TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 6, 2013

Mr. Rick Algea
Vizza Wash, L.P.
2208 NW Loop 410
San Antonio, Texas 78230

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: The Wash Tub – New Braunfels; Located at the northwest corner of the intersection of Independence Drive and Hwy 46; New Braunfels, Texas

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

Investigation No. 1115610; Regulated Entity No. RN106882350; Additional ID No. 13-13082201

Dear Mr. Algea:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by ADA Consulting Group, Inc. on behalf of Vizza Wash, L.P. on August 22, 2013. Final review of the WPAP was completed after additional material was received on November 8, 2013 and December 2, 2013. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed commercial project includes 0.93 acres with 0.74 acres of impervious cover (79.4 percent). The proposed development will be a full service commercial car wash facility. The facility will be equipped with a car wash reclamation system.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, a StormFilter System, 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 664 pounds of TSS generated from the 0.74 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measure will consist of a StormFilter System which has been designed with an equalization basin and will consist of a storage component and filtration component that are hydraulically connected with cartridge restrictor discs that control the outflow of the system. The drainage area to the StormFilter will be 0.93 acres with 0.74 acres of impervious cover. The storage component will consist of a 30-inch pipe underground detention system (200 total linear feet) and 8 feet x 4 feet concrete junction box with a required volume of 985 cubic feet. The filtration component will consist of one vault chamber that is sized to house 18 low drop cartridges. This system is sized to treat 664 pounds of TSS generated from the impervious cover.

GEOLOGY

According to the geologic assessment included with the application, the site is located on the cyclic and marine member of the Person Formation. The project geologist evaluated 15 manmade features in bedrock and all were rated as not sensitive. The San Antonio Regional Office site assessment conducted on December 4, 2013 revealed that the site was generally as described in the application.

SPECIAL CONDITIONS

I. The permanent pollution abatement measure shall be operational prior to occupancy of the facility.

II. All sediment and/or media removed from the permanent pollution abatement measure during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

STANDARD CONDITIONS

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

Prior to Commencement of Construction:

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

During Construction:

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

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

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
13. Four geotechnical boreholes exist on the site and have been properly plugged. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

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

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

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

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Dianne Pavlicek, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4074.

Sincerely,

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

LB/DP/eg

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

cc: Mr. Michael P. Sepeda, P.E., ADA Consulting Group, Inc.
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. James C. Klein, P.E., City of New Braunfels
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 22, 2013

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

Re: Edwards Aquifer, Comal County
PROJECT NAME: The Wash Tub – New Braunfels, located at 1749 West State Highway 46, New Braunfels, Texas

PLAN TYPE: Application for Approval of a Water Pollution Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No. and Regulated Entity No.: RN106882350
EAPP Additional ID: 13-13082201

Dear Mr. Hornseth:

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

Please forward your comments to this office by September 22, 2013.

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

Sincerely

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

Water Pollution Abatement Plan for:

**[In compliance with 30 TAC 213.5(b) -
TCEQ Edwards Aquifer Protection Program]**

The Wash Tub - New Braunfels

Project Address:
1749 State Hwy. 46
New Braunfels, TX 78132

Legal Description:
Being a 0.932-acre tract of land described as Lot 3, Block 2, Westpointe Subdivision, Unit 3 recorded in Document No. 201106027347, Map and Plat Records of Comal County, Texas.

PREPARED BY:

August 16, 2013

ADA CONSULTING GROUP, INC.
221 W. RHAPSODY, STE. 102 SAN ANTONIO, TX 78216
(210) 340-5670 FAX: (210) 340-5728 WWW.ADACG.COM
TBPE REGISTERED ENGINEERING FIRM NO. F-003512

CORE DATA FORM

Water Pollution Abatement Plan

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 — Water Pollution Abatement Plan

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

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:			
☐ 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:*

Vizza Wash, L.P. ada The Wash Tub Car Wash

10. Mailing Address: 2208 NW Loop 410

City	San Antonio	State	TX	ZIP	78230	ZIP + 4	5309

11. Country Mailing Information *(if outside USA)*: N/A

12. E-Mail Address *(if applicable)*: ricka@washtub.net

13. Telephone Number: (210) 493-8822 **14. Extension or Code**: 266 **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)*
742397010	17423970106	N/A	N/A

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)*

The Wash Tub - New Braunfels

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	1749 State Hwy. 46							
	City	New Braunfels	State	TX	ZIP	78132	ZIP + 4	
25. Mailing Address:	2208 NW Loop 410							
	City	San Antonio	State	TX	ZIP	78230	ZIP + 4	

26. E-Mail Address:	ricka@washtub.net

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(210) 493-8822	266	( ) -

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)
7542	N/A	811192	N/A

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

Full Service Car Wash

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

35. Description to Physical Location:	NW corner of Indendence Dr. & SH-46; approx. 200' north of Independence Dr.; 1/3 mile north of Loop 337.

36. Nearest City	County	State	Nearest ZIP Code
New Braunfels	Comal	TX	78132

37. Latitude (N) In Decimal:	27.7175	38. Longitude (W) In Decimal:	98.161944

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	43	3	98	9	43

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
		WPAP		
☐ 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

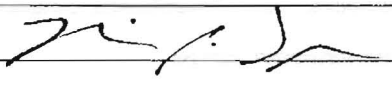
40. Name:	Michael P. Sepeda, P.E.	41. Title:	Professional Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 340-5670		(210) 340-5728	mike@adacg.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:	ADA Consulting Group, Inc.	Job Title:	Project Manager
Name *(In Print)*:	Michael P. Sepeda, P.E.	Phone:	(210) 340-5670
Signature:		Date:	8/16/2013

GENERAL INFORMATION FORM

Water Pollution Abatement Plan

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

REGULATED ENTITY NAME: **The Wash Tub - New Braunfels**
COUNTY: **Comal** STREAM BASIN: **Comal River**

EDWARDS AQUIFER: X RECHARGE ZONE
___ TRANSITION ZONE

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

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Rick Algea
Entity: Vizza Wash, L.P. dba The Wash Tub Car Wash
Mailing Address: 2208 NW Loop 410
City, State: San Antonio, TX Zip: 78230
Telephone: (210) 493-8822 x266 FAX: ~~N/A~~ (210) 298-9404
E-MAIL: rickae@washtub.net

Agent/Representative (If any):

Contact Person: Michael P. Sepeda, P.E.
Entity: ADA Consulting Group, Inc.
Mailing Address: 221 W. Rhapsody, Suite 102
City, State: San Antonio, TX Zip: 78216
Telephone: (210) 340-5670 FAX: (210) 340-5728

2. X This project is inside the city limits of **New Braunfels, TX**.
___ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
___ This project is not located within any city's limits or ETJ.

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

NW corner of Independence Dr. & State Hwy. 46; approximately 200' north of Independence Dr. & 1/3 mile northwest of Loop 337.

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

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

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

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

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

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

PROHIBITED ACTIVITIES

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

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

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

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

ADMINISTRATIVE INFORMATION

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

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

footage of all collection system lines.

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

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

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

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

__ TCEQ cashier

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

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

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

14. 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.

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:

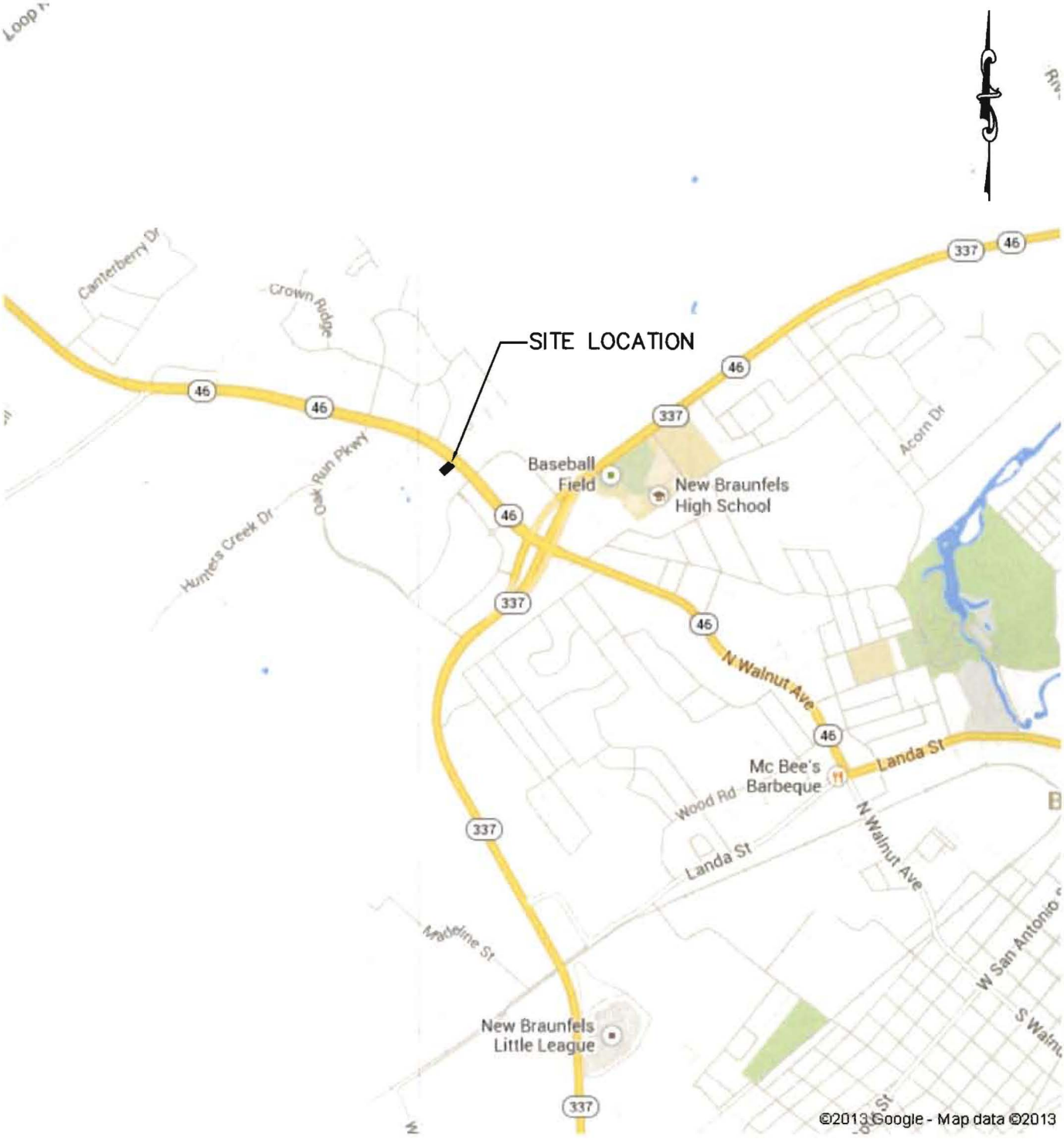
Michael P. Sepeda, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

8-16-13
Date

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

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



ROAD MAP – ATTACHMENT A

THE WASH TUB – NEW BRAUNFELS

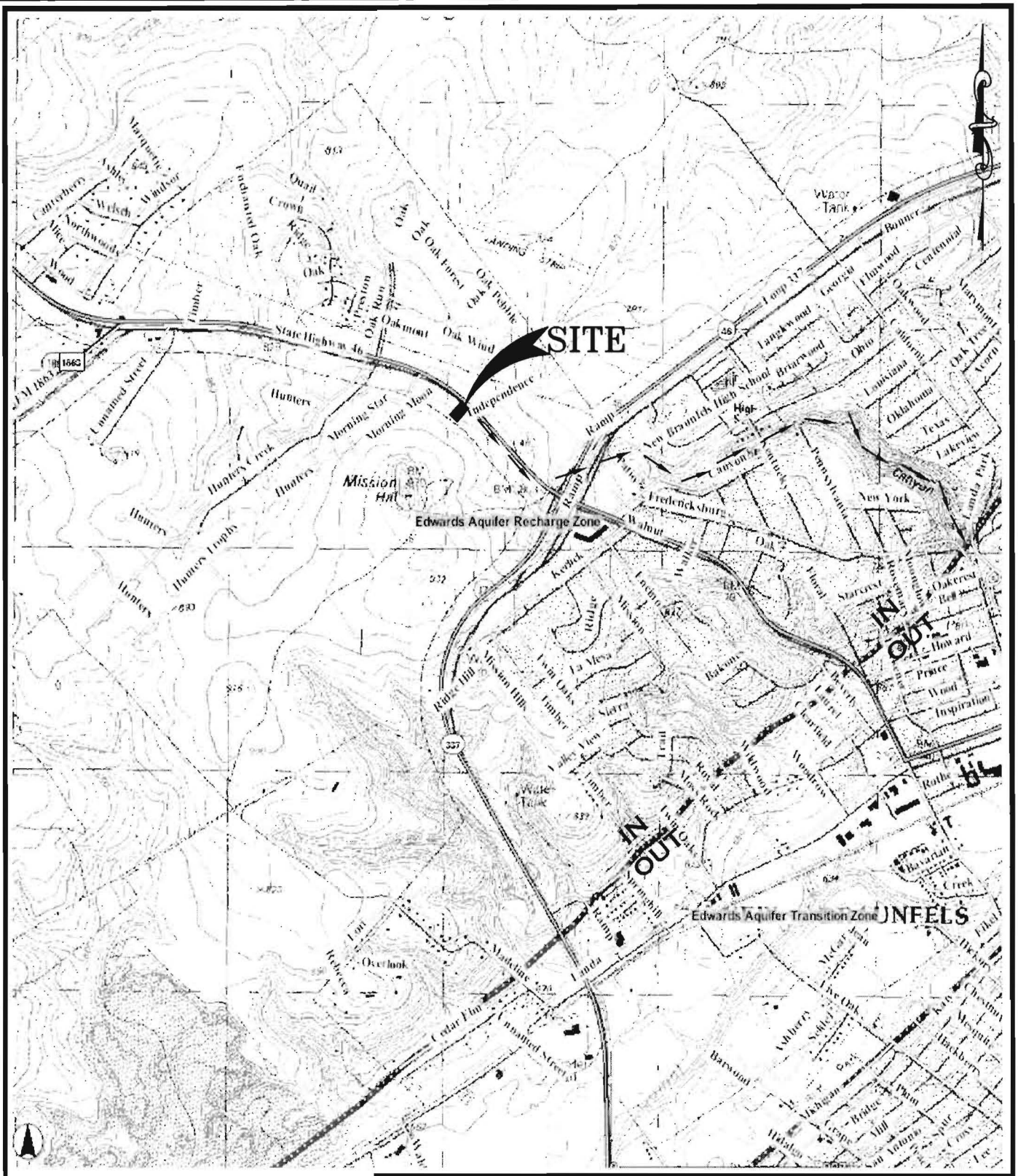
1749 STATE HWY. 46; NEW BRAUNFELS, TX 78132

DATE:	JOB NUMBER:	SHEET NO.
7-19-2013	271-10	1 of 1
DWG NAME:	SCALE:	
271-10 Road Map (GIF-A)	N.T.S.	

ADA CONSULTING GROUP, INC.

221 W. RHAPSODY, STE. 102 SAN ANTONIO, TX 78216
(210) 340-5670 FAX:(210) 340-5728

A TEXAS REGISTERED ENGINEERING FIRM (REGISTRATION No. F-003512)



NEW BRAUNFELS WEST, TX QUADRANGLE

ATTACHMENT B

USGS EDWARDS RECHARGE ZONE MAP

THE WASH TUB – NEW BRAUNFELS

1749 STATE HWY. 46; NEW BRAUNFELS, TX 78132

DATE:	JOB NUMBER:	SHEET NO.
7-19-2013	271-10	1 of 1

DWG NAME:	SCALE:
271-10 Rood Map (GIF-A)	1" = 2000'

ADA CONSULTING GROUP, INC.

221 W. RHAPSODY, STE. 102 SAN ANTONIO, TX 78216
(210) 340-5670 FAX: (210) 340-5728

A TEXAS REGISTERED ENGINEERING FIRM (REGISTRATION No. F-003512)

ATTACHMENT C
Project Description

The proposed project is on a 0.93-acre commercial site that is located along State Hwy. 46 in New Braunfels, Texas approximately 1/3 mile north of Loop 337 which is within the City of New Braunfels city limits. The proposed development will be a full service car wash facility. Storm water runoff originating from the subject site will be treated by an underground filtration system known as Contech StormFilter. The system will be located near the most northern property corner with a 10' curb inlet to collect the onsite storm water and be conveyed within a 30" storm drain line and then directly into the StormFilter system. The storm drain line will mainly serve for the purpose of detaining runoff to allow for the filtration system to cycle the volume of storm water required for this development per BMP sizing calculations. The main filtration system component is contained within an 8' x 6' concrete vault and comprised of eight (8) filter canisters with weir walls to divert excess storm water runoff to bypass the filter chamber. The runoff from the filtration system will drain into a 24" outlet pipe and precast headwall to be discharged towards an existing 3' x 5' single box culvert within State Hwy. 46 (TxDOT).

As mentioned above, the onsite area is 0.93-acre tract of land. Within the site there will be a proposed building/rooftop area of approximately 4,432 s.f. (0.102 acres). The proposed drive and parking lot (pavement) area is approximately 27,200 s.f. (0.624 acres) exposed beyond the building line while the sidewalk & patio area is approximately 590 s.f. (0.014 acre). This totals to 32,222 s.f. (0.740 acres – 79.4%) on onsite impervious cover. The remaining onsite area will remain undeveloped or landscaped.

GEOLOGIC ASSESSMENT

Water Pollution Abatement Plan

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

REGULATED ENTITY NAME: The Wash Tub – New Braunfels

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)
Rumple –Comfort Association	D	0-4

* 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" = 20 '
Site Geologic Map Scale 1" = 20 '
Site Soils Map Scale (if more than 1 soil type) 1" = 20 '

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

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

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

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

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

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

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

   _X_ There are _4_(#) ~~wells~~ geotechnical boreholes present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
   _X_ The ~~wells~~ geotechnical boreholes are not in use and have been properly abandoned.
   __ The wells are not in use and will be properly abandoned.
   __ The wells are in use and comply with 16 TAC Chapter 76.
   __ There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

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

Date(s) Geologic Assessment was performed: August 5, 2013
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.

Dustin G. Smyth, P.G.
Print Name of Geologist

Signature of Geologist

STATE OF TEXAS
DUSTIN G. SMYTH
GEOLOGY
10241
LICENSED
PROFESSIONAL GEOSCIENTIST
8/16/2013

210-641-2112
Telephone
210-641-2124
Fax
August 16, 2013
Date

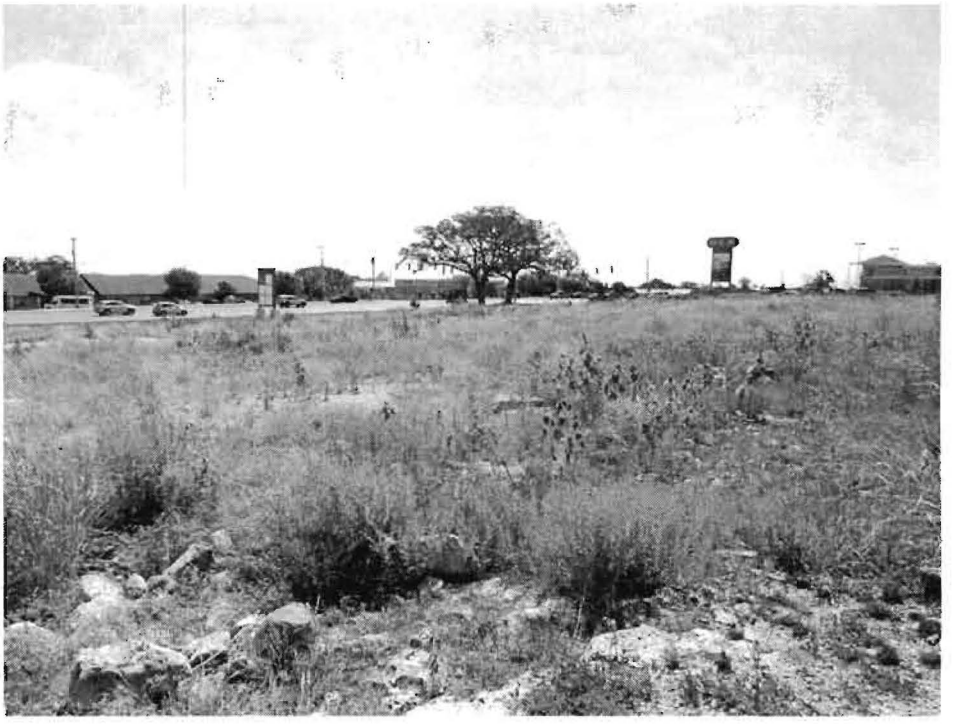
Representing: Terracon Consultants Inc.
(Name of Company)

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

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

The Wash Tub – New Braunfels
1749 State Highway 46
New Braunfels, Comal County, Texas
Terracon Project No 90137259
August 16, 2013



Prepared For:
Wash Tub
2208 NW Loop 410
San Antonio, Texas 78230

Prepared by:
Terracon Consultants, Inc.
San Antonio, Texas

August 16, 2013

Terracon

Mr. Rick Algea
Wash Tub
2208 NW Loop 410
San Antonio, Texas 78230

RE: Geologic Assessment
The Wash Tub – New Braunfels
1749 State Highway 46
New Braunfels, Comal County, Texas
Terracon Project Nº 90137259

Dear Mr. Algea:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Geologic Assessment conducted at the above referenced site. This study was performed by Ms. Dustin G. Smyth, P.G. in accordance with Terracon's proposal (No. P90130661, dated July 31, 2013) at the request of Mr. Charles W. Pope, AIA of Charles William Pope & Associates. The attached report has been prepared in accordance with Title 30 of the Texas Administration Code Chapter 213: Permanent Rules for the Edwards Aquifer. I appreciate the opportunity to perform these services for you. Please contact Dustin G. Smyth if you have questions regarding technical aspects of this report.

Sincerely,
Terracon Consultants, Inc.

Dustin G. Smyth, P.G.
Project Geologist
Geotechnical Services

STATE OF TEXAS
DUSTIN G. SMYTH
GEOLOGY
10241
LICENSED
PROFESSIONAL GEOSCIENTIST
8/16/2013

FOR

Kevin K Bryant, P.G
Project Geologist
Environmental Services

Attachments:
Geologic Assessment Form
Geologic Assessment Narrative Text
Geologic Assessment Table
Stratigraphic Column
Site Photographs
Figure 1: Geologic Map
Preliminary Geotechnical Boring Logs

Copies Submitted:
Client – PDF
ADA Consulting Group, Inc.; Mr. Mike Sepeda, P.E. (PDF and 4 copies)

Geologic Assessment
The Wash Tub – New Braunfels
1749 State Highway 46
New Braunfels, Comal County, Texas

LOCATION

The project site consists of approximately 0.932 acres of cleared undeveloped land at 1749 State Highway 46 in New Braunfels, Comal County, Texas. The site is located within the designated Edwards Aquifer Recharge Zone. Therefore, future development of the site must conform with the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program Rules specified in Title 30 of the Texas Administrative Code, Section 213 (30 TAC§ 213).

EXPLANATION OF ASSESSMENT

This assessment follows general guidelines contained in the TCEQ "*Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/ Transition Zones*" (TCEQ Guidance 0585). The recharge zone, where the site is located, may contain karst features formed by selective solutioning of limestone minerals by water. Karst features may be expressed as surface features but more commonly tend to persist with depth. On-site observations, performed on August 5, 2013, consisted of a pedestrian survey of the subject property and non-intrusive visual observations of readily accessible, easily visible surface conditions. Intrusive subsurface testing such as excavation, cave mapping, infiltrometer testing, geophysical studies, or tracer studies is not required for the geologic assessment of any feature in accordance with the reference guidelines.

For the purposes of this assessment, geologic or manmade features on the recharge zone or transition zone are areas of soil and bedrock with a surficial appearance suggesting that a potential exists for hydraulic interconnectedness between the surface and the Edwards Aquifer, where rapid infiltration into the subsurface may occur. These features include, but are not limited to, closed depressions, sinkholes, caves, faults, fractures, bedding plane surfaces, interconnected vugs, reef deposits, wells, borings, and excavations.

GENERAL SITE DESCRIPTION

The site is situated on a gently sloping, undeveloped, and cleared parcel located at 1749 State Highway 46 in New Braunfels, Comal County, Texas. The project site is approximately 0.932 acres in size.

The site has been cleared of trees and brush. Small stockpiles of rock, vegetation, and debris were observed along the western property boundary of the project site. Some scattered rock debris was observed across the site. Presumably these stockpiles were created during the clearing process and development of adjacent parcels. Additionally, a small building pad has been graded in the northeastern quadrant of the site. The combination of stockpiles, minor grading and the building pad placement obscured the ground surface in several areas of the site, making identification of potential recharge features difficult. Areas cleared of trees were covered with various grasses, weeds, and woody shrubs that averaged approximately 2 feet in height. According to a topographic survey provided to Terracon by the Client, the site ranges in elevation from about 874 feet at the southeast corner to about 885 feet above mean sea level at the southwest corner. Generally, the site appears to drain towards the east via sheet flow since major channels and other drainage pathways were not observed on-site. A Topographic Map depicting the elevations is presented at the end of this report as Figure 1.

Historical aerial photographs available at google.com and mapquest.com websites reviewed during this assessment depicted the site as rural, undeveloped and heavily vegetated property through 2010. However, a 2012 aerial photograph depicts the site and the surrounding properties as being cleared with commercial development on the parcel to the north.

SOIL DESCRIPTION

Based on a review of the *United States Department of Agriculture (USDA) Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app) and Urban Hydrology for Small Watersheds (Technical Release No. 55, Engineering Division, Natural Resources Conservation Service, USDA, July 1986)* the soil type mapped on the site is the Rumple-Comfort Association (RUD).

The soils of the Rumple-Comfort Association (RUD) generally occur on 1 to 8 percent slopes. These soils are described as having average depths of 20 to 40 inches overlying lithic bedrock. The soil may not be present on rock outcrops within the mapped areas. These soils are classified as having very low water infiltration rate.

Review of the boring logs for the Geotechnical Engineering Study (Terracon Project Number 90135171), currently being conducted at the site, indicates soils were encountered at the ground surface to depths ranging from 6 inches to 4 feet deep.

NARRATIVE DESCRIPTION OF SITE GEOLOGY

According to the *Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas (USGS, 2005)* and *Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Comal County, Texas [USGS Water-Resources Investigations (WRI) Report 94-4117 (1994)]*, the site is located on the Cyclic and Marine member of the Edwards Person Formation. A Geologic Map depicting the geologic formations present on the project

site is presented at the end of this Report as Figure 1.
The Cyclic and Marine member of the Person Formation is reported to range in thickness from 80 to 100 feet. The member consists of chert-bearing mudstone, packstone and *miliolid* grainstone. According to the above-referenced geologic maps, this member has many subsurface caverns that may be associated with earlier karst development. Caves are typically laterally extensive, both fabric and non-fabric, are water yielding and permeable.

The above-referenced geologic maps indicate that a fault is mapped to the north of the site. The fault is a known fault that slightly offsets the overlying Buda and Del Rio formations and the Cyclic and Marine Member of the Persons formation. Based on the orientation of this fault, the dominant structural trend in the area occurs at an angle of approximately N57°E.

Review of *Geologic Map of the Edwards Aquifer Recharge Zone, South-Central Texas (USGS, 2005)* does not indicate that caves have been mapped on or in the general vicinity of the site. A review of the Texas Water Development Board website (https://texaswellreports.twdb.state.tx.us/drillers-new/index.asp) indicates that no water wells have been installed at the site.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS

The following is a description of the features observed during the field observations at the site. The features such as caves, solution cavities, solution-enlarged fractures, faults, other natural bedrock features, manmade features in bedrock, swallow holes, sinkholes, non-karst closed depressions, and zone/clustered/aligned features listed below were identified using the survey guidance from the Texas Commission on Environmental Quality (TCEQ) *Instructions to Geologists for Geologic Assessments* as revised October 1, 2004.

For the purposes of completing the geologic assessment forms and associated table included at the end of this report, each feature has been assigned a point value where higher values indicate increased chance for rapid infiltration into the subsurface. As required by the TCEQ survey guidance documents, some features, such as mapped faults not readily identifiable in the field, have also been included in this section. Figure 1 at the end of this report depicts the locations of all geologic features discussed below.

F-1, F-5, F-6, and F-7: Manmade Features in Bedrock: These features are utility stub-out locations (see Photograph No. 2). The stub-out pipe connects to an underground utility, presumably a sanitary sewer collection system. The pipe is approximately 6 inches in diameter and extends into the subgrade. The actual depth of the utility pipe is unknown. However, sewer pipes are typically 6 to 12 feet below the ground surface. It is assumed that the sanitary sewer stub-outs are connected to a sewer line which runs approximately 154 feet along the length of the site near the eastern boundary. Typically, sewer lines are installed into trenches excavated into near surface soils and shallow bedrock. Once the utility line has been installed, select materials, such as sand or pea

gravel, are typically used to backfill around the utility line though reuse of excavated materials removed during the trench excavation is also common. Readily available online photographs indicate that the site was heavily wooded raw land through at least 2010. Therefore, any utility construction performed should have been constructed under current guidelines for backfill and should have been monitored during construction for karst features in the utility trench excavations and appropriate protective measures implemented. A records search to determine if the sanitary sewer system was properly permitted was not performed.

The site is located on hilltop topography and appears to have a small catchment area. Due to the relatively recent utility construction and lack of catchment area, potential recharge into the features to the Edwards Aquifer is believed to be low - scoring 35 points each on the Geologic Assessment Table (see end of this report). Since the features have been determined to rank less than 40 points, the features would not be considered sensitive.

F-2, F-4: Manmade Feature in Bedrock: This feature is a sewer manhole cover for a sewer line owned by New Braunfels Utilities (NBU; see Photograph No. 3). The manhole is approximately 3 feet in diameter. The actual depth of the sewer trench is unknown. However, sewer pipes are typically 6 to 12 feet below the ground surface. It is assumed that the sanitary sewer manholes are connected to a sewer line which runs approximately 154 feet along the length of the site near the eastern boundary. Typically, sewer lines are installed into trenches excavated into near surface soils and shallow bedrock. Once the utility line has been installed, select materials, such as sand or pea gravel, are typically used to backfill around the utility line though reuse of excavated materials removed during the trench excavation is also common. Readily available online photographs indicate that the site was heavily wooded raw land through at least 2010. Therefore, any utility construction performed should have been constructed under current guidelines for backfill and should have been monitored during construction for karst features in the utility trench excavations and appropriate protective measures implemented. A records search to determine if the sanitary sewer system was properly permitted was not performed.

The site is located on hilltop topography and appears to have a small catchment area. Due to the relatively recent utility construction and lack of catchment area, potential recharge into the feature to the Edwards Aquifer is believed to be low - scoring 35 points each on the Geologic Assessment Table (see end of this report). Since the features have been determined to rank less than 40 points, the features would not be considered sensitive.

F-3: Manmade Feature in Bedrock: This feature is a fire hydrant associated with a water line along the boundary of the site (see Photograph No. 4). The water line is believed to be owned and operated by NBU. The fire hydrant is approximately 8 inches in diameter and extends into the subgrade. The actual depth of the utility pipe is unknown.

However, water pipes are typically 4 to 6 feet below the ground surface. It is assumed that the fire hydrant is connected to a water line which runs approximately 154 feet along the length of the site near the eastern boundary. Typically, water lines are installed into trenches excavated into near surface soils and shallow bedrock. Once the utility line has been installed, select materials, such as sand or pea gravel, are typically used to backfill around the utility line though reuse of excavated materials removed during the trench excavation is also common. Readily available online photographs indicate that the site was heavily wooded raw land through at least 2010. Therefore, any utility construction performed should have been constructed under current guidelines for backfill and should have been monitored during construction for karst features in the utility trench excavations and appropriate protective measures implemented.
The site is located on hilltop topography and appears to have a small catchment area. Due to the relatively recent utility construction and lack of catchment area, potential recharge into the feature to the Edwards Aquifer is believed to be low - scoring 35 points each on the Geologic Assessment Table (see end of this report). Since the features have been determined to rank less than 40 points, the features would not be considered sensitive.

F-8: Manmade Feature in Bedrock: This feature is a utility gas trench along the boundary of the site (see Photograph No. 5). The trench is suspected to be about 2 feet wide and appears to span the entire 154 feet of the western boundary. The depth of the trench is unknown. However, gas pipes are typically 2 to 4 feet below the ground surface. Typically, utility lines are installed into trenches excavated into near surface soils and shallow bedrock. Once the utility line has been installed, select materials, such as sand or pea gravel, are typically used to backfill around the utility line though reuse of excavated materials removed during the trench excavation is also common. Readily available online photographs indicate that the site was heavily wooded raw land through at least 2010. Therefore, any utility construction performed should have been constructed under current guidelines for backfill and should have been monitored during construction for karst features in the utility trench excavations and appropriate protective measures implemented.

The site is located on hilltop topography and appears to have a small catchment area. Due to the relatively recent utility construction and lack of catchment area, potential recharge into the feature to the Edwards Aquifer is believed to be low - scoring 35 points each on the Geologic Assessment Table (see end of this report). Since the features have been determined to rank less than 40 points, the features would not be considered sensitive.

F-9: Manmade Feature in Bedrock: This feature is a closed depression (likely a tree removal area) measuring 4 feet long, 5 feet wide and 1 foot deep (see Photograph No. 6). The feature is filled with organic debris, coarse gravel, cobbles, construction debris and small oak limbs. Tree roots were observed in the depression. Coarse rock and construction debris appears to have been piled along the western boundary of the site. Some

remaining trees appear to have been uprooted and removed, leaving a small depression, surrounded by fill which was then pushed into the holes. When probed with a metal T-probe, the probe could only be advanced approximately 6 inches into dark brown soil and remnant leaf litter before encountering a hard bedrock floor. The feature is located on a low slope (hilltop) area with a small catchment area. Therefore, given the nature of development of the feature and small catchment area, potential recharge through the feature to the Edwards Aquifer is believed to be low - scoring 38 points on the Geologic Assessment Table (see end of this report). Since the feature is determined to rank less than 40 points, the feature would not be considered sensitive.

F-10: Manmade Feature in Bedrock: This feature is a closed depression (likely a tree removal area) measuring 3 feet long, 3 feet wide and 1 foot deep (see Photograph No. 7). The feature is filled with organic debris, coarse gravel, cobbles, construction debris and many ashe juniper limbs. Tree roots were observed in the depression. Coarse rock and construction debris appear to have been piled along the western boundary of the site. Some remaining trees were likely uprooted and removed, leaving a small depression, surrounded by fill which was then pushed into the holes. When probed with a metal T-probe, the probe could only be advanced approximately 6 inches into dark brown soil and remnant leaf litter before encountering a hard bedrock floor. The feature is located on a low slope (hilltop) area with a small catchment area. Therefore, given the nature of development of the feature and small catchment area, potential recharge through the feature to the Edwards Aquifer is believed to be low - scoring 38 points on the Geologic Assessment Table (see end of this report). Since the feature is determined to rank less than 40 points, the feature would not be considered sensitive.

F-11: Manmade Feature in Bedrock: This feature is a closed depression (likely a tree removal area) measuring 3 feet long, 3 feet wide and 1 foot deep (see Photograph No. 8). The feature is filled with organic debris, coarse gravel, cobbles, construction debris and many ashe juniper limbs. Tree roots were observed in the depression. Coarse rock and construction debris appear to have been piled along the western boundary of the site. Some remaining trees were likely uprooted and removed, leaving a small depression, surrounded by fill whichwas then pushed into the holes. When probed with a metal T-probe, the probe could only be advanced approximately 6 inches into dark brown soil and remnant leaf litter before encountering a hard bedrock floor. The feature is located on a low slope (hilltop) area with a small catchment area. Therefore, given the nature of development of the feature and small catchment area, potential recharge through the feature to the Edwards Aquifer is believed to be low - scoring 38 points on the Geologic Assessment Table (see end of this report). Since the feature is determined to rank less than 40 points, the feature would not be considered sensitive.

F-12 through F-15: Manmade Features in Bedrock: These features are geotechnical boreholes (B-1 through B-4, respectively) drilled by Terracon on August 9, 2013. The geotechnical boreholes were approximately 4 inches in diameter and ranged in depth from 5 to 20 feet (see preliminary geotechnical boring logs at the end of this report). No

groundwater was encountered in the borings during the on-site drilling activities. Borings that were 20 feet deep were backfilled with bentonite chips while borings less than 20 feet deep were backfilled with cuttings removed from the borehole. Vugs, clay seams, voids and collapse breccia were not noted in the boreholes. The boreholes are all located in areas of low topographic relief (hilltop) and had small catchment areas. Given the nature of development of the features and lack of catchment area, potential recharge into the feature to the Edwards Aquifer is believed to be low - scoring between 35 and 38 points on the Geologic Assessment Table (see end of this report). Since the features have been determined to rank less than 40 points, the features would not be considered sensitive.

COMMENTS AND OBSERVATIONS

Slight modification of the site topography or surface water flow during construction is anticipated. Within the Edwards Aquifer Recharge Zone, potential recharge features lacking visible surface expression (such as subsurface solution enlarged fractures, caves, cavities, and other karst features) are often present which would not be identifiable during the site observations. Accordingly, this assessment does not address the possible presence of subsurface conditions that may be exposed during excavation or other construction activities. In addition, the debris piles and areas of site grading/fill obscured the ground surface and observation of these areas was minimal given the circumstances. Should solution features or conditions be exposed during construction at the site, work should be halted and the TCEQ Edwards Aquifer Protection Program should be notified of the site conditions immediately in accordance with 30 TAC §213.5(f)(2).

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Wash Tub - New Braunfels (Terracon Project No. 90137259)

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	RQD	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
F-1	29° 43' 3.036"	98° 9' 41.616"	MB	30	Kpcm	0.50	0.50	?					x	5	35	x		x		Hilltop
F-2	29° 43' 3.072"	98° 9' 41.436"	MB	30	Kpcm	3.00	3.00	?					x	5	35	x		x		Hilltop
F-3	29° 43' 3.828"	98° 9' 42.156"	MB	30	Kpcm	0.75	0.75	?					x	5	35	x		x		Hilltop
F-4	29° 43' 4.008"	98° 9' 42.552"	MB	30	Kpcm	3.00	3.00	?					x	5	35	x		x		Hilltop
F-5	29° 43' 4.008"	98° 9' 42.552"	MB	30	Kpcm	0.50	0.50	?					x	5	35	x		x		Hilltop
F-6	29° 43' 3.252"	98° 9' 43.416"	MB	30	Kpcm	0.50	0.50	?					x	5	35	x		x		Hilltop
F-7	29° 43' 2.604"	98° 9' 44.244"	MB	30	Kpcm	0.50	0.50	?					x	5	35	x		x		Hilltop
F-8	29° 43' 2.424"	98° 9' 44.424"	MB	30	Kpcm	2.00	150.00	?					x	5	35	x		x		Hilltop
F-9	29° 43' 2.532"	98° 9' 43.956"	MB	30	Kpcm	4.00	5.00	1					x, c, o	8	38	x		x		Hilltop
F-10	29° 43' 2.46"	98° 9' 43.776"	MB	30	Kpcm	3.00	3.00	1					x, c, o	8	38	x		x		Hilltop
F-11	29° 43' 2.424"	98° 9' 43.524"	MB	30	Kpcm	4.00	4.00	0.5					x, c, o	8	38	x		x		Hilltop
F-12	29° 43' 3.354"	98° 9' 43.17"	MB	30	Kpcm	0.33	0.33	20					x	5	35	x		x		Hilltop
F-13	29° 43' 2.55"	98° 9' 43.404"	MB	30	Kpcm	0.33	0.33	20					x	5	35	x		x		Hilltop
F-14	29° 43' 3.036"	98° 9' 42.12"	MB	30	Kpcm	0.33	0.33	5					x	8	38	x		x		Hilltop
F-15	29° 43' 3.648"	98° 9' 42.984"	MB	30	Kpcm	0.33	0.33	5					x	8	38	x		x		Hilltop

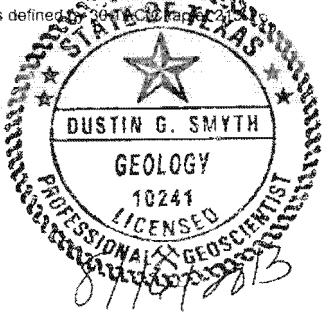
* DATUM NAD 83

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

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

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

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 76.



Date: August 16, 2013

Sheet 1 of 1

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

STRATIGRAPHIC COLUMN
THE WASH TUB – NEW BRAUNFELS
1749 STATE HIGHWAY 46
NEW BRAUNFELS, COMAL COUNTY, TEXAS

Hydrogeologic subdivision				Group, formation, or member	Hydrologic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity/permeability type
Upper Cretaceous	Upper confining units			Navarro and Taylor Groups, undivided	CU	600	Clay, chalky limestone	Gray-brown clay; marly limestone	None	Low porosity/low permeability
				Austin Group	CU; rarely AQ	130 - 150	White to gray limestone	White-chalky limestone; *Gryphaea aucella*	None	Low porosity; rare water production from fractures/low permeability
				Eagle Ford Group	CU	30 - 50	Brown, flaggy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/low permeability
				Buda Limestone	CU	40 - 50	Buff, light gray, dense mudstone	Porcelaneous limestone	Minor surface karst	Low porosity/low permeability
				Del Rio Clay	CU	40 - 50	Blue-green to yellow-brown clay	Fossiliferous; *Ilymatogyra arietina*	None	None/primary upper confining unit
Lower Cretaceous		Edwards aquifer	I	Georgetown Formation	CU	Less than 10	Gray to light tan marly limestone	Marker fossil: *Waconella wacoensis*	None	Low porosity/low permeability
			II	Person Formation: Cyclic and marine members, undivided	AQ	80 - 100	Mudstone to packstone; *miliolid* grainstone; chert	Light tan, massive; some *Toucasia*	Many subsurface, may be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding; one of most permeable
			III	Person Formation: Leached and collapsed members, undivided	AQ	80 - 100	Crystalline limestone; mudstone to grainstone; chert; collapsed breccia	Bioturbated iron-stained beds separated by massive limestone beds; *Montastrea sp.*	Extensive lateral development, large rooms	Majority not fabric/one of most permeable
			IV	Person Formation: Regional dense member	CU	20 - 24	Dense, argillaceous mudstone	Wispy iron-oxide stains	None, only vertical fracture enlargement	Not fabric/low permeability; vertical barrier
			V	Kainer Formation: Grainstone member	AQ	50 - 60	*Miliolid* grainstone; mudstone to wackestone; chert	White crossbedded grainstone; *Toucasia*	Few	Not fabric/recrystallization reduces permeability
			VI	Kainer Formation: Kirschberg evaporite member	AQ	50 - 60	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable
			VII	Kainer Formation: Dolomitic member	AQ	110 - 130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, *Toucasia* abundant	Caves related to structure or bedding planes	Mostly not fabric; some bedding plane-fabric/water-yielding; locally permeable
			VIII	Kainer Formation: Basal nodular member	Karst AQ; not karst CU	50 - 60	Shaly, nodular limestone; mudstone and *miliolid* grainstone	Massive, nodular and mottled, *Exogyra texana*	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric/large conduit flow at surface; no permeability in subsurface
	Lower confining unit			Upper member of the Glen Rose Limestone	CU; evaporite beds AQ	350 - 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography, alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/ relatively impermeable

Based on information provided in the *Geologic Framework and Hydrogeologic Characteristics of the Outcrops of the Edwards Aquifer Recharge Zone, Comal County, Texas* (USGS, 1994).

Photo #1 Typical view of the site.

Photo #2 View of sanitary sewer stub-out typical of features F-1, F-5, F-6, and F-7.

Photo #3 View of sanitary sewer manhole typical of features F-2 and F-4.

Photo #4 View of fire hydrant (feature F-3).

Photo #5 View of utility trench along the western property line demarcated by a gas placard.

Photo #6 View of feature F-9.

Photo #7 View of a feature F-10.

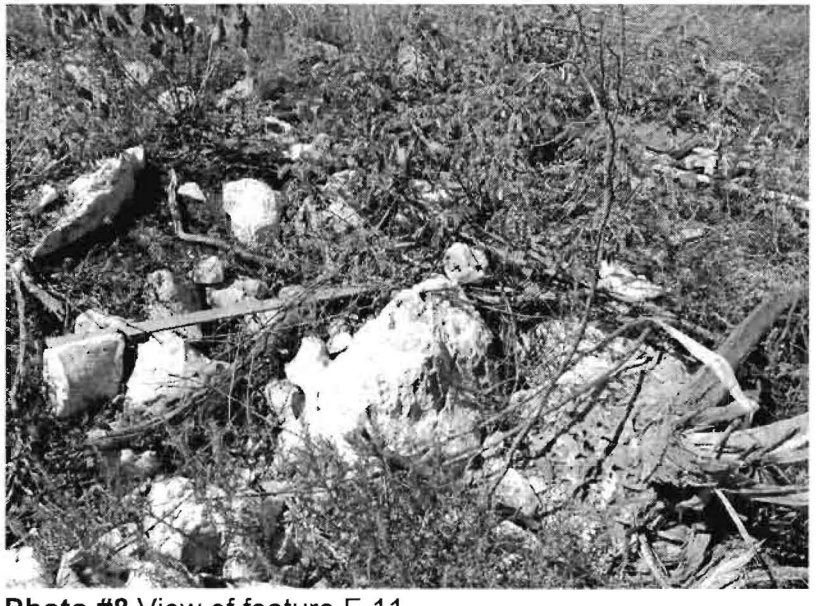
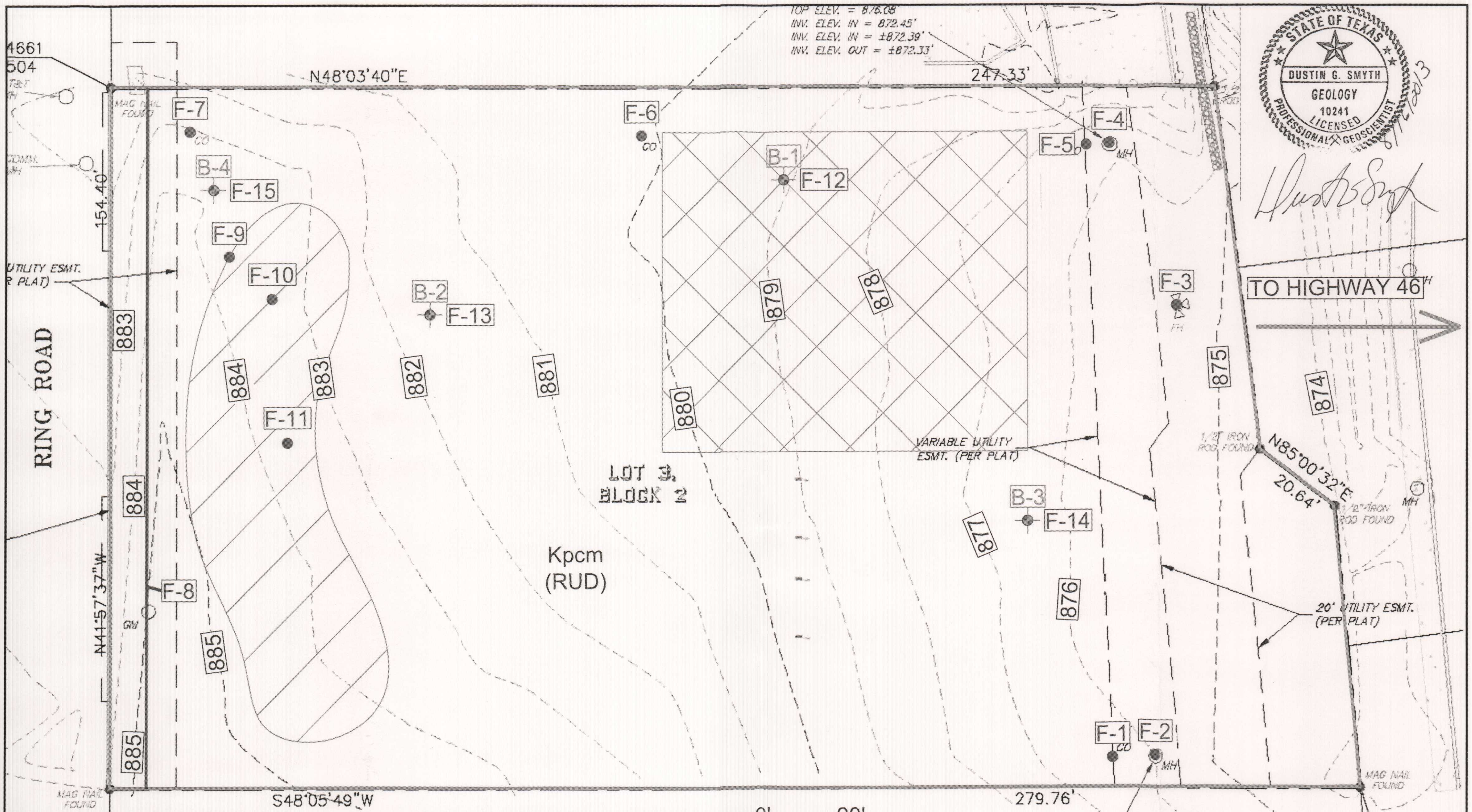


Photo #8 View of feature F-11.



LEGEND

- -SITE BOUNDARY
- -APPROXIMATE LOCATION OF LINEAR POTENTIAL RECHARGE FEATURE
- -APPROXIMATE LOCATION OF GEOTECHNICAL BORING
- -APPROXIMATE LOCATION OF POTENTIAL RECHARGE FEATURES
- -APPROXIMATE LOCATION OF STOCKPILED SOIL
- -APPROXIMATE LOCATION OF EXISTING FILL PAD

Kpcm -GEOLOGIC FORMATION: THE CYCLIC AND MARINE MEMBER OF THE PERSONS FORMATION OF THE EDWARDS GROUP (ENTIRE PROPERTY)

(RUD)-USDA SOILS: RUMPLE-COMFORT ASSOCIATION (ENTIRE PROPERTY)

Project Mngr: DGS	Project No. 90137259		
Drawn By: RA(90)	Scale: 1"=20'		
Checked By: DGS	File No. 90137259		
Approved By: DGS	Date: 08/16/2013		

Terracon
Consulting Engineers and Scientists
6911 BLANCO ROAD SAN ANTONIO, TX 78216
PH. (210) 641-2112 FAX. (210) 641-2124

GEOLOGIC MAP

The Wash Tub - New Braunfels
1749 State Highway 46
New Braunfels, Comal County, Texas

FIG. No. 1

BORING LOG NO. B-1

PROJECT: The Wash Tub - Highway 46, New Braunfels

CLIENT: Wash Tub
San Antonio, Texas

SITE: Highway 46 and Independence Drive
New Braunfels, Texas

LOCATION See Exhibit A-2

Latitude: 29.717598° Longitude: -98.161991°

DEPTH	GRAPHIC LOG	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	Percent Fines
0.0												
1.0	**STRATUM I** FILL: CLAYEY GRAVEL (GC); light brown, dense.				14-32-10 N=42				8		24-15-9	23
2.0	**STRATUM III** CLAYEY GRAVEL (GC); dark brown, dense.											
	STRATUM IV LIMESTONE; light gray, very hard.				ref/1"							
		5			ref/0"							
					ref/1"							
					ref/0"							
		10										
					ref/0"							
		15										
					ref/0"							
20.0	***Boring Terminated at 20 Feet***	20										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Air Rotary Rock Drilling

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered during drilling.

Terracon

Boring Started: 8/9/2013	Boring Completed: 8/9/2013
Drill Rig: CME 75	Driller: Accu Drill
Project No.: 90135171	Exhibit: A-4

BORING LOG NO. B-2

PROJECT: The Wash Tub - Highway 46, New Braunfels

CLIENT: Wash Tub
San Antonio, Texas

SITE: Highway 46 and Independence Drive
New Braunfels, Texas

LOCATION See Exhibit A-2

Latitude: 29.717375° Longitude: -98.162057°

GRAPHIC LOG	DEPTH	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	Percent Fines
	STRATUM I FILL: CLAYEY GRAVEL (GC); yellowish brown, mottled with dark brown, dense to very dense.				5-18-20 N=38				4			16
					73/10"				7			
	4.0 **STRATUM IV** LIMESTONE; light gray, very hard.	5			ref/1"							
					ref/0"							
		10			ref/0"							
					ref/0"							
		15										
					ref/1"							
	20.0 ***Boring Terminated at 20 Feet***	20										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Air Rotary Rock Drilling

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered during drilling.

Terracon

Boring Started: 8/9/2013 | Boring Completed: 8/9/2013

Drill Rig: CME 75 | Driller: Accu Drill

Project No.: 90135171 | Exhibit: A-5

BORING LOG NO. B-3

PROJECT: The Wash Tub - Highway 46, New Braunfels

CLIENT: Wash Tub
San Antonio, Texas

SITE: Highway 46 and Independence Drive
New Braunfels, Texas

LOCATION See Exhibit A-2

Latitude: 29.717541° Longitude: -98.161699°

DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	Percent Fines
0.5	**STRATUM II** FAT CLAY (CH); dark brown, very stiff.				6-8-11 N=19				4		53-24-29	22
1.5	**STRATUM III** CLAYEY GRAVEL (GC); light brown, medium dense.				ref/4"							
	STRATUM IV LIMESTONE; light gray, very hard.				ref/1"							
5.0	***Boring Terminated at 5 Feet***	5										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Air Rotary Rock Drilling

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered during drilling.

Terracon

Boring Started: 8/9/2013	Boring Completed: 8/9/2013
Drill Rig: CME 75	Driller: Accu Drill
Project No.: 90135171	Exhibit: A-6

BORING LOG NO. B-4

PROJECT: The Wash Tub - Highway 46, New Braunfels

CLIENT: Wash Tub
San Antonio, Texas

SITE: Highway 46 and Independence Drive
New Braunfels, Texas

LOCATION See Exhibit A-2

Latitude: 29.717396° Longitude: -98.162303°

GRAPHIC LOG	DEPTH		DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	STRENGTH TEST: TEST TYPE	STRENGTH TEST: COMPRESSIVE STRENGTH (tsf)	STRENGTH TEST: STRAIN (%)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS: LL-PL-PI	Percent Fines
	0.3	**STRATUM II** FAT CLAY (CH); dark brown, hard.				83/9"				9		43-20-23	30
	1.5	**STRATUM III** CLAYEY GRAVEL (GC); light brown, very dense.				ref/1"				5			38
		STRATUM IV LIMESTONE; light gray, very hard.				ref/0"							
	5.0	***Boring Terminated at 5 Feet***	5										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Air Rotary Rock Drilling

Abandonment Method:
Borings backfilled with soil cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered during drilling.

Terracon

Boring Started: 8/9/2013 | Boring Completed: 8/9/2013

Drill Rig: CME 75 | Driller: Accu Drill

Project No.: 90135171 | Exhibit: A-7

WPAP APPLICATION

Water Pollution Abatement Plan

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

REGULATED ENTITY NAME: **The Wash Tub - New Braunfels**

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): **0.932**

3. Projected population: **21 - 100**

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

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	**4,432**	÷ 43,560 =	**0.102**
Parking	**27,200**	÷ 43,560 =	**0.624**
Other paved surfaces	**590**	÷ 43,560 =	**0.014**
Total Impervious Cover	**32,222**	÷ 43,560 =	**0.740**
Total Impervious Cover ÷ Total Acreage x 100 =			**79.4%**

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.
   - ___ 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	~5000 gallons/day
____% Industrial	_____ gallons/day
____% Commingled	_____ gallons/day
TOTAL	~5000 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 _____ (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" = __20__'.

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):
FEMA - FIRM, Comal County, Texas and Incoporated Areas
Map No. 48091C0435F with effective date of September 2, 2009.

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

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
__X__ There are __4__ (#) ~~wells~~ borings present on the project site and the locations are shown and labeled. (Check all of the following that apply)
MPS
__X__ The ~~wells~~ borings are not in use and have been properly abandoned.
____ The wells are not in use and will be properly abandoned.
____ The wells are in use and comply with 16 TAC §76.
____ There are no wells or test holes of any kind known to exist on the project site.

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

22. __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 P. Sepeda, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

8-16-13
Date

ATTACHMENT A
Factors Affecting Water Quality

Landscaping, heavy vehicular traffic, soap & cleaning products, and various construction activities may affect the quality of stormwater originating on the proposed site. These factors may cause small amounts of oil, grease, suspended solids, fertilizers, and pesticides to enter into the stormwater runoff. However, BMPs, both temporary and permanent, have been designed on the basis of the current Technical Guidance Manual to treat the required amount of stormwater runoff as to not adversely affect water quality entering into any surface water or groundwater.

ATTACHMENT B
Volume and Character of Stormwater

Stormwater runoff generated from rooftops, parking lot, sidewalks, and landscape areas for the car wash development are commercial in nature and may be impregnated with small amounts of oil, grease, suspended solids, soaps, cleaning products, fertilizers and pesticides. Storm water runoff within the site generally drains towards the north to State Hwy. 46 however collected by a 10' curb inlet and then into a storm drain system. Both temporary and permanent BMP's have been designed on the basis of the Technical Guidance Manual to treat the required volume and character of stormwater runoff to remove at least 80% of the increased TSS due to the proposed development. Reference calculations are listed below for the amount of storm water generated on the site.

EXISTING & PROPOSED CONDITIONS

	(Existing) E-1			(Proposed) P-1		
Area =	0.932	Ac		0.932	Ac	
"c" =	0.38			0.71		
tc =	17.5	(min)		10.0	(min)	
I_{10} =	5.83	(in/hr)		7.56	(in/hr)	**Storm Water Runoff Increase**
I_{25} =	6.98	(in/hr)	**Antecedent Precipitation Coefficient**	9.07	(in/hr)	
I_{100} =	9.12	(in/hr)		11.90	(in/hr)	
Q_{10} =	2.06	(cfs)	**k =** 1.00	5.03	(cfs)	**2.97**
Q_{25} =	2.72	(cfs)	**k =** 1.10	6.63	(cfs)	**3.92**
Q_{100} =	4.04	(cfs)	**k =** 1.25	9.90	(cfs)	**5.86**

Note: "c" value of 0.38 was used for existing hydrologic calculations incorporating "Pasture/Range" values for moderate sloped (2-7%) areas per Table 5-2 of the City of New Braunfels Drainage and Erosion Control Manual

Note: A weighted "c" value for the proposed site was calculated for proposed hydrologic conditions using values per Table 5-2 of the City of New Braunfels Drainage and Erosion Control Manual for the following types of developed cover conditions:

"c" value		EXISTING COND. (E-1) Area	EXISTING COND. (E-1) ["c" x A]	PROPOSED COND. (P-1) Area	PROPOSED COND. (P-1) ["c" x A]
0.30	lawn area, good coverage > 50%	40597 S.F.	15426.9	8305 S.F.	2491.5
0.81	asphalt pavement	0 S.F.	0.0	15122 S.F.	12248.8
0.83	concrete & roof area	0 S.F.	0.0	17100 S.F.	14193.0
		40597 S.F.	15426.9	40527 S.F.	28933.3
"c" weighted = $\Sigma(cA) / \Sigma(A)$		**"c" $_{weighted}$ =**	**0.38**	**"c" $_{weighted}$ =**	**0.71**

SOIL EROSION CONTROL NOTES

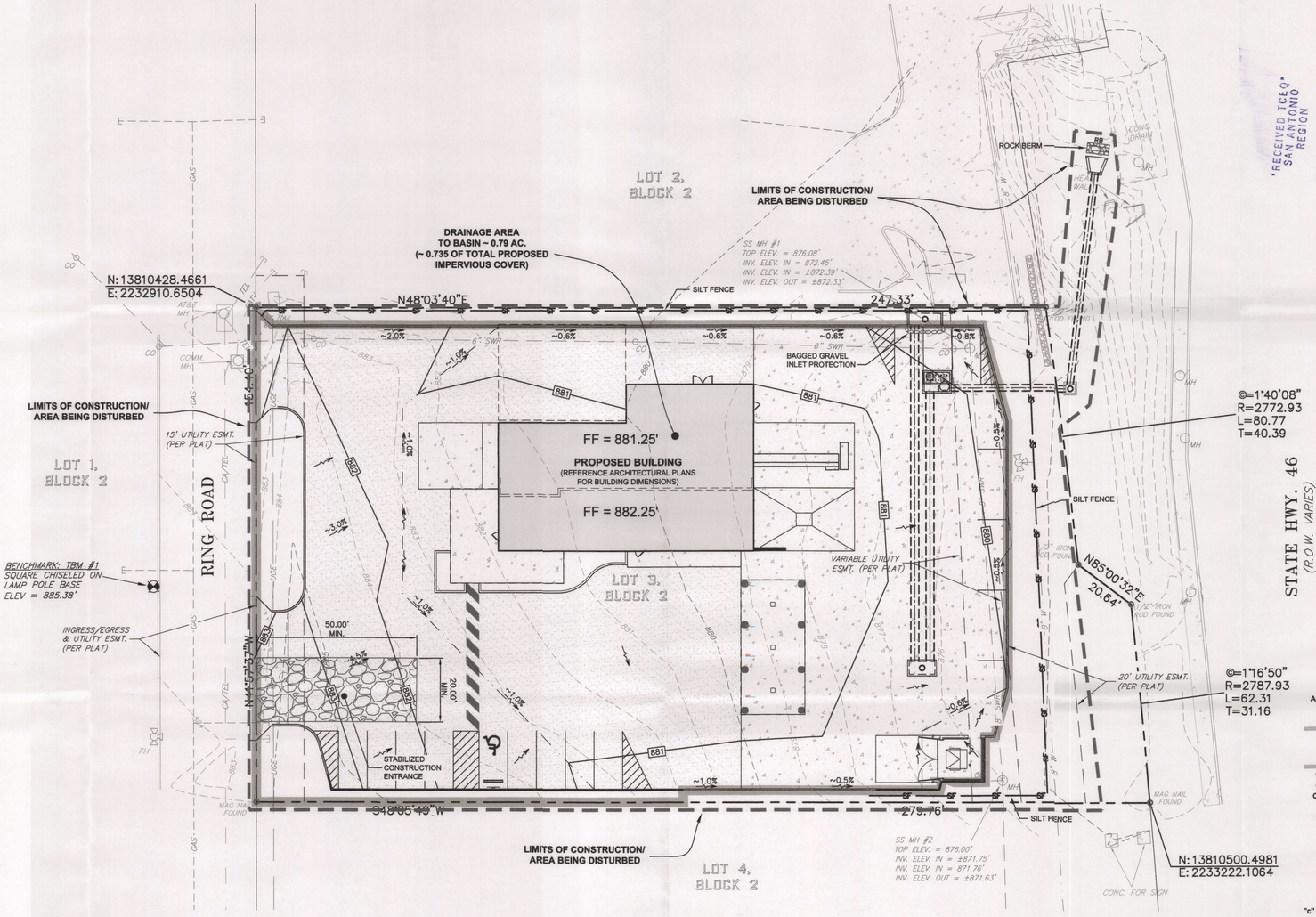
1. TEMPORARY EROSION/SEDIMENTATION CONTROL AND TREE/NATURAL AREA PROTECTION MEASURES:
   - THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR EXCAVATION).
   - THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF DAMAGED AREAS SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
2. PERMANENT EROSION CONTROL:
   - ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW:
   - A MINIMUM OF 4" OF TOPSOIL SHALL BE PLACED IN ALL DRAINAGE CHANNELS (EXCEPT ROCK) AND BETWEEN THE CURB AND R.O.W. LINE.
   - BROADCAST SEEDING:
     i. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 2 POUNDS PER 1000 SF OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SF OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
     ii. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 2 POUNDS PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION.
   - FERTILIZER SHALL BE A PELLETED OR GRANULAR SLOW RELEASE WITH AN ANALYSIS OF 15–15–15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF 1 POUND PER 1000 SF.
   - HYDRAULIC SEEDING:
     i. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 1 POUND PER 1000 SF OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SF OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
     ii. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 7 POUNDS PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION.
   - FERTILIZER SHALL BE A WATER SOLUBLE FERTILIZER WITH AN ANALYSIS OF 15–15–15 AT A RATE OF 1 TO 1.5 POUNDS PER 1000 SF. (45–65 POUNDS PER ACRE)
   - MULCH TYPE USED SHALL BE HAY, STRAW, OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SF, WITH A SOIL TACKIFIER AT A RATE OF 1.4 POUNDS PER 1000 SF.
   - THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF 6". THE IRRIGATION SHALL OCCUR AT TEN–DAY INTERVALS DURING THE FIRST TWO MONTHS. RAINFALL OCCURRENCES OF 1/2" OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK. CONTRACTOR SHALL PROVIDE MEANS OF WATER VEGETATION BY CONTRACT, WATERING TRUCK, ON SITE CAPABILITIES, OR BY OTHER MEANS APPROVED BY OWNER.
   - RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1–1/2" HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 10 SQUARE FEET EXIST.
3. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.

SURVEY NOTES:

1. ALL BOUNDARY SURVEY AND EXISTING SPOT ELEVATION & CONTOUR INFORMATION PRESENTED ON PLANS ARE FROM A SURVEY FILE PROVIDED BY:

   STEPHEN G. COOK ENGINEERING, INC.
   12000 STARCREST, SUITE 107
   SAN ANTONIO, TX 78247
   PHONE: (210) 481–2533
   FAX: (210) 481–2150

2. ENGINEER DOES NOT CERTIFY TO SURVEY/TOPOGRAPHIC INFORMATION OR BENCHMARKS PREPARED BY SURVEYOR AND DEPICTED ON THIS PLAN. GENERAL CONTRACTOR & SUBCONTRACTORS SHALL REVIEW PROPOSED LAYOUT FOR CONFLICTS AS THEY APPLY TO WORK PERFORMED FROM SURVEY/TOPOGRAPHIC INFORMATION DEPICTED. IF CONFLICT IS FOUND CONTACT BOTH ENGINEER & GENERAL CONTRACTOR IN WRITING (MAIL, FAX, EMAIL) IMMEDIATELY FOR DIRECTION.
3. IF ADDITIONAL BENCHMARKS BEYOND THOSE REFLECTED ON THESE PLANS ARE DESIRED BY GENERAL CONTRACTOR AND/OR SUBCONTRACTORS TO EXECUTE THEIR PROPOSED WORK THEY MAY CONTACT, COORDINATE, HIRE, AND PAY FOR SURVEYOR TO SET SAID ADDITIONAL ON–SITE REFERENCE BENCHMARKS THEY MAY DEEM NECESSARY.



LEGEND

- PROPERTY LINE
- 100 YR D-FIRM FLOODPLAIN
- EXISTING CONTOUR LINE (MAJOR) — IN FEET
- EXISTING CONTOUR LINE (MINOR) — IN FEET
- EXISTING SPOT ELEVATION (IN FEET)
- EXISTING CONCRETE CURB
- EXISTING SANITARY SEWER LINE
- EXISTING WATER LINE (MATERIAL) A.C. = ASBESTOS CEMENT PIPE D.I. = DUCTILE IRON PIPE
- EXISTING GAS LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING WROUGHT IRON FENCE
- EXISTING MASONRY FENCE
- EXISTING CHAIN LINK FENCE
- EXISTING / PROPOSED FIRE HYDRANT
- EXISTING / PROPOSED UTILITY POLE
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE / EXISTING TREE REMOVED
- EXISTING CONCRETE
- PROPOSED CONCRETE
- PROPOSED HC PARKING SIGN
- PROPOSED WHEELSTOP
- PROPOSED CONCRETE CURB
- PROPOSED RETAINING WALL
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED ROCK BERM
- PROPOSED SILT FENCE
- LIMITS OF CONSTRUCTION/ AREA BEING DISTURBED
- DRAINAGE AREA BOUNDARY
- FLOWLINE PATH (LONGEST DURATION)
- FLOW PATH ARROWS
- PROPOSED CONTOUR — IN FEET

'RECEIVED TCEQ' SAN ANTONIO REGION 2013 AUG 20 PM 3:34

EXISTING & PROPOSED CONDITIONS

(Existing) E-1			(Proposed) P-1		
Area =	0.932	Ac	Area =	0.932	Ac
"c" =	0.38		"c" =	0.71	
tc =	17.5	(min)	tc =	10.0	(min)
I_{10} =	5.83	(in/hr)	I_{10} =	7.56	(in/hr)
I_{25} =	6.98	(in/hr)	I_{25} =	9.07	(in/hr)
I_{100} =	9.12	(in/hr)	I_{100} =	11.90	(in/hr)
Q_{10} =	2.06	(cfs)	k = 1.00	Q_{10} =	5.03 (cfs)
Q_{25} =	2.72	(cfs)	k = 1.10	Q_{25} =	6.63 (cfs)
Q_{100} =	4.04	(cfs)	k = 1.25	Q_{100} =	9.90 (cfs)

Antecedent Precipitation Coefficient

Storm Water Runoff Increase: 2.97 | 3.92 | 5.86

Note: "c" value of 0.38 was used for existing hydrologic calculations incorporating "Pasture/Range" values for moderate sloped (2-7%) areas per Table 5-2 of the City of New Braunfels Drainage and Erosion Control Manual

Note: A weighted "c" value for the proposed site was calculated for proposed hydrologic conditions using values per Table 5-2 of the City of New Braunfels Drainage and Erosion Control Manual for the following types of developed cover conditions:

"c" value		EXISTING COND. (E-1)		PROPOSED COND. (P-1)	
		Area	["c" x A]	Area	["c" x A]
0.30	lawn area, good coverage > 50%	40597 S.F.	15426.9	8305 S.F.	2491.5
0.81	asphalt pavement	0 S.F.	0.0	15122 S.F.	12248.8
0.83	concrete & roof area	0 S.F.	0.0	17100 S.F.	14193.0
		40597 S.F.	15426.9	40527 S.F.	28933.3
		"c" weighted =	0.38	"c" weighted =	0.71

"c" weighted = $\Sigma(cA) / \Sigma(A)$

LEGAL DESCRIPTION:

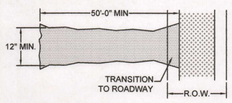
A 0.932–ACRE TRACT OF LAND DESCRIBED AS LOT 3, BLOCK 2, *WESTPOINTE SUBDIVISION UNIT 3* IN THE CITY OF NEW BRAUNFELS, TEXAS RECORDED IN DOCUMENT NO. 201106027347 IN THE MAP AND PLAT RECORDS OF COMAL COUNTY.

BENCHMARK

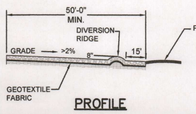
TBM #1: SQUARE CHISELED ON LAMP POLE BASE ALONG RING ROAD.
ELEVATION = 885.38'

NOTE:
NOTED TBM'S (TEMP. BENCHMARKS) ON THESE PLANS ARE BASED ON EXISTING SURVEY INFORMATION PROVIDED TO ENGINEER BY OWNER. CONTRACTOR TO FIELD VERIFY ACCURACY OF ANY NOTED/SUGGESTED TBM'S PRIOR TO CONSTRUCTION. SETTING ADDITIONAL TBM'S ARE RECOMMENDED AND SHALL BE COORDINATED WITH LISTED PROJECT SURVEYOR.

!!! CALL BEFORE YOU DIG !!!
CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO WORK. ANY CONFLICT WITH EXISTING UTILITIES SHALL BE REMEDIED BETWEEN SAID CONFLICTING UTILITY AND CONTRACTOR. ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONFLICTS IMMEDIATELY UPON DISCOVERY OF CONFLICT (LETTER, FAX, EMAIL).
TEXAS ONE CALL PARTICIPANTS REQUESTS 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST – STOP AND CALL
TEXAS ONE CALL SYSTEM
(800) 245–4545 OR
www.onecalltexas.com



PLAN VIEW

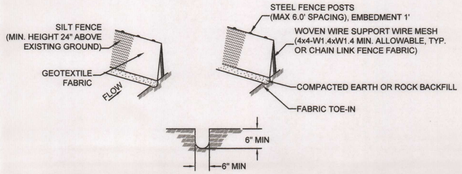


PROFILE

NOTES:

1. STONE SIZE - 4 TO 8 INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. LENGTH - AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN 8 INCHES.
4. WIDTH - MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICH EVER IS GREATER.
5. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 oz/yd , A MULLEN BURST RATING OF 140 lb/in , AND AN EQUIVALENT OPENING SIZE GRATER THAN A NUMBER 50 SIEVE.
6. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4" DIAMETER WASHED STONE OR COMMERCIAL RACK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.
7. WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
8. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A 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 BY CONTRACTOR.
9. DRAINAGE - ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
10. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

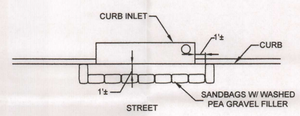


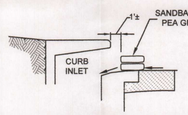
TRENCH CROSS-SECTION

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 CAN NOT BE TREATED (e.g. pavement) WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA 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 WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. 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.
8. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS 1/4 ACRE/100 FEET OF FENCE.

SILT FENCE DETAIL
NOT TO SCALE

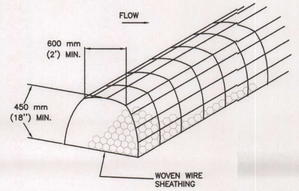




NOTES:

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

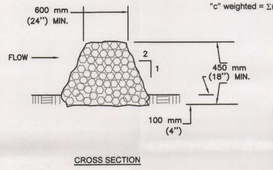
BAGGED GRAVEL CURB INLET PROTECTION
NOT TO SCALE



NOTES:

1. USE ONLY OPEN GRADED ROCK 100 to 200 mm (4 to 8") DIAMETER FOR STREAM FLOW CONDITIONS. USE OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE). ROCK BERMS IN CHANNEL APPLICATIONS SHALL BE ANCHORED FIRMLY INTO THE SUBSTRATE A MINIMUM OF 150 mm (6") WITH T POSTS OR WITH 15M OR 20M (#5 OR #6) REBAR, WITH MAXIMUM SPACING APART OF 1.2 m (48") ON CENTER.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE-SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 150 mm (6").
6. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

ROCK BERM DETAIL
NOT TO SCALE



CROSS SECTION

REVISIONS:
1. FOR TCEQ SUBMITTAL ONLY. 8/16/13
2. UPDATES PER TCEQ MEETING. 8/19/13

WPAP SITE PLAN & TEMP. POLLUTION ABATEMENT PLAN

The Wash Tub

New Braunfels

State Hwy 46, New Braunfels, Tx.

ADA CONSULTING GROUP, INC.
221 W. RHAPPODY, STE. 102 SAN ANTONIO, TX 78216
(210) 340-5670 FAX:(210) 340-5728

STATE OF TEXAS
MICHAEL P. SEPEDA
94950
LICENSED PROFESSIONAL ENGINEER
8-19-13

Charles William Pope & Associates
ARCHITECTURE PLANNING CONSULTING
221 WEST RHAPSODY ST., SAN ANTONIO, TEXAS 78216 TEL: (210) 349-6005

DATE: 08.16.13
JOB NO: 271-10
DRAWN BY: NIC/MS
SHEET NUMBER: 2.9

FILE NAME: EXISTING CONDITIONS PLAN
DESCRIPTION: THE WASH TUB - NEW BRAUNFELS
DRAWING SCALE: 1" = 20'
SCALE FACTOR:

TEMPORARY STORMWATER SECTION

Water Pollution Abatement Plan

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

REGULATED ENTITY NAME: **The Wash Tub - New Braunfels**

POTENTIAL SOURCES OF CONTAMINATION

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

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   __ Aboveground storage tanks with a cumulative storage capacity of less that 250 gallons will be stored on the site for less than one (1) year.
   __ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
   __ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Storage Tank Facility Plan** application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
   X Fuels and hazardous substances will not be stored on-site.

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

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

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

TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

__ 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 P. Sepeda, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

8-16-13
Date

ATTACHMENT A
Spill Response Actions

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 storm water 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 includ e, 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 Sources of Contamination

Potential Source	Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping.
Preventive Measure	Vehicle maintenance when possible will be performed within a construction staging area specified by the General Contractor.
Potential Source	Miscellaneous trash and litter from construction workers and material wrappings.
	Preventive Measure Trash containers will be placed throughout the site to encourage proper trash disposal.
Potential Source	Construction debris.
Preventive Measure	Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis.
Potential Source	Stormwater contamination from excess application of fertilizers, herbicides and pesticides.
Preventive Measure	Fertilizers, herbicides and pesticides will be applied only when necessary and in accordance with manufacturers directions.
Potential Source	Soil and mud from construction vehicle tires as they leave the site.
Preventive Measure	A stabilized construction exit shall be utilized as vehicles leave the site. Any soil, mud, etc. carried from the project onto public roads shall be cleaned up within 24 hours.
Potential Source	Sediment from soil, sand, gravel and excavated materials stockpiled on site.
Preventive Measure	Silt fence shall be installed on the downgradient side of all stockpiled materials. Reinforced rock berms shall be installed at all downstream discharge locations.

ATTACHMENT C
Sequence of Major Activities

Below is a general sequence of events to be followed:	Approximate Area Disturbed
1. Install erosion and sedimentation controls identified by plans	N/A
2. Install tree protection (if required)	N/A
3. Begin site clearing and earthwork	0.93 Acres
4. Construct site utilities	0.02 Acres
5. Construct building foundation	0.10 Acres
6. Construct paving and drainage infrastructure	0.65 Acres
7. Complete construction	N/A
8. Install landscaping/irrigation system & revegetate disturbed areas	0.20 Acres
9. Receive operating permit and city clearance for occupancy	N/A
10. Remove temporary erosion and sedimentation controls	N/A

ATTACHMENT D
Temporary Best Management Practices and Measures

1. Temporary Construction Entrance/Exit – A stabilized pad of crushed stone located at any point where traffic will be entering or leaving the construction site from a public R.O.W., street, alley, sidewalk or parking area. It shall be a minimum of 50 feet long, 12 feet wide and 8 inches thick. The rock shall be 4" to 8" in size.

2. Silt Fence – A barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. Silt fences shall be installed on the downgradient side of the proposed areas to be disturbed that have a drainage area of no more than ¼ acre per 100 feet of fence.

3. Rock Berm – A sediment trap consisting of 3" to 5" diameter rock wrapped in woven wire sheathing. The berm shall have a minimum height of 18" and a minimum top width of 2 feet. A rock berm shall be placed at locations of concentrated flows where drainage area is between 2 and 5 acres.

4. Bagged Gravel Curb Inlet Protection – Sandbags 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.

5. Temporary Seeding – Temporary seeding of disturbed areas shall be performed if disturbed areas are expected to have no construction activity for a period of at least 21 days.

Sequence of installation during construction process

1. The Temporary Construction Entrance/Exit shall be installed prior to disturbing any soil except at the location of the Temporary Construction Entrance/Exit. It shall stay in place and be maintained until the onsite pavement is in place.

2. A silt fence shall be installed along the downgradient sides of the site prior to any disturbance of the site. A silt fence shall be installed prior to Temporary Construction Entrance/Exit.

3. Bagged Gravel Curb Inlet Protection shall be installed immediately after installation of each drainage inlet that they are intended to protect.

4. Rock Berms shall be installed at concentrated stormwater discharge locations as indicated on the WPAP Site Plan prior to any disturbance of the site.

Description of Temporary BMP Practices

a) There is some upgradient surface water that drains to the subject site only from the southern adjacent lot (undeveloped) while all other upgradient areas which consist of the existing private drive (Ring Rd.) and the other adjacent lot (an existing McDonald's) that do not contribute any upgradient surface water to the site. Also, no ground water or existing storm drain system is conveyed into the subject site.

b) The site area will drain to the north towards State Hwy. 46. Silt fence will be placed along the highway frontage as well as along the adjoining property line to the McDonald's site, some silt fence along the lower portion of the opposite (SE) property line and a rock berm at the proposed headwall location that will discharge the storm water out of the water quality system. A bagged gravel curb inlet protection device will be installed at the inlet location. Lastly, a stabilized construction entrance is shown at the proposed main entrance location.

c) Temporary BMP's as described in section (b) will be set in place upgradient to any surface streams or sensitive features to prevent any pollution from going into the Aquifer.

d) Naturally occurring sensitive features will be identified in the field as per the Geologic Assessment or if identified during construction. As mentioned in section (c), BMP's shall be located upgradient or even around the perimeter of such feature to prevent pollution from the entering the feature. As needed, the feature will be permanently sealed as per the TCEQ requirements described in TCEQ-0602.

ATTACHMENT F
Structural Practices

Pollutants of storm water runoff discharge from exposed areas of the site will be controlled through the utilization of temporary BMPs. Prior to leaving the site, flows containing pollutant discharges will be treated by a silt fence, rock berm, stabilized construction entrance and bagged gravel curb inlet protection at locations as shown on the WPAP Site Plan which will limit and control the amount of pollutants leaving the site.

(Proposed) P-1		
Area =	0.932	Ac
"c" =	0.71	
tc =	10.0	(min)
I_{10} =	7.56	(in/hr)
I_{25} =	9.07	(in/hr)
I_{100} =	11.90	(in/hr)
Q_{10} =	5.03	(cfs)
Q_{25} =	6.64	(cfs)
Q_{100} =	9.90	(cfs)

PROPOSED CONDITIONS
IMPERVIOUS COVER AREA
BLDG. = 4,432 S.F. (0.102 AC.)
PAVING = 27,200 S.F. (0.624 A.C.)
OTHER (SW) = 590 S.F. (0.014 AC.)
TOTAL = 32,222 S.F. (0.740 AC.)

LOT 2, BLOCK 2

SS MH #1
TOP ELEV. = 876.08'
INV. ELEV. IN = 872.45'
INV. ELEV. IN = ±872.39'
INV. ELEV. OUT = ±872.33'

N: 13810428.4661
E: 2232910.6504

N48°03'40"E 247.33'

AT&T MH
COMM. MH
154.40'
15' UTILITY ESMT. (PER PLAT)
LOT 1, BLOCK 2
RING ROAD
BENCHMARK: TBM #1
SQUARE CHISELED ON LAMP POLE BASE
ELEV = 885.38'
INGRESS/EGRESS & UTILITY ESMT. (PER PLAT)
N41°57'37"W
MAG NAIL FOUND
S48°05'49"W
P1
0.93
LOT 3, BLOCK 2
FLOWLINE PATH/TIME OF CONCENTRATION LINE
VARIABLE UTILITY ESMT. (PER PLAT)
LOT 4, BLOCK 2
SS MH #2
TOP ELEV. = 876.00'
INV. ELEV. IN = ±871.75'
INV. ELEV. IN = 871.76'
INV. ELEV. OUT = ±871.63'
279.76'
©=1°40'08"
R=2772.93
L=80.77
T=40.39
1/2" IRON ROD FOUND
N85°00'32"E
20.64'
20' UTILITY ESMT. (PER PLAT)
©=1°16'50"
R=2787.93
L=62.31
T=31.16
STATE HWY. 46 (R.O.W. VARIES)
N: 13810500.4981
E: 2233222.1064
CONC. FOR SIGN
LEDGE
WALL
CONC. DRAIN
HEAD WALL
WOOD FENCE

DA1 / X.XX — DRAINAGE AREA / ACREAGE
DRAINAGE AREA BOUNDARY
FLOWLINE PATH (LONGEST DURATION)
FLOW PATH ARROWS

ADA CONSULTING GROUP, INC.
221 W. RHAPSODY, STE. 102 SAN ANTONIO, TX. 78216
(210) 340-5670 FAX: (210) 340-5728
A TEXAS REGISTERED ENGINEERING FIRM (REGISTRATION No. F003512)

DRAINAGE AREA MAP – ATTACHMENT G
THE WASH TUB – NEW BRAUNFELS
1749 STATE HWY. 46, NEW BRAUNFELS, TX 78132

SCALE: 1" = 30'
JOB NUMBER: 271-10
DWG NAME: 271-10 WPAP Drainage Area Map.dwg
DATE: 8-05-13
SHEET NO. 1 of 1

ATTACHMENT I
Inspection and Maintenance for BMPs

Silt Fence

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.

Temporary Construction Entrance and Exits

1. The entrance should be maintained in a condition, which will prevent tracking or following of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.

2. All sediment spilled, dropped, washed or tracked on to public rights-of-ways should be removed immediately by contractor.

3. When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.

4. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

5. All sediment should be prevented from entering any storm drain, ditch, or water course by using approved methods.

Bagged Gravel Inlet Filter

1. Inspections should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by contractor.

2. Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.

3. Check placement of device to prevent gaps between device and curb.

4. Inspect filter fabric and patch or replace if torn or missing.

5. Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

Triangular Filter Dike

1. Inspect all fencing weekly, and after any rainfall.

2. Remove sediment when buildup after each rainfall and disposed of in a manner which will not cause additional siltation.

3. Inspect and realign dikes as needed to prevent gaps between section.

Rock Berm

1. Inspection should be made weekly and after each rainfall by the responsible party.For installations in streambeds, additional daily inspections should be made.

2. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.

3. Repair any loose wire sheathing.

4. The berm should be reshaped as needed during inspection.

5. The berm should 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 should be left in place until all upstream areas are stabilized and accumulated silt removed.

THE WASH TUB - NEW BRAUNFELS
New Braunfels, Texas

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

SILT/FILTER FABRIC FENCE

INSPECTOR:_____ DATE:_____

DAYS SINCE LAST RAINFALL: [ ] AMOUNT OF LAST RAINFALL: [ ] INCHES

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

MAINTENANCE REQUIRED FOR SILT FENCE:

_____

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

THE WASH TUB - NEW BRAUNFELS
New Braunfels, Texas

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

STABILIZED CONSTRUCTION ENTRANCE / STAGING AREA

INSPECTOR:_____ DATE:_____

DAYS SINCE LAST RAINFALL: [ ] AMOUNT OF LAST RAINFALL: [ ] INCHES

LOCATION	IS SEDIMENT BEING TRACKED ONTO ROAD?	ENTRY SURFACE CLEAN OR SEDIMENT FILLED?	DOES ALL TRAFFIC USE ENTRANCE?

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

_____

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

THE WASH TUB - NEW BRAUNFELS
New Braunfels, Texas

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

INLET PROTECTION BARRIERS

INSPECTOR:_____ DATE:_____

DAYS SINCE LAST RAINFALL: ☐ AMOUNT OF LAST RAINFALL: ☐ INCHES

LOCATION	IN PLACE?/ CONDITION?	DEPTH OF SEDIMENT	CONDITION OF INLET

MAINTENANCE REQUIRED FOR INLET PROTECTION BARRIERS:

_____

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

THE WASH TUB - NEW BRAUNFELS
New Braunfels, Texas

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

TRIANGULAR SEDIMENT FILTER DIKES

INSPECTOR:_____ DATE:_____

DAYS SINCE LAST RAINFALL: [ ] AMOUNT OF LAST RAINFALL: [ ] INCHES

LOCATION	IN PLACE?/ CONDITION?	DEPTH OF SEDIMENT	CONDITION OF INLET

MAINTENANCE REQUIRED FOR ROCK BERMS:

_____

_____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

THE WASH TUB - NEW BRAUNFELS
New Braunfels, Texas

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

CONSTRUCTION ACTIVITIES LOG

NAME	DATE	Major Grading Activities	Temporary Suspension of Construction Activities	Permanent Suspension of Construction Activities	Stabilization Measures Initiated	COMMENTS

DATE	ADDITIONAL COMMENTS

THE WASH TUB - NEW BRAUNFELS
New Braunfels, Texas

STORM WATER POLLUTION PREVENTION PLAN
INSPECTION AND MAINTENANCE REPORT FORM

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

REASONS FOR CHANGES:

ATTACHMENTJ
Schedule of interim and Permanent Soil Stabilization Practices

Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 clays, temporary stabilization measures do not have to be initiated on that portion of the site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

As the pad site is completed, permanent landscaping and sod will be planted and irrigated. Curbs will direct runoff into the proposed underground drainage system that will convey it to the filtration system.

PERMANENT STORMWATER SECTION

Water Pollution Abatement Plan

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

REGULATED ENTITY NAME: **The Wash Tub - New Braunfels**

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.

___ **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.

X 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.

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

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

10. _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 P. Sepeda, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

8-16-13
Date

ATTACHMENT B
BMPs for Upgradient Stormwater

The accumulative runoff from the impervious cover portion of the site will drain into a curb inlet so that this storm water can be conveyed into an underground filtration pond. There will be no perimeter areas that drain towards the proposed site since runoff from the upgradient side will be diverted away from the site while the other upgradient side is fronted with a private street (Ring Rd.) that will not discharge any runoff into the site.

ATTACHMENT C
BMPs for On-Site Stormwater

The BMP employed to prevent pollution of on-site originating storm water is a concrete lined underground filtration system known as the Contech StormFilter system. This system is contained within an 8' x 6' concrete junction box with a weir wall to act as a splitter box and a depressed filtration chamber with 8 filtration canisters. As part of the system, approximately 190 L.F. of 30" Aluminized Ultraflow (CMP) pipe and 8' x 4' junction box will service will detain at least 861 c.f of runoff the assist the filtration system to treat the volume of runoff required. Access storm water runoff will flow over the weir wall and discharge via a 24" storm drain pipe and ultimately accross State Hwy. 46 through an existing TxDOT culvert system. The water quality volume will receive treatment when it enters the filtration chamber where at least 80% of the increase TSS load generated by the site will be removed. After treatment, the storm water will be released into the same 24" storm drain pipe mentioned above.

Attached are the calculations from the TCEQ spreadsheet. The immediate watershed for the proposed development is approximately 0.93 of an acre. The required 80% TSS removal rate is 664 lbs.

Anticipated pollutants can be oil and grease from vehicles as well as suspended solids and sediments that are transported by vehicles entering the site and that are transported through the air and accumulate on impervious cover surfaces. These BMP's are designed in accordance with the current TCEQ Technical Guidance Manual.

ATTACHMENT D
BMPs for Surface Streams

No surface streams exist on the property. Therefore, it is not necessary to implement any additional permanent BMPs or measures other than the proposed underground filtration system.

ATTACHMENT F
Construction Plans

SURVEY NOTES:

1. ALL BOUNDARY SURVEY AND EXISTING SPOT ELEVATION & CONTOUR INFORMATION PRESENTED ON PLANS ARE FROM A SURVEY FILE PROVIDED BY:

   STEPHEN G. COOK ENGINEERING, INC.
   12000 STARCREST, SUITE 107
   SAN ANTONIO, TX 78247
   PHONE: (210) 481-2533
   FAX: (210) 481-2150

2. ENGINEER DOES NOT CERTIFY TO SURVEY/TOPOGRAPHIC INFORMATION OR BENCHMARKS PREPARED BY SURVEYOR AND DEPICTED ON THIS PLAN. GENERAL CONTRACTOR & SUBCONTRACTORS SHALL REVIEW PROPOSED LAYOUT FOR CONFLICTS AS THEY APPLY TO WORK PERFORMED FROM SURVEY/TOPOGRAPHIC INFORMATION DEPICTED. IF CONFLICT IS FOUND CONTACT BOTH ENGINEER & GENERAL CONTRACTOR IN WRITING (MAIL, FAX, EMAIL) IMMEDIATELY FOR DIRECTION.

3. IF ADDITIONAL BENCHMARKS BEYOND THOSE REFLECTED ON THESE PLANS ARE DESIRED BY GENERAL CONTRACTOR AND/OR SUBCONTRACTORS TO EXECUTE THEIR PROPOSED WORK THEY MAY CONTACT, COORDINATE, HIRE, AND PAY FOR SURVEYOR TO SET SAID ADDITIONAL ON-SITE REFERENCE BENCHMARKS THEY MAY DEEM NECESSARY.

HOT MIX ASPHALT PAVEMENT NOTES:

1. HOT MIX ASPHALT CONCRETE PAVING PROVIDE NECESSARY LABOR AND MATERIALS TO INSTALL THE HOT MIX ASPHALT PAVING SHOWN ON THE PLANS, GEOTECHNICAL REPORT AND IN THE PAVEMENT DESIGN DETAILS. THIS INCLUDES THE SUBGRADE PREPARATION, AGGREGATE, ASPHALT MATERIALS, MINERAL FILLER, PRIME COAT, TACK COAT AND FINAL ASPHALT PAVING SURFACE.

2. ALL ASPHALT MUST MEET A RETAINED STRENGTH OF AT LEAST 70% ON THE TXDOT 531-C TEST OR HAVE ALL LIMESTONE AGGREGATE. IF SILICEOUS AGGREGATES (WHICH INCLUDE GRAVEL, CRUSHED GRAVEL OR GRANITE) ARE USED, ADD HYDRATED LIME (AT LEAST 1%) OR ANTI-STRIP AGENT TO THE MIX TO MEET THE RETAINED STRENGTH REQUIREMENTS. THE MIXTURE MUST BE DESIGNED FOR 97% OF OPTIMUM LABORATORY DENSITY. ASPHALT GRADE SHALL BE PG 64-22.

3. EXECUTION:
   A. START OF THIS WORK ITEM INDICATES ACCEPTANCE BY THE CONTRACTOR OF THE SUBGRADE PREPARATION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE FINAL RESULTS.
   B. CONTRACTOR SHALL ESTABLISH AND MAINTAIN REFERENCE POINTS TO HOLD PROPER ELEVATIONS AND GRADES. ALL PAVEMENT SHOULD BE WITHIN 0.5 INCH OF PROPOSED GRADES.
   C. UNLESS OTHERWISE SHOWN ON THE PLANS, RECOMMENDED BY THE GEOTECHNICAL ENGINEER OR APPROVED BY THE ENGINEER, MATERIALS AND INSTALLATION OF SUCH SHALL COMPLY WITH THE FOLLOWING ITEMS WITHIN THE TEXAS DEPARTMENT OF TRANSPORTATION 2004 STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES:
      * ITEM 247 - FLEXIBLE BASE, GRADE 1 OR 2.
      * ITEM 340 - HOT MIX ASPHALTIC CONCRETE PAVEMENT. HMAC SHOULD ACHIEVE AT LEAST 70% STRENGTH WHEN TESTED IN ACCORDANCE WITH TEX 531-C.

4. IN PLACE COMPACTED THICKNESS WILL NOT BE ACCEPTABLE IF EXCEEDING THE FOLLOWING ALLOWABLE VARIATION FROM REQUIRED THICKNESS:
   * HMAC SURFACE COURSE: 1/4", PLUS OR MINUS
   * SURFACE SMOOTHNESS: TEST FINISHED SURFACE OF EACH ASPHALT CONCRETE COURSE FOR SMOOTHNESS, USING 10' STRAIGHTEDGE APPLIES PARALLEL WITH AND AT RIGHT ANGLES TO CENTERLINE OF PAVED AREA. SURFACE SMOOTHNESS WILL NOT BE ACCEPTABLE IF THE WEARING COURSE SURFACE EXCEEDING 3/16".

5. THE INITIAL QUALITY CONTROL TESTING SHALL BE PERFORMED AT THE OWNER'S COST. ANY NECESSARY REPAIRS OR REPLACEMENTS, ALONG WITH ADDITIONAL TESTING, SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE. TESTING PROCEDURES SHALL BE IN COMPLIANCE WITH OWNER'S STANDARD SPECIFICATION FOR MATERIAL TESTING.

6. CONTRACTOR SHALL ENSURE THE FOLLOWING:
   A. TESTING LAB TO VERIFY THICKNESS OF BASE MATERIAL INSTALLED.
   B. VERIFY APPROVED MIX DESIGN MATCHES DELIVERY TICKETS IN FIELD.
   C. RECORD ARRIVAL TIMES OF TRUCKS AND MIX TEMPERATURE UPON ARRIVAL RECORD LIST OF EQUIPMENT USED TO LAY AND COMPACT ASPHALT.
   D. RECORD AIR TEMPERATURE & MIX TEMPERATURE AT TIME OF LAYDOWN.
   E. GEO-TECH ENGINEER OF RECORD TO MAKE MIN. OF THREE SITE VISITS.
   F. ASPHALT JOB MIX FORMULA APPROVED IN ADVANCE (WITH ACCOMPANYING LAB TEST DATA) MINIMUM 21 DAYS PRIOR TO PAVING. THIS INCLUDES VERIFYING THE AGGREGATE MEETS ITEM 340 REQUIREMENTS AND ALL OTHER SPECIFICATIONS REQUIREMENTS.

7. HMAC SURFACE COURSE SHALL BE ORIENTED SUCH THAT JOINTS OR SEAMS ARE PARALLEL WITH THE DIRECTION OF TRAFFIC.

PORTLAND CEMENT CONCRETE PAVEMENT NOTES:

1. DESIGN MIX SUBMITTALS SHALL BE PROVIDED FOR REVIEW BY THE GEOTECHNICAL AND/OR CIVIL ENGINEER AT LEAST 14 DAYS PRIOR TO PLACEMENT.

2. DO NOT UNLOAD OR USE ANY HEAVY CONSTRUCTION EQUIPMENT ON NEW CONCRETE FOR AT LEAST 14 DAYS AFTER CONCRETE IS POURED.

3. GENERAL CONTRACTOR OR APPLICABLE SUB-CONTRACTOR IS RESPONSIBLE FOR COORDINATING WORK SUCH THAT UTILITIES ARE INSTALLED PRIOR TO PAVEMENT BASE BEING INSTALLED OR ELSE LOCATE AND PLACE LINES FOR PROPOSED UNDERGROUND UTILITIES.

4. ALL CONCRETE WORK SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF ACI 330. FLY ASH CAN BE USED IN MIX DESIGNS WHERE SUITABLE UNLESS OTHERWISE NOTED.

5. FURNISH AND INSTALL THE PORTLAND CEMENT CONCRETE PAVING AND PREPARED BASE COURSE TO THE EXTENT SHOWN ON THE DRAWINGS. THESE AREAS ALSO INCLUDE CURBS, GUTTERS, WALKS AND PAVING AGGREGATE.

6. EXECUTION:
   ALL CONCRETE ITEMS SHALL COMPLY WITH THE REQUIREMENTS OF APPLICABLE DIVISION 3 SECTIONS FOR CONCRETE MIX DESIGN, SAMPLING AND TESTING, CURING AND QUALITY CONTROL, AND AS HEREIN SPECIFIED.

7. UNLESS OTHERWISE SHOWN ON THE PLANS, RECOMMENDED BY THE GEOTECHNICAL ENGINEER OR APPROVED BY THE ENGINEER, CONCRETE AREAS SHALL COMPLY WITH THE FOLLOWING ITEMS WITHIN THE TEXAS DEPARTMENT OF TRANSPORTATION 1993 STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES:
   * ITEM 247 - FLEXIBLE BASE
   * ITEM 360 - CONCRETE PAVING
   * ITEM 421 - PORTLAND CEMENT CONCRETE
   * ITEM 529 - CONCRETE CURBS, GUTTER AND COMBINED CURB AND GUTTER
   * ITEM 531 - SIDEWALKS

8. UNLESS OTHERWISE SHOWN ON THE PLANS OR RECOMMENDED BY THE GEOTECHNICAL ENGINEER, DESIGN MIX SHALL PRODUCE NORMAL-WEIGHT CONCRETE WITH THE FOLLOWING PROPERTIES:
   A. COMPRESSIVE STRENGTH: 4000 PSI FOR PAVEMENTS AND 3000 PSI FOR ALL OTHER FLATWORK, MINIMUM AT 28 DAYS.
   B. SLUMP RANGE: 4" TO 6"
   C. AIR CONTENT: 3 TO 5%

   FORMS WILL BE SET TO GRADE LINES WITHIN THE FOLLOWING TOLERANCES:
   A. TOP OF FORMS NOT MORE THAN 1/8" IN 10'.
   B. VERTICAL FACE ON LONGITUDINAL AXIS, NOT MORE THAN 1/4" IN 10'.

9. LOCATE, PLACE AND SUPPORT REINFORCEMENT AS SPECIFIED IN THE APPLICABLE GEOTECHNICAL REPORT AND/OR CIVIL PLANS AND IN COMPLIANCE WITH TXDOT ITEM 440.

10. JOINTS SHALL BE PLACED IN ANY PROPOSED CONCRETE PAVEMENT AND CURBING AS RECOMMENDED IN THE APPLICABLE GEOTECHNICAL STUDY FOR THIS PROJECT. IF A GEOTECHNICAL STUDY WAS NOT PERFORMED OR IF DESIGN IS NOT INCLUDED IN CIVIL PLANS, THE JOINT LAYOUT AND DESIGN SHALL CONFORM TO THE AMERICAN CONCRETE PAVEMENT ASSOCIATION (ACPA) TECHNICAL PUBLICATION 150 61.01P, TABLE 2 AND FIGURE 13.

11. ALL CONCRETE PAVING AND FLATWORK SHALL BE CURED IN CONFORMANCE WITH CURRENT AMERICAN CONCRETE PAVEMENT ASSOCIATION GUIDELINES.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS, AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, CURRENT O.S.H.A. STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OF SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH CURRENT O.S.H.A. STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

GRADING NOTES:

1. ALL SIDEWALKS, STRIPED PEDESTRIAN WALKS, OR ANY OTHER PEDESTRIAN PATH OF TRAVEL SHALL BE 2% MAX CROSS SLOPE.

2. CHANGE IN DIRECTIONS AT ANY PEDESTRIAN ROUTE, ACCESSIBLE OR OTHERWISE, SHALL BE BE AT 2% MAX SLOPE ANY DIRECTION.

3. ACCESSIBLE PARKING SPACES AND ASSOCIATED ACCESS AISLES SHALL BE 2% MAX SLOPE IN ANY DIRECTION.

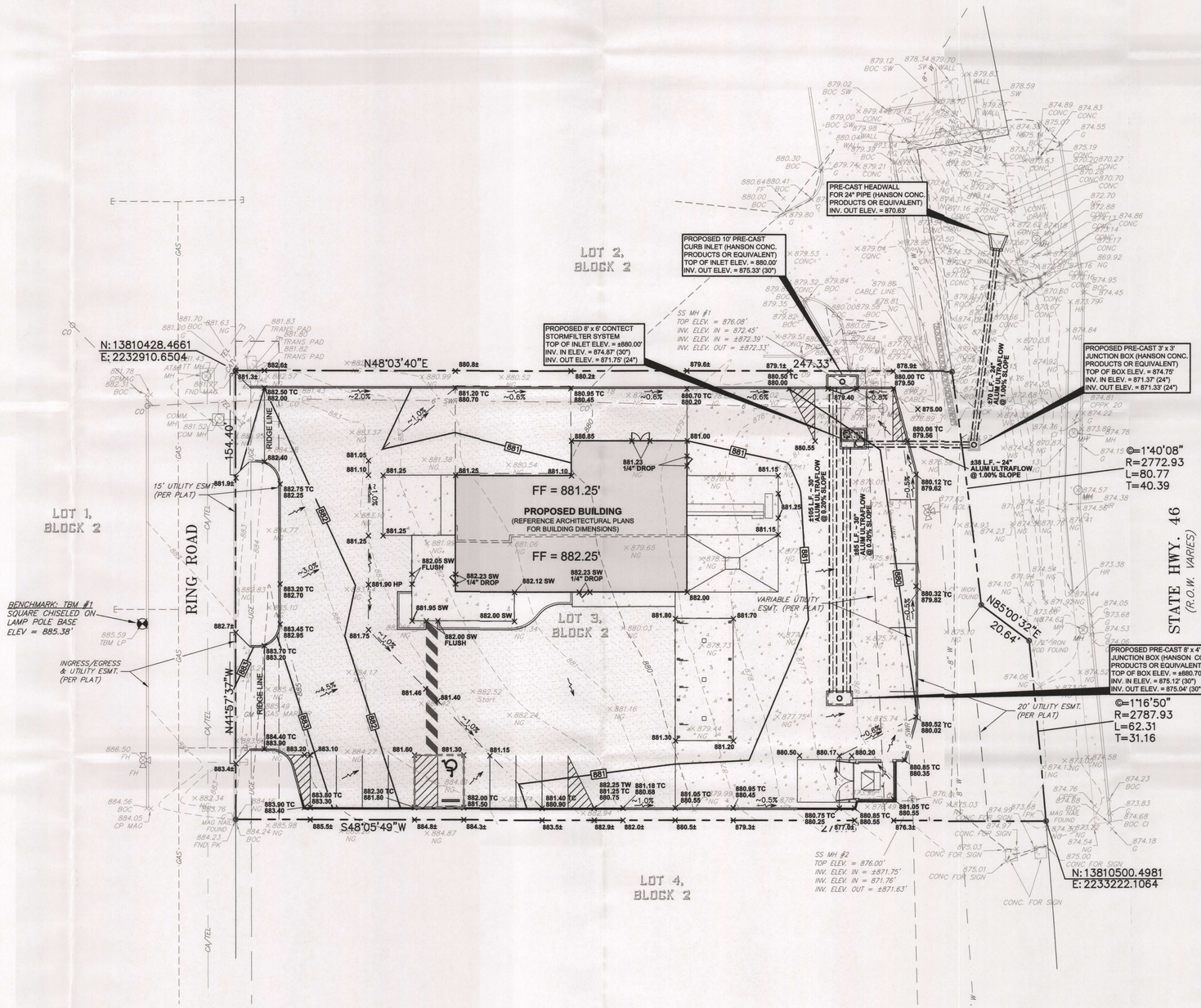
4. DWELLING UNIT PORCH LANDINGS SHALL BE 2% MAX SLOPE IN ANY DIRECTION.

5. ANY CHANGE IN LEVEL EXPERIENCED FROM ONE GROUND/FLOOR SURFACE TO AN ADJOINING GROUND/FLOOR SURFACE, SUCH AS ENTRY FROM DWELLING UNIT PORCHES ACROSS THRESHOLD AND INTO THE DWELLING UNIT, SHALL BE LIMITED TO 1/4" (OR 1/2" IF BEVELED 1:2).

6. CURB RAMPS MUST NOT EXCEED THE MAXIMUM SLOPE OF 1V:12H (8.33%) SLOPE SO RAMP LENGTH CAN EXCEED 6 FEET TO TRANSITION A MAXIMUM 6" HIGH DROP/CURB.

7. SEE LANDSCAPE AND IRRIGATION PLANS FOR ALL PROPOSED LANDSCAPE AND FINISHED NATURAL GROUND AREAS. IF LANDSCAPE PLANS ARE NOT PROVIDED, CONTRACTOR SHALL RESOD EXISTING GRASS AREAS AND/OR RESTORE EXISTING LANDSCAPE AREAS.

8. CONTRACTOR AND SUBCONTRACTORS SHALL CONTRACT WITH SURVEYOR TO VERIFY PROJECT ELEVATIONS AND BENCHMARK ELEVATION(S) PRIOR TO CONSTRUCTION. "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH VERTICAL AND HORIZONTAL ALIGNMENT. ALL FINISHED EARTHEN GRADES SHALL NOT EXCEED 3:1 (H:V) SLOPE.



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR LINE (MAJOR) --- IN FEET
- EXISTING CONTOUR LINE (MINOR) --- IN FEET
- × 768.57 EXISTING SPOT ELEVATION (IN FEET)
- EXISTING CONCRETE CURB
- EXISTING SANITARY SEWER LINE
- 16" W (A.C.) EXISTING WATER LINE (MATERIAL) A.C. = ASBESTOS CEMENT PIPE D.I. = DUCTILE IRON PIPE
- EXISTING GAS LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING WROUGHT IRON FENCE
- EXISTING MASONRY FENCE
- EXISTING CHAIN LINK FENCE
- EXISTING / PROPOSED FIRE HYDRANT
- EXISTING / PROPOSED UTILITY POLE
- EXISTING WATER VALVE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING TREE / EXISTING TREE REMOVED
- EXISTING CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED HC PARKING SIGN
- PROPOSED WHEELSTOP
- PROPOSED CONCRETE CURB
- ACCESSIBLE AREA, 2% MAXIMUM SLOPE IN ANY DIRECTION.
- DRAINAGE FLOW ARROWS (GRADE TO DRAIN)
- 102 PROPOSED CONTOUR --- IN FEET
- × 100.00 PROPOSED SPOT ELEVATIONS (IN FEET) (TOP OF PAVEMENT UNLESS OTHERWISE SPECIFIED)
- × 100.00TC TOP OF CURB
- × 100.00SW SIDEWALK
- × 100.00E EARTH
- × 100.00FL FLOWLINE
- × 100.00HP HIGH POINT
- × 100.00LP LOW POINT

SCALE: 1" = 20 FT
0 10 20 40

"RECEIVED TCEQ" SAN ANTONIO REGION 2013 AUG 20 PM 3:34

LEGAL DESCRIPTION:

A 0.932-ACRE TRACT OF LAND DESCRIBED AS LOT 3, BLOCK 2, *WESTPOINTE SUBDIVISION UNIT 3* IN THE CITY OF NEW BRAUNFELS, TEXAS RECORDED IN DOCUMENT NO. 201106027347 IN THE MAP AND PLAT RECORDS OF COMAL COUNTY.

BENCHMARK

TBM #1: SQUARE CHISELED ON LAMP POLE BASE ALONG RING ROAD.
ELEVATION = 885.38'

NOTE:
NOTED TBM'S (TEMP. BENCHMARKS) ON THESE PLANS ARE BASED ON EXISTING SURVEY INFORMATION PROVIDED TO ENGINEER BY OWNER. CONTRACTOR TO FIELD VERIFY ACCURACY OF ANY NOTED/SUGGESTED TBM'S PRIOR TO CONSTRUCTION. SETTING ADDITIONAL TBM'S ARE RECOMMENDED AND SHALL BE COORDINATED WITH LISTED PROJECT SURVEYOR.

!!! CALL BEFORE YOU DIG !!!
CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO WORK. Any CONFLICT WITH EXISTING UTILITIES SHALL BE REMEDIED BETWEEN SAID CONFLICTING UTILITY AND CONTRACTOR. ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONFLICTS IMMEDIATELY UPON DISCOVERY OF CONFLICT (LETTER, FAX, EMAIL).
TEXAS ONE CALL PARTICIPANTS REQUESTS 48 HOURS NOTICE BEFORE YOU DIG, DRILL, OR BLAST - STOP AND CALL!
TEXAS ONE CALL SYSTEM
(800) 245-4545 OR
www.onecalltexas.com

REVISIONS:
1 FOR TCEQ SUBMITTAL ONLY. 8/16/13
2 UPDATES PER TCEQ MEETING. 8/19/13

GRADING AND DRAINAGE PLAN

The Wash Tub
New Braunfels
State Hwy 46, New Braunfels, Tx.

ADA Consulting Group, Inc.
221 W. Rhapsody Dr. 102 San Antonio, TX 78216
(210) 340-9970 FAX:(210) 340-9720

STATE OF TEXAS
MICHAEL P. SEPEDA
94950
LICENSED PROFESSIONAL ENGINEER
8-19-13

Charles William Pope & Associates
ARCHITECTURE PLANNING CONSULTING
21 WEST RHAPSODY ST., SAN ANTONIO, TEXAS 78216 TEL: (210) 349-0606

DATE: 08.13.13
JOB NO: 271-10
DRAWN BY: NIC/MS
SHEET NUMBER:
2.3.1

FILE NAME: GRADING AND DRAINAGE PLAN
DESCRIPTION: THE WASH TUB - NEW BRAUNFELS
DRAWING SCALE: 1" = 20'
SCALE FACTOR: 1

Texas Commission an Environmental Quality
TSS Removal Calculations

Project Name: The Wash Tub-New Braunfels
Date Prepared: 8/16/2013

1. The Required Load Reduction for the total project:

Calculations from RG-348 Page 3-29 Equation 3.3. $L_M = 27.2(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = 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 * =	0.93	acres	
Predevelopment impervious area within the limits of the plan * =	0.00	acres	
Total post-development impervious area within the limits of the plan* =	0.74	acres	
Total post-development impervious cover fraction * =	0.79		Total project area/Total post-development impervious area
P =	33	inches	See table 3-3 page 3-28
$L_{M\ TOTAL\ PROJECT}$ =	664	lbs.	See equation 3.3 page 3-29
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. =	A		
Total drainage basin/outfall area =	0.93	acres	
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres	
Post-development impervious area within drainage basin/outfall area =	0.74	acres	
Post-development impervious fraction within drainage basin/outfall area =	0.79		Total project area/Total post-development impervious area
$L_{M\ THIS\ BASIN}$ =	664	lbs.	See equation 3.3 page 3-29

STATE OF TEXAS
MICHAEL P. SEPEDA
94950
LICENSED
PROFESSIONAL ENGINEER

8/16/13

(2 SHEETS)

1 OF 2

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	CS	abbreviation	Abbreviation for Contech StormFilter
Removal efficiency =	89	percent	StormFilter is approved at 89% TSS removal efficiency

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

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

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

A_C =	0.93	acres	
A_I =	0.74	acres	
A_P =	0.19	acres	Total on site drainage area - Impervious area
L_R =	755	lbs.	See equation 3.8 page 3-33

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

Desired L_M for this basin =	664	lbs.	= LM total project
P =	0.88		Desired Lm/Lr

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348
Pages Section 3.4.14

Rainfall Depth =	1.50	inches	See table 3-5 page 3-35.
Rainfall Intensity =	1.00	inches per hour	See figure 3-11 page 3-32
Post Development Runoff Coefficent =	0.62		See equation 3.11 page 3-36
Effective Area =	0.67	acres	= .3(Ap)+.9(AI) per section 3.3.2 page 3-27
Peak Flow =	0.68	cubic feet per second	Rainfall Intensity * Effective area
Maximum Required Storage =	3124	cubic feet	See equation 3.10 page 3-35
Maximum Required Storage + 20% =	3749	cubic feet	20% added to maximum required storage to account for sediment accumulation

7. Storm Filter

Designed as Required in RG-348
Section 3.4.14

Cartridge Infiltration Rate =	1	GPM per ft²	Per section 3.4.14, the StormFilter is approved at a specific flow rate of 1 gpm/ft2.
Cartridge Height =	27	inches	Three cartridge sizes are available (12",18" and 27")
Cartridge Capacity =	11.25	GPM	Cartridge flow rates at 1 gpm/ft2 are as follows: 12" cartridge=5 gpm/cartridge, 18" cartridge=7.5 gpm/cartridge, 27" cartridge=11.25 gpm/cartridge
Number of Cartridges for Volume-Based Configuration =	8		The number of cartridges is calculated using a mass loading design per the TCEQ approval. It is assumed that some typical mass of pollutant is washed off a site during the year. Some portion of the mass drops out in the storage component, while the balance passes through to the filtration component. The number of filter cartridges is then determined based upon the goal of removal of some balance of the mass, where each cartridge is expected to remove a certain mass per cartridge (27" cartridge=54 lbs, 18" cartridge=36 lbs, 12" cartridge=24 lbs)
Storage Volume for Volume-Based Configuration =	3749	cubic feet	Maximum required storage +20% from step 6.
Flow Rate for Flow-Through Configuration =	0.68	cubic feet per second	Peak flow from step 6.
Number of Cartridges for Flow-Through Configuration =	28		The number of cartridges for a flow through configuration is determined by dividing the peak flow by the cartridge capacity (5, 7.5 or 11.25 gpm)
Volume for Flow-Through Configuration =	0	cubic feet	Flow through configurations do not require storage of the water quality volume.
Flow Rate for Flow-Through Configuration w/ Equallization =	0.20	cubic feet per second	The flow rate for equalization design is calculated by multiplying the number of cartridges by their flow rates (5, 7.5 or 11.25 gpm). If the number of cartridges for the flow through with equalization design exceeds the number of cartridges needed for a flow through configuration an error will be generated. If the calculation results in an error, the flow through configuration should be utilized .
Number of Cartridges for Flow-Through Configuration w/ Equalization =	8		The number of cartridges for a flow through w/ equalization design is set at the number of cartridges calculated using a mass loading design. This ensures an annual maintenance cycle or greater
Volume for Flow-Through Configuration w/ Equalization =	861	cubic feet	The volume for flow through configuration is calculated using the hyetograph on the third sheet. The calculated volume will be less than the volume calculated for the volume based design. Unlike a volume based design, a flow through with equalization design accounts for flow through the cartridges which in turn decreases the storage requirement. If the number of cartridges for the volume based configuration exceeds the number of cartridges for the flow through configuration a #VALUE! error will appear. This is because the flow through configuration is achelved or exceeded with the number of cartridges required for the mass loading design therefore eliminating the need for storage.

Summary for Pond 2P: Equalization Storage

Inflow Area = 0.930 ac, 79.54% Impervious, Inflow Depth = 0.55"
Inflow = 0.68 cfs @ 1.77 hrs, Volume= 0.043 af
Outflow = 0.20 cfs @ 2.38 hrs, Volume= 0.043 af, Atten= 70%, Lag= 36.7 min
Primary = 0.20 cfs @ 2.38 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-9.00 hrs, dt= 0.05 hrs
Peak Elev= 877.13' @ 2.38 hrs Surf.Area= 0.010 ac Storage= 0.022 af

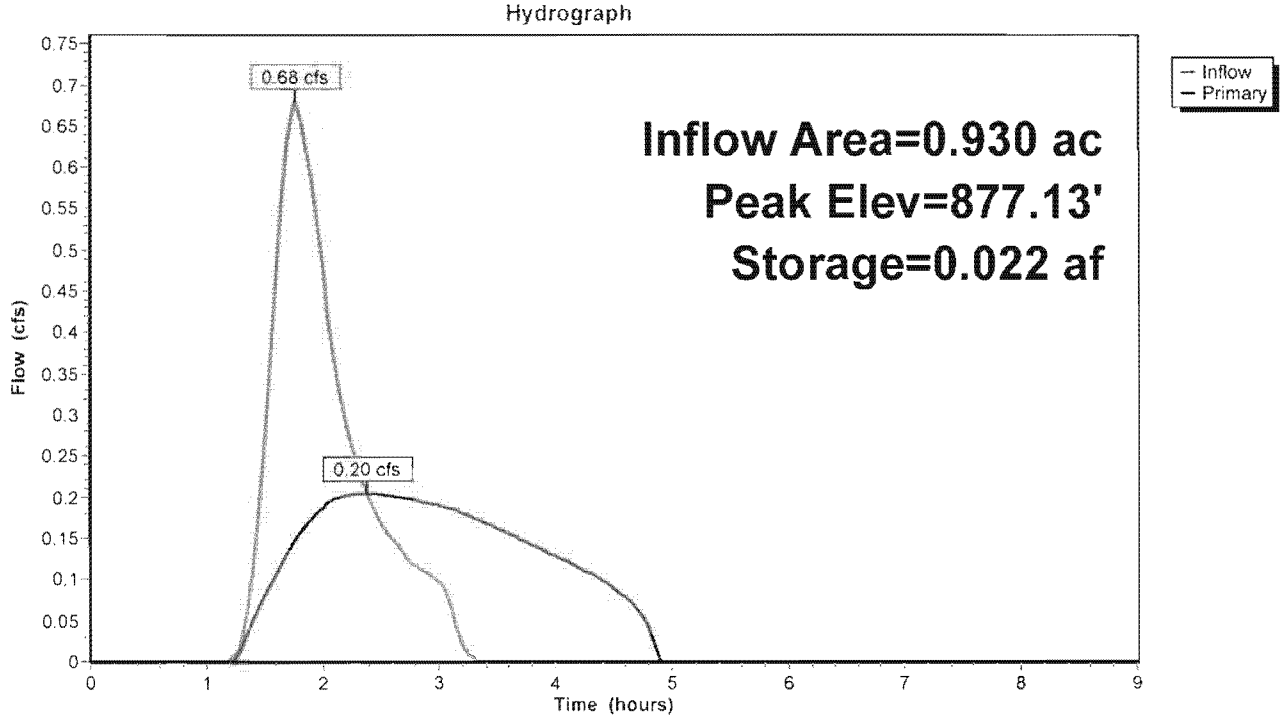
Plug-Flow detention time= 56.1 min calculated for 0.043 af (99% of inflow)
Center-of-Mass det. time= 56.4 min (177.7 - 121.4)

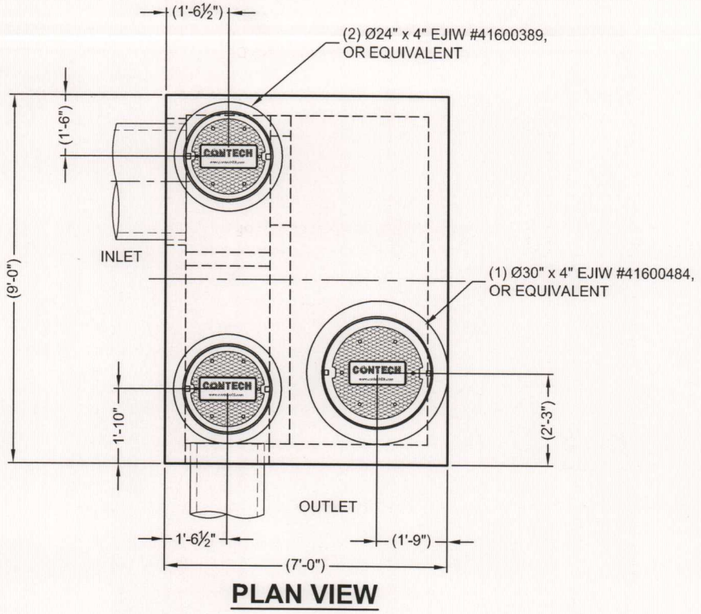
Volume	Invert	Avail.Storage	Storage Description
#1	874.87'	0.021 af	**30.0" D x 190.0'L Pipe Storage S= 0.0020 '/'**
#2	875.33'	0.002 af	**4.00'W x 8.00'L x 2.50'H Curb Inlet**
#3	875.04'	0.002 af	**8.00'W x 4.00'L x 2.50'H Junction Box**
		0.025 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	874.87'	**2.3" Vert. Orifice/Grate** C= 0.600

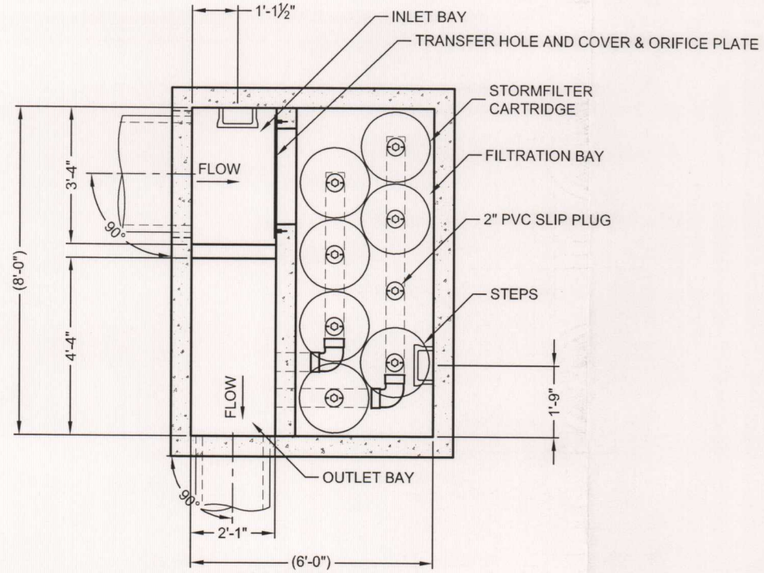
Primary OutFlow Max=0.20 cfs @ 2.38 hrs HW=877.13' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.20 cfs @ 7.08 fps)

Pond 2P: Equalization Storage

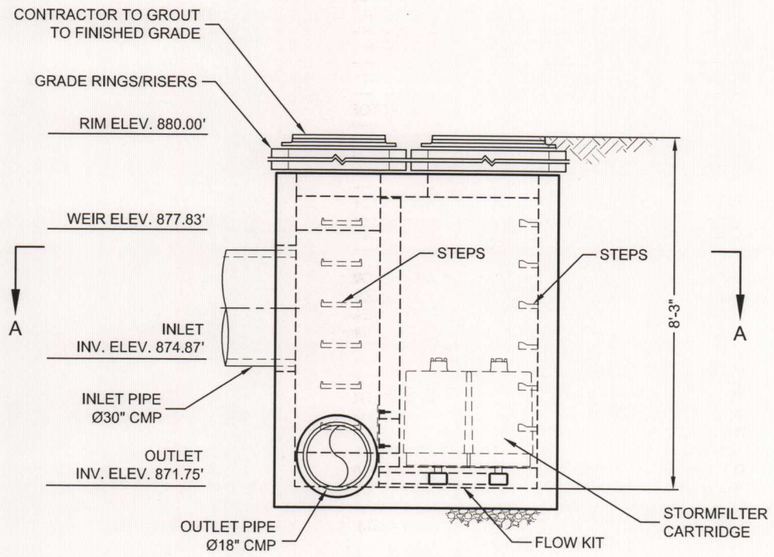




PLAN VIEW



ELEVATION



SECTION A-A

VAULT STYLE: 50L

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
8	27", ZPG CARTRIDGE	CONTECH
8	RESTRICTOR DISK (PNK), 11.25 GPM	CONTECH
0	2" PVC SLIP PLUG	CONTECH
1	FLOW KIT (50L)	CONTECH
1	36" x 14" TRANSFER HOLE COVER & ORIFICE PLATE	CONTECH
1	JOINT SEALANT	CONTRACTOR
2 PLCS	GRADE RINGS/RISERS	CONTRACTOR
1	Ø30" x 4" EJIW #41600484, OR EQUIVALENT FRAME AND COVER	CONTRACTOR
2	Ø24" x 4" EJIW #41600389, OR EQUIVALENT FRAME AND COVER	CONTRACTOR
10	STEPS, P10CTS LANE LADDER, OR EQUIVALENT	CONTECH

SITE DESIGN DATA

WATER QUALITY FLOW RATE	0.20 CFS
PEAK FLOW RATE	6.5 CFS
RETURN PERIOD OF PEAK FLOW	25 YRS
FILTER MEDIA TYPE	ZPG

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7-INCHES**. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **1 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
3. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING WITH ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

1. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
5. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
6. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

STRUCTURE WEIGHT

APPROXIMATE HEAVIEST PICK = T.B.D. LBS.

CONTECH
PROPOSAL
DRAWING

LE/RS

MARK	DATE	REVISION DESCRIPTION	BY

PEAK DIVERSION STORMFILTER
SFPD0806 - 486,414-10
THE WASH TUB
NEW BRAUNFELS, TX
for SYSTEM: XXX

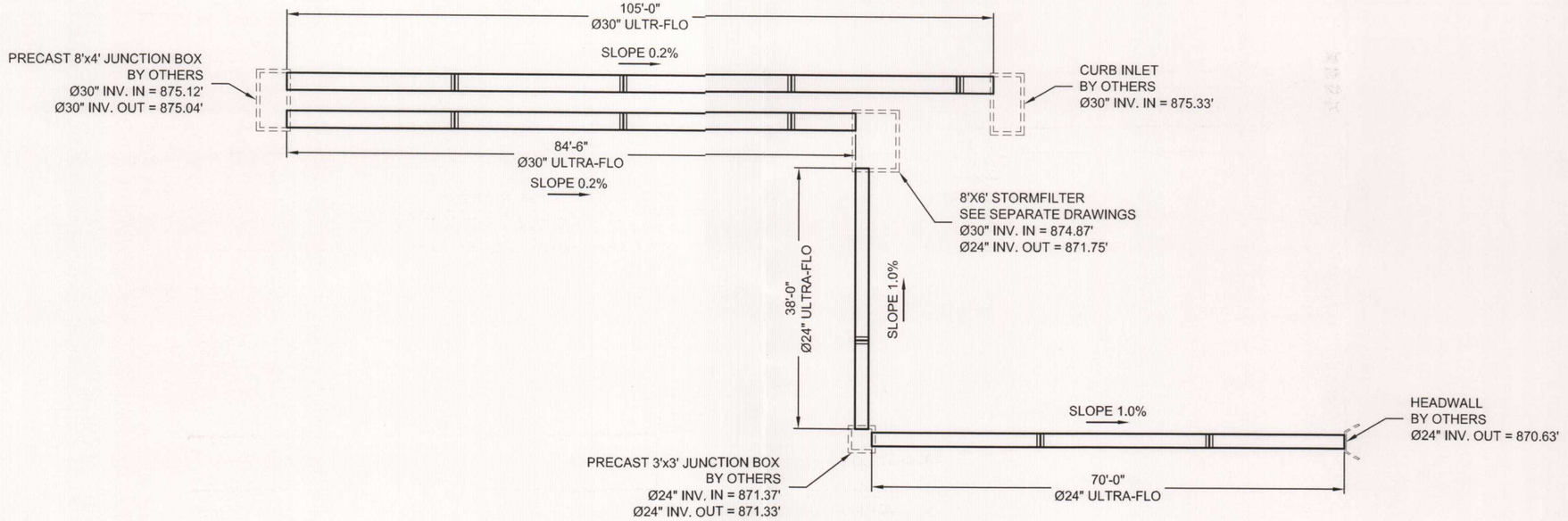
CONTECH®
ENGINEERED SOLUTIONS LLC
www.contechES.com
11835 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX

The Stormwater Management StormFilter®

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,322,629; 5,524,576; 5,707,527; 5,985,157; 6,027,639; 6,649,048; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

DATE: 08/16/2013
DESIGNED: NJT
DRAWN: NJT
CHECKED:
APPROVED:
PROJECT NUMBER: 486,414
SHEET: 1 OF 1

\\AD.CONTECH-CPI.COM\ROOT\MERLIN\PROJECT\ACTIVE\486400\486414\486414-10-STORMFILTER\DRAWINGS\PROPOSAL\486,414-10-SFPD0806-PRO X-PLODED.DWG 8/16/2013 11:05 AM



ASSEMBLY

SCALE: 1" = 20'
VOLUME: 1272 C.F.
LOADING: H20/H25
SYSTEM INV. = VARIES

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (3) PAGES INCLUDING THE FOLLOWING:

- **VOLUME =1272 CF**
- **MAINLINE PIPE GAUGE = 16**
- **WALL TYPE = SOLID**
- **DIAMETER = 30" & 24"**
- **FINISH = ALT2**

CUSTOMER _____ DATE _____

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.

MARK	DATE	REVISION DESCRIPTION	BY

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CONTECH® CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

Ø30" & Ø24" CMP DETENTION - 486414-20
THE WASH TUB - NEW BRAUNFELS, TX
NEW BRAUNFELS, TX
SITE DESIGNATION: ----

PROJECT No.:	SEQ. No.:	DATE:
486414	20	8/16/2013
DESIGNED: NJT	DRAWN: NLE	
CHECKED:	APPROVED:	
SHEET NO.: P1 OF 3		

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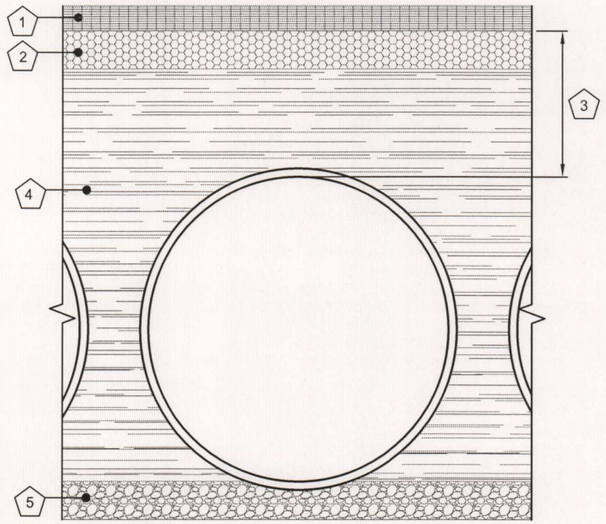


KEY

1. RIGID OR FLEXIBLE PAVEMENT
2. GRANULAR ROAD BASE
3. 12" MIN. FOR DIAMETERS THROUGH 96"
   18" MIN. FOR DIAMETERS FROM 102"
   AND LARGER MEASURED TO TOP OF RIGID
   OR BOTTOM OF FLEXIBLE PAVEMENT.
4. SELECT GRANULAR FILL PER AASHTO M145
   A1, A2 OR A3, OR APPROVED EQUAL.
   PLACED IN 8" LIFTS (COMPACTED TO MIN.
   90% STANDARD DENSITY PER AASHTO T99.)
5. GRANULAR BEDDING, ROUGHLY SHAPED TO
   FIT THE BOTTOM OF PIPE, 4" TO 6" IN DEPTH

FOUNDATION/BEDDING PREPARATION

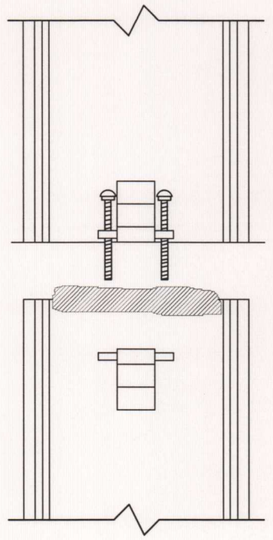
PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, 4" - 6" OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

BACKFILL

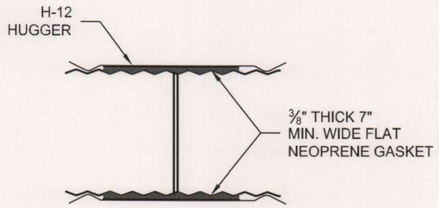
THE BACKFILL SHALL BE AN A1, A2 OR A3 GRANULAR FILL PER AASHTO M145, OR A WELL-GRADED GRANULAR FILL AS APPROVED BY THE SITE ENGINEER (SEE INSTALLATION GUIDELINES). THE MATERIAL SHALL BE PLACED IN 8" LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTOR DENSITY. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.

1/P2 BACKFILL DETAIL
SCALE: N.T.S.



CONNECTION DETAIL
SINGLE BOLT, BAR AND STRAP



FLAT GASKET

GENERAL NOTES

1. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   12" THRU 48", 1-PIECE
   54" THRU 96", 2-PIECE
   102" THRU 144", 3-PIECES
2. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS
3. REROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2⅔" x ½". DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES

2/P2 H-12 HUGGER BAND DETAIL
SCALE: N.T.S.

MARK	DATE	REVISION DESCRIPTION	BY

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CONTECH® CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

Ø30" & Ø24" CMP DETENTION - 486414-20
THE WASH TUB - NEW BRAUNFELS, TX
NEW BRAUNFELS, TX
SITE DESIGNATION: ----

PROJECT No.:	SEQ. No.:	DATE:
486414	20	8/16/2013
DESIGNED: NJT	DRAWN: NLE	
CHECKED:	APPROVED:	
SHEET NO.: P2 OF 3		

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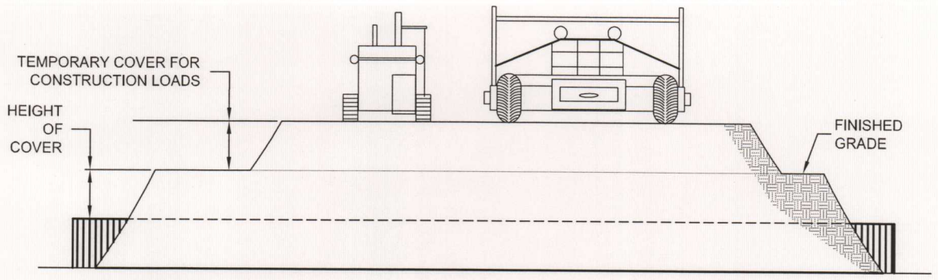

CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

3/P3 CONSTRUCTION LOADING DIAGRAM
SCALE: N.T.S.

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

MARK	DATE	REVISION DESCRIPTION	BY

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PROJECT No.:	SEQ. No.:	DATE:
486414	20	8/16/2013
DESIGNED: NJT	DRAWN: NLE	
CHECKED:	APPROVED:	
SHEET NO.: P3 OF 3		

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ATTACHMENT G

Inspection, Maintenance, Repair and Retrofit Plan
(by *Contech Stormwater Solutions* for StormFilter System)

CONTECH
STORMWATER SOLUTIONS

StormFilter Inspection and Maintenance Procedures

The Stormwater Management StormFilter

Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are likely many effective maintenance options, we believe the following procedure is efficient and can be implemented using common equipment and existing maintenance protocols. A two step procedure is recommended as follows:

1. Inspection

Inspection of the vault interior to determine the need for maintenance.

2. Maintenance

Cartridge replacement

Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.

In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/ maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, in late summer to early fall when flows into the system are not likely to be present.

Maintenance Frequency

The primary factor controlling timing of maintenance of the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection

One time per year

After major storms

Maintenance

As needed, based on results of inspection (The average maintenance lifecycle is approximately 1-3 years)

Per Regulatory requirement

In the event of a chemical spill

Frequencies should be updated as required. The recommended initial frequency for inspection is one time per year. StormFilter units should be inspected after major storms.

Sediment removal and cartridge replacement on an as needed basis is recommended unless site conditions warrant.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to three years, but inspection is warranted and recommended annually.

Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct an inspection:

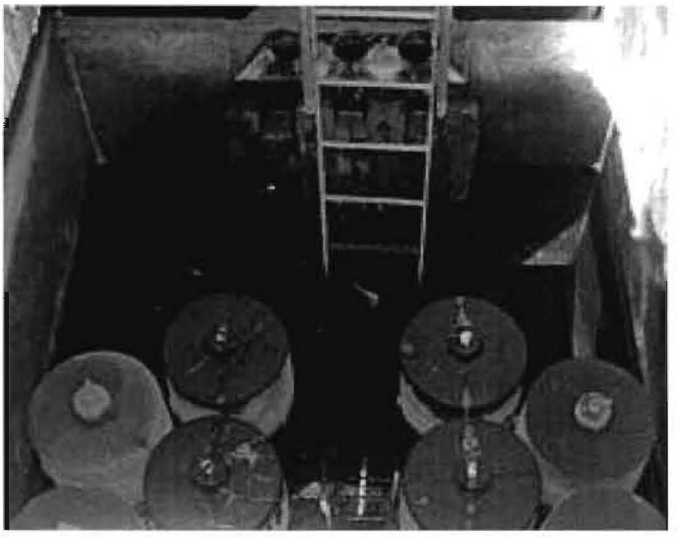
Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)



1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.
3. Submerged cartridges.
   a. If >4" of static water in the cartridge bay for more that 24 hours after end of rain event, maintenance is required.
4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.
8. Calendar Lifecycle.
   a. If system has not been maintained for 3 years maintenance is required.

Assumptions

- No rainfall for 24 hours or more
- No upstream detention (at least not draining into StormFilter)
- Structure is online
- Outlet pipe is clear of obstruction
- Construction bypass is plugged

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from CONTECH Stormwater Solutions.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH Stormwater Solutions for suggested attachment devices.

Important: Note that cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and could be capped during the maintenance activity to prevent sediments from entering the underdrain manifold.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Stormwater Solutions performs the maintenance activities and damage is not related to discharges to the system.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

D. At location under structure access, tip the cartridge on its side.

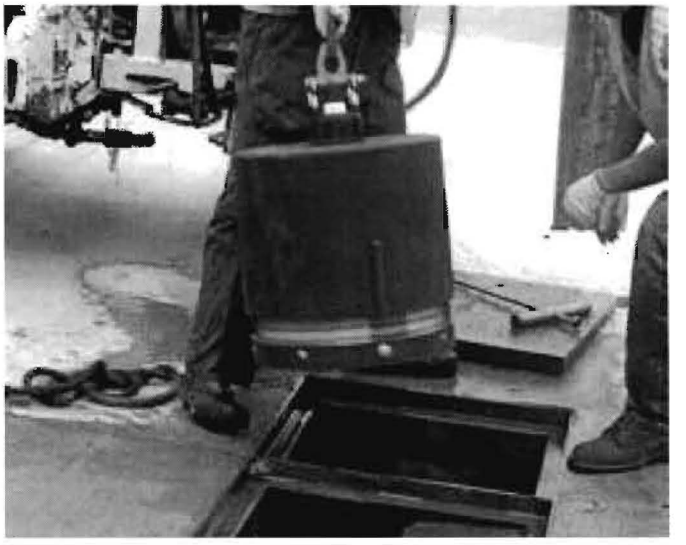
Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

D. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

E. Set the empty, used cartridge aside or load onto the hauling truck.

F. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
    a. If desired, apply a light coating of FDA approved silicon lube to the outside of the exposed portion of the connectors. This ensures a watertight connection between the cartridge and the drainage pipe.
    b. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH Stormwater Solutions.



Related Maintenance Activities -

Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

CONTECH STORMWATER SOLUTIONS
800.925.5240
contechstormwater.com

Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from our engineers.

CONTECH Construction Products Inc. provides site solutions for the civil engineering industry. CONTECH's portfolio includes bridges, drainage, sanitary sewer, stormwater and earth stabilization products. For information on other CONTECH division offerings, visit contech-cpi.com or call 800.338.1122

Inspection Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

Sediment Thickness in Forebay: _____ Date: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Estimated Flow from Drainage Pipes (if available): _____

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water: _____

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal: _____

☐ Minor Structural Repairs: _____

☐ Drainage Area Report _____

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

Items Needing Further Work: _____

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

_____

_____

_____

_____

_____

_____

_____

_____

CONTECH®
STORMWATER
SOLUTIONS

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Months in Service:

Oil in Forebay: Yes ☐ No ☐

Sediment Depth in Forebay: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?):

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:

_____

_____

_____

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CONTECH®
STORMWATER
SOLUTIONS

CONTECH STORMWATER SOLUTIONS

The Stormwater Management StormFilter

StormFilter Maintenance Guidelines

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site, and may be required in the event of a chemical spill or due to excessive sediment loading.

Maintenance Procedures

Although there are other effective maintenance options, CONTECH recommends the following two step procedure:

1. Inspection: Determine the need for maintenance.
2. Maintenance: Cartridge replacement and sediment removal.

Inspection and Maintenance Activity Timing

At least one scheduled inspection activity should take place per year with maintenance following as warranted.

First, inspection should be done before the winter season. During which, the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, maintenance should be performed during periods of dry weather.

In addition, you should check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation. It may be necessary to adjust the inspection/maintenance activity schedule depending on the actual operating conditions encountered by the system.

Generally, inspection activities can be conducted at any time, and maintenance should occur when flows into the system are unlikely.

Maintenance Activity Frequency

Maintenance is performed on an as needed basis, based on inspection. Average maintenance lifecycle is 1-3 years. The primary factor controlling timing of maintenance of the StormFilter is sediment loading. Until appropriate timeline is determined, use the following:

Inspection:

One time per year

After major storms

Maintenance:

As needed

Per regulatory requirement

In the event of a chemical spill

Inspection Procedures

It is desirable to inspect during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. Use the following as a general guide. (Other factors, such as regulatory requirements, may need to be considered)

1. Sediment loading on the vault floor. If >4" of accumulated sediment, then go to maintenance.
2. Sediment loading on top of the cartridge. If >1/4" of accumulation, then go to maintenance.
3. Submerged cartridges. If >4" of static water in the cartridge bay for more that 24 hrs after end of rain event, then go to maintenance.
4. Plugged media. If pore space between media granules is absent, then go to maintenance.
5. Bypass condition. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), then go to maintenance.
6. Hazardous material release. If hazardous material release (automotive fluids or other) is reported, then go to maintenance.
7. Pronounced scum line. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, then go to maintenance.
8. Calendar Lifecycle. If system has not been maintained for 3 years, then go to maintenance.

Assumptions:

No rainfall for 24 hours or more.

No upstream detention (at least not draining into StormFilter).

Structure is online. Outlet pipe is clear of obstruction. Construction bypass is plugged.

Maintenance

Depending on the configuration of the particular system, workers will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flow is occurring.

Replacement cartridges can be delivered to the site or customers facility. Contact CONTECH for more information.

Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH immediately.

To conduct cartridge replacement and sediment removal:

1. If applicable, set up safety equipment to protect workers and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that workers enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH for suggested attachment devices.

Important: Cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Do not damage the manifold connectors. They should remain installed in the manifold and can be capped during the maintenance activity to prevent sediments from entering the under drain manifold.

B. Remove the used cartridges (up to 250 lbs.) from the vault.

Important: Avoid damaging the cartridges during removal and installation.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps A through C until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

D. At location under structure access, tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

F. Set the empty, used cartridge aside or load onto the hauling truck.

G. Continue steps a through E until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. Use vacuum truck for highest effectiveness.
9. Once the sediments are removed, assess the condition of the vault and the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.
   a. If desired, apply a light coating of FDA approved silicon lube to the outside of the exposed portion of the connectors. This ensures a watertight connection between the cartridge and the drainage pipe.
   b. Replace any damaged connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH.

Material Disposal

The accumulated sediment must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals. Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with applicable waste disposal regulations. Coordinate disposal of solids and liquids as part of your maintenance procedure. Contact the local public works department to inquire how they disposes of their street waste residuals.

800.925.5240
contechstormwater.com

ATTACHMENT I
Measures for Minimizing Surface Stream Contamination

Development of this site will slightly increase the peak discharge rates above pre-development conditions due to the construction of the proposed development however an upstream regional detention pond has been constructed within the site's subdivision to mitigate the peak discharge increase for the subject development. The storm water flows discharging from the water quality system will discharge to the downstream areas in approximately the same manner that it did prior to the development of the site by dissipating the discharge flows as per City of New Braunfels and TxDOT requirements.

AGENT AUTHORIZATION

Water Pollution Abatement Plan

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

I **Matt Vizza**,
Print Name

Owner / President,
Title - Owner/President/Other

of **Vizza Wash, L.P.**,
Corporation/Partnership/Entity Name

have authorized **Michael P. Sepeda, P.E.**
Print Name of Agent/Engineer

of **ADA Consulting 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:

Applicant's Signature

7/18/13
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Matt Vizza 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 18th day of July, 2013.

NOTARY PUBLIC

DONNA M. DALFREY
Notary Public
State of Texas
Comm. Exp. 12-22-2013

Donna M Dalfrey
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12-22-2013

FEE APPLICATION

Water Pollution Abatement Plan

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

NAME OF PROPOSED REGULATED ENTITY: The Wash Tub - New Braunfels
REGULATED ENTITY LOCATION: 1749 State Hwy. 46, New Braunfels, TX 78132
NAME OF CUSTOMER: Vizza Wash, L.P. dba The Wash Tub Car Wash
CONTACT PERSON: Rick Algea PHONE: 210-493-8822 x266
(Please Print)

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

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

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

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

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

☐ **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	**0.932**	Acres	$ **3000.00**
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	$

Signature

9-16-13
Date

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

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

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