainage Area Map**

See Drainage Area Map at the end of this section.

#### **ATTACHMENT “H”**

##### **Temporary Sediment Pond Plans and Calculations**

There will not be more than 10 acres of disturbed soil in one common drainage area that will occur at one time. Silt fence will be used for small drainage areas. No sediment ponds will be constructed due to the minimal amount of soil disturbance.

#### **ATTACHMENT “I”**

##### **Inspection and Maintenance for BMP’s**

###### **Inspection and Maintenance Plan**

The contractor is required to inspect the control and fences at weekly intervals and after any rainfall events to insure that they are functioning properly. The person(s) responsible for maintenance controls and fences shall immediately make any necessary repairs to damaged areas.

**Temporary Construction Entrance/Exit:** The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor. When necessary, wheels

should be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin. All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

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

Bagged Gravel Inlet Filter: Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor. Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode. Check placement of device to prevent gaps between device and curb. Inspect filter fabric and patch or replace if torn or missing.

TCEQ staff will be allowed full access to the property during construction of the project for inspecting controls and fences and to verify that the accepted plan is being utilized in the field. TCEQ staff has the right to speak with the contractor to verify plan changes and modifications.

Documentation: All scheduled inspection and maintenance measures made to the temporary BMPs must be documented clearly on the WPAP Site Plan showing inspection/maintenance measures performed, date, and person responsible for inspection and maintenance. Any changes made to the location or type of controls shown on the accepted plans, due to onsite conditions, shall be documented on the site plan that is part of this Water Pollution Abatement Plan. No other changes shall be made unless approved by TCEQ and the Design Engineer. Documentation shall clearly show changes made, date, and person responsible and reason change was made.

**Owner's Information:**

Owner: MGCC Texas Enterprises, LLC.  
Contact: Ralph L. Mason  
Phone: (405) 722-9390  
Address: P.O. Box 22775  
Oklahoma City, Oklahoma 73123

**Design Engineer:**

Company: Moeller & Associates  
Contact: Jeffrey D. Moeller, P.E.  
Phone: (830) 358-7127  
Address: 1040 N. Walnut Ave., Ste. B  
New Braunfels, Texas 78130

**Person or Firm Responsible for Erosion/Sedimentation Control Maintenance:**

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Address: \_\_\_\_\_

Signature of Responsible Party: \_\_\_\_\_

**This portion of the form shall be filled out and signed by the responsible party prior to construction.**

**ATTACHMENT “J”**

**Schedule of Interim and Permanent Soil Stabilization Practices**

Areas which are disturbed by construction staging and storage areas will be hydro mulched with the appropriate seed mixture. Areas between the edge of pavement and property line will also be hydro mulched. There will be no fill slopes exceeding a 3:1 slope and all fill slopes will be hydro mulched. Installation and acceptable mixtures of hydro mulch are as follows:

**Materials:**

Hydraulic Mulches: Wood fiber mulch can be applied alone or as a component of hydraulic matrices. Wood fiber applied alone is typically applied at the rate of 2,000 to 4,000 lb/acre. Wood fiber mulch is manufactured from wood or wood waste from lumber mills or from urban sources.

Hydraulic Matrices: Hydraulic matrices include a mixture of wood fiber and acrylic polymer or other tackifier as binder. Apply as a liquid slurry using a hydraulic application machine (i.e., hydro seeder) at the following minimum rates, or as specified by the manufacturer to achieve complete coverage of the target area: 2,000 to 4,000 lb/acre wood fiber mulch, and 5 to 10% (by weight) of tackifier (acrylic copolymer, guar, psyllium, etc.)

Bonded Fiber Matrix: Bonded fiber matrix (BFM) is a hydraulically applied system of fibers and adhesives that upon drying forms an erosion resistant blanket that promotes vegetation, and prevents soil erosion. BFMs are typically applied at rates from 3,000 lb/acre to 4,000 lb/acre based on the manufacturer’s recommendation. A biodegradable BFM is composed of materials that are 100% biodegradable. The binder in the BFM should also be biodegradable and should not dissolve or disperse upon re-wetting. Typically, biodegradable BFMs should not be applied immediately before, during or immediately after rainfall if the soil is saturated. Depending on the product, BFMs typically require 12 to 24 hours to dry and become effective.

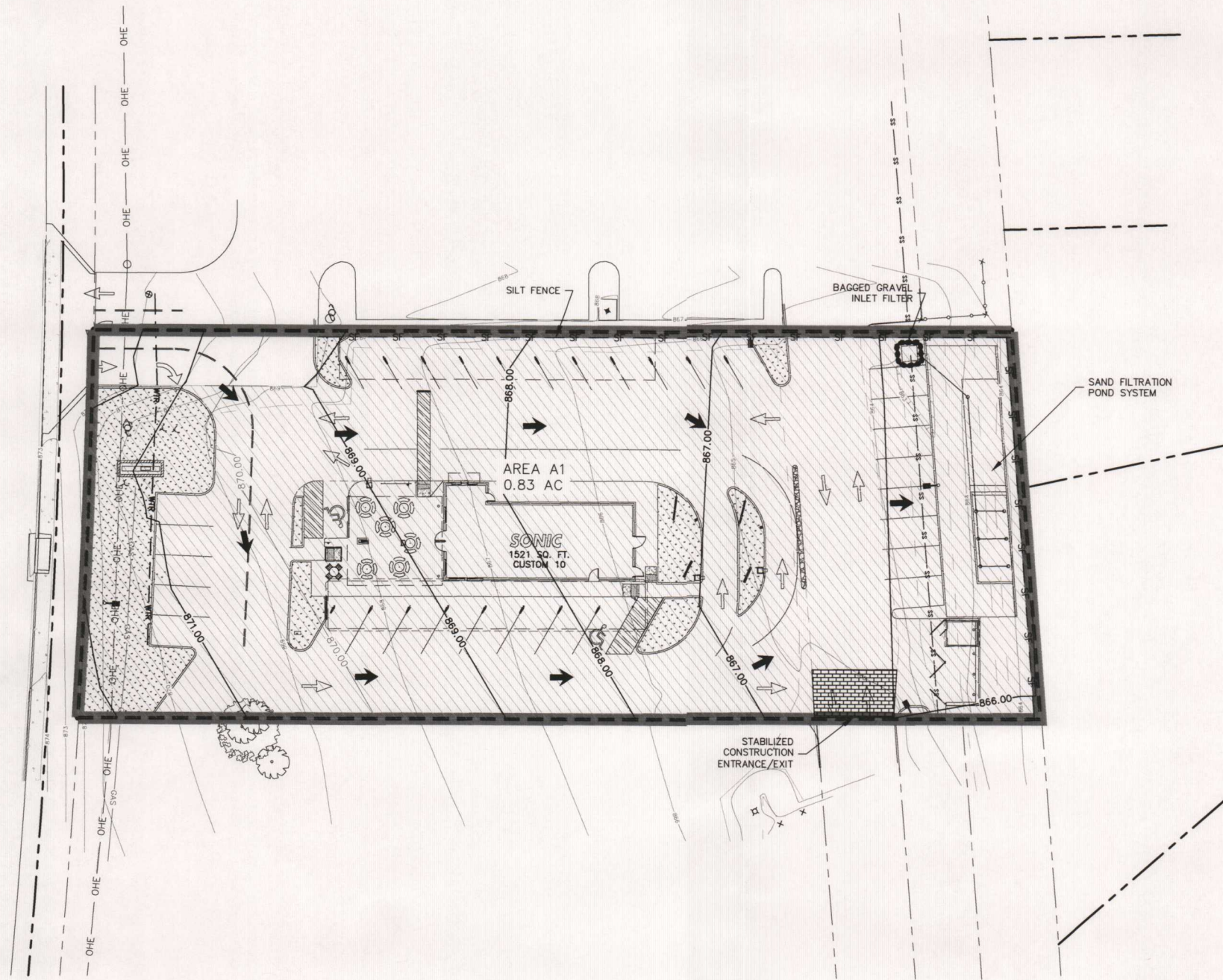
Seed Mixtures:

<b>Dates</b>	<b>Climate</b>	<b>Species</b>	<b>(lb/ac.)</b>
Sept. 1 to Nov. 30	Temporary Cool Season	Tall Fescue	4.0
		Oats	21.0
		Wheats	30.0
		<b>Total</b>	<b>55.0</b>
Sept. 1 to Nov. 30	Cool Season Legume	Hairy Vetch	8.0
May 1 to Aug. 31	Temporary Warm Season	Foxtail Millet	30.0

Fertilizer: Fertilizer should be applied at the rate of 40 pounds of nitrogen and 40 pounds of phosphorus per acre, which is equivalent to about 1.0 pounds of nitrogen and phosphorus per 1000 square feet.

**Installation:**

- (1) Prior to application, roughen embankment and fill areas by rolling with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical.
- (2) To be effective, hydraulic matrices require 24 hours to dry before rainfall occurs.
- (3) Avoid mulch over spray onto roads, sidewalks, drainage channels, existing vegetation, etc.



**LEGEND**

- — — — — LEGAL BOUNDARY
- - - - - LIMITS OF DRAINAGE AREA
- BAGGED GRAVEL INLET FILTER
- SF - SF - SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- DISTURBED AREA
- 900 — EXISTING CONTOURS
- 900 — PROPOSED CONTOURS
- AREA A1  
0.83 AC
- — — — — DRAINAGE AREA ID
- — — — — DRAINAGE AREA ACREAGE

TOTAL LAND AREA	=	0.83 AC
TOTAL DISTURBED AREA	=	0.81 AC
TOTAL IMPERVIOUS AREA	=	0.68 AC
% IMPERVIOUS	=	82%



NO.	DATE	ISSUES AND REVISIONS

**MOELLER & ASSOCIATES**  
*Engineering Solutions*  
 1040 N. WALNUT AVE. STE. B, NEW BRAUNFELS, TX. 78130  
 PH: 830-358-7127  
 TBEFEE.FIRM.E-XXXXXX

**MGCC TEXAS ENTERPRISES, LLC.**  
 P.O. BOX 22775  
 OKLAHOMA CITY, OK 73123

**SONIC DRIVE IN NEW BRAUNFELS**  
 DRAINAGE AREA MAP

SHEET  
**1**  
 OF 1  
 DWG:

**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: Sonic Drive in – New Braunfels

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

1.  Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
  
2.  These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.  
  
 The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.  
 A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is provided below:  
  

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

- ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.
- This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
- 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.  The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

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

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

10.  **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.  **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.  The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.  
 Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.  
 **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.
13.  **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.  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.  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:

Jeffrey D. Moeller, P.E.  
Print Name of Customer/Agent

  
Signature of Customer/Agent

5-31-11  
Date

**ATTACHMENT “A”**

**20% of Less Impervious Cover Waiver**

The proposed development is a Drive-In Restaurant and the 20% Impervious Cover Waiver does not apply. Permanent BMP's will be designed in accordance with TCEQ requirements for the removal of TSS generated by the proposed development.

**ATTACHMENT “B”**

**BMP's for Upgradient Stormwater**

There is not Upgradient Stormwater that enters the site.

**ATTACHMENT “C”**

**BMP's for On-Site Stormwater**

The permanent BMP's used to treat on-site stormwater runoff will be a Sand Filter system. Please refer to the Drainage Area Map in the Temporary Stormwater Section for areas of treatment and BMP structures used.

**ATTACHMENT “D”**

**BMP's for Surface Streams**

The Sand Filter system will be installed to prevent pollutants from entering surface streams and ultimately the aquifer. There were no sensitive features identified by the Geologic Assessment.

The natural vegetation located downgradient of proposed improvements will provide additional filtration to help prevent pollution from entering streams, sensitive features and the aquifer.

**ATTACHMENT “G”**

**Inspection, Maintenance, Repair and Retrofit Plan**

**Sand Filter Systems Maintenance and Monitoring Procedures**

- *Inspections.* BMP facilities must be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) must be identified and repaired immediately. Cracks, voids and undermining should be patched/filled to prevent additional structural damage.

Trees and root systems should be removed to prevent growth in cracks and joints that can cause structural damage.

- *Sediment Removal.* Remove sediment from the inlet structure and sedimentation chamber when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment should be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.
- *Media Replacement.* Maintenance of the filter media is necessary when the drawdown time exceeds 48 hours. When this occurs, the upper layer of sand should be removed and replaced with new material meeting the original specifications. Any discolored sand should also be removed and replaced. In filters that have been regularly maintained, this should be limited to the top 2 to 3 inches.
- *Debris and Litter Removal.* Debris and litter will accumulate near the sedimentation basin outlet device and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the control device or riser.
- *Filter Underdrain.* Clean underdrain piping network to remove any sediment buildup as needed to maintain design drawdown time.
- *Mowing.* Grass areas in and around sand filters must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. Vegetation on the pond embankments should be mowed as appropriate to prevent the establishment of woody vegetation.

#### **ATTACHMENT “I”**

#### **Measures for Minimizing Surface Stream Contamination**

All surface streams will be protected from erosion by not allowing runoff to exceed existing velocities. The stormwater runoff for the property will be concentrated into the Sand Filter system where the pollutants will be removed.

**Attachment "G"**

**Maintenance Plan for Sand Filtration Pond**

Sand Filtration Pond Location: The Sand Filtration Pond will be located along the northern property line of the site.

Owner: MGCC Texas Enterprises, LLC.  
P.O. Box 22775  
Oklahoma City, Oklahoma 73123  
Phone: 405-722-9390

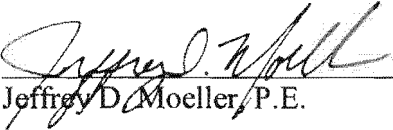
I agree that the attached Sand Filtration Pond Maintenance and Monitoring Procedures will be implemented to ensure that the proposed system functions as designed.

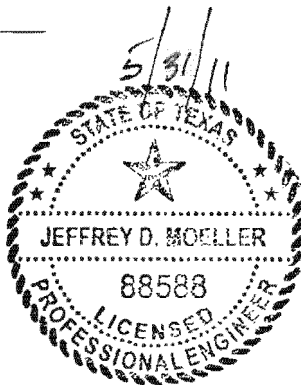
  
\_\_\_\_\_

Ralph L. Mason  
MGCC Texas Enterprises, LLC.

5-25-11  
Date

I have reviewed the attached maintenance and monitoring procedures and to the best of my knowledge certify that, if they are followed as outlined, the Sand Filtration Pond will function as designed.

  
Jeffrey D. Moeller, P.E.



Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

**1. The Required Load Reduction for the total project:**

Calculations from: RG-348

Pages 3-27 to 3-30

Page 3-29 Equation 3.3:  $L_M = 27.2(A_N \times P)$

where:

$L_{M \text{ TOTAL PROJECT}}$  = Required TSS removal resulting from the proposed development = 80% of increased load  
 $A_N$  = Net increase in impervious area for the project  
 $P$  = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	Comal	
Total project area included in plan *	0.83	acres
Predevelopment impervious area within the limits of the plan *	0.00	acres
Total post-development impervious area within the limits of the plan *	0.68	acres
Total post-development impervious cover fraction *	0.82	
P =	33	inches

$L_{M \text{ TOTAL PROJECT}} = 610$  lbs.

\* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

**2. Drainage Basin Parameters (This information should be provided for each basin):**

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	0.83	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.68	acres
Post-development impervious fraction within drainage basin/outfall area =	0.82	
$L_{M \text{ THIS BASIN}}$ =	610	lbs.

**3. Indicate the proposed BMP Code for this basin.**

Proposed BMP = Sand Filter  
Removal efficiency = 89 percent

- Aqualogic Cartridge Filter
- Bioretention
- Contech StormFilter
- Constructed Wetland
- Extended Detention
- Grassy Swale
- Retention / Irrigation
- Sand Filter
- Stomceptor
- Vegetated Filter Strips
- Vortechs
- Wet Basin
- Wet Vault

**4. Calculate Maximum TSS Load Removed ( $L_R$ ) for this Drainage Basin by the selected BMP Type.**

RG-348 Page 3-33 Equation 3.7:  $L_R = (\text{BMP efficiency}) \times P \times (A_i \times 34.6 + A_p \times 0.54)$

where:

$A_C$  = Total On-Site drainage area in the BMP catchment area  
 $A_i$  = Impervious area proposed in the BMP catchment area  
 $A_p$  = Pervious area remaining in the BMP catchment area  
 $L_R$  = TSS Load removed from this catchment area by the proposed BMP

$A_C$ =	0.83	acres
$A_i$ =	0.68	acres
$A_p$ =	0.15	acres
$L_R$ =	693	lbs

**5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area**

Desired  $L_{M \text{ THIS BASIN}}$  = 610 lbs.

F = 0.88

**6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.**

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = 1.50 inches  
Post Development Runoff Coefficient = 0.65  
On-site Water Quality Volume = 2943 cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres  
Off-site impervious cover draining to BMP = 0.00 acres  
Impervious fraction of off-site area = 0  
Off-site Runoff Coefficient = 0.00  
Off-site Water Quality Volume = 0 cubic feet

Storage for Sediment = 589  
Total Capture Volume (required water quality volume(s) x 1.20) = 3532 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.  
The values for BMP Types not selected in cell C45 will show NA.

**7. Retention/Irrigation System**

Designed as Required in RG-348

Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate = 0.1 in/hr Enter determined permeability rate or assumed value of 0.1  
Irrigation area = NA square feet  
NA acres

**8. Extended Detention Basin System**

Designed as Required in RG-348

Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = NA cubic feet

**9. Filter area for Sand Filters**

Designed as Required in RG-348

Pages 3-58 to 3-63

**9A. Full Sedimentation and Filtration System**

Water Quality Volume for sedimentation basin = 3532 cubic feet  
Minimum filter basin area = 164 square feet  
Maximum sedimentation basin area = 1472 square feet For minimum water depth of 2 feet  
Minimum sedimentation basin area = 368 square feet For maximum water depth of 8 feet

**9B. Partial Sedimentation and Filtration System**

Water Quality Volume for combined basins = 3532 cubic feet  
Minimum filter basin area = 294 square feet  
Maximum sedimentation basin area = 1177 square feet For minimum water depth of 2 feet  
Minimum sedimentation basin area = 74 square feet For maximum water depth of 8 feet

**10. Bioretention System**

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = NA cubic feet

**11. Wet Basins**

Designed as Required in RG-348

Pages 3-66 to 3-71

Required capacity of Permanent Pool = NA cubic feet Permanent Pool Capacity is 1.20 times the WQV  
Required capacity at WQV Elevation = NA cubic feet Total Capacity should be the Permanent Pool Capacity plus a second WQV.

**12. Constructed Wetlands**

Designed as Required in RG-348

Pages 3-71 to 3-73

Required Water Quality Volume for Constructed Wetlands = NA cubic feet

**13. AquaLogic™ Cartridge System**

Designed as Required in RG-348

Pages 3-74 to 3-78

\*\* 2005 Technical Guidance Manual (RG-348) does not exempt the required 20% increase with maintenance contract with AquaLogic™.

Required Sedimentation chamber capacity = NA cubic feet  
Filter canisters (FCs) to treat WQV = NA cartridges  
Filter basin area (RIA<sub>c</sub>) = NA square feet

**14. Stormwater Management StormFilter® by CONTECH**

Required Water Quality Volume for Contech StormFilter System = **NA** cubic feet

THE SIZING REQUIREMENTS FOR THE FOLLOWING BMPs / LOAD REMOVALS ARE BASED UPON FLOW RATES - NOT CALCULATED WATER QUALITY VOLUMES

**15. Grassy Swales**

Designed as Required in RG-348

Pages 3-51 to 3-54

Design parameters for the swale:

Drainage Area to be Treated by the Swale = A = 0.00 acres  
 Impervious Cover in Drainage Area = 4.00 acres  
 Rainfall intensity = i = 1.1 in/hr  
 Swale Slope = 0.01 ft/ft  
 Side Slope (z) = 3  
 Design Water Depth = y = 0.33 ft  
 Weighted Runoff Coefficient = C = 0.54

$A_{CS}$  = cross-sectional area of flow in Swale = 13.17 sf  
 $P_w$  = Wetted Perimeter = 40.62 feet  
 $R_H$  = hydraulic radius of flow cross-section =  $A_{CS}/P_w$  = 0.32 feet  
 n = Manning's roughness coefficient = 0.2

**15A. Using the Method Described in the RG-348**

Manning's Equation:  $Q = \frac{1.49}{n} A_{CS} R_H^{2/3} S^{0.5}$

$b = \frac{0.134 \times Q}{y^{1.67} S^{0.5}} - zy = 38.51$  feet

$Q = CiA = 4.71$  cfs

To calculate the flow velocity in the swale:

$V$  (Velocity of Flow in the swale) =  $Q/A_{CS} = 0.36$  ft/sec

To calculate the resulting swale length:

$L$  = Minimum Swale Length =  $V$  (ft/sec) \* 300 (sec) = 107.24 feet

If any of the resulting values do not meet the design requirement set forth in RG-348, the design parameters must be modified and the solver rerun.

**15B. Alternative Method using Excel Solver**

Design  $Q = CiA = 4.71$  cfs  
 Manning's Equation  $Q = 0.76$  cfs      Error 1 = 3.95  
 Swale Width = 6.00 ft

Instructions are provided to the right (green comments).

Flow Velocity = 0.36 ft/s  
 Minimum Length = 107.24 ft

Instructions are provided to the right (blue comments).

Design Width = 6 ft  
 Design Discharge = 0.76 cfs      Error 2 = 3.95  
 Design Depth = 0.33 ft  
 Flow Velocity = 0.32 cfs  
 Minimum Length = 97.48 ft

If any of the resulting values do not meet the design requirement set forth in RG-348, the design parameters may be modified and the solver rerun. If any of the resulting values still do not meet the design requirement set forth in RG-348, widening the swale bottom value may not be possible.

**16. Vegetated Filter Strips**

Designed as Required in RG-348

Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips. The 80% removal is provided when the contributing drainage area does not exceed 72 feet (direction of flow) and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with maximum slope of 20% or across 50 feet of natural vegetation with a maximum slope of 10%. There can be a break in grade as long as no slope exceeds 20%.

If vegetative filter strips are proposed for an interim permanent BMP, they may be sized as described on Page 3-56 of RG-348.



**17. Wet Vaults**

Designed as Required in RG-348

Pages 3-30 to 3-32 & 3-79

Required Load Removal Based upon Equation 3.3 = **NA** lbs

First calculate the load removal at 1.1 in/hour

RG-348 Page 3-30 Equation 3.4:  $Q = CiA$

C = runoff coefficient for the drainage area = 0.67 C = Runoff Coefficient =  $0.546 (IC)^2 + 0.328 (IC) + 0.03$   
i = design rainfall intensity = 1.1 in/hour  
A = drainage area in acres = i acres

Q = flow rate in cubic feet per second = 0.73 cubic feet/sec

RG-348 Page 3-31 Equation 3.5:  $V_{OR} = Q/A$

Q = Runoff rate calculated above = 0.73 cubic feet/sec  
A = Water surface area in the wet vault = 150 square feet

$V_{OR}$  = Overflow Rate = 0.00 feet/sec

Percent TSS Removal from Figure 3-1 (RG-348 Page 3-31) = 53 percent

Load removed by Wet Vault = #VALUE! lbs

If a bypass occurs at a rainfall intensity of less than 1.1 in/hours  
Calculate the efficiency reduction for the actual rainfall intensity rate

Actual Rainfall Intensity at which Wet Vault bypass Occurs = 0.5 in/hour

Fraction of rainfall treated from Figure 3-2 RG-348 Page 3-32 = 0.75 percent  
Efficiency Reduction for Actual Rainfall Intensity = 0.83 percent

Resultant TSS Load removed by Wet Vault = #VALUE! lbs

**18. Permeable Concrete**

Designed as Required in RG-348

Pages 3-79 to 3-83

PERMEABLE CONCRETE MAY ONLY BE USED ON THE CONTRIBUTING ZONE

**19. BMPs Installed in a Series**

Designed as Required in RG-348

Pages 3-32

Michael E. Barrett, Ph D . P.E. recommended that the coefficient for  $E_2$  be changed from 0.5 to 0.65 on May 3, 2006

$E_{TOT} = [1 - ((1 - E_1) \times (1 - 0.65E_2) \times (1 - 0.25E_3))] \times 100 = 86.38$  percent NET EFFICIENCY OF THE BMPs IN THE SERIES

EFFICIENCY OF FIRST BMP IN THE SERIES =  $E_1 = 75.00$  percent

EFFICIENCY OF THE SECOND BMP IN THE SERIES =  $E_2 = 70.00$  percent

EFFICIENCY OF THE THIRD BMP IN THE SERIES =  $E_3 = 0.00$  percent

THEREFORE, THE NET LOAD REMOVAL WOULD BE:  
( $A_1$  AND  $A_p$  VALUES ARE FROM SECTION 3 ABOVE)

$L_R = E_{TOT} \times P \times (A_1 \times 34.6 \times A_p \times 0.54) = 672.95$  lbs

**20. Stormceptor**

Required TSS Removal in BMP Drainage Area= **NA** lbs  
Impervious Cover Overtreatment= 0.0000 ac  
TSS Removal for Uncaptured Area = 0.00 lbs

BMP Sizing

Effective Area = **NA** EA  
Calculated Model Size(s) = #N/A  
Actual Model Size (if multiple values provided in Calculated Model Size or if you are choosing a larger model size) = 0 Model Size

Surface Area = #N/A ft<sup>2</sup>  
Overflow Rate = #VALUE!  $V_{or}$   
Rounded Overflow Rate = #VALUE!  $V_{or}$   
BMP Efficiency % = #VALUE! %  
 $L_R$  Value = #VALUE! lbs

TSS Load Credit = #VALUE! lbs

Is Sufficient Treatment Available? (TSS Credit  $\geq$  TSS Uncapt.) #VALUE!

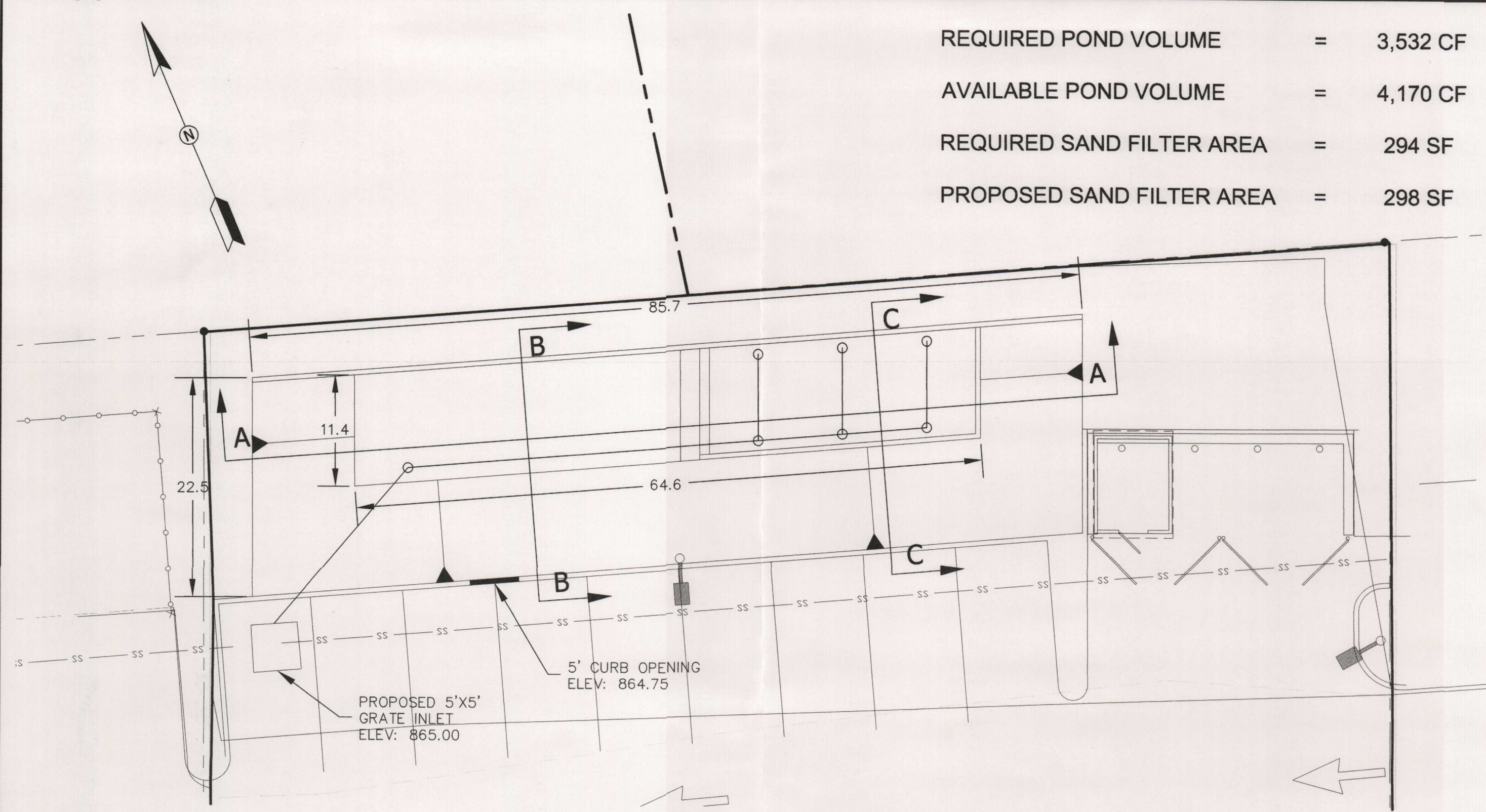
TSS Treatment by BMP (LM + TSS Uncapt.) = #VALUE!

**21. Vortech**

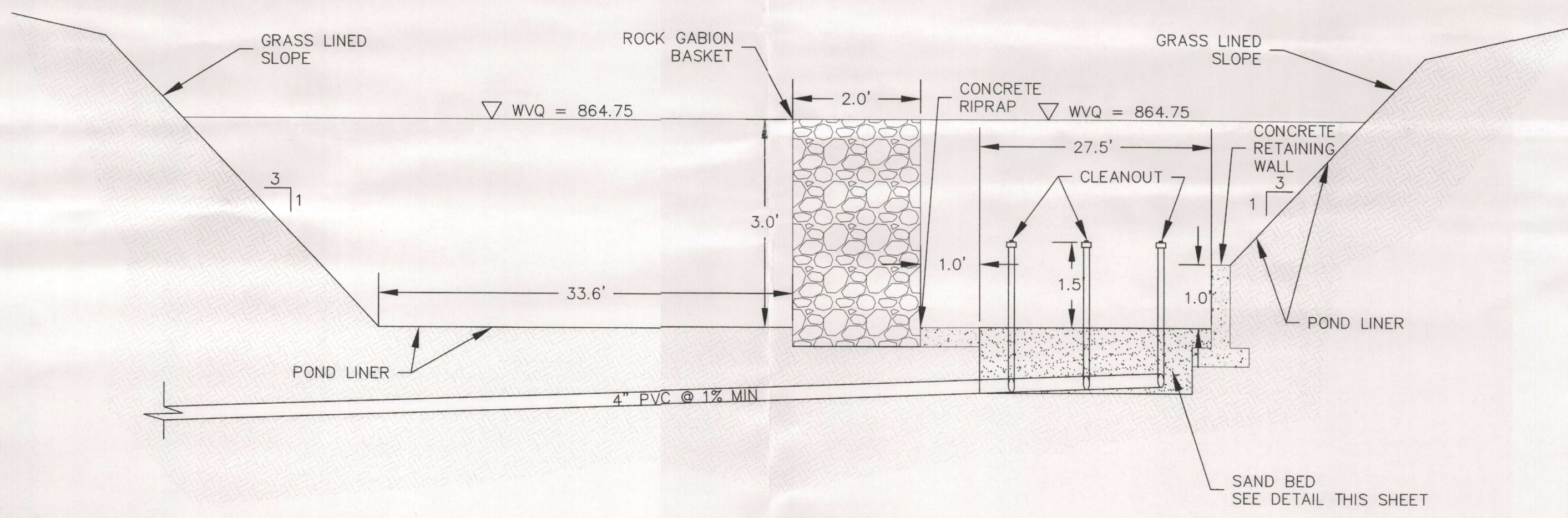
Required TSS Removal in BMP Drainage Area= **NA** lbs

	Impervious Cover Overtreatment=	0.0000	ac
	TSS Removal for Uncaptured Area =	0.00	lbs
<b>BMP Sizing</b>			
	Effective Area =	NA	EA
	Calculated Model Size(s) =	#N/A	
	Actual Model Size (if choosing larger model size) =	Vx1000	Pick Model Size
	Surface Area =	7.10	ft <sup>2</sup>
	Overflow Rate =	#VALUE!	V <sub>o</sub>
	Rounded Overflow Rate =	#VALUE!	V <sub>o</sub>
	BMP Efficiency % =	#VALUE!	%
	L <sub>R</sub> Value =	#VALUE!	lbs
	TSS Load Credit =	#VALUE!	lbs
	Is Sufficient Treatment Available? (TSS Credit ≥ TSS Uncapt.)	#VALUE!	
	TSS Treatment by BMP (LM + TSS Uncapt.) =	#VALUE!	

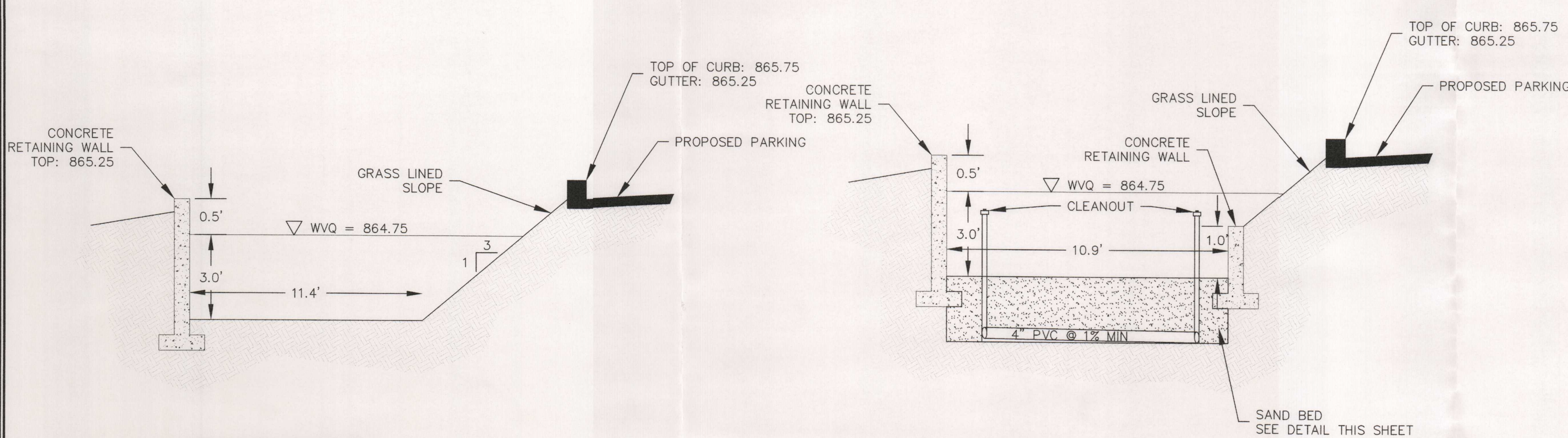
REQUIRED POND VOLUME = 3,532 CF  
 AVAILABLE POND VOLUME = 4,170 CF  
 REQUIRED SAND FILTER AREA = 294 SF  
 PROPOSED SAND FILTER AREA = 298 SF



1 Plan View  
 Scale: 1:10

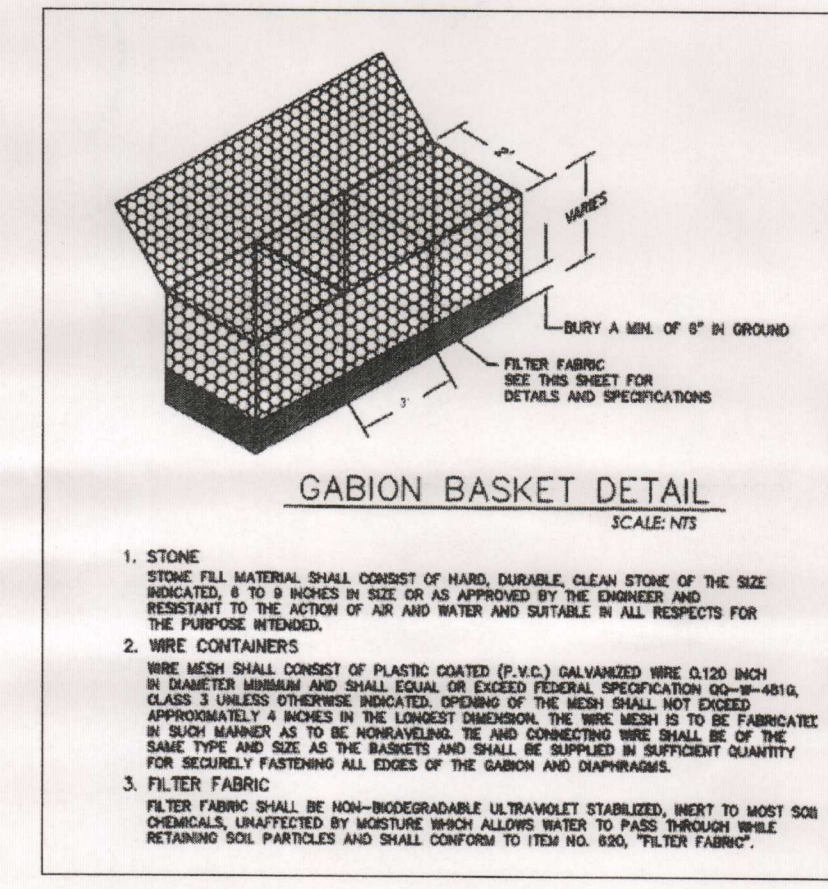
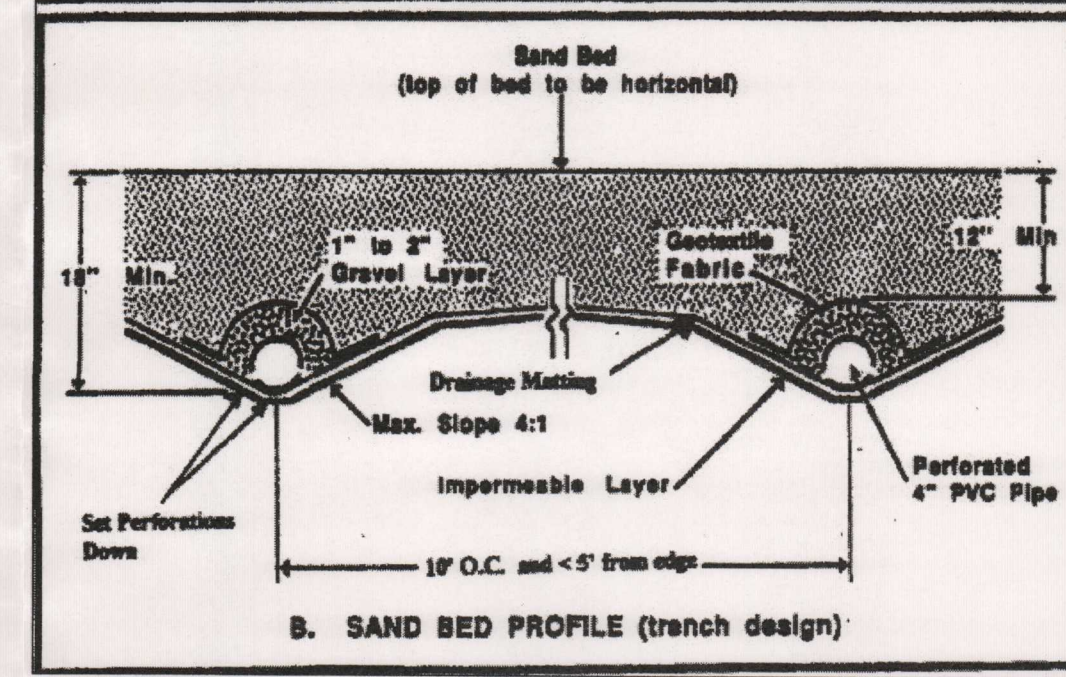
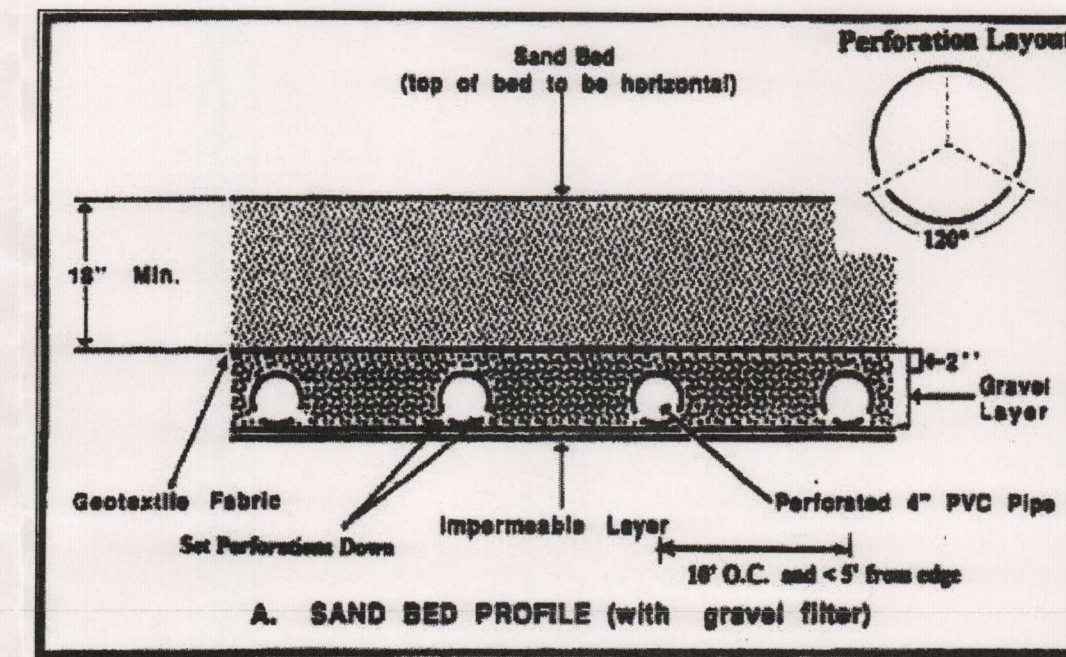


2 Section A-A  
 Not to Scale



3 Section B-B  
 Not to Scale

4 Section B-B  
 Not to Scale



1. STONE  
 STONE FILL MATERIAL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE OF THE SIZE INDICATED. 8 TO 8 INCHES IN SIZE OR AS APPROVED BY THE ENGINEER AND RESISTANT TO THE ACTION OF AIR AND WATER AND SUITABLE IN ALL RESPECTS FOR THE PURPOSE INTENDED.

2. WIRE CONTAINERS  
 WIRE MESH SHALL CONSIST OF PLASTIC COATED (E.G. GALVANIZED) WIRE (1/2\"/>

3. FILTER FABRIC  
 FILTER FABRIC SHALL BE NON-Biodegradable ULTRAVIOLET STABILIZED, WERT TO MOST SOIL CHEMICALS UNAFFECTED BY MOISTURE WHICH ALLOWS WATER TO PASS THROUGH WHILE RETAINING SOIL PARTICLES AND SHALL CONFORM TO ITEM NO. 808, FILTER FABRIC.

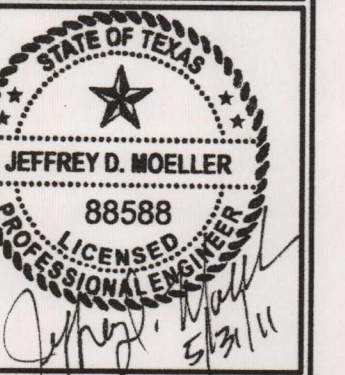
Table 3-6 Clay Liner Specifications (COA, 2004)

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	$1 \times 10^{-5}$
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

Table 3-7 Geotextile Fabric Specifications (COA, 2004)

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd <sup>2</sup>	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-751*	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D-1682	lb	200
Equal Opening Size	US Standard Sieve	No	80

811  
 Know what's below.  
 Call before you dig.



ISSUES AND REVISIONS

NO	DATE	DESCRIPTION

**MOELLER & ASSOCIATES**  
 Engineering Solutions  
 1040 N. WALNUT AVE., STE. B, NEW BRAUNFELS, TX, 78130  
 PH: 830-358-7127 www.mo-tx.com  
 TBP# FIRM E-XXXXXX

MGCC TEXAS ENTERPRISES, LLC.  
 P.O. BOX 22775  
 OKLAHOMA CITY, OK 73123

SONIC DRIVE IN  
 NEW BRAUNFELS  
 SAND FILTER POND  
 DETAILS

SHEET  
**1**  
 OF 1  
 DWG:

Drawing Name: N:\Projects\Sonic Drive Ins - SONXXX\SON01.101-Sonic NB\_SHA6\Engineering Reports\WPAP\Pond Details.dwg User: KlorSA May 31, 2011 1:25pm

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

NAME OF PROPOSED REGULATED ENTITY: Sonic Drive In – New Braunfels  
 REGULATED ENTITY LOCATION: 1794 State Highway 46 W  
 NAME OF CUSTOMER: MGCC Texas Enterprises, LLC.  
 CONTACT PERSON: Ralph L. Mason PHONE: (405) 722-9390  
 (Please Print)

Customer Reference Number (if issued): CN 603257791 (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"/> <b>Austin Regional Office</b>  | <input checked="" type="checkbox"/> <b>San Antonio Regional Office</b>   |
| <input type="checkbox"/> <b>Mailed to TCEQ:</b><br>TCEQ – Cashier<br>Revenues Section<br>Mail Code 214<br>P.O. Box 13088<br>Austin, TX 78711-3088 | <input type="checkbox"/> <b>Overnight Delivery to TCEQ:</b><br>TCEQ - Cashier<br>12100 Park 35 Circle<br>Building A, 3rd Floor<br>Austin, TX 78753<br>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	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	0.83 Acres	\$ 3,000
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

5/31/11  
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
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	≥ 500	\$10,000
	< 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



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.

R L Mason  
Applicant's Signature

5-25-11  
Date

THE STATE OF OKLAHOMA §

County of OKLAHOMA §

BEFORE ME, the undersigned authority, on this day personally appeared Ralph L. Mason 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 25<sup>th</sup> day of May 2011



Margaret J. Oden  
NOTARY PUBLIC  
MARGARET J. ODEN  
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: APRIL 15, 2014