

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



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

August 19, 2010

Mr. David Pritchard  
Metamorphic Design LLC  
2612 Frontier  
Spring Branch, TX 78070

Re: Edwards Aquifer, Comal County  
NAME OF PROJECT: Metamorphic Design; located at 18636 Forty-Six Parkway, Bulverde, Texas  
TYPE OF PLAN: Request for the Approval of a Contributing Zone Plan (CZP); 30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer  
Edwards Aquifer Protection Program San Antonio File No. 232.01; Investigation No. 826029  
Regulated Entity No. RN105187652; Additional ID 13-07021306

Dear Mr. Pritchard:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP Application for the above-referenced project submitted to the San Antonio Regional Office by Pape-Dawson Engineers, Inc. (Pape-Dawson) on behalf of Metamorphic Design LLC on May 11, 2010. Final review of the CZP was completed after additional material was received on July 7, 2010, July 20, 2010, August 4, 2010, and August 6, 2010, and after the City of Bulverde review period expired on August 19, 2010. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

### PROJECT DESCRIPTION

The proposed commercial project will be on an approximately 1.21 acre lot with a 0.75 acre effective drainage (watershed) area. The project will include the construction of one building, associated drive ways and parking area, and one wet vault unit. The impervious cover will total 0.25 acre (approximately 33 percent of the watershed) to be treated, including 0.062 acre for the

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Forty-Six Parkway roadway. According to a letter dated, August 4, 2010, signed by Robert Boyd, P.E., with Comal County, the site in the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating onsite or upgrade of the site and potential flowing across and off the site after construction, one Vortechs unit, designed using the TCEQ technical document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat storm water runoff. The required total suspended solids (TSS) treatment for this project is 224.4 pounds of TSS generated from the increase of 0.25 acre of impervious cover, including the 0.062 acre roadway. Overtreatment of 0.90 pounds will be required to compensate for the uncaptured runoff from 0.001 acre 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 one Vortechs unit (Vx-3000), designed and constructed by Contech® Stormwater Solutions, Inc. The specific drainage area for the unit and design treatment amounts are described in the table below.

	Total Area (ac)	Total Impervious Cover (ac)	Required TSS Treatment (lb/yr)	Design TSS Treatment (lb/yr)
Vortechs Vx 3000	0.75	0.25	224.40	241.38
Uncaptured	0.001	0.001	0.90	-----
Total	0.75	0.25	225.30	241.38
* Required TSS treatment amount based upon the increase in impervious cover, 0.25 acres.				

SPECIAL CONDITIONS

- I. 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 format (Deed Recordation Affidavit, TCEQ-0625A) that you may use to deed record the approved CZP is enclosed.
- II. The permanent best management practice (BMP) shall be operational prior to occupancy of the building within the BMP's specific drainage area.
- III. All sediment and/or media removed from the BMP during maintenance activities shall be properly disposed of according to 30 TAC 330 or TAC 335, as applicable.
- IV. In accordance with the information in the CZP, the implementation of soil stabilization practices must follow the procedures described in the Edwards Aquifer Technical Guidance Manual (RG-348). This information is found on pages 1-35 through 1-58 (Sections 1.3.8 through 1.3.11).

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. 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 Contributing Zone Plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Any modification to the activities described in the referenced CZP 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.
6. 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 name of the approved plan and file number for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.
7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved Storm Water Pollution Prevention Plan (SWPPP) 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.

During Construction:

8. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer.

The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

9. 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 significantly reduced. 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).
10. Intentional discharges of sediment laden storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
11. 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.
12. 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.
13. 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. 5, above.

After Completion of Construction:

14. Owners of permanent BMPs and measures must insure that the 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 San Antonio Regional Office within 30 days of site completion.
15. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such 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

Mr. David Pritchard

August 19, 2010

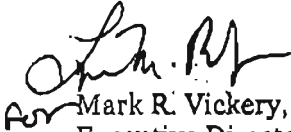
Page 5

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

16. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Contributing Zone Plan. If the new owner intends to commence any new regulated activity on the site, a new Contributing Zone Plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
17. A Contributing Zone 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 Contributing Zone Plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
18. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact John Barry of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4057.

Sincerely,



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

MRV/JEB/eg

Enclosures: Deed Recordation Affidavit, Form TCEQ-0625A  
PBMP Change in Responsibility

cc: Ms. Shauna Weaver, P.E., LEED® AP, Pape-Dawson  
Mr. Bill Krawietz, Mayor, City of Bulverde  
Mr. Thomas H. Hornseth, P.E., Comal County Engineer  
Mr. Karl J. Dreher, Edwards Aquifer Authority  
TCEQ Central Records, Building F, MC 212

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



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AUG 31 2010

COUNTY ENGINEER

## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

August 19, 2010

Mr. David Pritchard  
Metamorphic Design LLC  
2612 Frontier  
Spring Branch, TX 78070

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Edwards Aquifer Protection Program San Antonio File No. 232.01; Investigation No. 826029  
Regulated Entity No. RN105187652; Additional ID 13-07021306

Dear Mr. Pritchard:

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### PROJECT DESCRIPTION

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STANDARD CONDITIONS

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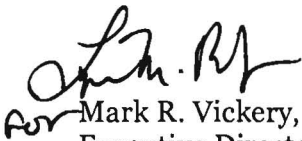
Mr. David Pritchard  
August 19, 2010  
Page 5

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If you have any questions or require additional information, please contact John Barry of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4057.

Sincerely,



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

MRV/JEB/eg

Enclosures: Deed Recordation Affidavit, Form TCEQ-0625A  
PBMP Change in Responsibility

cc: Ms. Shauna Weaver, P.E., LEED® AP, Pape-Dawson  
Mr. Bill Krawietz, Mayor, City of Bulverde  
Mr. Thomas H. Hornseth, P.E., Comal County Engineer  
Mr. Karl J. Dreher, Edwards Aquifer Authority  
TCEQ Central Records, Building F, MC 212



LAND DEVELOPMENT ENVIRONMENTAL TRANSPORTATION WATER RESOURCES SURVEYING

**TO:** TCEQ Region 13  
14250 Judson Road  
San Antonio, Texas 78233

**DATE:** 08/06/10

**RECEIVED**

AUG 31 2010

**ATTN:** John Barry

**PROJECT NO.:** 7521-00

COUNTY ENGINEER

**FROM:** Miranda G. Briones, E.I.T., LEED® AP

**CC:**

1 HR  
ONE-WAY

**RE:** Metamorphic Design CZP (EAPP No. 232.01)  
Response to Additional Comments

Quantity	Description
5	Copies

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 SAN ANTONIO  
 REGION  
 2010 AUG -6 PM 4:18

*If enclosures are not as noted, kindly notify us at once.*

- For Approval     
  For Your Use     
  As Required     
  For Review and Comment

**COMMENTS:**

John,

Items 3 and 7 have been revised accordingly.

**Contributing Zone Plan Application**  
for Regulated Activities  
on the Contributing Zone to the Edwards Aquifer  
and Relating to 30 TAC §213.24(1), Effective June 1, 1999

TCEQ-R13  
AUG 06 2010  
SAN ANTONIO  
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Regulated Entity Name: Metamorphic Design

AUG 31 2010

County: Comal

Stream Basin: Lewis Creek

COUNTY ENGINEER

1.  Regulated activities on this site will disturb at least 5 acres.  
 Regulated activities on this site will disturb less than 5 acres and are part of a larger common plan of development or sale with the potential to disturb cumulatively five or more acres.

2. Customer (Applicant):

Contact Person: David Pritchard  
Entity: Metamorphic Design  
Mailing Address: 2612 Frontier  
City, State: Spring Branch, TX Zip: 78070  
Telephone: (713) 725-5470 FAX: \*

**\*This customer does not have a fax number. Please use Pape-Dawson Engineers, Inc. fax number below to send any correspondence to the customer or send via mail.**

Agent/Representative (If any):

Contact Person: Shauna Weaver, P.E., LEED® AP  
Title: Vice President, Land Development  
Entity: Pape-Dawson Engineers, Inc.  
Mailing Address: 555 E. Ramsey  
City, State: San Antonio, Texas Zip: 78216  
Telephone: (210) 375-9000 FAX: (210) 375-9010

3.  This project is inside the city limits of the City of Bulverde.  
 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.

4. The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

**From TCEQ's Regional Office, travel north on Judson Road approximately 2.5 miles to Loop 1604. Travel west on Loop 1604 approximately 4.5 miles to US Hwy. 281. Exit US 281 and turn right off the access road to travel north on 281. Travel about 13.2 miles north on 281 to SH 46. Exit SH 46 toward Boerne. Make a right onto SH 46 and travel about 1 mile east. Turn left onto Bentwood Drive and then left onto Forty Six Parkway. The site is located at 18636 Forty Six Parkway.**

5.  **ATTACHMENT A - Road Map.** A road map showing directions to and the location of the project site is found as at the end of this form **directly behind this sheet.**

6.  **ATTACHMENT B - USGS Quadrangle Map.** A copy of the a USGS Quadrangle Map (Scale: 1" = 2000') is found at the end of this form ~~directly behind this sheet~~. The map(s) clearly shows:
- Project site boundaries.
  - USGS Quadrangle Name(s).

**RECEIVED**  
AUG 31 2010

7.  **ATTACHMENT C - Project Narrative.** A detailed narrative description of the proposed project is found at the end of this form **below**.

COUNTY ENGINEER

*Metamorphic Design is a proposed commercial development to be constructed on a currently undeveloped 1.21-acre tract. Although the site and associated disturbance are less than 5 acres, the site is part of a larger common plan of development, platted as River Crossing, Unit 3. The site is generally located east of the intersection of US Hwy. 281 and State Highway 46 within the city limits of Bulverde in Comal County, Texas. The site address is 18636 Forty Six Parkway, Spring Branch, TX and is within a commercial area between Riverway and Bentwood Drive, north of S.H. 46.*

*This site was previously permitted under the "River Crossing Units 2, 3 & 4" CZP (EAPP No. 1331.02). Since the site has been rezoned, has changed ownership, and will change use, a new CZP is being filed as a CZP Modification would not be appropriate.*

*Proposed activities on this site include clearing, excavation, installation of utilities, grading, construction of a driveway, parking lot, drainage channel and building, landscaping and site cleanup. Post-development impervious cover is approximately 0.25 acres (20.7% of the site), which includes approximately 0.062 acres of existing impervious cover to remain on-site. This existing impervious cover is a private street (Forty Six Parkway) that runs through the property.*

*One (1) Vortech System, Model VX3000, is proposed as the Permanent Best Management Practice (BMP) for the site. This Permanent BMP has been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. Runoff from impervious cover areas requiring treatment, that cannot be captured, will be overtreated for by the proposed Vortech System.*

*Potable water service will be provided by the Canyon Lake Water Service Company. Wastewater generated by this development is estimated to be 152 gallons per day (gpd). It will be disposed of by conveyance to a proposed on-site aerobic septic system. The site suitability letter from Comal County (Attachment F) is attached.*

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

JUL 27 2010

COUNTY ENGINEER



Protecting Texas  
by Reducing and  
Preventing Pollution

# FAX TRANSMITTAL

DATE: June 23, 2010 NUMBER OF PAGES (including this cover sheet):

3
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TO: Name Ms. Shauna Weaver, P.E., LEED® AP  
 Organization Pape Dawson Engineers, Inc.  
 FAX Number (210) 375-9010

TO: Name Mr. David Prichard  
 Organization Metamorphic Design LLC or Successful Energy Practices International, LLC  
 FAX Number c/o (210) 375-9010

FROM: TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
 Name John Barry  
 Division/Region San Antonio - Edwards Aquifer Protection Program  
 Telephone Number (210) 403-4057  
 FAX Number (210) 545-4329

Re: Edwards Aquifer, Comal County  
 NAME OF PROJECT: Metamorphic Design; located at 18636 Forty-Six Parkway, Spring Branch, Texas  
 PLAN TYPE: Request for Approval of a Contributing Zone Plan (CZP); 30 Texas Administration Code (TAC) Chapter 213 - Edwards Aquifer  
 Edwards Aquifer Protection Program ID No. 232.01  
 Regulated Entity No. RN105187652  
 Additional ID 13-07021306  
 Investigation No. 826029

Dear Ms. Weaver:

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

#### General

- Contact this investigator to arrange for a site inspection after the responses to this notice of deficiency is submitted.

#### Sheets

- Exhibits 1 through 4: Though form TECQ-10257 clearly refers to site construction and attached construction plans, two disclaimers at the bottom of these sheets (Exhibit 1 through 4), appear to indicate that they are only for purposes of demonstrating compliance on TCEQ EAPP requirements (i.e., they may not be

Ms. Shauna Weaver, P.E., LEED® AP  
June 23, 2010  
Page 2

construction plans to be issued to the construction contractors). Construction plans must be provided in this application. Please explain.

2. Exhibits 1 and 3 (the Site Plans):
  - a. On both Site Plans, at the bottom of the TCEQ CZP Construction Notes, please provide the following statement -- THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.
  - b. Specifically label on the Site Plans the areas which will be disturbed and clarify Item 35 accordingly.
  - c. On Exhibit 3, provide revisions to the data tables and plan view for the changes in treatment calculation assumptions and results and the proposed BMT.
  - d. Annotate where the outfall from the BMP will immediately go.
3. Exhibit 4:
  - a. Per Item 53, as applicable, show where the energy dissipators will be located.
  - b. Explicitly show where the BMP's treated effluent will immediately be directed.
  - c. Provide revisions to the proposed BMP for plan and profile views, the standard detail, and design data as necessary.

TCEQ-10257

1. Item 1 and Authorization Form: Amend as necessary.
  - a. The Authorization Form TCEQ-0599 provided is the 10/1/2004 revision which has been superseded by the 4/1/2010 revision. Please provide completed current forms to properly authorize Pape-Dawson and an additional completed form as may be necessary.
  - b. Successful Energy Practices International LLC appears to be the owner of the project property, not Metamorphic Design LLC. Revise Item 1, as necessary, or provide a completed authorization form from the property owner (Successful Energy Practices International LLC) for Metamorphic Design LLC to act as its agent.
  - c. Correct the zip code to 78070 for Spring Branch.
  - d. The 713-725-5470 appears to be the phone number for Successful Energy Practices International LLC.
2. Item 7/Attachment C: Revise the text as necessary.
  - a. The area of the private roadway termed previously existing impervious cover (0.062 acres) must be included in the calculations for TSS generated and to be treated.
  - b. The OSSF suitability letter from Comal County must be provided for this application. The River Crossing suitability letter is not pertinent to this commercial site. Comal County reports that it may have a pending OSSF permit for this property's address. If a permit from Comal County is

- pending, you may also provide the permit number. Revise this section and Item 22 accordingly.
- c. The BMP may be revised due to need for increased treatment.
  - d. Note the area(s) of disturbance and refer to its (their) boundaries as noted on the Site Plan.
3. Item 12:
- a. After the asterisk, add that the 0.259 acres also includes 0.059 acres of uncaptured drainage.
  - b. Include the footprint area of approximately 45 square feet (0.001 acre) for the proposed sign-as-impervious-area.
- 
4. Item 21/Attachment E:
- a. Clarify the 7.41 cfs value. Is it a post-construction total volume or is it the incremental increase in stormwater runoff due to the construction?
  - b. Provide the character (quality) of the runoff.
5. Item 22/Attachment F: See #2.b above.
6. Item 46: Revise by replacing the check in the first blank to "NA".
7. Item 48/Attachment K: Revise as necessary.
8. Item 50/Attachment M and Exhibit Section: Since the runoff from the Forty-Six Parkway roadway does not appear to be presently treated, do not enter the 0.062 acre impervious road area as pre-development in the spreadsheet, i.e., enter a zero for predevelopment impervious area. Revise the BMP in the application, including the construction plans, and the BMP treatment calculations appropriately.
9. Item 51/Attachment N: Revise Attachment N (mislabeled Attachment G) for the revised BMP, as necessary.
10. Item 53/Attachment P: Revise as necessary including what the velocity dissipators are and the immediate destination of the treated effluent.

#### Temporary Stormwater

1. Item 5/Attachment C: Include in description the disturbances related to the TBMP construction.

We ask that you submit one original and three copies of the amended materials to supplement the CZP application to this office by no later than **14 days from the date of this fax** to avoid denial of the plan. If the response to this notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, a second notice will be sent to you requiring a response within 14 days from the notice date. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application will be denied unless you provide written notification that the application is being withdrawn. Please note that the application fee will be forfeited if the plan is not withdrawn. If you have any questions or require additional information, please contact John Barry of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4057.



LAND DEVELOPMENT ENVIRONMENTAL TRANSPORTATION WATER RESOURCES SURVEYING

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July 7, 2010

JUL 27 2010

COUNTY ENGINEER

Mr. John Barry  
TCEQ Region 13  
14250 Judson Road  
San Antonio, TX

2010 JUL -7 PM 2:54  
"RECEIVED TCEQ"  
SAN ANTONIO  
REGION

Re: Metamorphic Design Contributing Zone Plan (CZP)  
Edwards Aquifer Protection Plan (EAPP) No. 232.01  
Response to Notice of Deficiency (NOD)

Dear Mr. Barry:

The following are responses to the c  
the CZP technical review for the at  
attached for reference.

*Mail to  
Comal Co Eng*

10, regarding  
ment letter is

**General**

- 1. Contact this investigator to arra  
of deficiency are submitted.

this notice

*Response: Noted. The investigato*

n.

**Sheets**

- 1. Exhibits 1 through 4: Though form  
attached construction plans, two d  
... the bottom of these sheets (Exhibit 1  
through 4), appear to indicate that they are only for purposes of demonstrating  
compliance on TCEQ EAPP requirements (i.e., they may not be construction plans to be  
issued to the construction contractors). Construction plans must be provided in this  
application. Please explain.

*Response: As the TCEQ has specific requirements as to what is to be shown on the "Site  
Plan", specific plans are prepared for TCEQ submittal to fulfill these requirements, as  
the "civil improvement plans" do not typically include these items (TCEQ Notes,  
geologic formations, etc.) and to do so in a minimal number of sheets. The plans that  
make up this CZP will be issued to the contractor and a copy maintained onsite during  
construction. The notes at the bottom of each exhibit are intended to direct the contractor*

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*to other plans in the civil plan set, specific to each construction activity, for details specific to each improvement.*

2. Exhibits 1 and 3 (the Site Plans):

- a. On both Site Plans, at the bottom of the TCEQ CZP Construction Notes, please provide the following statement – THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.
- b. Specifically label on the Site Plans the areas which will be disturbed and clarify Item 35 accordingly.
- c. On Exhibit 3, provide revisions to the data tables and plan view for the changes in treatment calculation assumptions and results and the proposed BMP.
- d. Annotate where the outfall from the BMP will immediately go.

*Response:*

- a. *This statement appears to be direction to the user and not an actual construction note; therefore, it is not included.*
- b. *The limits of disturbance are approximately 0.641 acres, from the southern property line to the limits of grading shown on the plans. This boundary has been added to Exhibit 1.*
- c. *Please see the response to "2.a" of the TCEQ-10257 comments below.*
- d. *The outfall from the Vortechs unit is shown on Exhibit 1 and 3. Flow is discharged via pipe to a grassed area at the southern property line. No revision is necessary. Flow will ultimately flow to a ditch running parallel to the highway diverting upgradient flow to an existing crossing underneath SH46.*

3. Exhibit 4:

- a. Per Item 53, as applicable, show where the energy dissipators will be located.
- b. Explicitly show where the BMP's treated effluent will immediately be directed.
- c. Provide revisions to the proposed BMP for plan and profile views, the standard detail and design data as necessary.

*Response:*

- a. *The velocity at the point of discharge is not great enough such that baffle blocks or other energy dissipaters are required; however, the concrete headwall surrounding the discharge pipe from the Vortechs unit will minimize erosion at the point of discharge. Item 53 is not part of the "Site Plan Requirements" (Items 30-41); therefore, no revision is necessary.*
- b. *The outfall from the Vortechs unit is shown on Exhibit 1 and 3. Flow is discharged via pipe to a grassed area at the southern property line. No revision is necessary.*



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*Flow will ultimately flow to a ditch running parallel to the highway diverting upgradient flow to an existing crossing underneath SH46.*

- c. *Please see the response to "2.a" of the TCEQ-10257 comments below.*

**TCEQ-10257**

1. Item 1 and Authorization Form: Amend as necessary.
  - a. The Authorization Form TCEQ-0599 provided is the 10/01/2004 revision which has been superseded by the 04/01/2010 revision. Please provide completed current forms to properly authorize Pape-Dawson and an additional completed form as may be necessary.
  - b. Successful Energy Practices International, LLC appears to be the owner of the project property, not Metamorphic Design, LLC. Revise Item 1, as necessary, or provide a completed authorization form from the property owner (Successful Energy Practices International, LLC) for Metamorphic Design, LLC to act as its agent.
  - c. Correct the zip code to 78070 for Spring Branch.
  - d. The 713-725-5470 appears to be the phone number for Successful Energy Practices International, LLC.

*Response:*

- a. *This is not necessary. In order to avoid reissuing the form for signature and notary, TCEQ was consulted to confirm the 10/01/2004 form would still be accepted. Although the form was revised on 04/01/2010, correspondence from TCEQ indicated that the form was to be effective 60 days from the posting date. See e-mail attached. The form was submitted on 05/11/2010, prior to the effective deadline and was accepted as administratively complete by the reviewer. The date the Agent Form was signed indicates that the 10/01/2004 form was effective at the time it was executed, so no revision is necessary.*
  - b. *Successful Energy Practices International, LLC is not the current property owner. Please see the information attached from the Comal Appraisal District confirming Metamorphic Design, LLC as the current owner. No revision is necessary.*
  - c. *The zip code has been revised.*
  - d. *The number listed is the contact for Mr. Pritchard. No revision is necessary.*
2. Item 7/Attachment C: Revise the text as necessary.
    - a. The area of the private roadway termed previously existing impervious cover (0.062 acres) must be included in the calculations for TSS generated and to be treated.
    - b. The OSSF suitability letter from Comal County must be provided for this application. The River Crossing suitability letter is not pertinent to this commercial site. Comal County reports that it may have a pending OSSF permit for this property's address. If

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- a permit from Comal County is pending, you may also provide the permit number. Revise this section and Item 22 accordingly.
- c. The BMP may be revised due to the need for increased treatment.
  - d. Note the area(s) of disturbance and refer to its (their) boundaries as noted on the Site Plan.

*Response:*

- a. *Treatment is being provided for Forty Six Parkway. In addition, grading has been revised to capture runoff previously uncaptured. Please see the revised exhibits and TSS calculations attached. No change to the Vortech model is necessary and no additional permanent BMPs required.*
  - b. *The permit number is 92619. Please see the receipt attached from the Comal County Engineer's office. The permit number is listed under "Description".*
  - c. *Please see the response to "2.a" of the TCEQ-10257 comments below.*
  - d. *The limits of disturbance are approximately 0.641 acres, from the southern property line to the limits of grading shown on the plans. This boundary has been added to Exhibit 1 and the figure revised.*
3. Item 12:
- a. After the asterisk, add that the 0.259 acres also includes 0.059 acres of uncaptured drainage.
  - b. Include the footprint area of approximately 45 square feet (0.001 acre) for the proposed sign as impervious cover.

*Response:*

- a. *The previously uncaptured drainage area is now captured due to revised grading. The total impervious cover should have been listed as 0.25 acres and has been revised.*
  - b. *This is already included under "structures" in the table.*
4. Item 21/Attachment E:
- a. Clarify the 7.41 cfs value. Is it a post-construction total volume or is it the incremental increase in stormwater runoff due to the construction?
  - b. Provide the character (quality) of the runoff.

*Response:*

- a. *The 7.41 cfs is not a volume quantity, but a flow rate. It is a post-construction value associated with the watershed to the Vortech unit.*
- b. *The character of the runoff is overland flow and concentrated flow from improved areas. This has been added to the response to Item 21.*

5. Item 22/Attachment F: See #2.b. above.

*Response: Please see the response to "2.a" of the TCEQ-10257 comments above. No revision is necessary.*

6. Item 46: Revise by replacing the check in the first blank to "NA".

*Response: This revision is not appropriate as the third option under Item 46 is valid and therefore applicable. No revision is necessary.*

7. Item 48/Attachment K: Revise as necessary.

*Response: The Vortech model has not changed; however, the statement regarding overtreatment has been removed as it is no longer applicable.*

8. Item 50/Attachment M and Exhibit Section: Since the runoff from the Forty-Six Parkway impervious cover does not appear to be presently treated, do not enter the 0.062 acre impervious road area as pre-development in the spreadsheet, i.e., enter a zero for predevelopment impervious area. Revise the BMP in the application, including the construction plans, and the BMP treatment calculations appropriately.

*Response: Please see the response to "2.a" of the TCEQ-10257 comments above.*

9. Item 51/Attachment N: Revise Attachment N (misabeled Attachment G) for the revised BMP, as necessary.

*Response: Please see the response to "2.a" of the TCEQ-10257 comments above. No revision is necessary.*

10. Item 53/Attachment P: Revise as necessary, including what the velocity dissipators are and the immediate destination of the treated effluent.

*Response: Please see the response to "3.a" and "3.b" of the "Sheets" comments. No revision is necessary.*

### **Temporary Stormwater**

1. Item 5/Attachment C: Include in the description the disturbances related to the TMBP construction.

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*Response: This suggested revision is not appropriate as TBMP installation on this project is not a "major" construction activity "which will disturb soils for major portions of the site" as Item 5 describes. Examples of "major" construction activities that qualify include excavation, grading, etc. Unless a temporary sediment basin is to be constructed, disturbance associated with TBMP installation is minimal and does not qualify as a major construction activity. No revision is necessary.*

Additional comment received from TCEQ via voicemail message: Please confirm the spelling of the client's last name.

*Response: The correct spelling is "Pritchard", not "Prichard" and has been revised throughout the application.*

Your prompt attention to this submittal is greatly appreciated. Please do not hesitate to contact our office, if you have further questions or require additional information.

Sincerely,  
Pape-Dawson Engineers, Inc.  
Texas Board of Professional Engineers, Firm Registration # 470

*Shauna L. Weaver*

Shauna Weaver, P.E., LEED® AP  
Vice President, Land Development



Attachments

P:\75\21\00\Word\Letters\100702a1.doc

## Comal CAD\TAX

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## Property Search Results &gt; 105101 METAMORPHIC DESIGN LLC for Year 2010

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## Property

## Account

Property ID: 105101 Legal Description: RIVER CROSSING 3, LOT 669, ACRES 1.209  
 Geographic ID: 450712066900 Agent Code:  
 Type: Real

## Location

Address: 18636 FORTY SIX PKWY Mapsco: 384D6  
 SPRING BRANCH, TX 78070  
 Neighborhood: Hwy 46 City of Bulverde Map ID: 5E  
 Neighborhood CD: C384-HWY46

## Owner

Name: METAMORPHIC DESIGN LLC Owner ID: 904999  
 Mailing Address: 2612 FRONTIER % Ownership: 100.0000000000%  
 SPRING BRANCH, TX 78070

Exemptions:

## Values

(+) Improvement Homesite Value:	+	\$0	
(+) Improvement Non-Homesite Value:	+	\$0	
(+) Land Homesite Value:	+	\$0	
(+) Land Non-Homesite Value:	+	\$189,590	Ag / Timber Use Value
(+) Agricultural Market Valuation:	+	\$0	\$0
(+) Timber Market Valuation:	+	\$0	\$0
<hr/>			
(=) Market Value:	=	\$189,590	
(-) Ag or Timber Use Value Reduction:	-	\$0	
<hr/>			
(=) Appraised Value:	=	\$189,590	
(-) HS Cap:	-	\$0	
<hr/>			
(=) Assessed Value:	=	\$189,590	

## Taxing Jurisdiction

Owner: METAMORPHIC DESIGN LLC  
 % Ownership: 100.0000000000%  
 Total Value: \$189,590

Entity	Description	Tax Rate	Appraised Value	Taxable Value	Estimated Tax	
046	Comal County	0.262855	\$189,590	\$189,590	\$498.35	
BUL	City of Bulverde	0.146800	\$189,590	\$189,590	\$278.32	
CAD	CAD	0.000000	\$189,590	\$189,590	\$0.00	
CIS	Comal ISD	1.310000	\$189,590	\$189,590	\$2,483.63	
ES1	ESD #1 (EMS)	0.062412	\$189,590	\$189,590	\$118.33	
ES4	ESD #4 (FIRE)	0.060000	\$189,590	\$189,590	\$113.75	
LTR	Lateral Road	0.050100	\$189,590	\$189,590	\$94.98	
ZZZ	Credit	0.000000	\$189,590	\$189,590	\$0.00	
Total Tax Rate:		1.892167				
					Taxes w/Current Exemptions:	\$3,587.36
					Taxes w/o Exemptions:	\$3,587.36

## Improvement / Building

No improvements exist for this property.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Metamorphic Design

Date Prepared: 7/6/2010

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

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

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

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

where:

$L_{M \text{ TOTAL PROJECT}}$  = Required TSS removal resulting from the proposed development = 80% of increased load

$A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	<b>comal</b>	
Total project area included in plan * =	<b>0.75</b>	acres
Predevelopment impervious area within the limits of the plan * =	<b>0.00</b>	acres
Total post-development impervious area within the limits of the plan* =	<b>0.25</b>	acres
Total post-development impervious cover fraction * =	<b>0.33</b>	
P =	<b>33</b>	inches

Drainage Area A

$L_{M \text{ TOTAL PROJECT}} =$  **224** lbs.

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

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

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

Drainage Basin/Outfall Area No. =	<b>1</b>	
Total drainage basin/outfall area =	<b>0.75</b>	acres
Predevelopment impervious area within drainage basin/outfall area =	<b>0.00</b>	acres
Post-development impervious area within drainage basin/outfall area =	<b>0.25</b>	acres
Post-development impervious fraction within drainage basin/outfall area =	<b>0.33</b>	
$L_{M \text{ THIS BASIN}} =$	<b>224</b>	lbs.

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

Proposed BMP = Vortechs  
Removal efficiency = 0 percent

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

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

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

where:

$A_C$  = Total On-Site drainage area in the BMP catchment area

$A_I$  = Impervious area proposed in the BMP catchment area

$A_P$  = Pervious area remaining in the BMP catchment area

$L_R$  = TSS Load removed from this catchment area by the proposed BMP

$A_C$  = 0.75 acres

$A_I$  = 0.25 acres

$A_P$  = 0.50 acres

$L_R$  = 0 lbs

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

Desired  $L_M$  THIS BASIN = 224 lbs.

F = #DIV/0!

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

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = #DIV/0! inches  
Post Development Runoff Coefficient = 0.27

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On-site Water Quality Volume = #DIV/0! cubic feet

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

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

Storage for Sediment = #DIV/0!

Total Capture Volume (required water quality volume(s) x 1.20) = #DIV/0! cubic feet

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

**7. Retention/Irrigation System**

Designed as Required in RG-348

Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

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

**8. Extended Detention Basin System**

Designed as Required in RG-348

Pages 3-46 to 3-51

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

**9. Filter area for Sand Filters**

Designed as Required in RG-348

Pages 3-58 to 3-63

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

Water Quality Volume for sedimentation basin = NA cubic feet

Minimum filter basin area = NA square feet

Maximum sedimentation basin area = NA square feet For minimum water depth of 2 feet

Minimum sedimentation basin area = NA square feet For maximum water depth of 8 feet

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

Water Quality Volume for combined basins = NA cubic feet

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Minimum filter basin area = **NA** square feet  
 Maximum sedimentation basin area = **NA** square feet For minimum water depth of 2 feet  
 Minimum sedimentation basin area = **NA** square feet For maximum water depth of 8 feet

**10. Bioretention System**

Designed as Required in RG-348

Pages 3-63 to 3-65

Required Water Quality Volume for Bioretention Basin = **NA** cubic feet

**11. Wet Basins**

Designed as Required in RG-348

Pages 3-66 to 3-71

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

**12. Constructed Wetlands**

Designed as Required in RG-348

Pages 3-71 to 3-73

Required Water Quality Volume for Constructed Wetlands = **NA** cubic feet

**13. AquaLogic™ Cartridge System**

Designed as Required in RG-348

Pages 3-74 to 3-78

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

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

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

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

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

**15. Grassy Swales**

Designed as Required in RG-348

Pages 3-51 to 3-54

Design parameters for the swale:

Drainage Area to be Treated by the Swale = A = 0.42 acres  
 Impervious Cover in Drainage Area = 0.06 acres

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Rainfall intensity = i = 1.1 in/hr  
 Swale Slope = 0.025 ft/ft  
 Side Slope (z) = 3  
 Design Water Depth = y = 0.33 ft  
 Weighted Runoff Coefficient = C = 0.39

$A_{CS}$  = cross-sectional area of flow in Swale = 0.32 sf  
 $P_W$  = Wetted Perimeter = 2.06 feet  
 $R_H$  = hydraulic radius of flow cross-section =  $A_{CS}/P_W$  = 0.15 feet  
 n = Manning's roughness coefficient = 0.2

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

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

$b = \frac{0.134 \times Q}{y^{1.67} S^{0.5}} - zy = -0.05$  feet

$Q = CiA = 0.18$  cfs

To calculate the flow velocity in the swale:

V (Velocity of Flow in the swale) =  $Q/A_{CS} = 0.57$  ft/sec

To calculate the resulting swale length:

L = Minimum Swale Length = V (ft/sec) \* 300 (sec) = 169.56 feet

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

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

Design  $Q = CiA = 0.18$  cfs  
 Manning's Equation  $Q = 1.20$  cfs  
 Swale Width = 6.00 ft

Error 1 = -1.02

Instructions are provided to the right (green comments).

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To solve fr  
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Flow Velocity = 0.57 ft/s  
 Minimum Length = 169.56 ft

Instructions are provided to the right (blue comments).

Design Width = 6 ft  
 Design Discharge = 1.20 cfs  
 Design Depth = 0.33 ft  
 Flow Velocity = 0.51 cfs  
 Minimum Length = 154.12 ft

Error 2 = -1.02

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

**16. Vegetated Filter Strips**

Designed as Required in RG-348

Pages 3-55 to 3-57

There are no calculations required for determining the load or size of vegetative filter strips.

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

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

**17. Wet Vaults**

Designed as Required in RG-348

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

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

First calculate the load removal at 1.1 in/hour

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

C = runoff coefficient for the drainage area = 0.20      C = Runoff Coefficient =  $0.546 (IC)^2 + 0.328 (IC) + 0.03$   
 i = design rainfall intensity = 1.1 in/hour  
 A = drainage area in acres = 1 acres

Q = flow rate in cubic feet per second = 0.22 cubic feet/sec

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

Q = Runoff rate calculated above = 0.22 cubic feet/sec  
 A = Water surface area in the wet vault = 150 square feet

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

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

Load removed by Wet Vault = #VALUE! lbs

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

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

Fraction of rainfall treated from Figure 3-2 RG-348 Page 3-32 = 0.75 percent

Efficiency Reduction for Actual Rainfall Intensity = 0.83 percent

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

**18. Permeable Concrete**

Designed as Required in RG-348

Pages 3-79 to 3-83

PERMEABLE CONCRETE MAY ONLY BE USED ON THE CONTRIBUTING ZONE

**19. BMPs Installed in a Series**

Designed as Required in RG-348

Pages 3-32

Michael E. Barrett, Ph.D., P.E. recommended that the coefficient for E<sub>2</sub> be changed from 0.5 to 0.65 on May 3, 2006

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

EFFICIENCY OF FIRST BMP IN THE SERIES = E<sub>1</sub> = 75.00 percent

EFFICIENCY OF THE SECOND BMP IN THE SERIES = E<sub>2</sub> = 70.00 percent

EFFICIENCY OF THE THIRD BMP IN THE SERIES = E<sub>3</sub> = 0.00 percent

THEREFORE, THE NET LOAD REMOVAL WOULD BE:  
(A<sub>1</sub> AND A<sub>p</sub> VALUES ARE FROM SECTION 3 ABOVE)

$L_R = E_{TOT} \times P \times (A_1 \times 34.6 \times A_p \times 0.54) =$  254.25 lbs

**20. Stormceptor**

BMP Sizing	Required TSS Removal in BMP Drainage Area=	NA	lbs
	Impervious Cover Overtreatment=	0.0000	ac
	TSS Removal for Uncaptured Area =	0.00	lbs
	Effective Area =	NA	EA
	Calculated Model Size(s) =	#N/A	

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Actual Model Size (if multiple values provided in Calculated Model Size or if you are choosing a larger model size) = 0 Model Size

Surface Area = #N/A ft<sup>2</sup>  
Overflow Rate = #VALUE! V<sub>or</sub>  
Rounded Overflow Rate = #VALUE! V<sub>or</sub>  
BMP Efficiency % = #VALUE! %  
L<sub>R</sub> Value = #VALUE! lbs

TSS Load Credit = #VALUE! lbs

Is Sufficient Treatment Available? (TSS Credit ≥ TSS Uncapt.) #VALUE!

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

**21. Vortech**

Required TSS Removal in BMP Drainage Area= 224.40 lbs  
Impervious Cover Overtreatment= 0.0010 ac  
TSS Removal for Uncaptured Area = 0.90 lbs

**BMP Sizing**

Effective Area = 0.24 EA  
Calculated Model Size(s) = Vx3000

Actual Model Size (if choosing larger model size) = Vx3000 Pick Model Size

Surface Area = 19.63 ft<sup>2</sup>  
Overflow Rate = 0.013449 V<sub>or</sub>  
Rounded Overflow Rate = 0.014000 V<sub>or</sub>  
BMP Efficiency % = 82.00 %  
L<sub>R</sub> Value = 241.38 lbs

TSS Load Credit = 16.98 lbs

Is Sufficient Treatment Available? (TSS Credit ≥ TSS Uncapt.) Yes

TSS Treatment by BMP (LM + TSS Uncapt.) = 225.30

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**Miranda Briones @PD**

---

**Subject:** FW: Updated TCEQ EAPP Forms

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Miranda G. Briones, E.I.T., LEED® AP  
Engineer III  
Pape-Dawson Engineers, Inc.  
TBPE, Firm Registration # 470  
555 East Ramsey  
San Antonio, TX 78216  
(210) 375-9000  
(210) 375-9010 (fax)  
mbriones@pape-dawson.com

\*\*\*\*\* CONFIDENTIALITY NOTICE

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---

**From:** Miranda Briones @PD  
**Sent:** Monday, May 10, 2010 11:55 AM  
**To:** 'Agnieszka Hobson'  
**Cc:** Cara Tackett @PD; Lynn Bumguardner; Todd Jones  
**Subject:** RE: Updated TCEQ EAPP Forms

Yes. Thanks for the info.

Miranda G. Briones, E.I.T., LEED® AP  
Engineer III  
Pape-Dawson Engineers, Inc.  
TBPE, Firm Registration # 470  
555 East Ramsey  
San Antonio, TX 78216  
(210) 375-9000  
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**From:** Agnieszka Hobson [mailto:AHOBSON@tceq.state.tx.us]  
**Sent:** Monday, May 10, 2010 11:16 AM  
**To:** Miranda Briones @PD

7/7/2010

Re: Updated TCEQ EAPP Forms

Page 2 of 2

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**Cc:** Cara Tackett @PD; Lynn Bumguardner; Todd Jones

**Subject:** Re: Updated TCEQ EAPP Forms

Miranda,

The new forms will be effective 60 days from the posting date. I think the new forms were posted April 1, 2010, so they will be required in the beginning of June. Hope this helps.

Agnieszka Hobson  
Environmental Investigator IV  
Edwards Aquifer Protection Program  
TCEQ San Antonio Regional Office  
14250 Judson Road  
San Antonio, Texas 78233-4488  
Email: [ahobson@tceq.state.tx.us](mailto:ahobson@tceq.state.tx.us)  
Phone: (210) 403-4075  
Fax: (210) 545-4329

7/7/2010

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RECEIPT NO.	\$ CHECKS	\$ CASH	CHECK NO.	DATE	NAME	DESCRIPTION	REC. BY
19288	200-		4285	5/21/10	Amy Johnson	# 92619	AA

successful energy

↑  
INVALID  
WITHOUT  
SIGNATURE



**COMAL COUNTY ENGINEER'S OFFICE**  
195 DAVID JONAS DRIVE  
NEW BRAUNFELS, TEXAS 78132-3760  
(210) 608-2090  
FAX (210) 608-2009



[ 19288 ]

RETAIN THIS RECEIPT  
FOR YOUR RECORDS

*Shelly Helmke*  
INVALID WITHOUT SIGNATURE



**Contributing Zone Plan Application**  
for Regulated Activities  
on the Contributing Zone to the Edwards Aquifer  
and Relating to 30 TAC §213.24(1), Effective June 1, 1999

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Regulated Entity Name: Metamorphic Design

County: Comal Stream Basin: Lewis Creek

1.  Regulated activities on this site will disturb at least 5 acres.  
 Regulated activities on this site will disturb less than 5 acres and are part of a larger common plan of development or sale with the potential to disturb cumulatively five or more acres.

2. Customer (Applicant):

Contact Person: David Pritchard  
Entity: Metamorphic Design  
Mailing Address: 2612 Frontier  
City, State: Spring Branch, TX Zip: 78070  
Telephone: (713) 725-5470 FAX: \*

***\*This customer does not have a fax number. Please use Pape-Dawson Engineers, Inc. fax number below to send any correspondence to the customer or send via mail.***

Agent/Representative (If any):

Contact Person: Shauna Weaver, P.E., LEED® AP  
Title: Vice President, Land Development  
Entity: Pape-Dawson Engineers, Inc.  
Mailing Address: 555 E. Ramsey  
City, State: San Antonio, Texas Zip: 78216  
Telephone: (210) 375-9000 FAX: (210) 375-9010

3.  This project is inside the city limits of Spring Branch  
 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.

4. The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

**From TCEQ's Regional Office, travel north on Judson Road approximately 2.5 miles to Loop 1604. Travel west on Loop 1604 approximately 4.5 miles to US Hwy. 281. Exit US 281 and turn right off the access road to travel north on 281. Travel about 13.2 miles north on 281 to SH 46. Exit SH 46 toward Boerne. Make a right onto SH 46 and travel about 1 mile east. Turn left onto Bentwood Drive and then left onto Forty Six Parkway. The site is located at 18636 Forty Six Parkway.**

5.  **ATTACHMENT A - Road Map.** A road map showing directions to and the location of the project site is found as ~~at the end of this form~~ **directly behind this sheet.**

JUL 27 2010

- 6.  **ATTACHMENT B - USGS Quadrangle Map.** A copy of the a USGS Quadrangle Map (Scale: 1" = 2000') is found at the end of this form **directly behind this sheet.** The map(s) clearly shows:
  - Project site boundaries.
  - USGS Quadrangle Name(s).

- 7.  **ATTACHMENT C - Project Narrative.** A detailed narrative description of the proposed project is found at the end of this form **below.**

***Metamorphic Design is a proposed commercial development to be constructed on a currently undeveloped 1.21-acre tract. Although the site and associated disturbance are less than 5 acres, the site is part of a larger common plan of development, platted as River Crossing, Unit 3. The site is generally located east of the intersection of US Hwy. 281 and State Highway 46 within the city limits of Spring Branch in Comal County, Texas. The site address is 18636 Forty Six Parkway and is within a commercial area between Riverway and Bentwood Drive, north of S.H. 46.***

***This site was previously permitted under the "River Crossing Units 2, 3 & 4" CZP (EAPP No. 1331.02). Since the site has been rezoned, has changed ownership, and will change use, a new CZP is being filed as a CZP Modification would not be appropriate.***

***Proposed activities on this site include clearing, excavation, installation of utilities, grading, construction of a driveway, parking lot, drainage channel and building, landscaping and site cleanup. Post-development impervious cover is approximately 0.25 acres (20.7% of the site), which includes approximately 0.062 acres of existing impervious cover to remain on-site. This existing impervious cover is a private street (Forty Six Parkway) that runs through the property.***

***One (1) Vortech System, Model VX3000, is proposed as the Permanent Best Management Practice (BMP) for the site. This Permanent BMP has been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site. Runoff from impervious cover areas requiring treatment, that cannot be captured, will be overtreated for by the proposed Vortech System.***

***Potable water service will be provided by the Canyon Lake Water Service Company. Wastewater generated by this development is estimated to be 152 gallons per day (gpd). It will be disposed of by conveyance to a proposed on-site aerobic septic system. Design of this system is by others and a suitability letter from Comal County (Attachment F) regarding the use of on-site treatment is pending (Permit #92619) and not currently available.***

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

**PROJECT INFORMATION**

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9. The type of project is:  
 \_\_\_ Residential: # of Lots: \_\_\_\_\_  
 \_\_\_ Residential: # of Living Unit Equivalents: \_\_\_\_\_  
 Commercial  
 \_\_\_ Industrial  
 \_\_\_ Other: \_\_\_\_\_
10. Total project area (size of site): 1.21 Acres  
 Total disturbed area: 0.641 Acres
11. Projected population: 0\*

**\*There is no permanent population associated with this development.**

12. The amount and type of impervious cover expected after construction is complete is shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	<b>3,485</b>	) 43,560 =	<b>0.08</b>
Parking & Driveway	<b>7,405</b>	) 43,560 =	<b>0.17</b>
Other paved surfaces	<b>0</b>	) 43,560 =	<b>0</b>
Total Impervious Cover	<b>10,890</b>	) 43,560 =	<b>0.25*</b>
Total Impervious Cover ) Total Acreage x 100 =			<b>20.7%</b>

**\*0.25 acres/1.21 acres = 20.7%, includes 0.062 acres of existing impervious cover to remain.**

13.  **ATTACHMENT D - Factors Affecting Surface Water Quality.** A description of factors that could affect surface water quality is found as ~~at the end of this form~~ **below**. If applicable, this should included the location and description of any discharge associated with industrial activity other than construction.

**Potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the construction site include:**

- **Soil erosion due to the clearing of the site for a driveway, parking lot, building, and drainage structures.**
- **Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle drippings.**
- **Hydrocarbons from asphalt paving operations.**
- **Miscellaneous trash and litter from construction workers and material wrappings.**
- **Construction debris.**
- **Concrete truck washout.**

**Potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site after development include:**

- **Oil, grease, fuel and hydraulic fluid contamination from vehicle and maintenance equipment drippings; and**
- **Miscellaneous trash and litter.**

14.  Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

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**FOR ROAD PROJECTS ONLY**

Complete questions 15-20 if this application is exclusively for a road project. COUNTY ENGINEER

*This application is not exclusively for a road project; therefore, Items 15-20 do not apply.*

15. Type of project:

- TXDOT road project.
- County road or roads built to county specifications.
- City thoroughfare or roads to be dedicated to a municipality.
- Street or road providing access to private driveways.

16. Type of pavement or road surface to be used:

- Concrete
- Asphaltic concrete pavement
- Other: \_\_\_\_\_

17. Length of Right of Way (R.O.W.): \_\_\_\_\_ feet.  
Width of R.O.W.: \_\_\_\_\_ feet.  
L x W = \_\_\_\_\_ Ft<sup>2</sup> ÷ 43,560 Ft<sup>2</sup>/Acre = \_\_\_\_\_ acres.

18. Length of pavement area: \_\_\_\_\_ feet.  
Width of pavement area: \_\_\_\_\_ feet.  
L x W = \_\_\_\_\_ Ft<sup>2</sup> ÷ 43,560 Ft<sup>2</sup>/Acre = \_\_\_\_\_ acres.  
Pavement area \_\_\_\_\_ acres ÷ R.O.W. area \_\_\_\_\_ acres x 100 = \_\_\_\_\_% impervious cover.

19.  A rest stop will be included in this project.  
 A rest stop will **not** be included in this project.

20.  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**

21.  **ATTACHMENT E - 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 found ~~at the end of this form~~ **below**. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. The runoff coefficient of the site for both pre-construction and post-construction conditions is included.

***Stormwater runoff will increase as a result of this development for a 25-year storm event, the overall project will generate approximately 7.41 cfs. The character of the stormwater runoff can be described as overland flow and concentrated flow from improved areas. The runoff coefficient for the site changes from approximately 0.54 before development to 0.61 after development. Values are based on the Rational Method.***

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

22. Wastewater will be disposed of by:

On-Site Sewage Facility (OSSF/Septic Tank):

**ATTACHMENT F - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's written approval is provided at the end of this form. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities, or it identifies those areas that are not suitable for the use of private sewage facilities. The system will be designed by a licensed professional engineer or a registered sanitarian and installed by a licensed installer in compliance with 30 TAC §285.

Sewage Collection System (Sewer Lines):

Wastewater is to be disposed of by conveyance to the \_\_\_\_\_(name) treatment plant for treatment and disposal. The treatment facility is:

- existing.
- proposed.

Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

***Receipt of the suitability letter from Comal County is pending (Permit #92619). A suitability letter was previously issued by the County for River Crossing and a copy can be found in that file (EAPP No. 1331.02).***

**FOR PERMANENT ABOVEGROUND STORAGE TANKS (ASTs) > 500 GALLONS**

Complete questions 23-29 if this project includes the installation of AST(s) with volume(s) greater than 500 gallons.

***This project does not include the installation of AST(s) with volume(s) greater than 500 gallons; therefore, Items 23-29 do not apply.***

23. Tanks and substance stored:

AST Number	Size (Gallons)	Substance to be Stored	Tank Material
1			
2			
3			
4			
5			
Total		x 1.5 =	gallons

24.  The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

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

**FEMA (Flood Insurance Rate Map for Comal County, Texas and Incorporated areas) Panel Number 220 of 505, Map Number 48091C0220F, effective date, September 2, 2009.**

32.  The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
- The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.
33.  A drainage plan showing all paths of drainage from the site to surface streams.
34.  The drainage patterns and approximate slopes anticipated after major grading activities.
- Drainage patterns are illustrated by arrows. Slopes vary throughout the site. Typical slopes in this project will range from 0.5% to 5%. However, some transitional areas may be sloped at 3:1 with vegetative cover.***
35.  Areas of soil disturbance and areas which will not be disturbed.
- The nature of construction is such that it is difficult to predict areas that will be disturbed and revegetated. The construction plans include a note on Exhibit 3, which will require the contractor to revegetate disturbed areas with seeding, hydromulch or sod and sprinkling. All impervious cover areas will be disturbed. Approximately 0.641 acres will likely be disturbed.***
36.  Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
- TBMPs are shown on Exhibit 1 and PBMPs on Exhibit 3.***
37.  Locations where soil stabilization practices are expected to occur.
- The nature of construction is such that it is difficult to predict areas that will be disturbed and revegetated. The construction plans include a note on Exhibit 3, which will require the contractor to revegetate disturbed areas with seeding, hydromulch or sod and sprinkling. All impervious cover areas will be disturbed. Approximately 0.641 acres will likely be disturbed.***
38. ***N/A*** Surface waters (including wetlands).
39.  Locations where stormwater discharges to surface water.
- There will be no discharges to surface water.
40.  Temporary aboveground storage tank facilities.
- Temporary aboveground storage tank facilities will not be located on this site.

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Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

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

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

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

47. **ATTACHMENT J - 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 provided as **ATTACHMENT J** at the end of this form.

    If no surface water, groundwater or stormwater originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT J** 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 J~~ at the end of this form **below**.

***Upgradient stormwater crosses the site at the northwest boundary; however, as this area is vegetated, does not contain impervious cover, and does not cross proposed impervious cover areas on-site, it has not been accounted for in the sizing of the proposed on-site BMP.***

48. **ATTACHMENT K - BMPs for On-site Stormwater.**

  √   A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is provided as ~~ATTACHMENT K~~ at the end of this form **below**.

    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 K** at the end of this form.

***One (1) Vortech System, Model VX3000, is proposed as the Permanent Best Management Practice (BMP) for the site. This Permanent BMP has been designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site.***

49.   √   **ATTACHMENT L - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams is provided at the end of this form **below**.

***No surface streams exist on-site or immediately adjacent to the site; however, on-site stormwater runoff from impervious cover areas will be treated prior to discharge. This will prevent additional TSS from entering surface streams that may exist downstream of the site.***

50.  **ATTACHMENT M - 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~~ **in the Exhibit section of this application.** Design Calculations, TCEQ Construction Notes, all proposed structural measures, and appropriate details must be shown on the construction plans.
51.  **ATTACHMENT N - 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.
52.  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.
- N/A **ATTACHMENT O - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.
53.  **ATTACHMENT P - 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~~ **below.** 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.

***Where erosive velocities exist at drain discharge points energy dissipators will be constructed to reduce the potential for erosion.***

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

54.  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.
55.  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.



**clearing and grubbing of vegetation where applicable. This will disturb approximately 0.641 acres. The second is construction that will include utility installation, grading, construction of driveway, parking lot, channel and building, landscaping and site cleanup. This will disturb approximately 0.641 acres.**

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

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#### TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)

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

7.  **ATTACHMENT D - Temporary Best Management Practices and Measures.** A description of the TBMPs and measures that will be used during and after construction are provided at the end of this form **below**. 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.

**Please see Exhibit 1 for TBMP layout and the response to "a" through "d" below for more details.**

- 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 **below**.

- 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.

**Upgradient water will cross the site at the northwest boundary; however, as this area is vegetated and is not anticipated to be disturbed, no temporary BMPs for this area are necessary.**

- 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.

**Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include: (1) erection of silt fences along the downgradient boundary of construction activities for temporary erosion and sedimentation controls, (2) installation of stabilized construction entrance/exit(s) to reduce the dispersion of sediment from the site, and (3) installation of construction staging area(s).**

**Prior to the initiation of construction, all previously installed control measures will be repaired or reestablished for their designed or intended purpose. This work, which is the remainder of all activity on the project, may**

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

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I David Pritchard  
Print Name

Owner  
Title - Owner/President/Other

of Metamorphic Design  
Corporation/Partnership/Entity Name

have authorized Pape-Dawson Engineers, Inc.  
Print Name of Agent/Engineer

of Pape-Dawson Engineers, Inc.  
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For applicants who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

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

NAME OF PROPOSED REGULATED ENTITY: Metamorphic Design
REGULATED ENTITY LOCATION: 18636 Forty Six Parkway, Spring Branch, TX 78070
NAME OF CUSTOMER: Metamorphic Design
CONTACT PERSON: David Pritchard PHONE: (713) 725-5470
(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 [x] 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
[x] 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 [x] Contributing Zone [ ] Transition Zone

Table with 3 columns: Type of Plan, Size, Fee Due. Rows include Water Pollution Abatement Plan (Single Family Residential Dwelling), Water Pollution Abatement Plan (Multiple Single Family Residential and Parks), Water Pollution Abatement Plan (Non-residential), Sewage Collection System, Lift Stations without sewer lines, Underground or Aboveground Storage Tank Facility, Piping System(s)(only), Exception, and Extension of Time.

Signature: Sheena S. Weaver

Date: 7.7.10

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.

# TEMPORARY BMP MODIFICATIONS

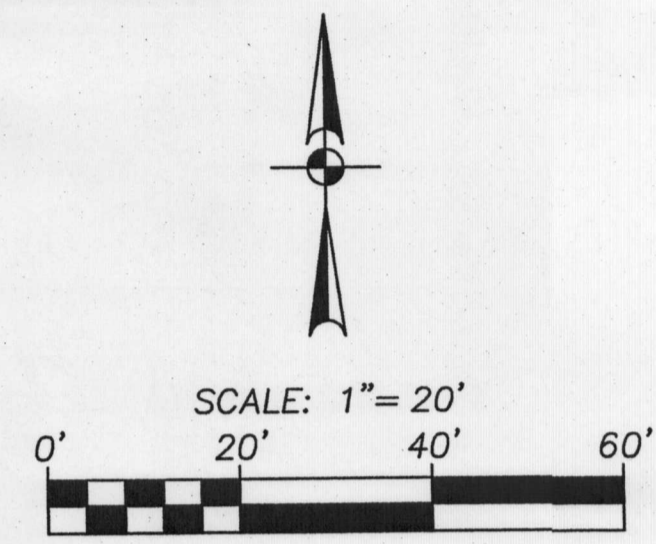
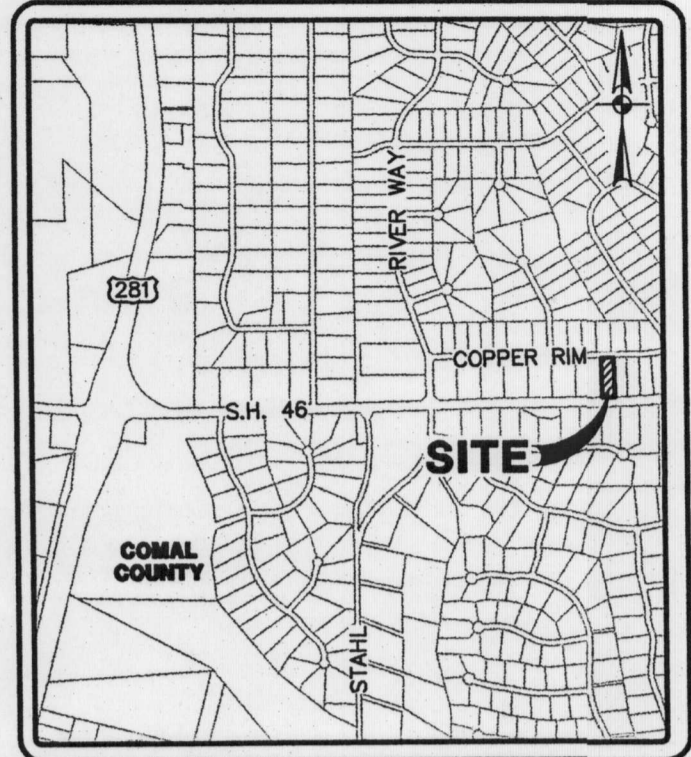
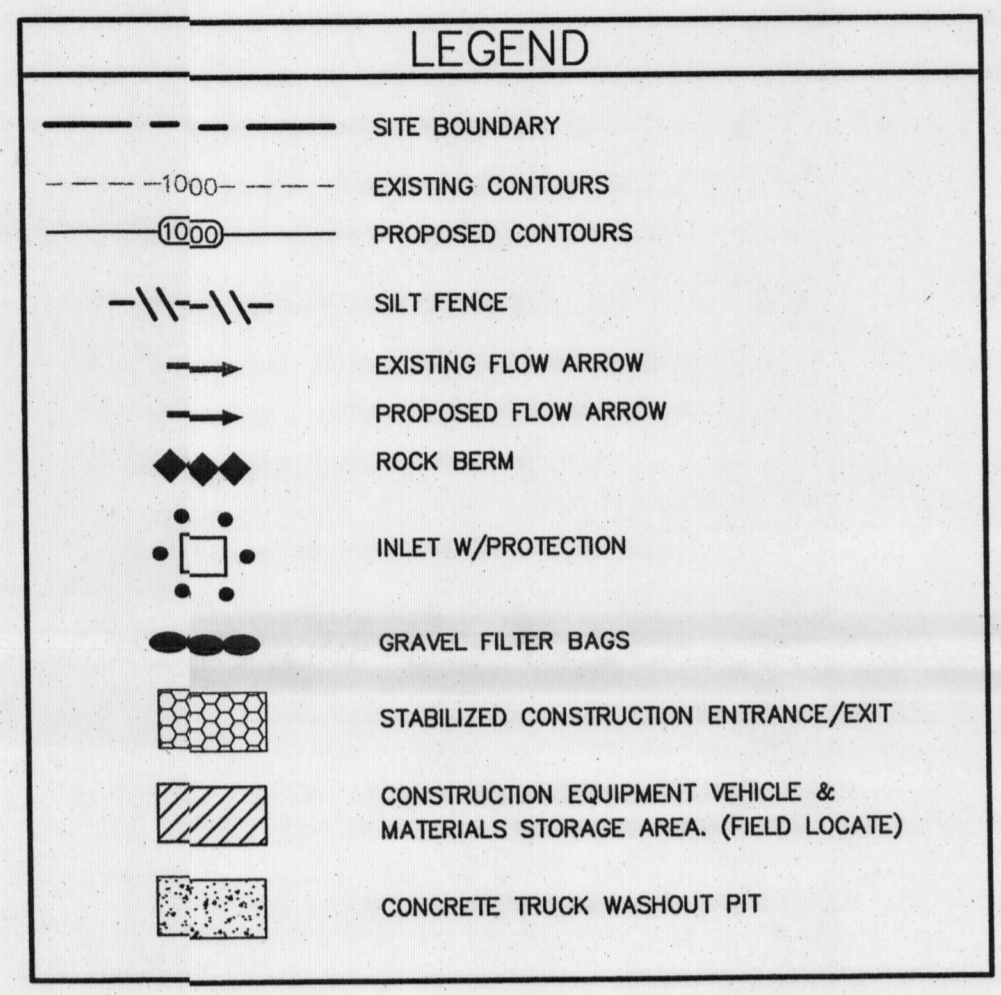
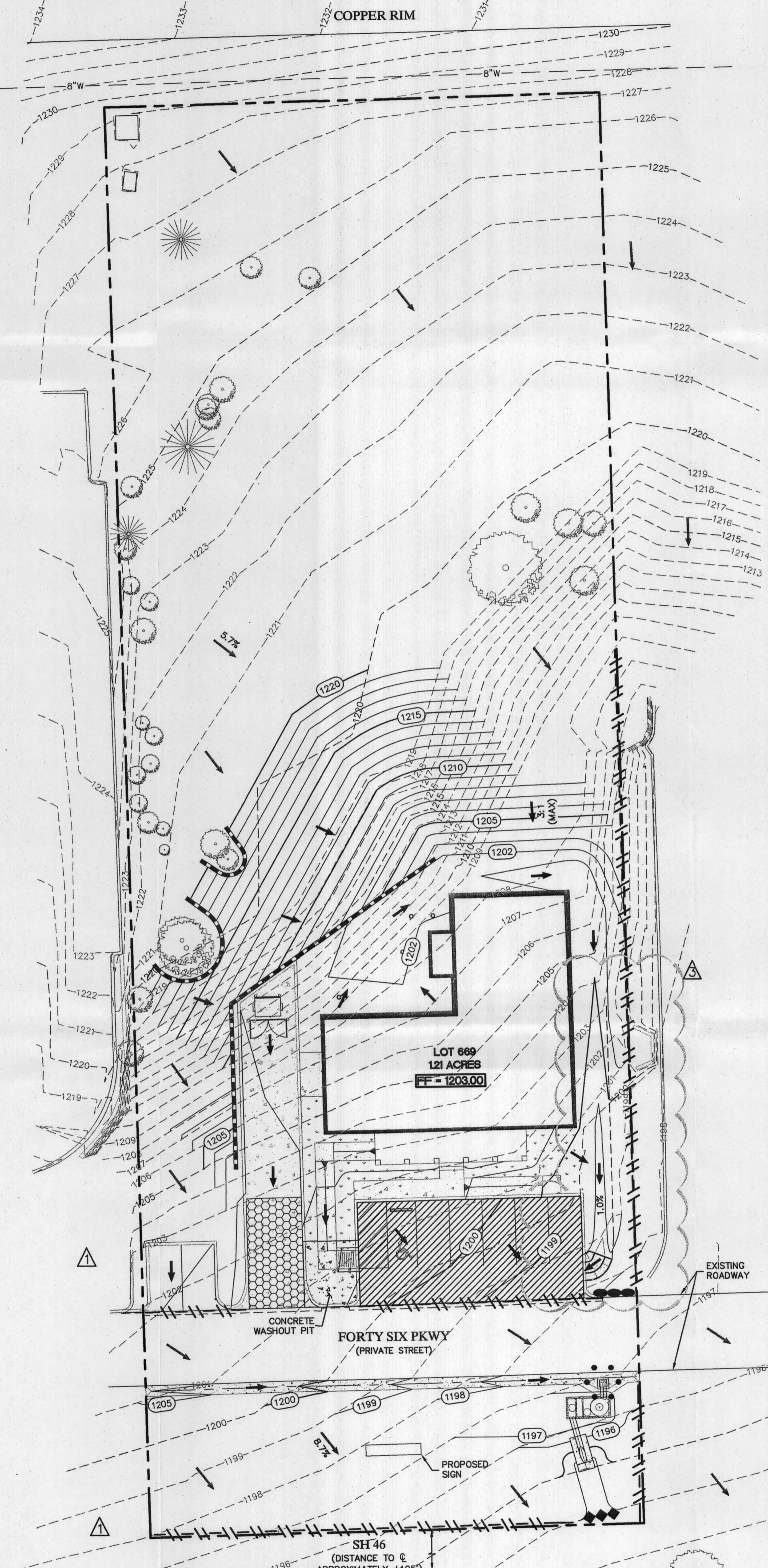
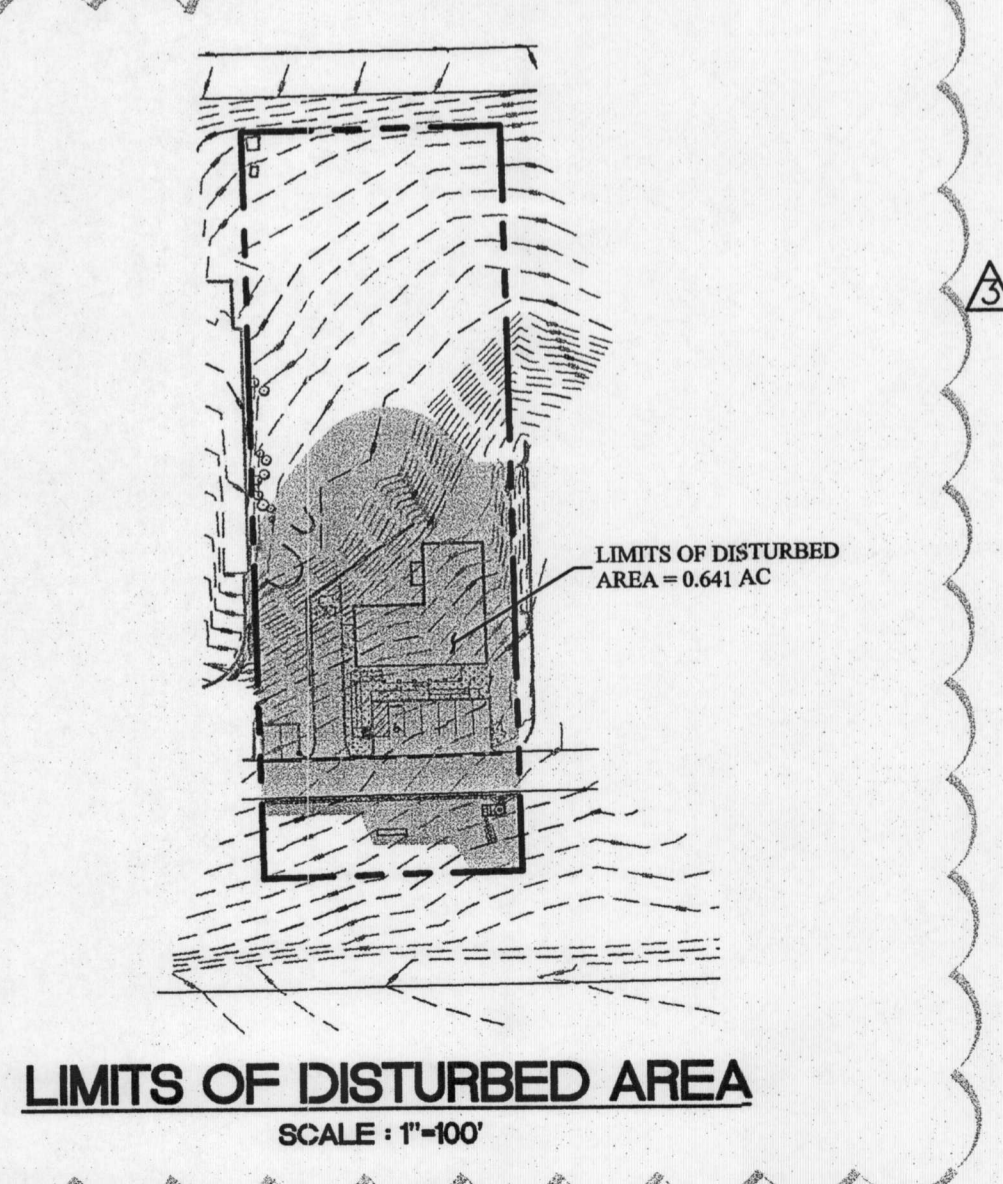
SIGNATURE	DESCRIPTION

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
CONTRIBUTING ZONE PLAN  
GENERAL CONSTRUCTION NOTES

- WRITTEN CONSTRUCTION NOTIFICATION SHOULD BE PROVIDED TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION SHOULD INCLUDE THE DATE ON WHICH THE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR WITH THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
- ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTOR(S) SHOULD KEEP COPIES OF THE APPROVED PLAN AND APPROVAL LETTER ON-SITE.
- NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM MAY BE INSTALLED WITHIN 150 FEET IF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL.
- PRIOR TO COMMENCING CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE SMPPP SECTION OF THE APPROVED EDWARDS AQUIFER CONTRIBUTING ZONE PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
- IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).
- SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.
- LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).
- ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE AND STORED ON-SITE MUST HAVE PROPER E&S CONTROLS INSTALLED.
- 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.
- THE FOLLOWING RECORDS SHOULD BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
- THE HOLDER OF ANY APPROVED CONTRIBUTING ZONE PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
  - ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
  - ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
  - ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER AND HYDROLOGICALLY CONNECTED SURFACE WATER; OR
  - ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED IN A CONTRIBUTING ZONE PLAN AS UNDEVELOPED.

SAN ANTONIO REGIONAL OFFICE  
14250 JUDSON ROAD  
SAN ANTONIO, TEXAS 78233-4480  
PHONE (210) 490-3096  
FAX (210) 545-4329

12. SHADED AREA DENOTES LIMITS OF DISTURBED AREAS, OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXCEPTION OF A CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD, ARE NOT A PART OF THIS TYPE'S STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES.



### TEMPORARY POLLUTION ABATEMENT MEASURES :

- THE METHODOLOGY FOR POLLUTION PREVENTION OF ON-SITE OR UP-GRADIENT STORMWATER DURING CONSTRUCTION WILL INCLUDE THE FOLLOWING:
- SILT FENCE WILL BE USED FOR TEMPORARY EROSION AND SEDIMENTATION CONTROL DURING CONSTRUCTION.
  - A CONSTRUCTION STAGING AREA WILL ALSO BE PUT IN PLACE FOR MATERIAL STOCKPILES, MACHINERY STORAGE, AND MACHINERY MAINTENANCE.
  - STABILIZED CONSTRUCTION ENTRANCE/EXITS WILL BE PUT IN PLACE TO REDUCE THE DISPERSION OF SEDIMENT FROM THE SITE, AND TO AID IN ACCESSIBILITY TO THE SITE.
  - CONCRETE TRUCK WASHOUT PITS WILL BE PUT IN PLACE AT THE ENTRANCE/EXIT LOCATIONS TO PREVENT CONTAMINATION OF STORMWATER AROUND THE SITE.
  - CURB AND AREA INLETS WILL UTILIZE GRAVEL FILTERS AS SHOWN ON EXHIBITS IN WPAP DOCUMENTS.
  - THE DRAINAGE AREA WILL HAVE INLET AND STORM DRAINAGE SYSTEMS TO COLLECT STORM WATER RUNOFF FROM THE WATERSHED.

### TEMPORARY POLLUTION ABATEMENT NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR PLACING SILT FENCE ALONG THE DOWN GRADIENT SIDE OF THE DISTURBED AREA PERPENDICULAR TO THE DRAINAGE FLOW.
- ROCK BERMS SHALL BE PLACED IN AREAS WHERE DRAINAGE FLOW IS CONCENTRATED DUE TO NATURAL CONDITIONS OR CONSTRUCTION ACTIVITIES SUCH AS AT DRAINAGE STRUCTURES. THESE BERMS WILL BE MAINTAINED UNTIL THEY ARE NO LONGER NEEDED.

### GENERAL NOTES:

- DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
- LOCATIONS OF CONSTRUCTION ENTRANCE/EXITS, CONCRETE WASHOUT PITS, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARDS TO BE DETERMINED IN THE FIELD.
- STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
- RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
- ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
- CONTRACTOR, TO THE EXTENT PRACTICAL, SHALL MINIMIZE THE AMOUNT OF AREA DISTURBED. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
- BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADE AREAS.
- BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED.
- ALL TEMPORARY BMPs WILL BE REMOVED ONCE WATERSHED IS STABILIZED.
- MUD OR DIRT INADVERTENTLY TRACKED OFF-SITE AND ONTO EXISTING STREETS SHALL BE REMOVED IMMEDIATELY BY HAND OR MECHANICAL BROOM SWEEPING.
- PRIOR TO INITIATION OF SUBSEQUENT PHASES OF CONSTRUCTION, TEMPORARY BMPs INCLUDING SILT FENCING, CONSTRUCTION ENTRANCE/EXIT, CONCRETE WASHOUT PIT, AND CONSTRUCTION STAGING AREA SHALL BE FIELD LOCATED AS APPROPRIATE FOR THE AREA OF CONSTRUCTION.
- TEMPORARY POLLUTION ABATEMENT MEASURES SHOWN ON THE PLAN ARE FOR THE OVERALL DEVELOPMENT. TEMPORARY BMPs MAY REQUIRE ADJUSTMENT BASED ON PHASING OF CONSTRUCTION OF THE DEVELOPMENT. RECORDS OF ADJUSTMENTS AND REVISIONS SHALL BE MAINTAINED AS APPROPRIATE.
- TEMPORARY BMPs SHOWN ON THIS SHEET ARE FOR GRAPHICAL PURPOSES AND MAY NOT BE TO SCALE. BMPs SHALL BE LOCATED WITHIN THE PROJECT LIMITS.
- UPON COMPLETION OF THE PROJECT AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION SEQUENCING AND REMOVAL OF TEMPORARY POLLUTION ABATEMENT MEASURES THAT CONFLICT WITH SITE IMPROVEMENTS SUCH AS LANDSCAPING AND FENCES SO AS TO PREVENT SEDIMENT FROM ESCAPING THE PROJECT SITE.

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JUL 27 2010  
COUNTY ENGINEER

REVISIONS:  
05.11.10- REVISD BMP LOCATIONS  
06.15.10- MODIFIED BACKGROUND  
07.07.10- TCEQ REVIEW COMMENTS



Shauna L. Weaver  
7.1.10

**PAPE-DAWSON ENGINEERS**  
555 EAST RAMSEY  
SAN ANTONIO, TEXAS 78216  
PHONE: 210.375.6000  
FAX: 210.375.9010  
TEXAS BOARD OF PROFESSIONAL ENGINEERS, FIRM REGISTRATION # 270

**METAMORPHIC DESIGN  
CONTRIBUTING ZONE PLAN  
TEMPORARY POLLUTION ABATEMENT PLAN**

JOB NO. 7521-00  
DATE APRIL 2010  
DESIGNER DLS  
CHECKED CEL DRAWN PWR  
SHEET 1 OF 1

EXHIBIT 1

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

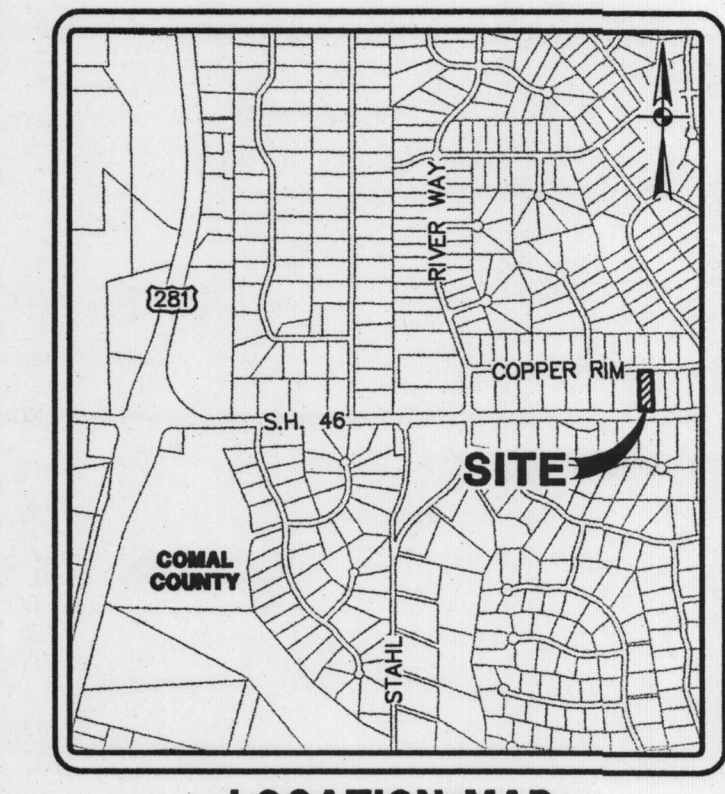
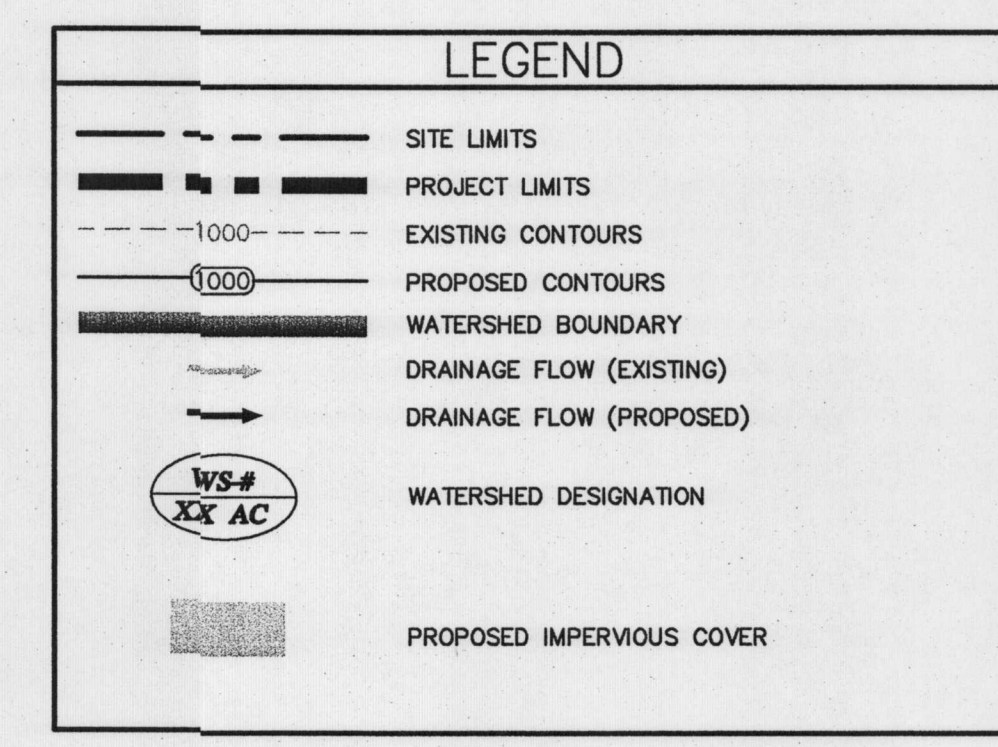
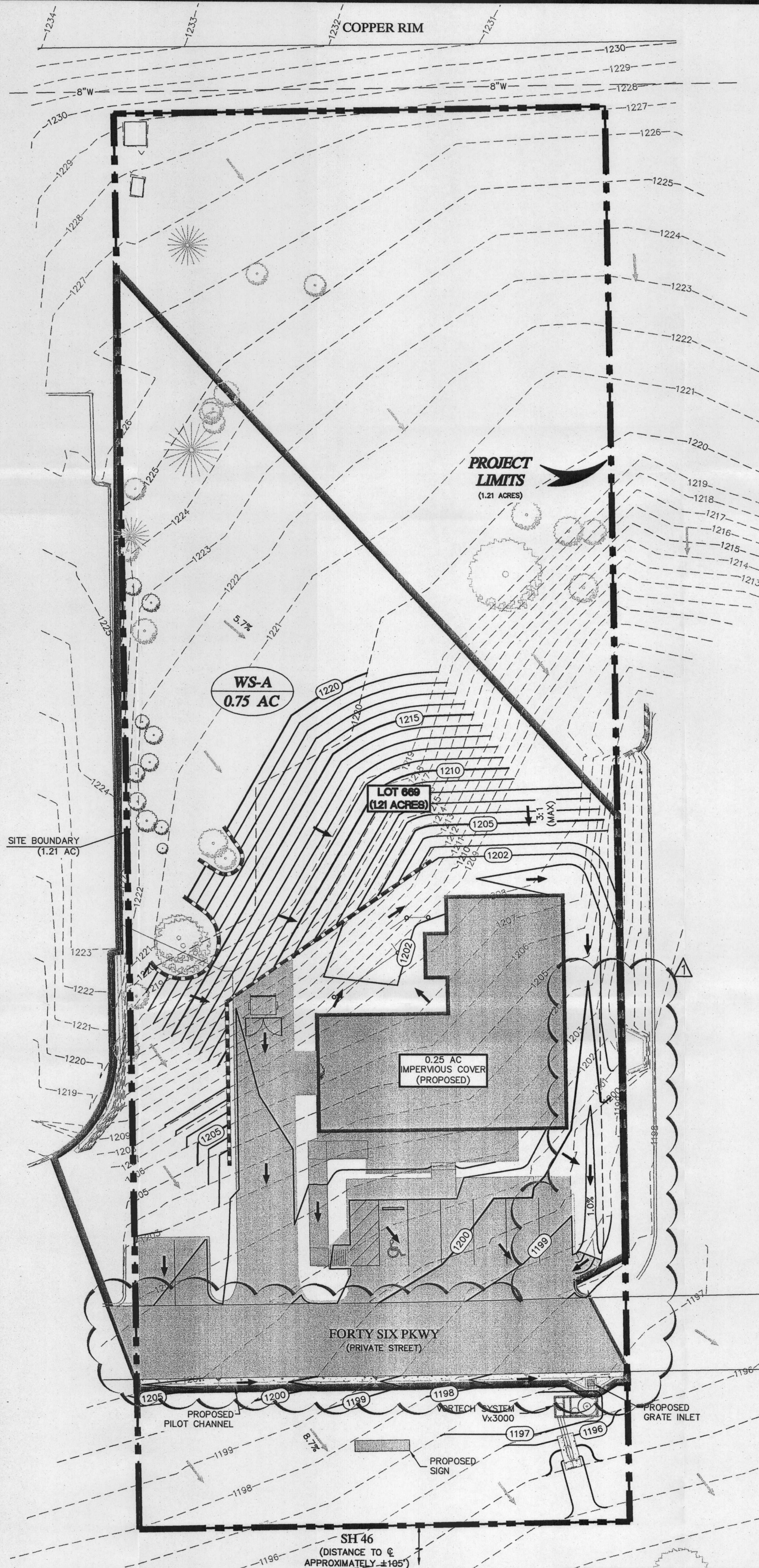
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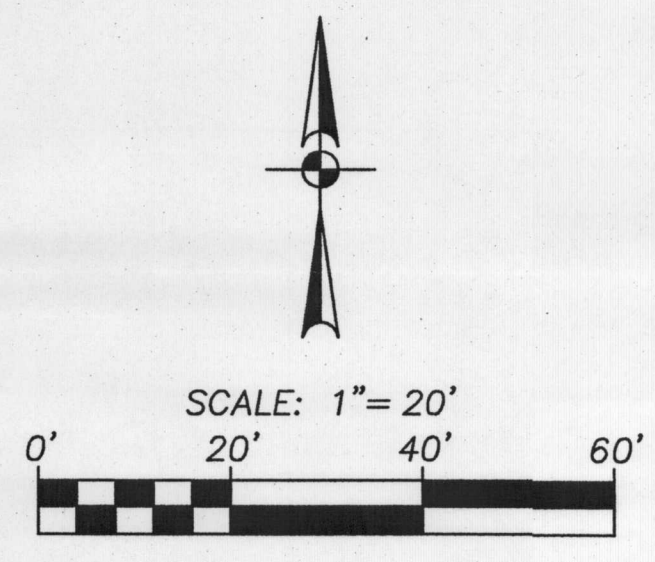
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  - ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
  - ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER AND HYDROLOGICALLY CONNECTED SURFACE WATER; OR
  - ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED IN A CONTRIBUTING ZONE PLAN AS UNDEVELOPED.

SAN ANTONIO REGIONAL OFFICE  
14250 JUDSON ROAD  
SAN ANTONIO, TEXAS 78233-4480  
PHONE (210) 490-3096  
FAX (210) 545-4329



LOCATION MAP  
SCALE: N.T.S.



SUMMARY OF PERMANENT POLLUTION ABATEMENT MEASURES:

- TEMPORARY BMP'S WILL BE MAINTAINED UNTIL THE SITE IMPROVEMENTS ARE COMPLETED AND THE SITE HAS BEEN STABILIZED, INCLUDING SUFFICIENT VEGETATION BEING ESTABLISHED.
- DURING CONSTRUCTION, TO THE EXTENT PRACTICAL, CONTRACTOR SHALL MINIMIZE THE AREA OF SOIL DISTURBANCE. AREAS OF DISTURBED SOIL SHALL BE REVEGETATED TO STABILIZE SOIL USING SOLID SOD IN A STAGGERED PATTERN. SEE DETAIL ON TEMPORARY POLLUTION ABATEMENT DETAIL SHEET AND REFER TO SECTION 1.3.11 IN TCEQ'S TECHNICAL GUIDANCE MANUAL RG-348 (2005). SOD SHOULD BE USED IN CHANNELS AND ON SLOPES > 15%. THE CONTRACTOR MAY SUBSTITUTE THE USE OF SOD WITH THE PLACEMENT OF TOP SOIL AND A FRIABLE SEED BED WITH A PROTECTIVE MATTING OR HYDRAULIC MULCH ALONG WITH WATERING UNTIL VEGETATION IS ESTABLISHED. APPLICATIONS AND PRODUCTS SHALL BE THOSE APPROVED BY TxDOT AS OF FEBRUARY 2001 AND IN COMPLIANCE WITH THE TGM RG-348 (2005). SEED MIXTURE AND/OR GRASS TYPE TO BE DETERMINED BY OWNER AND SHOULD BE IN COMPLIANCE WITH TGM RG-348 (2005) GUIDELINES. IRRIGATION MAY BE REQUIRED IN ORDER TO ESTABLISH SUFFICIENT VEGETATION.
- FOR DISTURBED AREAS WHERE INSUFFICIENT SOIL EXISTS TO ESTABLISH VEGETATION, CONTRACTOR SHALL PLACE A MINIMUM OF 6" OF TOPSOIL PRIOR TO REVEGETATION.
- TYPICAL SLOPES ON THIS PROJECT RANGE FROM APPROXIMATELY 1% TO 33%.
- SILT FENCING AND OTHER TEMPS, WHERE APPROPRIATE, WILL BE MAINTAINED UNTIL SITEWORK IS COMPLETED AND SUFFICIENT VEGETATION HAS BEEN ESTABLISHED IN ACCORDANCE WITH APPLICABLE PROJECT SPECIFICATIONS.
- A VORTECH SYSTEM WILL SERVE AS THE PERMANENT BMP FOR THE SITE.
- ENERGY DISSIPATORS (TO HELP REDUCE EROSION) WILL BE PROVIDED AT POINTS OF CONCENTRATED DISCHARGE WHERE EXCESSIVE VELOCITIES MAY BE ENCOUNTERED.
- CONTRACTOR SHALL INSTALL AND ESTABLISH VEGETATION FOR SOIL STABILIZATION PRIOR TO SITE CLOSEOUT.

WATERSHEDS

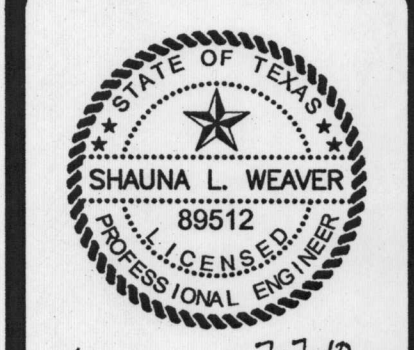
DRAINAGE AREA	WATERSHED AREA (AC)	POST DEVELOPMENT IMPERVIOUS		EXISTING IMPERVIOUS (AC)	TREATMENT
		(AC)	(%)		
A	0.750	0.250	33%	0.000	VORTECH

VORTECH SYSTEM

BMP	EFFECTIVE AREA (AC)	REQ. TSS REMOVAL (LB/YR)	DESIGN TSS REMOVAL (LB/YR)	TSS LOAD CREDIT (LB/YR)	OVERFLOW RATE (FPS)	EFFICIENCY (%)	SURFACE AREA (SF)	MODEL
A	0.24	224.40	241.38	16.98	0.014	82%	19.63	Vx3000

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REVISIONS:  
07.07.10  
TCEQ REVIEW COMMENTS



Shauna L. Weaver  
7-7-10

**PAPE-DAWSON ENGINEERS**  
SAN ANTONIO, TEXAS 78216 | PHONE: 210.376.6900  
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | FAX: 210.376.9010  
TEXAS BOARD OF PROFESSIONAL ENGINEERS, FIRM REGISTRATION # 470

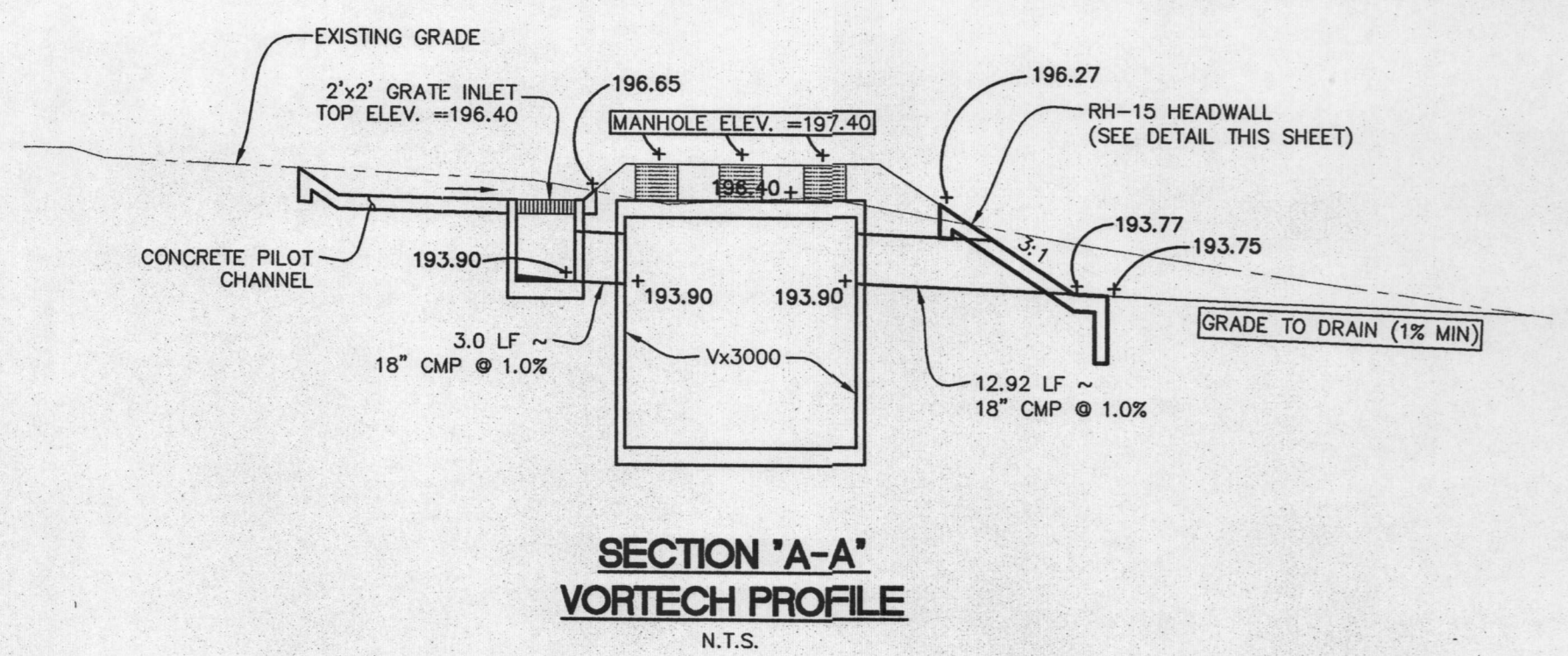
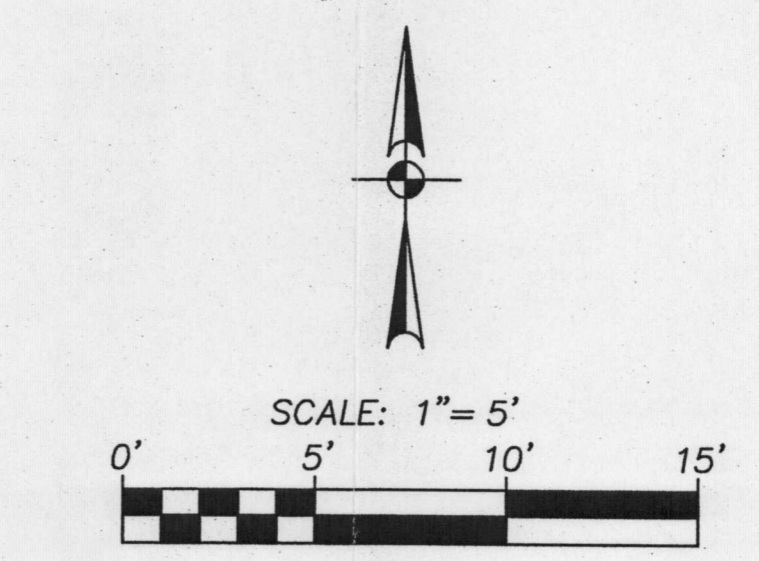
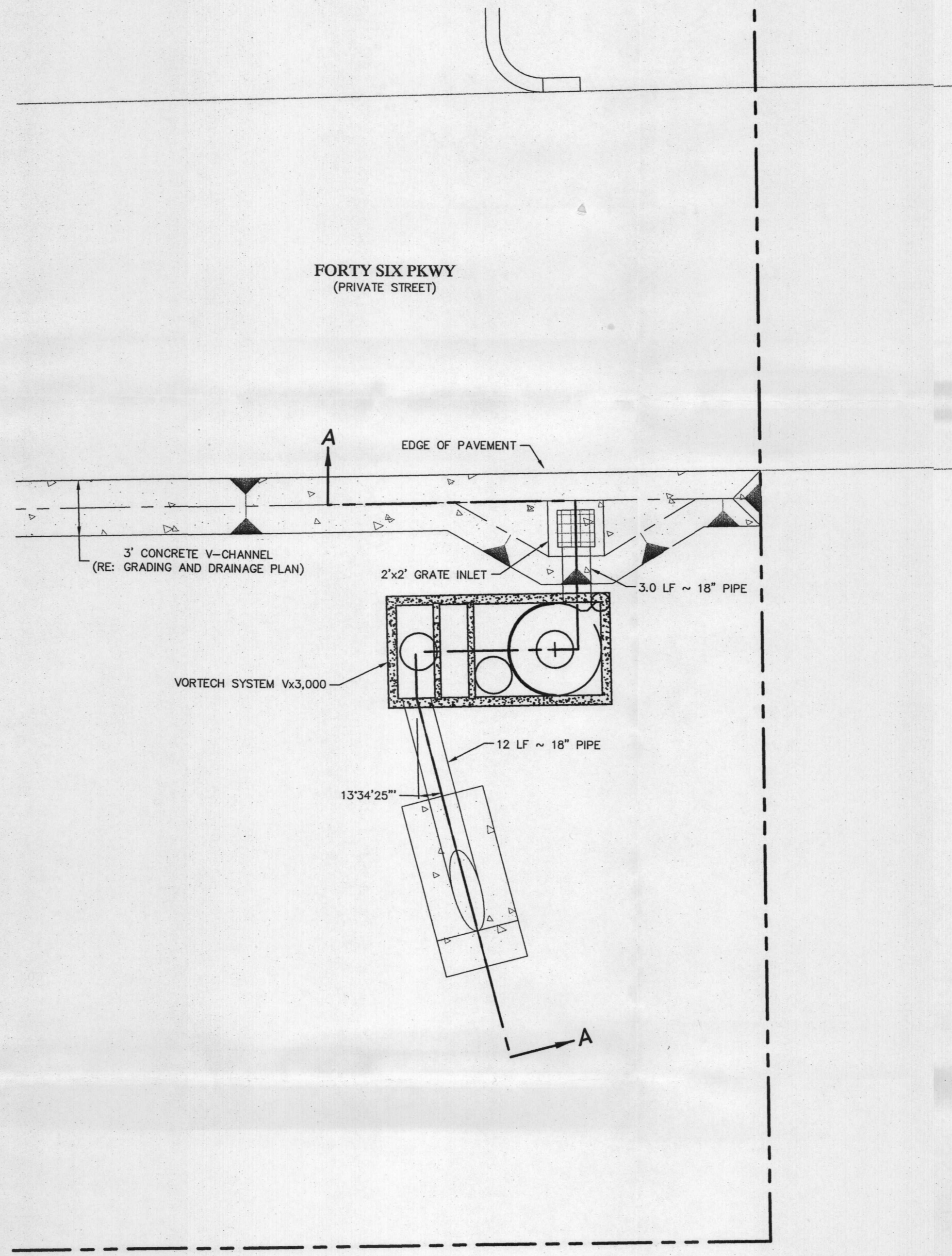
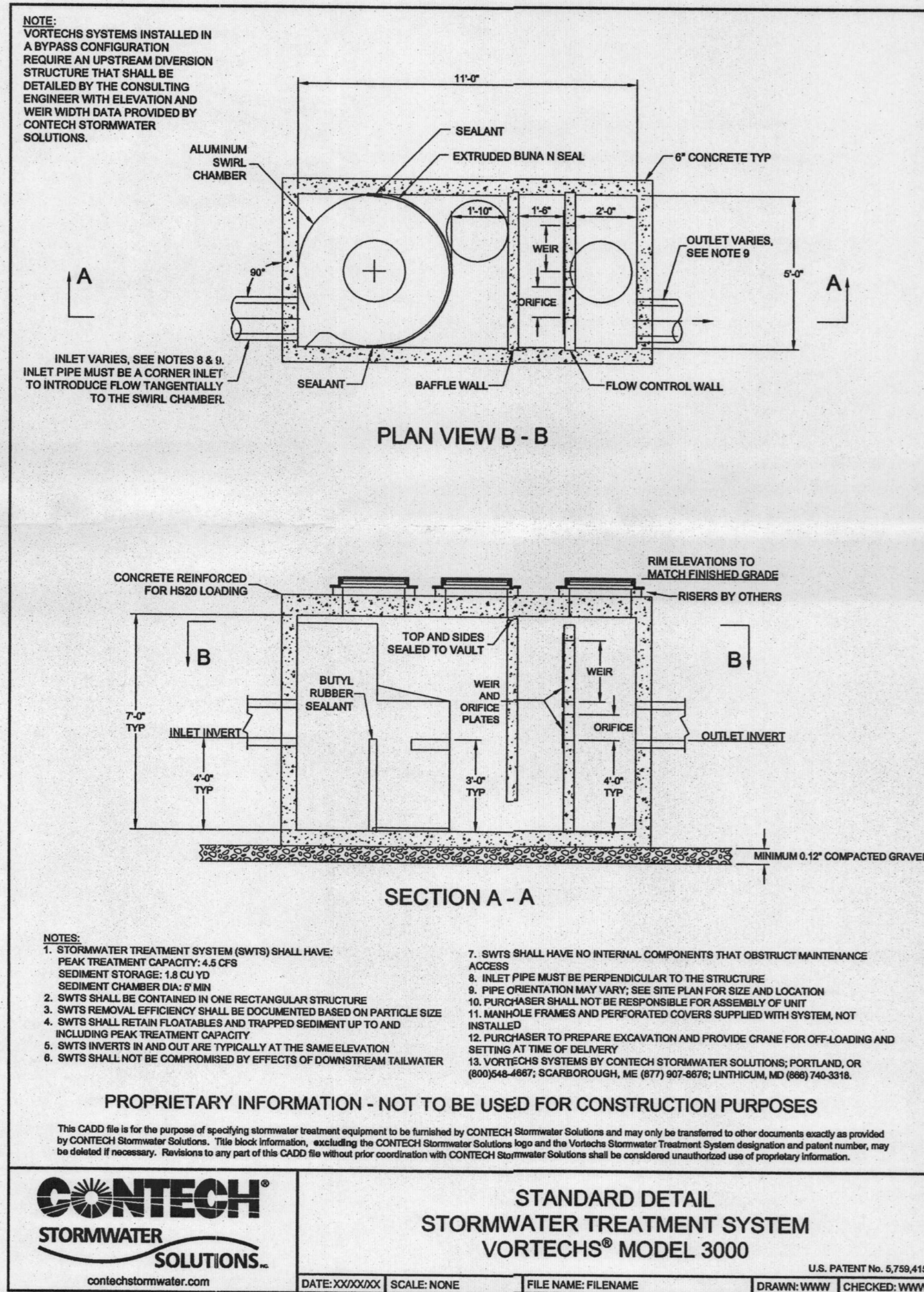
**METAMORPHIC DESIGN  
CONTRIBUTING ZONE PLAN  
PERMANENT POLLUTION ABATEMENT PLAN**

JOB NO. 7521-00  
DATE APRIL 2010  
DESIGNER DLS  
CHECKED CEL DRAWN PWR  
SHEET 1 OF 1

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

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**EXHIBIT 3**



**NOTES TO CONTRACTOR**

**NOTE:**

- CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.
- CONTRACTOR SHALL NOTIFY THE BMP DISTRIBUTOR (CONTECH STORMWATER SOLUTIONS) PRIOR TO VORTECHS INSTALLATION SO A REPRESENTATIVE CAN BE ON HAND TO SUPERVISE. CONTACT CONTECH STORMWATER SOLUTIONS AT 800-548-4687. CONTRACTOR SHALL NOTIFY ENGINEER FOR A FINAL WALK-THROUGH.
- CONTRACTOR SHALL PROVIDE THE CONTECH REPRESENTATIVE AND THE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO THE TIME THE BMP WILL BE AT THE REQUIRED STAGE.

**VORTECH "A" DESIGN DATA**

WATERSHED AREA	= 32,670 SF (0.75 AC)
PRE-DEVELOPMENT IMPERVIOUS	= 0 SF (0 AC)
POST-DEVELOPMENT IMPERVIOUS	= 10,890 SF (0.25 AC)
POST-DEVELOPMENT PERVIOUS	= 21,780 SF (0.50 AC)
UNCAPTURED IMPERVIOUS	= 45 SF (0.001 AC)
PRECIPITATION (AVERAGE ANNUAL)	= 33 INCHES
REQUIRED TSS REMOVAL	= 224.40 LBS
DESIGN TSS REMOVAL	= 241.38 LBS
TSS LOAD CREDIT	= 16.98 LBS
REQUIRED TSS REMOVAL (UNCAPTURED)	= 0.90 LBS
EFFECTIVE AREA	= 0.24 AC
MODEL SURFACE AREA	= 19.63 SF
OVERFLOW RATE	= 0.014 FPS
BMP EFFICIENCY	= 82%

**VORTECH - PLAN VIEW**

1" = 5'

RECEIVED  
JUL 27 2010  
COUNTY ENGINEER

**REVISIONS:**  
07.07.10 - REVISED VORTECH "A" DESIGN DATA

**STATE OF TEXAS**  
**SHAUNA L. WEAVER**  
89512  
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**METAMORPHIC DESIGN**  
**CONTRIBUTING ZONE PLAN**  
**WATER QUALITY VORTECH DETAIL SHEET**

JOB NO. 7521-00  
DATE APRIL 2010  
DESIGNER DLS  
CHECKED CEL DRAWN PWR  
SHEET 1 OF 1

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE POLLUTION ABATEMENT SIZING AND TREATMENT REQUIREMENTS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S EDWARDS AQUIFER TECHNICAL GUIDANCE MANUAL.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF POLLUTION ABATEMENT ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

**EXHIBIT 4**

Date: Jul 07, 2010, 9:03am User: D:\c...  
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