Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 11, 2008

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: Oakwood Baptist Church, located at 2154 Loop 337, New Braunfels, Comal County Texas
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 1085.01

Dear Mr. Hornseth:

The enclosed WPAP application received on June 9, 2008, 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 8, 2008.

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

Sincerely,

Lynn M. Bumguardner
Water Section Work Leader
San Antonio Regional Office

LMB/eg

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 25, 2008

Ms. Roxi Vanstory
Oakwood Baptist Church SBC
2154 Loop 337
New Braunfels, TX 78130

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Oakwood Baptist Church Expansion, Located at 2154 Loop 337, New Braunfels, TX; New Braunfels, Texas
TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 1085.01; Investigation No. 683215; Regulated Entity No. RN102744802

Dear Ms. Vanstory:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the request for modification of the approved WPAP for the above-referenced project submitted to the San Antonio Regional Office by The Schultz Group Inc. on behalf of Oakwood Baptist Church SBC on June 9, 2008. Final review of the WPAP was completed after additional material was received on August 18, 2008 and August 22, 2008. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The original approval for the site was issued by the Texas Water Development Board letter dated November 7, 1983. The 3.498 acre lot was approved as a phased development. Phase I consisted of 1.84 acres total and 1.44 acres of impervious cover, which was not required to meet standards for water quality.

Phase II and Phase III were combined in a Texas Natural Resource Conservation Commission approval letter dated January 5, 1999 (EAPP # 1085.00). The site had expanded to 7.06 acres total and was approved for 4.27 acres of impervious cover (as stated in this application, only 4.06 acres of impervious cover was actually constructed). The 1.44 acres of impervious cover associated with the original Phase I

OAKWOOD BAPTIST CHURCH
EXPANSION
WPAP MODIFICATION

June 2008

Prepared for:

Oakwood Baptist Church.
2154 Loop 337
New Braunfels, TX 78130
(830) 625-3913

TCEQ-R13
JUN 09 2008
SAN ANTONIO

Project No. 010108

Prepared By:

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

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1. Modification of a Previously Approved Plan Checklist
2. General Information
3. Geologic Assessment
4. Modification of a Previously Approved Plan
5. Water Pollution Abatement Plan Application
6. Temporary Stormwater
7. Permanent Stormwater
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11. Reference

Modification of a Previously Approved Plan Checklist

Modification of a Previously Approved Plan Checklist

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

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

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

X Application Form (appropriate for the modification)
- Aboveground Storage Tank Facility Plan (*TCEQ-0575*)
- Organized Sewage Collection System Plan (*TCEQ-0582*)
- Underground Storage Tank Facility Plan (*TCEQ-0583*)

X Water Pollution Abatement Plan Application Form (*TCEQ-0584*)
- Lift Station / Force Main System Application (*TCEQ-0624*)

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

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

Modification of a Previously Approved Plan Checklist (continued)

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

X Application Fee Form (*TCEQ-0574*)

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

X Core Data Form (*TCEQ-10400)*

General Information

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: OAKWOOD BAPTIST CHURCH EXPANSION
COUNTY: COMAL STREAM BASIN: BLIEDERS CREEK

EDWARDS AQUIFER: [X] RECHARGE ZONE
[ ] TRANSITION ZONE

PLAN TYPE: [X] WPAP [ ] AST [ ] EXCEPTION
[ ] SCS [ ] UST [X] MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: RON VANSTORY
Entity: OAKWOOD BAPTIST CHURCH SBC.
Mailing Address: 2154 LOOP 337
City, State: NEW BRAUNFELS, TX Zip: 78130
Telephone: (830) 625-0267 FAX: (830) 625-1151

Agent/Representative (If any):

Contact Person: MICHAEL G. SHORT
Entity: THE SCHULTZ GROUP INC.
Mailing Address: 2461 LOOP 337 N.
City, State: NEW BRAUNFELS TX Zip: 78130
Telephone: (830) 606-3913 FAX: (830) 625-2204

2. [X] This project is inside the city limits of THE CITY 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.

2154 LOOP 337 NEW BRAUNFELS, TX

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

5. [X] **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is

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

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

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

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

8. Existing project site conditions are noted below:

X Existing commercial site
N/A Existing industrial site
N/A Existing residential site
X Existing paved and/or unpaved roads
X Undeveloped (Cleared)
X Undeveloped (Undisturbed/Uncleared)
N/A Other: _____

PROHIBITED ACTIVITIES

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

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

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

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

ADMINISTRATIVE INFORMATION

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

X For a Water Pollution Abatement Plan and Modifications, the total acreage of the site where regulated activities will occur.

N/A For an Organized Sewage Collection System Plans and Modifications, the total linear footage of all collection system lines.

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

N/A A Contributing Zone Plan.

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

N/A A request for an extension to a previously approved plan.

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

___ TCEQ cashier

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

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

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

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

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

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

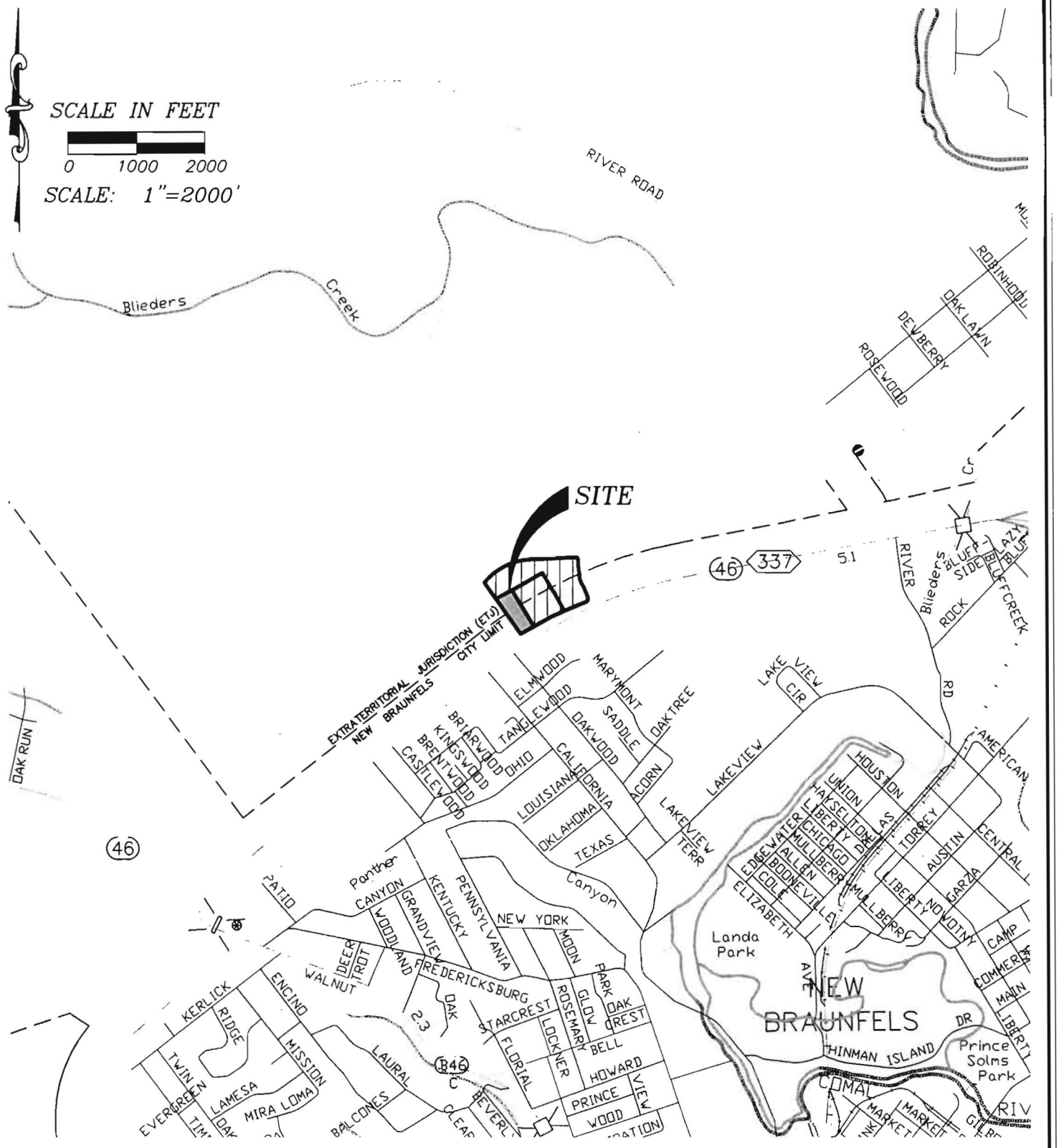
MICHAEL G. SHORT
Print Name of Customer/Agent

Signature of Customer/Agent

6/13/08
Date

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

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



ATTACHMENT A
ROAD MAP

THE **Schultz Group,** INC.

CONSULTING ENGINEERS LAND SURVEYORS

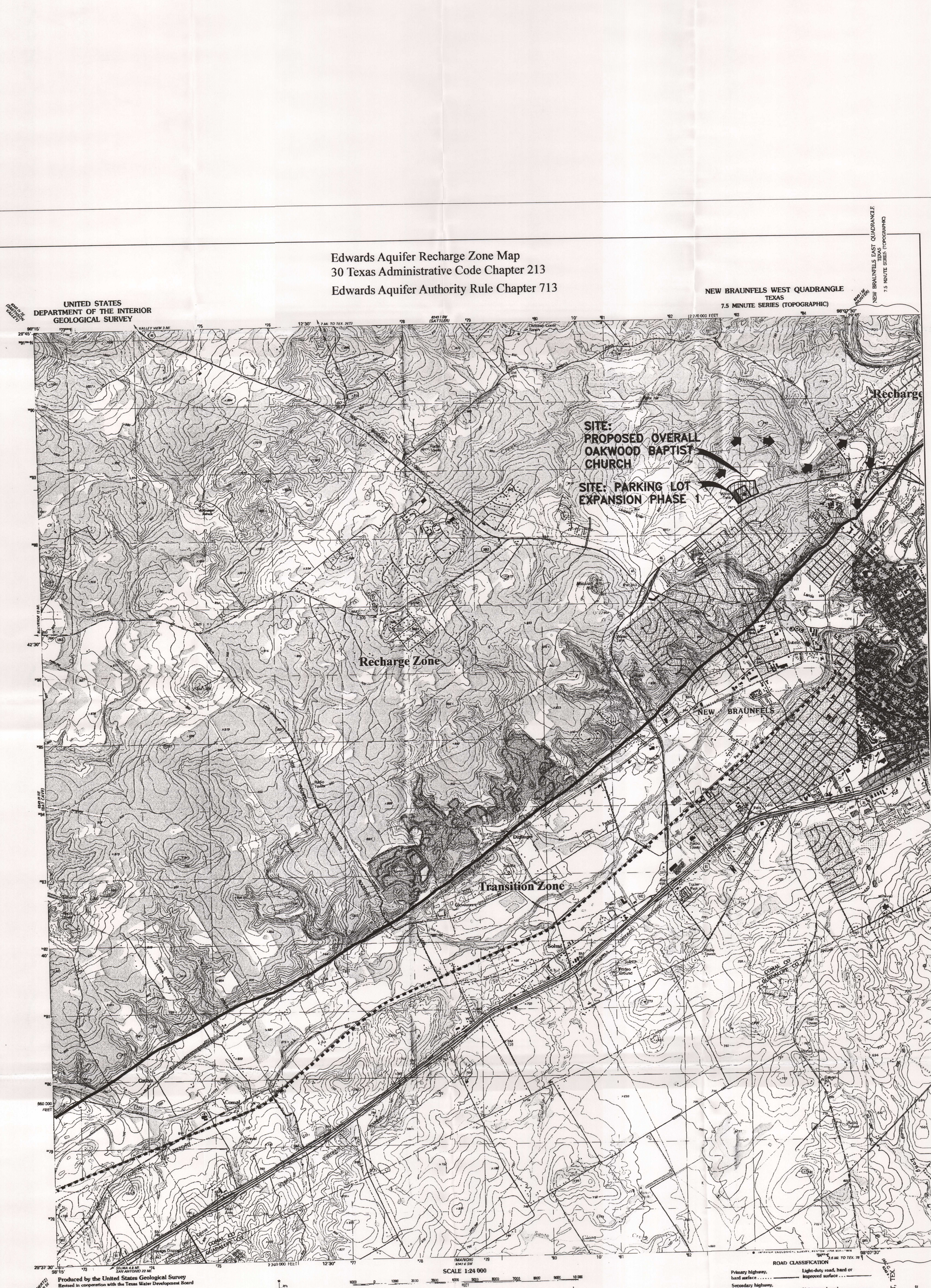
P.O. BOX 310483 NEW BRAUNFELS, TEXAS 78131 (830) 606-3913

FAX (830) 625-2204

DRAWN BY: D.C.	DATE: MAY 2008
CHECKED BY: M.G.S.	JOB NO.: 010108

ATTACHMENT B – USGS MAP

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



ATTACHMENT B
USGS/EDWARDS RECHARGE ZONE MAP

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

ATTACHMENT C – PROJECT DESCRIPTION

The Oakwood Baptist Church intends to expand its current facility from 7.06-acres to 24.20-acres. The campus expansion will be completed in two phases. The first phase will consist of a 3.4-acre parking lot expansion adjacent to the existing facility. The second phase will include modifications to the existing site and expansion of the existing worship center chapel and educational facilities expanding out on the remaining acreage.

The Phase 1 Parking Lot Expansion will be completed immediately adjacent to the existing facility along the overall projects western most boundary. The parking lot will include minmal landscaping islands and buffer areas. The parking lot will be graded to drain all onsite flows to a proposed interim detention pond in effort to meet the City of New Braunfels Drainage Criteria for the first phase. The detention pond outfall will be discharged to an interim level spreader structure and interim vegetative filter strip allowing the treated generated run-off to return to its natural drainage condition. In addition to the Parking Lot Improvements two drive isles and one pedestrian isle will be created to connect the proposed improvements with the existing facility. The grading common to the connections is intended to isolate the drainage systems of the existing facility and the proposed parking lot improvements. The intention of the isolation is to ensure the original permanent sand filter for the original 7.06-acres of development remains unaffected by the proposed Phase 1 Improvements. To facilitate access one existing driveway within TxDOT right-of-way will be removed and relocated to the new Phase 1 Parking Lot.

The Phase 2 Improvements will include the construction of a new worship center, chapel, educational facilities, significant parking areas, modifications to the existing parking areas permanent detention pond and water quality pond. The project will also remove the existing 9,275-cf water quality pond originally intended to serve a portion of the 7.06-acre site (see referenced information for additional detail). All run-off generated onsite given all existing improvements as well as all proposed improvement will be collected through a series of onsite swales and storm drain systems and conveyed to a partial sediment and sand filtration water quality pond and a permanent detention pond.

Summary of the project areas are as follows:

Existing Acreage *1	7.06	ac
Added Acreage *2	17.14	ac
Total Site Acreage	24.20	ac

Phase 1 Parking Lot

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft/Acre	Acres
Structures/Rooftops	0	/ 43,560 =	0.00
Parking	138,361	/ 43,560 =	3.18
Other paved surfaces	1,228	/ 43,560 =	0.03
Total Impervious Cover	139,589	/ 43,560 =	3.20
(Total Impervious Cover/Added Acreage) X 100			18.7 %

Phase 2 Overall				
Impervious Cover of Proposed Project (Including All Existing Impervious Cover)	Sq. Ft.	Sq. Ft/Acre		Acres
Structures/Rooftops	160,099	/ 43,560	=	3.68
Parking	584,629	/ 43,560	=	13.42
Other paved surfaces	24,890	/ 43,560	=	0.57
Total Impervious Cover	769,618	/ 43,560	=	17.67
(Total Impervious Cover/Added Acreage) X 100				73.0 %

Notes:

*1 Per WPAP approval letter dated January 5, 1999 the existing project site was shown as 7.06-acres. The recorded plat prior to the expansion was shown as 7.0841-acres. The on the ground survey of the existing site shows 7.118.
*2 Current on the ground survey and current platting reconciled the previous minor inconsistencies to a total project area of 24.200-acres.

Geologic Assessment

GEOLOGIC ASSESSMENT
(WPAP)

OAKWOOD BAPTIST CHURCH
17.082 ACRES
NEW BRAUNFELS, TEXAS

FROST GEOSCIENCES, INC. PROJECT NO.: FGS-E07421
JANUARY 9, 2008

Prepared exclusively for

Oakwood Baptist Church
2154 Loop 337 North
New Braunfels, Texas

Frost GeoSciences
Construction Materials ▪ Forensics
Environmental ▪ Geotechnical

Frost GeoSciences
Construction Materials • Forensics
Environmental • Geotechnical

Frost Geosciences, Inc.
13402 Western Oak
Helotes, Texas 78023
Office (210)-372-1315
Fax (210)-372-1318

January 9, 2008

Oakwood Baptist Church
2154 Loop 337 North
New Braunfels, Texas

Attn: Mr. Rusty Rice

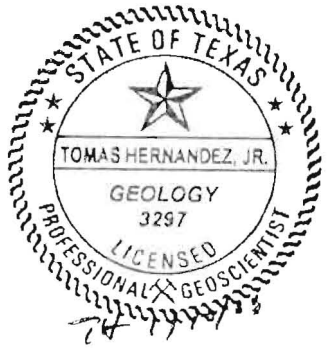
SUBJECT:
Geologic Assessment
Oakwood Baptist Church
17.082 Acres
New Braunfels, Texas
FGS Project Nº FGS-E07421

Dear Mr. Rice:

Frost GeoSciences, Inc., (FGS) is pleased to submit the enclosed Geologic Assessment completed for the above referenced project site as it relates to 30 TAC §213.5(b)(3), effective September 11, 2003. Our investigation was conducted, and this report was prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04).

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.

We appreciate the opportunity to perform these services for Oakwood Baptist Church. Please contact the undersigned if you have questions regarding this report.



Respectfully submitted,
Frost GeoSciences, Inc.

Tomas Hernandez, Jr., P.G.
Project Geologist

Copies Submitted: (6) Mr. Rusty Rice; Oakwood Baptist Church
(1) CD Copy

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FIGURES
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Figure 2: Vicinity Map
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Figure 6: Geologic Map - New Braunfels Quadrangle

APPENDIX A – Site Photographs

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: Oakwood Baptist Church

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

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

PROJECT INFORMATION

1. _X_ Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**.

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

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
Comfort-Rock outcrop complex, 1 to 8 percent slopes	D	0-3.0
Rumple-Comfort association, 1 to 8 percent slopes	D-C	0-3.0

* Soil Group Definitions (Abbreviated)

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

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

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

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

3. _X_ A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.

4. _X_ A **NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY** is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.

5. _X_ Appropriate **SITE GEOLOGIC MAP(S)** are attached:

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

Applicant's Site Plan Scale	1" = 60 '
Site Geologic Map Scale	1" = 60 '
Site Soils Map Scale (if more than 1 soil type)	1" = 400 '

6. Method of collecting positional data:

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

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

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

9. X Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

   ___ Geologic or manmade features were not discovered on the project site during the field investigation.

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

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

   ___ 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.

   X There are no wells or test holes of any kind known to exist on the project site.

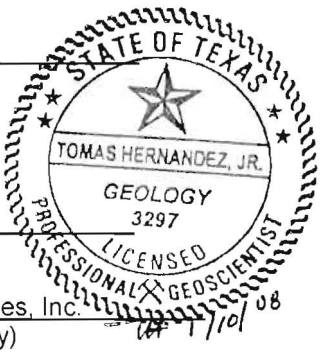
ADMINISTRATIVE INFORMATION

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

Date(s) Geologic Assessment was performed: January 4, 2007
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.

Tomas Hernandez, Jr., P.G.
Print Name of Geologist



Signature of Geologist

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

210-372-1315
Telephone

210-372-1318
Fax

January 9, 2008
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.

GEOLOGIC ASSESSMENT TABLE	PROJECT NAME: Oakwood Baptist Church

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11	12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-1	29° 43' 32.7"	-98° 08' 30.8"	SC	20	Kep	3	3	2	-	-	-	-	OFC	14	34	34		YES		HILLSIDE
S-2	29° 43' 39.2"	-98° 08' 28.2"	SC	20	Kep	1	1	1.5	-	-	-	-	OFC	7	27	27		YES		HILLSIDE
S-3	29° 43' 38.6"	-98° 08' 26.9"	SC	20	Kep	2	1	1.5	-	-	-	-	OFC	9	29	29		YES		HILLSIDE

Datum: NAD 83

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

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

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Floodplain, Streambed

STATE OF TEXAS
TOMAS HERNANDEZ, JR.
GEOLOGY
3297
LICENSED
PROFESSIONAL GEOSCIENTIST

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

Tomas Hernandez, Jr. P.G.

Date 1/9/08

Sheet 1 of 1

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

STRATIGRAPHIC COLUMN

Hydrogeologic subdivision			Group, formation, or member			Hydrologic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity/ permeability type
Upper Cretaceous	Upper confining unit		Taylor Group			CU	600	Clay; chalky limestone	Gray-brown clay; marly limestone	None	Low porosity/ low permeability
			Austin Group			CU; rarely AQ	130 – 150	White to light-tan to gray limestone	White, chalky limestone; *Pycnodonte aucella Inoceramus subquadratus*	None	Low porosity; rare water production from fractures/ low permeability
			Eagle Ford Group			CU	30 – 50	Brown, flaggy sandy shale and argillaceous limestone	Thin flagstones, petroliferous	None	Primary porosity lost- low permeability
			Buda Limestone			CU	40 – 50	Buff, light-gray, dense mudstone	Porcelaneous limestone	Minor surface karst	Low porosity/ low permeability
			Del Rio Clay			CU	50 – 60	Blue-green to yellow-brown clay	Fossiliferous, *Ilymatogyra arietina*	None	None/primary upper confining unit
Lower Cretaceous	I	Edwards aquifer	Georgetown Formation			CU	40 – 60	Gray to light-tan, marly limestone	Marker fossil: *Waconella waconsis*	None	Low porosity/ low permeability
	II		Edwards Group	Person Formation	Cyclic and marine members, undivided (4)	AQ	0 – 70	Mudstone to packstone; *miliolid* grainstone; chert	Boxwork vugs; light tan, massive; some *Toucasia*, *Caprinid*, and *Chondrodonta*	Many caves; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding; one of the most porous and permeable; essentially absent in Travis County
	III				Leached and collapsed members, undivided (4)	AQ	30 – 80	Crystalline limestone; mudstone to wackestone to *miliolid* grainstone; chert, collapsed breccia	Light-gray, bioturbated iron-stained beds separated by massive limestone beds; *Toucasia*, *Chondrodonta*	Extensive lateral development; large rooms	Majority not fabric/ one of the most porous and permeable
	IV				Regional dense member (3)	CU	20 – 30	Light-tan, dense, argillaceous mudstone	Wispy iron-oxide stains; *Pleuromya knowltoni*, *Ceratostreon texanum*	None; only vertical fracture enlargement	Not fabric/ low permeability; vertical barrier
	V			Kainer Formation	Grainstone member (2)	AQ	45 – 60	Light-gray, *miliolid* grainstone; mudstone to wackestone; chert	White crossbedded grainstone; *Toucasia*, *Turritella*, and *Chondrodonta*	Few caves	Not fabric/ recrystallization reduces permeability
	VI				Kirschberg evaporite member (1)	AQ	65 – 75	Light-gray, crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame; *Cladophyllia* and *Turritella*	Probably extensive cave development	Majority fabric/ one of the most porous and permeable
	VII				Dolomitic member (1)	AQ	110 – 150	Mudstone to grainstone; crystalline limestone; chert	Massively bedded, light gray, *Toucasia* abundant; *Dictyoconus walnutensis*, *Caprinid*	Caves related to structure or bedding planes	Mostly not fabric; some bedding-plane fabric/ water-yielding; locally permeable
	VIII				Basal nodular member	Karst AQ; not karst CU	45 – 60	Shaly, fossiliferous, nodular limestone; mudstone; *miliolid* grainstone	Massive, nodular and mottled; *Ceratostreon texanum*, *Dictyoconus walnutensis*, and *Texigryphaea*	Few caves	Fabric/low permeability
	Lower confining unit		Upper member of the Glen Rose Limestone			CU; evaporite beds AQ	350 – 500	Yellowish-tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/ relatively impermeable

LOCATION

The project site is located immediately north of Loop 337 near Oakwood Boulevard in New Braunfels, Texas. The center of the project site is located at N29° 43' 41.12" Latitude and W98° 08' 32.65" Longitude (NAD83).

METHODOLOGY

The Geologic Assessment was performed under the supervision of Mr. Tomas Hernandez, Jr., P.G., with Frost GeoSciences, Inc., on January 4, 2007. Frost GeoSciences, Inc. researched the geology of the area surrounding Loop 337 and Oakwood Boulevard, in New Braunfels, Texas. The research included, but was not limited to, the Geologic Map of the New Braunfels, Texas, 30 X 60 minute Quadrangle published by the University of Texas At Austin Bureau of Economic Geology (2000), US Geological Survey Water Resources Investigations 94-4117 Map, FEMA maps, Edwards Aquifer Recharge Zone Maps, USGS 7.5 Minute Quadrangle Maps, and the USDA Soil Survey of Bexar 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 25 feet, or less depending on vegetation thickness, was used to inspect the project site. A 2005 aerial photograph, in conjunction with a hand held Garmin eTrex Summit Global Positioning System with an Estimated Potential Error ranging from 10 to 18 feet, was used to navigate on 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 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.

NARRATIVE DESCRIPTIVE OF SITE GEOLOGY

The project site is located on a gently sloped portion of ground that is covered with a dense stand of native grasses with intermittent patches of native trees, including but not limited to ashe juniper, Texas persimmon, live oak, and hackberry. Dense vegetation prevented visual observation of some portions of the surface of the ground on the Site.

Underlying the soil cover on the project site are the Cyclic and Marine Members, undivided, and the Leached and Collapsed Members, undivided, of the Persons Formation of the Edwards Group. The Edwards Group undivided in to two formations – the Persons and Kainer which are then subdivide into several members. Based on literature research there are no faults located on the project site.

No visible faulting was observed on the project site. No other significant observations were noted across the project area during the site reconnaissance.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS

S-1 SC: Solution Cavity: Feature is approximately three feet in diameter and approximately two feet deep. The feature is covered by a large rock and is filled with organic, coarse and fine materials.

S-2 SC: Solution Cavity: Feature is approximately one-foot in diameter and approximately one and a half feet deep. The feature appears to be the product of a combination of root lift and animal burrowing.

S-3 SC: Solution Cavity: Feature is approximately two foot wide and one foot long and approximately one and a half feet deep. The feature is located between two oak trees and appears to be the product of a combination of root lift and animal burrowing.

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 based on the appearance of the surface of the Site.

SOIL DESCRIPTION

The site has soil cover of approximately zero to three feet, consisting of the following soil associations:

The Rumple-Comfort Association – This soil 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.

The Comfort-Rock Outcrop Complex – This soil consists of shallow, clayey soils and Rock Outcrop on side slopes and on hilltops and ridgetops on uplands in the Edwards Plateau Land Resource Area. The Comfort Extremely Stony Clay makes up 49 to more than 95 percent of the complex, but on the average it makes up 70 percent. Rock Outcrop and areas of soil less than 4 inches deep make up 5 to 36 percent, but the average is 15 percent. Typically, the surface layer of the Comfort soil is dark brown extremely stony clay about 6 inches thick. Cobbles and stones as much as 4 feet across cover about 45 percent of the surface. The subsoil extends to a depth

of 13 inches. It is dark reddish brown extremely stony clay. The underlying material is indurated fractured limestone. The soil is mildly alkaline and noncalcareous throughout. The Comfort Soil is well drained. Surface runoff is slow to medium. Permeability is slow, and the available water capacity is very low. Water erosion is a slight hazard.

RESEARCH

7.5 Minute Quadrangle Map Review

According to the USGS 7.5 Minute Quadrangle Map, New Braunfels West, Texas, the elevation of the project site ranges from 760 to 795 feet. These elevations are calculated above mean sea level (AMSL). Surface runoff from the project site flows to the north towards an unnamed tributary of Blieders Creek.

Recharge / Transition Zone Map Review

According to the Official Edwards Aquifer Recharge Zone Map, USGS 7.5 Minute Quadrangle, New Braunfels West, Texas Map, the project site is located within the Recharge Zone of the Edwards Aquifer.

Floodplain Review

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Bexar County, Texas, Community Panel Number 4854630105C (Revised September 29, 1986) was reviewed. The project site is located in Zone X. Zone X are areas determined to be outside the 500-year floodplain. The project site does not appear to be in a special flood zone.

REFERENCES

1. USGS 7.5 Minute Quadrangle Map, New Braunfels West, Texas 1988.
2. Edwards Underground Water District Reference Map.
3. Official Edwards Aquifer Recharge Zone Map, New Braunfels West, Texas 1988.
4. Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Bexar County, Texas.
5. US Geological Survey Water Resources Investigations 94-4117.
6. Geologic Atlas of Texas, San Antonio Sheet (1982), Bureau of Economic Geology.
7. Geologic Map of the New Braunfels, Texas, 30 X 60 minute Quadrangle published by the University of Texas At Austin Bureau of Economic Geology (2000).
8. Federal Emergency Management Agency (FEMA), September 29, 1986, Bexar County, Texas and Incorporated Areas, Flood Insurance Rate Map (FIRM), Panel 4854630105C FEMA.
9. USDA Soil Conservation Service, Soil Survey website, http://websoilsurvey.nrcs.usda.gov/app/.
10. TCEQ-0585-Instructions (Rev. 10-1-04). "Instructions to Geologists for Geologic Assessments"

FIGURES

Figure 1: Geologic Site Plan

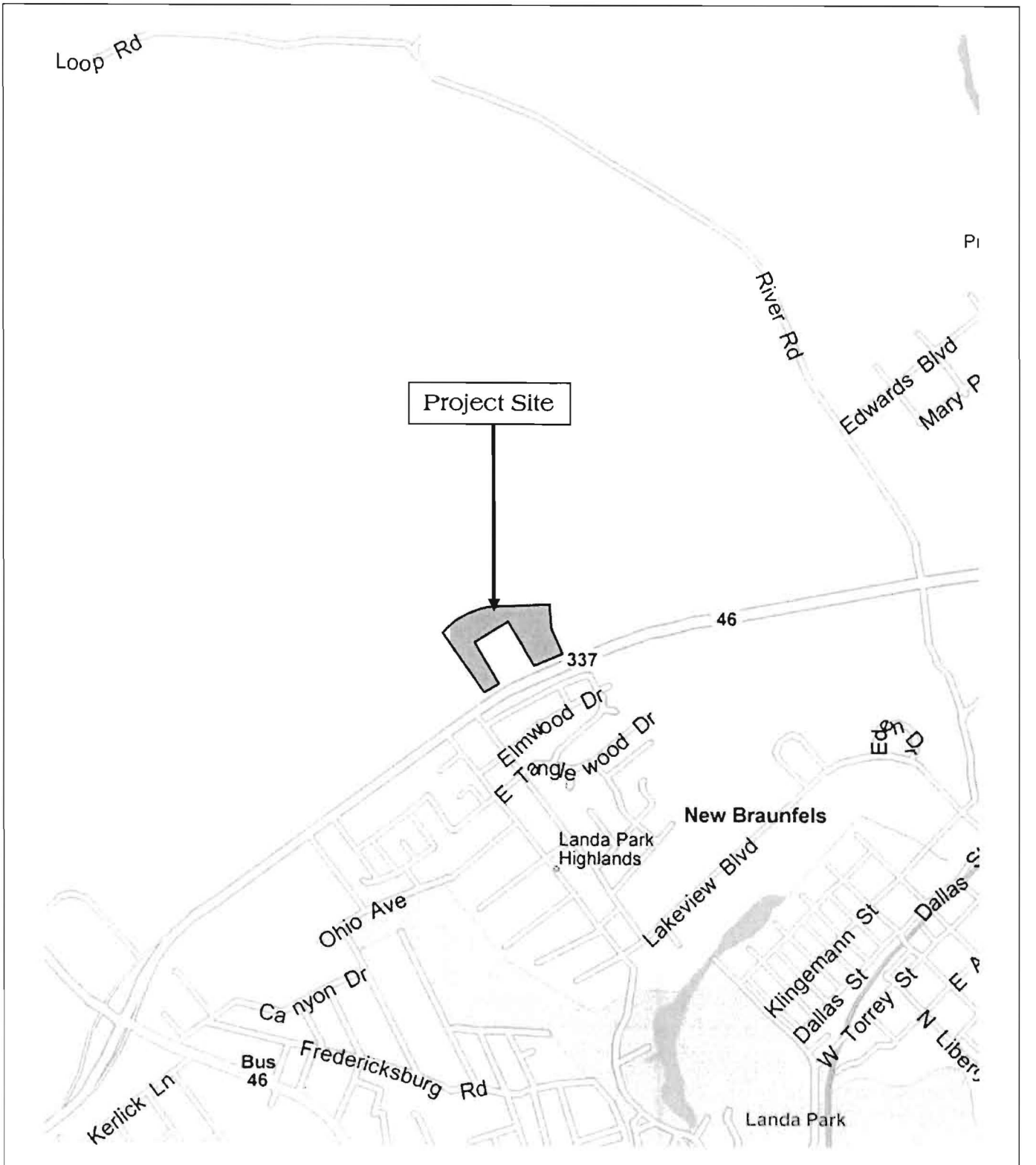
Figure 2: Vicinity Map

Figure 3: Topographic Map

Figure 4: Aerial Photograph

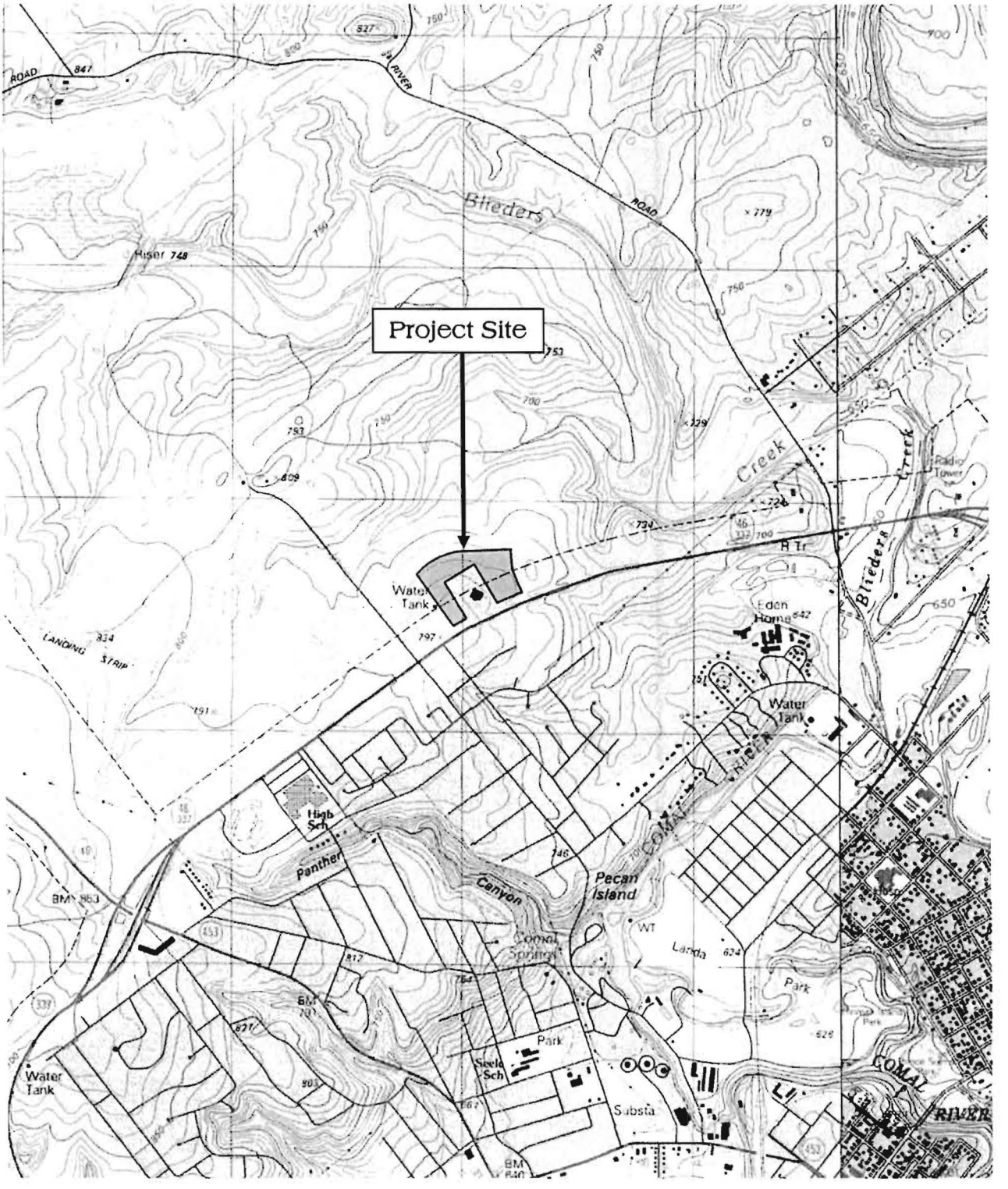
Figure 5: Soils Map

Figure 6: Geologic Map - New Braunfels Quadrangle



VICINITY MAP	DRAWING NOT TO SCALE	N↑	FIGURE 2

FGS Project Nº FGS-E07421



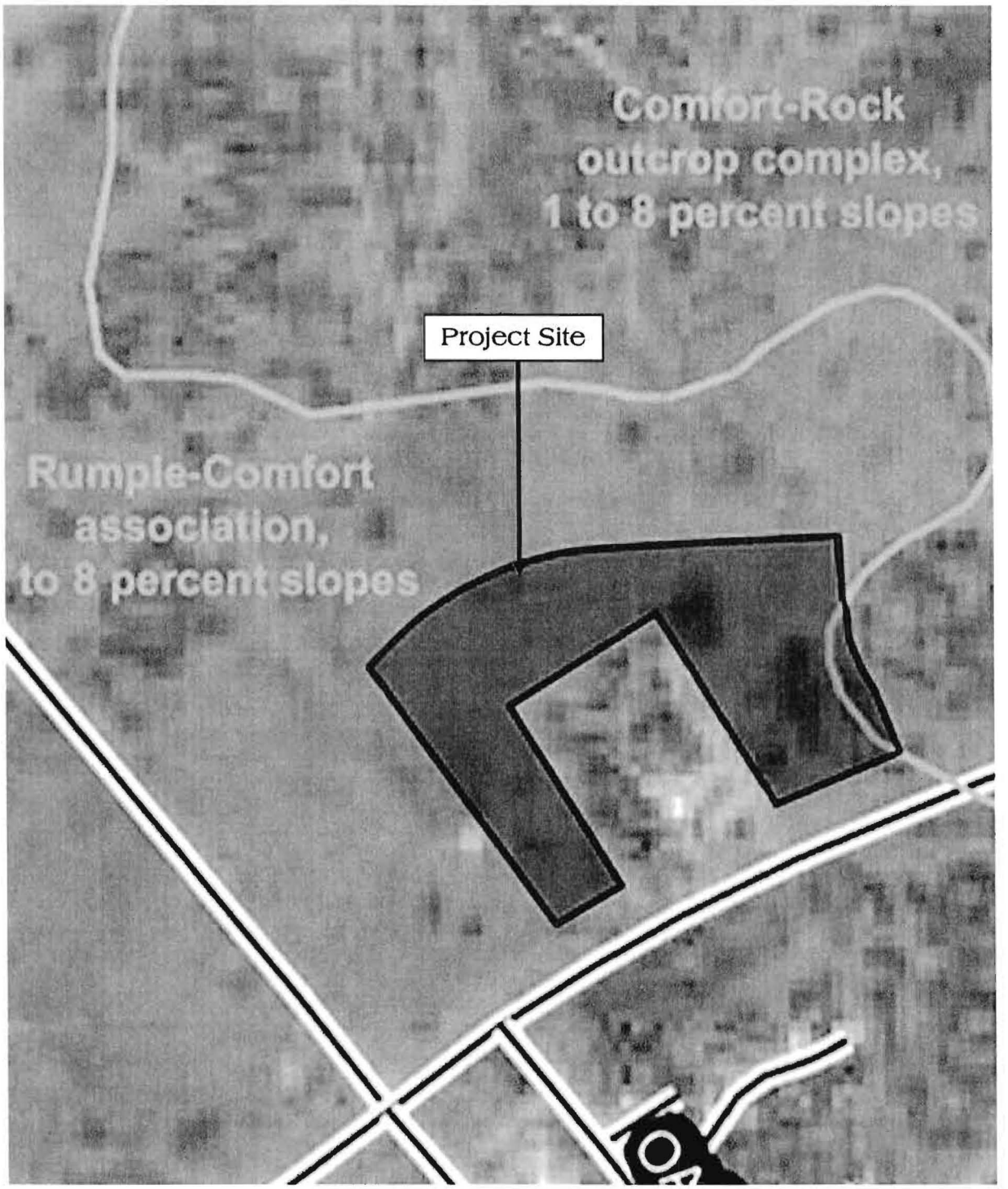
TOPOGRAPHIC MAP	DRAWING NOT TO SCALE	N↑	FIGURE 3

FGS Project Nº FGS-E07421



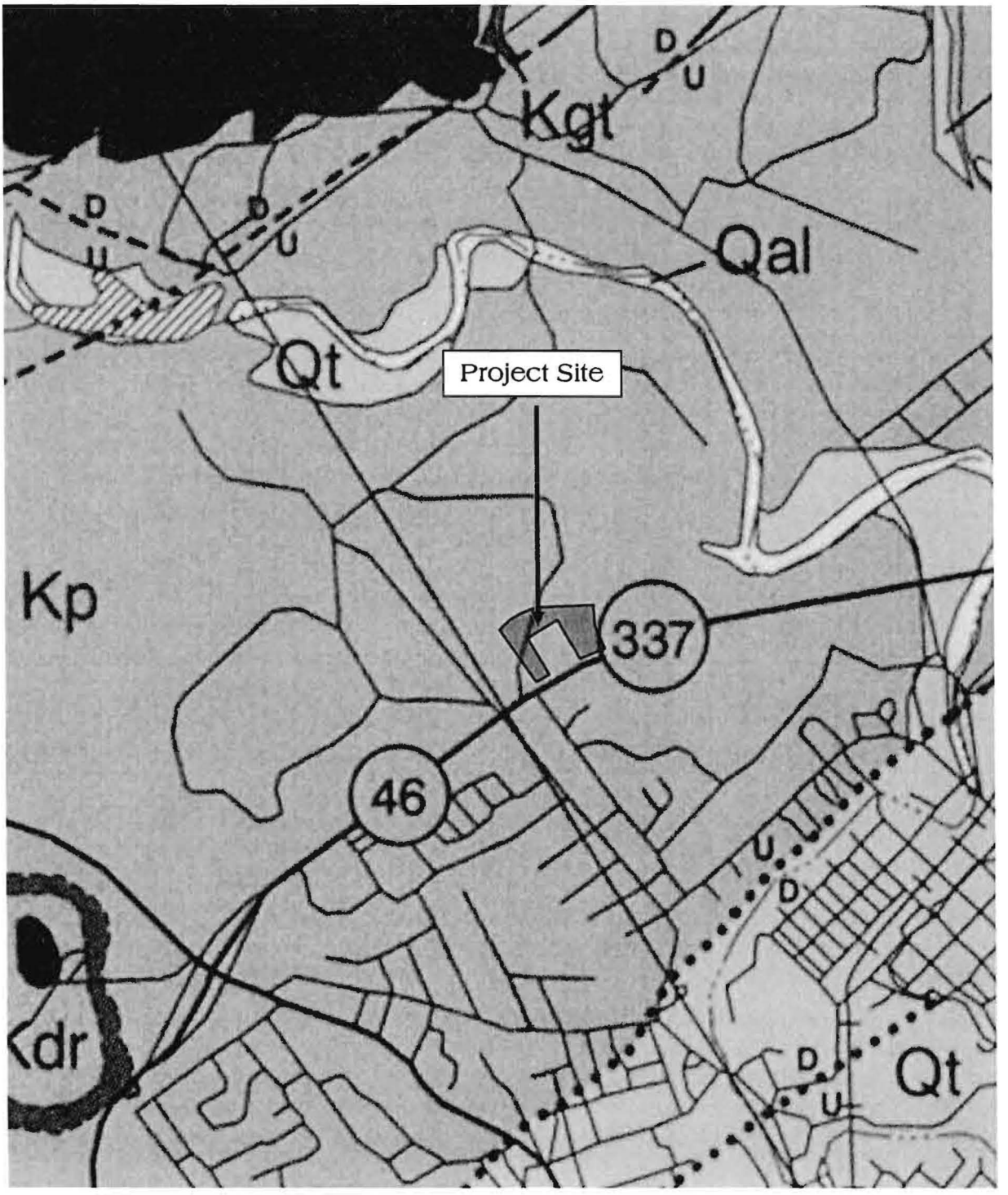
AERIAL PHOTOGRAPH	DRAWING NOT TO SCALE	N↑	FIGURE 4

FGS Project Nº FGS-E07421



SOILS MAP	SCALE: 1"=400'	N↑	FIGURE 5

FGS Project Nº FGS-E07421



GEOLOGIC MAP New Braunfels Quadrangle	DRAWING NOT TO SCALE	N↑	FIGURE 6

FGS Project Nº FGS-E07421

APPENDIX A

SITE PHOTOGRAPHS



Photo #1 – Photo view is towards the east across the project site.



Photo #2 – Photo view is towards the northwest along the eastern boundary of the project site.



Photo #3 – Photo view is towards the southwest along the southern boundary of the project site.



Photo #4 – Photo view shows typical vegetation observed on the project site.



Photo #5 – Photo view shows a pile of stockpiled rocks observed on the project site.



Photo #6 – Photo view shows the interior of one of the oak groves observed on the project site.



Photo #7 – Photo view shows feature S-1, a solution cavity.



Photo #8 – Photo view shows the interior of feature S-1, a solution cavity.



Photo #9 – Photo view shows feature S-2, a solution cavity.

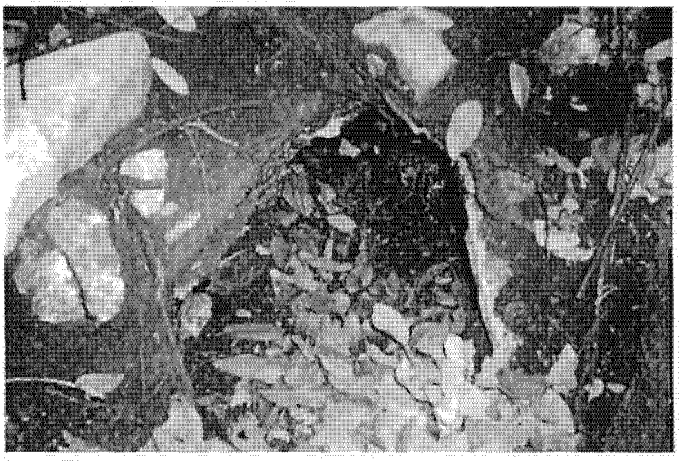


Photo #10 – Photo view shows the interior of feature S-2, a solution cavity.

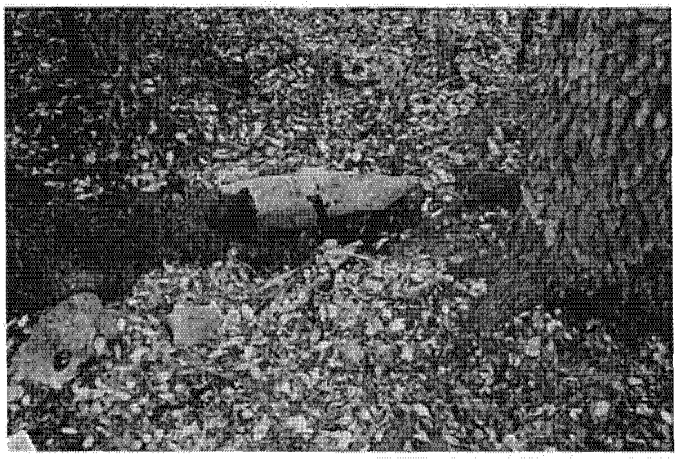


Photo #11 – Photo view shows feature S-3, a solution cavity.

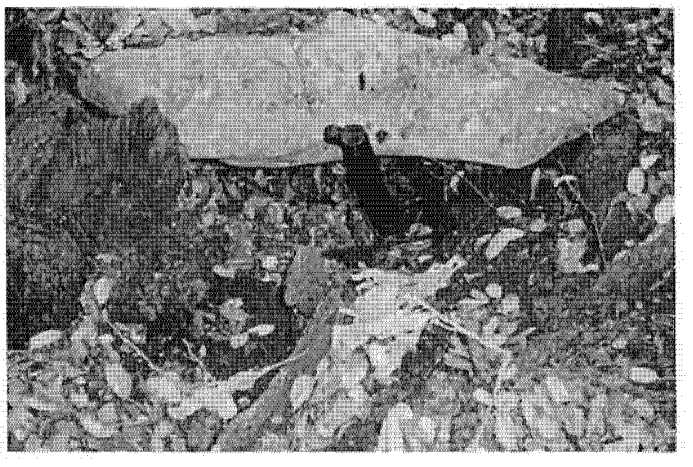
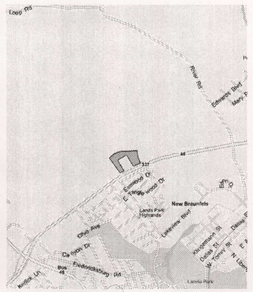
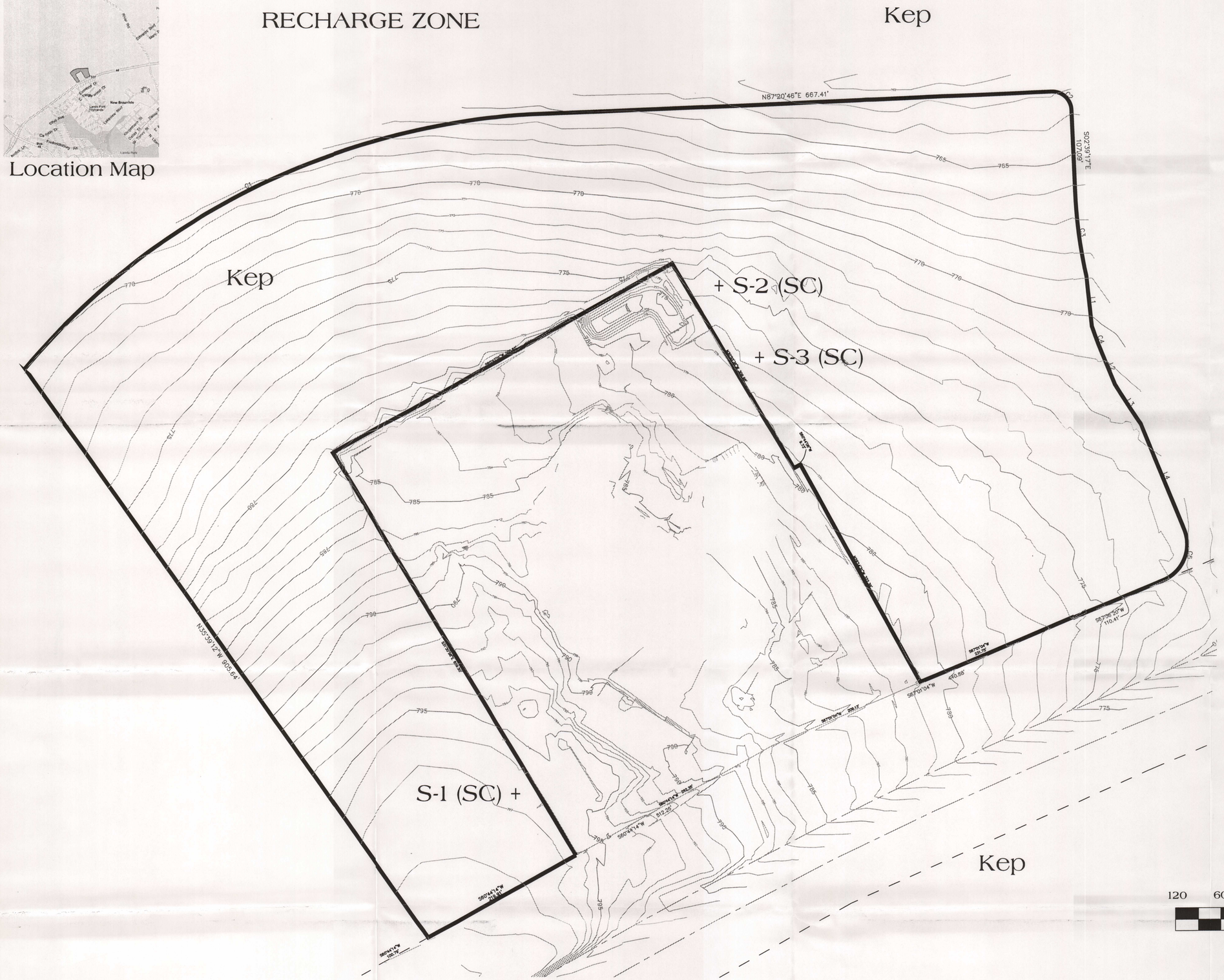


Photo #12 – Photo view shows the interior of feature S-2, a solution cavity.



Location Map



Legend

Kep - Person Formation

S-# - Potential Recharge Feature (Sensitive Features in Red)

(SC) Solution Cavity

Site Boundary

Floodplain Information Obtained From: Flood Insurance Rate Map Comal County, Texas: Panel # 4854630105C (9/29/86)

Fault Information Obtained From: Geologic Map of New Braunfels, Texas 30 x 60 Minute Quadrangle (2000)

Graphic Scale

120 60 0 60 120

(In Feet)

1 inch = 60 feet

REVISIONS:

STATE OF TEXAS
TOMAS HERNANDEZ, JR.
GEOLOGY
3297
LICENSED
PROFESSIONAL GEOSCIENTIST

Frost GeoSciences
Construction Materials • Forensics
Environmental • Geotechnical

Site Geologic Map
Oakwood Baptist Church

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

JOB NO. FGS-E07421

DATE 1/9/08

DESIGNER H.S. IV

CHECKED T.H. DRAWN H.S. IV

SHEET

Modification of a Previously Approved Plan

Modification of a Previously Approved Plan

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

1. Current Regulated Entity Name: OAK WOOD BAPTIST CHURCH EXPANSION
   Original Regulated Entity Name: OAKWOOD BAPTIST CHURCH
   Assigned Regulated Entity Numbers (RN): 1) 102991490, 2) _____, 3) _____

   X The applicant has not changed and the Customer Number (CN) is: CN 601399199
   ___ The applicant has changed. A new Core Data Form has been provided

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

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

   X 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;
   X change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
   X development of land previously identified as undeveloped in the original water pollution abatement plan;
   N/A physical modification of the approved organized sewage collection system;
   N/A physical modification of the approved underground storage tank system;
   N/A physical modification of the approved aboveground storage tank system.

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

WPAP Modification Summary	Approved Project	Proposed Modification
Acres	7.06	24.20
Type of Development	COMMERCIAL	COMMERCIAL
Number of Residential Lots	N/A	N/A
Impervious Cover (acres)	4.27	17.67
Impervious Cover (%)	60.5%	73.0%
Permanent BMPs	SAND FILTER	SAND FILTER
Other		

SCS Modification Summary	Approved Project	Proposed Modification
Linear Feet	N/A	N/A
Pipe Diameter	N/A	N/A
Other	N/A	N/A

AST Modification Summary	Approved Project	Proposed Modification
Number of ASTs	N/A	N/A
Volume of ASTs	N/A	N/A
Other	N/A	N/A

Annotated Item 4. TCEQ-0590

Existing Acreage *1	7.06 ac
Added Acreage *2	17.14 ac
Total Site Acreage	24.20 ac

Phase 1 Parking Lot

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft/Acre	Acres
Structures/Rooftops	0	/ 43,560 =	0.00
Parking	138,361	/ 43,560 =	3.18
Other paved surfaces	1,228	/ 43,560 =	0.03
Total Impervious Cover	139,589	/ 43,560 =	3.20
(Total Impervious Cover/Added Acreage) X 100			18.7 %

Phase 2 Overall

Impervious Cover of Proposed Project (Including All Existing Impervious Cover)	Sq. Ft.	Sq. Ft/Acre	Acres
Structures/Rooftops	160,099	/ 43,560 =	3.68
Parking	584,629	/ 43,560 =	13.42
Other paved surfaces	24,890	/ 43,560 =	0.57
Total Impervious Cover	769,618	/ 43,560 =	17.67
(Total Impervious Cover/Added Acreage) X 100			73.0 %

Notes:

*1 Per WPAP approval letter dated January 5, 1999 the existing project site was shown as 7.06-acres. The recorded plat prior to the expansion was shown as 7.0841-acres. The on the ground survey of the existing site shows 7.118.

*2 Current on the ground survey and current platting reconciled the previous minor inconsistencies to a total project area of 24.200-acres.

UST Modification Summary	Approved Project	Proposed Modification
Number of USTs	N/A	N/A
Volume of USTs	N/A	N/A
Other	N/A	N/A

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

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

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

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

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

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

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

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

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

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

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This request for a **MODIFICATION TO A PREVIOUSLY APPROVED PLAN** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

MICHAEL G. SHORT
Print Name of Customer/Agent

Signature of Customer/Agent

6/3/08
Date

ATTACHMENT A – ORIGINAL APPROVAL LETTER AND APPROVED MODIFICATION LETTERS

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

DOC# 9906001018

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 5, 1999

Ms. Roxi Vanstory
Oakwood Baptist Church
2154 Loop 337
New Braunfels, TX 78130

Re: EDWARDS AQUIFER, Comal County
PROJECT: Oakwood Baptist Church, Project number 1085, Located 2154 Loop 337, New Braunfels, Texas
TYPE: Request for Approval of Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) §213.5(b); Edwards Aquifer Protection Program

Dear Ms. Vanstory:

The Texas Natural Resource Conservation Commission (TNRCC) has completed their review of the request for modification of an approved WPAP for the referenced project that was submitted on behalf of Oakwood Baptist Church by Cunningham-Allen, Inc. and received by the San Antonio office on September 18, 1998. Final review was completed after additional material was received on December 14, 1998, and December 16, 1998. The WPAP proposed in the application is in general compliance with 30 TAC § 213.5(b); therefore, approval of the plan is hereby granted subject to applicable state rules and the conditions in this approval letter. *This approval expires two (2) years from the date of this approval unless, prior to the expiration date, construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

As understood, this project has been developed in three phases.

Phase I: By approval letter dated November 7, 1983, and under 30 TAC 213.5(b) [formerly Texas Department of Water Resources Rule No. 156.20.05.008], "...this subdivision will consist of one, 3.498 acre lot containing a church. A septic tank system will be utilized for sewage disposal." As presented in the application submitted on September 18, 1998, "The original phase consisted of 1.84 acres with 1.44 acres of impervious cover."

Phase II: This phase was constructed after the initial WPAP approval. As presented in the application submitted on September 18, 1998, "Phase two of this project consisted of 1.13 acres composed entirely of impervious cover. No water quality provisions were made at the time of construction of the first or second phase. The initial phase of this project was not required to meet standards for water quality. Phase two was inadvertently constructed in non-compliance with current regulations. Phase Three will consist of 3.14 acres of impervious cover. The water quality ponds are designed to treat runoff for phases two and three. The ponds are designed to treat one half inch of runoff from the added impervious cover from phases two and three."

Phase III: As presented in the application submitted on September 18, 1998, "Phase Three will consist of 3.14 acres of impervious cover. The water quality ponds are designed to treat runoff for phases two and three. The ponds are designed to treat one half inch of runoff from the added impervious cover from phases two and three."

The TNRCC understands,

1. Wastewater is being collected and pumped through a force main to an existing offsite gravity sewage collection system owned by New Braunfels Utilities. As understood, a septic tank was never installed and used.

2. Construction of Phase II (1.13 acre parking lot) occurred sometime between 1984 and 1998, and no modification to the approved WPAP was obtained. No modification to the 1983 WPAP is on file in the San Antonio Regional Office for Phase II of construction.

3. The proposed water pollution abatement plan includes stormwater treatment for Phases II and III. Phase I was approved without the requirement of stormwater pollution abatement by letter dated November 7, 1983.

PROJECT DESCRIPTION

The proposed commercial project will have an area of 7.06 acres and will consist of the addition of one 29,500 square foot, one story building and the associated parking. Project wastewater will be disposed of by conveyance to the existing Gruene Sewage Treatment Plant owned by New Braunfels Utilities. The proposed impervious cover for the development is approximately 4.27 acres (60.5%). The site is located within the City of New Braunfels, and must conform with applicable codes and requirements of the City of New Braunfels.

GEOLOGY ON SITE

According to the geologic assessment included with the submittal, there are eleven geologic features located on the project site. All features are closed depressions which are described in the Geologic Assessment to have relative infiltration rates of low to none, and were assessed as "not sensitive."

The San Antonio Regional Office site inspection of November 5, 1998, revealed no features other than those reported in the Geologic Assessment.

GEOLOGY DOWNGRADIENT OF SITE

According to the geologic assessment included with the submittal, there are two geologic features (one closed depression and one vuggy rock outcrop) and one manmade feature (water well and windmill) downgradient of the project site. The geologic features are described in the Geologic Assessment as having relative infiltration rates of low to none, and were assessed as "not sensitive." The manmade feature described in the Geologic Assessment has a high relative infiltration rate, and was assessed as "sensitive."

PERMANENT POLLUTION ABATEMENT MEASURES

The following measure will be taken to prevent pollution of stormwater originating on-site or up-gradient from the project site and potentially flowing across and off the site after construction:

The partial sedimentation/filtration basin is designed in accordance with the City of Austin Environmental Design Criteria Manual and is sized to capture the first ½-inch of stormwater run-off from 4.11 acres, providing a total capture volume of 8,737 cubic feet. The filtration system will consist of:

1. 749 square feet of sand, which is 18 inches thick,
2. an underdrain piping wrapped with geotextile membrane, and
3. an impervious liner.

The permanent sedimentation/filtration basin described above will be provided to prevent pollutants from entering downgradient recharge features identified in the geologic assessment while maintaining or enhancing the quantity of water entering the recharge features.

SPECIAL CONDITIONS

1. If any potential sensitive features are encountered during construction, a geologist shall evaluate the significance of the features. The evaluation shall include representative

photographs and a description of the feature forwarded to the San Antonio office. Construction in the vicinity of the features may only continue with written approval from the TNRCC.

2. Placement of hydrocarbon or hazardous substance storage facilities regulated pursuant to 213.5(d) and 213.5(e), requires submittal of all appropriate applications with appropriate fees and must receive prior approval from the TNRCC.

3. The sedimentation/filtration basins are designed in accordance with the City of Austin. The basins will incorporate sedimentation and filtration as described above.

4. The TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of permanent erosion and sedimentation (E&S) control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

5. No wastewater may be pumped from the proposed church addition until ownership of the force main between the church property line and the New Braunfels Utility owned gravity sewage collection system has been resolved. Prior to connection to the existing off-site force main, proof of ownership and responsibility for maintenance of the off-site force main must be presented to the TNRCC in writing.

6. Based on the information provided by Oakwood Baptist Church, Commission records indicate that construction activities related to Phase II were completed sometime between 1984 and 1998 These activities were conducted without the prior approval of the water pollution abatement plan, as required by Commission rules (30 TAC Chapter 213). Therefore, the applicant is hereby advised that the after-the-fact approval of Phase II of construction, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

STANDARD CONDITIONS

1. During the course of regulated activities related to this project, the applicant or his 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, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.

2. Any modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a WPAP to amend this approval, including the payment of appropriate fees and all information necessary for its review and approval.

3. Prior to commencing any regulated activity, the applicant or his agent must notify the San Antonio Regional Office in writing of the date on which the regulated activity will begin.

4. The applicant or his agent shall record this WPAP approval in the county deed records within 30 days of receiving this notice of approval. Proof of deed recordation shall be submitted to the San Antonio Regional Office prior to commencing construction. A suggested format that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the 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. 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 TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

7. If any significant recharge feature [sensitive feature] 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 potential adverse impacts to water quality.

8. 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.

9. Approval of the design of the sewage collection system for this proposed project shall be obtained from the TNRCC prior to commencement of construction of any sewage collection system.

DOC# 9906001018

10. No wells exist on the site. Any abandoned wells shall be plugged in accordance with 30 TAC § 338 or an equivalent method, as approved by the Executive Director.

    Any drill holes resulting from core sampling on-site or down-gradient of the site shall be plugged with native soil, from the bottom of the hole to the top of the hole, so as to not allow water or contaminants to enter the subsurface environment.

11. Pursuant to §26.136 of the Texas Water Code, any violations of the requirements in 30 TAC §213 may result in administrative penalties.

If you have any questions or require additional information, please contact John Mauser of the Edwards Aquifer Protection Program at 210/403-4024. Please reference Project #1085.

Sincerely,

Jeffery A. Saitas, P.E.
Executive Director
Texas Natural Resource Conservation Commission

JAS/JKM/eg

Enclosure: Deed Recordation Affidavit

cc: Andrew Gonzales, P.E., Cunningham-Allen, Inc.
Harry Bennett, City of New Braunfels
Tom Hornseth, Comal County
Greg Ellis, Edwards Aquifer Authority
TNRCC Field Operations, Austin

RECORDED ... of Comal County, ... and time stamped thereon

Doc# 9906001018
Pages: 7
Date : 01-12-1999
Time : 03:33:17 P.M.
Filed & Recorded in
Official Records
of COMAL County, TX.
JOY STREATER
COUNTY CLERK
Rec. $ 21.00

DOC# 9906001018

DEED RECORDATION AFFIDAVIT

DOC# 9906001018

Edwards Aquifer Protection Plan

THE STATE OF TEXAS §

County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared Oakwood Baptist Church By and through Roxi Vanstory, Director of Church Life who, being duly sworn by me, deposes and says:

(1) That my name is Oakwood Baptist Church and that I own the real property described below.

(2) That said real property is subject to an EDWARDS AQUIFER PROTECTION PLAN which was required under the 30 Texas Administrative Code (TAC)§213, the EDWARDS AQUIFER RULES of the TEXAS NATURAL RESOURCE CONSERVATION COMMISSION.

(3) That the EDWARDS AQUIFER PROTECTION PLAN for said real property was approved by the TEXAS NATURAL RESOURCE CONSERVATION COMMISSION on January 5 1999.

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

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

Lot 1, Block 1 Oakwood Baptist Church Subdivision Unit One (1)

OAKWOOD BAPTIST CHURCH

By: Roxi Vanstory

LANDOWNER-AFFIANT

Roxi Vanstory, Director of Church Life

SWORN AND SUBSCRIBED TO before me, on this 12TH day of January, 1999.

Sandra L. Haege

NOTARY PUBLIC

THE STATE OF TEXAS §

County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared Oakwood Baptist Church By and through Roxi Vanstory, Director of Church Life 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 12TH day of January, 1999.

Sandra L. Haege

NOTARY PUBLIC

SANDRA L. HAEGE

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 4-28-99

VOL 362 PAGE 359 FILED FOR RECORD

1983 DEC -7 PM 3:39

COUNTY

234832

BY Debra Regalado 5.00

GENERAL WARRANTY DEED
TIMOTHY DEAN WORD, JR., ET AL, TO OAKWOOD BAPTIST CHURCH
OF NEW BRAUNFELS

THE STATE OF TEXAS X
: KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF COMAL X

THAT WE, TIMOTHY DEAN WORD, JR., and wife, SUZANNE ZACHRY WORD, Individually and as Trustees for Timothy Dean Word, III, Forrest Roark Word, Patrick Zachry Word, Bryan Carl Word and Mary Amber Word, of Bexar County, Texas, and WILLIAM H. BORCHERS and wife, JOYCE WORD BORCHERS, Individually and as Trustees for Mary Marcia Borchers and Georgia Bonner Borchers, of Comal County, Texas, hereinafter called Grantors, for and in consideration of the sum of Ten And No/100 Dollars ($10.00) cash and other good and valuable considerations to us in hand paid by OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, hereinafter called Grantee, whose present mailing address is 1306 Tulip Lane, New Braunfels, Texas 78130, receipt of which is hereby acknowledged and confessed, have GRANTED, SOLD and CONVEYED, and by these presents do GRANT, SELL and CONVEY unto the said Grantee, the following described property, to-wit:

ATTACHMENT B – PROPOSED MODIFICATION

The Oakwood Baptist Church intends to expand its current facility from 7.06-acres to 24.20-acres. The modifications will be completed in two phases. Phase 1 will consist of a 3.4-acre parking lot expansion adjacent to the 7.06-acre existing facility. The Phase 1 impervious cover improvements as a result of the proposed grading will remain isolated from the existing improvements and is only a modification with respect to the sites overall acreage from 7.06 to 24.20-acres. The Phase 1 Improvements are intended to treat the run-off generated as a result of the expansion independent of the existing improvements and the existing water quality pond. The Phase 1 improvements will add an interim level spreader structure and an interim vegetative filter strip to provide water quality treatment.

The exiting Original Site as described by the "Water Pollution Abatement Plan for Oakwood Baptist Church" (Cunningham Allen Inc 1998) was completed in three phases. The Original Phase 1 was approved without the requirement of stormwater pollution abatement (1.44-acres of impervious cover). Original Phase 2 was constructed without the required provisions for water quality (1.13-acres of impervious cover) Phase 3 was improved and provided stormwater pollution abatement for Phase 2 and Phase 3 (totaling 4.27 acres of impervious cover). The Original Phase 3 Improvements provided a partial sedimentation and filtration basin with a capture volume of 8,737-cf. The proposed project will remove the existing water quality pond and replace it with a larger partial sedimentation and filtration basin with a capture volume of 84,684-cf.

ATTACHMENT C – CURRENT SITE PLAN

S1

REMAINING PORTION OF DEAN WORD ET UX 2086 ACRES VOL. 74, PGS. 510–512

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, TEXAS DOC. NO. 2000706020677 (17.089 ACRES) **17.082 ACRES**

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, TEXAS DOC. NO. 2000706020677 (17.089 ACRES) **17.082 ACRES**

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, TEXAS DOC. NO. 2000706020677 (17.089 ACRES) **17.082 ACRES**

REMAINING PORTION OF DEAN WORD ET UX 2086 ACRES VOL. 74, PGS. 510–512

NEW BRAUNFELS UTILITIES VOL. 449, PGS. 77–79 0.396 OF AN ACRE (17,250.39 S.F.)

7.118 ACRES OAKWOOD BAPTIST CHURCH SUBDIVISION UNIT 1 (7.0841 ACRES) VOL. 8, PG. 231

OAKWOOD BAPTIST CHURCH SUBDIVISION UNIT ONE LOT 1, BLOCK 1 3.499 ACRES VOL. 7, PG. 118

OAKWOOD BAPTIST CHURCH, INC. VOL. 509, PGS. 479–482 (3.5805 ACRES)

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS VOL. 2652, PGS. 1380–1390 (3.466 ACRES)

2154 LOOP 337 NORTH NEW BRAUNFELS, TEXAS 78130

BRICK BUILDING (ONE STORY) (APPROX. 39,749 S.F.)

OAKWOOD BAPTIST CHURCH SUBDIVISION UNIT 1 7.0841 ACRES VOL. 8, PG. 231

C1

N69°20'45"E 667.41'

S69°20'45"W 667.41'

N21°56'36"W 671.65'

S21°56'36"E 671.65'

N.19°W.

S.19°W.

WATER METER

WATER F.H.

FIRE HYDRANT

12"W

8" WW

8"W

S62°41'47"W 100.19'

S62°41'47"W 2118.91'

S27°38'29"W 110.41'

440.88'

NEW BRAUNFELS UTILITIES ELECTRIC/WATER EASEMENT VOL. 746, PGS. 515–519

30' BUILDING SETBACK LINE

30' UTILITY EASEMENT

LOOP 337 (R.O.W. VARIES)

LOOP 337 (R.O.W. VARIES)

SCALE IN FEET

60 30 0 60

SCALE: 1" = 60'

GRID NORTH

LEGEND

- IRON PIN FOUND
- SET 1/2" IRON PIN WITH CAP
- TXDOT CONCRETE MONUMENT TYPE II
- SIGN
- WATER VALVE
- FIRE HYDRANT
- TREE CE=CEDAR ELM LO=LIVE OAK
- LAMP POST
- POWER POLE
- ANCHOR GUY WIRE
- OHE — OVERHEAD ELECTRIC
- CO CLEAN OUT
- A/C AIR CONDITIONER
- CONCRETE ENCASED BOLLARD POST
- (RAIL) METAL HANDRAIL
- SPRINKLER NOZZLE
- H/C HANDICAP PARKING SPACE
- F.F.= FINISHED FLOOR ELEVATION
- TEMP.BM TEMPORARY BENCH MARK

REVISIONS

DATE	DESCRIPTION

SITE PLAN
(Existing Condition)

OAKWOOD BAPTIST CHURCH EXPANSION
NEW BRAUNFELS, TEXAS

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

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: JUNE 2008
JOB NO.: 010108

S–1

Wednesday, June 04, 2008 1:53:07 PM
File Name: J:\010108\DWG\MAPS-Initial1.dwg

Water Pollution Abatement Plan Application

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

REGULATED ENTITY NAME: OAKWOOD BAPTIST CHURCH EXPANSION

REGULATED ENTITY INFORMATION

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

2. Total site acreage (size of property): 24.20

3. Projected population: 0

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

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	160,099	÷ 43,560 =	3.68
Parking	584,629	÷ 43,560 =	13.42
Other paved surfaces	24,890	÷ 43,560 =	0.57
Total Impervious Cover	769,618	÷ 43,560 =	17.67
Total Impervious Cover ÷ Total Acreage x 100 =			73.0 %

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

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

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

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

Annotated Item 4. TCEQ-0584

Existing Acreage *1	7.06 ac
Added Acreage *2	17.14 ac
Total Site Acreage	24.20 ac

Phase 1 Parking Lot

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft/Acre	Acres
Structures/Rooftops	0	/ 43,560 =	0.00
Parking	138,361	/ 43,560 =	3.18
Other paved surfaces	1,228	/ 43,560 =	0.03
Total Impervious Cover	139,589	/ 43,560 =	3.20
(Total Impervious Cover/Added Acreage) X 100			18.7 %

Phase 2 Overall

Impervious Cover of Proposed Project (Including All Existing Impervious Cover)	Sq. Ft.	Sq. Ft/Acre	Acres
Structures/Rooftops	160,099	/ 43,560 =	3.68
Parking	584,629	/ 43,560 =	13.42
Other paved surfaces	24,890	/ 43,560 =	0.57
Total Impervious Cover	769,618	/ 43,560 =	17.67
(Total Impervious Cover/Added Acreage) X 100			73.0 %

Notes:

*1 Per WPAP approval letter dated January 5, 1999 the existing project site was shown as 7.06-acres. The recorded plat prior to the expansion was shown as 7.0841-acres. The on the ground survey of the existing site shows 7.118.

*2 Current on the ground survey and current platting reconciled the previous minor inconsistencies to a total project area of 24.200-acres.

N/A Concrete
N/A Asphaltic concrete pavement
N/A Other: _____

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

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

11. N/A A rest stop will be included in this project.
N/A A rest stop will **not** be included in this project.

12. N/A Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

14. The character and volume of wastewater is shown below:
100 % Domestic 4,200 gallons/day PER ORIGINAL WPAP (CA 1998)
__ % Industrial _____ gallons/day
__ % Commingled _____ gallons/day

TOTAL _____ gallons/day

15. Wastewater will be disposed of by:
N/A **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):

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

X Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

__ The SCS was previously submitted on _____.

__ The SCS was submitted with this application.

X The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to executive director approval.

The sewage collection system will convey the wastewater to the GRUENE ROAD (name) Treatment Plant. The treatment facility is :

X existing.

__ proposed.

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

SITE PLAN REQUIREMENTS

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

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 60 '.

18. 100-year floodplain boundaries

N/A Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

X 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):
4854930066 JANUARY 5, 2006 FIRM

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

N/A 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.):

N/A There are __(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

__ The wells are not in use and have been properly abandoned.

__ The wells are not in use and will be properly abandoned.

__ The wells are in use and comply with 30 TAC §238.

X There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

N/A All **sensitive and possibly sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.

X No **sensitive and possibly sensitive** geologic or manmade features were identified in the Geologic Assessment.

N/A **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.

N/A **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained in ATTACHMENT D provided at the end of this form. No geologic or manmade features were found.

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

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

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

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

26. N/A Surface waters (including wetlands).

27. N/A Locations where stormwater discharges to surface water or sensitive features.
X There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

28. X One (1) original and three (3) copies of the completed application have been provided.

29. X Any modification of this WPAP will require TCEQ executive director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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

MICHAEL G. SHORT
Print Name of Customer/Agent

Signature of Customer/Agent

6/3/09
Date

ATTACHMENT A – FACTORS AFFECTING WATER QUALITY

The overall construction of this project will consist of site clearing, demolition, site grading, building structures, parking and driveways, etc. for the overall 24.20 acre site. Construction activity and the disturbance of the existing terrain and existing site during construction are factors that could affect surface water and groundwater quality. Some possible sources of contamination during construction would be from machinery or equipment in the form of oil or fuel. Containment and cleanup is addressed in the Temporary Pollution Control section of this submittal. To assist in the preservation of the quality of surface water exiting the site during construction, which in turns assists in the preservation the groundwater quality, temporary pollution controls will be installed.

The Best Management Practice used as the permanent pollution control device for the initial parking lot expansion Phase 1 Improvements will be an interim level spreader structure and vegetative filter strip. The interim facilities will be replaced with the Phase 2 Improvements consisting of a partial sedimentation and filtration basin. This basin will be the permanent means of assisting in the preservation of the quality of surface water after construction of the site is complete.

ATTACHMENT B – VOLUME AND CHARACTER OF STORMWATER RUNOFF

The stormwater runoff generated from Phase 1 of this site will be primarily from the expanded parking lot with some being generated from the minimal landscape areas. The runoff from the overall proposed site will be generated from rooftops, driveways, parking lots, sidewalks and landscape areas. The nature of the run-off generated from both phases of improvements may contain small amounts of oil, suspended solids, fertilizers, and pesticides. The site does not receive any significant offsite flow.

The overall drainage area is typical Hill Country rolling terrain. The site predominately drains to the north. The site is bordered by Loop 337. The majority of the TxDOT ROW drains to a shallow swale running along the existing pavement section to the northeast with very little offsite flow impact. The onsite drainage patterns for the overall site are generally from the southern most corner (highpoint) to both the northwestern and the northeastern corner. The proposed interim detention pond and proposed permanent detention pond are intended to reduce the proposed run-off rates in the 10-yr and 100-yr conditions to match the existing condition runoff rates. The run-off rates were calculated using the SCS Method and the capabilities of HEC-1. SCS Method uses Run-off Curve Number (CN) in estimating runoff on average the existing CN value is 74 for the Phase 1 Area and proposed it is 98 and the overall existing CN value is 80 and proposed it is 96. The runoff generated during a 100-yr event from the Phase 1 area in the existing condition is 25-cfs and proposed is 32-cfs. The runoff generated during a 100-yr event from the Phase 2 overall area in the existing condition is 180-cfs and in the proposed is 217-cfs.

The Best Management Practice used as the permanent pollution control device for the initial parking lot expansion Phase 1 Improvements will be an interim level spreader structure and vegetative filter strip north of the proposed parking lot. The interim facilities will be replaced with the Phase 2 Improvements consisting of a partial sedimentation and filtration basin on the north eastern most corner of the overall project. This basin will be the permanent means of assisting in the preservation of the quality of surface water after construction of the site is complete.

The Phase 2 stormwater runoff to include all runoff generated from the 24.2-acre site will be routed to the partial sedimentation and filtration basin that is sized for the increase in impervious cover and for the removal of the existing sedimentation and filtration pond. The stormwater volume and quality calculations can be found in Appendix A - Water Quality Calculations.

APPENDIX A – WATER QUALITY CALCULATIONS



Texas Commission on Environmental Quality

TSS Removal Calculations 02-20-2008

Project Name: Oakwood Baptist Church Expansion Phase 1

Date Prepared: 6/1/2008

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:

$L_{M\ TOTAL\ PROJECT}$ = 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 =	17.14	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	3.20	acres
Total post-development impervious cover fraction =	**0.19**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**2872**	lbs.
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 =	3.80	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.20	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.84**	
$L_{M\ THIS\ BASIN}$ =	**2872**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	VF	abbreviation
Removal efficiency =	**85**	percent

BMP Code:	BMP Type:
AQ	Aqualogic™ Cartridge Filter
BR	Bioretention
CS	Contech StormFilter
CW	Constructed Wetland
ED	Extended Detention
GS	Grassy Swale
RI	Retention / Irrigation
SF	Sand Filter
VF	Vegetative Filter Strip
WB	Wet Basin
WV	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 = (BMP efficiency) x P x (A_I x 34.6 + A_P x 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 =	3.80	acres
A_I =	3.20	acres
A_P =	**0.60**	acres
L_R =	**3115**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	3115	lbs.
F =	1.00	

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 =	4.00	inches
Post Development Runoff Coefficient =	0.69	
On-site Water Quality Volume =	37846	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 =	7569	

16. Vegetated Filter Strips Designed as Required in RG-348 Pages 3-55 to 3-57

Interim Vegetative Strip

Area of Contributing Impervious Cover =	3.20	acres
Area required for Vegetative Filter Strip =	1.60	acres

Texas Commission on Environmental Quality

TSS Removal Calculations 02-20-2008

Project Name: Oakwood Baptist Church Expansion Phase 2

Date Prepared: 6/1/2008

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:

$L_{M\ TOTAL\ PROJECT}$ = 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 =	24.20	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	17.63	acres
Total post-development impervious cover fraction =	**0.73**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**15825**	lbs.
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. = i

Total drainage basin/outfall area =	24.20	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	17.63	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.73**	
$L_{M\ THIS\ BASIN}$ =	**15825**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	**89**	percent

BMP Code:	BMP Type:
AQ	Aqualogic™ Cartridge Filter
BR	Bioretention
CS	Contech StormFilter
CW	Constructed Wetland
ED	Extended Detention
GS	Grassy Swale
RI	Retention / Irrigation
SF	Sand Filter
VF	Vegetative Filter Strip
WB	Wet Basin
WV	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 = (BMP efficiency) x P x (A_I x 34.6 + A_P x 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 =	24.20	acres
A_I =	17.63	acres
A_P =	**6.57**	acres
L_R =	**18020**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	15825	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 =	0.54	
On-site Water Quality Volume =	70570	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 =	14114	
Total Capture Volume (required water quality volume(s) x 1.20) =	84684	cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 Pages 3-58 to 3-63

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	84684	cubic feet	
Minimum filter basin area =	7057	square feet	
Maximum sedimentation basin area =	28228	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	1764	square feet	For maximum water depth of 8 feet

Hydraulic Calculations Future Phase 2 Expansion

Splitter Section 100-yr Flow Over Top of Pond Divide

$Q_{100s} := 217$ Flow over crest Q100 (cfs) $C_w := 3.0$ Weir Coefficient $L := 128$ Length of crest (ft)

$H := \left(\frac{Q_{100s}}{L \times C_w}\right)^{\frac{2}{3}}$ $H = 0.684$ Height of flow relative to weir crest (ft) $V := \frac{Q_{100s}}{L \times H}$ $V = 2.48$ Velocity (fps)

$WSE_{100overflow} := H + 762.65$ $WSE_{100overflow} = 763.33$

Splitter Section 25-yr Flow to Water Quality Pond

$Q_o := 155$ Design Flow Q25 (cfs) $H := 3.0$ Height of Opening (ft)

$C_o := .67$ OrificeCoefficient $W := 5.5$ Width of Opening (ft) $A := H \times W$ $A = 16.5$ Area (sf)

$h := WSE_{100overflow} - \left(\frac{H}{2} + 758.65\right)$ $Q := C_o \times A \times \sqrt{2 \times 32.2 \times h}$ $Q = 158$

Detention Pond Emergency Overflow

$Q_{25e} := 155$ Flow over crest Q25 (cfs) $C_w := 3.0$ Weir Coefficient $L := 112$ Length of crest (ft)

$H := \left(\frac{Q_{25e}}{L \times C_w}\right)^{\frac{2}{3}}$ $H = 0.597$ Height of flow relative to weir crest (ft) $V := \frac{Q_{25e}}{L \times H}$ $V = 2.318$ Velocity (fps)

$WSE_{emergencyoverflow} := H + 763.00$ $WSE_{emergencyoverflow} = 763.60$

Water Quality Pond Available Storage

BottomElevation := 758.65

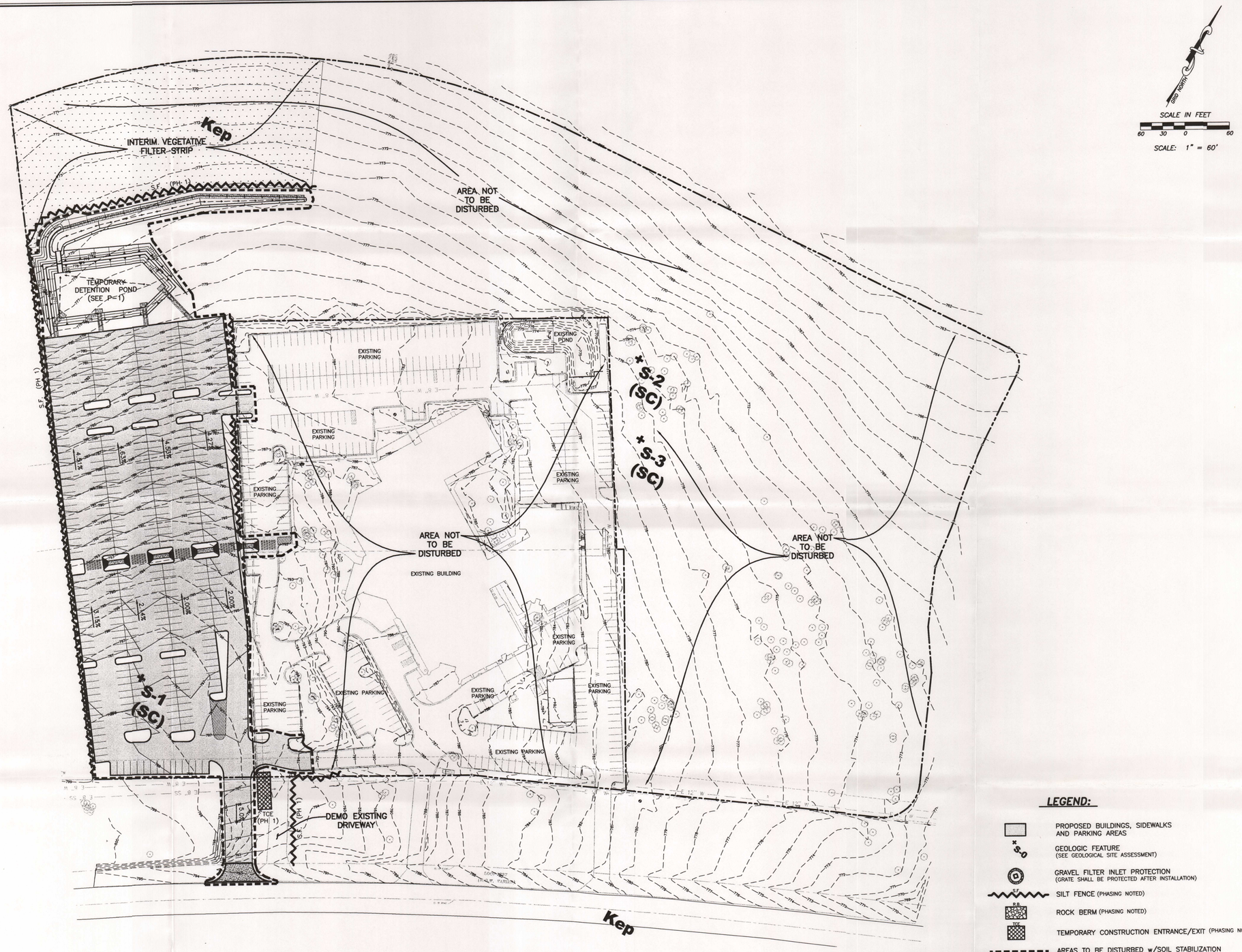
SplitterCrest := 762.65 DepthofStorage := SplitterCrest - BottomElevation DepthofStorage = 4.0 (ft)

AreaAvailableforStorage := 21673 (sqf)

WQVProvided := AreaAvailableforStorage × DepthofStorage WQVProvided = 86692 (cf)

AreaAvailableforSandFilter := 7143 (sqf)

SITE PLAN



LEGEND:

- PROPOSED BUILDINGS, SIDEWALKS AND PARKING AREAS
- +S-0 GEOLOGIC FEATURE (SEE GEOLOGICAL SITE ASSESSMENT)
- GRAVEL FILTER INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- S.F. SILT FENCE (PHASING NOTED)
- R.B. ROCK BERM (PHASING NOTED)
- TCE TEMPORARY CONSTRUCTION ENTRANCE/EXIT (PHASING NOTED)
- AREAS TO BE DISTURBED w/SOIL STABILIZATION (WITH SITE CONSTRUCTION PLANS)
- JB CI PROPOSED DRAINAGE SYSTEM
- Kep SEE GEOLOGICAL ASSESSMENT

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS
MICHAEL G. SHORT
88015
PROFESSIONAL ENGINEER
6/6/08

SITE PLAN
(Phase 1)

OAKWOOD BAPTIST CHURCH EXPANSION
NEW BRAUNFELS, TEXAS

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

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: JUNE 2008
JOB NO.: 010108

S-2

Thursday, June 05, 2008 4:30:25 PM
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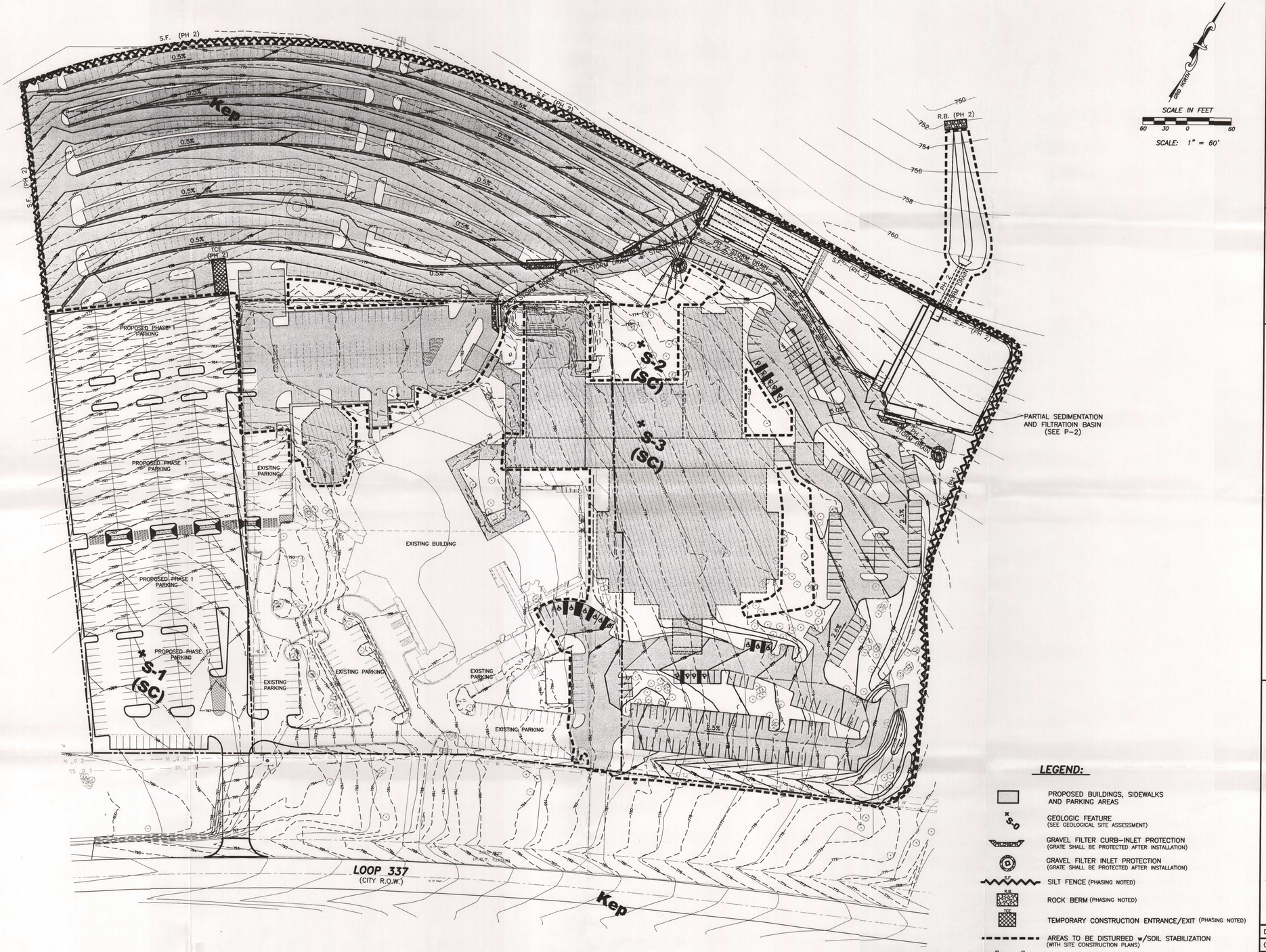

LEGEND:

- PROPOSED BUILDINGS, SIDEWALKS AND PARKING AREAS
- GEOLOGIC FEATURE (SEE GEOLOGICAL SITE ASSESSMENT)
- GRAVEL FILTER CURB-INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- GRAVEL FILTER INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- SILT FENCE (PHASING NOTED)
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- TEMPORARY CONSTRUCTION ENTRANCE/EXIT (PHASING NOTED)
- AREAS TO BE DISTURBED w/SOIL STABILIZATION (WITH SITE CONSTRUCTION PLANS)
- PROPOSED DRAINAGE SYSTEM
- Kep SEE GEOLOGICAL ASSESSMENT

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS
MICHAEL G. SHORT
88015
LICENSED
PROFESSIONAL ENGINEER

SITE PLAN
(Phase 2)

OAKWOOD BAPTIST CHURCH EXPANSION
NEW BRAUNFELS, TEXAS

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

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Thursday, June 05, 2008 4:30:25 PM
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Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

1. Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, and the name of the prime contractor and the name and telephone number of the contact person.

2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.

3. If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. The regulated activities near the sensitive feature may not proceed until the TCEQ has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality.

4. No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

5. Prior to commencement of construction, all temporary erosion and sedimentation (E&S) control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices. Controls specified in the temporary storm water section of the approved Edwards Aquifer Protection Plan are required during construction. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized.

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

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

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

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.

10. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

11. The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and the dates when stabilization measures are initiated.

12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

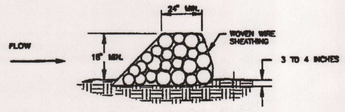
   A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

   B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;

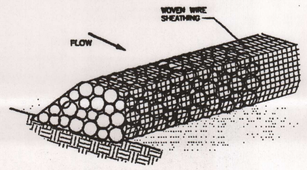
   C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

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

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



CROSS SECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

Materials:

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

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

Installation:

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

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

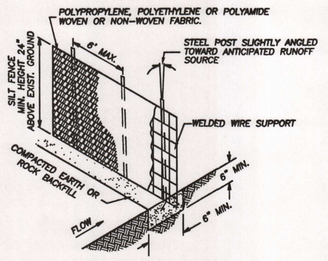
(3) Place the rock along the sheathing as shown in the Rock Berm Detail to a height not less than 18".

(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

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

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

ROCK BERM DETAIL
N.T.S.



Materials:

(1) Silt fence material shall be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 20.

(2) Fence posts shall be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft , and Brindell hardness exceeding 140.

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

Installation:

(1) Steel posts, which support the silt fence, shall be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 6 feet on center.

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

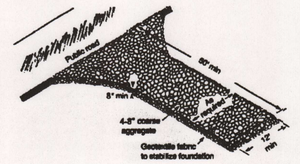
(3) The toe of the silt fence shall be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill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

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

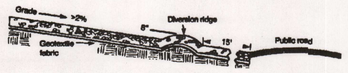
(5) Silt fence shall be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There shall be a 3-foot overlap, securely fastened where ends of fabric meet.

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

SILT FENCE
N.T.S.



Schematic of Temporary Construction Entrance/Exit



Cross-section of a Construction Entrance/Exit

Materials:

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

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

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

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

Installation:

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

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

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

(4) If the slope toward the 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.

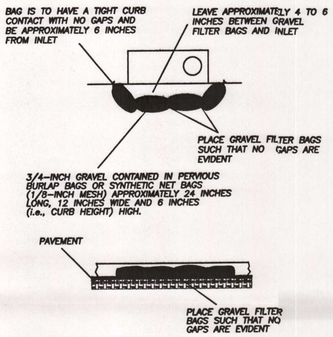
(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.

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

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

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

TEMPORARY CONSTRUCTION ENTRANCE/EXIT
N.T.S.



FRONT VIEW

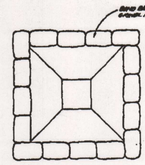
Notes:

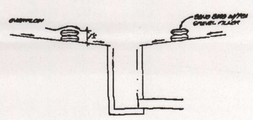
(1) Bags should be filled only 3/4 full gravel filters can be used on pavement or bare ground.

CURB-INLET GRAVEL FILTER DETAIL
N.T.S.

Bagged Gravel Inlet Filter

Sandbags filled with pea gravel can also be used to construct a sediment barrier around curb and drain inlets. The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier about 1 foot high around the inlets. The bags should be tightly abutted against each other to prevent runoff from flowing between the bags. This measure should be installed as shown





GRATE INLET FILTER
N.T.S.

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS — MICHAEL G. SCHULTZ — 86015 — LICENSED PROFESSIONAL ENGINEER — 6/6/08

WATER POLLUTION ABATEMENT PLAN
GENERAL NOTES & DETAILS
OAKWOOD BAPTIST CHURCH EXPANSION
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
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DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: JUNE 2008
JOB NO.: 010108

S-4

File Name: F:\010108\TCEQ\WPAP\S-4epap.dwg

Temporary Stormwater Section

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

REGULATED ENTITY NAME: OAKWOOD BAPTIST CHURCH EXPANSION

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:

   N/A Aboveground storage tanks with a cumulative storage capacity of less that 250 gallons will be stored on the site for less than one (1) year.

   N/A 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.

   N/A Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Storage Tank Facility Plan** application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

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

2. X **ATTACHMENT A - Spill Response Actions**. A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form.

3. N/A Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. X **ATTACHMENT B - Potential Sources of Contamination.** Describe in an attachment at the end of this form any other activities or processes which may be a potential source of contamination.

   N/A The are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

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

6. X Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: BLEEDERS CREEK

TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)

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

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

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

   a. A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

   b. A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

   c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

   d. A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

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

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

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

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

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

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

N/A 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.

N/A 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.

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

11. N/A **ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.

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

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

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

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

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

SOIL STABILIZATION PRACTICES

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

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

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

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

ADMINISTRATIVE INFORMATION

20. X All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. X If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. X Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

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

MICHAEL G. SHORT
Print Name of Customer/Agent

Signature of Customer/Agent

6/3/08
Date

ATTACHMENT A – SPILL RESPONSE ACTION

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

1.4.16 Spill Prevention and Control

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

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

Education

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

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

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

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

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

General Measures

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

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

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

(4) Train employees in spill prevention and cleanup.

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

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

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

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

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

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

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

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

Cleanup

(1) Clean up leaks and spills immediately.

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

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

Minor Spills

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

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

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

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

(5) Contain the spread of the spill.

(6) Recover spilled materials.

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

Semi-Significant Spills

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

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

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

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

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

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

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

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

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

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

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

Vehicle and Equipment Maintenance

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

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

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

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

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

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

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

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

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

Vehicle and Equipment Fueling

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

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

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

ATTACHMENT B – POTENTIAL SOURCE OF CONTAMINATION

Potential sources of contamination during construction include vehicle maintenance, vehicle fueling, the use of construction materials and the use of asphalt products.

ATTACHMENT C – SEQUENCE OF MAJOR ACTIVITY

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

Sequence No.	Description of Soil Disturbing Activity	Estimated Area to be Disturbed by each Activity (Acres) (Total)
1	Installation of Phase 1 Construction Exit and Erosion Control	1/2-acre
2	Phase 1 Clearing and Grubbing of Detention Pond and Spreader Structure Area.	1-1/2-acre
3	Phase 1 Excavation of Detention Pond and Spreader Structure. Construction of Outfall Structure	1-1/2-acre
4	Phase 1 Clearing and Grubbing of Parking Lot Area.	3-1/3-acre
5	Phase 1 Excavation and Construction of Parking Lot Area.	3-1/3-acre
6	Phase 1 Abandonment of Existing Driveway and the Construction of a New Driveway Within TxDOT ROW.	1/5-acre
7	Installation of Phase 2 Construction Exit and Erosion Control	3/4-acre
8	Phase 2 Clearing and Grubbing of Detention Pond and Water Quality Pond Area.	1-3/4-acre
9	Phase 2 Excavation and construction of Detention Pond, Water Quality Pond and Outfall Channel.	1-3/4-acre
10	Phase 2 Parking Lot Excavation Parking Lot Construction Stormdrain Construction and Perimeter Swale Construction.	7-2/3-acre
11	Abandonment of Existing Water Quality Pond	1/5-acre
12	Phase 2 Building Pad Site Preparations.	2-1/2-acre

ATTACHMENT D – TEMPORARY BEST MANAGEMENT PRACTICES (TBMPS)

The Temporary Best Management Practices (TBMP) that will be used for this project are project sequencing, silt fences, rock berms, and a temporary construction entrance/exit. The temporary controls will be installed prior to construction and shall be maintained during construction by the contractor for each of the two phases. The controls shall be removed by the contractor when vegetation is established common to the phase completed and the construction areas are stabilized.

The silt fences, rock berms, and temporary construction entrance/exit shown on their respective Phased Site Plans shall be in place prior to any construction activities. These temporary measures will remain in place throughout clearing and grubbing, excavation and grading of the proposed improvements.

a. The minimal stormwater flowing upstream of the project limits that will pass directly across the relocated driveway and the removed driveway will be treated during construction with silt fencing. There are no other significant upgradient flows that cross the proposed Phase 1 and Phase 2 Imrovements

b. The Phase 1 improvements will be sequenced such that the interim stormwater detention pond and level spreader structure will be constructed first minimizing the potential for the concentration of flows and sediment transport while the parking area Phase 1 is under construction. It will be the contractor's responsibility to remove the sediment that builds up after significant rainfall events common to the detention pond level spreader and downstream silt fences. The silt fencing and construction entrance will be removed upon the completion of the pond, level spreader, parking area and the establishment of downstream vegetation. The minimal stormwater flowing upstream of the project limits that will pass directly across the relocated driveway and the removed driveway will be treated during construction with silt fencing.

Similar to Phase 1 improvements the Phase 2 improvements sill be sequenced such that the permanent BMP is in place prior to the parking areas being started. The sediment pond will provide the majority reduction of sediment transport while the greater portion of the project is being completed. The outfall of the permanent stormwater detention will utilize rock berms during the establishment of vegetation. In addition upon the completion of each stormdrain inlet gravel bags will be used. The contractor will be responsible to maintain all erosion control measures during construction. It is only after the completion of the permanent BMPs, the final site work and the establishment of vegetation that the silt fences, gravel bags and rock berms can be removed.

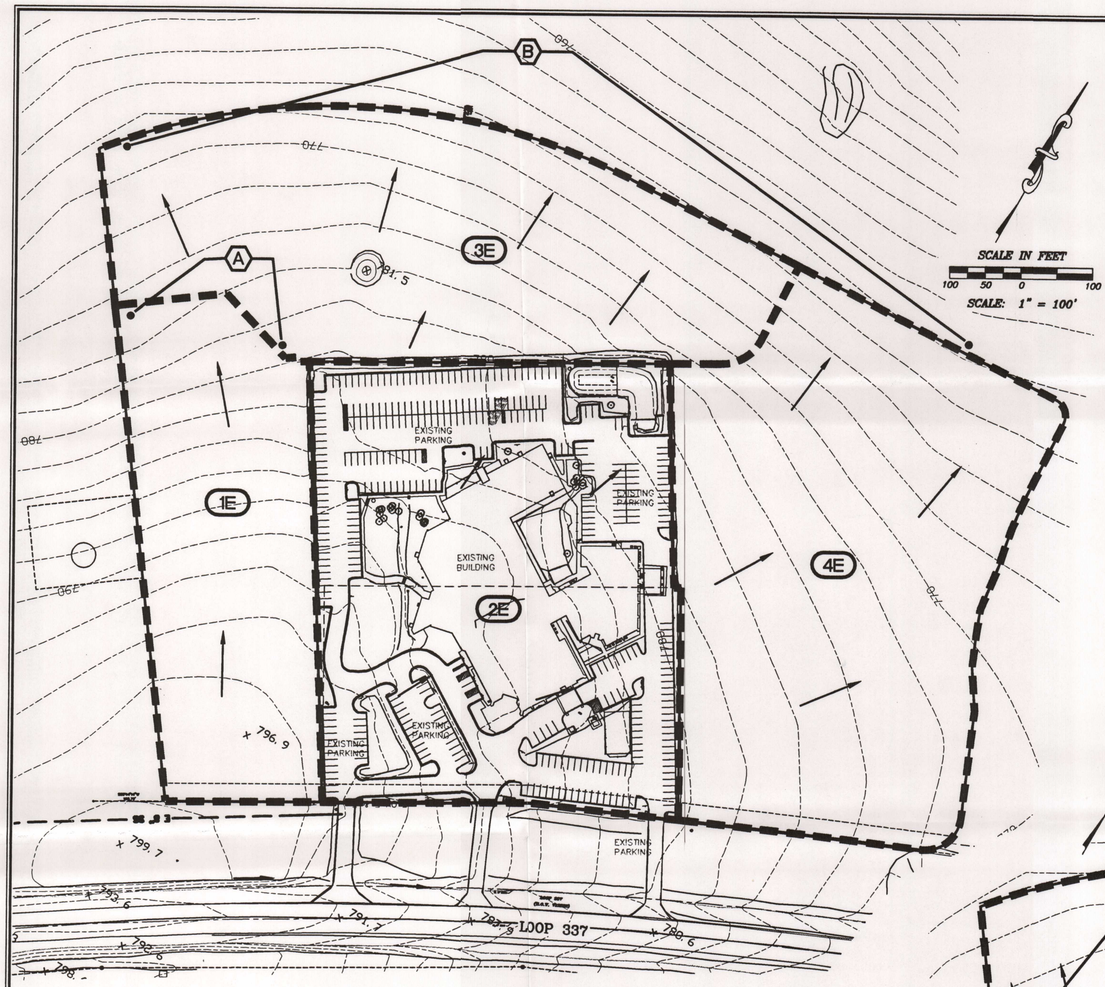
c. Stormwater runoff generated onsite will be initially filtered by silt fences or rock berms on the down gradient side of the proposed phase. The silt fence and berms will allow a reduction in velocity facilitating the sediment to drop out of the runoff prior to the runoff leaving the site.

d. There are no sensitive geologic or manmade features identified in the Geologic Assessment. However, if during construction such features are identified, the Geologist will be contacted and a plan will be implemented to protect such features.

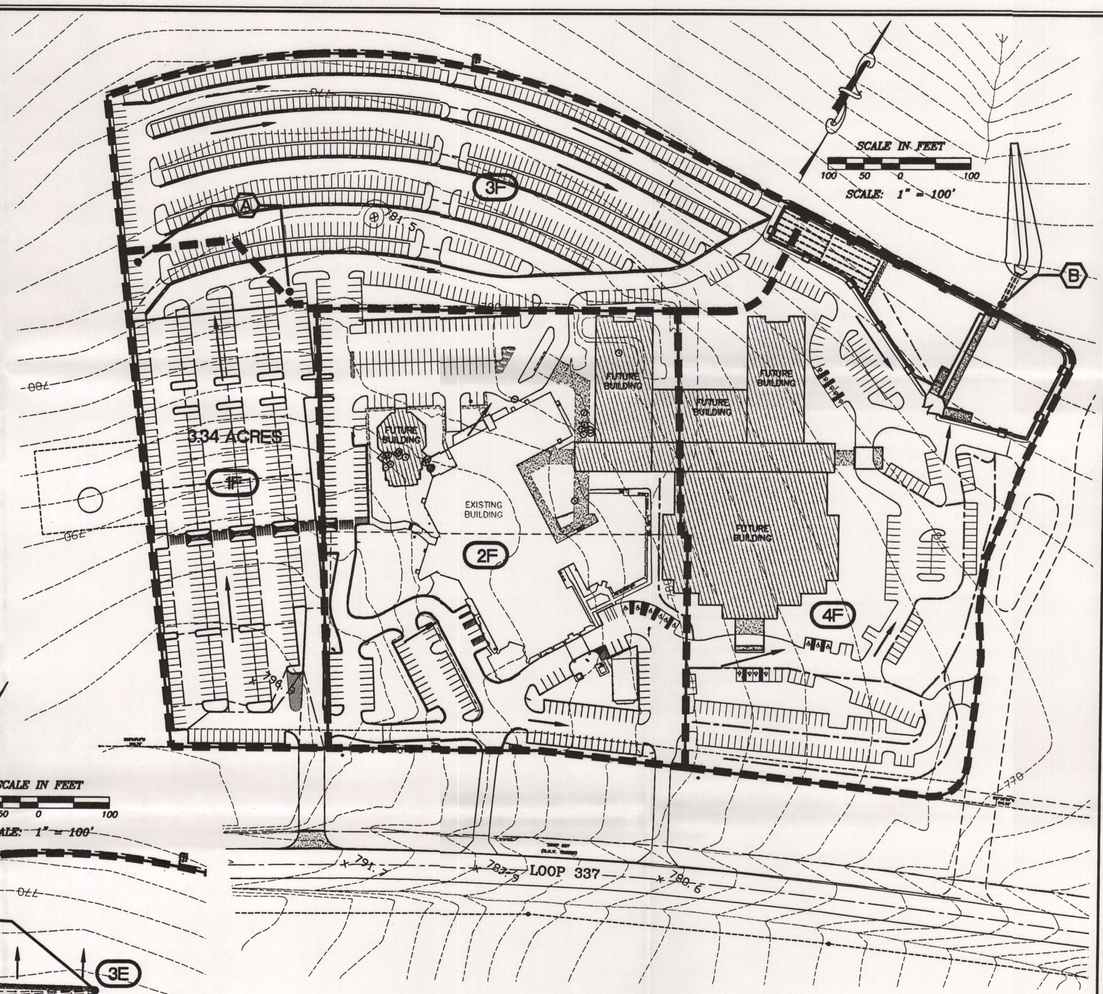
ATTACHMENT F – STRUCTURAL PRACTICES

The structural practices that will be used for this project are silt fences, rock berms, gravel bag inlet filters and a temporary construction entrance/exit. The temporary controls will be installed prior to construction and shall be maintained during construction by the contractor for each of the two phases.

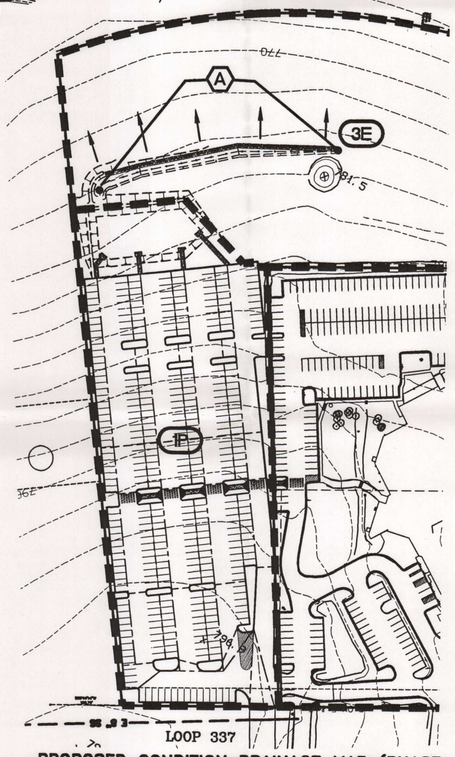
ATTACHMENT G – DRAINAGE AREA MAP



EXISTING CONDITION DRAINAGE MAP



FUTURE CONDITION DRAINAGE MAP (PHASE 2)



PROPOSED CONDITION DRAINAGE MAP (PHASE 1)

* SEE EXISTING AND FUTURE FOR OMITTED DETAILS

EXISTING CONDITION NODE SUMMARY		
NODE	Q_{10} (cfs)	Q_{100} (cfs)
A	11	25
B	85	180

PROPOSED CONDITION NODE SUMMARY (PHASE 1)		
NODE	Q_{10} (cfs)	Q_{100} (cfs)
A	10	24
B	84	174

DRAINAGE AREA SUMMARY			
LOCATION	AREA (AC.)	Q_{10} (cfs)	Q_{100} (cfs)
1E	3.8	11	25
2E	7.1	35	64
3E	6.0	20	45
4E	7.3	22	50
1P	3.8	18	32
1F	3.3	17	30
2F	7.1	35	64
3F	6.5	33	59
4F	7.3	35	64

FUTURE CONDITION NODE SUMMARY (PHASE 2)		
NODE	Q_{10} (cfs)	Q_{100} (cfs)
A	17	30
B	77	180

LEGEND

- DRAINAGE AREA BOUNDARY
- X DRAINAGE AREA
- PROPOSED DRAINAGE FLOW
- A DRAINAGE NODE POINT
- 648 EXISTING CONTOUR

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS
MICHAEL G. SHORT
88015
LICENSED
PROFESSIONAL ENGINEER

DRAINAGE AREA MAP FOR OAKWOOD BAPTIST CHURCH EXPANSION

NEW BRAUNFELS, TEXAS

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

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: JUNE 2008
JOB NO.: 010108

D-1

Thursday, June 05, 2008 3:08:58 PM
File Name: F:\010108\TCEQ\WPAP\D-1dam01.dwg

ATTACHMENT I – INSPECTION AND MAINTENANCE FOR BMPS

Silt Fence Inspection and Maintenance Guidelines:

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

Rock Berm Inspection and Maintenance Guidelines:

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

Temporary Construction Entrance/Exit:

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

Gravel Bag Inlet Filter Inspection and Maintenance Guidelines:

1) Inspection shall be made weekly and after each rainfall by the contractor. Repair or replacement shall be made promptly as needed by the contractor or deemed necessary by the engineer.
2) Remove sediment when buildup reaches a depth of 3 inches Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
3) Check placement of device to prevent gaps between device and inlet.
4) Structure should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

INSPECTION FORM

GENERAL NOTES

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

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

3. THICKNESS - NOT LESS THAN 8 INCHES.

4. WIDTH - NOT LESS THAN 12 FEET.

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

6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.

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

INSPECTION REPORT

DATE:_____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

SILT FENCE
INSPECTION FORM

GENERAL NOTES

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

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

3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED AND COMPACTED.

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

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

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

INSPECTION REPORT

DATE:_____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR SILT FENCE:

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

ROCK BERMS
INSPECTION FORM

GENERAL NOTES:

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

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

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

4. THE WIRE SHEATHING SHALL BE WRAPPED AROUND THE ROCK AND SECURED WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

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

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

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR ROCK BERMS:

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

GRAVEL BAG INLET FILTER

INSPECTION FORM

GENERAL NOTES:

1. SAND BAGS SHALL BE FILLED WITH PEA GRAVEL.
2. GRAVEL FILTER BAGS SHALL BE PLACED COMPLETELY AROUND GRATES.
3. THERE SHOULD BE NO GAPS IN BETWEEN GRAVEL FILTER BAGS.
4. WHEN SILT REACHES A DEPTH EQUAL TO 3 INCHES, THE SILT SHALL BE REMOVED AND DISPOSED OF.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

ARE GAPS/HOLES EVIDENT BETWEEN BAGS ?	IS LEVEL OF SILT GREATER THAN 3 INCHES DEEP?

MAINTENANCE REQUIRED FOR GRAVEL BAG INLET FILTERS:

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

ATTACHMENT J – SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

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

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

Permanent Stormwater Section

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

REGULATED ENTITY NAME: OAKWOOD BAPTIST CHURCH EXPANSION

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

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

2. X 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.

   X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

   N/A A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is provided below

   _____

   _____

   _____

   _____

3. X Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

4. X Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   N/A This site will be used for low density single-family residential development and has 20% or less impervious cover.

   N/A This site will be used for low density single-family residential development but has more than 20% impervious cover.

   X This site will not be used for low density single-family residential development.

5. X The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be

recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

N/A **ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.

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

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

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

N/A A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is identified as **ATTACHMENT B** at the end of this form.

X 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.

N/A 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.**

X 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.

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

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

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

X The permanent sealing of or diversion of flow from a naturally-occurring "sensitive"

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

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

10. X **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. X **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. X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

N/A Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.

N/A **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.

13. X **ATTACHMENT I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is provided at the end of this form. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity which increase erosion that results in water quality degradation.

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

14. X The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership

of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

15. X A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

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

MICHAEL G. SHORT
Print Name of Customer/Agent

Signature of Customer/Agent

6/5/08
Date

ATTACHMENT B – BMPS FOR UPGRADIENT STORMWATER

Both Phase 1 and Phase 2 are essentially isolated from upgradient flows given the existing terrain. The proposed improvements will maintain the upstream perimeter drainage patterns around the site (reference the Drainage Area Map provided with the Temporary Stormwater Section).

ATTACHMENT C – BMPS FOR ONSITE STORMWATER

The Best Management Practice used as the permanent pollution control device for the initial parking lot expansion Phase 1 Improvements will be an interim level spreader structure and vegetative filter strip north of the proposed parking lot. The level spreader structure will distribute the flows across the vegetative filter strip area at a non erosive velocity. The vegetative filter strip area is estimated to be 1.6-acres and equivalent to 50% of the impervious contributing area of the Phase 1 Parking Lot (3.2-acres). The contributing impervious area is approximately 18.7% of the total existing expanded area (17.1-acres).

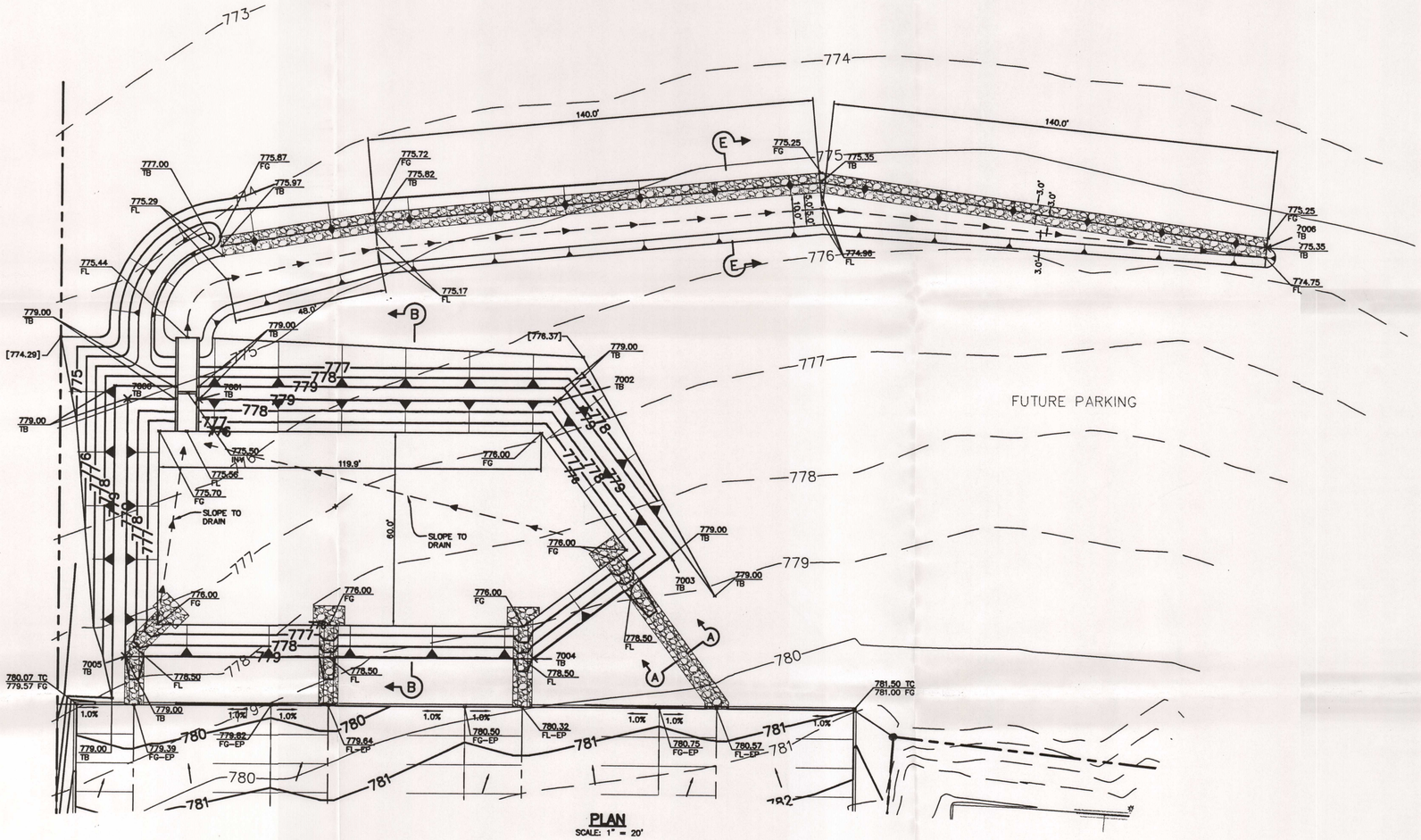
The interim facilities will be replaced with the Phase 2 Improvements. The Phase 2 improvements will consist of a partial sedimentation and filtration basin on the north eastern most corner of the overall project. The sedimentation and filtration at its minimum design depth will be 4-ft deep. The pond has been designed to provide approximately 84,684-cf of water quality storage. The sand filter provides approximately 7057-sf of surface area. A splitter structure is provided diverting the initial first flush volume at a rate less than a 25-yr event to the sediment chamber. The outflow from the sedimentation chamber to the sand filter chamber is controlled by gabion baskets. The sand will filter the fines and other contaminated stormwater pollutants that are present in the runoff and a network of PVC piping will allow the filtered runoff to be released form the pond. In the event that a hazardous spill might occur a 10-inch gate valve will be located outside of the sand filter to close off flow.

ATTACHMENT D – BMPS FOR SURFACE STREAMS

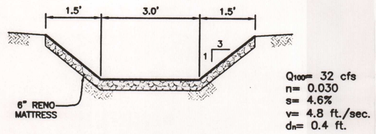
The proposed interim BMP for Phase 1 is a vegetative filter strip and the proposed permanent BMP for Phase 2 is a partial sedimentation and sand filtration pond. Both systems will treat the first flush of stormwater run-off preventing most pollutants from entering the surface streams, sensitive features, and or the aquifer. Based on the Geological Assessment of the site, there are no sensitive features.

ATTACHMENT F – CONSTRUCTION PLANS

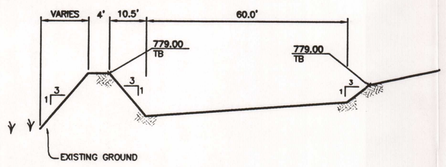
Phase 1
Phase 2



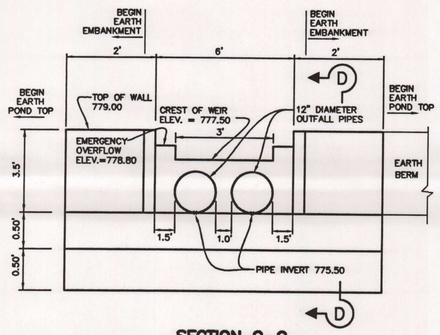
PLAN
SCALE: 1" = 20'



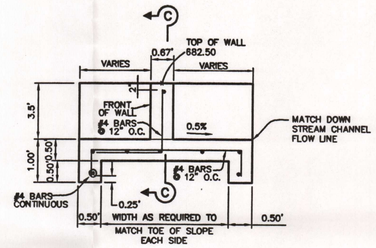
SECTION A–A
RUNDOWNS AT POND (TYP)
N.T.S.



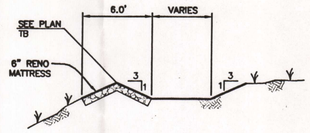
SECTION B–B
DETENTION POND
N.T.S.



SECTION C–C
DETENTION POND SPILLWAY DETAIL
N.T.S.



SECTION D–D
N.T.S.



SECTION E–E
SPEADER SECTION
N.T.S.



SCALE IN FEET
20 10 0 20

SCALE: 1" = 20'

LEGEND

x683.00	PROPOSED SPOT ELEVATION
680	EXISTING CONTOUR
680	PROPOSED CONTOUR
→	FLOW DIRECTION
TC	TOP OF CURB
TB	TOP OF BERM
FL	FLOWLINE
FG	FINISH GRADE
FL–HP	FLOWLINE @ HIGH POINT
INV	INVERT
WSE	WATER SURFACE ELEVATION
GB–HP	GRADE BREAK @ HIGH POINT
GB	GRADE BREAK
[000.00]	*APPROXIMATE SPOT GRADE

*NOTE:
CONTRACTOR TO VERIFY AND MATCH EXISTING PAVEMENT @ PROPOSED DRIVEWAYS.

SPOT ELEVATION LEGEND
PB = POND BOTTOM
TB = TOP OF BANK
TOC = TOP OF CONCRETE
TW = TOP OF WALL
C.O. = CLEANOUT
INV. = INVERT
TOS = TOP OF SAND

Texas Commission on Environmental Quality

TSS Removal Calculations 05-20-2008

Project Name: Oakwood Baptist Church Expansion Phase 1
Date Prepared: 6/1/2008

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:
$L_{M\ TOTAL\ REQUIRED}$ = 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 * =	17.14	acres
Predevelopment impervious area within the limits of the plan * =	0.55	acres
Total post-development impervious area within the limits of the plan* =	3.39	acres
Total post-development impervious cover fraction * =	0.19	
P =	35	inches
$L_{M\ TOTAL\ REQUIRED}$ *	2872	lbs.
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 =	3.80	acres	
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres	
Post-development impervious area within drainage basin/outfall area =	3.39	acres	
Post-development impervious fraction within drainage basin/outfall area =	0.84		
$L_{M\ THIS\ BASIN}$ *	2872	lbs.	

3. Indicate the proposed BMP Code for this basin.

			BMP Code:	BMP Type
Proposed BMP =	VF	abbreviation	AQ	Austin Sand Filter
Removal efficiency =	85	percent	BR	Bioretention
			CS	Contech StormFilter
			CW	Constructed Wetland
			ED	Extended Detention
			GS	Grassy Swale
			IR	Retention / Irrigation
			SF	Sand Filter
			VF	Vegetative Filter Strip
			WB	Wet Basin
			WV	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 = (BMP efficiency) x P x (A_C x 34.6 + A_P x 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 =	3.80	acres
A_I =	3.39	acres
A_P =	0.00	acres
L_R =	3115	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	3115	lbs.
F =	1.00	

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 =	4.00	inches
Post Development Runoff Coefficient =	0.69	
On-site Water Quality Volume =	37846	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 =	7569	

10. Vegetated Filter Strips Designed as Required in RG-348 Pages 3-55 to 3-57

Interim Vegetative Strip

Area of Contributing Impervious Cover =	3.39	acres
Area required for Vegetative Filter Strip =	1.00	acres

POINT TABLE			
POINT NUMBER	NORTHING	EASTING	DESCRIPTION
7000	13814816.96	2240563.14	TB
7001	13814829.98	2240581.29	TB
7002	13814895.59	2240672.76	TB
7003	13814877.55	2240730.04	TB
7004	13814826.75	2240714.05	TB
7005	13814751.95	2240609.77	TB
7006	13815065.10	2240824.52	TB

REVISIONS

DESCRIPTION	DATE

STATE OF TEXAS — JAMES G. SCHULTZ — 88015 — LICENSED PROFESSIONAL ENGINEER — 6/1/08

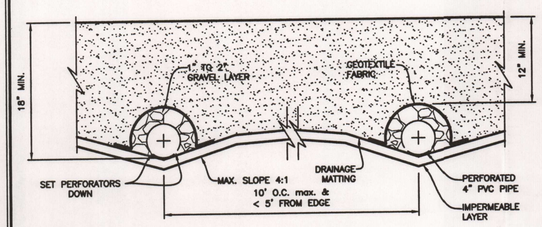
INTERIM WATER POLLUTION ABATEMENT PLAN & DETAILS (Phase 1)
OAKWOOD BAPTIST CHURCH EXPANSION
NEW BRAUNFELS, TEXAS

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

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: JUNE 2008
JOB NO.: 010108

P–1

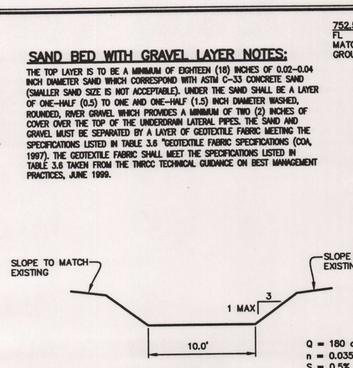
Thursday, June 05, 2008 4:31:16 PM
File Name: F:\010108\TCEQ\WPAP\P-1-2pp01.dwg

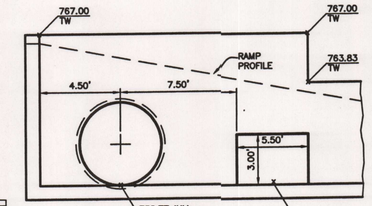


SAND BED PROFILE B–B
(TRENCH DESIGN)
N.T.S.

SAND BED WITH GRAVEL LAYER NOTES:

THE TOP LAYER IS TO BE A MINIMUM OF EIGHTEEN (18) INCHES OF 0.02–0.04 INCH DIAMETER SAND WHICH CORRESPOND WITH ASTM C–33 CONCRETE SAND (SMALLER SAND SIZE IS NOT ACCEPTABLE). UNDER THE SAND SHALL BE A LAYER OF ONE–HALF (0.5) TO ONE AND ONE–HALF (1.5) INCH DIAMETER WASHED, ROUNDED, RIVER GRAVEL WHICH PROVIDES A MINIMUM OF TWO (2) INCHES OF COVER OVER THE TOP OF THE UNDERDRAIN LATERAL PIPES. THE SAND AND GRAVEL MUST BE SEPARATED BY A LAYER OF GEOTEXTILE FABRIC MEETING THE SPECIFICATIONS LISTED IN TABLE 3.6 "GEOTEXTILE FABRIC SPECIFICATIONS (COA, 1997). THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS LISTED IN TABLE 3.6 TAKEN FROM THE TNRCC TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES, JUNE 1999.





POND INLET STRUCTURE "D"
N.T.S.

SECTION C–C
N.T.S.

Q = 180 cfs
n = 0.035
S_o = 0.5%
V_o = 4.2 fps
d_o = 2.5 ft

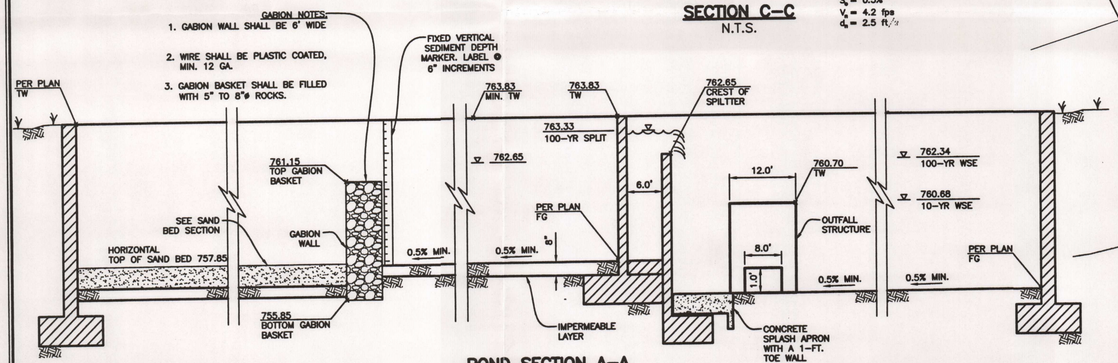
LEGEND

x683.00	PROPOSED SPOT ELEVATION
— 680 —	EXISTING CONTOUR
680	PROPOSED CONTOUR
	FLOW DIRECTION
TC	TOP OF CURB
TB	TOP OF BERM
FL	FLOWLINE
FG	FINISH GRADE
FL–HP	FLOWLINE @ HIGH POINT
INV	INVERT
WSE	WATER SURFACE ELEVATION
GB–HP	GRADE BREAK @ HIGH POINT
GB	GRADE BREAK
[000.00]	* APPROXIMATE SPOT GRADE

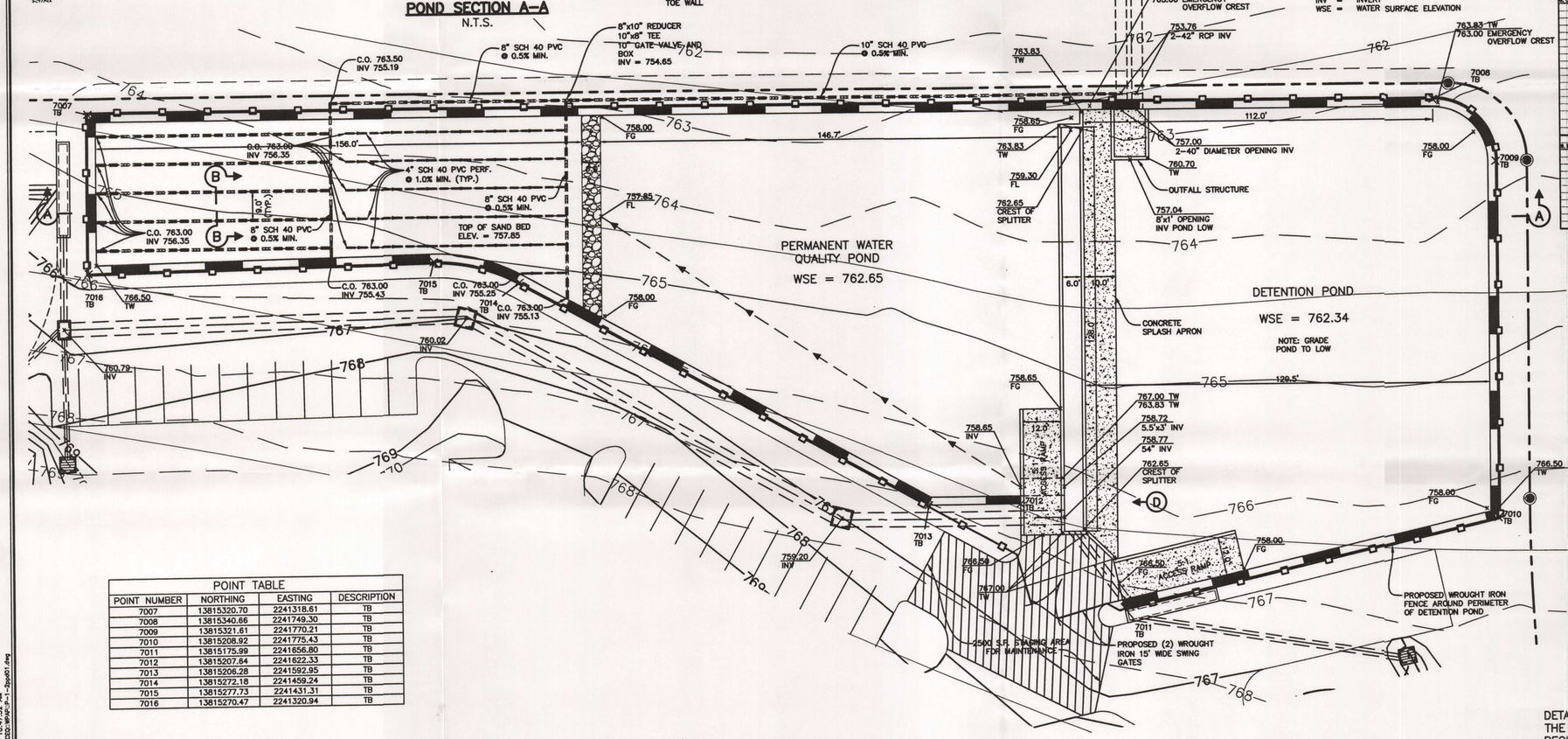
*NOTE:
CONTRACTOR TO VERIFY AND MATCH EXISTING PAVEMENT @ PROPOSED DRIVEWAYS.

SPOT ELEVATION LEGEND
FG = FINISH GROUND
FL = FLOW LINE
TB = TOP OF BANK
TW = TOP OF WALL
C.O. = CLEANOUT
INV = INVERT
WSE = WATER SURFACE ELEVATION

GABION NOTES:
1. GABION WALL SHALL BE 6' WIDE
2. WIRE SHALL BE PLASTIC COATED, MIN. 12 GA.
3. GABION BASKET SHALL BE FILLED WITH 5" TO 8"ø ROCKS.



POND SECTION A–A
N.T.S.



POINT TABLE			
POINT NUMBER	NORTHING	EASTING	DESCRIPTION
7007	13815320.70	2241318.61	TB
7008	13815340.66	2241749.30	TB
7009	13815321.61	2241770.21	TB
7010	13815208.92	2241775.43	TB
7011	13815175.99	2241656.80	TB
7012	13815207.64	2241622.33	TB
7013	13815206.28	2241592.95	TB
7014	13815272.18	2241459.24	TB
7015	13815277.73	2241431.31	TB
7016	13815270.47	2241320.94	TB

Texas Commission on Environmental Quality

TSS Removal Calculations 03-20-2008

Project Name: Oakwood Baptist Church Expansion Phase 2
Date Prepared: 6/1/2009

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 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 * =	34.39	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	17.67	acres
Total post-development impervious cover fraction * =	0.73	
P =	33	inches
L_M TOTAL PROJECT =	19891	lbs.
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 =	34.39	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	17.63	acres
Post-development impervious fraction within drainage basin/outfall area =	0.73	
L_M THIS BASIN =	19828	lbs.

3. Indicate the proposed BMP Code for this basin.

			BMP Code:	BMP Type:
Proposed BMP =	SF	abbreviation	AQ	Aquabiogic™ Cartridge Filter
Removal efficiency =	80	percent	BR	Bioretention
			CS	Contech StormFilter
			CW	Constructed Wetland
			ED	Extended Detention
			GS	Grassy Swale
			RI	Retention / Irrigation
			SF	Sand Filter
			VF	Vegetative Filter Strip
			WB	Wet Basin
			WV	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: $L_R = (\text{BMP efficiency}) \times P \times (A_N \times 34.6 + A_P \times 0.54)$

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 =	34.39	acres
A_I =	17.63	acres
A_P =	6.67	acres
L_R =	19839	lbs

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

Desired L_R TSS basin =	19828	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 =	1.89	inches
Post Development Runoff Coefficient =	0.54	
On-site Water Quality Volume =	70870	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 =	14114	
Total Capture Volume (required water quality volume(s) x 1.20) =	84984	cubic feet

8. Filter area for Sand Filters — Designed as Required in RG-348 — Pages 3-88 to 3-93

8B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	84984	cubic feet	
Minimum filter basin area =	7087	square feet	
Maximum sedimentation basin area =	28339	square feet	For minimum water depth of 3 feet
Minimum sedimentation basin area =	1764	square feet	For maximum water depth of 8 feet

Hydraulic Calculations Future Phase 2 Expansion

Splitter Section 100-yr Flow Over Top of Pond Divide

Q_{100a} := 217 Flow over crest Q100 (cfs) C_w := 3.0 Weir Coefficient L := 128 Length of crest (ft)

$H := \left(\frac{Q_{100a}}{L \times C_w}\right)^{\frac{2}{3}}$ H = 0.684 Height of flow relative to weir crest (ft) $V := \frac{Q_{100a}}{L \times H}$ V = 2.49 Velocity (fps)

$WSE_{100overflow} := H + 762.65$ $WSE_{100overflow}$ = 763.33

Splitter Section 25-yr Flow to Water Quality Pond

Q_a := 155 Design Flow Q25 (cfs) H := 3.0 Height of Opening (ft)

C_o := .67 OrificeCoefficient W := 5.5 Width of Opening (ft) $A := H \times W$ A = 16.5 Area (sf)

$h := WSE_{100overflow} - \left(\frac{H}{2} + 758.65\right)$ $Q := C_o \times A \times \sqrt{2 \times 32.3 \times h}$ Q = 158

Detention Pond Emergency Overflow

Q_{25a} := 155 Flow over crest Q25 (cfs) C_w := 3.0 Weir Coefficient L := 112 Length of crest (ft)

$H := \left(\frac{Q_{25a}}{L \times C_w}\right)^{\frac{2}{3}}$ H = 0.597 Height of flow relative to weir crest (ft) $V := \frac{Q_{25a}}{L \times H}$ V = 2.318 Velocity (fps)

$WSE_{emergencyoverflow} := H + 763.00$ $WSE_{emergencyoverflow}$ = 763.60

Water Quality Pond Available Storage

BottomElevation := 758.65

SplitterCrest := 762.65 DepthofStorage := SplitterCrest – BottomElevation DepthofStorage = 4.0 (ft)

AreaAvailableforStorage := 21675 (sqf)

WQVProvided := AreaAvailableforStorage × DepthofStorage WQVProvided = 86692 (cf)

AreaAvailableforSandFilter := 7143 (sqf)

DETAILS SHOWN ON THIS SHEET ARE SCHEMATIC ONLY AND REPRESENT THE CALCULATED SEDIMENTATION POND AND SAND FILTRATION BASIN REQUIRED FOR THIS WATER QUALITY POLLUTION ABATEMENT PLAN SUBMITTAL. SPECIFIC CONCRETE THICKNESS AND STEEL REINFORCING FOR WALLS AND FLOORS WILL BE PROVIDED IN THE FINAL SET OF CONSTRUCTION DRAWINGS FOR THIS PROJECT IN STRUCTURAL DRAWINGS.

REVISIONS

DESCRIPTION	DATE

PERMANENT WATER POLLUTION ABATEMENT PLAN & DETAILS (PHASE 2)

OAKWOOD BAPTIST CHURCH EXPANSION
NEW BRAUNFELS, TEXAS

MICHAEL G. SHORT — 88015 — LICENSED PROFESSIONAL ENGINEER

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

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: JUNE 2008
JOB NO.: 010108

P–2

Friday, June 06, 2008 10:47:52 AM
File Name: P:\010108\TXSD-WWP_P-1-2ppdf1.dwg

ATTACHMENT G – INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

MAINTENANCE PLAN AND SCHEDULE FOR SEDIMENTATION AND FILTRATION BASINS

PROJECT NAME: Oakwood Baptist Church Expansion

ADDRESS: 2154 Loop 337

CITY, STATE ZIP: New Braunfels, Texas 78130

SEDIMENTATION BASIN

Twice a Year: The level of accumulated silt in the inlet structure and basin shall be checked. If depth of silt exceeds 6 inches or when function is impaired, it shall be removed and disposed of "properly". The inlet structure and basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed.

The basin shall be inspected for structural integrity and repaired if necessary. Such items to be inspected include; pipes, concrete walls, floors and baffles, inlets, gabions, etc.

Every 5 Years: Sediment shall be removed from the inlet structure and basin at intervals not to exceed 5 years, regardless of depth.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it completely drains within 48 hours after the storm is over. If it does not drain within this time, corrective maintenance is required.

SAND FILTER

Twice a Year: The level of accumulated silt shall be checked. If depth or silt/pollutants exceeds ½", it shall be removed and disposed of "properly".

The accumulation of pollutants/oils shall be checked. If the pollutants have significantly reduced the designed capacity of the sand filter and/or the drawdown time exceeds 48 hours, the upper layer of sand in the filter shall be removed and replaced.

The basin shall be checked for accumulation of debris and litter. Debris and litter accumulated in the facility must be removed during each inspection.

The basin shall be inspected for structural integrity and repaired if necessary. Such items to be inspected include; pipes and cleanouts, gate valve, etc. Underdrain piping shall be flushed to remove sediment buildup.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it drains within 48 hours. If it does not drain within this time, corrective maintenance is required.

Following any required maintenance, the surface of the sand filter shall be raked and leveled to restore the system to its designed condition. Maintenance of the sand filter may require that a section of gabion be temporarily moved to allow access for equipment into the sand filter area. Upon completion of maintenance the gabion shall be reset into is original position.

Vegetation in and around basin will be maintained to a height of less than 18 inches.

"Proper" disposal of accumulated silt shall be accomplished following Texas Commission on Environmental Quality guidelines and specifications.

An amended copy of this document will be provided to the Texas Commission on Environmental Quality within thirty (30) days of any changes in the following information.

Responsible Party: Oakwood Baptist Church Expansion – Roxi Vanstory (Executive Administrator)

Mailing Address: 2154 Loop 337. City, State: New Braunfels, Texas Zip: 78130

Telephone: (830) 625-0267 Fax: (830) 625-1151

Roxi Vanstory
Signature of Responsible Party

June 4, 2008
Date

ATTACHMENT I– MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

Phase 1 Improvements will include a stormwater detention pond intend to decrease the proposed conditions rate of runoff from a 10-yr and 100-yr event to the existing condition rates of runoff. The Phase 1 Improvements will also include an interim level spreader structure and vegetative filter strip north of the proposed parking lot. The level spreader structure is intended to distribute the flows across the vegetative filter strip area at a non erosive velocity.

The interim facilities will be replaced with the Phase 2 Improvements. The Phase 2 improvements like the Phase 1 Improvements will include stormwater detention; however, the improvements will also consist of a partial sedimentation and filtration basin on the north eastern most corner of the overall project. The outfall of the detention pond is intended to release the 100-yr event flows at a non erosive velocity. The discharge from the sand filter will outfall to the detention pond system.

Agent Authorization

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

I Roxi Vanstory,
Print Name

Executive Administrator
Title - Owner/President/Other

of Oakwood Baptist Church
Corporation/Partnership/Entity Name

have authorized Michael G. Short
Print Name of Agent/Engineer

of The Schultz Group, Inc.
Print Name of Firm

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

I also understand that:

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

2. For applicants who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

Rob Vanstory
Applicant's Signature

May 29, 2008
Date

THE STATE OF Texas §

County of Comal §

Priscilla C. Jackson
Notary Public
State of Texas
My Commission Expires
March 20, 2011

BEFORE ME, the undersigned authority, on this day personally appeared Rex Vanstory 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 29th day of May, 2008

Priscilla C Jackson
NOTARY PUBLIC

Priscilla C Jackson
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: March 20, 2011

Application Fee

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

NAME OF PROPOSED REGULATED ENTITY: OAKWOOD BAPTIST CHURCH EXPANSION
REGULATED ENTITY LOCATION: 2154 LOOP 337 NEW BRAUNFELS TX 78130
NAME OF CUSTOMER: OAKWOOD BAPTIST CHURCH S.B.C.
CONTACT PERSON: ROXI VANSTORY PHONE: (830) 625-0267
(Please Print)

Customer Reference Number (if issued): CN 601399199 (nine digits)

Regulated Entity Reference Number (if issued): RN 102931490 (nine digits)

Austin Regional Office (3373) ☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362) ☐ Bexar ☒ Comal ☐ Medina ☐ Kinney ☐ Uvalde

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

☐ **Austin Regional Office**

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

☒ **San Antonio Regional Office**

☐ **Overnight Delivery to TCEQ**:
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-1278

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

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	24.2 Acres	$ 6,500
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature

6/2/08
Date

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

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

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

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150

JPMORGAN CHASE BANK, N.A. 48749

32-61-1110

OAKWOOD BAPTIST CHURCH
S.B.C.
2154 LOOP 337 NORTH
NEW BRAUNFELS, TX 78130
(830) 625-0267

CHECK NO	DATE	AMOUNT
48749	5/29/2008	$6,500.00

PAY Pay Exactly
Six Thousand Five Hundred Dollars And No Cents

TO THE ORDER OF TX COMMISSION ON ENVIRONMENTAL QUALITY

Rick Varnadoe MP

⑈048749⑈ ⑆111000614⑆ 0580026052 1⑈

Core Data

TCEQ

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided)*

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

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

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

☒ Yes ☐ No — WPAP PERMIT

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 601399199		RN 102931490

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)

6. Customer Role (Proposed or Actual) *– as it relates to the Regulated Entity listed on this form. Please check only one of the following:*

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

7. General Customer Information

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

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

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

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

10. Mailing Address:

City	State	ZIP	ZIP + 4

11. Country Mailing Information *(if outside USA)*

12. E-Mail Address *(if applicable)*

13. Telephone Number ( ) -

14. Extension or Code

15. Fax Number *(if applicable)* ( ) -

16. Federal Tax ID *(9 digits)*

17. TX State Franchise Tax ID *(11 digits)*

18. DUNS Number *(if applicable)*

19. TX SOS Filing Number *(if applicable)*

20. Number of Employees

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

21. Independently Owned and Operated?

☐ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☐ No Change** *(See below)*

**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

23. Regulated Entity Name *(name of the site where the regulated action is taking place)*

OAKWOOD BAPTIST CHURCH EXPANSION

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	2154 LOOP 337							
	City	NEW BRAUNFELS	State	TX	ZIP	78130	ZIP + 4	
25. Mailing Address:	2154 LOOP 337							
	City	NEW BRAUNFELS	State	TX	ZIP	78130	ZIP + 4	

26. E-Mail Address:		
27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(830) 625-0267		(830) 625-1151

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)
8661		813110	

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

RELIGIOUS ORGANIZATION

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

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

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

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

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

SECTION IV: Preparer Information

40. Name:	MICHAEL G. SHORT	41. Title:	ENGINEER

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830) 606-3913		(830) 625-2204	MSHORT@SCHULTZGROUPINC.COM

SECTION V: Authorized Signature

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

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

Company:	THE SCHULTZ GROUP INC	Job Title:	ENGINEER
Name *(In Print)*:	MICHAEL G. SHORT	Phone:	(830) 606-3913
Signature:		Date:	6/2/08

Reference Information

WATER POLLUTION ABATEMENT PLAN
FOR
OAKWOOD BAPTIST CHURCH

2154 Loop 337 North
New Braunfels, TX 78130



Cunningham
Allen
Inc.

• 3103 Bee Cave Road • Suite 202 • Austin, Texas 78746-6819 • Fax (512)327-2973 • Phone (512) 327-2946 •

WATER POLLUTION ABATEMENT PLAN
FOR
OAKWOOD BAPTIST CHURCH

2154 Loop 337 North
New Braunfels, TX 78130

Project No. 9500032

Prepared By

Cunningham-Allen, Inc.
3103 Bee Cave Road, Suite 202
Austin, TX 78746-6819
(512) 327-2946 VOICE
(512) 327-2973 FAX

July, 1998

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IX. GENERAL CONSTRUCTION NOTES

I.

GENERAL INFORMATION FORM

GENERAL INFORMATION FORM
FOR
REGULATED ACTIVITIES
ON THE EDWARDS AQUIFER RECHARGE ZONE
AND RELATING TO 30 TAC §§213.4 & 213.5, EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: Oakwood Baptist Church

COUNTY: Comal County STREAM BASIN: _____

TYPE: XX WPAP ____ AST ___ EXCEPTION
____ SCS ____ UST ___ MODIFICATION

Do not write in this box. TNRCC use only.	
Received by Region	
Fee Due:	$
Payment Verified:	
Inspection Date:	
Judged Administratively ____ complete ____ incomplete	
Written Comments Received From City/County: UWCD within 30 Days:	__ Yes __ No __ Yes __ No
____ Approved ____ Incomplete and Returned	

APPLICANT INFORMATION

1. Applicant:

Contact Person: Roxi Vanstroy
Entity: Oakwood Baptist Church S.B.C.
Mailing Address: 2154 Loop 337 N.
City, State: New Braunfels, Texas Zip: 78130

Telephone: (210) 625-0267 FAX: (210) 625-1151

2. Agent/Representative (If any):

Contact Person: Andrew Gonzales, P.E.
Entity: Cunningham-Allen, Inc.
Mailing Address: 3103 Bee Cave Road, Suite 202
City, State: Austin, Texas Zip: 78746
Telephone: (512) 327-2946
Fax: (512) 327-2973

PROJECT LOCATION

3. Site Address:
Street: 2154 Loop 337 North
City: New Braunfels Zip: 78130

4. XX This project is inside the city limits of the City of **New Braunfels**.
____ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of the City of_____.
____ This project is not located within any city's limits or ETJ, but is located within _____ County.

5. The location of the project site is described below. Provide sufficient detail and clarity so that the TNRCC's Regional staff can easily locate the project for a field investigation.

2154 Loop 337N. New Braunfels, TX

ROAD AND RECHARGE ZONE MAPS

6. XX A **Road Map** is attached behind this sheet showing directions to and location of project site.

7. XX A copy of the official 7 1/2 minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind this sheet. The map(s) should clearly show:

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

Recharge/Transition Zone Maps are available from:
Accugraphics 512/459-4929
Barton Springs/Edwards Aquifer Con. District 512/282-8441
Edwards Aquifer Authority 210/222-2204
Ferguson Map Company 210/829-7629

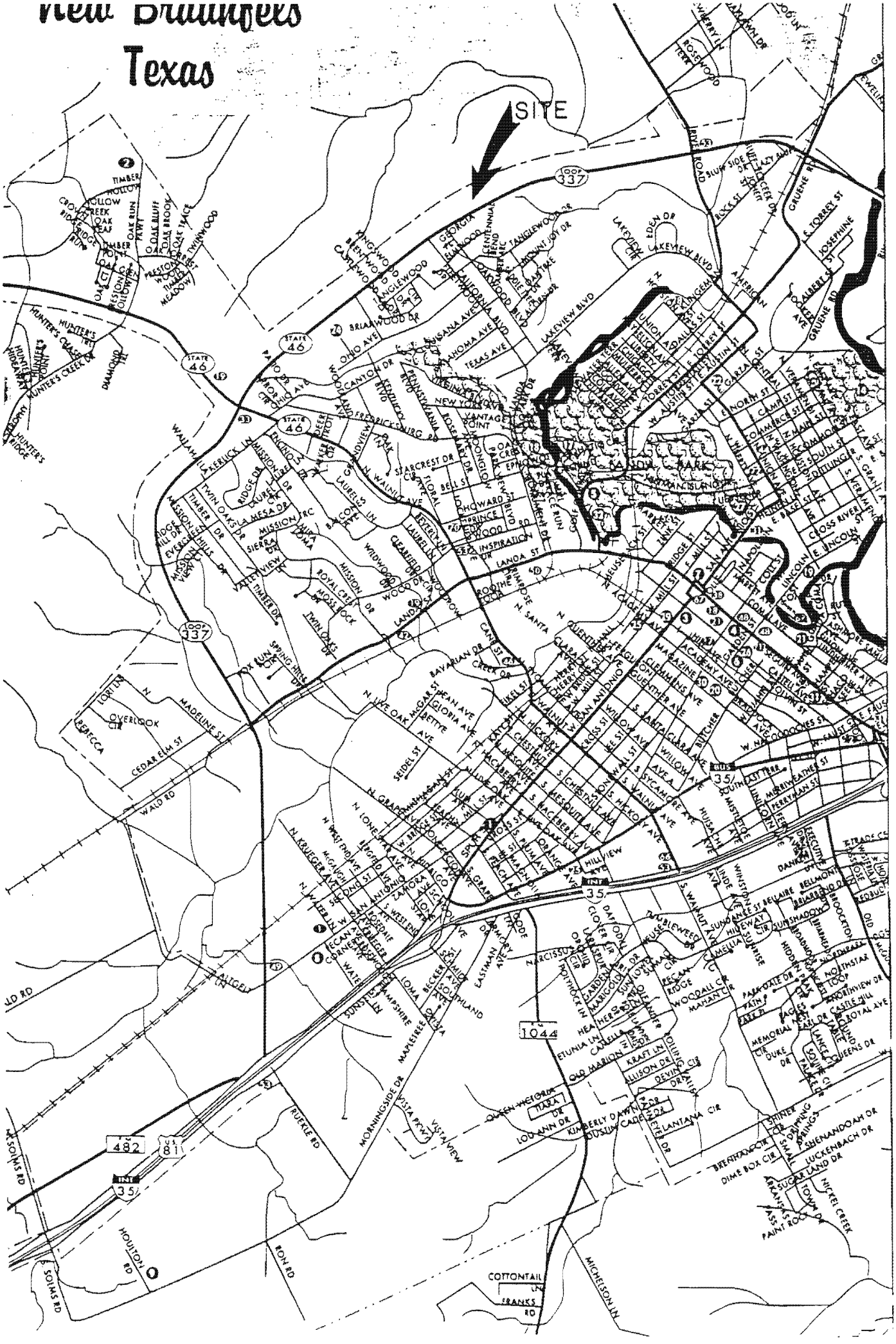
8. XX Sufficient survey staking is provided on the project to allow TNRCC regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. **The TNRCC must be able to inspect the project site or the application will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

PROJECT DESCRIPTION

9. XX A detailed narrative description of the proposed project is provided directly behind this page.
   Proposed development of the project includes the construction of:

10. Existing project site conditions are noted below:
   XX Existing commercial site
   ____ Existing industrial site
   ____ Existing residential site

New Braunfels
Texas



Project: **Oakwood Baptist Church**

Address: 2154 Loop 337 N
New Braunfels, Texas 78130

Narrative Description Of Project

* Project consists of the third phase of construction to an existing church. The addition will include 29,500 square foot of building space. Also with this phase, additional parking, internal drives, and another drive to access Loop 337 will be constructed.

* Water quality ponds will be constructed to treat runoff stormwater. Ponds are designed to City of Austin standards for partial ponds. A storm water collection system is also being constructed to control runoff.

* An additional water line and meter will be installed.

* A wastewater line is being added in addition to the existing system. A grinder pump will be installed. The wastewater line will tie to the existing 3" force main already serving the church.

____ Existing paved and/or unpaved roads
____ Undeveloped (Cleared)
_____Undeveloped (Undisturbed/Uncleared)
____ Other: _____

SOLID AND HAZARDOUS WASTES

11. Solid wastes and/or hazardous wastes:

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

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

____ Other. A narrative description is provided directly behind this page.

12. Will there be any on-site land disposal of Municipal Solid Waste as defined in 30 TAC §330?

____ Yes

XX No

PROHIBITED ACTIVITIES

13. XX 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 §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).

14. XX 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 §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

15. Under 30 TAC §213.14, application fees are due and payable at the time the application is filed. I understand that if the correct fee is not submitted, the TNRCC 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:

____ Austin central office
____ Austin regional office (for projects in Hays, Travis, and Williamson Counties)
XX San Antonio regional office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

16. XX One (1) original and three (3) copies of the completed application shall be submitted to the appropriate Regional Office for distribution by the TNRCC to the local municipality or county, groundwater conservation districts, and the TNRCC's Central Office.

17. _XX_ All items required for this development, as listed in the **APPLICATION GUIDELINES**, are attached.

18. As applicant for the proposed project I am aware that:

_XX_ **It is the applicant's responsibility to use the current TNRCC Edwards Aquifer application forms.**

_XX_ The executive director must declare that the application is administratively complete or deficient within 30 days of receipt by the appropriate regional office and must complete the review of an application within 90 days after determining that it is administratively complete. Grounds for a deficient application include, but are not limited to, failure to pay all applicable application fees.

_XX_ No person shall commence any regulated activity until a Water Pollution Abatement Plan for such activity has been filed with and approved by the TNRCC.

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 TNRCC review. The application was prepared by:

Andrew Gonzales, P.E.
Print Name of Applicant/Owner/Agent

CUNNINGHAM-ALLEN, INC.

Andrew Gonzales
Signature of Applicant/Owner/Agent

7/23/98
Date

II.

GEOLOGIC ASSESSMENT

HORIZON JOB NO. 980093

GEOLOGIC ASSESSMENT
for
OAKWOOD BAPTIST CHURCH
AT
2154 LOOP 337 NORTH
NEW BRAUNFELS
COMAL COUNTY, TEXAS

PREPARED FOR:

CUNNINGHAM-ALLEN, INC.
AUSTIN, TEXAS

PREPARED BY:

HORIZON ENVIRONMENTAL SERVICES, INC.
AUSTIN - BEAUMONT - SHREVEPORT

June 1998

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GEOLOGIC ASSESSMENT
FOR
REGULATED ACTIVITIES
ON THE EDWARDS AQUIFER RECHARGE/TRANSITION ZONES
AND RELATING TO 30 TAC §213.5(b)(3), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: 7-ACRE OAKWOOD BAPTIST CHURCH PROPERTY AT 2154 LOOP 337 NORTH, NEW BRAUNFELS, COMAL COUNTY, TEXAS.

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

PROJECT INFORMATION

1. Project is on the: X Recharge Zone __ Transition Zone __ Both

Recharge Zone Boundary:

__ The Recharge Zone boundary is located on-site. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site.**
__ The Recharge Zone boundary is located within the downgradient area.
X The Recharge Zone boundary is not located within the downgradient area.

2. 100-year floodplain boundaries:

__ The 100-year floodplain is located on-site. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site and within the 100-year floodplain downgradient of the site for a distance of one-half mile or to the Recharge Zone boundary, whichever is less.**
X The 100-year floodplain is located downgradient of the site within a distance of one-half mile or the Recharge Zone boundary, whichever is less. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site and within the 100-year floodplain downgradient of the site for a distance of one-half mile or to the Recharge Zone boundary, whichever is less.**
__ No part of the area downgradient of the site is located within the 100-year floodplain. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site.**

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA, Flood Insurance Rate Map, Comal County, Map No., New Braunfels, Texas 4854930006C, 15 May 1991.

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3. ___ This project is part of a multi-phase project. The Geologic Assessment is site specific and covers only that area undergoing review at this time.
   _X_ This is not a multi-phase project.

4. _X_ If applicable, geologic or manmade features are described and evaluated using the attached GEOLOGIC ASSESSMENT TABLE.

5. Soil cover on the project site is _0 to 2_ feet thick. In general, the soil present appears to have the ability to:

   ___ transmit fluid flow to the subsurface.
   _X_ impede fluid flow to the subsurface.

6. _X_ A **stratigraphic column(s)** is attached **directly behind this page**. The outcropping unit is at the top of the stratigraphic column.

7. _X_ A narrative description of the site specific geology for this project is provided directly behind this page.

8. _X_ Appropriate Geologic Map(s) are provided:

SITE GEOLOGIC MAP

The Site Geologic Map must be the same scale as the applicant's Site Plan.

Applicant's Site Plan Scale 1" = _50_ '

Site Geologic Map Scale 1" = _50_ '

Items 9 through 13 must be included on the Site Geologic Map.

9. _X_ The Project Site is shown and labeled.

10. _X_ Surface Geologic Units are shown and labeled.

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GEOLOGIC STRATIGRAPHIC COLUMN

System	Series	Group	Formation	Thickness in feet	Symbol	Description
Cretaceous	Comanche	Fredericks-burg	Person Formation of the Edwards Group	up to 180	Kep	Light gray to light tan mudstone, packstone, crystalline limestone to wackestone to miliolid grainstone, and chert with boxwork vugs, collapsed breccia, to wispy iron-oxide stains, bioturbated iron-stained beds separated by massive limestone beds.
Cretaceous	Comanche	Fredericks-burg	Kainer Formation of the Edwards Group	up to 345	Kek	Light gray to tan, hard, dense, thick, to thin-bedded, fine-grained limestone, marly limestone, chert nodules, porous dolomite, dolomitic limestone, and solutioning.
Cretaceous	Comanche		Glen Rose	each member ranges from 70 to 250	Kgr	Alternating strata of marl, dolomite, and limestone. Celestite may be present in Member 5 near Mt. Bonnell. Lower confining unit of the Edwards aquifer.

REFERENCES:

Brune, Gunnar, and Gail L. Duffin. Occurrence, Availability and Quality of Ground Water in Travis County, Texas. *Texas Department of Water Resources Report* 276. Austin, TX: TDWR, 1983.

Garner, L. E., and K. P. Young. Environmental Geology of the Austin Area: An Aid to Urban Planning. *Report of Investigations* 86. The University of Texas at Austin, Bureau of Economic Geology, 1976.

Senger, R. K., and C. W. Kreitler. Hydrogeology of the Northern Segment of the Edwards Aquifer, Austin Region. *Report of Investigations* 192. The University of Texas at Austin, Bureau of Economic Geology, 1990.

Small, Ted A., John A. Hanson, and Nico M. Hauwert. Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop (Barton Springs Segment), Northeastern Hays and Southwestern Travis Counties, Texas. *US Geological Survey (USGS) Water Resources Investigations Report* 96-4306. 1996.

(UT BEG) University of Texas - Bureau of Economic Geology. *Geologic Atlas of Texas, San Antonio Sheet.* The University of Texas at Austin. 1983

DESCRIPTION OF ON-SITE GEOLOGY

The subject site is underlain by the Edwards Group (UT-BEG, 1983) Outcrops of lirnestone are isolated and most of the subject site is covered by thick silty clay. No faults are found the subject site or within 0.5 miles downgradient. No caves were found on or within 0.5 miles downgradient from the subject site.

The subject site appears to be underlain by the Person Formation of the Edwards Group. The Person Formation is described as light gray to light tan mudstone, packstone, crystalline limestone to wackestone, or miliolid grainstone. The Person Formation characteristically contains chert with boxwork vugs, collapsed breccia, wispy iron-oxide stains, and bioturbated iron-stained beds separated by massive limestone beds.

Limestone on the subject site is light gray to light tan mudstone, crystalline limestone to wackestone. Limestone on the subject site contains chert with boxwork vugs, collapsed breccia, wispy iron-oxide stains, and bioturbated iron-stained beds separated by massive limestone beds. The subject site appears to contain areas of soil piping that may be related to collapse or solutioning in the subsurface. Vuggy or solution-channel porosity and permeability associated with burrowed zones and collapsed breccia are possible on the subject site.

The results of this investigation do not preclude the potential for caves in the subsurface. Therefore, if a cave or void is encountered during construction, activities should be stopped and the feature should be investigated by a geologist familiar with potential recharge features.

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11 Geologic or manmade features.

X Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the SITE Geologic Map and are described in the attached Geologic Assessment Table.

___ Geologic or manmade features were not discovered on the project site during the field investigation.

12 X The Recharge Zone boundary and the 100-year floodplain is shown and labeled, if appropriate.

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

___ There are ___(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

___ The wells are not in use and have been properly abandoned.

___ The wells are not in use and will be properly abandoned.

___ The wells are in use and comply with 30 TAC §238.

X There are no wells or test holes of any kind known to exist on the project site.

DOWNGRADIENT GEOLOGIC MAP

Downgradient Geologic Map Scale 1" = 400 '

Items 14 through 16 must be included on the Downgradient Geologic Map.

14 X Surface Geologic Units are shown and labeled.

15. Geologic or manmade features:

X Geologic or manmade features were discovered within the downgradient area. They are shown and labeled on the Downgradient Geologic Map and described in the attached Geologic Assessment Table.

___ No geologic or manmade features were discovered within the downgradient area.

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

___ There are ___(#) wells present within 0.5 miles downgradient and the locations are shown and labeled. (Check all of the following that apply)

___ The wells are not in use and have been properly abandoned.

___ The wells are not in use and will be properly abandoned.

___ The wells are in use and comply with 30 TAC §238.

X There are no wells or test holes of any kind known to exist within 0.5 miles downgradient.

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ADMINISTRATIVE INFORMATION

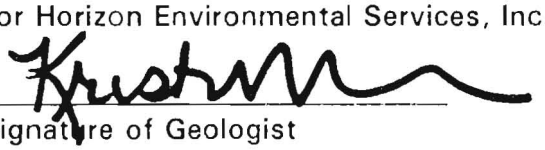
17. X One (1) original and three (3) copies of the following forms, in the order listed below, have been provided.
    * THIS FORM
    * GEOLOGIC ASSESSMENT TABLE
    * SITE GEOLOGIC MAP
    * DOWNGRADIENT GEOLOGIC MAP, if needed

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 **GEOLOGIC ASSESSMENT** is hereby submitted for TNRCC review. The application was prepared by:

Date(s) Geologic Assessment was performed: 19 June 1998

KRISTIN MILLER — 512/328-2430
Print Name of Geologist — Telephone

512/328-1804
For Horizon Environmental Services, Inc. — FAX



Signature of Geologist — 30 June 1998 — Date

Representing: HORIZON ENVIRONMENTAL SERVICES, INC.
Geologic Consulting Company

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OAKWOOD BAPTIST CHURCH
2154 LOOP 337 NORTH
NEW BRAUNFELS
COMAL COUNTY, TEXAS

ADDITIONAL COMMENTS
HJN 980093

1.0 LAND USE

Land use on the subject property consists of the Oakwood Baptist Church existing buildings and parking lots. Surrounding land use is primarily undeveloped ranchland with a City of New Braunfels drinking water tank found adjacent to the west.

2.0 VEGETATION

Vegetation is dominated by grasslands with scattered plateau live oak (*Quercus fusiformis*) with an occasional mesquite (*Prosopis glandulosa*). Ground cover is thick and species include assorted grasses, prickly pear cactus (*Opuntia* sp.), and yaupon (*Ilex vomitoria*).

3.0 TOPOGRAPHY AND SURFACE WATER

Topographically, the subject property is sloping with natural and artificial elevations ranging from 773 to 794 feet above mean sea level (MSL) Surface water drains from southwest to northeast via an overland sheet flow and an artificial stormwater drainage culvert along Loop 337. The subject site is within the Blieder's Creek watershed. None of the subject site is within the 100-year floodplain (FEMA, 1993).

4.0 GEOLOGY

Site-specific geology is described on page 4 of this report

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5.0 SOILS

Soils on the subject site are characterized as follows (Werchan et al., 1984):

SOIL NAME	SOIL TYPE	SOIL DEPTH (FEET)	UNDERLYING MATERIAL	PERMEABILITY	AVAILABLE WATER CAPACITY	SHRINK-SWELL CAPACITY
Comfort-Rock outcrop complex, undulating (CrD)	Stony clay	1.1	Indurated fractured limestone	Slow	Very low	N/A

6.0 WATER WELLS

A search was made for water wells on the subject site and within 0.5 miles downgradient or to the edge of the recharge zone. A review of the records of the Texas Natural Resource Conservation Commission (TNRCC) and the Texas Water Development Board (TWDB) revealed no water wells on or within 0.5 miles downgradient from the subject site. No evidence of water wells was present on the subject site.

This does not preclude the existence of an abandoned well. If a water well or casing is encountered during construction, construction should be halted until the TNRCC is contacted. If a well is encountered, it should be capped or properly abandoned according to Texas Water Well Drillers Rules, Chapter 338.48 of the Texas Administrative Code and the Barton Springs/ Edwards Aquifer Conservation District rules (BS/EACD). If a well is intended for use, it must comply with 30 TAC §238. A plugging report must be submitted (by the licensed water well driller) to the Texas Department of Licensing and Regulation, Water Well Driller's Program, Austin, Texas. Additionally, a plugging plan, application, and refundable $50 plugging report deposit must be submitted to the BS/EACD.

7.0 ADDITIONAL COMMENTS

S-1 Closed depression. This may be an excavated pit refilled with the excavated material.

S-2 Closed depression. This may be an excavated pit refilled with the excavated material.

S-3 Closed depression. This may be an excavated pit refilled with the excavated material.

S-4 Closed depression. This may be an excavated pit refilled with the excavated material.

S 5 Closed depression. This may be an excavated pit refilled with the excavated material.

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S 6 Solution cavities. This feature consists of 2 filled solution cavities in solid limestone. Evidence of soil piping is present.

S-7 Closed depressions. Evidence of soil piping is present.

S-8 Closed depression. This may be an excavated pit refilled with the excavated material. Evidence of soil piping is present.

S-9 Closed depression. This may be an excavated pit refilled with the excavated material. Evidence of soil piping is present.

S 10 Closed depression. Evidence of soil piping is present.

S-11 Closed depression. Evidence of soil piping is present.

A-1 Closed depression (livestock tank). This feature may be an excavated area used to water cattle.

A-2 Vuggy rock outcrop. Vugs are not predominately interconnected.

A 3 Water well and windmill. This well appears to be in use.

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8.0 REFERENCES

Brune, Gunnar and Gail L. Duffin. Occurrence, Availability and Quality of Ground Water in Travis County, Texas. *Texas Department of Water Resources Report* 276. Austin, TX: TDWR, 1983.

(FEMA) Federal Emergency Management Agency, Flood Insurance Rate Map, Comal County, Map No. , New Braunfels, Texas, 4854930006C, 15 May 1991.

Garner, L E., and K. P. Young. Environmental Geology of the Austin Area: An Aid to Urban Planning. *Report of Investigations* 86. The University of Texas at Austin, Bureau of Economic Geology, 1976.

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Small, Ted A., John A. Hanson, and Nico M. Hauwert. Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Outcrop (Barton Springs Segment), Northeastern Hays and Southwestern Travis Counties, Texas. *US Geological Survey (USGS) Water-Resources Investigations Report* 96-4306. 1996.

(UT BEG) University of Texas - Bureau of Economic Geology. *Geologic Atlas of Texas, San Antonio Sheet.* The University of Texas at Austin. 1983.

Werchan, Leroy E., A. C. Lowther, and Robert N. Ramsey. *Soil Survey of Comal and Hays Counties, Texas.* US Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Experiment Station, 1984.

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APPENDIX A

GEOLOGIC ASSESSMENT TABLE

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GEOLOGIC ASSESSMENT TABLE

PROJECT NAME:

FEATURE ID			FEATURE CHARACTERISTICS																			PHYSICAL SETTING																			
1A	1B	1C	2	3			4			5	6		7			8			9				10			11	12			13				14					15	16			17
LOCATION	TYPE (1)	POINTS	GEOLOGIC FORMATION	VERTICAL FEATURE (FEET)			HORIZONTAL FEATURE (FEET)			LENGTH & WIDTH (FEET)	TREND (C, CD, FR, FZ, SC, SH)		DENSITY (FR, VF)			APERTURE (FR, VR)			INFILLING (CD, FR, FZ, SC, SH, VR)				RELATIVE INFILTRATION RATE			SUB-TOTAL	SENSITIVITY			DRAINAGE AREA (ACRES)				TOPOGRAPHY (2)					SUB-TOTAL	POTENTIAL RECHARGE			COM-MENTS
				C, CD, SC, SH			C, SC			FZ, FR, VR, Z		10	0	5	10	0	5	10	0	5	10	15	0	10	30					0	5	10	15	0	5	10	15	20					
	C CD FR FZ MM SC SH VR Z	35 10 0 15 35 10 20 0 35		X	Y	Z	X	Y	Z		DIRECTION	DOMINANT	LOW	MODERATE	HIGH	SMALL	MEDIUM	LARGE	CEMENTED	FINE	COARSE	NONE	NONE/LOW	MODERATE	HIGH		NOT <25	POSSIBLE 25 - 60	SENSITIVE >60	<1	<10	<50	>50	WALL	HILLTOP	HILLSIDE	FLOODPLAIN	STREAM BED		NONE/LOW <15	MODERATE 15 -20	HIGH >20	YES
S-1	CD	10	Kep	20	20	0.5						NO								5			0			15	15			0					5				5	5			YES
S-2	CD	10	Kep	10	10	0.5						NO								5			0			15	15			0					5				5	5			YES
S-3	CD	10	Kep	20	25	1.5						NO								5			0			15	15			0					5				5	5			YES
S-4	CD	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-5	CD	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-6	SC	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-7	CD	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-8	CD	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-9	CD	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-10	CD	10	Kep									NO								5			0			15	15			0					10				10	10			YES
S-11	CD	10	Kep									NO								5			0			15	15					10			10				20		20		YES
A-1	CD	10	Kep									NO								5			0			5	5					15					20		35			35	YES
A-2	VR	0	Kep									NO										15			30	80			80			10					15		25			25	YES
A-3	MM	35	Kep																							0													0				
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(1) C = 35, CD = 10, FR = 0, FZ = 15, MM = 35,
SC = 10, SH = 20, VR = 0, ZONE = 35

(2) WALL = Vertical/near veritical wall above 100-yr floodplain
FLOODPLAIN = 100-yr floodplain
STREAM BED = Ordinary High Water Mark

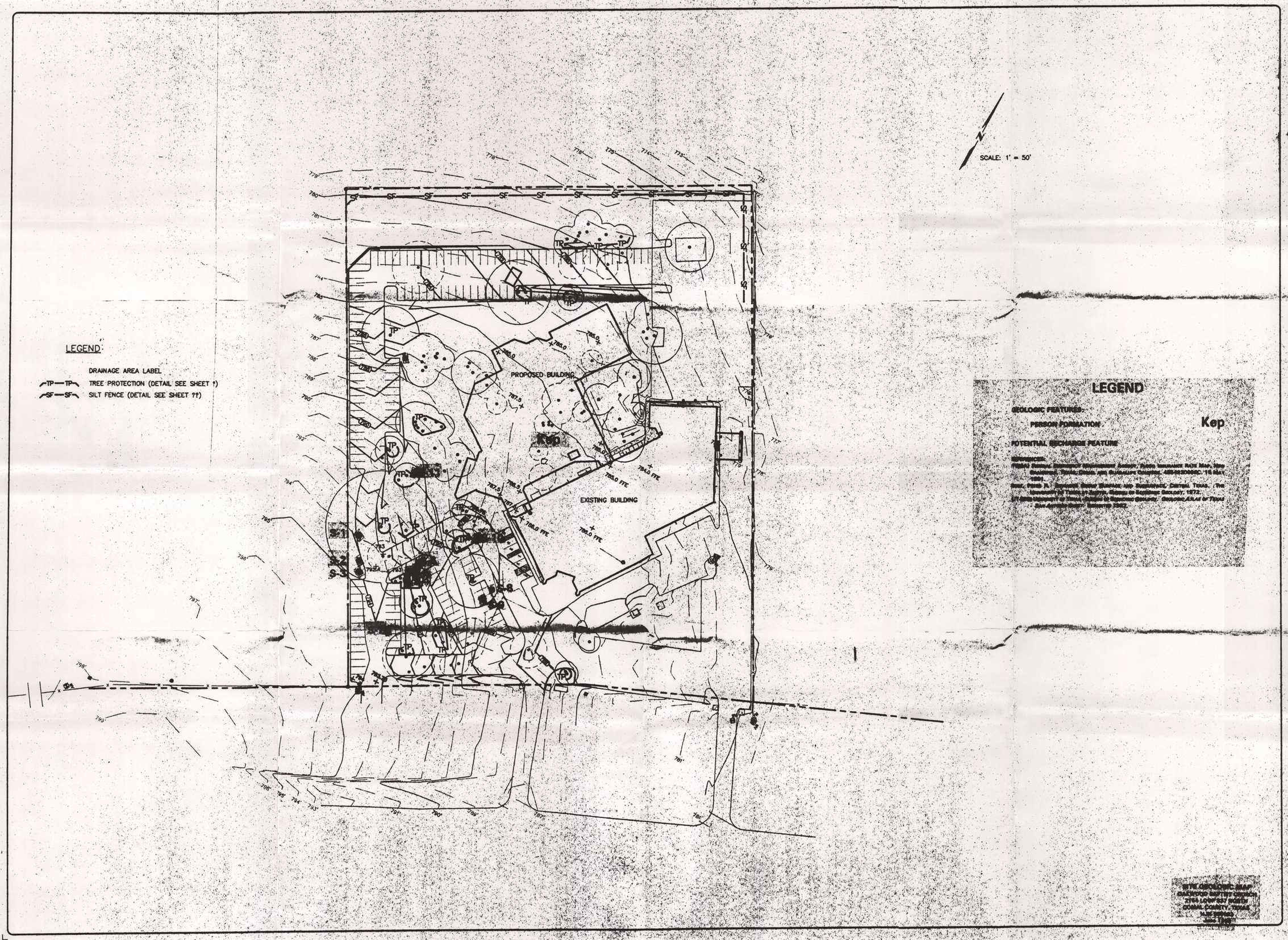
TNRCC - 0629 (2/1/97)

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

Geologist signature

6-30-98
Date

Sheet 1 of 1



DATE
6/4/98

CUNNINGHAM-ALLEN, INC.
3103 BEE CAVE ROAD, SUITE 202
AUSTIN, TEXAS 78746
PHONE (512) 327-2946
FAX (512) 327-2973

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS
PROPOSED SITE PLAN

PROJECT No. 9500032
DESIGN cef,be,rmw
DRAWN be
CAD FILE BASE

SHEET
1 OF 1

E:\9500032\BASE.DWG Mon Jun 08 13:27:09 1998 Brian Estes

APPENDIX B

SITE GEOLOGIC MAP

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APPENDIX C

DOWNGRADIENT GEOLOGIC MAP

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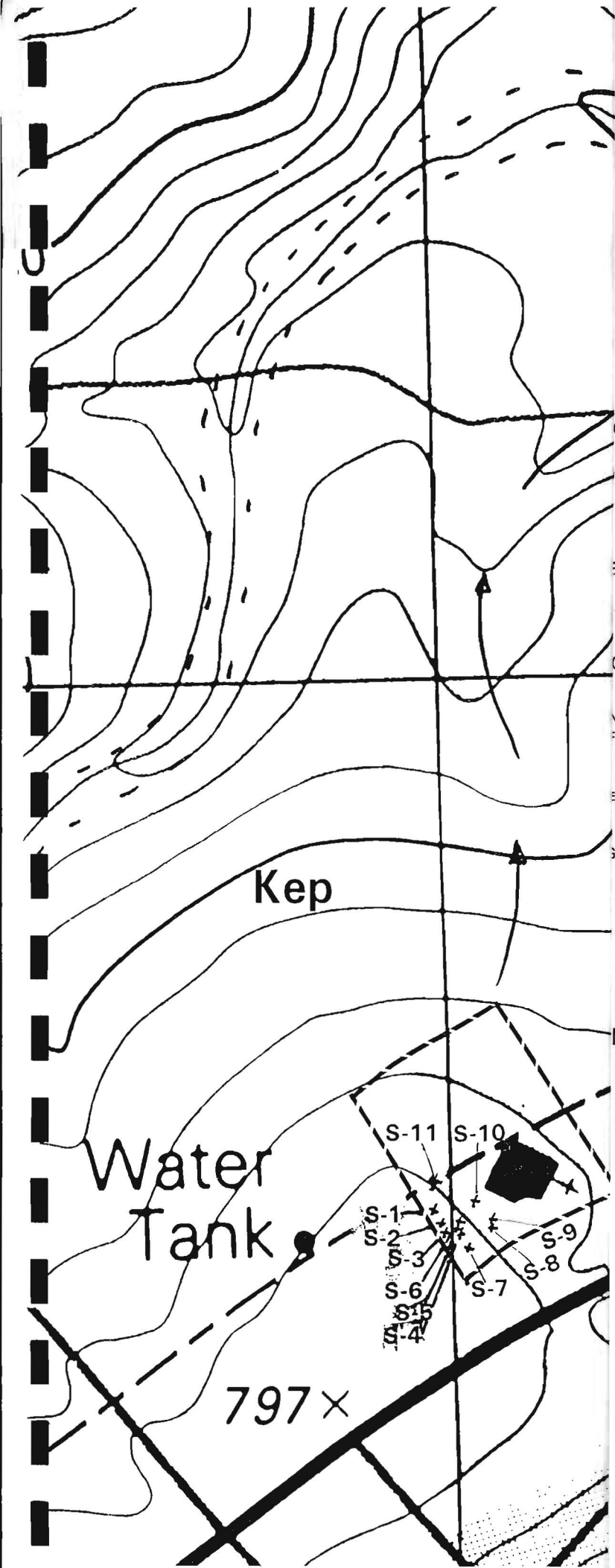

LEGEND

GRADIENT PATH

GIC FEATURES:

QUATERNARY ALLUVIUM Qal

PERSON FORMATION Kep

EAR FLOODPLAIN

TIAL RECHARGE FEATURE

OUNDARY

NCES:

EDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, NEW BRAUNFELS, TEXAS, COMAL AND GUADALUPE COUNTIES, 4854930006C, 15 MAY 1991.

ETER R. EDWARDS GROUP SURFACE AND SUBSURFACE, CENTRAL TEXAS. THE UNIVERSITY OF TEXAS AT AUSTIN, BUREAU OF ECONOMIC GEOLOGY, 1972.

G) UNIVERSITY OF TEXAS - BUREAU OF ECONOMIC GEOLOGY. *GEOLOGIC ATLAS OF TEXAS - SAN ANTONIO SHEET*. REPRINTED 1982.

N

NCH = 400 FEET

DOWNGRADIENT GEOLOGIC MAP

OAKWOOD BAPTIST CHURCH
2154 LOOP 337 NORTH
COMAL COUNTY, TEXAS
HJN 980093
June 1998

APPENDIX D

REPORT OF SUBSURFACE INVESTIGATION

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SwL

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

P. O. Box 17965 • 2435 Boardwalk • San Antonio, Texas 78217 • 512/822-2116

April 3, 1984

Re: Report of Subsurface Investigation
Oakwood Baptist Church
New Braunfels, Texas
SWL Project No. 84-SA-148

Don B. Hill Architect, Inc.
2551 S. Texas Avenue
Suite J
College Station, Texas 77840

Attention: Mr. Don B. Hill

Gentlemen:

Southwestern Laboratories has completed the subsurface investigation for the above referenced project. The investigation was authorized by Mr. Don B. Hill. This report briefly describes the investigative procedures and presents the findings of the investigation along with our conclusions and recommendations for design of the foundations.

We appreciate the opportunity of working with you on this phase of the project and look forward to providing the materials testing and inspection services that you will require during the construction phase. If you have any questions regarding the report, or if we can be of further service to you, please contact us.



Very truly yours,

SOUTHWESTERN LABORATORIES, INC.

David A. Lewis, P.E., Manager
Geotechnical Engineering Division
San Antonio Branch

DAL:jvh

Copies: 3-Above
1-Joe Hill Consulting Engineers

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Subsurface Conditions	3
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SUBSURFACE INVESTIGATION

OAKWOOD BAPTIST CHURCH

NEW BRAUNFELS, TEXAS

INTRODUCTION

The site is located north of Loop 337 in northern New Braunfels, Texas. Proposed construction consists of a new church, education, and family life facilities. The new facilities will be single-story and preliminary plans provide for the structures to be supported on shallow footings.

The purposes of the investigation were to determine the characteristics of the subsurface soils at the proposed site and to interpret this data to develop recommendations for design of the foundation. The investigation included the field exploration to obtain information on the subsurface conditions and to secure representative soil samples, the laboratory testing to determine the engineering properties of the soils, and the engineering analysis of the exploratory and laboratory data with respect to the recommendations.

SUBSURFACE EXPLORATION

Subsurface conditions were determined by drilling six (6) soil borings at depths of four (4) to seventeen (17) feet. The 3-inch nominal diameter borings were drilled with truck mounted, flight auger equipment at the locations selected by Southwestern Laboratories. The approximate locations are shown on

the attached Boring Plan, page A-1 of the Appendix. The locations were established in the field by our drilling team by taping distances from the property lines and estimating right angles.

The boring and sampling operations of cohesive and cohesionless soils were conducted in accordance with the applicable ASTM standards described on page A-7 of the Appendix. A hand penetrometer was used as a guide to aid in evaluating the strength of cohesive soils. The complete set of the Logs of Borings, presenting the soil descriptions and type of sampling used, is also included in the Appendix. The terms and descriptive symbols used are defined on the Symbol Key Sheet, page A-6 of the Appendix.

LABORATORY TESTING

The soil samples obtained during the exploration were sealed at the site and transported to the laboratory where they were visually inspected and classified according to the Unified Soil Classification System (ASTM Standard D 2487) by the geotechnical project engineer. A testing program was conducted on selected samples to aid in classification and evaluation of the engineering properties required for analyses. The laboratory tests were performed by experienced laboratory technicians and monitored by the project engineer. The following soil parameters were evaluated by laboratory tests:

1. Classification, potential volumetric swell and shrinkage characteristics of the cohesive soils, as defined by the Plasticity Index (PI) and the Liquid Limit (LL), were determined by means of the Atterberg Limit tests (ASTM Standards D 423 and D 424).

2. The classification and grain size distribution of cohesionless soils were determined relative to the seventy-five (75) micron size, U.S. Standard Sieve No. 200 (ASTM Standard D 1140).

The results of the tests are presented in the Summary of Laboratory Test Data, pages A-2 of the Appendix.

SITE AND SUBSURFACE CONDITIONS

Site Conditions

The site slopes to the north with approximately ten (10) feet change in elevation. The site was grass and wood covered. Several limestone outcrops were observed throughout the site. In general, the surface soils were relatively hard and dry at the time of our field exploration.

Subsurface Conditions

The particular subsurface stratigraphy, as determined by the exploration, is shown in detail on the Logs of Boring in the Appendix. A review of these logs indicates the stratigraphy to be approximately as follows:

Depth (feet)	Description	Classification
0-2	Very stiff dark brown clay	CH
2-17	Very dense tan silty gravel or limestone	--

Groundwater was not encountered during drilling operations. However, it should be noted that groundwater conditions may fluctuate seasonally and with climatic changes.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based upon the data obtained in our soil test borings and laboratory testing, the project information provided to us, and our experience with similar soils and site conditions.

Results of the Atterberg Limits tests indicate that the upper clay soils at this site are active and will experience a degree of expansion and contraction due to seasonal moisture variation. The potential vertical rise estimated by the Texas Highway Department's procedure (THD TEX-124-E) is less than 1/2 inch. Consequently, a shallow foundation system may be used to support the proposed structure and should be designed for these potential movements.

Shallow Spread and Continuous Footings

The structure may be supported on shallow spread or continuous footings. The footings should be supported in the layer of tan silty gravel or limestone at the depth of one (1) to two (2) feet below existing grade. The spread footings should be sized for a net dead plus sustained live load bearing pressure of 4,000 pounds per square foot (psf) and net total load pressure of 6000 psf, whichever condition governs. The continuous footings should be sized for a net dead plus sustained live load bearing pressure of 3,000 psf and net total load pressure of 4,500 psf, whichever condition governs. These bearing pressures contain a factor of safety of 3 and 2 for dead and live loads, respectively.

With the indicated bearing pressures and structural loads in the order of 75 kips, settlements will be less than one (1) inch. Differential settlements will result from variances in subsurface conditions, loading conditions and

construction procedures, such as cleanliness of the bearing area. It is estimated that the differential settlement between any two columns will be roughly one-half ($\frac{1}{2}$) the total settlement.

Subgrade and Fill Preparation

The building area should be stripped of all vegetation and topsoil. All soft spots in the subgrade should be excavated to firm soil. The exposed subgrade should be scarified to a depth of six (6) inches and moisture conditioned to not less than the optimum moisture content. The subgrade should be compacted to ninety-five (95) percent of the maximum density as determined by the Standard Moisture-Density Relation (ASTM D 698). If the subgrade cannot be adequately compacted, the upper six (6) inches may be lime stabilized to provide a firm base for fill placement.

It is recommended that structural fill placed above grade, be composed of clean, inactive clay or sand (not a silt) with a maximum Plasticity Index of twenty (20). The fill should be placed in thin lifts not exceeding eight (8) inches loose measure, moisture conditioned to above optimum moisture content, and compacted to the above recommended density.

Prior to any filling operations, samples of the proposed borrow materials should be obtained for laboratory moisture-density testing. The tests will provide a basis for evaluation of fill compaction by in-place density testing. A qualified soil technician should perform sufficient in-place density tests during the filling operations to verify that proper levels of compaction are being attained.

Surface Area and Site Preparation

Care should be taken to shape the site such that water will not pond around the structure during construction and thus cause the near surface clays to swell. The proposed structure should be isolated from any moisture source which might also cause swelling of the clays after completion of the structure. Careless site preparation has been the cause of numerous badly cracked floor slabs in the area when the slab is supported directly on fill, and the fill has access to a source of moisture sufficient to cause significant swelling of the clays. When the structure is completed, the ground surface should slope away from the structure and downspouts should carry runoff water several feet from the structure, preferably into paved areas or sewers, before discharging.

ADDITIONAL DESIGN CONSIDERATIONS

The final grading plan was not available during the preparation of this subsurface investigation. Our design recommendations assumed a relatively level construction area under and around the proposed structures. Therefore, any abrupt grade changes near the structures should be structurally designed to provide the assumed subgrade support conditions. The design of the earth retaining systems should consider the engineering properties of the backfill, local subsurface conditions, evaluation of the external loads and pressures acting on the retaining system and consideration of the area drainage.

INSPECTION

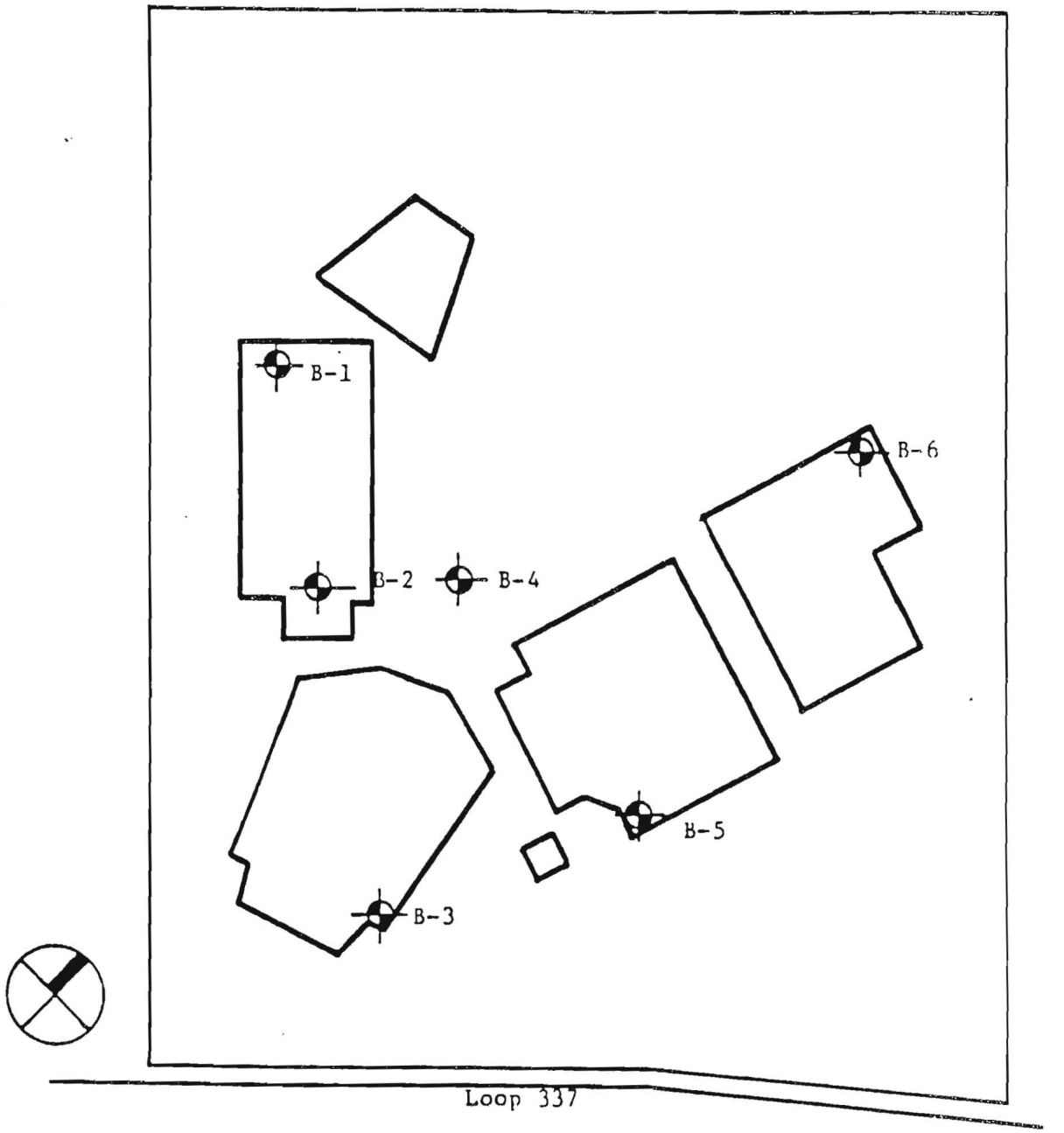
The recommendations are based on the laboratory and engineering analysis

of the samples taken in the soil test borings. It is not anticipated that soil conditions different from those encountered exist at the site; however, due to the geological deposition in the area, variances may occur. Should any subsurface conditions other than those described in our boring logs be encountered, Southwestern Laboratories should be immediately notified so that further investigation and supplemental recommendations can be provided.

The service life of the foundations and floor slab will depend upon the quality of construction. Southwestern Laboratories employs a staff of qualified inspectors to assist in the inspection of these facilities. It is recommended that the foundation excavations be inspected under the supervision of the Geotechnical Engineer to verify that the bearing soils are similar to those encountered in the borings and that the bearing area is properly prepared before concreting.

LIMITATIONS

This investigation was performed in accordance with accepted geotechnical engineering practice for the exclusive use of Don B. Hill Architect, Inc. in preparation of the foundation drawings and specifications for the proposed Oakwood Baptist Church in New Braunfels, Texas. Verification of the subsurface conditions for purposes of determining difficulty of excavation, dewatering, trafficability, etc., is the responsibility of others specializing in those areas. In the event that any changes in the nature, design or location of the structures are made from those assumed herein, the conclusions and recommendations contained in this report shall not be considered valid until the changes are reviewed and the conclusions are verified in writing.



Soil Borings

Scale: 1" = 100'

SWL Project No. 84-SA-148

April, 1984

PLAN OF BORINGS

OAKWOOD BAPTIST CHURCH

NEW BRAUNFELS, TEXAS

SOUTHWESTERN LABORATORIES

SUMMARY OF LABORATORY TEST DATA

PROJECT: Oakwood Baptist Church, New Braunfels, Texas
SWL Project No. 84-SA-148
DATE: 3/8/84

BORING NO	DEPTH IN FEET	TYPE OF MATERIAL	MOISTURE CONTENT %	DRY DENSITY pcf	ATTERBERG LIMITS LL	PL	PI	COMPRESSION TEST: COMPRESSION tsf	STRAIN %	LATERAL PRESSURE psi	TYPE FAILURE	OTHER TESTS
B-1	0-1.5	Brown clay	28		89	34	55					
	3-4.5	Tan clay gravel	5									
	6-7.5	Tan clay gravel	4									-200 - 45.4% Pass
B-2	0-1.5	Dark gray clay with organic material	30									
	3-4	Tan silty clay	11									
	4-7.5	Tan clay gravel	4									
B-3	0-1.5	Brown clay with gravel	29									
B-4	0-1.5	Dark gray clay	31		83	30	53					
B-5	0-1.5	Dark gray clay with limestone gravel	27									
B-6	0-1.5	Dark gray clay with organic material	26		76	32	44					

LOGS OF BORING

PROJECT: Oakwood Baptist Church, New Braunfels, TX
SWL Project No. 84-SA-148

DATE: 2/28/84 TYPE: 3" Shelby Tube, 2" Split Spoon

▼ WATER ▮ SAMPLE ⊠ STANDARD PENETRATION

BORING NO.: B-1

LOCATION: See Plan of Borings SURFACE ELEVATION: Existing Grade

DEPTH FEET	SYMBOL	SAMPLES	BLOWS/FT.	DESCRIPTION
0		X	17	Very stiff dark brown clay with limestone gravel and organic material
5		X	50/5	Very dense tan silty gravel
		X	50/6	-limestone layer at 7 1/2' to 8 1/2'
10				Tan limestone with flint Boring terminated at 10'
15				
20				
25				

BORING NO.: B-2

LOCATION: See Plan of Borings SURFACE ELEVATION: Existing Grade

DEPTH FEET	SYMBOL	SAMPLES	BLOWS/FT.	DESCRIPTION
0		X	50/2	Very stiff brown clay with organic material and roots
				Tan silty gravel
5				Tan limestone -tan silty seams 3' to 4' -tan gravelly silt at 6' to 6 1/2' -silty seams at 7 3/4'
10				Very dense tan silty gravel, calcareous pockets
15		X	50/4 1/2	
				Tan limestone, very hard
20				Boring terminated at 17'
25				

LOGS OF BORING

PROJECT: Oakwood Baptist Church, New Braunfels, TX
SWL Project No. 84-SA-148

DATE: 2/28/84 TYPE: 3" Shelby Tube, 2" Split Spoon

▼ WATER ▮ SAMPLE ⊠ STANDARD PENETRATION

BORING NO.: B-3

LOCATION: See Plan of Borings SURFACE ELEVATION: Existing Grade

DEPTH FEET	SYMBOL	SAMPLES	BLOWS/FT.	DESCRIPTION
0		14		Very stiff brown clay with limestone gravel and organic material
				Tan limestone
				-very hard
5				Light tan and brown clay, limestone seams at 5 1/2'
				Tan silt with limestone and gravel
				Tan limestone
10				Boring terminated at 8'
15				
20				
25				

BORING NO.: B-4

LOCATION: See Plan of Borings SURFACE ELEVATION: Existing Grade

DEPTH FEET	SYMBOL	SAMPLES	BLOWS/FT.	DESCRIPTION
0		50/5		Very stiff brown and dark gray clay with organic material and
				Tan limestone, hard calcareous nodules
				-silty seams at 2 1/2'
5				Boring terminated at 4'
10				
15				
20				
25				

LOGS OF BORING

PROJECT: Oakwood Baptist Church, New Braunfels, TX
SWL Project No. 84-SA-148

DATE: 2/28/84 TYPE: 3" Shelby Tube, 2" Split Spoon

▼ WATER | SAMPLE | STANDARD PENETRATION

BORING NO.: B-5

LOCATION: See Plan of Borings SURFACE ELEVATION: Existing Grade

DEPTH FEET	SYMBOL	SAMPLES	BLOWS/FT.	DESCRIPTION
0			50/5	Very stiff brown clay with limestone gravel and organic material
				Tan limestone -silty seams at 2' and 3' -tan silt seams at 4 1/2' to 5'
5			50/3	Very dense tan silty gravel
				Tan limestone -silty seams at 7' and 8'
10				Boring terminated at 10 1/2'
15				
20				
25				

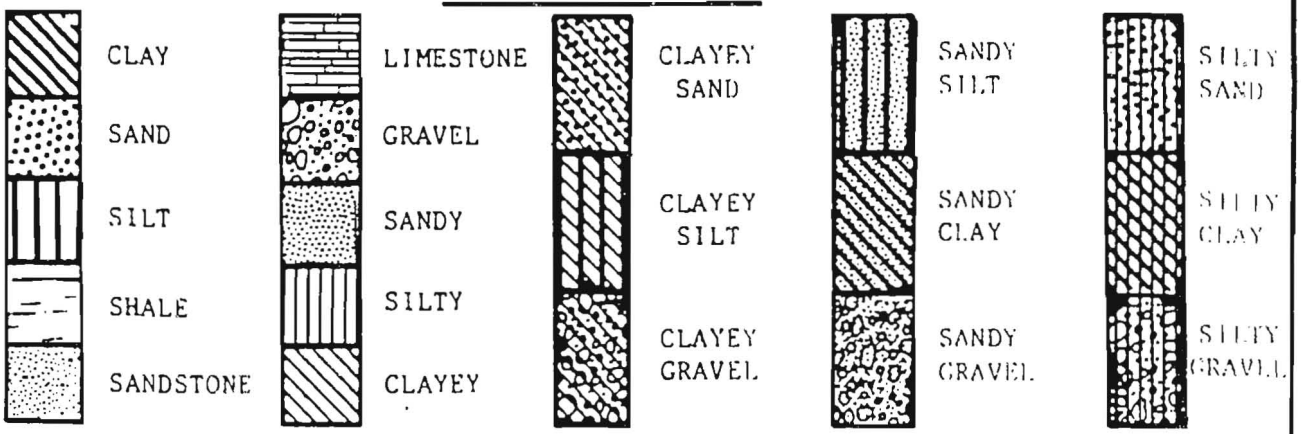
BORING NO.: B-6

LOCATION: See Plan of Borings SURFACE ELEVATION: Existing Grade

DEPTH FEET	SYMBOL	SAMPLES	BLOWS/FT.	DESCRIPTION
0			16	Very stiff dark gray and brown clay with organic material and gravel
				Tan limestone -silty seams at 2 1/4' -very hard
5				Boring terminated at 4' due to auger refusal
10				
15				
20				
25				

KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL OR ROCK TYPES



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion, TSF	Plasticity Index	Degree of Plasticity
0-2	Very Soft	0-0.125	0-5	None
2-4	Soft	0.125-0.25	5-10	Low
4-8	Firm	0.25-0.5	10-20	Moderate
8-15	Stiff	0.5-1.0	20-40	Plastic
15-30	Very Stiff	1.0-2.0	> 40	Highly Plastic
> 30	Hard	2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
> 50	Very Dense

TERMS CHARACTERIZING SOIL STRUCTURE

Slickensided - having inclined planes of weakness that are slick and glossy in appearance.

Fissured - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical.

Laminated - composed of thin layers of varying color and texture.

Interbedded - composed of alternate layers of different soil types.

Calcareous - containing appreciable quantities of calcium carbonate.

SAMPLER TYPES



SOIL SAMPLING PROCEDURES

Where cohesive soils are encountered, undisturbed samples are recovered through the use of thin-walled, seamless, open-tube samplers ("Shelby tubes") in accordance with the procedure outlined in ASTM D 1587. All undisturbed samples are extruded mechanically from the samplers in the field, classified, wrapped in aluminum foil, and appropriately sealed. In addition, a jar sample is obtained from each undisturbed core for visual classification in the laboratory by the project soils engineer. Hand penetrometer tests are made on all cohesive samples in the field to serve as a general measure of consistency. Results of these tests are retained in our files.

Where cohesionless soils are encountered, disturbed samples are recovered by using a split spoon sampler, which has an outside diameter of 2.00 inches, an inside diameter of 1.375 inches, and a barrel length of 21 inches. Split spoon sampling is conducted as an integral part of the standard penetration test (ASTM D 1586) in which the sampler is driven into the soil by repeated blows on a one-hundred-forty (140) pound hammer dropped thirty (30) inches. The number of hammer blows required to advance the sampler twelve (12) inches (after seating), which is used to evaluate the relative density of the soil in place, is recorded for each standard penetration test on the appropriate boring logs.

SAMPLE DISPOSAL

The soil samples are presently in storage. We will dispose of these samples in 60 days unless instructed to do otherwise.

III.

WATER POLLUTION ABATEMENT PLAN

WATER POLLUTION ABATEMENT PLAN APPLICATION

FOR
CONSTRUCTION OF REGULATED ACTIVITIES
ON THE EDWARDS AQUIFER RECHARGE ZONE
AND RELATING TO 30 TAC §213.5(b), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: **Oakwood Baptist Church**

PROJECT INFORMATION

1. The type of project is:
   ____ Residential: # of Lots: _____
   ____ Residential: # of Living Unit Equivalents: _____
   XX Commercial
   ____ Industrial
   ____ Other: _____

2. Total Acreage (Size of project): **4.40 Acres**
3. Projected population: _____

Church:
(12 LUE)*(3.5 cap/LUE) = 42 cap
Total Projected Population = 42 cap
Based on Criteria on pg. 2-7, 2-8, City of Austin Utilities Manual.
(see attached)

4. The amount and type of impervious cover is shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	29,500	/ 43,560 =	0.68
Parking/Paved Surfaces	86,370	/ 43,560 =	1.98
Other:		/ 43,560 =	
Total Impervious Cover	115,870	/ 43,560 =	2.66
Total Impervious Cover / Total Acreage x 100 =			60.5 %

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

5. A description of the character and volume of the stormwater runoff which is expected to occur from the proposed project is attached directly behind this page.

Project: **Oakwood Baptist Church**

Address: 2154 Loop 337 N
New Braunfels, Texas 78130

Narrative Description
of Stormwater Runoff From the Site

The site drainage is displayed on the drainage area map included in the set of construction plans. See sheet C3.

Runoff calculations were determined using the Rational Method with a time of concentration of five minutes. All intensities were base on the City of Austin criteria for stormwater runoff. "C" values were determined based on the percentage of impervious cover as dictated by City of Austin criteria.

The runoff before the proposed addition is 46.60 CFS. The developed runoff will be 70.00 CFS, for a net increase of 23.4 CFS.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

100	% Domestic	**4,200** gallons/day
____	% Industrial	____ gallons/day
____	% Commingled	____ gallons/day
	TOTAL	**4,200** gallons/day

Church:
(12 LUE)*(3.5 cap/LUE) = 42 cap
Total Projected Volume of Wastewater = 42 cap
Based on Criteria on pg. 2-7, 2-8, City of Austin Utilities Manual. (see attached)

7. Wastewater will be treated by:

____ **On-Site** Sewage Facility (OSSF/Septic Tank):
An on-site sewage facility will be used to treat and dispose of the wastewater. The **appropriate licensing authority's written approval is attached directly behind this page.** It states that the land is suitable for the use of an on-site sewage facility or identifies areas that are not suitable.

____ I verify that 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 registered engineer or sanitarian and installed by a licensed installer in compliance with 30 TAC §285.

XX Sewage Collection System (Sewer Lines):

XX 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 Wastewater Treatment Plant. A letter from the owner of the Treatment Plant indicating that the plant has

sufficient capacity and accepting the wastewater is attached directly behind this page.

8. XX All private service laterals will be inspected as required in 30 TAC 213.5(c)(3)(I).

SITE PLAN

Items 9 through 16 must be included on the Site Plan.

9. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 40 '.

10. XX **Layout of the development** (Location of lots, recreation centers, buildings, roads, etc.) is shown and labeled.

11. N/A A narrative description of any on-site chemical storage is provided directly behind this page.

12. **Geologic or manmade features** which are associated with this project:

XX All **geologic or manmade** features identified in the Geologic Assessment are shown and labeled. Features associated with this project are those located on-site and those located either one-half mile downgradient or to the Recharge Zone boundary, whichever is shorter, and within the 100-year floodplain.

____ **No geologic or manmade features** were identified in the Geologic Assessment.

____ A Geologic Assessment is not required; however, **geologic or manmade** features were found and are shown and labeled.

____ A Geologic Assessment is not required and no **geologic or manmade** features were found.

13. XX **Existing topographic contours** are shown and labeled. The contour interval is 1 feet. (Contour interval must not be greater than 5 feet).

14. XX **Finished topographic contours** are shown and labeled. The contour interval is 1 feet. (Contour interval must not be greater than 5 feet).

____ Finished topographic contours will not differ from the existing topographic configuration and are not shown.

JUL 10 1998

NEW BRAUNFELS UTILITIES

263 Main Plaza
P.O. Box 310289
New Braunfels, Texas 78131-0289
210/629-8400
FAX: 210/629-8467

July 8, 1998

Texas Natural Resource Conservation Commission
140 Heimer Road
Suite 360
San Antonio, TX 78232-5042

RE: OAKWOOD BAPTIST CHURCH

To Whom It May Concern:

In reference to the application for sewage collection systems for OAKWOOD BAPTIST CHURCH, New Braunfels Utilities' - Gruene Wastewater Treatment Plant has the collection and treatment facilities to handle the additional flows from the proposed project.

It is my understanding that the proposed project will consist of the addition of a bathroom to the existing church. The effluent discharge from this development will be usual flows associated with this commercial use.

Sincerely,

Wesley C Hamff

WESLEY C. HAMFF, P.E.
Water Systems Manager

WCF:ew

xc: Mr. Robert Wells, Cunningham–Allen, Inc.,
3103 Bee Caves Road, Ste 202, Austin, Tx., 78746

15. 100-year floodplain boundaries

____ Some part(s) of the project site is located within the 100-year floodplain and is shown and labeled.

XX 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):

Federal Emergency Management Agency, Flood Insurance Rate Map for Comal County and Incorporated Areas, Panel Number 4584930006 C, Effective Date May 15, 1991.

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

____ There are ____(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

____ The wells are not in use and have been properly abandoned.

____ The wells are not in use and will be properly abandoned.

____ The wells are in use and comply with 30 TAC §238.

XX There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

17. XX One (1) original and three (3) copies of the following forms, in the order listed below, have been provided.

* GENERAL INFORMATION FORM
* GEOLOGIC ASSESSMENT
* THIS FORM
* TEMPORARY STORMWATER SECTION
* PERMANENT STORMWATER SECTION
* All THE ADDITIONAL REQUIREMENTS LISTED ON THE APPLICATION GUIDELINES
* AGENT AUTHORIZATION FORM, if submitted by agent
* FEE FORM

18. Any modification of this WPAP will require TNRCC 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** is hereby submitted for TNRCC review. The application was prepared by:

Andrew Gonzales, P.E.
Print Name of Applicant/Owner/Agent

Andrew Gonzales
Signature of Applicant/Owner/Agent

7/23/98
Date

IV.

TEMPORARY STORMWATER POLLUTION ABATEMENT

TEMPORARY STORMWATER SECTION
FOR
REGULATED ACTIVITIES
ON THE EDWARDS AQUIFER RECHARGE ZONE
AND RELATING TO 30 TAC §213.5(b)(4), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: **Oakwood Baptist Church**

PROJECT DESCRIPTION

1. Geologic or manmade features identified on the project site in the geologic assessment are shown below:

#[1]	Feature Type	Relative Infiltration Rate (refer to Geologic Assessment)	Sensitivity of Feature	Temporary Pollution Abatement Measures (Design attached at the end of this form)
	NONE			

1 If there are no features present, enter NONE in this column.

POTENTIAL SOURCES OF CONTAMINATION

2. If asphalt is to be used for paving, roofing, etc. describe measures that will be taken during construction to prevent seal coat, emulsion, or other asphaltic products from washing off the project site.

____ No asphalt products will be used on this project.

XX Asphalt products will be used on this project. After placement of asphalt, emulsion or coatings, the applicant will be responsible for immediate clean-up should an unexpected rain occur. For the duration of the asphalt product curing time, the applicant should maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur.

____ Other Measures. A narrative description is provided directly behind this page.

3. Fuels for construction equipment and hazardous substances which will be used during construction:

____ Aboveground storage tanks with a cumulative storage capacity of less that 250 gallons will be stored on the site for less than one (1) year. A lined earthen berm providing 150% containment is recommended for the temporary aboveground fuel storage tank.

____ 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. A lined earthen berm providing 150% containment will be provided for temporary aboveground fuel storage.

____ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Hydrocarbon and Hazardous Substance Application** must be submitted to the appropriate Regional Office of the TNRCC prior to moving the tanks onto the project.

XX Fuels and hazardous substances will be provided by an off-site facilities.

4. **N/A** A description of the measures that will be taken to contain any spill of hydrocarbons or hazardous substances is provided directly behind this page.

5. **XX** **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.

6. XX Construction equipment/vehicles will be limited, where possible, to traveling within the limits of the project site. Any soil, mud, etc. carried from the project onto public roads will be cleaned up within 24 hours.

7. XX All soil, sand, gravel and excavated materials stockpiled on-site will have appropriately sized erosion and sedimentation controls placed downgradient.

8. XX Intentional release of vehicle or equipment fluids onto the ground is prohibited. Contaminated soil resulting from accidental spills will be removed and disposed of properly.

9. XX All waste construction material and debris will be disposed of properly at an authorized facility.

10. ____ Other potential sources of contamination. A narrative description is provided directly behind this page.

XX The are no other potential sources of contamination.

SITE PLAN

Items 11 through 15 must be included on the Site Plan.

11. XX Layout of development (Location of lots, buildings, roads, etc.) is shown and labeled.

12. Temporary pollution abatement measures for Sensitive Features:

XX Geologic or manmade features and temporary pollution abatement measures are shown and labeled.

____ There are no geologic or manmade features associated with this project.

____ No geologic assessment is required.

13. XX Stabilized Construction Exits are shown and labeled.

14. Appropriate temporary erosion and sedimentation controls are shown and labeled:

XX Silt fences (for drainage areas <2 acres)

XX Rock berms (for drainage areas <5 acres)
____ Sedimentation basins (drainage <100 acres)

____ Other measures. A narrative description is provided directly behind this page.

15. Measures to be taken to prevent pollution of stormwaters **originating on-site or upgradient** of the site.

____ Stormwater will be directed around the project site with diversion berms/channels/swales labeled on the TEMPORARY WPAP Site Plan. Approval has been obtained from the appropriate regulating authority.

XX Stormwater flow from upgradient will **flow across** the project site. A narrative description is provided directly behind this page.

____ Other measures are shown and labeled on the TEMPORARY WPAP Site Plan. A narrative description is provided directly behind this page.

ADMINISTRATIVE INFORMATION

16. XX All structural controls will be maintained according to the submitted and approved operation and maintenance plan for the project.

17. XX 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 TNRCC Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TNRCC has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

18. XX Contractor will construct and maintain silt fences, diversion berms, and other temporary erosion and sediment controls as appropriate to prevent pollutants from entering sensitive features discovered during construction.

Project: **Oakwood Baptist Church**

Address: 2154 Loop 337 N
New Braunfels, Texas 78130

Narrative Description of the Temporary
Stormwater Runoff From the Site

* All temporary stormwater runoff from the site will pass through silt fence or be routed through a preliminary water quality system. The silt fence is to be installed before construction begins. The ponds will be rough cut before other construction commences. This will allow the ponds to serve as temporary sedimentation basins during the construction of this project. The system has been designed in accordance with the City of Austin design criteria.

* The water quality pond has been designed to capture the first 0.5 inches of onsite stormwater runoff. The proposed water quality volume provided will be 9,275 cf.

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 TNRCC review. The application was prepared by:

Andrew Gonzales, P.E.
Print Name of Applicant/Owner/Agent

Andrew Gonzales
Signature of Applicant/Owner/Agent

7/23/98
Date

V.

PERMANENT STORMWATER POLLUTION ABATEMENT

PERMANENT STORMWATER SECTION
FOR
REGULATED ACTIVITIES
ON THE EDWARDS AQUIFER RECHARGE ZONE
AND RELATING TO 30 TAC §213.5(b)(4), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: Oakwood Baptist Church

PROJECT DESCRIPTION

1. Geologic or manmade features identified on the project site in the geologic assessment are shown below:

#[1]	Feature Type	Relative Infiltration Rate (refer to Geologic Assessment)	Sensitivity of Feature	Permanent Pollution Abatement Measure[2] (Design attached at the end of this form)
	NONE			

1 If there are no featurespresent, enter NONE in this column.
2 If the sensitivity value for a feature is indicated as "NOT", no permanent measures

are required.

2. The sealing of naturally occurring sensitive features as a pollution control measure will be avoided where reasonable and practicable alternatives exist and will be evaluated by the executive director on a case-by-case basis.

XX No naturally occurring geologic features were found on the project.

POTENTIAL SOURCES OF CONTAMINATION

3. List any potential sources of contamination associated with this project after construction is complete:

1. None
2. _____
3. _____
4. _____
5. _____

FOR MULTI-FAMILY, COMMERCIAL, INDUSTRIAL DEVELOPMENTS ANSWER ITEMS 4 THROUGH 6; OTHERWISE GO TO ITEM 7.

4. Measures to be taken to prevent pollution of stormwaters **originating on-site or upgradient** of the site.

____ Stormwater will be directed around the project site with diversion berms/channels/swales labeled on the Permanent WPAP Site Plan. Approval has been obtained.

XX Stormwater flow from upgradient will flow across the project site and will be included in sizing calculations for any pollution abatement measures. A narrative description is provided directly behind this page.

____ Other measures are shown and labeled on the Permanent WPAP Site Plan. A narrative description is provided directly behind this page.

5. For multi-family residential, commercial, or industrial projects permanent stormwater pollution controls will be:

XX Sedimentation/**Filtration basins** designed to capture the first one-half (1/2) inch of stormwater runoff. The criteria used for design of the permanent stormwater controls is from:

XX City of Austin Environmental Criteria Manual

____ **Full** sedimentation/filtration basin system

Project: **Oakwood Baptist Church**

Address: 2154 Loop 337 N
New Braunfels, Texas 78130

Narrative Description of the Pollution Abatement
of Stormwater Runoff From the Site

This site consists of 7.25 acres of development over three phases. The original phase consisted of 1.84 acres with 1.39 acres of impervious cover. Phase two of this project consisted of 1.01 acres composed entirely of impervious cover. No water quality provisions were made at the time of construction of the first or second phase. The initial phase of the project was not required to meet standards for water quality. Phase two was inadvertently constructed in non-compliance with current regulations. Phase Three will consist of 4.40 acres with 2.66 acres of impervious cover. The water quality ponds are designed to treat runoff for phases two and three, although 1.32 acres of phase three will be released without treatment. This area is being compensated for by collecting and treating and area from phase one of 1.39 acres. The yield is a net increase of 0.07 acres of treated runoff area.

The following chart provides a breakdown of water quality treatment:

Phase	Impervious area contributing to WQ Pond	Impervious area not contributing to WQ Pond
1 *	1.39 ac	
2	1.01 ac	
3	2.66 ac	1.32 ac

* Indicates that area is not required to include water quality provisions.

The water quality pond design complies with the City of Austin standards and regulations. The capture depth of the ponds is 0.5 inches over the contributing site.

XX **Partial** sedimentation/filtration basin system

____ Lower Colorado River Authority Lake Travis Nonpoint Source Pollution Control Ordinance Technical Manual

____ **Full** sedimentation/filtration basin system

____ **Partial** sedimentation/filtration basin system

____ Other. A detailed explanation of the design criteria is provided directly behind this page.

____ **Vegetated filter strips** (Buffer Zone) designed to treat stormwater runoff. The criteria used for design of the vegetated filter strips is from:

____ City of Austin Environmental Criteria Manual

____ Lower Colorado River Authority Lake Travis Nonpoint Source Pollution Control Ordinance Technical Manual

____ Other. A detailed explanation of the design criteria is provided directly behind this page.

____ **Alternative method.** A detailed explanation of the design criteria, including calculations showing pollutant removal rates, is provided directly behind this page. All submittals shall be signed and sealed by a registered professional engineer.

____ This is a single-family residential subdivision.

6. XX Scaled plans, profiles, and details are included which illustrate that the proposed treatment system is sized appropriately. Supporting calculations are shown on the plan sheet, including:

XX Volume of stormwater to be treated

XX Sizing of permanent pollution abatement measures.

OPERATION AND MAINTENANCE PROCEDURES

7. XX The maintenance plan and schedule for each permanent pollution abatement structure or measure is provided directly behind this page.

STREAM CONTAMINATION AND/OR EROSION

8. If construction of the project will increase flashing, create stronger flow and stream velocity, or otherwise increase instream erosion and the degradation of water quality, measures to avoid or minimize the surface stream contamination or changes in the way that stormwater enters the stream must be taken.

____ The project will not increase the peak of the downgradient instream stormwater hydrograph or the downgradient velocity of the stream.

XX The project will increase the peak of the downgradient instream stormwater hydrograph and/or the downgradient

velocity of the stream. A description of the measures to avoid or minimize the effects of the regulated activity on the downgradient stream is provided directly behind this page.

SITE PLAN

Items 9 through 15 must be included on the Site Plan.

9. XX Layout of development (Location of lots, buildings, roads, etc.) is shown and labeled.

10. ____ Geologic or manmade features are shown and labeled.
XX There are no geologic or manmade features associated with this project.

11. ____ Vegetated filter areas are shown and labeled.
XX There are no vegetated filter areas associated with this project.

12. XX Sedimentation/filtration basins are shown and labeled.
____ There are no sedimentation/filtration basins associated with this project.

13. ____ Berms, channels, etc. showing velocity controls are shown and labeled.
XX There are no berms, channels, etc. associated with this project.

14. XX Areas of concentrated runoff with appropriately sized energy dissipators at each outfall are shown and labeled.
____ There are no areas of concentrated runoff (channels, culverts, drainage pipe discharges, etc.) associated with this project.

15. N/A Other pollution abatement measures are shown and labeled. A narrative description is provided directly behind this page.

ADMINISTRATIVE INFORMATION

16. XX All structural controls will be maintained according to the submitted and approved operation and maintenance plan for the project.

17. XX 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

Project: **Oakwood Baptist Church**

Address: 2154 Loop 337 N
New Braunfels, Texas 78130

Narrative Description
of Stormwater Runoff From the Site

* All Stormwater runoff from the site will be captured by an onsite storm sewer collection system and routed through a water quality system. The system has been designed in accordance with the City of Austin design criteria.

* The water quality pond has been designed to capture the first 0.5 inches of onsite stormwater runoff. The proposed water quality volume provided will be 9,275 cf.

* The site drainage is displayed on the drainage area map included in the set of construction plans. See sheet C3.

* Runoff calculations were determined using the Rational Method with a time of concentration of five minutes. All intensities were base on the City of Austin criteria for stormwater runoff. "C" values were determined based on the percentage of impervious cover as dictated by City of Austin criteria.

* The runoff before the proposed addition is 46.60 CFS. The developed runoff will be 70.00 CFS, for a net increase of 23.4 CFS.

VI.

DETENTION, SEDIMENTATION AND FILTRATION BASIN OPERATION AND MAINTENANCE MANUAL

SUGGESTED MAINTENANCE PLAN AND SCHEDULE FOR SEDIMENTATION AND FILTRATION BASINS

PROJECT NAME: Oakwood Baptist Church

ADDRESS: 2154 Loop 337 N

CITY, STATE ZIP: New Braunfels, Texas 78130

SEDIMENTATION BASINS:

Monthly: The vegetative growth in the basin shall be checked. The growth shall not exceed 18 inches in height.

Quarterly: The level of accumulated silt shall be checked. If depth of silt exceeds 6 inches, it shall be removed and disposed of "properly".

The basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed if excessive. All debris and trash shall be removed at least every six months.

Annually: The basin shall be inspected for structural integrity and repaired if necessary.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it drains within 60 hours after the storm is over. If it does not drain within this time, corrective maintenance will be accomplished.

FILTRATION BASINS:

Monthly: The vegetative growth shall be checked. Vegetation in the basin shall not exceed 18 inches in height.

Quarterly: The level of accumulated silt shall be checked. If depth of silt/pollutants exceeds ½ inch, it shall be removed and disposed of "properly".

The accumulation of pollutants/oils shall be checked. If the pollutants have significantly reduced the designed capacity of the sand filter, the pollutants shall be removed.

The basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed if excessive. All debris and trash shall be removed at least every six months.

Annually: The basin shall be inspected for structural integrity and repaired if necessary.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it drains within 36 hours after the sedimentation basin has been emptied. If it does not drain within this time, corrective maintenance will be accomplished.

Following any required maintenance, the surface of the filtration basin shall be raked and leveled to restore the system to it designed condition.

"Proper" disposal of accumulated silt shall be accomplished following Texas Natural Resource Conservation Commission and City of Austin guidelines and specifications.

An amended copy of this document will be provided to the Texas Natural Resource Conservation Commission within thirty (30) days of any changes in the following information.

Contact Person: Roxi Vanstory
Entity: Oakwood Baptist Church
Mailing Address: 2154 Loop 337 N
City, State: New Braunfels, Tx Zip: 78130
Telephone: (210) 625-0267
Fax: (210) 625-1151

Signature of Responsible Party _____ Date _____

VII.

AGENT AUTHORIZATION FORM

AGENT AUTHORIZATION FORM
FOR SUBMITTAL OF
EDWARDS AQUIFER PROTECTION PLANS
FOR REGULATED ACTIVITIES ON THE
EDWARDS AQUIFER RECHARGE/TRANSITION ZONES
AND RELATING TO 30 TAC §213.4(d), EFFECTIVE DECEMBER 27, 1996

I _____,
Print Name

_____
Title - Owner/President/Other

of Oakwood Baptist Church S.B.C.
Corporation/Partnership/Entity Name

have authorized Andrew Gonzales, P.E.
Print Name of Agent/Engineer

of Cunningham-Allen, Inc.
Print Name of Firm

to represent and act on the behalf of the above named **Corporation, Partnership, or Entity** for the purpose of preparing and submitting this Edwards Aquifer Protection Plan application to the Texas Natural Resource Conservation Commission (TNRCC) for the review and approval consideration for construction of regulated activities on the Edwards Aquifer Recharge Zone or Transition Zone (30 TAC §213.4(d)).

I also understand that:

1. No regulated activity is allowed to commence prior to the executive director's approval of the Edwards Aquifer protection plan. If unauthorized construction begins before the approval is granted or if any aspect of the project does not conform to 30 Texas Administrative Code §213 and any condition of the TNRCC's approval letter, the TNRCC is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. Before beginning any construction related to the approved regulated activity, the appropriate TNRCC regional office must be given 24 to 48 hour written notice of the date when the regulated activity will commence.
3. **A notorized copy of the Agent Authorization Form must be provided for the person preparing the application, and the forms must accompany the completed submittal.**

4. Application fees accompanied by an Edwards Aquifer Application Fee Form are due and payable at the time the application is

submitted. The application fee must be sent to the Revenues Section of the TNRCC or to the appropriate regional office. **The application will not be considered until the correct fee is received by the commission.**

_____ _____

Applicant's Signature Date

THE STATE OF TEXAS §

County of _____ §

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

GIVEN under my hand and seal of office on this___ day of _____, 19__.

_____

NOTARY PUBLIC

_____

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

Signatories to Applications 30 TAC §213.4(d)

(1) Required Signature. All applications must be signed as follows.

(A) For a corporation, a principal executive officer (president, vice-president, or a duly authorized representative) must sign the application. A representative must submit written proof of the authorization.

(B) For a partnership, a general partner must sign the application;

(C) For a political entity such as a municipality, state, federal or other public agency, either a principal executive officer or a duly authorized representative must sign the application. A representative must submit written proof of the authorization.

(D) For an individual or sole proprietorship, the individual or sole proprietor must sign the application.

(2) Proof of Authorization to Sign. The executive director requires written proof of authorization for any person signing an application.

VIII.

EDWARDS AQUIFER FEE APPLICATION FORM

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

EDWARDS AQUIFER PROTECTION PROGRAM

APPLICATION FEE FORM

NAME OF PROPOSED PROJECT: Oakwood Baptist Church

PROJECT LOCATION: 2154 Loop 337 North, New Braunfels, TX 78130

NAME OF OWNER/DEVELOPER: Oakwood Baptist Church

OWNER'S ADDRESS: Same as above

CONTACT PERSON: Roxi Vanstory PHONE: (210) 625-0267

Please Print

AUSTIN REGIONAL OFFICE

- ☐ Hays
- ☐ Travis
- ☐ Williamson

SAN ANTONIO REGIONAL OFFICE

- ☐ Bexar
- ■ Comal
- ☐ Kinney
- ☐ Medina
- ☐ Uvalde

APPLICATION FEES MUST BE PAID BY CHECK, CERTIFIED CHECK, OR MONEY ORDER, PAYABLE TO THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION. YOUR CANCELED CHECK WILL SERVE AS YOUR RECEIPT. **TO ENSURE CREDIT TO THE PROPER ACCOUNT PLEASE RETURN THIS FORM WITH YOUR FEE PAYMENT. THIS PAYMENT IS BEING SUBMITTED TO (CHECK ONE):**

☐ SAN ANTONIO REGIONAL OFFICE

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

☐ AUSTIN REGIONAL OFFICE

☐ **Overnight Delivery to TNRCC:**
TNRCC - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347

Type of Application	Size	Fee Due		
		New (3373)	Modification (3374)	
WPAP	7.05 Acres	$4,000.00	$	PAP
SCS	L.F.	$	$	SCS
Lift Stations without sewer lines	Acres	$	$	
UST/AST	Tanks	$	$	HHS
Piping System(s) (Installed without tanks)	Each	$	$	PSM
Extension	Each	$	$	EXT

Signature

Date

TNRCC-0574 (2/4/97)

IX.

GENERAL CONSTRUCTION NOTES

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. The construction activities associated with this project must meet all applicable criteria of the Texas Natural Resource Conservation Commission set forth in 30 Texas Administrative Code (TAC) §213.5(b) - Water Pollution Abatement Plan for Regulated Activities undertaken on the recharge zone of the Edwards Aquifer.

2. Temporary erosion and sedimentation controls are required during construction. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized. The temporary erosion and sedimentation controls must be inspected periodically for damage caused by construction activities and following every rainfall. Damaged or obstructed controls must be repaired or replaced as necessary to maintain proper operation.

3. **If any sensitive feature is discovered during construction, regulated activities near the sensitive feature must be suspended immediately. The owner must immediately notify the appropriate regional office of the Texas Natural Resource Conservation Commission of the sensitive feature discovered. The regulated activities near the sensitive feature may not proceed until the executive director has review and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.**

4. Any modification to the approved Water Pollution Abatement Plan must be submitted to the appropriate regional office for approval by the executive director of the Texas Natural Resource Conservation Commission before construction of the proposed modification may commence.

5. All contractors conducting regulated activities associated with this project must be provided with copies of the approved Water Pollution Abatement Plan and the TNRCC 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.

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

August 2008

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 25, 2008

Ms. Roxi Vanstory
Oakwood Baptist Church SBC
2154 Loop 337
New Braunfels, TX 78130

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: Oakwood Baptist Church Expansion, Located at 2154 Loop 337, New Braunfels, TX; New Braunfels, Texas
TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 1085.01; Investigation No. 683215; Regulated Entity No. RN102744802

Dear Ms. Vanstory:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the request for modification of the approved WPAP for the above-referenced project submitted to the San Antonio Regional Office by The Schultz Group Inc. on behalf of Oakwood Baptist Church SBC on June 9, 2008. Final review of the WPAP was completed after additional material was received on August 18, 2008 and August 22, 2008. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The original approval for the site was issued by the Texas Water Development Board letter dated November 7, 1983. The 3.498 acre lot was approved as a phased development. Phase I consisted of 1.84 acres total and 1.44 acres of impervious cover, which was not required to meet standards for water quality.

Phase II and Phase III were combined in a Texas Natural Resource Conservation Commission approval letter dated January 5, 1999 (EAPP # 1085.00). The site had expanded to 7.06 acres total and was approved for 4.27 acres of impervious cover (as stated in this application, only 4.06 acres of impervious cover was actually constructed). The 1.44 acres of impervious cover associated with the original Phase I

development was considered existing impervious cover. The approved sand filter basin was designed using the City of Austin Environmental Design Manual and sized for the first ½ inch of stormwater from 4.11 acres.

PROJECT DESCRIPTION

This proposed project expands the total site acreage of the site to 24.20 acres and increases the total impervious cover in two phases. Project wastewater will be disposed of by conveyance to the existing Gruene Road Water Recycling Center owned by the New Braunfels Utility.

Phase I will consist of an approximately 3.80 acre parking lot construction at the southern portion of the site. The stormwater runoff will drain to a detention pond and then be released to an interim filter strip. The existing sand filter basin will remain during this phase. Phase I will result in 3.14 acres of impervious cover and increase the total site impervious cover to 8.64 acres (1.44 ac, 4.06 ac, 3.14 ac).

Phase II will expand the parking areas and buildings throughout the 24.20 acre site. A new sand filter basin will be constructed at the start of Phase II before the interim filter strip and the existing sand filter basin are removed. The impervious cover will increase by 9.17 acres to the final total impervious cover for the site, 17.81 acres (73.6 percent).

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, an interim filter strip and a sand filter 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 14,693.7 pounds of TSS generated from the 17.81 acres of impervious cover and 1.44 acres of existing impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The interim filter strip area is approximately 1.6 acres and sized for the 3.14 contributing acres of impervious cover. The stormwater will first be captured by a detention pond and then released to the interim filter strip by a rock gabion spreader berm.

The sand filter basin will be constructed at the beginning of phase II and will be the permanent BMP for the site. The basin sizing requirements are provided in the table below. The basin floor will be sloped to direct stormwater to the underdrain pipes and therefore, the basin will have an 18 inch sand layer and a two inch gravel layer over the four inch Schedule 40 PVC perforated underdrain pipes.

Sand Filter Basin Summary

Catchment Area	Total Area (ac)	Impervious Cover (ac)	Req. TSS Treatment (lb/yr)	Design TSS Treatment (lb/yr)	Req. WQV[C] (ft3)	Design WQV[C] (ft3)	Req. SFA[D] (ft2)	Design SFA[D] (ft2)
Basin	24.18	17.45[E]	14,370.58[E]	14,694.00	64,527	75,856	5,377	7,143
Unc.[A]	2.43[B]	0.36	323.14	---	---	---	---	---
Total	26.61[B]	17.81	14,693.71	14,694.00	---	---	---	---

A: Uncaptured Area; B: This amount includes the area within the right of way (ROW); C: Water Quality Volume; D: Sand Filter Area; E: 1.44 acres existing impervious cover included in the TSS calculation.

GEOLOGY

According to the geologic assessment included with the application, the underlying soil cover for the site is the Cyclic and Marine Members of the Person Formation. Four non-sensitive geologic features were evaluated by the project geologist. The San Antonio Regional Office site assessment conducted on August 6, 2008 revealed the site as described by the geologic assessment. During the site assessment, soil disturbance and vegetation clearing was noted at the site. The project engineer confirmed that the when Oakwood Baptist Church acquired the expansion area, the previous owner moved the fences from around the 7.06 acre site to the new location (around the 24.20 acre site). The disturbed area corresponded to the previous location of the fence and fence construction is not a regulated activity per 30 TAC Chapter 213.

SPECIAL CONDITIONS

I. The interim filter strip shall be operational prior to use (public or staff use) of the parking area. The sand filter basin shall be operational prior to the removal of the interim filter strip and the existing sand filter basin.

II. 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.

III. The sand filter basin shall have an impermeable liner which conforms to the criteria of RG-348 (2005). When submitting the BMP certification (see Standard Condition 18), include the type of impermeable liner used and confirm the criteria of RG-348 were met.

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 and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, PST) 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.

<u>During Construction:</u>

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

Sincerely,

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

MRV/CEF/eg

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

cc: Mr. Michael Short, P.E., The Schultz Group, Inc.
Mr. James Klein, P.E., City of New Braunfels
Mr. Tom Homseth, P.E., Comal County Engineers Office
Ms. Velma Danielson, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC212

Barry R. McBee, Chairman
R. B. "Ralph" Marquez, Commissioner
John M. Baker, Commissioner
Jeffrey A. Saitas, Executive Director

DOCH 9905001018

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 5, 1999

Ms. Roxi Vanstory
Oakwood Baptist Church
2154 Loop 337
New Braunfels, TX 78130

Re: EDWARDS AQUIFER, Comal County
PROJECT: Oakwood Baptist Church, Project number 1085, Located 2154 Loop 337, New Braunfels, Texas
TYPE: Request for Approval of Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) §213.5(b); Edwards Aquifer Protection Program

Dear Ms. Vanstory:

The Texas Natural Resource Conservation Commission (TNRCC) has completed their review of the request for modification of an approved WPAP for the referenced project that was submitted on behalf of Oakwood Baptist Church by Cunningham-Allen, Inc. and received by the San Antonio office on September 18, 1998. Final review was completed after additional material was received on December 14, 1998, and December 16, 1998. The WPAP proposed in the application is in general compliance with 30 TAC § 213.5(b); therefore, approval of the plan is hereby granted subject to applicable state rules and the conditions in this approval letter. *This approval expires two (2) years from the date of this approval unless, prior to the expiration date, construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

As understood, this project has been developed in three phases.

Phase I. By approval letter dated November 7, 1983, and under 30 TAC 213.5(b) [formerly Texas Department of Water Resources Rule No. 156.20.05.008], "...this subdivision will consist of one, 3.498 acre lot containing a church. A septic tank system will be utilized for sewage disposal." As presented in the application submitted on September 18, 1998, "The original phase consisted of 1.84 acres with 1.44 acres of impervious cover."

Phase II: This phase was constructed after the initial WPAP approval. As presented in the application submitted on September 18, 1998, "Phase two of this project consisted of 1.13 acres composed entirely of impervious cover. No water quality provisions were made at the time of construction of the first or second phase. The initial phase of this project was not required to meet standards for water quality. Phase two was inadvertently constructed in non-compliance with current regulations. Phase Three will consist of 3.14 acres of impervious cover. The water quality ponds are designed to treat runoff for phases two and three. The ponds are designed to treat one half inch of runoff from the added impervious cover from phases two and three."

Phase III: As presented in the application submitted on September 18, 1998, "Phase Three will consist of 3.14 acres of impervious cover. The water quality ponds are designed to treat runoff for phases two and three. The ponds are designed to treat one half inch of runoff from the added impervious cover from phases two and three."

The TNRCC understands,

1. Wastewater is being collected and pumped through a force main to an existing offsite gravity sewage collection system owned by New Braunfels Utilities. As understood, a septic tank was never installed and used.

2. Construction of Phase II (1.13 acre parking lot) occurred sometime between 1984 and 1998, and no modification to the approved WPAP was obtained. No modification to the 1983 WPAP is on file in the San Antonio Regional Office for Phase II of construction.

3 The proposed water pollution abatement plan includes stormwater treatment for Phases II and III. Phase I was approved without the requirement of stormwater pollution abatement by letter dated November 7, 1983

PROJECT DESCRIPTION

The proposed commercial project will have an area of 7.06 acres and will consist of the addition of one 29,500 square foot, one story building and the associated parking. Project wastewater will be disposed of by conveyance to the existing Gruene Sewage Treatment Plant owned by New Braunfels Utilities. The proposed impervious cover for the development is approximately 4.27 acres (60.5%). The site is located within the City of New Braunfels, and must conform with applicable codes and requirements of the City of New Braunfels.

GEOLOGY ON SITE

According to the geologic assessment included with the submittal, there are eleven geologic features located on the project site. All features are closed depressions which are described in the Geologic Assessment to have relative infiltration rates of low to none, and were assessed as "not sensitive."

The San Antonio Regional Office site inspection of November 5, 1998, revealed no features other than those reported in the Geologic Assessment.

GEOLOGY DOWNGRADIENT OF SITE

According to the geologic assessment included with the submittal, there are two geologic features (one closed depression and one vuggy rock outcrop) and one manmade feature (water well and windmill) downgradient of the project site. The geologic features are described in the Geologic Assessment as having relative infiltration rates of low to none, and were assessed as "not sensitive." The manmade feature described in the Geologic Assessment has a high relative infiltration rate, and was assessed as "sensitive."

PERMANENT POLLUTION ABATEMENT MEASURES

The following measure will be taken to prevent pollution of stormwater originating on-site or up-gradient from the project site and potentially flowing across and off the site after construction:

The partial sedimentation/filtration basin is designed in accordance with the City of Austin Environmental Design Criteria Manual and is sized to capture the first ½-inch of stormwater run-off from 4.11 acres, providing a total capture volume of 8,737 cubic feet. The filtration system will consist of:

1. 749 square feet of sand, which is 18 inches thick,
2. an underdrain piping wrapped with geotextile membrane, and
3. an impervious liner.

The permanent sedimentation/filtration basin described above will be provided to prevent pollutants from entering downgradient recharge features identified in the geologic assessment while maintaining or enhancing the quantity of water entering the recharge features

SPECIAL CONDITIONS

1 If any potential sensitive features are encountered during construction, a geologist shall evaluate the significance of the features. The evaluation shall include representative

photographs and a description of the feature forwarded to the San Antonio office. Construction in the vicinity of the features may only continue with written approval from the TNRCC.

2 Placement of hydrocarbon or hazardous substance storage facilities regulated pursuant to 213.5(d) and 213.5(e), requires submittal of all appropriate applications with appropriate fees and must receive prior approval from the TNRCC.

3. The sedimentation/filtration basins are designed in accordance with the City of Austin. The basins will incorporate sedimentation and filtration as described above.

4 The TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of permanent erosion and sedimentation (E&S) control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

5 No wastewater may be pumped from the proposed church addition until ownership of the force main between the church property line and the New Braunfels Utility owned gravity sewage collection system has been resolved. Prior to connection to the existing off-site force main, proof of ownership and responsibility for maintenance of the off-site force main must be presented to the TNRCC in writing.

6. Based on the information provided by Oakwood Baptist Church, Commission records indicate that construction activities related to Phase II were completed sometime between 1984 and 1998. These activities were conducted without the prior approval of the water pollution abatement plan, as required by Commission rules (30 TAC Chapter 213). Therefore, the applicant is hereby advised that the after-the-fact approval of Phase II of construction, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

STANDARD CONDITIONS

1. During the course of regulated activities related to this project, the applicant or his 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, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.

2 Any modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a WPAP to amend this approval, including the payment of appropriate fees and all information necessary for its review and approval.

3 Prior to commencing any regulated activity, the applicant or his agent must notify the San Antonio Regional Office in writing of the date on which the regulated activity will begin.

4. The applicant or his agent shall record this WPAP approval in the county deed records within 30 days of receiving this notice of approval. Proof of deed recordation shall be submitted to the San Antonio Regional Office prior to commencing construction. A suggested format that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the 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. 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 TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

7 If any significant recharge feature [sensitive feature] 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 potential adverse impacts to water quality.

8 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.

9 Approval of the design of the sewage collection system for this proposed project shall be obtained from the TNRCC prior to commencement of construction of any sewage collection system.

DOC# 9906001018

10. No wells exist on the site. Any abandoned wells shall be plugged in accordance with 30 TAC § 338 or an equivalent method, as approved by the Executive Director.

    Any drill holes resulting from core sampling on-site or down-gradient of the site shall be plugged with native soil, from the bottom of the hole to the top of the hole, so as to not allow water or contaminants to enter the subsurface environment.

11. Pursuant to §26.136 of the Texas Water Code, any violations of the requirements in 30 TAC §213 may result in administrative penalties

If you have any questions or require additional information, please contact John Mauser of the Edwards Aquifer Protection Program at 210/403-4024. Please reference Project #1085.

Sincerely,

Jeffery A. Saitas, P.E.
Executive Director
Texas Natural Resource Conservation Commission

JAS/JKM/eg

Enclosure: Deed Recordation Affidavit

cc: Andrew Gonzales, P.E., Cunningham-Allen, Inc.
Harry Bennett, City of New Braunfels
Tom Hornseth, Comal County
Greg Ellis, Edwards Aquifer Authority
TNRCC Field Operations, Austin

Doc# 9906001018
Pages: 7
Date : 01-12-1999
Time : 03:33:17 P.M.
Filed & Recorded in
Official Records
of COMAL County, TX.
JOY STREATER
COUNTY CLERK
Rec. $ 21.00

DOC# 9906001018

ATTACHMENT B – PROPOSED MODIFICATION (TCEQ-0590)

The exiting Original Site as described by the "Water Pollution Abatement Plan for Oakwood Baptist Church" (Cunningham Allen Inc 1998) was completed in three phases. The Original Phase 1 was approved without the requirement of stormwater pollution abatement (1.44-acres of impervious cover). Original Phase 2 was constructed without the required provisions for water quality (1.13-acres of impervious cover) Phase 3 was improved and provided stormwater pollution abatement for Phase 2 and Phase 3 (totaling 4.27 acres of impervious cover). The Original Phase 3 Improvements provided a partial sedimentation and filtration basin with a capture volume of 8,737-cf.

Oakwood Baptist Church was unable to obtain an areement with the downstream property owners for a drainage easement for the offsite detention pond previously shown. As a result this WPAP Modification is required to move the previously shown offsite detention pond onsite. The overall Phase 1 and Phase 2 plans are for the most part the same. The differences are outline below:

4. The detention pond is now shown onsite.
5. The sedimentation and filtration system (Water quality pond) configuration has changed slightly to allow the detention pond to be adjacent to it. This changed is shown in the revised calculations and construction plans. The water quality pond will be in accordance with the TCEQ's Technical Guidance Manual.
6. There is a minor decrease of impervious cover in Phase 2 as a result of the detention pond being onsite. This is due to a loss of area for paved parking. This is also shown in the revised calculations and construction plans.

Please note that Construction of the children's center, expanded parking facilities and water quality pond (Phase 1) from the Approved Modification Dated October 28, 2011 has begun.

Phase 1 from the Approved Modification Dated August 25, 2008 has been completed. This included a Parking Lot Expansion immediately adjacent to the existing facility along the overall projects western most boundary.

For this WPAP Modification the Oakwood Baptist Church intends to expand its current facility. This expansion will be constructed in two phases.

Phase 1

Phase 1 will consist of a children's center located adjacent to the main worship center, expanded parking facilities, sidewalks, and partial sedimentation and filtration system (Water quality pond). The proposed Phase 1 improvements will have approximately 127,111 square feet of impervious cover. The proposed water quality pond will replace the existing 9,275-cf water quality pond originally intended to serve a portion of the 7.06-acre site (see referenced information for additional detail). The majority of run-off generated onsite given all existing improvements as well as all proposed improvement will be collected through a series of onsite swales and storm drain systems and conveyed to the proposed water quality pond and a permanent onsite detention pond (previously shown offsite). The water quality pond proposed for Phase 1 has been designed to mitigate all flows from the Phase 1 and Phase 2 proposed improvements. The Church in the short term intends to leave the remaining portion of the overall site undeveloped.

There is approximately 2.92 acres of impervious cover proposed for Phase 1 (All onsite) making the total Phase 1 impervious cover 10.57 acres. Of which approximately 10.29 acres will drain to the proposed water quality pond. Approximately 0.28 acres of impervious cover common to the access

drives will drain to Loop 337 uncaptured by the water quality pond. 1.44-acres of the initial phase, part of the "Water Pollution Abatement Plan for Oakwood Baptist Church" (Cunningham Allen Inc 1998) was approved without the requirement of water pollution abatement. This 1.44 acres is shown as existing impervious cover in the water quality pond calculations. The water quality pond has been designed to mitigate the entire 2.92 acre increase in impervious cover per the TCEQ's Technical Guidance Manual.

The water quality pond has been sized to capture the first 0.97 inches of stormwater run-off from 10.57 acres of impervious cover of which 10.29 acres will drain to the proposed water quality pond within a 21.40 acre catchment area, providing a total capture volume of 63,048 cubic feet where only 31,457 cubic feet is needed to treat 8,195 pounds of total suspended solids. A sand filtration system will consist of 6,159 square feet of sand where only 2,621 square feet is needed. The sand will be 18 inches thick, with under drain piping surrounded by gravel. Sand and gravel layers will be separated with filter fabric and contained above an impermeable clay liner per TCEQ Specifications Table 3-6.

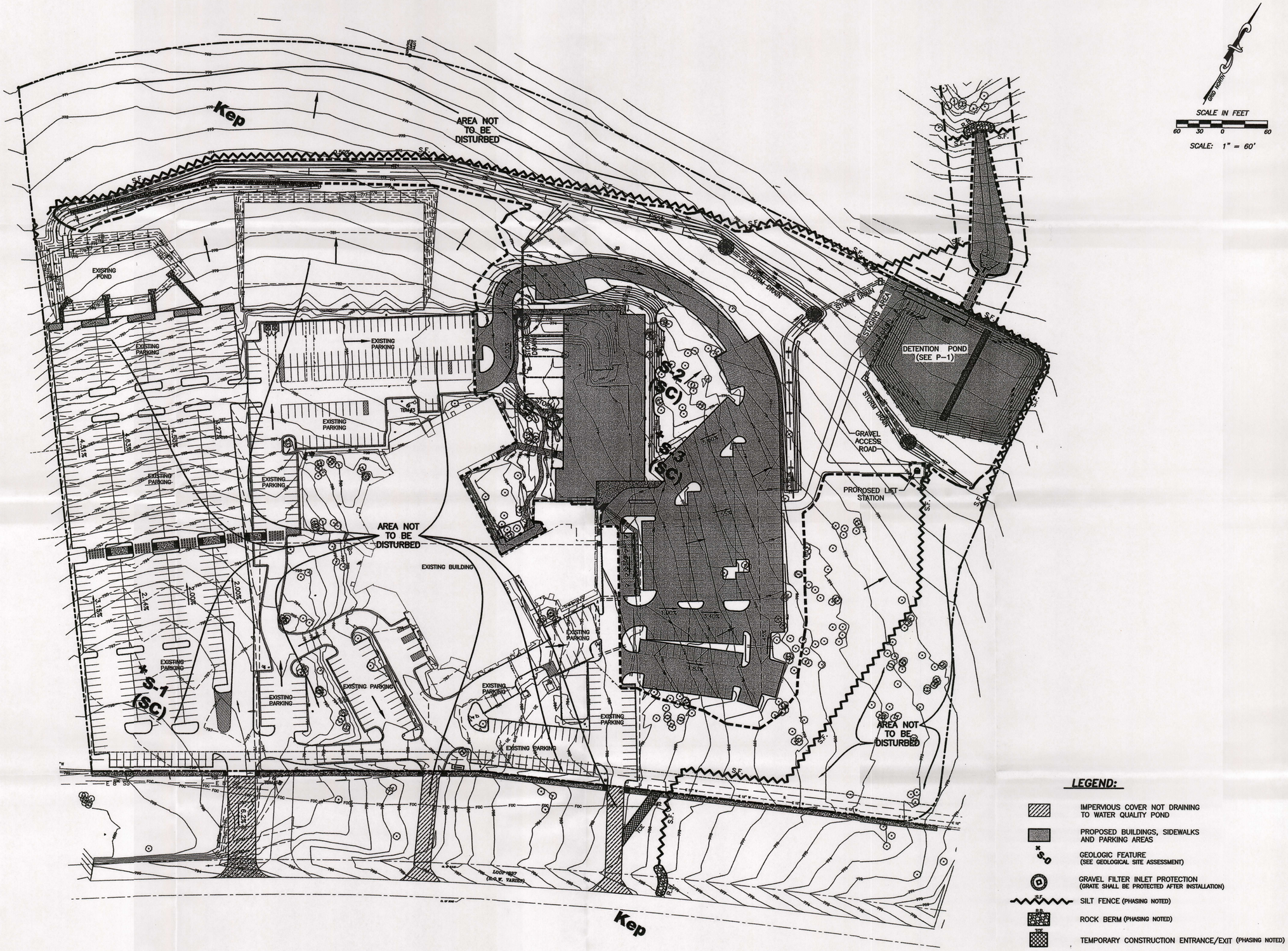
Phase 2

The Proposed Phase 2 Improvements will include the construction of a new worship center, chapel, significant parking areas, and modifications to the existing parking areas. The proposed Phase 2 improvements will add approximately 268,704 square feet of impervious cover. Upon the Phase 2 expansion project completion the majority of run-off generated onsite given all existing improvements as well as all proposed improvement will be collected through a series of onsite swales and storm drain systems and conveyed to the water quality pond and a permanent detention pond constructed in Phase 1.

There is approximately 6.16 acres of additional impervious cover proposed for Phase 2. Of which approximately 6.06 acres will drain to the proposed water quality pond. Four new access drives have been proposed for Phase 2 totaling approximately 0.10 acres that will drain offsite and will not be captured by the water quality pond. A new driveway off of Loop 337 has also been proposed for Phase 2. The northern most drive will be removed and the proposed drive will be constructed. The proposed new drive will increase the total impervious cover draining to Loop 337 from approximately 0.28 acres to approximately 0.30 acres. The water quality pond has been designed to mitigate the entire 6.16 acre increase in impervious cover per the TCEQ's Technical Guidance Manual.

The water quality pond has been sized to capture the first 1.16 inches of stormwater run-off from 16.74 acres of impervious cover of which 16.34 acres will drain to the proposed water quality pond within a 24.2 acre catchment area, providing a total capture volume of 67,762 cubic feet where only 58,920 cubic feet is needed to treat 13,733 pounds of total suspended solids. A sand filtration system will consist of 6,159 square feet of sand where only 4,910 square feet is needed. The sand will be 18 inches thick, with under drain piping surrounded by gravel. Sand and gravel layers will be separated with filter fabric and contained above an impermeable clay liner per TCEQ Specifications Table 3-6.

During the Phase 2 construction; the fill material required for the northern parking area will be placed first, in effect, keeping the stormwater runoff from leaving the site prior to treatment from the water quality pond. In addition, prior to Phase 2 construction, all required temporary erosion control measures will be in place.



LEGEND:

- IMPERVIOUS COVER NOT DRAINING TO WATER QUALITY POND
- PROPOSED BUILDINGS, SIDEWALKS AND PARKING AREAS
- * S-0 GEOLOGIC FEATURE (SEE GEOLOGICAL SITE ASSESSMENT)
- GRAVEL FILTER INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- S.F. SILT FENCE (PHASING NOTED)
- R.B. ROCK BERM (PHASING NOTED)
- TCE TEMPORARY CONSTRUCTION ENTRANCE/EXIT (PHASING NOTED)
- AREAS TO BE DISTURBED w/SOIL STABILIZATION (WITH SITE CONSTRUCTION PLANS)
- JB GI PROPOSED DRAINAGE SYSTEM
- Kep SEE GEOLOGICAL ASSESSMENT

* AS APPROVED 10/28/11

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS MICHAEL G. SHORT 88015 LICENSED PROFESSIONAL ENGINEER

SITE PLAN * AS APPROVED 10/28/11 (Phase 1)

OAKWOOD BAPTIST CHURCH

NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

TCEQ-7*

TCEQ-R19 APR 24 2012 SAN ANTONIO

Thursday, October 20, 2011, 8:56 AM
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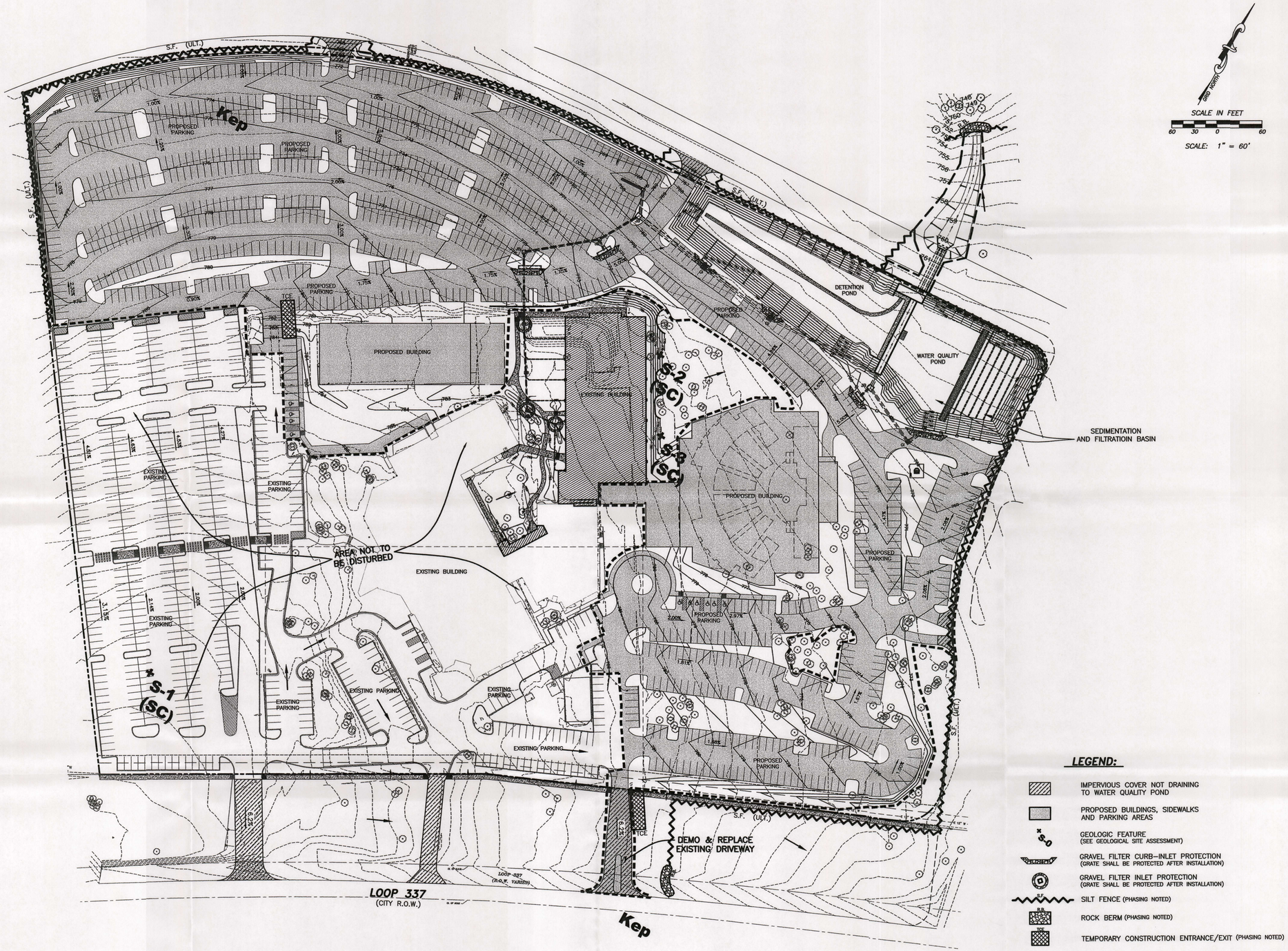

LEGEND:

- IMPERVIOUS COVER NOT DRAINING TO WATER QUALITY POND
- PROPOSED BUILDINGS, SIDEWALKS AND PARKING AREAS
- GEOLOGIC FEATURE (SEE GEOLOGICAL SITE ASSESSMENT)
- GRAVEL FILTER CURB-INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- GRAVEL FILTER INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- SILT FENCE (PHASING NOTED)
- ROCK BERM (PHASING NOTED)
- TEMPORARY CONSTRUCTION ENTRANCE/EXIT (PHASING NOTED)
- AREAS TO BE DISTURBED w/SOIL STABILIZATION (WITH SITE CONSTRUCTION PLANS)
- PROPOSED DRAINAGE SYSTEM
- Kep SEE GEOLOGICAL ASSESSMENT

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS
MICHAEL G. SHORT
86015
LICENSED
PROFESSIONAL ENGINEER

SITE PLAN
(Phase 2)

OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

TCEQ-3

APR 24 2012
SAN ANTONIO

Monday, April 23, 2012, 9:39 AM
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REMAINING PORTION OF DEAN WORD ET UX 2086 ACRES VOL. 74, PGS. 510–512

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, TEXAS DOC. NO. 2000706020677 (17.089 ACRES) 17.082 ACRES

C1

N57°20'46"E 667.41'

REMAINING PORTION OF DEAN WORD ET UX 2086 ACRES VOL. 74, PGS. 510–512

N32°51'45"E 506.44'

NEW BRAUNFELS UTILITIES VOL. 449, PGS. 77–79 0.396 OF AN ACRE (17,250 SQ.FT.)

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, TEXAS DOC. NO. 2000706020677 (17.089 ACRES) 17.082 ACRES

OAKWOOD BAPTIST CHURCH SUBDIVISION UNIT ONE LOT 1, BLOCK 1 (4.49 ACRES) VOL. 7, PG. 118

OAKWOOD BAPTIST CHURCH, INC. VOL. 509, PGS. 479–482 (3.5605 ACRES)

7.118 ACRES OAKWOOD BAPTIST CHURCH SUBDIVISION UNIT I (7.0941 ACRES) VOL. 6, PG. 231

3134 LOOP 337 NORTH NEW BRAUNFELS, TEXAS 78130

BRICK BUILDING (ONE STORY) (APPROX. 59,749 S.F.)

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS VOL. 352, PGS. 359–360 (3.488 ACRES)

OAKWOOD BAPTIST CHURCH SUBDIVISION UNIT I (7.0941 ACRES) VOL. 6, PG. 231

OAKWOOD BAPTIST CHURCH OF NEW BRAUNFELS, TEXAS DOC. NO. 2000706020677 (17.089 ACRES) 17.082 ACRES

REMAINING PORTION OF DEAN WORD ET UX 2086 ACRES VOL. 74, PGS. 510–512

S57°20'46"W 110.45'

S32°39'14"E 100.00'

N57°20'46"E 440.88'

S57°20'46"W 110.45'

LOOP 337 (R.O.W. VARIES)

LOOP 337 (R.O.W. VARIES)

SCALE IN FEET
60 30 0 60
SCALE: 1" = 60'

REVISIONS

DATE	DESCRIPTION

LEGEND

- IRON PIN FOUND
- SET 1/2" IRON PIN WITH CAP
- TXDOT CONCRETE MONUMENT TYPE II
- SIGN
- WATER VALVE
- FIRE HYDRANT
- TREE CE=CEDAR ELM LO=LIVE OAK
- LAMP POST
- POWER POLE
- ANCHOR GUY WIRE
- OHE — OVERHEAD ELECTRIC
- CO CLEAN OUT
- A/C AIR CONDITIONER
- CONCRETE ENCASED BOLLARD POST
- (MM) METAL HANDRAIL
- SPRINKLER NOZZLE
- H/C HANDICAP PARKING SPACE
- F.F.= FINISHED FLOOR ELEVATION
- TBM=0 TEMPORARY BENCH MARK

STATE OF TEXAS — MICHAEL G. SHORT — 85015 — REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
(Existing Condition)
OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS

Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2304

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

TCEQ–1

SAN ANTONIO

Tuesday, August 09, 2011, 2:55 PM
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Water Pollution Abatement Plan Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b), Effective June 1, 1999

REGULATED ENTITY NAME: Oakwood Baptist Church Youth Center Modification (Onsite Pond)

REGULATED ENTITY INFORMATION

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

2. Total site acreage (size of property): 24.2 Acres

3. Projected population: 0

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

Phase 1

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	85,919	÷ 43,560 =	1.97
Parking	337,636	÷ 43,560 =	7.75
Other paved surfaces	36,880	÷ 43,560 =	0.85
Total Impervious Cover	460,435	÷ 43,560 =	10.57
Total Impervious Cover ÷ Total Acreage x 100 =			43.68%

Phase 2

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	152,411	÷ 43,560 =	3.50
Parking	539,126	÷ 43,560 =	12.38
Other paved surfaces	37,602	÷ 43,560 =	0.86
Total Impervious Cover	729,139	÷ 43,560 =	16.74
Total Impervious Cover ÷ Total Acreage x 100 =			69.17%

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

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

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

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

8. Type of pavement or road surface to be used:
   __ Concrete
   __ Asphaltic concrete pavement
   __ Other: _____

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

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

11. __ A rest stop will be included in this project.
    __ A rest stop will **not** be included in this project.

12. __ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

14. The character and volume of wastewater is shown below:
    100% Domestic 4,200 gallons/day **(Per WPAP Dated 2008)**
    __% Industrial _____ gallons/day
    __% Commingled _____ gallons/day

    TOTAL 4,200 gallons/day

15. Wastewater will be disposed of by:
    __ **On-Site** Sewage Facility (OSSF/Septic Tank):
    __ **ATTACHMENT C - Suitability Letter from Authorized Agent.** An on-site

sewage facility will be used to treat and dispose of the wastewater. The appropriate licensing authority's (authorized agent) written approval is provided at the end of this form. It states that the land is suitable for the use of an on-site sewage facility or identifies areas that are not suitable.

__ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

X Sewage Collection System (Sewer Lines):

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

__ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

__ The SCS was previously submitted on _____.

__ The SCS was submitted with this application.

__ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

The sewage collection system will convey the wastewater to the Gruene Road (name) Treatment Plant. The treatment facility is:

X existing.

__ proposed.

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

SITE PLAN REQUIREMENTS

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

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 60'.

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.

X 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):
Map Number 48091C0435F, Effective Date September 2, 2009 FIRM

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

__ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

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

__ There are ____(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

__ The wells are not in use and have been properly abandoned.

__ The wells are not in use and will be properly abandoned.

__ The wells are in use and comply with 16 TAC §76.
X There are no wells or test holes of any kind known to exist on the project site.

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

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

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

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

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

26. N/A Surface waters (including wetlands).

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

ADMINISTRATIVE INFORMATION

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

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

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

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

Signature of Customer/Agent

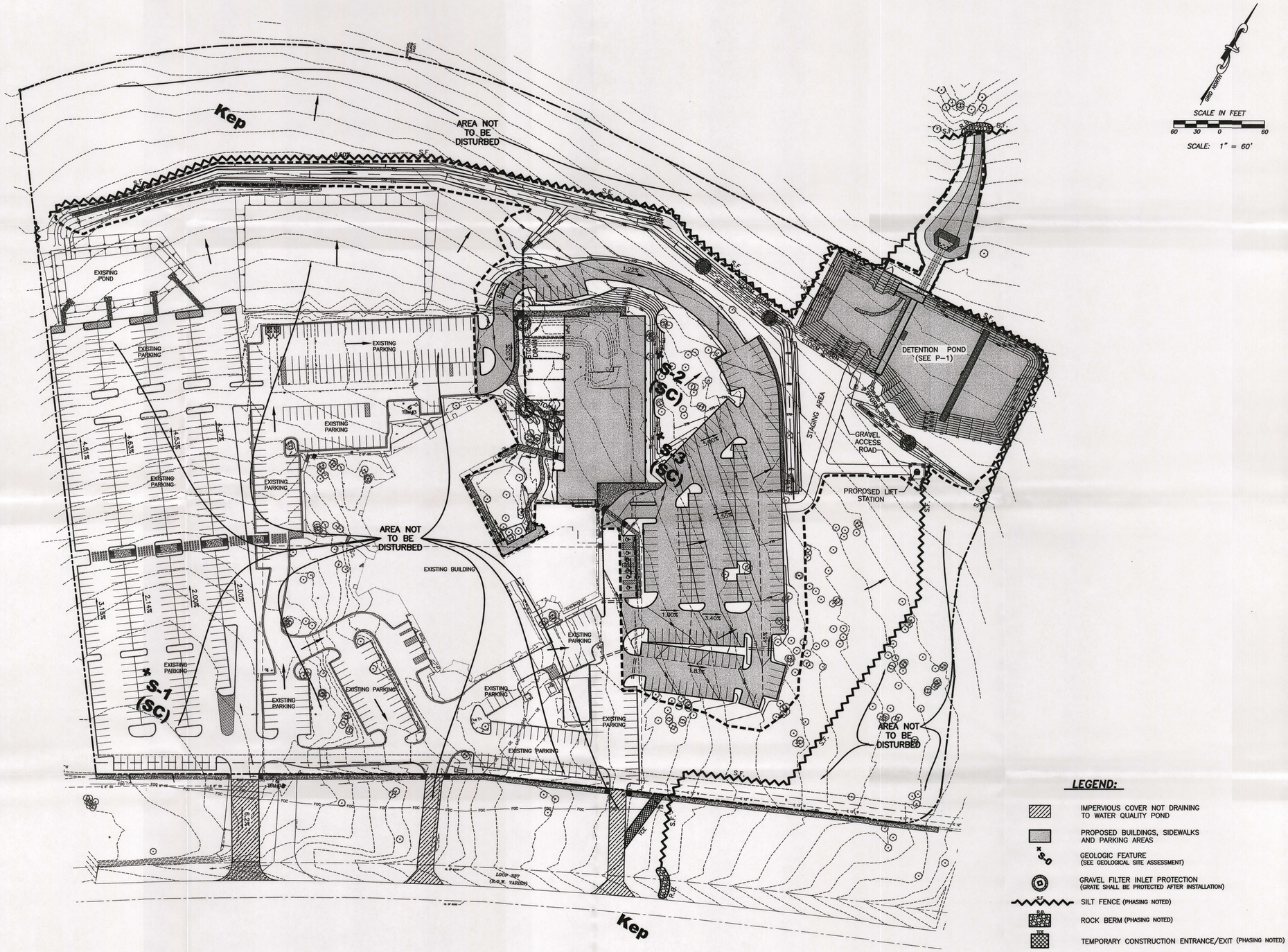
4/19/12
Date

ATTACHMENT A – FACTORS AFFECTING WATER QUALITY

The overall construction of this project will consist of site clearing, demolition, site grading, building structures, parking and driveways, etc. for the overall 24.20 acre site. Construction activity and the disturbance of the existing terrain and existing site during construction are factors that could affect surface water and groundwater quality. Some possible sources of contamination during construction would be from machinery or equipment in the form of oil or fuel. Containment and cleanup is addressed in the Temporary Pollution Control section of this submittal. To assist in the preservation of the quality of surface water exiting the site during construction, which in turns assists in the preservation the groundwater quality, temporary pollution controls will be installed.

ATTACHMENT B – VOLUME AND CHARACTER OF STORMWATER RUNOFF

The stormwater runoff generated from Phase 1 of this site will be primarily from the expanded parking lot and new children's center with some being generated from the minimal landscape areas. The runoff from the overall proposed site will be generated from rooftops, driveways, parking lots, sidewalks and landscape areas. The nature of the run-off generated from both phases of improvements may contain small amounts of oil, suspended solids, fertilizers, and pesticides. The site does not receive any significant offsite flow. The average Pre-Construction runoff coefficient for the site is Cpre = 0.28 and the average Phase 2 runoff coefficient for the site is Cpost = 0.51. Permanent BMPs for the proposed phase 1 and phase 2 improvements will be a sand filter system.



GRID NORTH

SCALE IN FEET

60 30 0 60

SCALE: 1" = 60'

LEGEND:

- IMPERVIOUS COVER NOT DRAINING TO WATER QUALITY POND
- PROPOSED BUILDINGS, SIDEWALKS AND PARKING AREAS
- S-0 GEOLOGIC FEATURE (SEE GEOLOGICAL SITE ASSESSMENT)
- GRAVEL FILTER INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- SF SILT FENCE (PHASING NOTED)
- RB ROCK BERM (PHASING NOTED)
- TCE TEMPORARY CONSTRUCTION ENTRANCE/EXIT (PHASING NOTED)
- AREAS TO BE DISTURBED w/SOIL STABILIZATION (WITH SITE CONSTRUCTION PLANS)
- PROPOSED DRAINAGE SYSTEM
- Kep SEE GEOLOGICAL ASSESSMENT

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS
MICHAEL G. SHORT
88015
LICENSED
PROFESSIONAL ENGINEER

SITE PLAN (Phase 1)

OAKWOOD BAPTIST CHURCH

NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

TCEQ-2

TCEQ-R13
APR 24 2012
SAN ANTONIO

Monday, April 23, 2012, 3:46 PM
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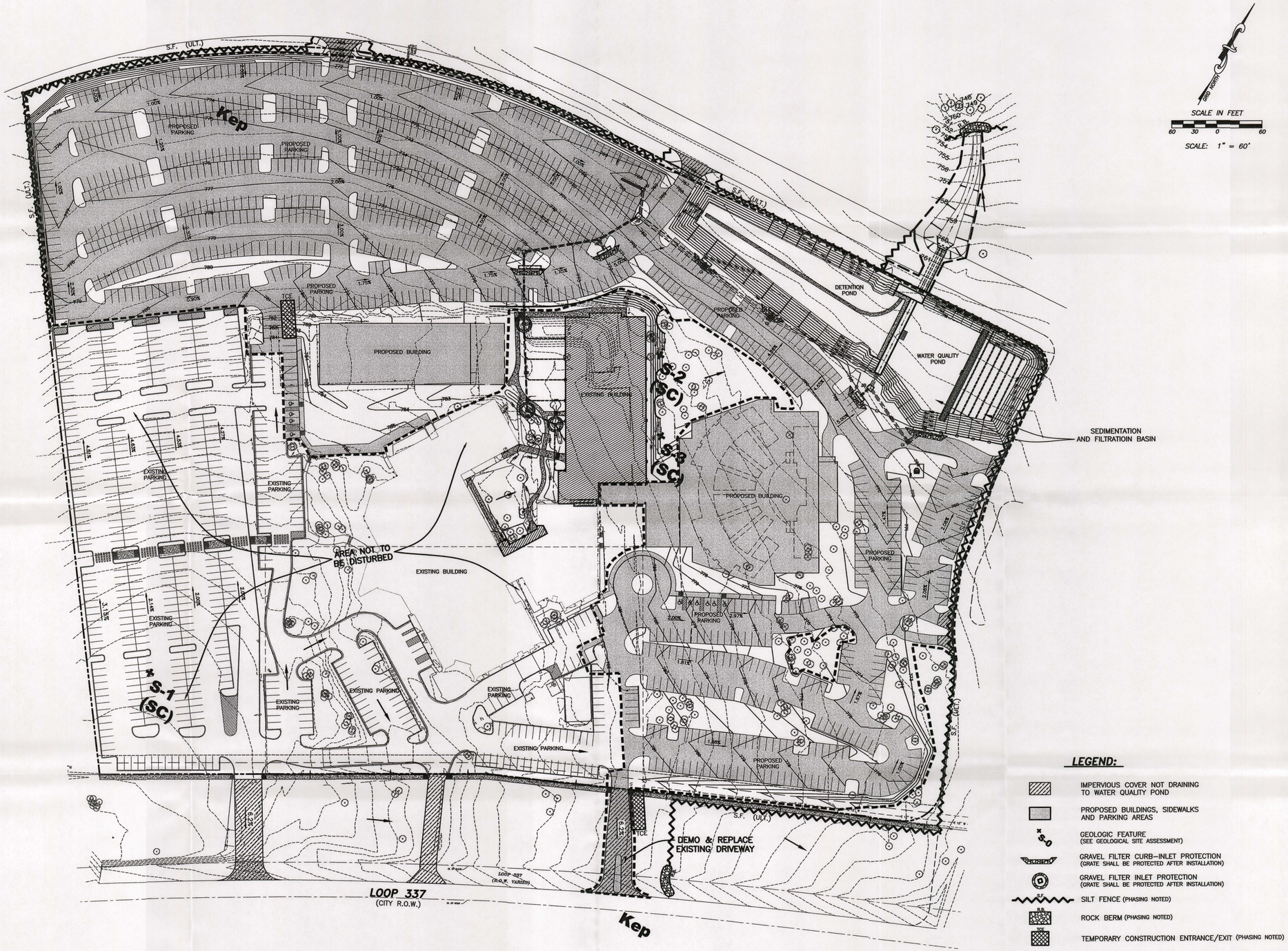

LEGEND:

- IMPERVIOUS COVER NOT DRAINING TO WATER QUALITY POND
- PROPOSED BUILDINGS, SIDEWALKS AND PARKING AREAS
- GEOLOGIC FEATURE (SEE GEOLOGICAL SITE ASSESSMENT)
- GRAVEL FILTER CURB-INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- GRAVEL FILTER INLET PROTECTION (GRATE SHALL BE PROTECTED AFTER INSTALLATION)
- SILT FENCE (PHASING NOTED)
- ROCK BERM (PHASING NOTED)
- TEMPORARY CONSTRUCTION ENTRANCE/EXIT (PHASING NOTED)
- AREAS TO BE DISTURBED w/SOIL STABILIZATION (WITH SITE CONSTRUCTION PLANS)
- PROPOSED DRAINAGE SYSTEM
- Kep SEE GEOLOGICAL ASSESSMENT

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS
MICHAEL G. SHORT
86015
LICENSED
PROFESSIONAL ENGINEER

SITE PLAN (Phase 2)

OAKWOOD BAPTIST CHURCH

NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

TCEQ-3

APR 24 2012
SAN ANTONIO

Monday, April 23, 2012, 9:39 AM
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Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

1. Written construction notification must be given to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Information must include the date on which the regulated activity will commence, the name of the approved plan for the regulated activity, and the name of the prime contractor and the name and telephone number of the contact person.

2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.

3. If any sensitive feature is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. The regulated activities near the sensitive feature may not proceed until the TCEQ has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality.

4. No temporary aboveground hydrocarbon and hazardous substance storage tank system is installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

5. Prior to commencement of construction, all temporary erosion and sedimentation (E&S) control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices. Controls specified in the temporary storm water section of the approved Edwards Aquifer Protection Plan are required during construction. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized.

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

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

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

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.

10. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

11. The following records shall be maintained and made available to the TCEQ upon request: the dates when major grading activities occur; the dates when construction activities temporarily or permanently cease on a portion of the site; and the dates when stabilization measures are initiated.

12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

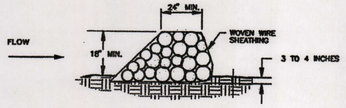
A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;

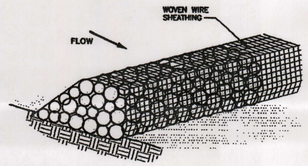
C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

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

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



CROSS SECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

Materials:

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

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

Installation:

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

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

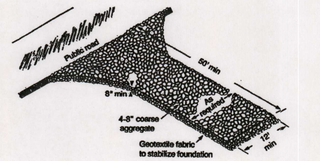
(3) Place the rock along the sheathing as shown in the Rock Berm Detail to a height not less than 18".

(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

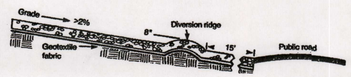
(5) Berm shall be built along the contour at zero percent grade or as near as possible.

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

ROCK BERM DETAIL
N.T.S.



Schematic of Temporary Construction Entrance/Exit



Cross-section of a Construction Entrance/Exit

Materials:

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

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

(3) The geotextile fabric shall be designed specifically for use as a soil filtration media with an approximate weight of 6 oz/yd², a mullen burst rating of 140 lb/in², and an equivalent opening size greater than a number 50 sieve.

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

Installation:

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

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

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

(4) If the slope toward the 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.

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

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

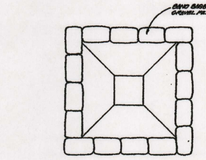
(7) Divert all surface runoff and drainage from the stone pad to sedimentation controlled areas.

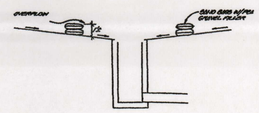
(8) Top of Temporary Construction Entrance/Exits Shall Project no more than 4" above Natural Ground.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT
N.T.S.

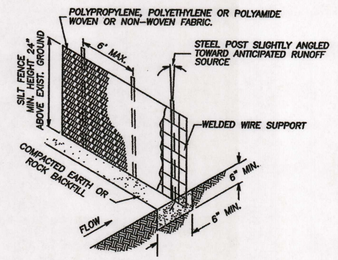
Bagged Gravel Inlet Filter

Sandbags filled with pea gravel can also be used to construct a sediment barrier around curb and drain inlets. The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier about 1 foot high around the inlets. The bags should be tightly abutted against each other to prevent runoff from flowing between the bags. This measure should be installed as shown





GRATE INLET FILTER
N.T.S.



Materials:

(1) Silt fence material shall be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in², ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts shall be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft , and Brindell hardness exceeding 140.

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

Installation:

(1) Steel posts, which support the silt fence, shall be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 6 feet on center.

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

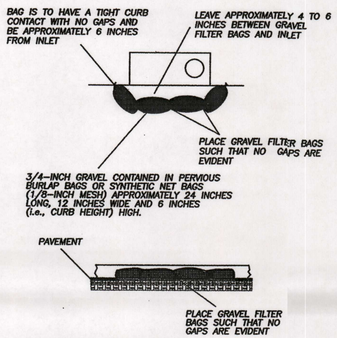
(3) The toe of the silt fence shall be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill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

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

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

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

SILT FENCE
N.T.S.



FRONT VIEW

Notes:

(1) Bags should be filled only 3/4 full gravel filters can be used on pavement or bare ground.

CURB-INLET GRAVEL FILTER DETAIL
N.T.S.

REVISIONS		
DATE	DESCRIPTION	

STATE OF TEXAS — MICHAEL G. SCHULTZ — 89015 — REGISTERED PROFESSIONAL ENGINEER

WATER POLLUTION ABATEMENT PLAN
GENERAL NOTES & DETAILS

OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY:	D.C.
CHECKED BY:	M.G.S.
DATE:	DECEMBER 2010
JOB. NO.:	100410

TCEQ- 4

SAN ANTONIO

Thursday, August 09, 2011, 3, 32, PM
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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: Oakwood Baptist Church Youth Center Modification (Onsite Pond)

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

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ___ Aboveground storage tanks with a cumulative storage capacity of less that 250 gallons will be stored on the site for less than one (1) year.
   ___ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
   ___ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Storage Tank Facility Plan** application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
   X Fuels and hazardous substances will not be stored on-site.

2. X **ATTACHMENT A - Spill Response Actions**. A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form.

3. N/A Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. X **ATTACHMENT B - Potential Sources of Contamination.** Describe in an attachment at the end of this form any other activities or processes which may be a potential source of contamination.
   ___ There are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

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

6. X Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Bleider's Creek

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

on the site plan.

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

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

   a. A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

   b. A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

   c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

   d. A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

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

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

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

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

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

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

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

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

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

11. N/A **ATTACHMENT H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure has been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are provided as at the end of this form.

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

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

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

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

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

SOIL STABILIZATION PRACTICES

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

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

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

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

ADMINISTRATIVE INFORMATION

20. X All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. X If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. X Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

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

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

Signature of Customer/Agent

4/19/12
Date

ATTACHMENT A – SPILL RESPONSE ACTION

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

ATTACHMENT B – POTENTIAL SOURCE OF CONTAMINATION

Potential sources of contamination during construction include vehicle maintenance, vehicle fueling, the use of construction materials and the use of asphalt products.

ATTACHMENT C – SEQUENCE OF MAJOR ACTIVITY

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

Sequence No.	Description of Soil Disturbing Activity	Estimated Area to be Disturbed by each Activity (Acres) (Total)
1	**Installation of Phase 1 Construction Exit and Erosion Control**	**1/2-acre**
2	**Phase 1 Clearing and Grubbing of Detention Pond and water quality pond**	**2-acres**
3	**Phase 1 Excavation of Detention Pond and water quality pond. Construction of Outfall Structure**	**2-acres**
4	**Abandonment of Existing Water Quality Pond.**	**1/5-acre**
5	**Phase 1 Building Pad Site Preparations**	**3/4-acre**
6	**Phase 1 Parking Lot Excavation, Parking Lot Construction, and drainage improvements**	**2-1/2-acres**
6	**Installation of Phase 2 Construction Exit and Erosion Control**	**1/2-acre**
6	**Phase 2 Parking Lot Excavation, Parking Lot Construction, and drainage improvements**	**9-1/2-acres**
5	**Phase 2 Building Pad Site Preparations**	**2-acres**

Notes:

1. Water quality pond and detention pond will be constructed in phase 1. The water quality pond will go unchanged from phase 1 to phase 2.
2. The water quality pond will be constructed as part of the phase 1 improvements and has been designed to treat runoff from the proposed phase 1 and phase 2 conditions.

ATTACHMENT D – TEMPORARY BEST MANAGEMENT PRACTICES (TBMPS)

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

The silt fences, rock berms, gravel filters for inlet protection, and temporary construction entrance/exits shown on the site plan shall be in place prior to any construction activities. These temporary measures will remain in place throughout clearing and grubbing, excavation and grading and underground utility service removal and installation. Upon completion, disturbed areas will be stabilized via hydro mulching.

a. Upgradient stormwater will not pass through the project site.

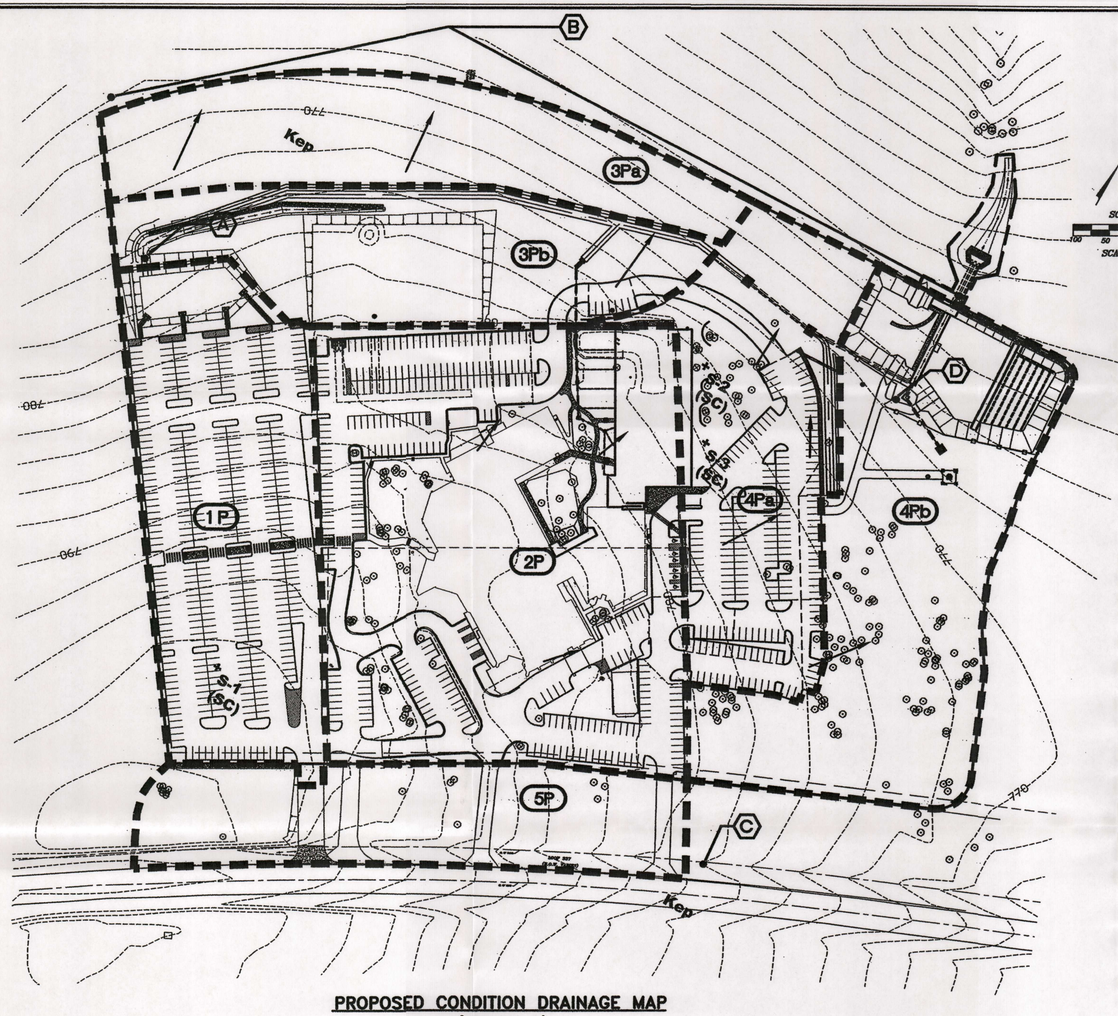
b. Stormwater that originates on site will be filtered by silt fences, gravel filters for inlet protection, and rock berms on the downgradient side of the property. These temporary best management practices will slow the velocity of the water down and the sediment will settle out. It shall be the contractor's responsibility to remove the sediment that builds up after significant rainfall events. There will be no contaminated/polluted runoff coming off this site other than sediment which will be handled with silt fence, rock berms, concrete truck washout pits, and the temporary construction exits.

c. BMP control measures will prevent pollutants from entering surface streams, sensitive features or the aquifer by capturing the silts and sediment before escaping the construction site. The silt fences, gravel filters for inlet protection, and rock berms will slow the velocity of the water down and the sediment will settle out. It shall be the responsibility of the contractor to remove the sediment that builds up after significant rainfall events. The silt fences and rock berms will capture the sediment that would otherwise be conveyed to streams, sensitive features, etc.

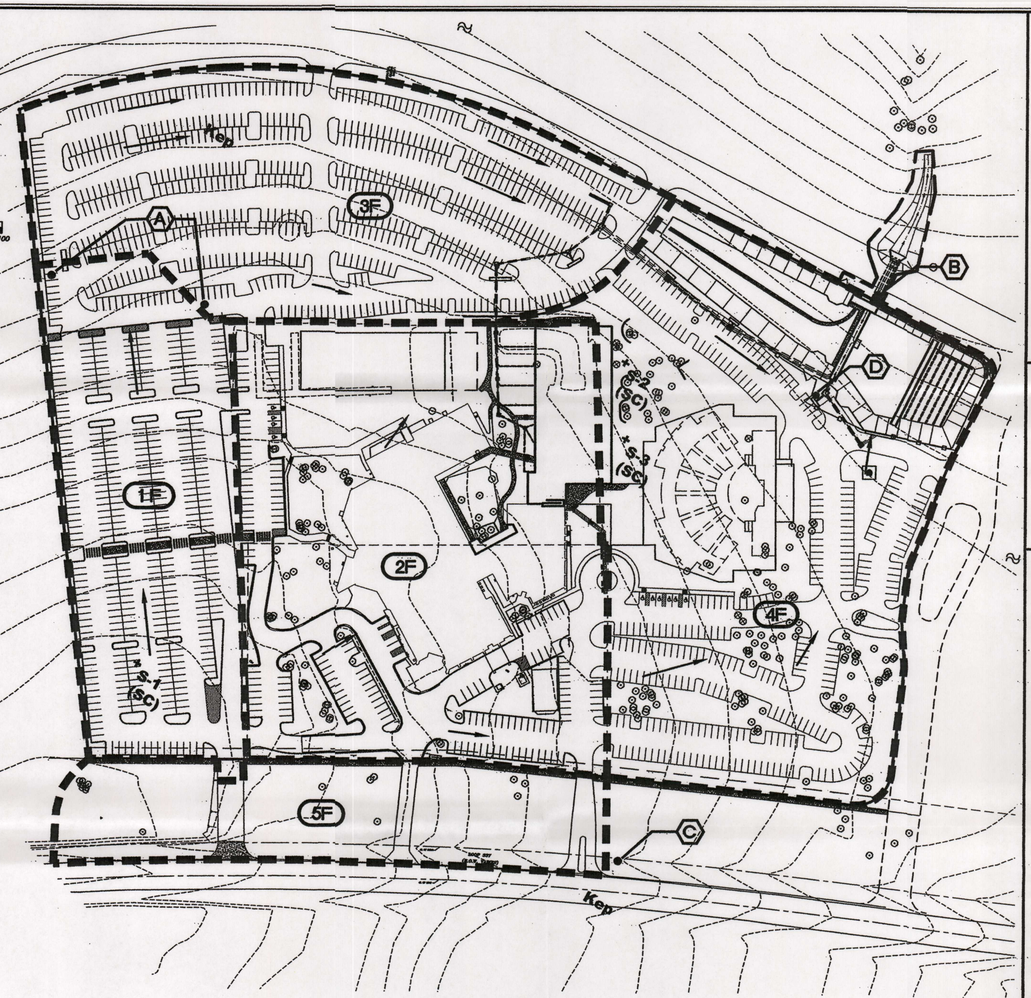
d. There were no sensitive features identified in the geologic assessment. However, if any sensitive features were to be found during construction, all regulated activities near the sensitive feature will be suspended immediately and appropriate action shall be taken per the TCEQ's Water Pollution Abatement Plan General Notes. With regards to measures taken to maintain flow to sensitive features, high service rock berms along with a natural buffer zone around the feature would be implemented in accordance with TCEQ guidelines.

ATTACHMENT F – STRUCTURAL PRACTICES

The structural practices that will be used for this project are silt fences, rock berms, gravel filters for inlet protection, and a temporary construction entrance/exit. The temporary controls will be installed prior to construction and shall be maintained during construction by the contractor for each of the two phases.



PROPOSED CONDITION DRAINAGE MAP
(PHASE 1)



FUTURE CONDITION DRAINAGE MAP
(PHASE 2)

PROPOSED CONDITION NODE SUMMARY				
NODE	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
A	7	10	15	24
B	27	49	71	126
C	3	8	11	17
D	41	82	108	160

PROPOSED DRAINAGE AREA SUMMARY					
LOCATION	AREA (AC.)	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
1P	3.8	10	18	23	32
2P	7.1	19	35	45	64
3Pa	2.7	3	9	14	21
3Pb	2.9	3	9	13	20
4Pa	3.2	9	17	22	31
4Pb	4.5	5	14	21	32
5P	2.5	3	8	11	17

FUTURE CONDITION NODE SUMMARY				
NODE	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
A	11	19	24	34
B	26	55	80	148
C	3	8	11	17
D	65	117	152	212

FUTURE DRAINAGE AREA SUMMARY					
LOCATION	AREA (AC.)	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
1F	3.8	11	19	24	34
2F	7.1	19	35	45	64
3F	5.6	16	27	35	49
4F	7.7	20	36	47	66
5F	2.5	3	8	11	17

LEGEND

- DRAINAGE AREA BOUNDARY
- (X) DRAINAGE AREA
- PROPOSED DRAINAGE FLOW
- (A) DRAINAGE NODE POINT
- 648 EXISTING CONTOUR

4 REPLACED SHEET TO INCLUDE ONSITE DETENTION POND AND REVISED DRAINAGE AREAS REMOVED ALL REFERENCE TO ROUGH GRADING PERMIT SET AND OFFSITE POND 5

1 REPLACED SHEET TO INCLUDE Q_2 & Q_{25} TO FLOW SUMMARIES

TCEQ-5

REVISIONS

DATE	DESCRIPTION
06/24/11	1 REPLACED SHEET
04/10/12	4 REPLACED SHEET

STATE OF TEXAS — MICHAEL G. SHORT — 80315 — LICENSED PROFESSIONAL ENGINEER

DRAINAGE AREA MAP PROPOSED/FUTURE
(1 OF 2)

OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS

The Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204
SAN ANTONIO

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

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Wednesday, April 11, 2012, 8:26 AM
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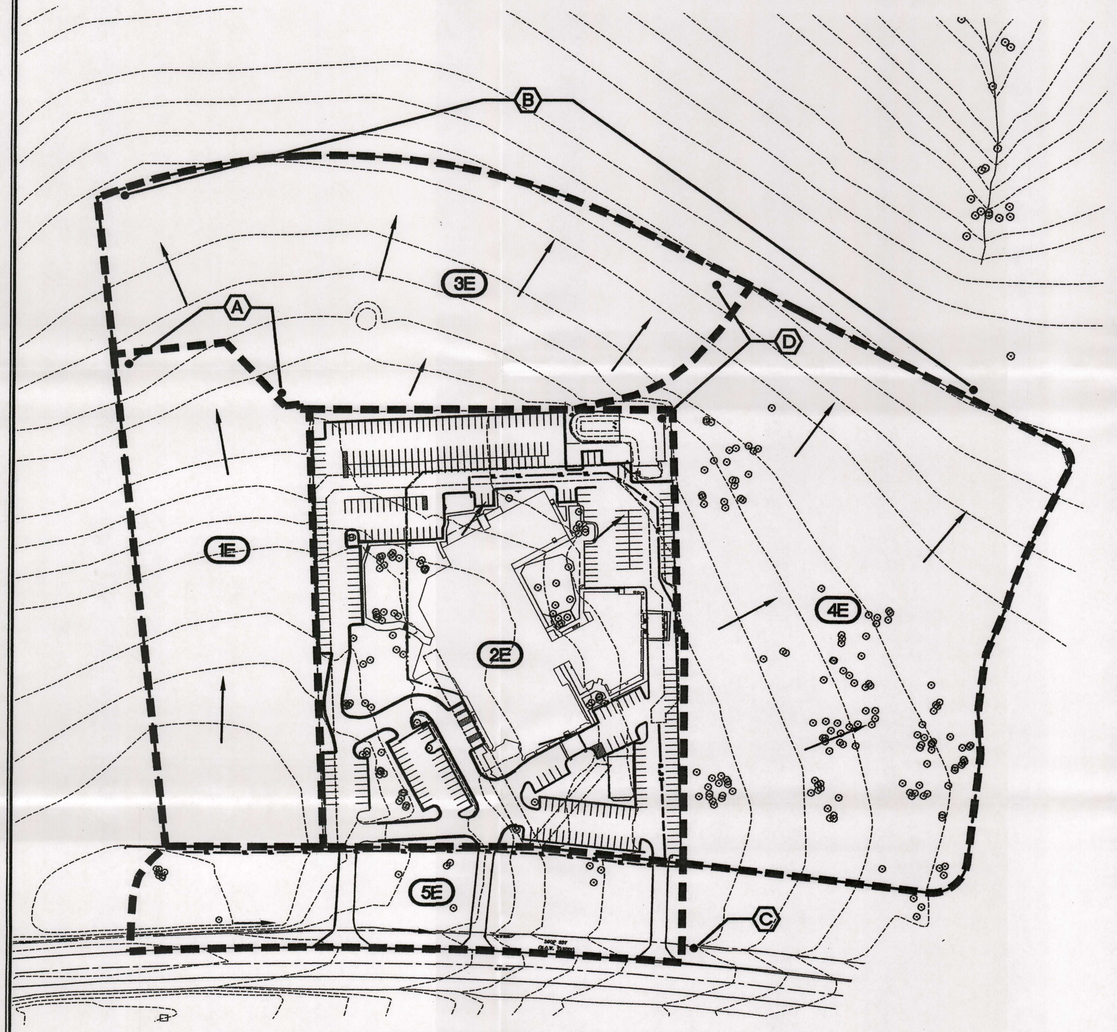
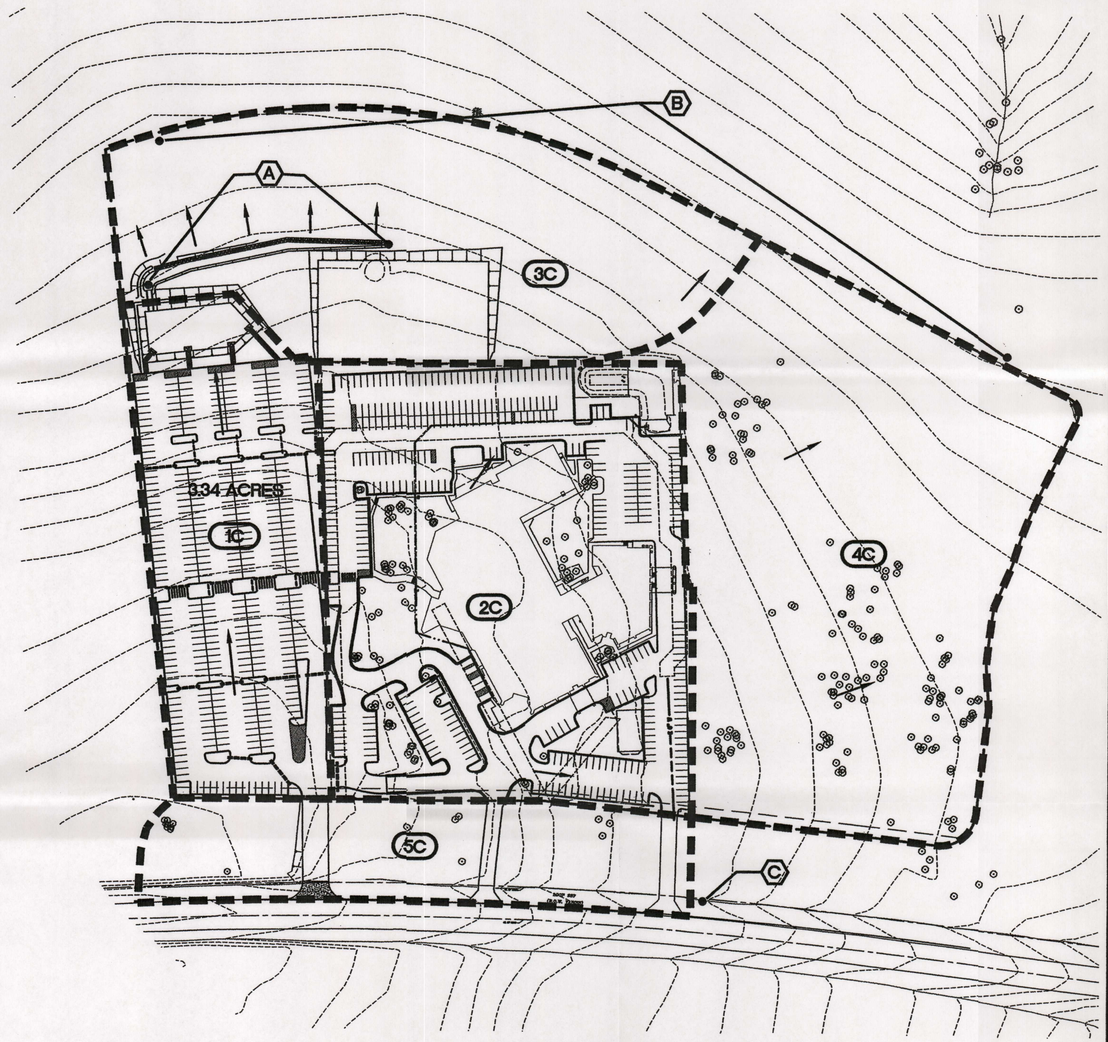


PRE-EXISTING CONDITION DRAINAGE MAP

(PRIOR TO ANY IMPROVEMENTS)



CURRENT CONDITION DRAINAGE MAP

PRE-EXISTING

CONDITION NODE SUMMARY				
NODE	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
A	4	11	16	25
B	27	75	108	169
C	3	7	10	15
D	19	51	75	117

PRE-EXISTING

DRAINAGE AREA SUMMARY					
LOCATION	AREA (AC.)	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
1E	3.8	4	11	16	25
2E	7.1	9	23	34	53
3E	5.6	7	18	26	41
4E	7.7	9	23	34	53
5E	2.5	3	7	10	16

SCALE IN FEET

100 50 0 100

SCALE: 1" = 100

LEGEND

- DRAINAGE AREA BOUNDARY
- X DRAINAGE AREA
- PROPOSED DRAINAGE FLOW
- A DRAINAGE NODE POINT
- 648 EXISTING CONTOUR

4 REPLACED SHEET TO INCLUDE ONSITE DETENTION POND AND REVISED DRAINAGE AREAS REMOVED ALL REFERENCE TO ROUGH GRADING PERMIT SET AND OFFSITE POND 3

1 REPLACED SHEET TO INCLUDE Q_2 & Q_{25} TO FLOW SUMMARIES

TCEQ-6

REVISIONS

DATE	DESCRIPTION
06/24/11	1 REPLACED SHEET
04/10/12	4 REPLACED SHEET

STATE OF TEXAS MICHAEL G. SHORT 68015 LICENSED PROFESSIONAL ENGINEER

DRAINAGE AREA MAP EXISTING/CURRENT (2 OF 2)

OAKWOOD BAPTIST CHURCH

NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
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JOB NO.: 100410

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APR 24 2012 SAN ANTONIO

Wednesday, April 11, 2012, 8:28 AM
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ATTACHMENT I – INSPECTION AND MAINTENANCE FOR BMPS

Silt Fence Inspection and Maintenance Guidelines:

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

Rock Berm Inspection and Maintenance Guidelines:

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

Temporary Construction Entrance/Exit:

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

Gravel Bag Inlet Filter Inspection and Maintenance Guidelines:

1) Inspection shall be made weekly and after each rainfall by the contractor. Repair or replacement shall be made promptly as needed by the contractor or deemed necessary by the engineer.
2) Remove sediment when buildup reaches a depth of 3 inches Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
3) Check placement of device to prevent gaps between device and inlet.
4) Structure should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.



RG-348
Revised July 2005

Complying with the Edwards Aquifer Rules

Technical Guidance on Best Management Practices

Field Operations Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

printed on
recycled paper

1.4.16 Spill Prevention and Control

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

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

Education

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

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

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

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

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

General Measures

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

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

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

(4) Train employees in spill prevention and cleanup.

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

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

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

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

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

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

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

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

Cleanup

(1) Clean up leaks and spills immediately.

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

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

Minor Spills

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

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

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

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

(5) Contain the spread of the spill.

(6) Recover spilled materials.

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

Semi-Significant Spills

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

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

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

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

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

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

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

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

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

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

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

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

INSPECTION FORM

GENERAL NOTES

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

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

3. THICKNESS - NOT LESS THAN 8 INCHES.

4. WIDTH - NOT LESS THAN 12 FEET.

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

6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.

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

INSPECTION REPORT

DATE:_____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

SILT FENCE
INSPECTION FORM

GENERAL NOTES

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

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

3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED AND COMPACTED.

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

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

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

INSPECTION REPORT

DATE:_____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR SILT FENCE:

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

ROCK BERMS
INSPECTION FORM

GENERAL NOTES:

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

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

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

4. THE WIRE SHEATHING SHALL BE WRAPPED AROUND THE ROCK AND SECURED WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

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

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

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

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

MAINTENANCE REQUIRED FOR ROCK BERMS:

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

GRAVEL BAG INLET FILTER

INSPECTION FORM

GENERAL NOTES:

1. SAND BAGS SHALL BE FILLED WITH PEA GRAVEL.
2. GRAVEL FILTER BAGS SHALL BE PLACED COMPLETELY AROUND GRATES.
3. THERE SHOULD BE NO GAPS IN BETWEEN GRAVEL FILTER BAGS.
4. WHEN SILT REACHES A DEPTH EQUAL TO 3 INCHES, THE SILT SHALL BE REMOVED AND DISPOSED OF.

INSPECTION REPORT

DATE: _____

SIGNATURE: _____

ARE GAPS/HOLES EVIDENT BETWEEN BAGS ?	IS LEVEL OF SILT GREATER THAN 3 INCHES DEEP?

MAINTENANCE REQUIRED FOR GRAVEL BAG INLET FILTERS:

_____

_____

_____

TO BE PERFORMED BY:_____ ON OR BEFORE:_____

ATTACHMENT J – SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

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

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

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: Oakwood Baptist Church Youth Center Modification (Onsite Pond)

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

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

2. X 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.

   X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

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

   _____

   _____

3. X Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

4. X Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ___ 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.

   X This site will not be used for low density single-family residential development.

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

N/A **ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is found at the end of this form.

___ 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.

X 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.**

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

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

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

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

10. X **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. X **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. X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

__ Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.

__ **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.

13. X **ATTACHMENT I -Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is provided at the end of this form. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity which increase erosion that results in water quality degradation.

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

14. X The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

15. X A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

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

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

Signature of Customer/Agent

4/19/12
Date

ATTACHMENT B – BMPS FOR UPGRADIENT STORMWATER

Both Phase 1 and Phase 2 are essentially isolated from upgradient flows given the existing terrain. The proposed improvements will maintain the upstream perimeter drainage patterns around the site (reference the Drainage Area Map provided with the Temporary Stormwater Section).

ATTACHMENT C – BMPS FOR ONSITE STORMWATER (TCEQ-0600)

BMPs for onsite stormwater will be a partial sedimentation and filtration system. All runoff as a result of this modification will be routed to the proposed partial sedimentation and filtration system.

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ATTACHMENT D – BMPS FOR SURFACE STREAMS

BMPs for surface streams will be a partial sedimentation and filtration system. All runoff as a result of this modification will be routed to the proposed partial sedimentation and filtration system.

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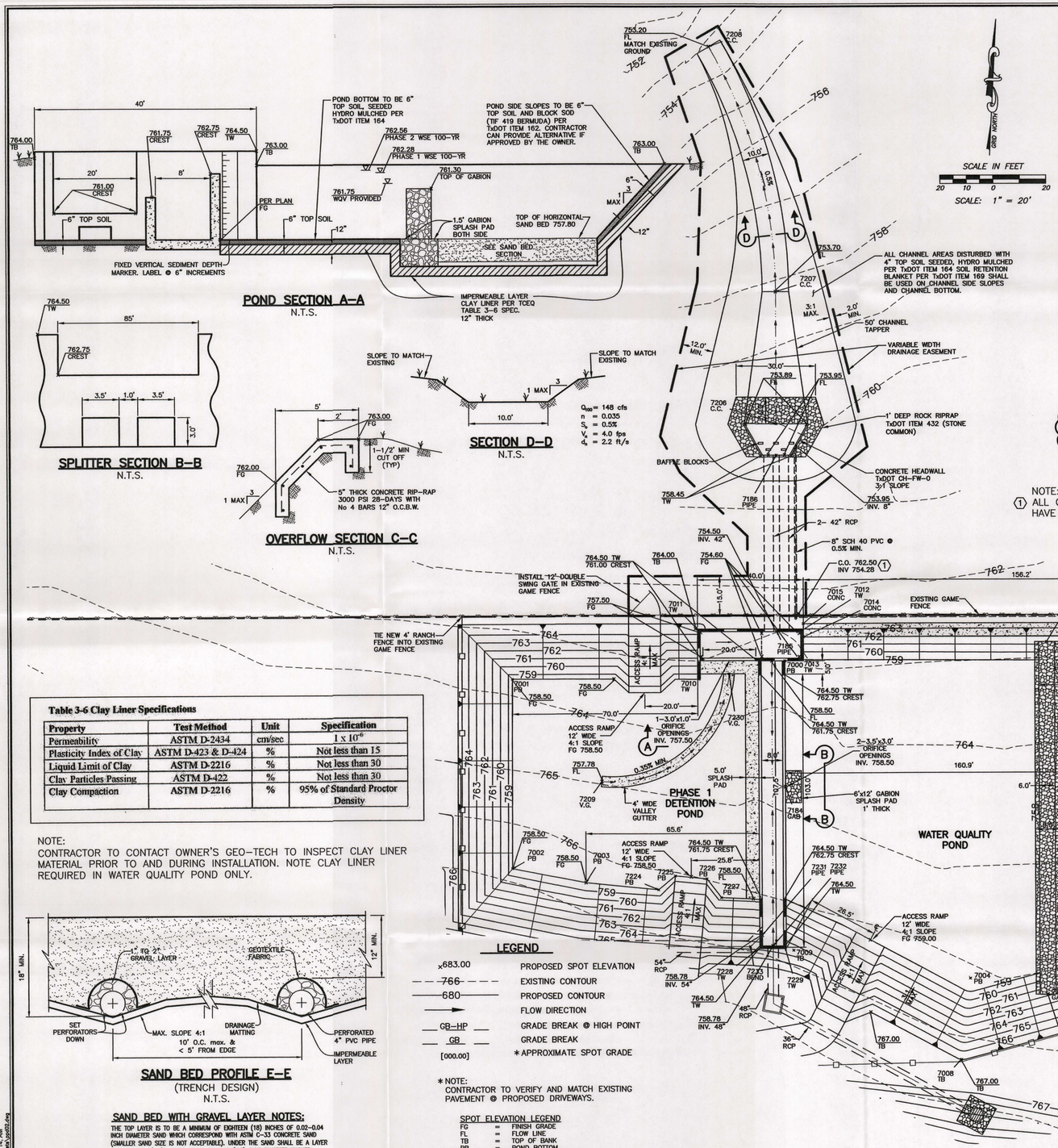
ATTACHMENT I– MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

BMPs measures for minimizing surface stream contamination will be a partial sedimentation and filtration system. All runoff as a result of this modification will be routed to the proposed partial sedimentation and filtration system.

.



POINT TABLE			
POINT NUMBER	NORTHING	EASTING	DESCRIPTION
7000	13815321.11	2241586.80	PB
7001	13815309.61	2241484.22	PB
7002	13815238.26	2241487.27	PB
7003	13815234.14	2241515.19	PB
7004	13815204.56	2241661.88	PB
7005	13815232.84	2241750.11	PB
7006	13815320.59	2241748.25	PB
7007	13815212.20	2241777.98	TB
7008	13815173.82	2241659.76	TB
7009	13815212.25	2241594.68	TB
7010	13815312.62	2241554.66	TW
7011	13815331.19	2241553.80	TW
7012	13815332.90	2241592.76	TW
7013	13815321.91	2241593.27	TW
7014	13815330.43	2241593.38	CONC
7015	13815335.42	2241593.14	CONC
7016	13815342.66	2241749.21	CONC
7017	13815337.66	2241749.44	CONC
7018	13815320.97	2241768.23	CONC
7019	13815321.33	2241773.22	CONC
7184	13815273.67	2241589.00	GAB
7185	13815331.96	2241583.29	PIPE
7186	13815398.56	2241580.21	PIPE
7187	13815199.83	2241691.44	GAB
7188	13815332.69	2241685.28	GAB
7206	13815410.30	2241579.66	C.C.
7207	13815460.24	2241577.35	C.C.
7208	13815551.28	2241548.19	C.C.
7209	13815272.46	2241519.66	V.G.
7224	13815232.70	2241542.73	PB
7225	13815238.11	2241548.82	PB
7226	13815237.54	2241560.81	PB
7227	13815230.70	2241566.60	PB
7228	13815212.79	2241582.31	TW
7229	13815213.21	2241591.30	TW
7230	13815315.14	2241565.93	V.G.

Table 3-6 Clay Liner Specifications

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
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	ASTD D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

NOTE:
CONTRACTOR TO CONTACT OWNER'S GEO–TECH TO INSPECT CLAY LINER MATERIAL PRIOR TO AND DURING INSTALLATION. NOTE CLAY LINER REQUIRED IN WATER QUALITY POND ONLY.

SAND BED PROFILE E–E
(TRENCH DESIGN)
N.T.S.

SAND BED WITH GRAVEL LAYER NOTES:

THE TOP LAYER IS TO BE A MINIMUM OF EIGHTEEN (18) INCHES OF 0.02–0.04 INCH DIAMETER SAND WHICH CORRESPOND WITH ASTM C–33 CONCRETE SAND (SMALLER SAND SIZE IS NOT ACCEPTABLE). UNDER THE SAND SHALL BE A LAYER OF ONE–HALF (0.5) TO ONE AND ONE–HALF (1.5) INCH DIAMETER WASHED, ROUNDED, RIVER GRAVEL WHICH PROVIDES A MINIMUM OF TWO (2) INCHES OF COVER OVER THE TOP OF THE UNDERDRAIN LATERAL PIPES. THE SAND AND GRAVEL MUST BE SEPARATED BY A LAYER OF GEOTEXTILE FABRIC MEETING THE SPECIFICATIONS LISTED IN TABLE 3.6 "GEOTEXTILE FABRIC SPECIFICATIONS (COA, 1997). THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS LISTED IN TABLE 3.6 TAKEN FROM THE TNRCC TECHNICAL GUIDANCE ON BEST MANAGEMENT PRACTICES, JUNE 1999.

LEGEND

x683.00	PROPOSED SPOT ELEVATION
–766–	EXISTING CONTOUR
680	PROPOSED CONTOUR
	FLOW DIRECTION
GB–HP	GRADE BREAK @ HIGH POINT
GB	GRADE BREAK
[000.00]	* APPROXIMATE SPOT GRADE

*NOTE:
CONTRACTOR TO VERIFY AND MATCH EXISTING PAVEMENT @ PROPOSED DRIVEWAYS.

SPOT ELEVATION LEGEND

FG	=	FINISH GRADE
FL	=	FLOW LINE
TB	=	TOP OF BANK
PB	=	POND BOTTOM
C.C	=	CHANNEL CENTERLINE
GAB	=	GABION
TW	=	TOP OF WALL
CONC	=	CONCRETE
C.O.	=	CLEANOUT
INV	=	INVERT
WSE	=	WATER SURFACE ELEVATION
V.G.	=	VALLEY GUTTER

NOTE:
WATER QUALITY POND WILL GO UNCHANGED FROM PHASE 1 TO PHASE 2.

NOTE:
(1) ALL CLEANOUTS SHALL HAVE SCREW ON CAPS.

(4) REPLACED SHEET TO INCLUDE ONSITE DETENTION POND, WITH EXCEPTION OF SAND FILTER ALL OTHER ITEMS REVISED. REMOVED REFERENCE TO ROUGH GRADING PERMIT SET

(2) REPLACED SHEET TO ADD SEDIMENT MARKER, CAPS, AND WSE. PER TCEQ COMMENTS. REVISED ORIFICE OPENINGS

(1) REPLACED SHEET TO REFLECT ADJUSTMENTS TO SPLITTER STRUCTURE AND OUTFALL HEADWALL

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Oakwood Baptist Phase 1
Date Prepared: 1/15/2011

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: $L_M = 27.2(N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = 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 * =		24.20	acres
Predevelopment impervious area within the limits of the plan * =		1.44	acres
Total post-development impervious cover fraction * =		10.87	acres
		0.44	
	P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ * =		8195	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 =	21.40	acres
Predevelopment impervious area within drainage basin/outfall area =	1.44	acres
Post-development impervious area within drainage basin/outfall area =	10.28	acres
Post-development impervious fraction within drainage basin/outfall area =	0.48	
$L_{M\ THIS\ BASIN}$ =	7944	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Sand Filter	
Removal efficiency =	89	percent

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 = (BMP efficiency) x P x (A_N x 34.6 + A_P x 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 =	21.40	acres
A_I =	10.28	acres
A_P =	11.11	acres
L_R =	10633	lbs

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

Desired $L_{M\ THIS\ BASIN}$ * = 8195 lbs.

F = 0.77

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 =	0.97	inches
Post Development Runoff Coefficient =	0.35	
On-site Water Quality Volume =	29214	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 =	5243	
Total Capture Volume (required water quality volume(s) x 1.20) =	31457	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 =	31457	cubic feet
Minimum filter basin area =	1456	square feet
Maximum sedimentation basin area =	13107	square feet For minimum water depth of 2 feet
Minimum sedimentation basin area =	3277	square feet For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	31457	cubic feet
Minimum filter basin area =	2621	square feet
Maximum sedimentation basin area =	10486	square feet For minimum water depth of 2 feet
Minimum sedimentation basin area =	655	square feet For maximum water depth of 8 feet

Hydraulic Calculations Based on Phase Future Flow

Splitter Section 100-yr Flow Over to Outfall

Q_{100a} := 212 Flow over crest Q100 (cfs) C_w := 3.0 Weir Coefficient L_c := 85 Length of crest (ft)

Crest := 761.75 Opening/invert := 758.50

$H := \left(\frac{Q_{100a}}{L \times C_w}\right)^{\frac{2}{3}}$ H = 0.884 Height of flow relative to weir crest (ft) $V := \frac{Q_{100a}}{L \times H}$ V = 2.821 Velocity (fps)

$WSE_{100overflow}$:= H + Crest $WSE_{100overflow}$ = 762.63

Splitter Section 25-yr Flow to Water Quality Pond

Q_{25a} := 152 Flow Q25 (cfs) H := 3 Height of Opening (ft)

C_o := .67 OrificeCoefficient W := 7 Width of Opening (ft) A := H x W A = 21 Area (sf)

$h := Crest - \left(\frac{H}{2} + Opening/Invert\right)$ h = 1.75 $Q := C_o \times A \times \sqrt{2 \times 32.2 \times h}$ Q = 149 Q25 Design (cfs)

Emergency Overflow

Q_{25a} := 152 Flow overflow crest Q25 (cfs) C_w := 3.0 Weir Coefficient L_c := 156 Length of crest (ft)

$H := \left(\frac{Q_{25a}}{L \times C_w}\right)^{\frac{2}{3}}$ ECrest := 763 H = 0.472 Height of flow relative to weir crest (ft) $V := \frac{Q_{25a}}{L \times H}$ V = 2.062 Velocity (fps)

$WSE_{emergencyoverflow}$:= H + ECrest $WSE_{emergencyoverflow}$ = 763.47

Water Quality Pond Available Storage

Elevation	Area (sf)	Total Storage (cf)
758	7283	0
759	18170	12727
760	19401	31542
761	20784	51665
762	22143	73128
763	23555	95977

Phase 1 Required Storage = 31,457 cf
Phase 2 Required Storage = 59,920 cf
Provided Storage = 67,762 cf

Phase 1 Required Filter Area = 2,621 sf
Phase 2 Required Filter Area = 4,910 sf
Provided Filter Area = 6,159 sf

NOTE:
CONTRACTOR TO CONTACT ENGINEER OF RECORD TO OBSERVE COMPLETED DRAIN PIPE INSTALLATION PRIOR TO GRAVEL PLACEMENT.

TCEQ-7

APR 24 2012
SAN ANTONIO

REVISIONS		
DATE	DESCRIPTION	
08/09/11	REPLACED SHEET	1
10/19/11	REPLACED SHEET	2
03/02/12	ROUGH GRADING SET	
04/10/12	REPLACED SHEET	4

PERMANENT WATER POLLUTION ABATEMENT PLAN & DETAILS (PHASE 1)

OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS

THE Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F–532
TEXAS LICENSED SURVEYING FIRM 100059–00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606–3913 FAX (830) 625–2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

SHEET 13 OF 13
C17

Monday, April 23, 2012 9:14 AM
File Name: P:\100410\Sheets\pp022.dwg

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Oakwood Baptist Phase 2 (Onsite Detention Pond)
Date Prepared: 4/16/2012

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:
- $L_{M\ TOTAL\ PROJECT}$ = 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 * =	24.20	acres
Predevelopment impervious area within the limits of the plan * =	1.44	acres
Total post-development impervious area within the limits of the plan* =	16.74	acres
Total post-development impervious cover fraction * =	0.69	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	13733	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 =	24.20	acres
Predevelopment impervious area within drainage basin/outfall area =	1.44	acres
Post-development impervious area within drainage basin/outfall area =	16.34	acres
Post-development impervious fraction within drainage basin/outfall area =	0.68	
$L_{M\ THIS\ BASIN}$ =	13374	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	Sand Filter	
Removal efficiency =	89	percent

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 =	24.20	acres
A_I =	16.34	acres
A_P =	7.86	acres
L_R =	16729	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	13733	lbs.
F =	0.82	

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 =	1.16	inches
Post Development Runoff Coefficient =	0.48	
On-site Water Quality Volume =	49100	cubic feet

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

Off-site area draining to BMP =		acres
Off-site impervious cover draining to BMP =		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 =	9820	
Total Capture Volume (required water quality volume(s) x 1.20) =	58920	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 =	58920	cubic feet	
Minimum filter basin area =	2728	square feet	
Maximum sedimentation basin area =	24550	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	6138	square feet	For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	58920	cubic feet	
Minimum filter basin area =	4910	square feet	
Maximum sedimentation basin area =	19640	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	1228	square feet	For maximum water depth of 8 feet

NOTE:
WATER QUALITY POND WILL GO UNCHANGED FROM PHASE 1 TO PHASE 2.
SEE SHEET TCEQ-4 FOR POND DETAILS AND HYDRAULIC CALCULATIONS.

REVISIONS

DATE	DESCRIPTION

STATE OF TEXAS — MICHAEL G. SHORT — 88015 — LICENSED PROFESSIONAL ENGINEER

PERMANENT WATER POLLUTION ABATEMENT PLAN & DETAILS (PHASE 2)

OAKWOOD BAPTIST CHURCH
NEW BRAUNFELS, TEXAS

The Schultz Group, INC.
TEXAS REGISTERED ENGINEERING FIRM F-532
TEXAS LICENSED SURVEYING FIRM 100059-00
CONSULTING ENGINEERS & LAND SURVEYORS
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: D.C.
CHECKED BY: M.G.S.
DATE: DECEMBER 2010
JOB NO.: 100410

TCEQ-8

TCEQ-R13
APR 24 2012
SAN ANTONIO

Monday, April 23, 2012, 9:14 AM
File Name: C:\2010\100410\Sheets\tceq02.dwg

MAINTENANCE PLAN AND SCHEDULE FOR SEDIMENTATION AND FILTRATION BASINS

PROJECT NAME: Oakwood Baptist Church Youth Center Modification (Onsite Pond)

ADDRESS: 2154 Loop 337

CITY, STATE ZIP: New Braunfels, Texas 78130

SEDIMENTATION BASIN

Twice a Year: The level of accumulated silt in the inlet structure and basin shall be checked. If depth of silt exceeds 6 inches or when function is impaired, it shall be removed and disposed of "properly". The inlet structure and basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed.

The basin shall be inspected for structural integrity and repaired if necessary. Such items to be inspected include; pipes, concrete walls, floors and baffles, inlets, gabions, etc.

Every 5 Years: Sediment shall be removed from the inlet structure and basin at intervals not to exceed 5 years, regardless of depth.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it completely drains within 48 hours after the storm is over. If it does not drain within this time, corrective maintenance is required.

SAND FILTER

Twice a Year: The level of accumulated silt shall be checked. If depth or silt/pollutants exceeds ½", it shall be removed and disposed of "properly".

The accumulation of pollutants/oils shall be checked. If the pollutants have significantly reduced the designed capacity of the sand filter and/or the drawdown time exceeds 48 hours, the upper layer of sand in the filter shall be removed and replaced.

The basin shall be checked for accumulation of debris and litter. Debris and litter accumulated in the facility must be removed during each inspection.

The basin shall be inspected for structural integrity and repaired if necessary. Such items to be inspected include; pipes and cleanouts, gate valve, etc. Under drain piping shall be flushed to remove sediment buildup.

After Rainfall: The basin shall be checked after each rainfall occurrence to insure that it drains within 48 hours. If it does not drain within this time, corrective maintenance is required.

Following any required maintenance, the surface of the sand filter shall be raked and leveled to restore the system to its designed condition. Maintenance of the sand filter may require that a section of gabion be temporarily moved to allow access for equipment into the sand filter area. Upon completion of maintenance the gabion shall be reset into is original position.

Vegetation in and around basin will be maintained to a height of less than 18 inches.

"Proper" disposal of accumulated silt shall be accomplished following Texas Commission on Environmental Quality guidelines and specifications.

After Inspection/Maintenance

All inspections and maintenance and repair activities shall be well documented by the responsible party. These documents shall include date, time, and a detailed description of each activity. This documentation shall be kept onsite by the responsible party and made available to the TCEQ upon request.

An amended copy of this document will be provided to the Texas Commission on Environmental Quality within thirty (30) days of any changes in the following information.

Responsible Party:	Oakwood Baptist Church Expansion – Roxi Vanstory (Executive Administrator)			
Mailing Address:	2154 Loop 337.	City, State:	New Braunfels, Texas	Zip: 78130
Telephone:	(830) 625-0267	Fax:	(830) 625-1151	

Roxi Vanstory - Executive Administrator — 4/11/2012

Signature of Responsible Party — Date

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

I Roxi Vanstory,
Print Name

Executive Administrator,
Title - Owner/President/Other

of Oakwood Baptist Church,
Corporation/Partnership/Entity Name

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

of The Schultz Group, Inc.
Print Name of Firm

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

I also understand that:

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

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

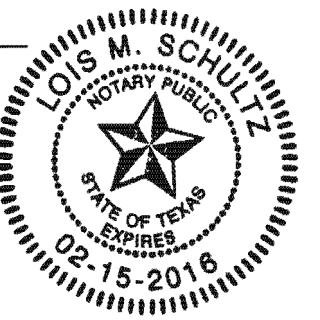
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Roxi Vanstory
Applicant's Signature

4/19/12
Date



THE STATE OF TEXAS §

County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared ROXI VANSTORY 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 19th day of APRIL, 2012.

Lois M Schultz
NOTARY PUBLIC

LOIS M. SCHULTZ
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 02-15-2016

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

REGULATED ENTITY NAME: Oakwood Baptist Church Youth Center Modification (Onsite Pond)
REGULATED ENTITY LOCATION: 2154 Loop 337, New Braunfels, Texas 78130
NAME OF CUSTOMER: Oakwood Baptist Church
CONTACT PERSON: Michael G. Short, P.E PHONE: (830) 606-3913
(Please Print)

Customer Reference Number (if issued): CN CN601399199 (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):

☐ **Austin Regional Office**

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

☒ **San Antonio Regional Office**

☐ **Overnight Delivery to TCEQ:**
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347

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

Type of Plan	Size		Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling		Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks		Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	24.20	Acres	$6,500.00
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	$

Rob Vanstory - Executive Administrator 4/11/2012
Signature Date

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

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors

In their information corrected. To review such information, contact us at 512/239-3282.

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

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150

OAKWOOD BAPTIST CHURCH/S.B.C. CHECK DATE CHECK NO.

67269

Pay Date: 4/11/2012 Ck#: 67269 ID#: 21799 T.C.E.Q.

Invoice	* Date	*Description	*	Net
24445	*4/11/2012	*modify app fee for wpap	*	$6,500.00
		* TOTAL	*	$6,500.00

JPMORGAN CHASE BANK, N.A. 67269

32-61-1110

OAKWOOD BAPTIST CHURCH
S.B.C.
2154 LOOP 337 NORTH
NEW BRAUNFELS, TX 78130
(830) 625-0267

CHECK NO.	DATE	AMOUNT
67269	4/11/2012	$6,500.00

PAY Pay Exactly
Six Thousand Five Hundred Dollars And No Cents

TO THE ORDER OF T.C.E.Q.

Rafi Vanstory MP

⑈067269⑈ ⑆111000614⑆ 058002605 21⑈

THIS DOCUMENT CONTAINS A COLORED BACKGROUND ON WHITE PAPER. MICROPRINT IS LOCATED BELOW THIS WARNING BAND.

TCEQ

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided)*

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

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

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

☒ Yes ☐ No — Oakwood Baptist Church Youth Center Modification (Onsite Pond)

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 601399199		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:*

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

7. General Customer Information

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

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

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

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

10. Mailing Address:

City		State		ZIP		ZIP + 4	

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

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

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

20. Number of Employees

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

21. Independently Owned and Operated?

☐ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☐ No Change** *(See below)*

****If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.**

23. Regulated Entity Name *(name of the site where the regulated action is taking place)*

Oakwood Baptist Church Youth Center Modification (Onsite Pond)

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	2154 Loop 337							
	City	New Braunfels	State	TX	ZIP	78130	ZIP + 4	4078
25. Mailing Address:	2154 Loop 337							
	City	New Braunfels	State	TX	ZIP	78130	ZIP + 4	4078

26. E-Mail Address:		
27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(830) 625-0267		(830) 625-1151

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)
8661		813110	

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

Religious Organization

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

35. Description to Physical Location:	The project site is within the City of New Braunfels, Texas and is located approximately 650 LF north east of the Intersection of Loop 337 and Oakwood Blvd.

36. Nearest City	County	State	Nearest ZIP Code
New Braunfels, Texas	Comal County	TX	78130

37. Latitude (N) In Decimal:	29.726688		38. Longitude (W) In Decimal:	-98.141921	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	36.0762	-98	8	30.915

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

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
☐ New Source Review – Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☒ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☒ Other: File # 1189.00

SECTION IV: Preparer Information

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

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830) 606-3913		(830) 625-2204	mshort@schultzgroupinc.com

SECTION V: Authorized Signature

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

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

Company:	The Schultz Group, Inc,	Job Title:	Senior Engineer
Name *(In Print)* :	Michael G. Short, P.E.	Phone:	(830) 606-3913
Signature:		Date:	4/24/12