## Texas Commission on Environmental Quality

# Edwards Aquifer Application Cover Page

### Our Review of Your Application

**The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.**

### Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

### Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. 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 must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

**Mid-Review Modifications**

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1. Regulated Entity Name:** SA BigHausLand | | | | | | **2. Regulated Entity No.:** | | | |
| **3. Customer Name:** SA BigHausLand LLC | | | | | | **4. Customer No.:** | | | |
| **5. Project Type:** **(Please circle/check one)** | New X | | Modification | | | Extension | | Exception | |
| **6. Plan Type:** **(Please circle/check one)** | WPAP | CZP X | SCS | UST | AST | EXP | EXT | Technical Clarification | Optional Enhanced Measures |
| **7. Land Use:** **(Please circle/check one)** | Residential X | | Non-residential | | | | **8. Site (acres):** | | 44.28 |
| **9. Application Fee:** | 8,000 | | **10. Permanent BMP(s):** | | | | | ADS Bayfilter/Vegetated Filter Strips | |
| **11. SCS (Linear Ft.):** | n/a | | **12. AST/UST (No. Tanks):** | | | | | n/a | |
| **13. County:** | Bexar | | **14. Watershed:** | | | | | Leon Creek Watershed | |

# Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

| Austin Region | | | |
|---|---|---|---|
| **County:** | **Hays** | **Travis** | **Williamson** |
| Original (1 req.) | __ | __ | __ |
| Region (1 req.) | __ | __ | __ |
| County(ies) | __ | __ | __ |
| Groundwater Conservation District(s) | __Edwards Aquifer Authority<br>__Barton Springs/ Edwards Aquifer<br>__Hays Trinity<br>__Plum Creek | __Barton Springs/ Edwards Aquifer | NA |
| City(ies) Jurisdiction | __Austin<br>__Buda<br>__Dripping Springs<br>__Kyle<br>__Mountain City<br>__San Marcos<br>__Wimberley<br>__Woodcreek | __Austin<br>__Bee Cave<br>__Pflugerville<br>__Rollingwood<br>__Round Rock<br>__Sunset Valley<br>__West Lake Hills | __Austin<br>__Cedar Park<br>__Florence<br>__Georgetown<br>__Jerrell<br>__Leander<br>__Liberty Hill<br>__Pflugerville<br>__Round Rock |

| San Antonio Region | | | | | |
|---|---|---|---|---|---|
| **County:** | **Bexar** | **Comal** | **Kinney** | **Medina** | **Uvalde** |
| Original (1 req.) | X | __ | __ | __ | __ |
| Region (1 req.) | X | __ | __ | __ | __ |
| County(ies) | X | __ | __ | __ | __ |
| Groundwater Conservation District(s) | X Edwards Aquifer Authority<br>X Trinity-Glen Rose | __Edwards Aquifer Authority | __Kinney | __EAA<br>__Medina | __EAA<br>__Uvalde |
| City(ies) Jurisdiction | __Castle Hills<br>__Fair Oaks Ranch<br>__Helotes<br>__Hill Country Village<br>__Hollywood Park<br>X San Antonio (SAWS)<br>__Shavano Park | __Bulverde<br>__Fair Oaks Ranch<br>__Garden Ridge<br>__New Braunfels<br>__Schertz | NA | __San Antonio ETJ (SAWS) | NA |

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Mary Jane Phillips

Print Name of Customer/Authorized Agent

MJPhillips 7/30/19

Signature of Customer/Authorized Agent Date

| **FOR TCEQ INTERNAL USE ONLY** | | | |
|---|---|---|---|
| Date(s)Reviewed: | | Date Administratively Complete: | |
| Received From: | | Correct Number of Copies: | |
| Received By: | | Distribution Date: | |
| EAPP File Number: | | Complex: | |
| Admin. Review(s) (No.): | | No. AR Rounds: | |
| Delinquent Fees (Y/N): | | Review Time Spent: | |
| Lat./Long. Verified: | | SOS Customer Verification: | |
| Agent Authorization Complete/Notarized (Y/N): | | Fee Check: | Payable to TCEQ (Y/N): |
| Core Data Form Complete (Y/N): | | | Signed (Y/N): |
| Core Data Form Incomplete Nos.: | | | Less than 90 days old (Y/N): |

# MODIFICATION OF A PREVIOUSLY APPROVED CZP

# Modification of a Previously Approved Contributing Zone Plan

**Texas Commission on Environmental Quality**

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

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## *Signature*

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Modification of a Previously Approved Contributing Zone Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Stantec c/o Mary Jane Phillips

Date: 7/31/19

Signature of Customer/Agent:

## *Project Information*

1. Current Regulated Entity Name: SA BigHaus Land LLC
   Original Regulated Entity Name: SA BigHaus Land LLC
   Assigned Regulated Entity Number(s) (RN): RN110480886
   Edwards Aquifer Protection Program ID Number(s): _____
   ☑ The applicant has not changed and the Customer Number (CN) is: 13000756
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☑ **Attachment A: Original Approval Letter and Approved Modification Letters**. A copy of the original approval letter and copies of any modification approval letters are attached.

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

- ☑ 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;
- ☐ A 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.

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

| ***CZP Modification Summary*** | ***Approved Project*** | ***Proposed Modification*** |
|---|---|---|
| Acres | 44.28 | 44.28 |
| Type of Development | Multi Family Residential | Multi Family Residential |
| Number of Residential Lots | 350 | 317 |
| Impervious Cover (acres) | 12.70 | 12.26 |
| Impervious Cover (%) | 28.6 | 27.7 |
| Permanent BMPs | BayFilter and Vegetated Filter Strips | BayFilter and Vegetated Filter Strips |
| Other | | |

| ***AST Modification Summary*** | ***Approved Project*** | ***Proposed Modification*** |
|---|---|---|
| Number of ASTs | | |
| Other | | |

| ***UST Modification Summary*** | ***Approved Project*** | ***Proposed Modification*** |
|---|---|---|
| Number of USTs | | |
| Other | | |

5. ☑ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved,

including previous modifications, and how this proposed modification will change the approved plan.

6. ☑ **Attachment C: Current Site Plan of the Approved Projec**t. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☑ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☑ Acreage has not been added to or removed from the approved plan.
   ☐ Acreage has been added to or removed from the approved plan and is discussed in *Attachment B: Narrative of Proposed Modification*.

8. ☑ Submit one (1) original and one (1) copy of the application, ~~plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.~~ plus an electronic copy with all submittal items; one PDF

# ATTACHMENT A

ORIGINAL APPROVAL LETTER

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Toby Baker, *Executive Director*

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

December 6, 2018

Mr. Dan Leverett
SA Big Haus Land LLC
1722 Broadmoor Drive, Suite 208
Bryan, Texas 77802

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: SA Big Haus; Located northwest of the Kyle Seale Parkway and Babcock Road intersection; ETJ of San Antonio, Texas

TYPE OF PLAN: Request for Approval of a Contributing Zone Plan (CZP); 30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer

Regulated Entity No. RN110480886; Additional ID No. 13000756

Dear Mr. Leverett:

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 STANTEC Engineers on behalf of SA Big Haus Land LLC on August 29, 2018. Final review of the CZP was completed after additional material was received on November 6, 2018. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected 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 project will have an area of approximately 44.28 acres. It will include twenty-six apartment buildings, an amenity center, access drives, parking areas and utilities. The impervious cover will be 12.70 acres (28.68 percent). Project wastewater will be disposed of by conveyance to the existing Leon Creek Water Recycling Center owned by the San Antonio Water System.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, four wet-vault cartridge treatment systems with equalization, four flow-through wet vault cartridge treatment systems and six engineered vegetated filter strips (EVFS), designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 10,339 pounds of TSS generated from the 12.7 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measures (Table 1) will consist of eight BayFilter wet vault treatment systems, four with equalization, four designed as flow-through systems. BayFilter cartridges will be model BF 545 in pre-cast vaults with cartridge numbers and equalization storage capacity as shown in Table 1.

Table 1. SA Big Haus Permanent BMP's

| Drainage Area | Area (acres) | Impervious Cover (acres) | Permanent Best Management Practice | No. of Cartridges | Required TSS Removal (lbs/yr) | Provided TSS Removal (lbs/yr) | Required Storage (CF) |
|---|---|---|---|---|---|---|---|
| DA-2 | 6.02 | 4.41 | Wet Vault + Equalization | 38 | 3,599 | 3,623 | 540 |
| DA-3 | 5.05 | 3.35 | Wet Vault + Equalization | 28 | 2,734 | 2,734 | 556 |
| DA-4 | 1.66 | 1.31 | Wet Vault + Equalization | 11 | 1,069 | 1,069 | 196 |
| DA-6 | 1.99 | 0.96 | Wet Vault + Equalization | 9 | 783 | 783 | 82 |
| DA-7 | 0.18 | 0.18 | Flow Through Wet Vault | 2 | 147 | 147 | |
| DA-8 | 0.12 | 0.12 | Flow Through Wet Vault | 2 | 98 | 98 | |
| DA-9 | 0.12 | 0.12 | Flow Through Wet Vault | 2 | 98 | 98 | |
| DA-10 | 0.10 | 0.1 | Flow Through Wet Vault | 1 | 82 | 82 | |
| DA-VFS 1 | 0.26 | 0.15 | Engineered VFS | | 122 | 122 | |
| DA-VFS 2 | 0.21 | 0.11 | Engineered VFS | | 90 | 90 | |
| DA-VFS 3 | 0.47 | 0.26 | Engineered VFS | | 212 | 212 | |
| DA-VFS 4 | 0.65 | 0.32 | Engineered VFS | | 261 | 261 | |
| DA-VFS 5 | 0.57 | 0.28 | Engineered VFS | | 228 | 228 | |
| DA-VFS 6 | 1.41 | 1 | Engineered VFS | | 816 | 816 | |
| Total | 18.81 | 12.67 | | | 10,339 | 10,363 | |

## 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. All permanent pollution abatement measures shall be operational prior to occupancy of the facility. BayFilter storage vaults for equalization will be inspected at least quarterly; including once during or immediately following wet weather to determine if the vault is meeting the target detention times.

III. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

IV. Accumulated sediment in the equalization vaults must be removed when the sediment buildup fills 20% of the volume of the vault or at least every 5 years.

## 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.

<u>During Construction:</u>

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 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.

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

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 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.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Don Vandertulip, PE, BCEE of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4057.

Sincerely,

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

LB/DV/eg

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

cc: Ms. Mary Jane Phillips, PE, STANTEC Engineering
Ms. Renee Green, PE, Bexar County Public Works
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. Scott Halty, San Antonio Water System
Mr. George Wissmann, Trinity Glen Rose Groundwater Conservation District

# ATTACHMENT B

NARRATIVE OF PROPOSED MODIFICATION

**Attachment B – Narrative of Proposed Modification**

Below itemized the shown changes from the 12/8/16 Previously Approved Contributing Zone Plan versus the 2019 Contributing Zone Plan Modification submittal:

1. Overall intent
    a. Remains the same – Multi Family Residential
    b. 26 apartment buildings
        i. A few of the buildings got rotated/shifted through the value engineering process
    c. Number of proposed units was reduced from 350 to 317 due to internal architecture modifications
    d. Slight reduction in overall impervious cover: 28.6% to 27.7%

Permanent BMPs

1. Engineered Vegetated Filter Strips (EVFS)
    a. 2018 Previously Approved Submittal
        i. 6 areas with EVFS
    b. 2019 Modification Submittal
        i. 7 areas with EVFS
2. BayFilter
    a. 2018 Previously Approved Submittal
        i. 4 wet-vault cartridge treatment systems with equalization
        ii. 4 flow-through wet vault cartridge treatment systems
    b. 2019 Modification Submittal
        i. 6 wet-vault cartridge treatment systems with equalization

**ATTACHMENT C**

CURRENT SITE PLAN OF THE APPROVED PROJECT

## LEGEND

| EXISTING | DESCRIPTION |
|---|---|
| | PROPERTY (R.O.W.) LINE |
| | 1/2" IRON ROD FOUND (UNLESS OTHERWISE NOTED) |
| | 1/2" IRON ROD SET w/YELLOW CAP STAMPED "STANTEC" |
| (XXX) | RECORD INFORMATION |
| | LIGHT POLE |
| | UTILITY POLE |
| | DOWN GUY |
| | FIRE HYDRANT |
| | WATER VALVE |
| | WATER METER |
| WTRMH | WATER MANHOLE |
| | TELEPHONE RISER |
| | CABLE TV RISER |
| | ELECTRIC BOX |
| | ELECTRIC METER |
| | GAS METER |
| | GAS VALVE |
| TCBC | TRAFFIC CONTROL BOX |
| TSP | TRAFFIC SIGNAL POST |
| | GRATE INLET |
| | CURB INLET (SIZE VARIES) |
| | WIRE FENCE |
| | WOOD FENCE |
| | CHAIN LINK FENCE |
| | SIGN |
| SS | STORMSEWER LINE |
| W | WATER LINE |
| WW | WASTEWATER LINE |
| G | GAS LINE |
| E | ELECTRIC LINE |
| OE | OVERHEAD ELECTRIC |
| UT | UNDERGROUND TELEPHONE |
| UC | UNDERGROUND CABLE AND INTERNET |
| TC | TELECOMMUNICATIONS LINE |
| EMH | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | STORMSEWER MANHOLE (SIZE VARIES) |
| TMH | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | WASTEWATER CLEANOUT |
| | CURB & GUTTER |
| | EDGE OF PAVEMENT |
| | CONCRETE SIDEWALKS |
| 678 | CONTOUR |
| 100.0 x | SPOT ELEVATION |
| 1064 | EXISTING TREE DEAD/IN DECAY |
| 1064 | EXISTING TREE TO REMAIN |
| 1064 | EXISTING TREE TO BE REMOVED |
| | ORDINARY HIGH WATER DELINEATION (WATERS OF THE U.S.) |
| | FLOODPLAIN PER FEMA MAP PANEL 48029C0210G |

NOTES:
1. THE POSTED SPEED LIMIT FOR BABCOCK RD IS 45 MPH
2. THE POSTED SPEED LIMIT FOR KYLE SEALE PARKWAY IS 45 MPH
3. CORRECTED EXISTING AND PROPOSED/CONDITIONS FLOODPLAIN IS PENDING THE FINAL CLOMR FOR THIS PROJECT, CURRENTLY BEING PREPARED BY STANTEC.


Stantec
Stantec Consulting Services Inc.
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TBPE # F-5324
TBPLS # 10194230



The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - use only the dimensions shown on this drawing for dimensions. The Copyrights to all designs and drawings are the property of Stantec. Reproduction, use, or disclosure without written consent of Stantec is prohibited.


Consultant

| Issued | By | Appd. | YYYY.MM.DD |
|---|---|---|---|
| Revision | By | Appd. | YYYY.MM.DD |

Permit/Seal

STATE OF TEXAS
MARY JANE C. PHILLIPS
102318
LICENSED
PROFESSIONAL ENGINEER
11/6/18

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_101_SPN

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2018.06.12 |

Title
OVERALL PROPOSED CONDITIONS SITE PLAN

Revision:0 Sheet: 4 of

Drawing No.
**C1.0**

ORIGINAL SHEET - ARCH E1

# CONTRIBUTING ZONE PLAN APPLICATION

# Contributing Zone Plan Application

**Texas Commission on Environmental Quality**

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

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## *Signature*

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

Print Name of Customer/Agent: Stantec c/o Mary Jane Phillips

Date: 7/30/19

Signature of Customer/Agent:

**Regulated Entity Name:** SA BigHausLand, LLC

## *Project Information*

1. County: Bexar
2. Stream Basin: Leon Creek Watershed
3. Groundwater Conservation District (if applicable): Trinity Glen Rose and Edwards Aquifer Authority
4. Customer (Applicant):

   Contact Person: Dan Leverett
   Entity: SA BigHaus Land LLC
   Mailing Address: 1722 Broadmoor Drive, Suite 208
   City, State: Bryan, Texas  Zip: 77802
   Telephone: 713-502-6574  Fax: _____
   Email Address: dleverett@placeusa.com

5. Agent/Representative (If any):

Contact Person: Mary Jane Phillips
Entity: Stantec
Mailing Address: 70 NE Loop 410, Suite 1100
City, State: San Antonio, Texas Zip: 78216
Telephone: 210-525-9090 Fax: 210-525-0259
Email Address: MaryJane.Phillips@stantec.com

6. Project Location:

☐ The project site is located inside the city limits of _____.
☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of San Antonio.
☐ The project site is not located within any city's limits or ETJ.

7. ☒ 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.

North west corner of Babcock Rd and Kyle Seale Parkway

8. ☒ **Attachment A - Road Map**. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

9. ☒ **Attachment B - USGS Quadrangle Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') is attached. The map(s) clearly show:

☒ Project site boundaries.
☒ USGS Quadrangle Name(s).

10. ☒ **Attachment C - Project Narrative**. A detailed narrative description of the proposed project is attached. The project description is consistent throughout the application and contains, at a minimum, the following details:

☒ Area of the site
☒ Offsite areas
☒ Impervious cover
☒ Permanent BMP(s)
☒ Proposed site use
☒ Site history
☐ Previous development
☐ Area(s) to be demolished

11. 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/Not cleared)
☐ Other: _____

12. The type of project is:

☐ Residential: # of Lots: _____
☒ Residential: # of Living Unit Equivalents: 317
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 44.28 Acres

Total disturbed area: 23 Acres

14. Estimated projected population: 700

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

**Table 1 - Impervious Cover**

| *Impervious Cover of Proposed Project* | *Sq. Ft.* | *Sq. Ft./Acre* | *Acres* |
|---|---|---|---|
| Structures/Rooftops | 254,067.8 | ÷ 43,560 = | 5.83 |
| Parking | 280,090.8 | ÷ 43,560 = | 6.43 |
| Other paved surfaces | | ÷ 43,560 = | 0 |
| Total Impervious Cover | 534,158.6 | ÷ 43,560 = | 12.26 |

**Total Impervious Cover** 12.26 **÷ Total Acreage** 44.28 **X 100 =** 27.7 **% Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

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

## *For Road Projects Only*

***Complete questions 18 - 23 if this application is exclusively for a road project.***

☒ N/A

18. 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.

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

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.
Width of R.O.W.: _____ feet.
L x W = _____$Ft^2$ ÷ 43,560 $Ft^2$/Acre = _____ acres.

21. Pavement Area:

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

22. ☐ A rest stop will be included in this project.

☐ A rest stop will not be included in this project.

23. ☐ 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*

24. ☒ **Attachment E - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

## *Wastewater to be generated by the Proposed Project*

25. ☒ 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.

☐ N/A

26. 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 (authorized agent) written approval is attached. 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.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

■ Sewage Collection System (Sewer Lines):
The sewage collection system will convey the wastewater to the Leon CreekTreatment Plant. The treatment facility is:

■ Existing.
☐ Proposed.

☐ N/A

## *Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons*

***Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.***

■ N/A

27. Tanks and substance stored:

**Table 2 - Tanks and Substance Storage**

| *AST Number* | *Size (Gallons)* | *Substance to be Stored* | *Tank Material* |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

**Total x 1.5 = _____ Gallons**

28. ☐ 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.

☐ **Attachment G - Alternative Secondary Containment Methods**. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

**Table 3 - Secondary Containment**

| *Length (L)(Ft.)* | *Width(W)(Ft.)* | *Height (H)(Ft.)* | *L x W x H = (Ft3)* | *Gallons* |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Total: _____ Gallons**

30. Piping:

☐ All piping, hoses, and dispensers will be located inside the containment structure.
☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
☐ The piping will be aboveground
☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ **Attachment H - AST Containment Structure Drawings**. A scaled drawing of the containment structure is attached that shows the following:

☐ Interior dimensions (length, width, depth and wall and floor thickness).
☐ Internal drainage to a point convenient for the collection of any spillage.
☐ Tanks clearly labeled
☐ Piping clearly labeled
☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

## *Site Plan Requirements*

***Items 34 - 46 must be included on the Site Plan.***

34. ■ The Site Plan must have a minimum scale of 1" = 400'.

    Site Plan Scale: 1" = 60 '.

35. 100-year floodplain boundaries:

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

    ☐ No part of the project site is located within the 100-year floodplain.

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

36. ■ 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.

37. ■ A drainage plan showing all paths of drainage from the site to surface streams.

38. ■ The drainage patterns and approximate slopes anticipated after major grading activities.

39. ■ Areas of soil disturbance and areas which will not be disturbed.

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

41. ☐ Locations where soil stabilization practices are expected to occur.

42. ☐ Surface waters (including wetlands).

    ☐ N/A

43. ☐ Locations where stormwater discharges to surface water.

    ☐ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

    ■ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

## *Permanent Best Management Practices (BMPs)*

***Practices and measures that will be used during and after construction is completed.***

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

☐ N/A

48. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

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

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____.

☐ N/A

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

☐ N/A

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

☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.

☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.

☒ The site will not be used for low density single-family residential development.

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

- ☐ **Attachment I - 20% or Less Impervious Cover Waiver**. The 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 attached.
- ☒ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
- ☐ The site will not be used for multi-family residential developments, schools, or small business sites.

52. ☒ **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 attached.
- ☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
- ☐ 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, and an explanation is attached.

53. ☒ **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 attached.
- ☐ 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, and an explanation is attached.

54. ☒ **Attachment L - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

- ☐ N/A

55. ☒ **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, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ■ **Attachment N - Inspection, Maintenance, Repair and Retrofit Plan.** A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

    ■ Prepared and certified by the engineer designing the permanent BMPs and measures
    ■ Signed by the owner or responsible party
    ■ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
    ■ Contains a discussion of record keeping procedures

    ☐ N/A

57. ☐ **Attachment O - Pilot-Scale Field Testing Plan.** Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ■ N/A

58. ■ **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 attached. 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 result in water quality degradation.

    ☐ N/A

## *Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.*

59. ■ 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.

60. ■ 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.

## *Administrative Information*

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

62. ■ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

63. ■ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

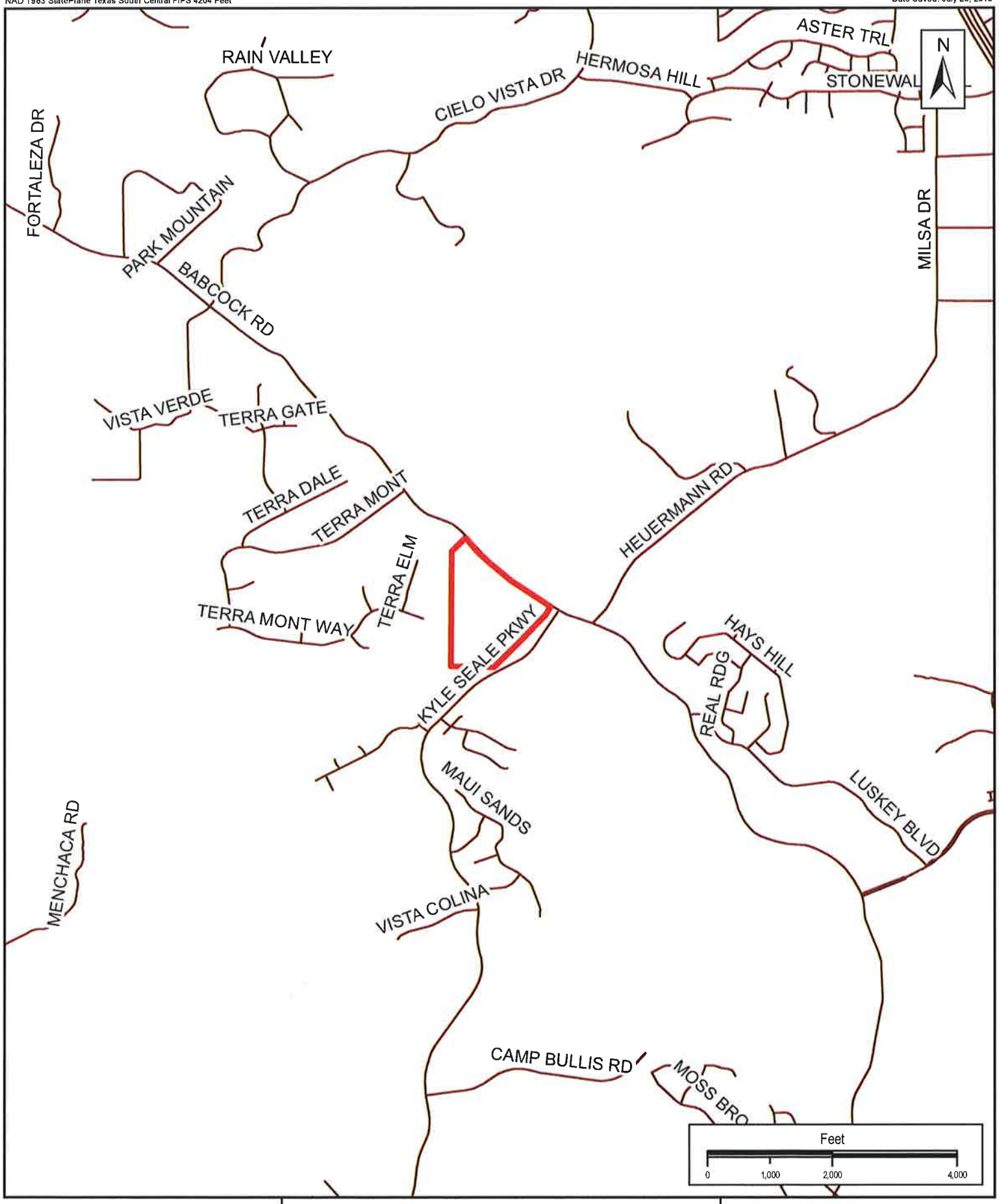
■ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

# ATTACHMENT A

ROAD MAP

V:\2220\active\222011059\civil\GIS\czp\Road Map.mxd
NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

User Name: mhilbig
Date Saved: July 25, 2018

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SA BigHaus

Road Map

SA BigHausLand LLC

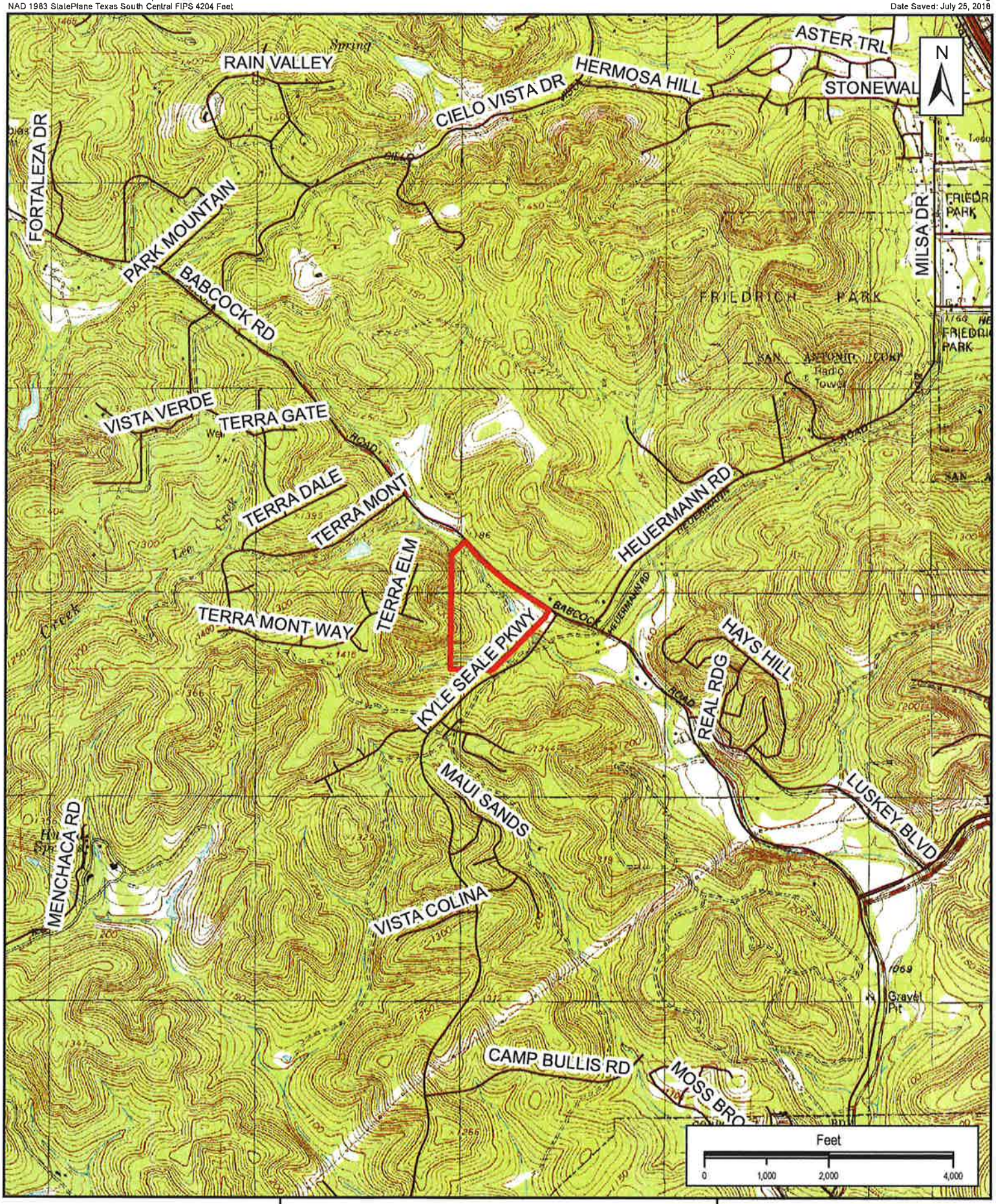
Date: 7/25/2018
File: Road Map.mxd
Scale: 1 : 24,000
Tech: MMH
Project Number: 222011059

# ATTACHMENT B

USGS/EDWARDS RECHARGE ZONE MAP
(Scale 1" = 2,000')

V:\2220\active\222011059\civil\GIS\czp\USGS.mxd
NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

User Name: mhilbig
Date Saved: July 25, 2018

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SA BigHaus

USGS Map

SA BigHausLand LLC

Date: 7/25/2018
File: USGS.mxd
Scale: 1 : 24,000
Tech: MMH
Project Number: 222011059

# ATTACHMENT C

PROJECT NARRATIVE

## Attachment C – Description of Project

### PROJECT DESCRIPTION

The SA BigHaus development is a 44.28–acre residential multifamily development located at the northwest corner of Babcock Rd. and Kyle Seale Pkwy. This entire development lies within the extra-territorial jurisdiction (ETJ) of San Antonio in Bexar County, Texas. The project is located within the Edwards Aquifer Contributing Zone.

Currently, the site is undeveloped with natural vegetation and trees. Maverick Creek divides the property into a northern and southern portion. The proposed development is 26 apartment buildings and amenity center spread out across approximately 23 acres. This includes the construction of two access drives from Babcock Road into the development, parking areas, and utilities. The post-construction impervious cover is ±12.26-acres (27.7%).

A combination of engineered Vegetated Filter Strips (VFS) and ADS's BayFilter Stormwater Media Filters will be used as Permanent Best Management Practices (BMP's) onsite to treat stormwater generated from the development. Each BMP has been designed in accordance with TCEQ's Technical Guidance Manual to remove 85% (VFS) and 87% (BayFilter) of the increased Total Suspended Solids (TSS) resulting from the increase in impervious cover for the proposed development.

Engineered VFS will be used in 6 separate areas of the site to treat 1.88-acres of impervious cover. Eight separate BayFilter systems will be used to treat 10.31-acres of impervious cover. The table as shown on Sheet C5.2, Proposed Drainage Area Map summarizes each drainage area and the associated TSS loads.

# ATTACHMENT D

FACTORS AFFECTING WATER QUALITY

## Attachment D - Factors Affecting Surface Water Quality

The materials listed below are anticipated to be present on-site during construction and as such may present a potential pollutant source: (This is not an all inclusive list).

1. Concrete/Masonry
2. Metal studs, Metal reinforcing bars, etc.
3. Tar
4. Fertilizers
5. Petroleum based products
6. Cleaning solvents/Detergents
7. Wood

Material management practices will be utilized to reduce the risk of spills, or other accidental exposure of the materials listed above to storm water runoff, including the following:

1. An effort shall be made to store only enough product required to complete the work as so defined in the approved construction documents.

2. All materials stored on-site shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.

3. Products should be kept in their original containers with the original manufacturer's label.

4. Manufactures' recommendations for proper use and disposal shall be followed.

5. Substances shall not be mixed with one another unless recommended by the manufacturer.

6. Whenever possible, all of a product shall be used before disposing of its respective container.

7. The site superintendent should inspect daily to ensure proper use and disposal of on-site materials.

Post-Construction

The materials listed below are anticipated to be present on-site after construction and as such may present a potential pollutant source: (This is not an all-inclusive list).

1. Vehicle Fluid and Petroleum based products (Motor Oil, Brake Fluid, Etc.)

2. Trash and Debris (Litter)

3. Discarded Food and Tobacco Products

These and other sources of pollutants which may affect storm water quality will be screened and filtered by proposed water quality ponds that will treat the storm water prior to releasing into the creek. All ponds will undergo periodic maintenance and cleaning to keep the integrity and effectiveness of treatment efficiency.

# ATTACHMENT E

VOLUME AND CHARACTER OF STORM WATER

## Attachment E – Volume and Character of Stormwater

The project has one existing drainage area that totals 44.28 acres, as well as 22.2 acres of off-site, upstream drainage area, for a total of 66.48 acres. Using the Bexar County runoff coefficients, the drainage area will produce a peak flow of 250 cubic feet per second (cfs) for the 100-yr storm event. This existing watershed releases directly to Maverick Creek, which runs through the project.

The proposed development is split up into six separate drainage areas treated by BayFilter systems. The other seven drainage areas are treated by vegetated filter strips.

Refer to the proposed drainage area map for the location of each drainage area. Minimal improvements are proposed within DA-1 and DA-5. The majority of the proposed construction takes place in the other drainage areas as shown. Each of these drainage areas proposes a permanent BMP to treat the increase in Total Suspended Solids. In proposed conditions, the off-site, upstream stormwater runoff will be captured and bypassed around the proposed BMPs onsite.

Refer to the table as shown on the Proposed Drainage Area Map, Sheet C5.2.

# ATTACHMENT F

SUITABILITY LETTER FROM AUTHORIZED AGENT
(Not Applicable)

# ATTACHMENT G

ALTERNATIVE SECONDARY CONTAINMENT METHODS
(Not Applicable)

# ATTACHMENT H

AST CONTAINMENT STRUCTURE DRAWINGS
(Not Applicable)

# ATTACHMENT I

20% OR LESS IMPERVIOUS COVER DECLARATION
(Not Applicable)

# ATTACHMENT J

BMP'S FOR UPGRADIENT STORMWATER

**Attachment J - BMPs for Upgradient Stormwater**

Approximately 22.2 acres of stormwater originates west of the SA BigHaus site. This area will not be disturbed and will be collected via shallow drainage swales and storm sewer networks to be bypassed around the proposed development. Additionally, approximately 0.07-acres of impervious cover is proposed on the adjacent property near the intersection of Kyle Seale and Babcock. This impervious cover is noted as a drainage area OS-1, and is accounted for and treated within BayFilter #5 (DA-7). The upgradient stormwater will ultimately discharge into Maverick Creek. The adjacent property owner will be responsible for mitigating increases in impervious cover at the time their property is developed.

# ATTACHMENT K

BMPs FOR ON-SITE STORMWATER

**Attachment K - BMPs for On-Site Stormwater**

A combination of engineered Vegetated Filter Strips (VFS) and ADS's BayFilter Stormwater Media Filters will be used as Permanent Best Management Practices (BMP's) onsite to treat stormwater generated from the development. Each BMP has been designed in accordance with TCEQ's Technical Guidance Manual to remove 85% (VFS) and 87% (BayFilter) of the increased Total Suspended Solids (TSS) resulting from the increase in impervious cover for the proposed development.

Engineered VFS will be used in seven separate areas of the site to treat 1.88-acres of impervious cover. Six separate BayFilter systems will be used to treat 10.31-acres of impervious cover. Approximately 0.07-acres of impervious cover is offsite and treated as such in BayFilter #5 (DA-7) which has been oversized to account for the runoff. Together, the BMPs will be responsible for treating the first ½" of runoff for approximately 12.26 acres.

# ATTACHMENT L

BMPS FOR SURFACE STREAMS

## Attachment L - BMPs for Surface Streams

The proposed impacted area does not have any surface streams nor does it abut any surface stream. Site runoff will be treated by the proposed BMPs prior to release to Maverick Creek, which runs through the property in existing conditions.

# ATTACHMENT M

CONSTRUCTION PLANS

## Attachment M - Construction Plans

All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

1. Design calculations (TSS removal calculations)
2. TCEQ construction notes
3. All proposed structural BMP(s) plans and specifications

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.2(A_N \times P)$

$L_M$ = 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 = | Bexar | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA2** | |
| Total drainage basin/outfall area = | **5.420** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **3.840** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **0.71** | |
| $L_{M\ THIS\ BASIN}$ = | **3133** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | **5.420** | acres |
| $A_I$ = | **3.840** | acres |
| $A_P$ = | **1.580** | acres |
| $L_R$ = | **3490** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ THIS\ BASIN}$ = | **3133** | lbs. |
| F = | **0.90** | |

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

Calculations from RG-348
Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.000** | acres |
| Offsite impervious cover draining to BMP = | **0.000** | acres |
| Impervious fraction of off-site area = | **0.00** | |
| Off-site Runoff Coefficient = | **0.00** | |
| Rainfall Depth = | **1.70** | inches |
| Rainfall Intensity = | **1.10** | inches per hour |
| Post Development Runoff Coefficent = | **0.51** | |
| **Effective Area =** | **3.50** | acres |
| **Peak Flow =** | **3.85** | cubic feet per second |
| **On-site Water Quality Volume =** | **17202** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume (**Calculated + 20%) | **20642** | |

**7. BayFilter**

Designed as Required in RG-348
Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.5** | GPM per $ft^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge head = | **30.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **8** | |
| Storage Volume for Volume-Based Configuration = | **20642** | cubic feet |

**Option 2. Flow Through Design**

| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **3.85** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **39** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **8** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **2.91** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **29** | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | **1068** | cubic feet |

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.2(A_N \times P)$

$L_M$ = 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 = | Bexar | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA3** | |
| Total drainage basin/outfall area = | **5.600** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **3.740** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **0.67** | |
| $L_{M\ THIS\ BASIN}$ = | **3052** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | **5.600** | acres |
| $A_I$ = | **3.740** | acres |
| $A_P$ = | **1.860** | acres |
| $L_R$ = | **3404** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ THIS\ BASIN}$ = | **3052** | lbs. |
| F = | **0.90** | |

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

Calculations from RG-348
Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.000** | acres |
| Offsite impervious cover draining to BMP = | **0.000** | acres |
| Impervious fraction of off-site area = | **0.00** | |
| Off-site Runoff Coefficient = | **0.00** | |
| Rainfall Depth = | **1.70** | inches |
| Rainfall Intensity = | **1.10** | inches per hour |
| Post Development Runoff Coefficent = | **0.48** | |
| **Effective Area =** | **3.42** | acres |
| **Peak Flow =** | **3.76** | cubic feet per second |
| **On-site Water Quality Volume =** | **16420** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume (**Calculated + 20%) | **19704** | |

**7. BayFilter**

Designed as Required in RG-348
Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.5** | GPM per $ft^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge head = | **30.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **8** | |
| Storage Volume for Volume-Based Configuration = | **19704** | cubic feet |

**Option 2. Flow Through Design**

| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **3.76** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **38** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **8** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **2.81** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **28** | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | **1090** | cubic feet |

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.2(A_N \times P)$

$L_M$ = 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 = | Bexar | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA4** | |
| Total drainage basin/outfall area = | **1.760** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **1.070** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **0.61** | |
| $L_{M\ THIS\ BASIN}$ = | **873** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | **1.760** | acres |
| $A_I$ = | **1.070** | acres |
| $A_P$ = | **0.690** | acres |
| $L_R$ = | **976** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ THIS\ BASIN}$ = | **873** | lbs. |
| F = | **0.89** | |

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

Calculations from RG-348
Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.000** | acres |
| Offsite impervious cover draining to BMP = | **0.000** | acres |
| Impervious fraction of off-site area = | **0.00** | |
| Off-site Runoff Coefficient = | **0.00** | |
| Rainfall Depth = | **1.60** | inches |
| Rainfall Intensity = | **1.05** | inches per hour |
| Post Development Runoff Coefficent = | **0.43** | |
| **Effective Area =** | **0.98** | acres |
| **Peak Flow =** | **1.03** | cubic feet per second |
| **On-site Water Quality Volume =** | **4358** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume (**Calculated + 20%) | **5230** | |

**7. BayFilter**

Designed as Required in RG-348
Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.5** | GPM per $ft^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge head = | **30.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **3** | |
| Storage Volume for Volume-Based Configuration = | **5230** | cubic feet |

**Option 2. Flow Through Design**

| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **1.03** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **11** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **3** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **0.80** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **8** | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | **254** | cubic feet |

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.2(A_N \times P)$

$L_M$ = 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 = | Bexar | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA6** | |
| Total drainage basin/outfall area = | **2.190** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **1.000** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **0.46** | |
| $L_{M\ THIS\ BASIN}$ = | **816** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | **2.190** | acres |
| $A_I$ = | **1.000** | acres |
| $A_P$ = | **1.190** | acres |
| $L_R$ = | **920** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ THIS\ BASIN}$ = | **816** | lbs. |
| F = | **0.89** | |

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

Calculations from RG-348
Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.000** | acres |
| Offsite impervious cover draining to BMP = | **0.000** | acres |
| Impervious fraction of off-site area = | **0.00** | |
| Off-site Runoff Coefficient = | **0.00** | |
| Rainfall Depth = | **1.60** | inches |
| Rainfall Intensity = | **1.05** | inches per hour |
| Post Development Runoff Coefficent = | **0.33** | |
| **Effective Area =** | **0.94** | acres |
| **Peak Flow =** | **0.98** | cubic feet per second |
| **On-site Water Quality Volume =** | **4258** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume (**Calculated + 20%) | **5110** | |

**7. BayFilter**

Designed as Required in RG-348
Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.5** | GPM per $ft^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge head = | **30.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **3** | |
| Storage Volume for Volume-Based Configuration = | **5110** | cubic feet |

**Option 2. Flow Through Design**

| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **0.98** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **10** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **3** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **0.80** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **8** | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | **186** | cubic feet |

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.2(A_N \times P)$

$L_M$ = 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 = | Bexar | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA7** | |
| Total drainage basin/outfall area = | **0.410** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **0.410** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **1.00** | |
| $L_{M\ THIS\ BASIN}$ = | **335** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | **0.410** | acres |
| $A_I$ = | **0.410** | acres |
| $A_P$ = | **0.000** | acres |
| $L_R$ = | **370** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ THIS\ BASIN}$ = | **335** | lbs. |
| F = | **0.90** | |

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

Calculations from RG-348
Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.070** | acres |
| Offsite impervious cover draining to BMP = | **0.070** | acres |
| Impervious fraction of off-site area = | **1.00** | |
| Off-site Runoff Coefficient = | **0.82** | |
| Rainfall Depth = | **1.70** | inches |
| Rainfall Intensity = | **1.10** | inches per hour |
| Post Development Runoff Coefficent = | **0.82** | |
| **Effective Area =** | **0.43** | acres |
| **Peak Flow =** | **0.48** | cubic feet per second |
| **On-site Water Quality Volume =** | **2066** | cubic feet |
| **Off-site Water Quality Volume =** | **353** | cubic feet |
| **Total Water Quality Volume (**Calculated + 20%) | **2902** | |

**7. BayFilter**

Designed as Required in RG-348
Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.5** | GPM per $ft^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge head = | **30.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **1** | |
| Storage Volume for Volume-Based Configuration = | **2902** | cubic feet |

**Option 2. Flow Through Design**

| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **0.48** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **5** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **1** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **0.40** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **4** | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | **72** | cubic feet |

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.2(A_N \times P)$

$L_M$ = 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 = | Bexar | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA8** | |
| Total drainage basin/outfall area = | **0.250** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **0.250** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **1.00** | |
| $L_{M\ THIS\ BASIN}$ = | **204** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | **0.250** | acres |
| $A_I$ = | **0.250** | acres |
| $A_P$ = | **0.000** | acres |
| $L_R$ = | **226** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ THIS\ BASIN}$ = | **204** | lbs. |
| F = | **0.90** | |

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

Calculations from RG-348
Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.000** | acres |
| Offsite impervious cover draining to BMP = | **0.000** | acres |
| Impervious fraction of off-site area = | **0.00** | |
| Off-site Runoff Coefficient = | **0.00** | |
| Rainfall Depth = | **1.70** | inches |
| Rainfall Intensity = | **1.10** | inches per hour |
| Post Development Runoff Coefficent = | **0.82** | |
| **Effective Area =** | **0.23** | acres |
| **Peak Flow =** | **0.25** | cubic feet per second |
| **On-site Water Quality Volume =** | **1260** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume (**Calculated + 20%) | **1512** | |

**7. BayFilter**

Designed as Required in RG-348
Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.5** | GPM per $ft^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge head = | **30.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

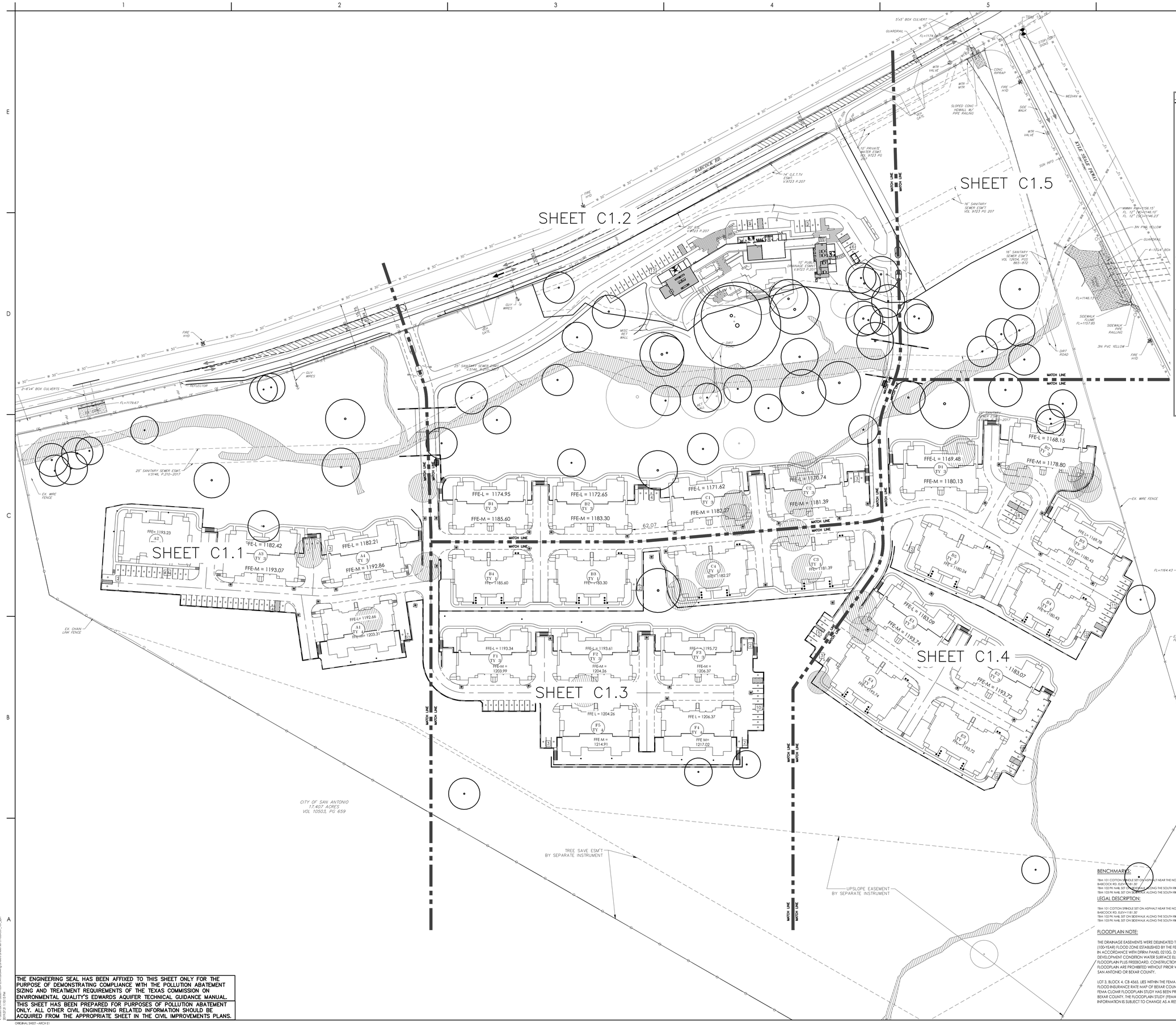
| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **1** | |
| Storage Volume for Volume-Based Configuration = | **1512** | cubic feet |

**Option 2. Flow Through Design**

| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **0.25** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **3** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **1** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **0.30** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **3** | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | **0** | cubic feet |




## LEGEND

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| | | PROPERTY LINE/ (R.O.W.) LINE |
| | | RECORD INFORMATION |
| | | LIGHT POLE |
| | | GROUND LIGHT |
| | | POWER POLE |
| | | DOWN GUY |
| TMH | | TELEPHONE MANHOLE |
| WTRMH | | WATER MANHOLE |
| | | WATER LINE MARKER |
| CABLE | | UNDERGROUND CABLE MARKER |
| GASL | | UNDERGROUND GAS LINE MARKER |
| UGTM | | UNDERGROUND TELEPHONE MARKER |
| GRISR | | GAS RISER |
| TELR | | TELEPHONE RISER |
| SPK | | SPRINKLER CONTROL BOX |
| | | SWITCH GEAR & PAD |
| | T | TRANSFORMER (SIZE VARIES) |
| | | FIRE HYDRANT |
| | | WATER VALVE |
| | | WATER METER |
| | | WATER METER VAULT (SIZE VARIES) |
| CATV | | CABLE TV RISER |
| | | ELECTRIC BOX |
| | | ELECTRIC METER |
| | | GAS METER |
| | | GAS VALVE |
| TCB | TCB | TRAFFIC CONTROL BOX |
| TSP | TSP | TRAFFIC SIGNAL POST |
| | | GRATE INLET |
| | | CURB INLET (SIZE VARIES) |
| | | GREASE TRAP (SIZE VARIES) |
| OE | OE | OVERHEAD ELECTRIC |
| EMH | | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | | STORMSEWER MANHOLE (SIZE VARIES) |
| TMH | TMH | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | CO | WASTEWATER CLEANOUT |
| | D | DUMPSTER |
| | | CURB |
| | | EDGE OF PAVEMENT |
| | | FIRE LANE DESIGNATION |
| | | HANDICAP ACCESS ROUTE |
| | | CONCRETE SIDEWALKS |
| | | WALL |
| | | SIGN |
| | | WHEELSTOP |
| | | BOLLARD |
| | FFE | FINISH FLOOR ELEVATION |
| | | HANDICAP SPACE |
| | | BIKE PARKING |
| | | BARRICADE |
| | | TREE IN DECLINE |
| | | TREE TO BE REMOVED |
| | | TREE TO REMAIN |

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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BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02

LEGAL DESCRIPTION:

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FLOODPLAIN NOTE:

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LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C , DATED 9/29/10 , . A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. _____) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.


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TBPE # F-6324
TBPLS # 10194230



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| Revision | By | Appd | YYYY.MM.DD |
|---|---|---|---|
| | | | |

Permit/Seal

STATE OF TEXAS
MARK JAMES PHILLIPS
102318
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_101_SPN

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
OVERALL PROPOSED CONDITIONS SITE PLAN

Revision:0 Sheet: 4 of

Drawing No.
**C1.0**

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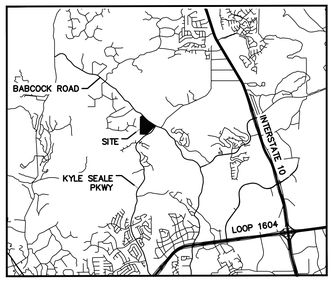
ORIGINAL SHEET - ARCH E1

# SA BIGHAUSLAND, LLC

# SA BIGHAUS
# CONTRIBUTING ZONE PLAN
# SAN ANTONIO, TEXAS

July 2019

Project Number: 222011059




N

VICINITY MAP

NOT TO SCALE

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CONTRIBUTING ZONE PLAN
GENERAL CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN (CZP) 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.
3. NO HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
5. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
6. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
7. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
8. ALL EXCAVATED MATERIAL THAT WILL BE STORED ON-SITE MUST HAVE PROPER E&S CONTROLS.
9. IF PORTIONS OF THE SITE WILL HAVE A CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
10. 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.
11. THE HOLDER OF ANY APPROVED CZP MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
    A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES (BMPS) OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
    B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
    C. ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER; OR
    D. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE APPROVED CONTRIBUTING ZONE PLAN.

    AUSTIN REGIONAL OFFICE
    12100 PARK 35 CIRCLE, BUILDING A
    AUSTIN, TEXAS 78753-1808
    PHONE (512) 339-2929
    FAX (512) 339-3795

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

SITE BENCHMARKS:

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QA/QC DATE


DEVELOPER:
SA BIGHAUSLAND, LLC
1722 BROADMOOR DRIVE
SUITE 208
BRYAN, TX 77802
(713) 502-6574

CIVIL ENGINEER:
STANTEC
70 NE LOOP 410
SUITE 1100
SAN ANTONIO, TX 78216-5893
(210) 525-9090

SURVEYOR:
STANTEC
70 NE LOOP 410
SUITE 1100
SAN ANTONIO, TX 78216-5893
(210) 525-9090


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ORIGINAL SHEET - ARCH E1


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70 NE Loop 410 Suite 1100
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TBPE # F-4324
TBPLS # 10194230



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| Revision | By | Appd. | YYYY.MM.DD |
|---|---|---|---|

Permit/Seal

STATE OF TEXAS
MARY JANE PHILLIPS
102318
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059

File Name: 11059FC01_102_CVR

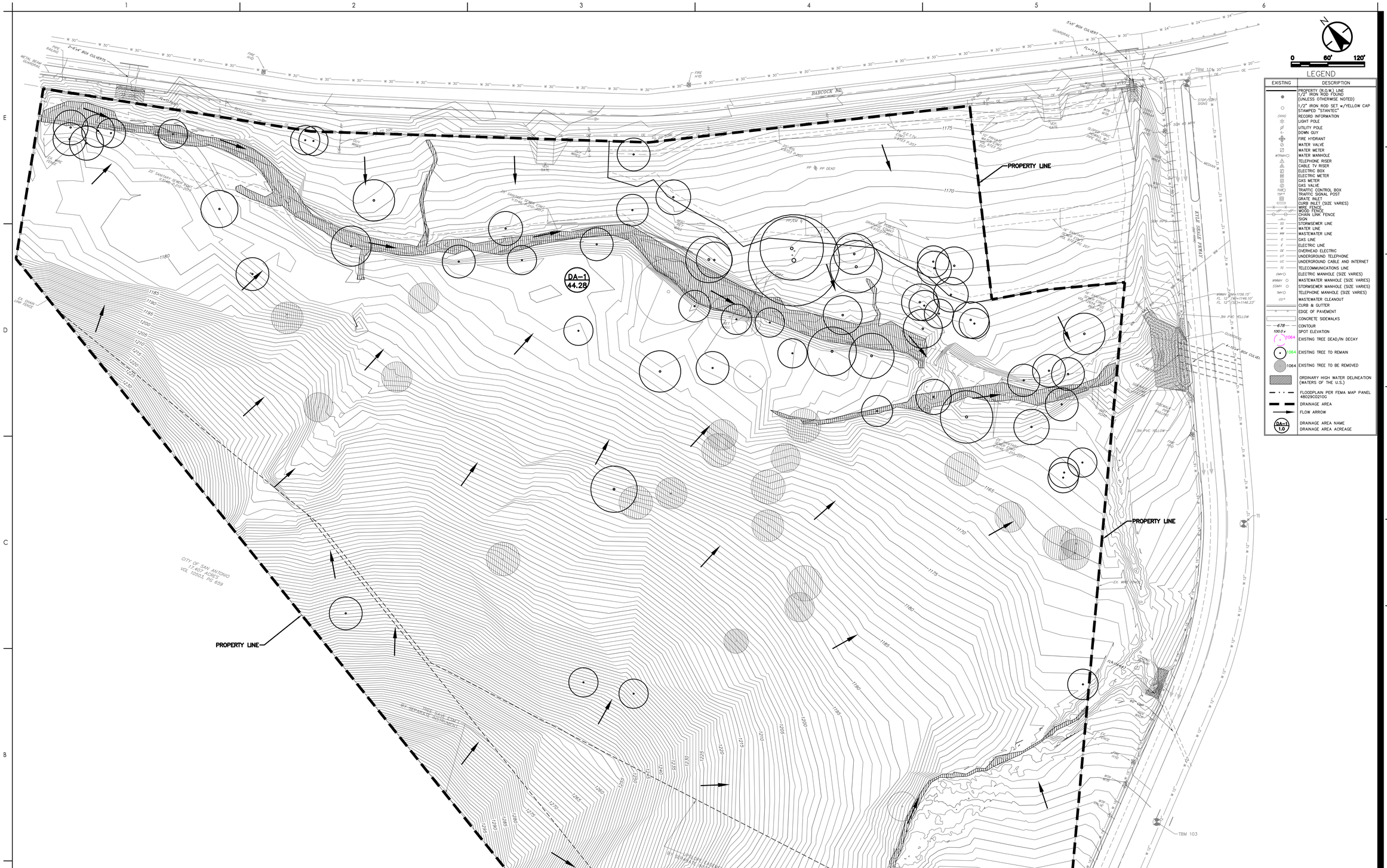
Scale:

| STANTEC Dwn. | MJP Dsgn. | STANTEC Chkd. | 2019.07.31 |
|---|---|---|---|

Title
CZP COVER SHEET

Revision:0 Sheet: 1 of 6

Drawing No.
C5.0




## LEGEND

| EXISTING | DESCRIPTION |
|---|---|
| | PROPERTY (R.O.W.) LINE |
| | 1/2" IRON ROD FOUND (UNLESS OTHERWISE NOTED) |
| | 1/2" IRON ROD SET w/YELLOW CAP STAMPED "STANTEC" |
| (XXX) | RECORD INFORMATION |
| | LIGHT POLE |
| | UTILITY POLE |
| | DOWN GUY |
| | FIRE HYDRANT |
| | WATER VALVE |
| | WATER METER |
| WTMH | WATER MANHOLE |
| | TELEPHONE RISER |
| | CABLE TV RISER |
| | ELECTRIC BOX |
| | ELECTRIC METER |
| | GAS METER |
| | GAS VALVE |
| TSJC | TRAFFIC CONTROL BOX |
| TSP | TRAFFIC SIGNAL POST |
| | GRATE INLET |
| | CURB INLET (SIZE VARIES) |
| | WIRE FENCE |
| | WOOD FENCE |
| | CHAIN LINK FENCE |
| | SIGN |
| SS | STORMSEWER LINE |
| W | WATER LINE |
| WW | WASTEWATER LINE |
| G | GAS LINE |
| E | ELECTRIC LINE |
| OE | OVERHEAD ELECTRIC |
| UT | UNDERGROUND TELEPHONE |
| UC | UNDERGROUND CABLE AND INTERNET |
| TC | TELECOMMUNICATIONS LINE |
| EMH | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | STORMSEWER MANHOLE (SIZE VARIES) |
| TMH | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | WASTEWATER CLEANOUT |
| | CURB & GUTTER |
| | EDGE OF PAVEMENT |
| | CONCRETE SIDEWALKS |
| 678 | CONTOUR |
| 100.0 x | SPOT ELEVATION |
| 1064 | EXISTING TREE DEAD/IN DECAY |
| 1064 | EXISTING TREE TO REMAIN |
| 1064 | EXISTING TREE TO BE REMOVED |
| | ORDINARY HIGH WATER DELINEATION (WATERS OF THE U.S.) |
| | FLOODPLAIN PER FEMA MAP PANEL 48029C0210G |
| | DRAINAGE AREA |
| | FLOW ARROW |
| DA-1 1.0 | DRAINAGE AREA NAME<br>DRAINAGE AREA ACREAGE |

**DRAINAGE AREA TREATMENT SUMMARY**

| Drainage Area | Area (ac) | Impervious Cover (ac) | Impervious Cover (%) | Lm Generated (lbs) | Lm Treated (lbs) | PBMP |
|---|---|---|---|---|---|---|
| Existing DA-1 | 44.28 | 0 | 0.0% | 0 | 0 | NA |

**DRAINAGE AREA SURFACE CALCULATIONS**

| Drainage Area | C | I5 | Q5 | I25 | Q25 | I100 | Q100 |
|---|---|---|---|---|---|---|---|
| Existing DA-1 | 0.53 | 6.055 | **142.10** | 8.445 | **198.22** | 10.666 | **250.33** |

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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BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
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FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) IN ACCORDANCE WITH DFIRM PANEL 0210G, DATED 9/29/10 ; OR THE 1% ANNUAL CHANCE (100-YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION; OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C , DATED 9/29/10 . A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. _____ ) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.


Stantec

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TBPE # F-5324
TBPLS # 10194230



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|---|---|---|---|
| | | | |

Permit/Seal

STATE OF TEXAS
MICHAEL PATRICK JOHNSON
102318
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File name: 1109CG1_101_DA44

Scale:

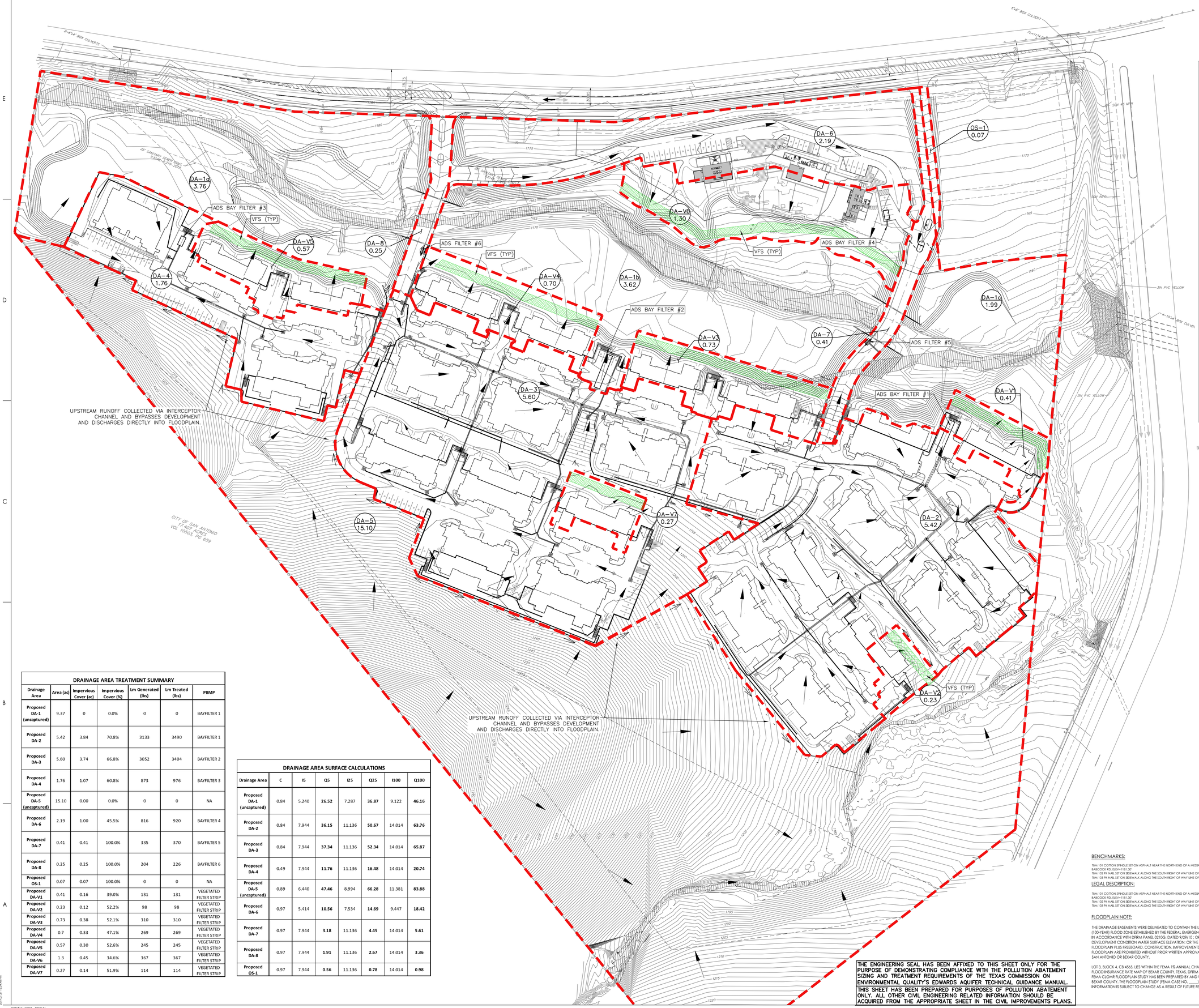
| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
EXISTING CONDITIONS
DRAINAGE AREA MAP

Revision:0 Sheet: 2 of 6

Drawing No.
**C5.1**

ORIGINAL SHEET - ARCH E1




## LEGEND

| EXISTING | DESCRIPTION |
|---|---|
| | PROPERTY (R.O.W.) LINE |
| | 1/2" IRON ROD FOUND (UNLESS OTHERWISE NOTED) |
| | 1/2" IRON ROD SET w/YELLOW CAP STAMPED "STANTEC" |
| (1000) | RECORD INFORMATION |
| | LIGHT POLE |
| | UTILITY POLE |
| | DOWN GUY |
| | FIRE HYDRANT |
| | WATER VALVE |
| | WATER METER |
| WTRMHO | WATER MANHOLE |
| | TELEPHONE RISER |
| | CABLE TV RISER |
| | ELECTRIC BOX |
| | ELECTRIC METER |
| | GAS METER |
| | GAS VALVE |
| TSJC | TRAFFIC CONTROL BOX |
| TSJP | TRAFFIC SIGNAL POST |
| | GRATE INLET |
| | CURB INLET (SIZE VARIES) |
| | WIRE FENCE |
| | WOOD FENCE |
| | CHAIN LINK FENCE |
| | SIGN |
| SS | STORMSEWER LINE |
| W | WATER LINE |
| WW | WASTEWATER LINE |
| G | GAS LINE |
| E | ELECTRIC LINE |
| OE | OVERHEAD ELECTRIC |
| UT | UNDERGROUND TELEPHONE |
| UC | UNDERGROUND CABLE AND INTERNET |
| TC | TELECOMMUNICATIONS LINE |
| EMHO | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | STORMSEWER MANHOLE (SIZE VARIES) |
| TMHO | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | WASTEWATER CLEANOUT |
| | CURB & GUTTER |
| | EDGE OF PAVEMENT |
| | CONCRETE SIDEWALKS |
| 678 | CONTOUR |
| 100.0 x | SPOT ELEVATION |
| 1064 | EXISTING TREE DEAD/IN DECAY |
| 1064 | EXISTING TREE TO REMAIN |
| 1064 | EXISTING TREE TO BE REMOVED |
| | ORDINARY HIGH WATER DELINEATION (WATERS OF THE U.S.) |
| | FLOODPLAIN PER FEMA MAP PANEL 48029C0210G |
| | DRAINAGE AREA |
| | FLOW ARROW |
| | VEGETATED FILTER STRIP (VFS) |
| | IMPERVIOUS COVER TREATED BY VFS |
| | DRAINAGE SWALE |
| | DRAINAGE AREA NAME<br>DRAINAGE AREA ACREAGE |

NOTES:
1. THE MAXIMUM IMPERVIOUS COVER PER LINEAR FOOT BEING TREATED BY THE VEGETATED FILTERED STRIPS IS 72' IN ALL AREAS AND IS IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL.

### DRAINAGE AREA TREATMENT SUMMARY

| Drainage Area | Area (ac) | Impervious Cover (ac) | Impervious Cover (%) | Lm Generated (lbs) | Lm Treated (lbs) | PBMP |
|---|---|---|---|---|---|---|
| Proposed DA-1 (uncaptured) | 9.37 | 0 | 0.0% | 0 | 0 | BAYFILTER 1 |
| Proposed DA-2 | 5.42 | 3.84 | 70.8% | 3133 | 3490 | BAYFILTER 1 |
| Proposed DA-3 | 5.60 | 3.74 | 66.8% | 3052 | 3404 | BAYFILTER 2 |
| Proposed DA-4 | 1.76 | 1.07 | 60.8% | 873 | 976 | BAYFILTER 3 |
| Proposed DA-5 (uncaptured) | 15.10 | 0.00 | 0.0% | 0 | 0 | NA |
| Proposed DA-6 | 2.19 | 1.00 | 45.5% | 816 | 920 | BAYFILTER 4 |
| Proposed DA-7 | 0.41 | 0.41 | 100.0% | 335 | 370 | BAYFILTER 5 |
| Proposed DA-8 | 0.25 | 0.25 | 100.0% | 204 | 226 | BAYFILTER 6 |
| Proposed OS-1 | 0.07 | 0.07 | 100.0% | 0 | 0 | NA |
| Proposed DA-V1 | 0.41 | 0.16 | 39.0% | 131 | 131 | VEGETATED FILTER STRIP |
| Proposed DA-V2 | 0.23 | 0.12 | 52.2% | 98 | 98 | VEGETATED FILTER STRIP |
| Proposed DA-V3 | 0.73 | 0.38 | 52.1% | 310 | 310 | VEGETATED FILTER STRIP |
| Proposed DA-V4 | 0.7 | 0.33 | 47.1% | 269 | 269 | VEGETATED FILTER STRIP |
| Proposed DA-V5 | 0.57 | 0.30 | 52.6% | 245 | 245 | VEGETATED FILTER STRIP |
| Proposed DA-V6 | 1.3 | 0.45 | 34.6% | 367 | 367 | VEGETATED FILTER STRIP |
| Proposed DA-V7 | 0.27 | 0.14 | 51.9% | 114 | 114 | VEGETATED FILTER STRIP |

### DRAINAGE AREA SURFACE CALCULATIONS

| Drainage Area | C | I5 | Q5 | I25 | Q25 | I100 | Q100 |
|---|---|---|---|---|---|---|---|
| Proposed DA-1 (uncaptured) | 0.84 | 5.240 | **26.52** | 7.287 | **36.87** | 9.122 | **46.16** |
| Proposed DA-2 | 0.84 | 7.944 | **36.15** | 11.136 | **50.67** | 14.014 | **63.76** |
| Proposed DA-3 | 0.84 | 7.944 | **37.34** | 11.136 | **52.34** | 14.014 | **65.87** |
| Proposed DA-4 | 0.49 | 7.944 | **11.76** | 11.136 | **16.48** | 14.014 | **20.74** |
| Proposed DA-5 (uncaptured) | 0.89 | 6.440 | **47.46** | 8.994 | **66.28** | 11.381 | **83.88** |
| Proposed DA-6 | 0.97 | 5.414 | **10.56** | 7.534 | **14.69** | 9.447 | **18.42** |
| Proposed DA-7 | 0.97 | 7.944 | **3.18** | 11.136 | **4.45** | 14.014 | **5.61** |
| Proposed DA-8 | 0.97 | 7.944 | **1.91** | 11.136 | **2.67** | 14.014 | **3.36** |
| Proposed OS-1 | 0.97 | 7.944 | **0.56** | 11.136 | **0.78** | 14.014 | **0.98** |

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| Revision | By | Appd | YYYY.MM.DD |

Permit/Seal

MARY JANE K. PHILLIPS
102318
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_I02_DAM

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
PROPOSED CONDITIONS DRAINAGE AREA MAP

Revision:0 Sheet: 3 of 6
Drawing No.
**C5.2**

ORIGINAL SHEET - ARCH E1

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/25/2019**

**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: $L_M = 27.858 \times F$

$L_M$ = 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 = | **Bexar** | |
| Total project area included in plan * = | 15.110 | acres |
| Predevelopment impervious area within the limits of the plan * = | 0.000 | acres |
| Total post-development impervious area within the limits of the plan* = | 10.310 | acres |
| Total post-development impervious cover fraction * = | 0.68 | |
| P = | 30 | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | 8413 | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | 1 | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA2** | |
| Total drainage basin/outfall area = | 5.400 | acres |
| Predevelopment impervious area within drainage basin/outfall area = | 0.000 | acres |
| Post-development impervious area within drainage basin/outfall area = | 3.840 | acres |
| Post-development impervious fraction within drainage basin/outfall area = | 0.71 | |
| $L_{M\ TSS\ BASIN}$ * = | 3133 | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | 87 | percent |

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

RG-348 Page 3-35 Equation 3.7:
$LR = (BMP\ efficiency) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

$A_T$ = 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

| | | |
|---|---|---|
| $A_T$ = | 5.400 | acres |
| $A_I$ = | 3.840 | acres |
| $A_P$ = | 1.560 | acres |
| $L_R$ = | 3499 | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ TSS\ BASIN}$ * = | 3133 | lbs. |
| F = | 0.90 | |

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

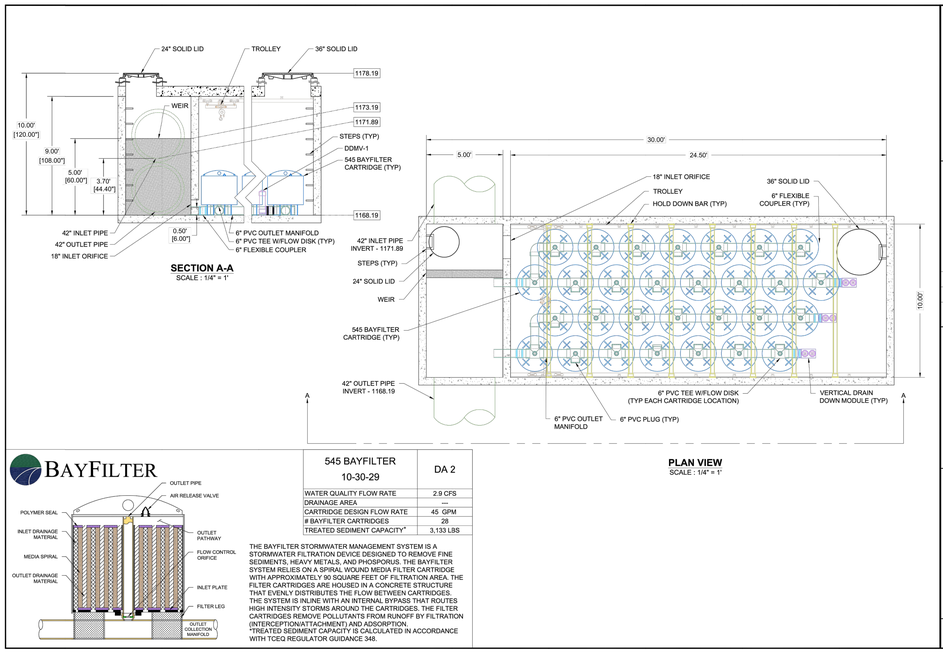
Calculations from RG-348 — Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | 0.000 | acres |
| Offsite impervious cover draining to BMP = | 0.000 | acres |
| Impervious fraction of off-site area = | 0.00 | |
| Off-site Runoff Coefficient = | 0.00 | |
| Rainfall Depth = | 1.70 | inches |
| Rainfall Intensity = | 1.10 | inches per hour |
| Post Development Runoff Coefficient = | 0.31 | |
| **Effective Area =** | 3.32 | acres |
| **Peak Flow =** | 3.83 | cubic feet per second |
| **On-site Water Quality Volume =** | 17202 | cubic feet |
| **Off-site Water Quality Volume =** | 0 | cubic feet |
| **Total Water Quality Volume** (Calculated + 20%) | 20642 | cubic feet |

**7. BayFilter**

Designed as Required in RG-348 Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | 6.3 | GPM per ft$^2$ |
| Cartridge Capacity = | 45.00 | GPM |
| Cartridge head = | 30.00 | inches |
| Cartridge diameter = | 30.00 | inches |
| Manifold diameter = | 6.00 | inches |
| **Option 1. Volume Design** | | |
| Number of Cartridges for Volume-Based Configuration = | 8 | |
| Storage Volume for Volume-Based Configuration = | 20642 | cubic feet |
| **Option 2. Flow Through Design** | | |
| Flow Rate for Flow-Through Configuration = | 3.83 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | 39 | |
| Volume for Flow-Through Configuration = | 0 | cubic feet |
| **Option 3. BayFilter w/Equalization Storage** | | |
| Minimum number of Cartridges Required = | 8 | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | 2.01 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | 29 | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | 10168 | cubic feet |







| 545 BAYFILTER 10-30-29 | DA 2 |
|---|---|
| WATER QUALITY FLOW RATE | 2.9 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 28 |
| TREATED SEDIMENT CAPACITY* | 3,133 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

SA BIG HAUS
SAN ANTONIO, TX

| | | | |
|---|---|---|---|
| DATE: | 7-26-19 | DRAWN: | SMAC |
| PROJECT #: | S091810 | CHECKED: | AGC |

| DATE | DRWN. CHKD | DESCRIPTION |
|---|---|---|
| | | |

BAYSAVER TECHNOLOGIES
10021 River Hollow Drive 1-855-BAYSAVER
Mount Airy, MD 21771 1-800-229-7293

4640 TRUEMAN BLVD
HILLIARD, OH 43026
AS NOTED

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO US BY OTHERS. THE DIRECTION OF THE SITE DESIGN IMPACTS OF CONCERN WITH BAYSAVER TECHNOLOGIES PRODUCTS HAVE BEEN REVIEWED BASED ON THE INFORMATION PROVIDED. ADDITIONAL IMPACTS MAY BE ASSOCIATED WITH OTHER PRODUCTS OR DESIGNS. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE DESIGN MEETS ALL APPLICABLE REQUIREMENTS.

SHEET 1 OF 6

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/25/2019**

**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: $L_M = 27.858 \times F$

$L_M$ = 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 = | **Bexar** | |
| Total project area included in plan * = | 15.110 | acres |
| Predevelopment impervious area within the limits of the plan * = | 0.000 | acres |
| Total post-development impervious area within the limits of the plan* = | 10.310 | acres |
| Total post-development impervious cover fraction * = | 0.68 | |
| P = | 30 | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | 8413 | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | 1 | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA3** | |
| Total drainage basin/outfall area = | 2.600 | acres |
| Predevelopment impervious area within drainage basin/outfall area = | 0.000 | acres |
| Post-development impervious area within drainage basin/outfall area = | 2.740 | acres |
| Post-development impervious fraction within drainage basin/outfall area = | 0.67 | |
| $L_{M\ TSS\ BASIN}$ * = | 3052 | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | 87 | percent |

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

RG-348 Page 3-35 Equation 3.7:
$LR = (BMP\ efficiency) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

$A_T$ = 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

| | | |
|---|---|---|
| $A_T$ = | 2.600 | acres |
| $A_I$ = | 1.860 | acres |
| $A_P$ = | 0.740 | acres |
| $L_R$ = | 3404 | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ TSS\ BASIN}$ * = | 3052 | lbs. |
| F = | 0.90 | |

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

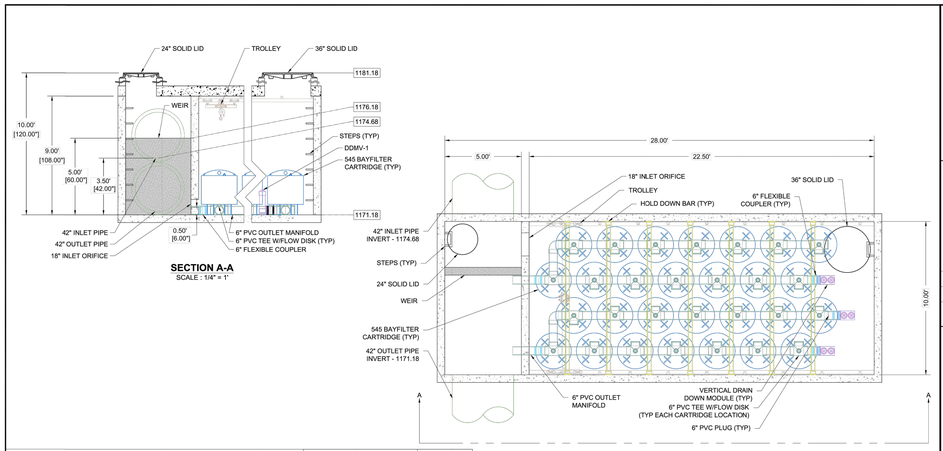
Calculations from RG-348 — Pages Section 3.4.14

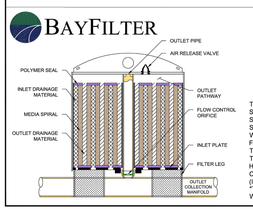
| | | |
|---|---|---|
| Offsite area draining to BMP = | 0.000 | acres |
| Offsite impervious cover draining to BMP = | 0.000 | acres |
| Impervious fraction of off-site area = | 0.00 | |
| Off-site Runoff Coefficient = | 0.00 | |
| Rainfall Depth = | 1.70 | inches |
| Rainfall Intensity = | 1.10 | inches per hour |
| Post Development Runoff Coefficient = | 0.28 | |
| **Effective Area =** | 3.42 | acres |
| **Peak Flow =** | 3.76 | cubic feet per second |
| **On-site Water Quality Volume =** | 16420 | cubic feet |
| **Off-site Water Quality Volume =** | 0 | cubic feet |
| **Total Water Quality Volume** (Calculated + 20%) | 19704 | cubic feet |

**7. BayFilter**

Designed as Required in RG-348 Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | 6.3 | GPM per ft$^2$ |
| Cartridge Capacity = | 45.00 | GPM |
| Cartridge head = | 30.00 | inches |
| Cartridge diameter = | 30.00 | inches |
| Manifold diameter = | 6.00 | inches |
| **Option 1. Volume Design** | | |
| Number of Cartridges for Volume-Based Configuration = | 8 | |
| Storage Volume for Volume-Based Configuration = | 19704 | cubic feet |
| **Option 2. Flow Through Design** | | |
| Flow Rate for Flow-Through Configuration = | 3.76 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | 38 | |
| Volume for Flow-Through Configuration = | 0 | cubic feet |
| **Option 3. BayFilter w/Equalization Storage** | | |
| Minimum number of Cartridges Required = | 8 | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | 2.81 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | 28 | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | 10050 | cubic feet |




| 545 BAYFILTER 10-28-28 | DA 3 |
|---|---|
| WATER QUALITY FLOW RATE | 2.8 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 28 |
| TREATED SEDIMENT CAPACITY* | 3,052 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

SA BIG HAUS
SAN ANTONIO, TX

| | | | |
|---|---|---|---|
| DATE: | 7-26-19 | DRAWN: | SMAC |
| PROJECT #: | S091810 | CHECKED: | AGC |

| DATE | DRWN. CHKD | DESCRIPTION |
|---|---|---|
| | | |

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4640 TRUEMAN BLVD
HILLIARD, OH 43026
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THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO US BY OTHERS. THE DIRECTION OF THE SITE DESIGN IMPACTS OF CONCERN WITH BAYSAVER TECHNOLOGIES PRODUCTS HAVE BEEN REVIEWED BASED ON THE INFORMATION PROVIDED. ADDITIONAL IMPACTS MAY BE ASSOCIATED WITH OTHER PRODUCTS OR DESIGNS. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE DESIGN MEETS ALL APPLICABLE REQUIREMENTS.

SHEET 2 OF 6

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 IMPROVEMENTS PLANS.

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2019.07.31 12:34:53 PM

ORIGINAL SHEET - ARCH E1


Stantec
Stantec Consulting Services Inc.
70 NE Loop 410 Suite 1100
San Antonio TX 78216-5893
Tel. (210) 341-7555
www.stantec.com
TBPE # F-5324
TBPLS # 10194230



The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - use only the dimensions shown on this drawing for construction purposes. The Contractor is to inform the Consultant of any errors or omissions prior to construction. Reproduction of all or any part of this drawing is prohibited without the written consent of Stantec.


Consultant

| Issued | By | Appd. | YYYY.MM.DD |
|---|---|---|---|
| Revision | By | Appd. | YYYY.MM.DD |

Permit/Seal

STATE OF TEXAS
AGUSTIN GARCIA CZP
LICENSED
07/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_102_SPD

Scale:

| STANTEC Dwn. | MJP Dsgn. | STANTEC Chkd. | 2019.07.31 |
|---|---|---|---|

Title
CZP BAYFILTER DETAILS 1

Revision:0 Sheet: 4 of 6

Drawing No.
**C5.3**

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02

LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02

FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
IN ACCORDANCE WITH DFIRM PANEL 0210G, DATED 9/29/10 ; OR THE 1% ANNUAL CHANCE (100-YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION: OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C , DATED 9/29/10 . A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. _____) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.858 \times P$

$L_M$ = Required TSS removal resulting from the proposed development = 80% of increased load
$A_P$ = 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 = | **Bexar** | |
| Total project area included in plan * = | 15.110 | acres |
| Predevelopment impervious area within the limits of the plan * = | 0.000 | acres |
| Total post-development impervious area within the limits of the plan* = | 10.310 | acres |
| Total post-development impervious cover fraction * = | 0.68 | |
| $P$ = | 30 | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | 8413 | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | 1 | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA4** | |
| Total drainage basin/outfall area = | 1.760 | acres |
| Predevelopment impervious area within drainage basin/outfall area = | 0.000 | acres |
| Post-development impervious area within drainage basin/outfall area = | 1.070 | acres |
| Post-development impervious fraction within drainage basin/outfall area = | 0.61 | |
| $L_{M\ TOTAL\ BASIN}$ = | 873 | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | 87 | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | 1.760 | acres |
| $A_I$ = | 1.070 | acres |
| $A_U$ = | 0.690 | acres |
| $L_R$ = | 976 | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ TSS\ BASIN}$ = | 873 | lbs. |
| $F$ = | 0.89 | |

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

Calculations from RG-348 — Offsite area draining to BMP = 0.000 acres
Pages Section 3.4.14 — Offsite impervious cover draining to BMP = 0.000 acres
Impervious fraction of off-site area = 0.00
Off-site Runoff Coefficient = 0.00

| | | |
|---|---|---|
| Rainfall Depth = | 1.60 | inches |
| Rainfall Intensity = | 1.05 | inches per hour |
| Post Development Runoff Coefficient = | 0.43 | |
| **Effective Area =** | **0.98** | acres |
| **Peak Flow =** | **1.03** | cubic feet per second |
| **On-site Water Quality Volume =** | **4358** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume** (Calculated + 20%) | **5230** | |

**7. BayFilter**

Designed as Required in RG-348 — Cartridge model = **RF545**
Section 3.4.14

| | | |
|---|---|---|
| Cartridge Surface Loading Rate = | 0.3 | GPM per ft$^2$ |
| Cartridge Capacity = | 45.00 | GPM |
| Cartridge head = | 30.00 | inches |
| Cartridge diameter = | 30.00 | inches |
| Manifold diameter = | 6.00 | inches |

**Option 1. Volume Design**

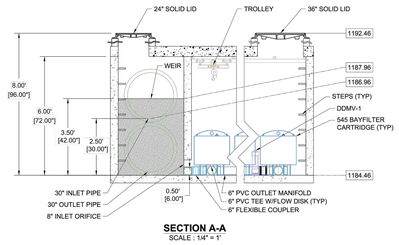
| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | 3 | |
| Storage Volume for Volume-Based Configuration = | 3230 | cubic feet |

**Option 2. Flow Through Design**

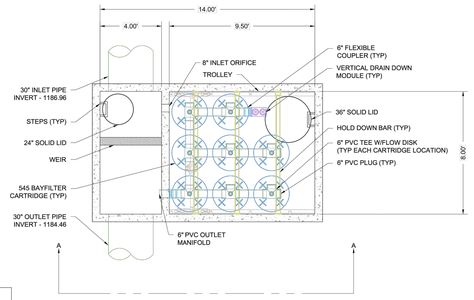
| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | 1.03 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | 11 | |
| Volume for Flow-Through Configuration = | 0 | cubic feet |

**Option 3. BayFilter w/Equalization Design**

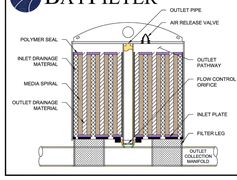
| | | |
|---|---|---|
| Minimum number of Cartridges Required = | 3 | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | 0.80 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | 8 | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | 874 | cubic feet |




**SECTION A-A**
SCALE : 1/4" = 1'




**PLAN VIEW**
SCALE : 1/4" = 1'




| 545 BAYFILTER 8-14-8 | DA 4 |
|---|---|
| WATER QUALITY FLOW RATE | 0.8 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 8 |
| TREATED SEDIMENT CAPACITY* | 873 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

SA BIG HAUS
SAN ANTONIO, TX
DATE: 7-26-19 DRAWN: SMAC
PROJECT # S091810 CHECKED: AGC

| DATE | DRWN | CHKD | DESCRIPTION |
|---|---|---|---|
| | | | |

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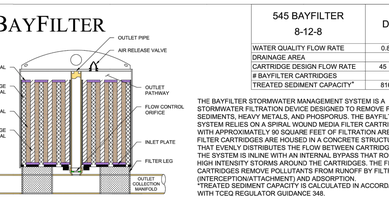



| 545 BAYFILTER 8-12-8 | DA 6 |
|---|---|
| WATER QUALITY FLOW RATE | 0.8 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 8 |
| TREATED SEDIMENT CAPACITY* | 816 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/29/2019**

**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: $L_M = 27.858 \times P$

$L_M$ = Required TSS removal resulting from the proposed development = 80% of increased load
$A_P$ = 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 = | **Bexar** | |
| Total project area included in plan * = | 15.110 | acres |
| Predevelopment impervious area within the limits of the plan * = | 0.000 | acres |
| Total post-development impervious area within the limits of the plan* = | 10.310 | acres |
| Total post-development impervious cover fraction * = | 0.68 | |
| $P$ = | 30 | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | 8413 | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | 1 | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA6** | |
| Total drainage basin/outfall area = | 2.190 | acres |
| Predevelopment impervious area within drainage basin/outfall area = | 0.000 | acres |
| Post-development impervious area within drainage basin/outfall area = | 1.000 | acres |
| Post-development impervious fraction within drainage basin/outfall area = | 0.46 | |
| $L_{M\ TOTAL\ BASIN}$ = | 816 | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | 87 | percent |

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

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

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

| | | |
|---|---|---|
| $A_C$ = | 2.190 | acres |
| $A_I$ = | 1.000 | acres |
| $A_U$ = | 1.190 | acres |
| $L_R$ = | 910 | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{M\ TSS\ BASIN}$ = | 816 | lbs. |
| $F$ = | 0.89 | |

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

Calculations from RG-348 — Offsite area draining to BMP = 0.000 acres
Pages Section 3.4.14 — Offsite impervious cover draining to BMP = 0.000 acres
Impervious fraction of off-site area = 0.00
Off-site Runoff Coefficient = 0.00

| | | |
|---|---|---|
| Rainfall Depth = | 1.60 | inches |
| Rainfall Intensity = | 1.05 | inches per hour |
| Post Development Runoff Coefficient = | 0.53 | |
| **Effective Area =** | **0.94** | acres |
| **Peak Flow =** | **0.98** | cubic feet per second |
| **On-site Water Quality Volume =** | **4258** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume** (Calculated + 20%) | **5110** | |

**7. BayFilter**

Designed as Required in RG-348 — Cartridge model = **RF545**
Section 3.4.14

| | | |
|---|---|---|
| Cartridge Surface Loading Rate = | 0.3 | GPM per ft$^2$ |
| Cartridge Capacity = | 45.00 | GPM |
| Cartridge head = | 30.00 | inches |
| Cartridge diameter = | 30.00 | inches |
| Manifold diameter = | 6.00 | inches |

**Option 1. Volume Design**

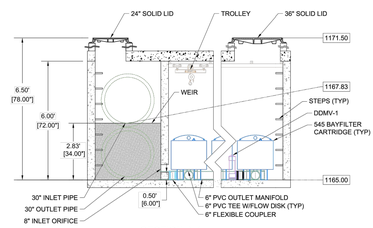
| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | 3 | |
| Storage Volume for Volume-Based Configuration = | 3110 | cubic feet |

**Option 2. Flow Through Design**

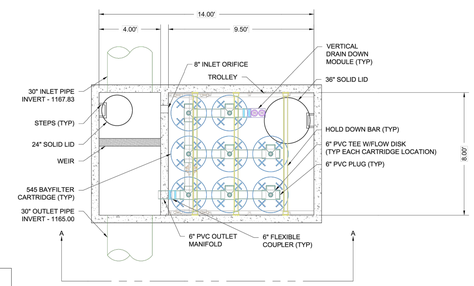
| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | 0.98 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | 10 | |
| Volume for Flow-Through Configuration = | 0 | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | 3 | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | 0.80 | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | 8 | |
| Minimum Required Equalization Storage (Calculated Volume +20%) = | 681 | cubic feet |




**SECTION A-A**
SCALE : 1/4" = 1'




**PLAN VIEW**
SCALE : 1/4" = 1'

SA BIG HAUS
SAN ANTONIO, TX
DATE: 7-26-19 DRAWN: SMAC
PROJECT # S091810 CHECKED: AGC

| DATE | DRWN | CHKD | DESCRIPTION |
|---|---|---|---|
| | | | |

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Mount Airy, MD 21771 1-800-229-2353

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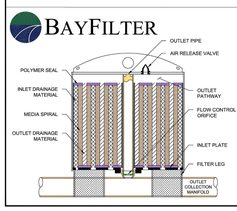


| 545 BAYFILTER 8-12-8 | DA 6 |
|---|---|
| WATER QUALITY FLOW RATE | 0.8 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 8 |
| TREATED SEDIMENT CAPACITY* | 816 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

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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ORIGINAL SHEET - ARCH E1


Stantec
Stantec Consulting Services Inc.
70 NE Loop 410 Suite 1100
San Antonio TX 78216-5893
Tel. (210) 829-9000
www.stantec.com
TBPE # F-5324
TBPLS # 10194230



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Consultant

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| Revision | By | Appd | YYYY.MM.DD |

Permit/Seal

STATE OF TEXAS
MARY JANE P. PHILLIPS
102518
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_102_SPD

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
CZP BAYFILTER DETAILS 2

Revision:0 Sheet: 5 of 6

Drawing No.
**C5.4**

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5125O SOUTHWEST OF BABCOCK RD. ELEV=1181.02

LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5125O SOUTHWEST OF BABCOCK RD. ELEV=1181.02

FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
IN ACCORDANCE WITH DFIRM PANEL (210G, DATED 9/29/10) , OR THE 1% ANNUAL CHANCE (100-YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION: OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C.. DATED 9/29/10 . A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. ____ ) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/26/2019**

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

Calculations from RG-348 Page 3-29 — Pages 3-27 to 3-30
Equation 3.3: $L_M = 27.18 A_M \times P$

$L_M$ = Required TSS removal resulting from the proposed development = 80% of increased load
$A_M$ = 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 = | **Bexar** | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan * = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA1*** | |
| Total drainage basin/outfall area = | **0.410** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **0.410** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **1.00** | |
| $L_{M\ THIS\ BASIN}$ = | **353** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

$A_T$ = 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

| | | |
|---|---|---|
| $A_T$ = | **0.410** | acres |
| $A_I$ = | **0.410** | acres |
| $A_P$ = | **0.000** | acres |
| $L_R$ = | **370** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{R\ THIS\ BASIN}$ = | **353** | lbs. |
| F = | **0.90** | |

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

Calculations from RG-348 Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.070** | acres |
| Offsite impervious cover draining to BMP = | **0.070** | acres |
| Impervious fraction of off-site area = | **1.00** | |
| Off-site Runoff Coefficient = | **0.82** | |
| Rainfall Depth = | **1.70** | inches |
| Rainfall Intensity = | **1.10** | inches per hour |
| Post Development Runoff Coefficient = | **0.82** | |
| **Effective Area =** | **0.23** | acres |
| **Peak Flow =** | **0.28** | cubic feet per second |
| **On-site Water Quality Volume =** | **1056** | cubic feet |
| **Off-site Water Quality Volume =** | **353** | cubic feet |
| **Total Water Quality Volume** (Calculated > 20%) | **1910** | cubic feet |

**7. BayFilter**

Designed as Required in RG-348 Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.3** | GPM per ft$^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge load = | **50.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

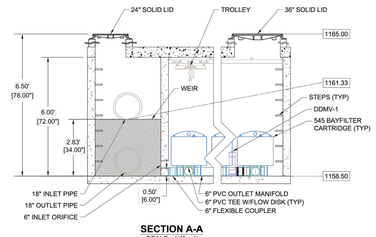
| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **1** | |
| Storage Volume for Volume-Based Configuration = | **2902** | cubic feet |

**Option 2. Flow Through Design**

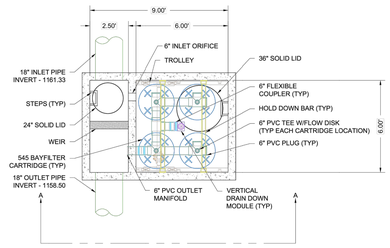
| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **0.28** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **1** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **1** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **0.20** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **4** | |
| Minimum Required Equalization Storage (Calculated Volume -20%) = | **79** | cubic feet |

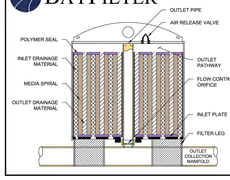



**SECTION A-A**
SCALE : 1/4" = 1'




**PLAN VIEW**
SCALE : 1/4" = 1'

BAYFILTER




| 545 BAYFILTER 6-9-4 | DA 7 |
|---|---|
| WATER QUALITY FLOW RATE | 0.4 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 4 |
| TREATED SEDIMENT CAPACITY* | 336 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

SA BIG HAUS
SAN ANTONIO, TX
DATE: 7-26-19 DRAWN: SMAC
PROJECT # S091810 CHECKED: AGC
DATE | DRWN | CHKD | DESCRIPTION

BAYSAVER TECHNOLOGIES
1020 Stier Valley Drive 1-800-BAYSAVER
Mount Airy, MD 21771 1-855-229-2323

4640 TRUEMAN BLVD
HILLIARD, OH 43026
AS NOTED
THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO US UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE DESIGN SHOWN HEREIN MEETS ALL PROJECT REQUIREMENTS.

SHEET 5 OF 6

**Texas Commission on Environmental Quality**
**TSS Removal Calculations**

**Project Name: SA Big Haus - San Antonio, TX**
**Date Prepared: 7/26/2019**

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

Calculations from RG-348 Page 3-29 — Pages 3-27 to 3-30
Equation 3.3: $L_M = 27.18 A_M \times P$

$L_M$ = Required TSS removal resulting from the proposed development = 80% of increased load
$A_M$ = 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 = | **Bexar** | |
| Total project area included in plan * = | **15.110** | acres |
| Predevelopment impervious area within the limits of the plan* = | **0.000** | acres |
| Total post-development impervious area within the limits of the plan* = | **10.310** | acres |
| Total post-development impervious cover fraction * = | **0.68** | |
| P = | **30** | inches |
| $L_{M\ TOTAL\ PROJECT}$ = | **8413** | lbs. |
| Number of drainage basins / outfalls areas leaving the plan area = | **1** | |

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

| | | |
|---|---|---|
| **Drainage Basin/Outfall Area No. =** | **DA8** | |
| Total drainage basin/outfall area = | **0.350** | acres |
| Predevelopment impervious area within drainage basin/outfall area = | **0.000** | acres |
| Post-development impervious area within drainage basin/outfall area = | **0.350** | acres |
| Post-development impervious fraction within drainage basin/outfall area = | **1.00** | |
| $L_{M\ THIS\ BASIN}$ = | **204** | lbs. |

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

| | | |
|---|---|---|
| Proposed BMP = | **BayFilter** | |
| Removal efficiency = | **87** | percent |

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

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

$A_T$ = 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

| | | |
|---|---|---|
| $A_T$ = | **0.350** | acres |
| $A_I$ = | **0.350** | acres |
| $A_P$ = | **0.000** | acres |
| $L_R$ = | **216** | lbs. |

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

| | | |
|---|---|---|
| Desired $L_{R\ THIS\ BASIN}$ = | **204** | lbs. |
| F = | **0.90** | |

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

Calculations from RG-348 Pages Section 3.4.14

| | | |
|---|---|---|
| Offsite area draining to BMP = | **0.000** | acres |
| Offsite impervious cover draining to BMP = | **0.000** | acres |
| Impervious fraction of off-site area = | **0.00** | |
| Off-site Runoff Coefficient = | **0.00** | |
| Rainfall Depth = | **1.70** | inches |
| Rainfall Intensity = | **1.10** | inches per hour |
| Post Development Runoff Coefficient = | **0.82** | |
| **Effective Area =** | **0.23** | acres |
| **Peak Flow =** | **0.23** | cubic feet per second |
| **On-site Water Quality Volume =** | **1060** | cubic feet |
| **Off-site Water Quality Volume =** | **0** | cubic feet |
| **Total Water Quality Volume** (Calculated > 20%) | **1312** | cubic feet |

**7. BayFilter**

Designed as Required in RG-348 Section 3.4.14

| | | |
|---|---|---|
| Cartridge model = | **BF545** | |
| Cartridge Surface Loading Rate = | **0.3** | GPM per ft$^2$ |
| Cartridge Capacity = | **45.00** | GPM |
| Cartridge load = | **50.00** | inches |
| Cartridge diameter = | **30.00** | inches |
| Manifold diameter = | **6.00** | inches |

**Option 1. Volume Design**

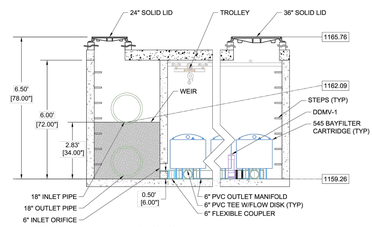
| | | |
|---|---|---|
| Number of Cartridges for Volume-Based Configuration = | **1** | |
| Storage Volume for Volume-Based Configuration = | **1312** | cubic feet |

**Option 2. Flow Through Design**

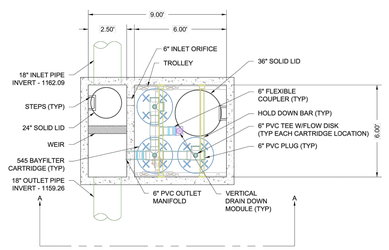
| | | |
|---|---|---|
| Flow Rate for Flow-Through Configuration = | **0.23** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration = | **3** | |
| Volume for Flow-Through Configuration = | **0** | cubic feet |

**Option 3. BayFilter w/Equalization Design**

| | | |
|---|---|---|
| Minimum number of Cartridges Required = | **1** | |
| Flow Rate for Flow-Through Configuration w/ Equalization = | **0.20** | cubic feet per second |
| Number of Cartridges for Flow-Through Configuration w/ Equalization = | **3** | |
| Minimum Required Equalization Storage (Calculated Volume -20%) = | **0** | cubic feet |

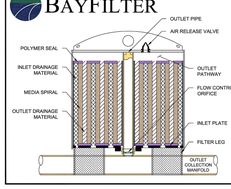



**SECTION A-A**
SCALE : 1/4" = 1'




**PLAN VIEW**
SCALE : 1/4" = 1'

BAYFILTER




| 545 BAYFILTER 6-9-3 | DA 8 |
|---|---|
| WATER QUALITY FLOW RATE | 0.3 CFS |
| DRAINAGE AREA | --- |
| CARTRIDGE DESIGN FLOW RATE | 45 GPM |
| # BAYFILTER CARTRIDGES | 3 |
| TREATED SEDIMENT CAPACITY* | 204 LBS |

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 90 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.
*TREATED SEDIMENT CAPACITY IS CALCULATED IN ACCORDANCE WITH TCEQ REGULATOR GUIDANCE 348.

SA BIG HAUS
SAN ANTONIO, TX
DATE: 7-26-19 DRAWN: SMAC
PROJECT # S091810 CHECKED: AGC
DATE | DRWN | CHKD | DESCRIPTION

BAYSAVER TECHNOLOGIES
1020 Stier Valley Drive 1-800-BAYSAVER
Mount Airy, MD 21771 1-855-229-2323

4640 TRUEMAN BLVD
HILLIARD, OH 43026
AS NOTED
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SHEET 6 OF 6

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ORIGINAL SHEET - ARCH E1

Stantec
Stantec Consulting Services Inc.
70 NE Loop 410 Suite 1100
San Antonio TX 78216-5823
Tel. (210) 829-9000
www.stantec.com
TBPE # F-5324
TBPLS # 10194230

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| Revision | By | Appd | YYYY.MM.DD |

Permit/Seal

STATE OF TEXAS
MARK JASON PHILLIPS
102318
LICENSED
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_102_SPD

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
CZP BAYFILTER DETAILS 3

Revision:0 Sheet: 6 of 6

Drawing No.
**C5.5**

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5125O SOUTHWEST OF BABCOCK RD. ELEV=1181.02

LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5125O SOUTHWEST OF BABCOCK RD. ELEV=1181.02

FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
IN ACCORDANCE WITH DFIRM PANEL (210G, DATED 9/29/10) : OR THE 1% ANNUAL CHANCE (100-YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION: OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C.. DATED 9/29/10 .. A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. _____) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.

# ATTACHMENT N

INSPECTION, MAINTENANCE, REPAIR
AND RETROFIT PLAN

## Maintenance on Baysaver BayFilter

Due to the high level of pollutant variation and specifically sediment loading, the unit shall be inspected at least every other month during the first year of operation to determine loading and required maintenance intervals. This information can be used to establish an appropriate maintenance schedule for subsequent years. If soil disturbing activities are being conducted within the unit's drainage area, inspection frequencies must be increased to once each month and after rain events of 0.5" and larger. The maintenance cycle of the BayFilter system will be driven mostly by the actual solids load on the filter. The system should be periodically monitored to be certain it is operating correctly.

Indications of the need for maintenance:

- Effluent flow decreasing to below the design flow rate or decrease in treatment below required levels (e.g., greater than 24hr drain down for a volume based system, or the detention drain down time- whichever is greater).
- Filter cartridge replacement should also be considered when sediment levels are at or above the level of the manifold system which is 6 inches and 3 inches for a BayFilter 545 and 545-LP, respectively.
- Bypass occurs during storm events
- If excessive floatables (trash and debris) are present (but no standing water or excessive sedimentation), perform a minor maintenance consisting of gross solids removal, not filter media replacement.
- If standing water above the bottom of the filter cartridge is present in the vault 96 hours after a 2 year rainfall event.
- Removal of trash and silt from the pretreatment chamber

## Maintenance & Inspection Procedure

- Remove the manhole covers and open all access hatches.
- Before entering the system make sure the air is safe per OSHA Standards or use a breathing apparatus. Use low O2, high CO, or other applicable warning devices per regulatory requirements.
- Using a vacuum truck remove any liquid and sediments that can be removed prior to entry.
- Using a small lift or the boom of the vacuum truck, remove the used cartridges by lifting them out.
- Any BayFilters that cannot be readily lifted directly out of the vault should be removed from their location and carried to the lifting point using the Trolley system installed in the vault (if applicable).
- When all BayFilters are removed, remove the balance of the solids and water; then loosen the stainless clamps on the Fernco couplings in the pipe manifold; remove the drain pipes as well. Carefully cap the manifold and the Ferncos and rinse the floor removing the balance of the collected solids.
- Clean the manifold pipes, inspect, and reinstall.
- Install the exchange BayFilters and close all covers.
- BaySaver Technologies, LLC. states that used BayFilter cartridges may be sent back to them for exchange/recycling and credit on undamaged units. Contact BaySaver Technologies at 1.800.229.7283 for more information.

- According to 30 TAC 330 or 30 TAC 335, identify any special disposal requirements associated with spent media, absorbents, or other material to be generated during routine cleaning/maintenance operations.
- Removed media will be disposed of according to local and state regulations.

## Maintenance on Storage System

Underground detention vaults are similar in function as open detention basins. They have moderate to high maintenance requirements, depending on the extent to which future maintenance needs are anticipated during the design stage. Responsibilities for both routine and non-routine maintenance tasks need to be clearly understood and enforced. If regular maintenance and inspections are not undertaken, the basin will not achieve its intended purposes.

*Inspections.* Storage vaults should be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation. When possible, inspections should be conducted during wet weather to determine if the vault is meeting the target detention times. In particular, the vault's flow control device should be regularly inspected for evidence of clogging, or conversely, for too rapid a release. If the design drawdown times are exceeded by more than 24 hours, then repairs should be scheduled immediately.

*Debris and Litter Removal.* Debris and litter will accumulate near the vault's flow control device. Particular attention should be paid to floating debris that can eventually clog the control device or riser or orifice.

*Structural Repairs and Replacement.* With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, etc.) should be identified and repaired immediately.

*Nuisance Control.* Standing water within the bottom of the basin can create nuisance conditions for nearby residents. Odors, mosquitoes, and litter are all occasionally perceived to be problems. Most of these problems are generally a sign that regular inspections and maintenance are not being performed.

*Sediment Removal.* When properly designed, storage vaults will accumulate quantities of sediment over time. Sediment accumulation is a serious maintenance concern in vaults for several reasons. First, the sediment gradually reduces available stormwater management storage capacity within the vault. Second sediment tends to accumulate around the control device. Sediment deposition increases the risk that the orifice will become clogged, and gradually reduces storage capacity reserved for pollutant removal. Sediment can also be re-suspended if allowed to accumulate over time. For these reasons, accumulated sediment needs to be removed from the lower stage when sediment buildup fills 20% of the volume of the vault or at least every 10 years.

## Manufacturer Contact Information:

ADS/BaySaver Technologies Engineering Department
Email: info@baysaver.com
Phone: 1.800.229.7283
Website: http://www.baysaver.com/

Mail or other: 1030 Deer Hollow Drive
Mount Airy, MD 21771

**Attachment N - Inspection, Maintenance, Repair and Retrofit Plan**

Section 3.5.8 Vegetative Filter Strips from TCEQ Design Manual 2005:

"Once a vegetated area is well established, little additional maintenance is generally necessary. The key to establishing a viable vegetated feature is the care and maintenance it receives in the first few months after it is plant ed. Once established, all vegetated BMPs require some basic maintenance to insure the health of the plants including:

- *Pest Management*. An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.

- *Seasonal Mowing and Lawn Care*. If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.

- *Inspection*. Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

- *Debris and Litter Removal*. Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.

- *Sediment Removal*. Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.

- *Grass Reseeding and Mulching*. A healthy dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Corrective maintenance, such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established.

Mary Jane Phillips

**Name of Owner/Agent**

**Signature of Owner/Agent**

7/30/19

**Date**

**Mary Jane Phillips, P.E.**

**Stantec Consulting Services, Inc. TBPE F-6324**

STATE OF TEXAS
MARY JANE C. PHILLIPS
102318
LICENSED
PROFESSIONAL ENGINEER

**Signature/Seal of Professional Engineer**

7/30/19

**Date**

**The Professional Engineer is signing as the preparer of the document. The owner/agent is signing as the responsible party to ensure that the inspection, maintenance, repair, and retrofit plan items mentioned above will be compiled with per the regulations of TCEQ.**

# ATTACHMENT O

PILOT-SCALE FIELD TESTING PLAN
(Not Applicable)

# ATTACHMENT P

MEASURES FOR MINIMIZING
SURFACE STREAM CONTAMINATION

## Attachment P - Measures for Minimizing Surface Stream Contamination

Depending of the area of the site, surface water runoff will be treated by either a Vegetated Filter Strip or collected via an underground storm sewer system and treated by a BayFilter cartridge system. These BMPS will reduce the potential for surface stream contamination downstream of the site.

# TEMPORARY STORMWATER SECTION

# Temporary Stormwater Section

**Texas Commission on Environmental Quality**

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

***To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.***

***Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.***

## *Signature*

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

Print Name of Customer/Agent: Stantec c/o Mary Jane Phillips

Date: 7/30/19

Signature of Customer/Agent:

**Regulated Entity Name:** SA BigHausLand

## *Project Information*

## *Potential Sources of Contamination*

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

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

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

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

- ☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
- ☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

■ Fuels and hazardous substances will not be stored on the site.

2. ■ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

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

4. ■ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

## *Sequence of Construction*

5. ■ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   - ■ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
   - ■ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

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: Leon Creek

## *Temporary Best Management Practices (TBMPs)*

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

7. ■ **Attachment D – Temporary Best Management Practices and Measures**. 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 is attached:

- ☒ 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.
- ☒ 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.
- ☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
- ☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

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

   - ☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
   - ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

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

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

    - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
    - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
    - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
    - ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

■ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ■ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☐ N/A

12. ■ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

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

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

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

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

## *Soil Stabilization Practices*

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

17. ☑ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

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

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

## *Administrative Information*

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

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

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

# ATTACHMENT A

SPILL RESPONSE ACTIONS

## Attachment A – Spill Response Actions

**Potential Source:**

Spills of Hydrocarbons or other hazardous substances.

**Preventative Measures:**

The following practices will be used to reduce the risks associated with hazardous materials, if hazardous materials are needed for the work:

***Education/General Measures***

1. Products will be kept in original containers unless they are not resealable.

2. Original labels and material safety data will be retained.

3. Modify the Storm Water Pollution Prevention Plan to include the information dealing with, and the steps needed to correct, the encountered hazardous waste spill.

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

5. Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

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

7. Establish a continuing education program to indoctrinate new employees.

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

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

10. Store hazardous materials and wastes in covered containers and protect from vandalism.

11. Place a stockpile of spill cleanup materials where it will be readily accessible.

12. Train employees in spill prevention and cleanup.

13. Designate responsible individuals to oversee and enforce control measures.

14. Spills should be covered and protected from storm water run-on during rainfall to the extent that it doesn't compromise clean up activities.

15. Do not bury or wash spills with water.

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

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

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

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

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

If surplus product must be disposed of, manufacturers' or local and state recommended methods for proper disposal will be followed.

## Spill Measures:

In the event that hazardous wastes are encountered, they will be disposed of in the manner specified by local or state regulations.

### *Cleanup*

1. Clean up leaks and spills immediately.

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

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

### *Minor Spills*

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

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

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

4. Follow the practice below for a minor spill:

5. Contain the spread of the spill.

6. Recover spilled materials.

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

### *Semi-Significant Spills*

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

### *Spills should be cleaned up immediately*

1. Contain spread of the spill.

2. Notify the project foreman immediately.

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

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

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

***Significant/Hazardous Spills***

Spills of hazardous waste in amounts that equal or exceed Reportable Quantity (RQ), as defined by the EPA through issued regulations (40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 119 or 40 CFR Part 302), will be handled in the following steps:

1. Notify the National Response Center immediately at 1-800-424-8802.

2. Notify TCEQ immediately at 1-210-490-3096 between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

3. Submit a written description of the release to the EPA Region 11 office providing the date and circumstances of the release and the steps to be taken to prevent another release:

   Attn: Hazardous Waste Dept.
   1445 Ross Ave. STE 1200
   Dallas, TX 75202
   1-214-665-2224 (Region 6 Emergency Line)

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

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

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

## Vehicle Measures:

### *Vehicle and Equipment Maintenance*

1. If maintenance must occur on-site, use a designated area and a secondary containment, located away from drainage courses, to prevent the run-on of stormwater and the runoff of spills.

2. Regularly inspect on-site vehicles and equipment for leaks and repair immediately.

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

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

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

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

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

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

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

### *Vehicle and Equipment Fueling*

1. If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the run-on of storm water and the runoff of spills.

2. Discourage "topping off" of fuel tanks.

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

# ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

## Attachment B - Potential Sources of Contamination.

| | |
|---|---|
| Potential Source: | Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping. |
| Preventative Measures: | Vehicle maintenance when possible will be performed within the construction staging area or at a local maintenance shop. |
| Potential Source: | Miscellaneous trash and litter from construction workers and material wrappings. |
| Preventative Measures: | Trash containers will be placed throughout the site to encourage proper trash disposal. |
| Potential Source: | Construction debris. |
| Preventative Measures: | Construction debris will be monitored daily by contractor. Debris will be collected and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis. |
| Potential Source: | Silt leaving the site. |
| Preventative Measures: | Contractor will monitor all vehicles leaving the site to prevent tracking silt and mud onto public streets. The contractor will ensure that trucks will be washed down to minimize the amount of silt leaving the site. |
| Potential Source: | Construction related portable toilets. |
| Preventative Measures: | Any on-site portable toilets will be in good working order with no defects that cause leaks. All portable toilets will be maintained to ensure no overflowing of sewage. |

# ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

## Attachment C - Sequence of Major Activities.

The sequence of work described below will be accomplished through the timing of proposed work relating the maintenance of service (i.e. proposed utility installation as compared to the removal/abandonment of existing utilities). Below is a general sequence of events to be followed:

1. Obtain all required permits.

2. Install all Erosion Control Measures and Devices that can be installed prior to site clearing.

3. Install tree preservation fencing in accordance with City of San Antonio requirements for all trees which are noted to remain per the approved Tree Preservation Plan/Permit.

4. Clear site of any vegetation, trees, root balls, and top soil.

5. Begin Earthwork Activities, removal of rock and other material to establish a construction site consistent with the grading plan. The site will be rough graded to match the post developed drainage divides, and the contractor will begin construction of the building pad and foundation.

   The contractor will be required to provide temporary sedimentation traps within the site in addition to perimeter BMP controls.

6. Install public storm sewer and sanitary sewer mains. Area associated for this construction is linear and will be less than 1.5 acres of active disturbance.

7. Install private storm sewer system, site utilities, and begin vertical construction of the building(s). Area associated for this construction is linear and will be less than 1.5 acres of active disturbance.

8. Contractor to install pavement base material, curb and gutter, and utility conduits. Sedimentation traps to be located at the point source locations and around site inlets as necessary to allow for construction of the water quality basins.

9. Construct driveway aprons, parking lot paving, and flat work within the site.

10. Install final stabilization including plantings, flatwork, hardscape, and landscape materials. Clear water quality ponds of all sedimentation and install final water quality controls to include filter media and internal drainage piping.

11. Inspect and maintain all erosion control measures until all disturbed offsite and on-site areas have been hydromulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.

Total Site Area/Total Disturbed Area

The total area of the site is 44.28 acres. Excavation, grading, or other activities throughout the construction process will only disturb the above mentioned ±23.0 acres.

# ATTACHMENT D

TEMPORARY BEST MANAGEMENT
PRACTICES AND MEASURES

## Attachment D – Temporary Best Management Practices and Measures.

At the beginning of the project, Temporary Best Management Practices (BMPs) will be installed according to the attached Temporary BMP Details and placed as shown on the TCEQ Site Plan.

### Upgradient Water

Approximately 22.2 acres of stormwater originates west of the SA BigHaus site. This area will not be disturbed and will be collected via shallow drainage swales and storm sewer networks to be bypassed around the proposed development. The upgradient stormwater will ultimately discharge into Maverick Creek. Silt Fencing and inlet protection will be installed where appropriate.

### On-site Water

Silt fencing will be placed along the boundary line of the majority of the tract. Inlet protection and triangular filter dikes will be placed as necessary. These Temporary BMPs will be installed along the boundary of the disturbed area. A temporary construction entrance will be installed to prevent tracking materials offsite. In addition, a concrete truck washout pit will be placed on-site and be accessible to all exiting traffic leaving the site. By this, the Temporary BMPs will prevent pollution of surface water that originates on-site.

### Surface Water

Stormwater will be collected by a drainage system and conveyed to the proposed BMPs located onsite. There, the pollutants absorbed by the runoff water will be treated and the filtered water will be discharged to Maverick Creek on site.

### Natural Flow

Stormwater will be collected by a drainage system and conveyed to the proposed BMPs located onsite. There, the pollutants absorbed by the runoff water will be treated and the filtered water will be discharged to Maverick Creek on site to prevent and adverse impacts.

0 60' 120'

## LEGEND

| EXISTING | PROPOSED | DESCRIPTION |
|---|---|---|
| (XXX) | | PROPERTY LINE/ (R.O.W.) LINE |
| | | RECORD INFORMATION |
| | | LIGHT POLE |
| | | GROUND LIGHT |
| | | POWER POLE |
| | | DOWN GUY |
| TMH | | TELEPHONE MANHOLE |
| WTRMH | | WATER MANHOLE |
| | | WATER LINE MARKER |
| | | UNDERGROUND CABLE MARKER |
| | | UNDERGROUND GAS LINE MARKER |
| | | UNDERGROUND TELEPHONE MARKER |
| | | GAS RISER |
| | | TELEPHONE RISER |
| | | SPRINKLER CONTROL BOX |
| | | SWITCH GEAR & PAD |
| | | TRANSFORMER (SIZE VARIES) |
| | | FIRE HYDRANT |
| | | WATER VALVE |
| | | WATER METER |
| | | WATER METER VAULT (SIZE VARIES) |
| | | CABLE TV RISER |
| | | ELECTRIC BOX |
| | | ELECTRIC METER |
| | | GAS METER |
| | | GAS VALVE |
| TCB | TCB | TRAFFIC CONTROL BOX |
| TSP | TSP | TRAFFIC SIGNAL POST |
| | | GRATE INLET |
| | | CURB INLET (SIZE VARIES) |
| | | GREASE TRAP (SIZE VARIES) |
| SS | | STORMSEWER LINE |
| W | | WATER LINE |
| | | FIRE LINE |
| WW | | WASTEWATER LINE |
| | | SINGLE WATER SERVICE |
| | | DOUBLE WATER SERVICE |
| | | SINGLE WW SERVICE |
| | | DOUBLE WW SERVICE |
| G | G | GAS LINE |
| UE | UE | UNDERGROUND ELECTRIC LINE |
| OE | OE | OVERHEAD ELECTRIC |
| UT | UT | UNDERGROUND TELEPHONE |
| UC | UC | UNDERGROUND CABLE AND INTERNET |
| TC | U-COMM | TELECOMMUNICATIONS LINE |
| EMH | | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | | STORMSEWER MANHOLE (SIZE VARIES) |
| TMH | TMH | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | CO | WASTEWATER CLEANOUT |
| | | WIRE FENCE |
| | | WOOD FENCE |
| | | CHAIN LINK FENCE |
| | | CURB & GUTTER |
| | | CONCRETE SIDEWALKS |
| | | WALL |
| | TP | TREE PROTECTION |
| | S | SILT FENCE |
| | S | SILT FENCE WITH J-HOOKS |
| | S | LIMITS OF CONSTRUCTION & SILT FENCE |
| | | LIMITS OF CONSTRUCTION |
| | | SWALE |
| | | TRIANGULAR FILTER DIKE |
| | | ROCK BERM |
| | | INLET PROTECTION |
| | | STABILIZED CONSTRUCTION ENTRANCE/TEMPORARY SPOILS/STAGING AREA |
| | | VEGETATED FILTER STRIP |
| | | DIRECTION OF FLOW |
| 678 | 678 | CONTOUR |
| | | EXISTING TREE IN DECLINE |
| | | EXISTING TREE TO BE REMOVED |
| | | EXISTING TREE TO REMAIN |

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02

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FLOODPLAIN NOTE:

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**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 IMPROVEMENTS PLANS.**

ORIGINAL SHEET - ARCH E1


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Permit/Seal

LICENSED PROFESSIONAL ENGINEER MARK JOSEPH PHILLIPS 102318 STATE OF TEXAS

7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_101_EST

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
EROSION AND SEDIMENTATION CONTROL PLAN

Revision:0 Sheet: 4 of

Drawing No.
**C2.0**

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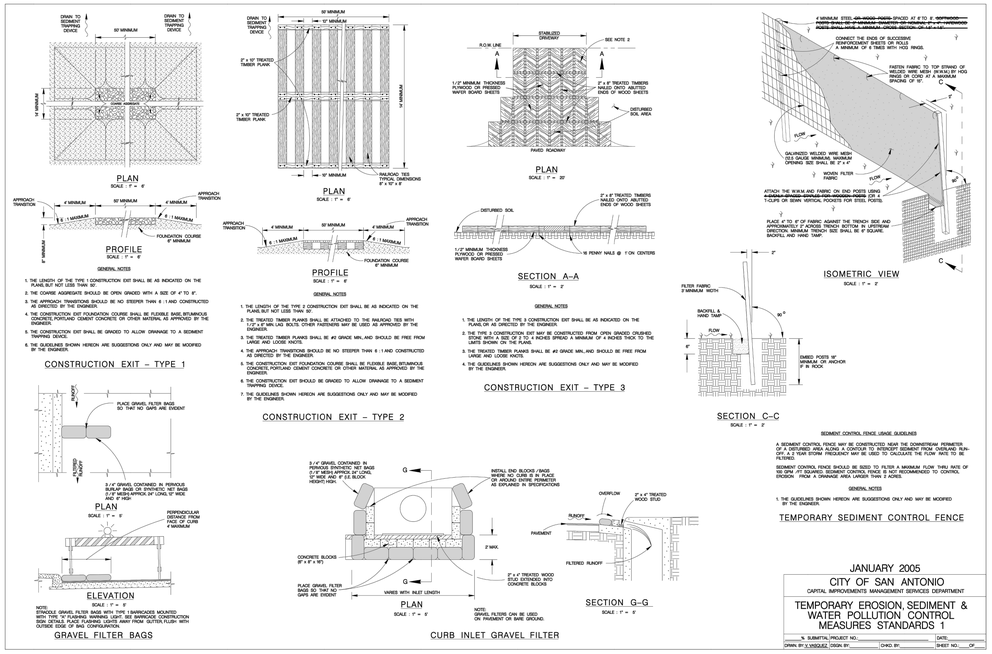


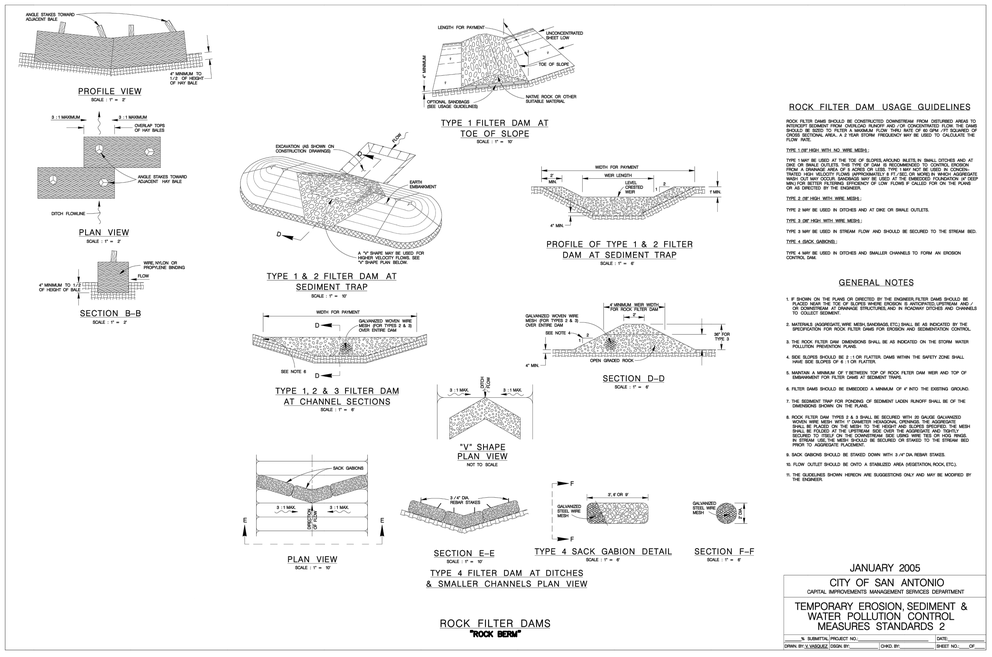


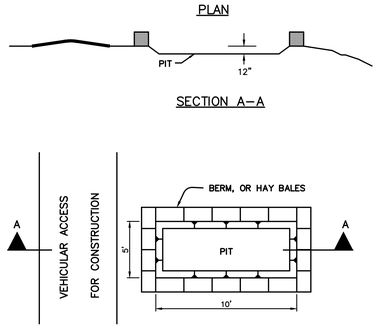


**GENERAL NOTES:**

1. DETAIL ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. IF HAY BALES ARE USED, THEY SHALL BE PLACED IN ACCORDANCE WITH DETAILS SHOWN ON EXHIBIT FOR HAY BALES.
3. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
4. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.

# CONCRETE TRUCK WASHOUT PIT

N.T.S.

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Permit/Seal

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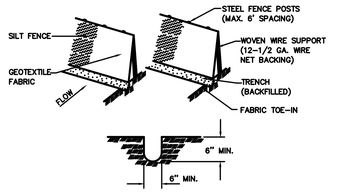
Title
EROSION AND SEDIMENTATION CNTRL DTL SHEET 1

Revision:0 Sheet: 4 of

Drawing No.
**C2.1**




TRENCH CROSS-SECTION

NOTES:

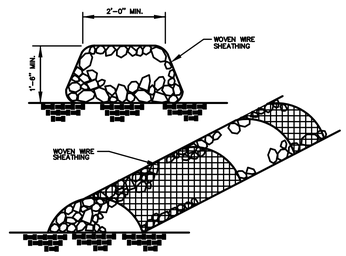
1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC WIDTH SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NO. 30.
2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR YBAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT2, AND BRINDELL HARDNESS EXCEEDING 140.
3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2"X4" WELDED WIRE, 12 GAUGE MINIMUM.
4. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
5. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS 1/4 ACRE/100 FEET OF FENCE.
6. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OF ROCK OUTCROP), WEIGH FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
7. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
8. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
9. SILT FENCES SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE

INSPECTION AND MAINTENANCE GUIDELINES:

1. INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL.
2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
3. REPLACE AND TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.
4. REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT.

## C2.2.1 SILT FENCE

SCALE: N.T.S.




NOTES:

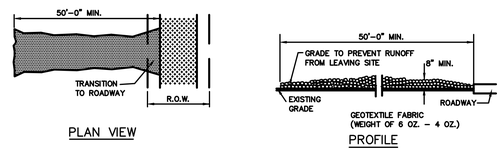
1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.
2. CLEAN, OPEN GRADED 3 TO 5 INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5 TO 8 INCH DIAMETER ROCKS MAY BE USED.
3. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOWLINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
4. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
5. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM (FIGURE 1-28), TO A HEIGHT NOT LESS THAN 18".
6. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
7. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.
8. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

INSPECTION AND MAINTENANCE GUIDELINES:

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
3. REPAIR ANY LOOSE WIRE SHEATHING.
4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

## C2.2.2 ROCK BERM

SCALE: N.T.S.




PLAN VIEW

PROFILE

NOTES:

1. THE AGGREGATE SHOULD CONSIST OF 4 TO 8 INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8 INCHES.
3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ./YD2, A MULLEN BURST RATING OF 140 LB/IN2, AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.
4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4 INCH DIAMETER WASHED STONE OR COMMERCIAL RACK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.
5. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.
6. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
7. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.
8. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6 TO 8 INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO THE DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
9. PLACE GEOMETRIES FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
10. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.
11. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.
12. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES:

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

## C2.2.3 STABILIZED CONSTRUCTION ENTRANCE

SCALE: N.T.S.

## STORM WATER POLLUTION PREVENTION NOTES

1. PRIOR TO CONSTRUCTION, MAKE CERTAIN THE NOTICE OF INTENT (NOI) OR CONSTRUCTION SITE NOTICE (CSN) HAS BEEN FILED AND POSTED ONSITE FOR PUBLIC VIEWING AND THE TPDES REPORT AND SWPPP ARE AVAILABLE AT THE TRAILER.
2. INSTALL STORM WATER POLLUTION PREVENTION CONTROLS PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, EXCAVATION).
3. THE PLACEMENT OF STORM WATER POLLUTION PREVENTION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED STORM WATER POLLUTION PREVENTION CONTROL PLAN.
4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR AND ENGINEER AFTER INSTALLATION OF THE STORM WATER POLLUTION PREVENTION CONTROLS AND PRIOR TO BEGINNING ANY SITE PREPARATION WORK.
5. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE ENGINEER AS APPROPRIATE. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE STORM WATER POLLUTION PREVENTION CONTROL PLAN MAY BE REQUIRED BY THE ENGINEER DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
6. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT INTERVALS OF AT LEAST ONCE EVERY TWO (2) WEEKS AND IMMEDIATELY AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
7. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF PROPERLY.
8. WHERE SILT FENCE CANNOT BE PROPERLY INSTALLED USE TRIANGULAR FILTRATION DIKE.
9. SOIL DISTURBANCES SHALL BE MINIMIZED BY EXPOSING ONLY THE SMALLEST PRACTICAL AREA OF LAND REQUIRED FOR THE CLEARING AND GRADING ACTIVITY AND FOR THE CONSTRUCTION ACTIVITY, FOR THE SHORTEST PRACTICAL PERIOD OF TIME.
10. STABILIZATION MEASURES WILL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND EXCEPT AS PROVIDED BELOW, WILL BE INITIATED NO MORE THAN THE END OF THE NEXT WORK DAY AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
11. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN FOURTEEN (14) DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE.
12. TRAFFIC LEAVING THE CONSTRUCTION SITE WILL EXIT THROUGH A STABILIZED CONSTRUCTION EXIT AS LOCATED ON THE PLANS. WHEN SOILS HAVE COLLECTED ON THE STABILIZED VEHICULAR EXIT TO AN EXTENT WHICH REDUCES ITS INTENDED EFFECTIVENESS, THE SURFACE WILL BE CLEANED AND REESTABLISHED FOR THE INTENDED PURPOSE.
13. MUD/DIRT INADVERTENTLY TRACKED OFF-SITE AND ONTO PUBLIC STREETS SHALL BE REMOVED IMMEDIATELY.
14. PERMANENT EROSION CONTROL:
    ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW.
    (A) A MINIMUM OF FOUR INCHES OF TOPSOIL SHALL BE PLACED IN ALL DRAINAGE CHANNELS (EXCEPT ROCK) AND BETWEEN THE CURB AND RIGHT-OF-WAY LINE.
    (B) THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS FOLLOWS UNLESS SPECIFIED OTHERWISE BY THE PROJECT'S LANDSCAPE PLAN:

    BROADCAST SEEDING:
    I. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 2 POUNDS PER 1000 SF OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SF OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
    II. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 2 POUNDS PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION.
    (C) FERTILIZER SHALL BE A PELLETED OR GRANULAR SLOW RELEASE WITH AN ANALYSIS OF 15- 15-15 TO BE APPLIED ONCE AT PLANTING AND ONCE DURING THE PERIOD OF ESTABLISHMENT AT A RATE OF 1 POUND PER 1000 SF.
    (D) MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SF.

    HYDRAULIC SEEDING:
    I. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH A COMBINATION OF 1 POUND PER 1000 SF OF UNHULLED BERMUDA AND 7 POUNDS PER 1000 SF OF WINTER RYE WITH A PURITY OF 95% WITH 90% GERMINATION.
    II. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 1 POUND PER 1000 SF WITH A PURITY OF 95% WITH 85% GERMINATION.
    (E) FERTILIZER SHALL BE A WATER SOLUBLE FERTILIZER WITH AN ANALYSIS OF 15-15-15 AT A RATE OF 1.5 POUNDS PER 1000 SF.
    (F) MULCH TYPE USED SHALL BE HAY, STRAW OR MULCH APPLIED AT A RATE OF 45 POUNDS PER 1000 SF, WITH SOIL TACKIFIER AT A RATE OF 1.4 POUNDS PER 1000 SF.
    (G) THE PLANTED AREA SHALL BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF SIX INCHES. THE IRRIGATION SHALL OCCUR AT TEN-DAY INTERVALS DURING THE FIRST TWO MONTHS RAINFALL OCCURRENCES OF 1/2 INCH OR MORE SHALL POSTPONE THE WATERING SCHEDULE FOR ONE WEEK. (COORDINATE WITH IRRIGATION PLAN)
    (H) RESTORATION SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 16 SQUARE FEET EXIST.
    (I) SEEDING SHALL APPLY TO ALL AREAS WITHIN DISTURBED PROJECT AREA NOT COVERED BY PAVEMENT, BUILDING PAD OR PROJECT LANDSCAPING PLANS.
    (J) TWO SEEDINGS SHOULD OCCUR DURING PROJECT. FIRST SHOULD OCCUR WITHIN 14 DAYS AFTER PONDS ARE GRADED AND SECOND BY FINAL PUNCH LIST.
15. THE EPA GENERAL PERMIT REQUIRES THAT A TEMPORARY OR PERMANENT SEDIMENT BASIN BE INSTALLED IN ANY DRAINAGE LOCATION WHERE MORE THAN 10 ACRES IN THE UPSTREAM DRAINAGE ARE DISTURBED AT ONE TIME. THE SEDIMENT BASIN MUST PROVIDE AT LEAST 3,600 CUBIC FEET OF STORAGE FOR EVERY ACRE OF LAND, WHICH IT DRAINS.
16. CONSTRUCTION WASTE MANAGEMENT AND IMPLEMENTATION OF EPA'S BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENTATION CONTROL DURING CONSTRUCTION IS REQUIRED.

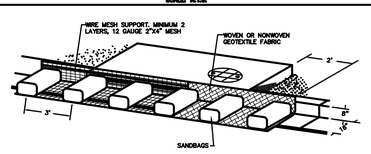
## SPECIFICATIONS:

## STORM WATER POLLUTION PREVENTION PLAN / TPDES

FURNISH AND INSTALL TEMPORARY AND PERMANENT STORM WATER POLLUTION PREVENTION CONTROL MEASURES SHOWN IN THE PLANS. CONSTRUCT IMPROVEMENTS IN COMPLIANCE WITH THE INTENT OF SUCH POLLUTION CONTROL MEASURES, TPDES PERMITS, OR OTHER LOCAL WATERWAY DEVELOPMENT PERMITS.

EXECUTION:

1. CONTRACTOR IS RESPONSIBLE FOR ALL POLLUTION PREVENTION MEASURES SHOWN IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
2. SUBMIT A STORM WATER TPDES GENERAL PERMIT NOTICE OF INTENT (NOI) AT LEAST TWO DAYS PRIOR TO START OF CONSTRUCTION TO THE APPROPRIATE AGENCY SHOWN ON THE SWPPP, IF REQUIRED.
3. POST SIGNED AND COMPLETED NOI POSTING NOTICE OR CONSTRUCTION SITE NOTICE (CSN) AT CONSTRUCTION ENTRANCE FOR PUBLIC VIEWING, AND KEEP A COPY OF THE SWPPP AT THE JOB SITE AT ALL TIMES.
4. INSTALL AND MAINTAIN POLLUTION CONTROL MEASURES IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND WITH PROJECT SPECIFICATIONS.
5. INSTALL EROSION CONTROL MEASURES AND CONSTRUCTION ENTRANCES AS SHOWN IN THE SWPPP PRIOR TO BEGINNING CONSTRUCTION. POLLUTION CONTROL MEASURES SHALL BE REPAIRED, RESTABLISHED, ADJUSTED OR REINSTALLED WITH EACH SUBSEQUENT PHASE OF CONSTRUCTION IN ACCORDANCE WITH THE SWPPP.
6. CONTRACTOR IS RESPONSIBLE FOR ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE, AND SHALL REMOVE THE ACCUMULATION OF OFF-SITE SEDIMENT PROMPTLY.
7. MAINTAIN SEDIMENT TRAPS OR SEDIMENTATION BASINS.
8. OFF-SITE MATERIAL STORAGE AREAS USED SOLELY BY THE PROJECT ARE CONSIDERED PART OF THE PROJECT.
9. MAINTAIN RECORDS OF PROJECT MILESTONE DATES AND FIELD CHANGES AS REQUIRED BY THE SWPPP.
10. INSPECT POLLUTION CONTROL MEASURES EVERY 14 DAYS AND WITHIN 24 HOURS AFTER A STORM EVENT GREATER THAN 0.5 INCHES OF RAINFALL. AN INSPECTION REPORT SHALL BE RECORDED AS REQUIRED BY THE SWPPP.
11. DEFICIENCIES NOTED DURING THE INSPECTION WILL BE CORRECTED AND DOCUMENTED WITHIN SEVEN CALENDAR DAYS OR BEFORE THE NEXT ANTICIPATED STORM EVENT.

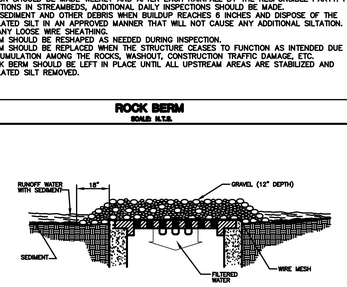



NOTES:

1. WHEN A SANDBAG IS FILLED WITH MATERIAL, THE OPEN END OF THE SANDBAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CHORD.
2. INLET PROTECTION SHALL BE PLACED OVER THE MOUTH OF THE INLET WITH A 2 FOOT OVERLAP ON EITHER SIDE.
3. THE FABRIC COVER AND SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE.
4. THE SKIRT SHALL BE WEIGHTED WITH ONE 18"X24"X6" SANDBAG EVERY 3 FEET.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF FOUR INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
7. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 6 ABOVE.

## C2.2.4 CURB INLET PROTECTION BARRIER

SCALE: N.T.S.



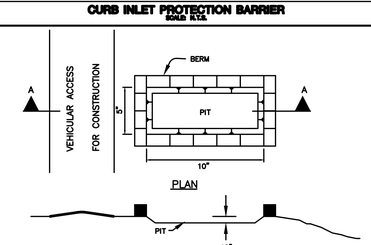

1. PROTECTION FENCE SHALL BE ORANGE CONSTRUCTION FENCE WITH POSTS.
2. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.
3. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO STANDARDS FOR TREE PROTECTION.
4. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
5. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIP LINES.
6. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE), FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, IN ORDER TO PREVENT THE FOLLOWING:
    (A) SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS;
    (B) ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL), OR TRENCHING
    (C) WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT;
    (D) OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING, AND FIRES.
7. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING CASES:
    (A) WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;
    (B) WHERE PERMEABLE PAVING IS TO BE INSTALLED WITHIN A TREE'S DRIP LINE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZED ROOT DAMAGE);
    (C) WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW 6 TO 10 FEET OF WORK SPACE BETWEEN THE FENCE AND THE BUILDING;
    (D) WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS.

SPECIAL NOTE: FOR THE PROTECTION OF NATURAL AREAS, NO EXCEPTIONS TO INSTALLING FENCES AT THE LIMIT OF CONSTRUCTION LINE WILL BE

8. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FT (OR TO THE LIMITS OF LOWER BRANCHES) IN ADDITION TO THE REDUCED FENCING PROVIDED.
9. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
10. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
11. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
12. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
13. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).
14. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES
15. DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS SUBSTANTIAL NON-COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

## C2.2.8 TREE PROTECTION

SCALE: N.T.S.



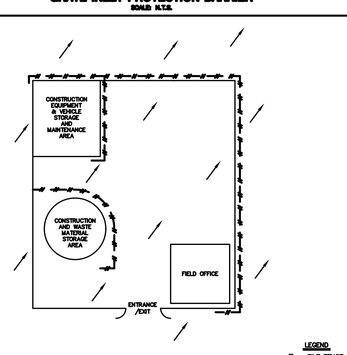

SECTION A-A

### GENERAL NOTES:

1. DETAIL ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. PIT SHALL BE INSTALLED WITH IMPERMEABLE LINER PER TCEQ REQUIREMENTS.

## C2.2.6 CONCRETE TRUCK WASHOUT PIT

SCALE: N.T.S.




## C2.2.7 TYPICAL CONSTRUCTION STAGING AREA

SCALE: N.T.S.

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 IMPROVEMENTS PLANS.

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5120 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

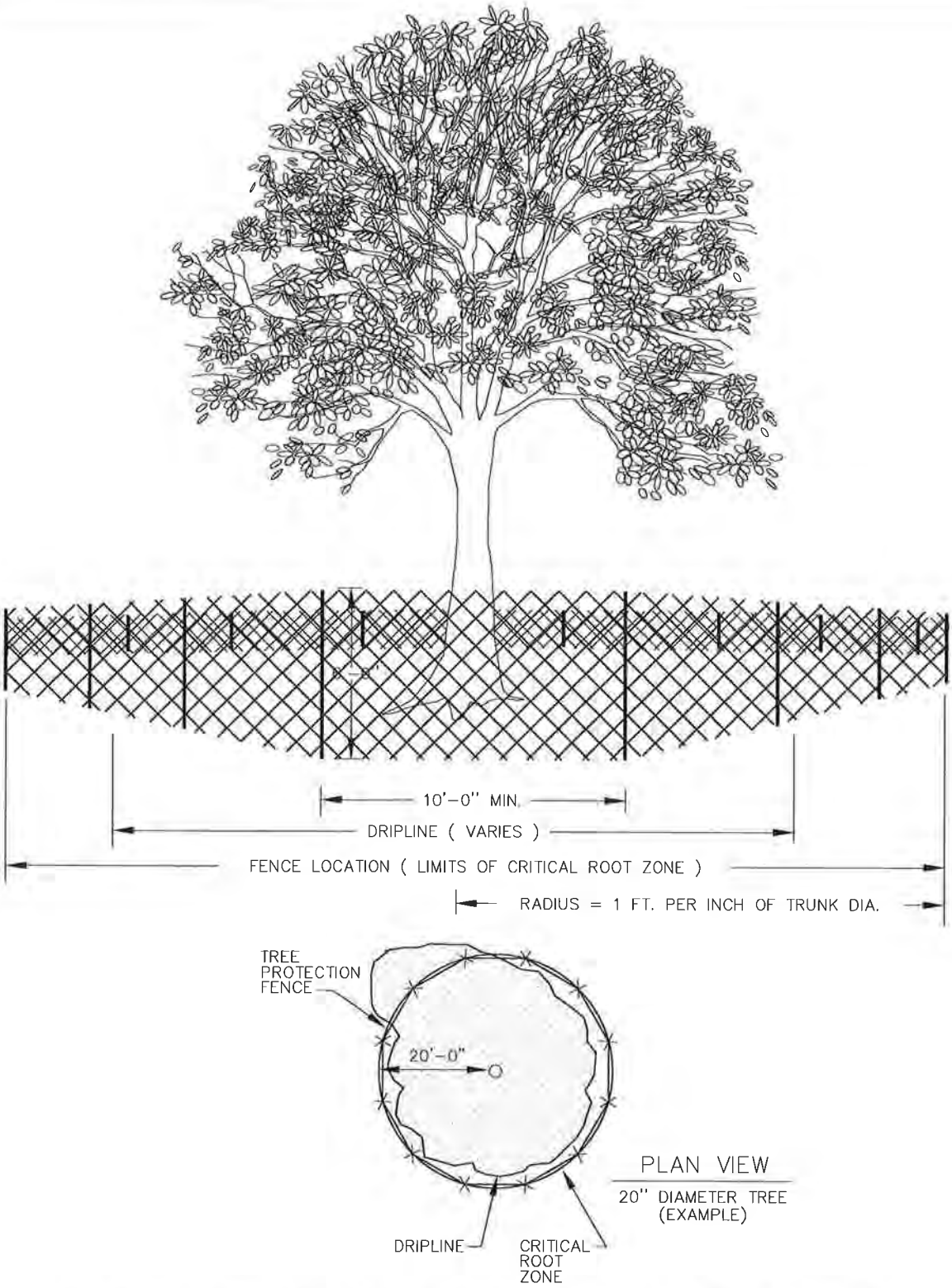
LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY, BEING 5120 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) IN ACCORDANCE WITH DFIRM PANEL 0210G, DATED 9/29/10 ; OR THE 1% ANNUAL CHANCE (100-YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION; OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR




# TREE PROTECTION CONSTRUCTION FENCE

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SA BIGHAUS

BEXAR COUNTY, TX

EXHIBIT B1

| DATE: Jul 26, 2018 | SCALE: NTS | DRAWN BY: MMH | FILE: | PROJECT No 222011059 |
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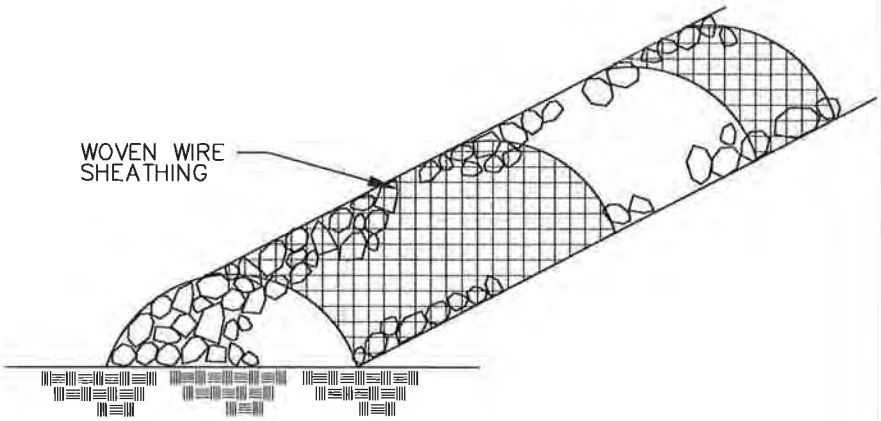


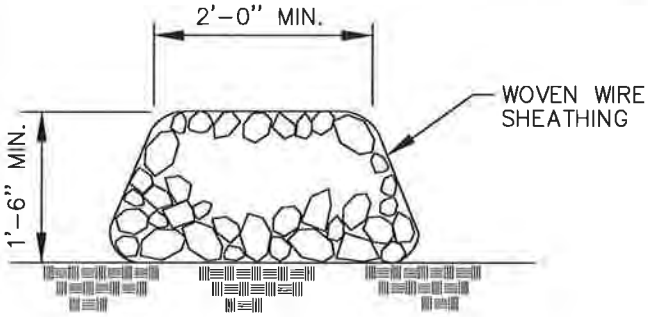


NOTES:

1. USE ONLY OPEN GRADED ROCK 4-8 INCH DIAMETER FOR STREAMFLOW CONDITION; USE OPEN GRADED ROCK 3-5 INCHES DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENINGS AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE - WOVEN WIRE SHEATHING, SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

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EXHIBIT B2

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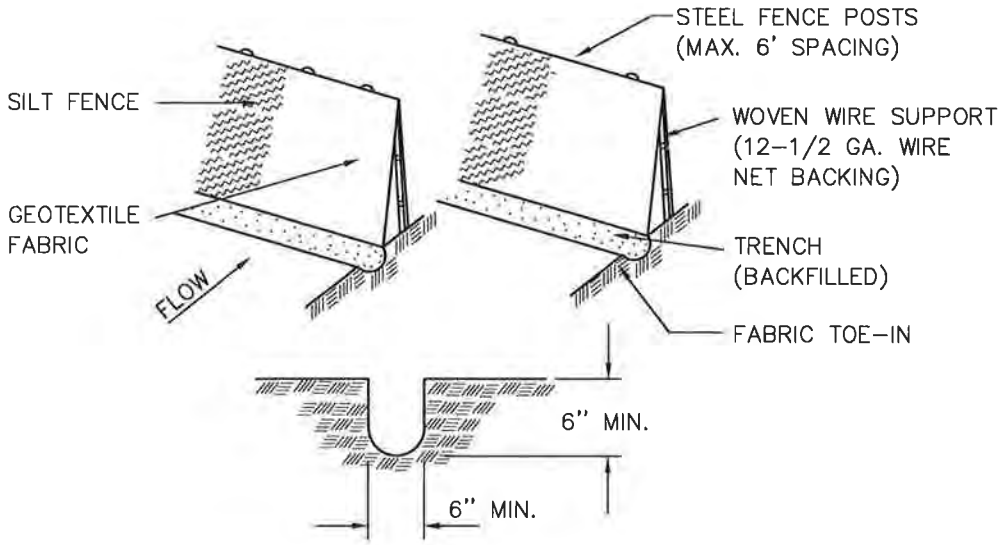


## TRENCH CROSS-SECTION

GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CAN NOT BE TREATED IN (e.g. pavement) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POSTS OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

# SILT FENCE

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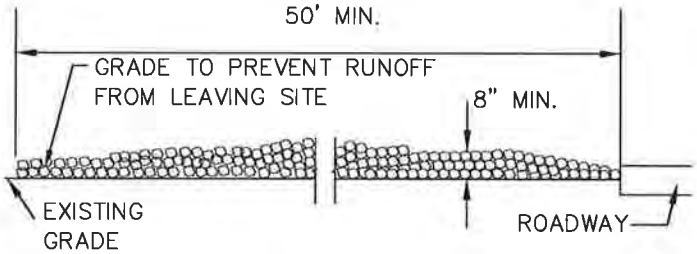


**PROFILE**
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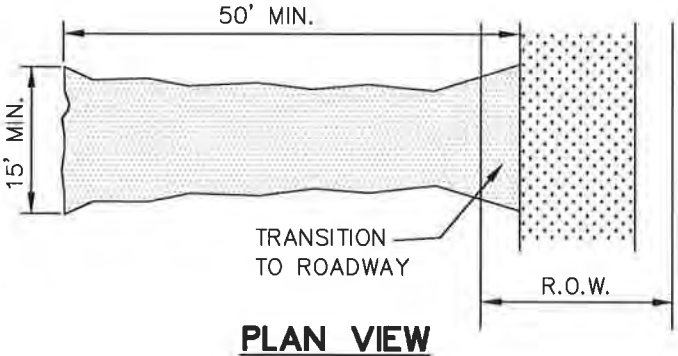


**PLAN VIEW**
N.T.S.

GENERAL NOTES:

1. STONE SIZE– 3 TO 5 INCH OPEN GRADED ROCK.
2. LENGTH– AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS– NOT LESS THAN 8 INCHES.
4. WIDTH– NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING– WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE– THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE– ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

# STABILIZED CONSTRUCTION ENTRANCE

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EXHIBIT B4

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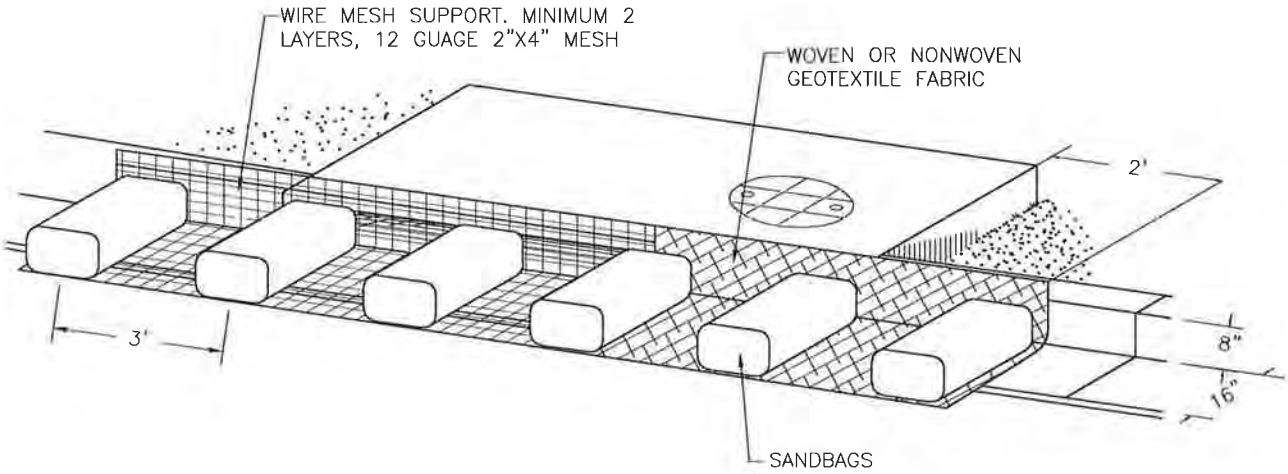


NOTES:

1. WHEN A SANDBAG IS FILLED WITH MATERIAL, THE OPEN END OF THE SANDBAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CHORD.
2. INLET PROTECTION SHALL BE PLACED OVER THE MOUTH OF THE INLET WITH A 2 FOOT OVERLAP ONEITHER SIDE.
3. THE FABRIC COVER AND SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE.
4. THE SKIRT SHALL BE WEIGHTED WITH ONE 18"X24"X6" SANDBAG EVERY 3 FEET.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF FOUR INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
7. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 6 ABOVE.

# CURB INLET PROTECTION BARRIER

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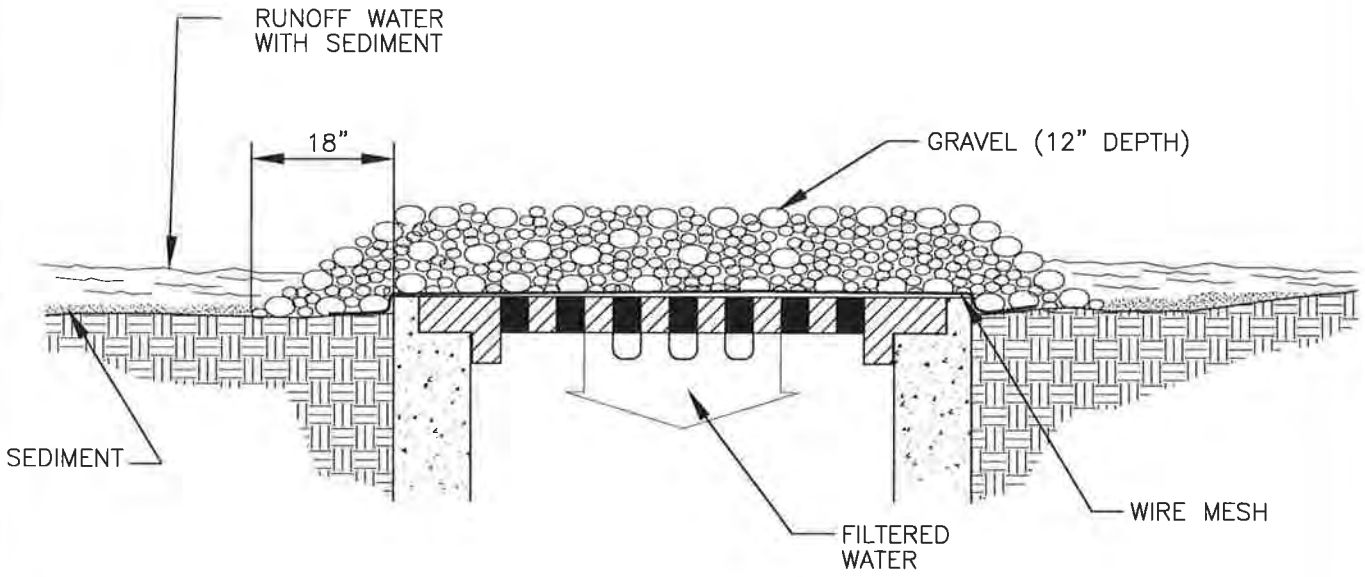


NOTE:

A. WIRE MESH SHALL BE LAID OVER THE DROP INLET SO THAT THE WIRE EXTENDS MINIMUM OF 1 FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS AND MINIMUM WIRE DIAMETER OF 24 GAUGE SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.

B. AGGREGATE SHALL BE PLACED OVER THE WIRE MESH AS INDICATED ABOVE. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.

C. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS IT'S FUNCTION, THE STONES MUST BE PULLED AWAY FROM THE INLET, CLEANED AND REPLACED.

# INLET PROTECTION/SEDIMENT FILTER

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EXHIBIT B6

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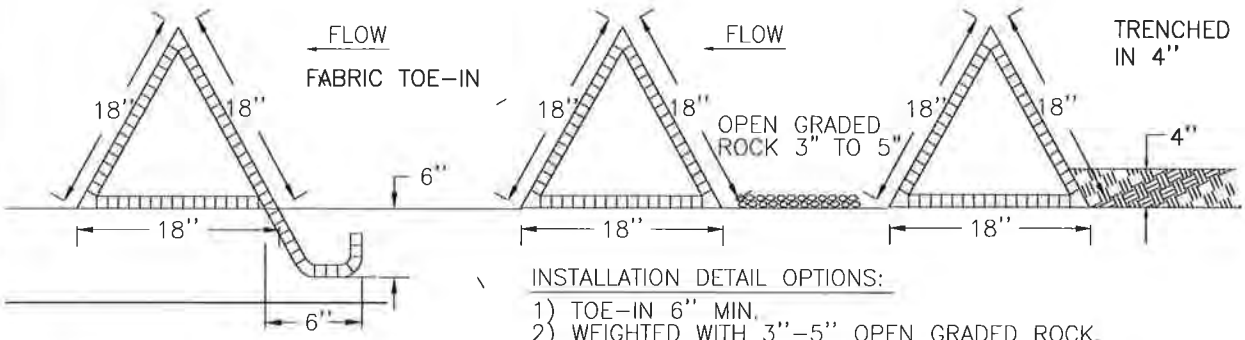
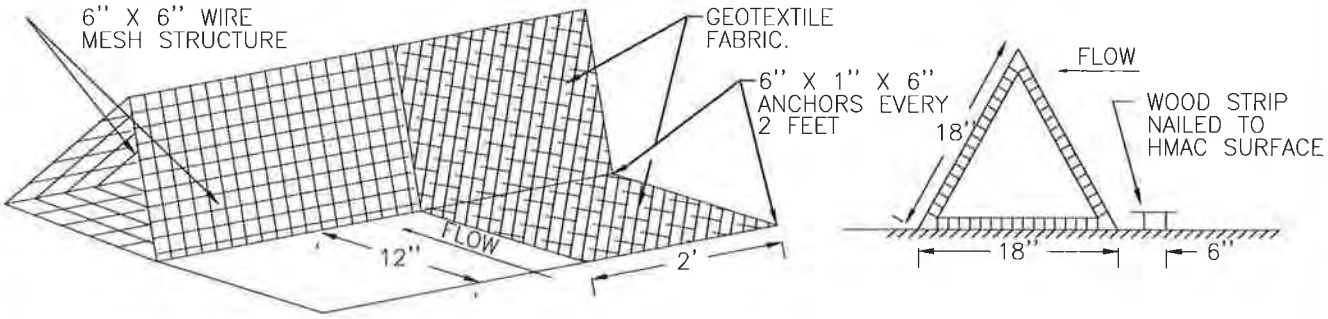
|---|---|---|---|---|




INSTALLATION DETAIL OPTIONS:

1) TOE-IN 6" MIN.
2) WEIGHTED WITH 3"-5" OPEN GRADED ROCK.
3) TRENCHED IN 4".




NOTES:

1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SHIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 3"-5" OPEN GRADED ROCK, OR TOED-IN 6" WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 4" INCHES.
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 6 INCH WIRE STAPLES ON 2 FOOT CENTERS ON BOTH EDGES AND SKIRT, OR STAKED USING 3/8 INCH DIAMETER REBAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 6 INCHES TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE 6 GA. 6" X 6" WIRE MESH, 18 INCHES ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF SIX INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 8 ABOVE.

# TRIANGULAR FILTER DIKE

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EXHIBIT B7

| DATE: Jul 26, 2018 | SCALE: NTS | DRAWN BY: MMH | FILE: | PROJECT No 222011059 |
|---|---|---|---|---|

# CONSTRUCTION SEQUENCE

1. OBTAIN REQUIRED PERMITS.
2. INSTALL ALL EROSION CONTROL MEASURES AND DEVICES THAT CAN BE INSTALLED PRIOR TO SITE CLEARING.
3. CLEAR SITE.
4. INSTALL ANY REMAINING CONTROL MEASURES AND DEVICES THAT COULD NOT BE INSTALLED PRIOR TO SITE CLEARING.
5. GRADE SITE.
6. INSTALL ALL UNDERGROUND UTILITIES. INSTALL EROSION CONTROL AROUND CATCH BASINS AND INLETS.
7. INSTALL PAVEMENT.
8. INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED OFFSITE & ONSITE AREAS HAVE BEEN HYDROMULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLAN AND A MOWABLE STAND OF GRASS IS ACHIEVED.

# EROSION AND SEDIMENTATION CONTROL NOTES

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS FOR THIS PROJECT AS WELL AS THE CITY'S GENERAL REQUIREMENTS, WHICH PERTAIN TO THIS PROJECT.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURE OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED. (IN ACCORDANCE WITH LANDSCAPE PLANS)
3. BRUSH BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS, SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. ADDITIONAL MEASURES MAY BE REQUIRED IF, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE CITY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

# TPDES REQUIREMENT NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING NOTICE OF INTENT (NOI) TO TCEQ FOR THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) 48 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, OR POSTING A CONSTRUCTION SITE NOTICE 48 HOURS PRIOR TO CONSTRUCTION ACTIVITIES.
2. CONTRACTOR SHALL HAVE THIS PLAN AND THE TPDES STORM WATER POLLUTION PREVENTION PLAN ON SITE AT ALL TIMES THROUGHOUT DURATION OF PROJECT.
3. ALL DISTURBED AREAS NOT ADDRESSED BY LANDSCAPE ARCHITECT SHALL BE HYDROMULCHED PER SPECIFICATION DESCRIBED IN THE GENERAL NOTES.
4. CONTRACTOR SHALL PROVIDE TRIANGULAR SEDIMENT FILTER DIKE PER EXHIBIT B7 WHERE SILT FENCE IS REQUIRED BUT NOT INSTALLABLE.
5. CONTRACTOR SHALL SUBMIT NOTICE OF TERMINATION (NOT) TO THE TCEQ UPON PROJECT COMPLETION AS DESCRIBED IN THE PROJECT TPDES STORM WATER POLLUTION PREVENTION PLAN. IF PROJECT IS A PHASE I PROJECT (> 5 ACRES), ELSE STABALIZE PROJECT TO WITHIN 10% OR COMPLETE CONSTRUCTION.
6. CONTRACTOR TO RETAIN THE TPDES STORM WATER POLLUTION PREVENTION PLAN ALONG WITH ALL COMPLETED INSPECTION REPORTS AND PLAN MODIFICATIONS DOCUMENTATION FOR A PERIOD OF THREE (3) YEARS FROM DATE OF FINAL STABILIZATION, AS REQUIRED BY THE TCEQ.

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EXHIBIT B8

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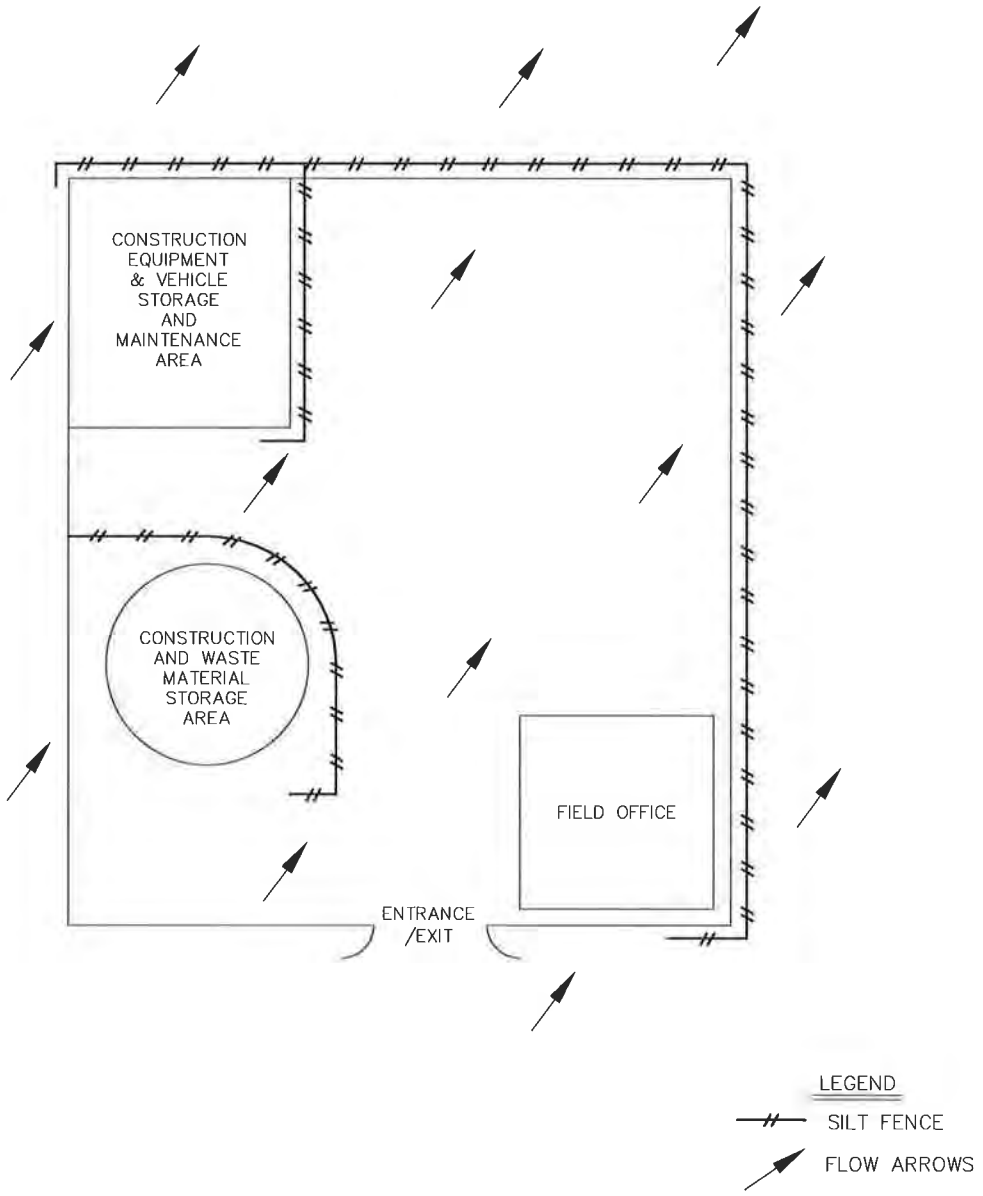


# TYPICAL CONSTRUCTION STAGING AREA

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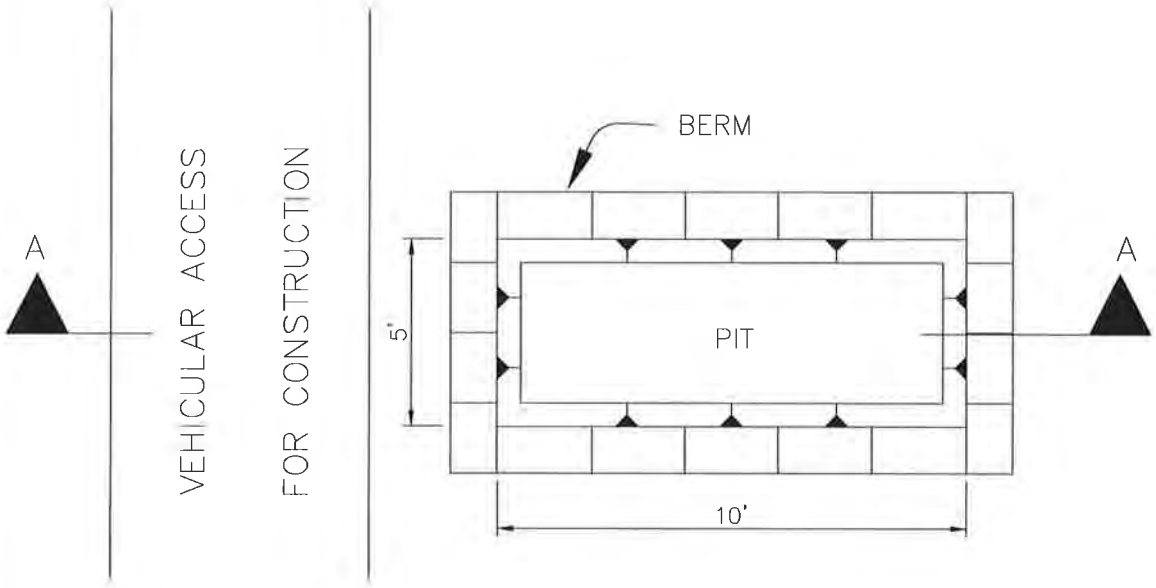
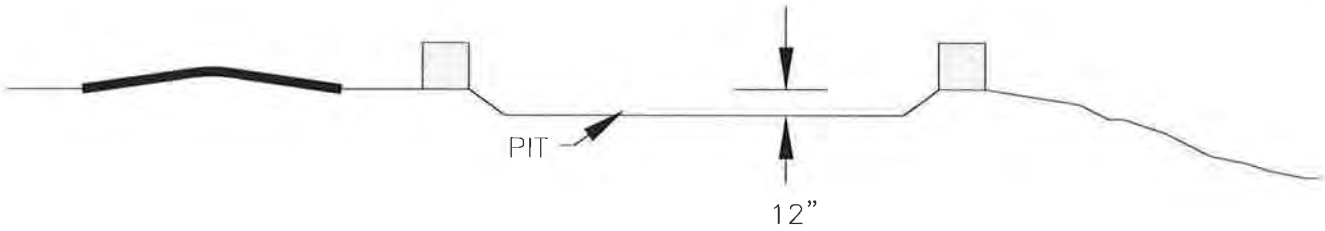



PLAN




SECTION A–A

**GENERAL NOTES:**

1. Detail illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
2. Washout pit shall be located in an area easily accessible to construction traffic.
3. Washout pit shall not be located in areas subject to inundation from storm water runoff.

# CONCRETE TRUCK WASHOUT PIT

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EXHIBIT B10

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# ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE
(Not Applicable)

# ATTACHMENT F

STRUCTURAL PRACTICES

## Attachment F - Structural Practices.

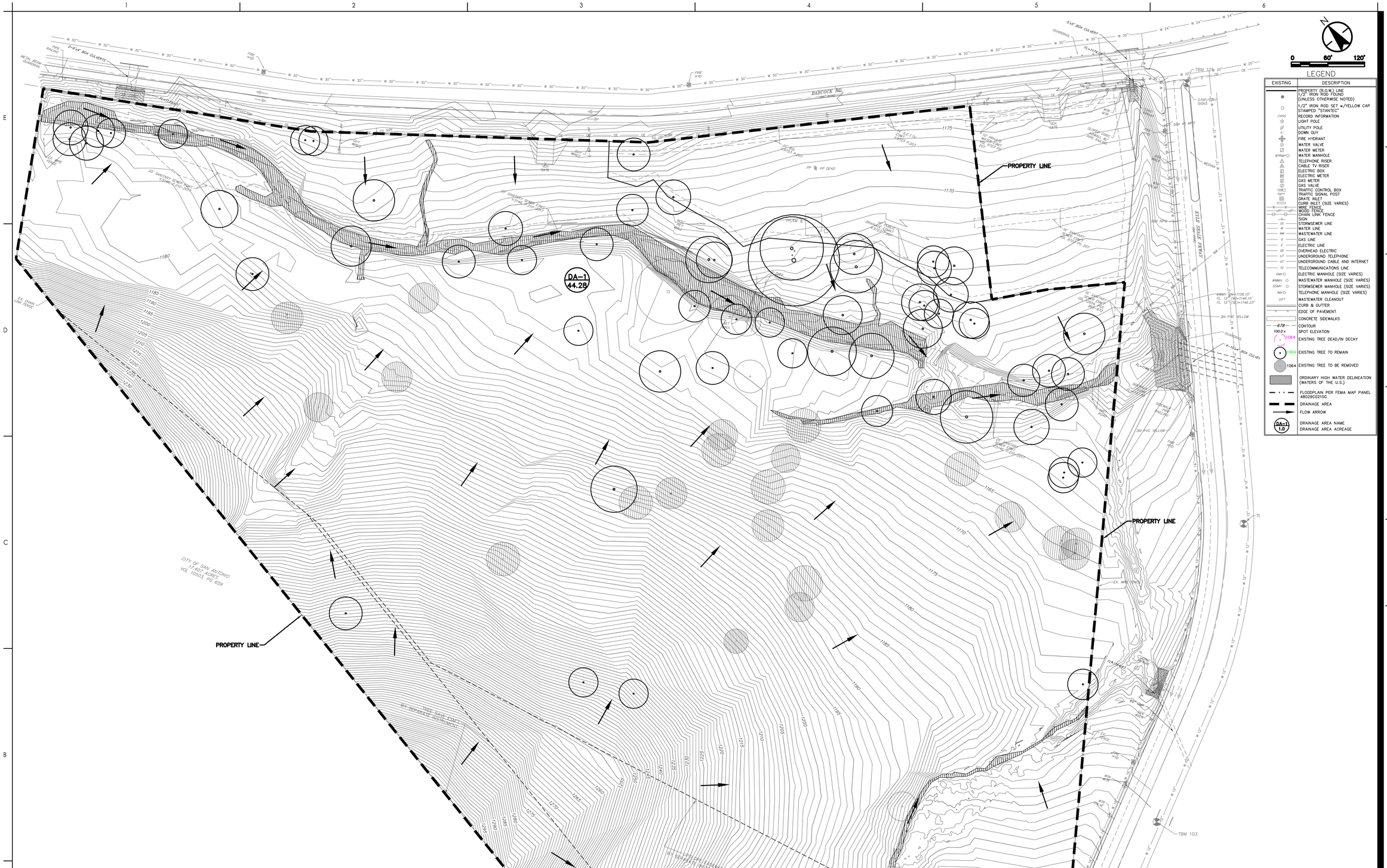
Silt fencing, triangular sediment filter dikes, inlet protection devices, and stabilized construction entrances will be incorporated as temporary erosion control devices and will be removed after permanent stabilization is established.

Silt fencing shall be incorporated throughout the construction process. The placement of the silt fencing shall be perpendicular to runoff flow. Refer to project construction documents for quantity and actual locations of these erosion control devices. In areas where silt fencing is to be situated but is non-installable, triangular filter dikes shall be incorporated.

Stabilized construction entrances will be employed during the construction of this development to help minimize vehicle tracking of sediments. Paved streets adjacent to these site entrances shall be cleaned regularly to remove any excess mud, dirt or rock tracked from the site. Refer to the project construction documents for actual locations of these erosion control devices. Staging areas will be utilized in locations as decided by the project general contractor and validated by the civil engineer. If the contractor determines the need for additional stabilized construction entrances, construction staging areas or pits, their locations shall be agreed upon by the contractor and the engineer.

# ATTACHMENT G

DRAINAGE AREA MAP




## LEGEND

| EXISTING | DESCRIPTION |
|---|---|
| | PROPERTY (R.O.W.) LINE |
| | 1/2" IRON ROD FOUND (UNLESS OTHERWISE NOTED) |
| | 1/2" IRON ROD SET w/YELLOW CAP STAMPED "STANTEC" |
| (XXX) | RECORD INFORMATION |
| | LIGHT POLE |
| | UTILITY POLE |
| | DOWN GUY |
| | FIRE HYDRANT |
| | WATER VALVE |
| | WATER METER |
| WTMH | WATER MANHOLE |
| | TELEPHONE RISER |
| | CABLE TV RISER |
| | ELECTRIC BOX |
| | ELECTRIC METER |
| | GAS METER |
| | GAS VALVE |
| TSJC | TRAFFIC CONTROL BOX |
| TSP | TRAFFIC SIGNAL POST |
| | GRATE INLET |
| | CURB INLET (SIZE VARIES) |
| | WIRE FENCE |
| | WOOD FENCE |
| | CHAIN LINK FENCE |
| | SIGN |
| SS | STORMSEWER LINE |
| W | WATER LINE |
| WW | WASTEWATER LINE |
| G | GAS LINE |
| E | ELECTRIC LINE |
| OE | OVERHEAD ELECTRIC |
| UT | UNDERGROUND TELEPHONE |
| UC | UNDERGROUND CABLE AND INTERNET |
| TC | TELECOMMUNICATIONS LINE |
| EMH | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | STORMSEWER MANHOLE (SIZE VARIES) |
| TMH | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | WASTEWATER CLEANOUT |
| | CURB & GUTTER |
| | EDGE OF PAVEMENT |
| | CONCRETE SIDEWALKS |
| 678 | CONTOUR |
| 100.0 x | SPOT ELEVATION |
| 1064 | EXISTING TREE DEAD/IN DECAY |
| 1064 | EXISTING TREE TO REMAIN |
| 1064 | EXISTING TREE TO BE REMOVED |
| | ORDINARY HIGH WATER DELINEATION (WATERS OF THE U.S.) |
| | FLOODPLAIN PER FEMA MAP PANEL 48029C0210G |
| | DRAINAGE AREA |
| | FLOW ARROW |
| DA-1 1.0 | DRAINAGE AREA NAME<br>DRAINAGE AREA ACREAGE |

**DRAINAGE AREA TREATMENT SUMMARY**

| Drainage Area | Area (ac) | Impervious Cover (ac) | Impervious Cover (%) | Lm Generated (lbs) | Lm Treated (lbs) | PBMP |
|---|---|---|---|---|---|---|
| Existing DA-1 | 44.28 | 0 | 0.0% | 0 | 0 | NA |

**DRAINAGE AREA SURFACE CALCULATIONS**

| Drainage Area | C | I5 | Q5 | I25 | Q25 | I100 | Q100 |
|---|---|---|---|---|---|---|---|
| Existing DA-1 | 0.53 | 6.055 | **142.10** | 8.445 | **198.22** | 10.666 | **250.33** |

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 IMPROVEMENTS PLANS.

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) IN ACCORDANCE WITH DFIRM PANEL 0210G, DATED 9/29/10 ; OR THE 1% ANNUAL CHANCE (100-YEAR) ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION; OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE (100-YEAR) FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C , DATED 9/29/10 . A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. _____ ) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.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| | | | |

| Revision | By | Appd | YYYY.MM.DD |
|---|---|---|---|
| | | | |

Permit/Seal

STATE OF TEXAS
MICHAEL PATRICK JOHNSON
102318
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File name: 1109CG1_101_DA44

Scale:

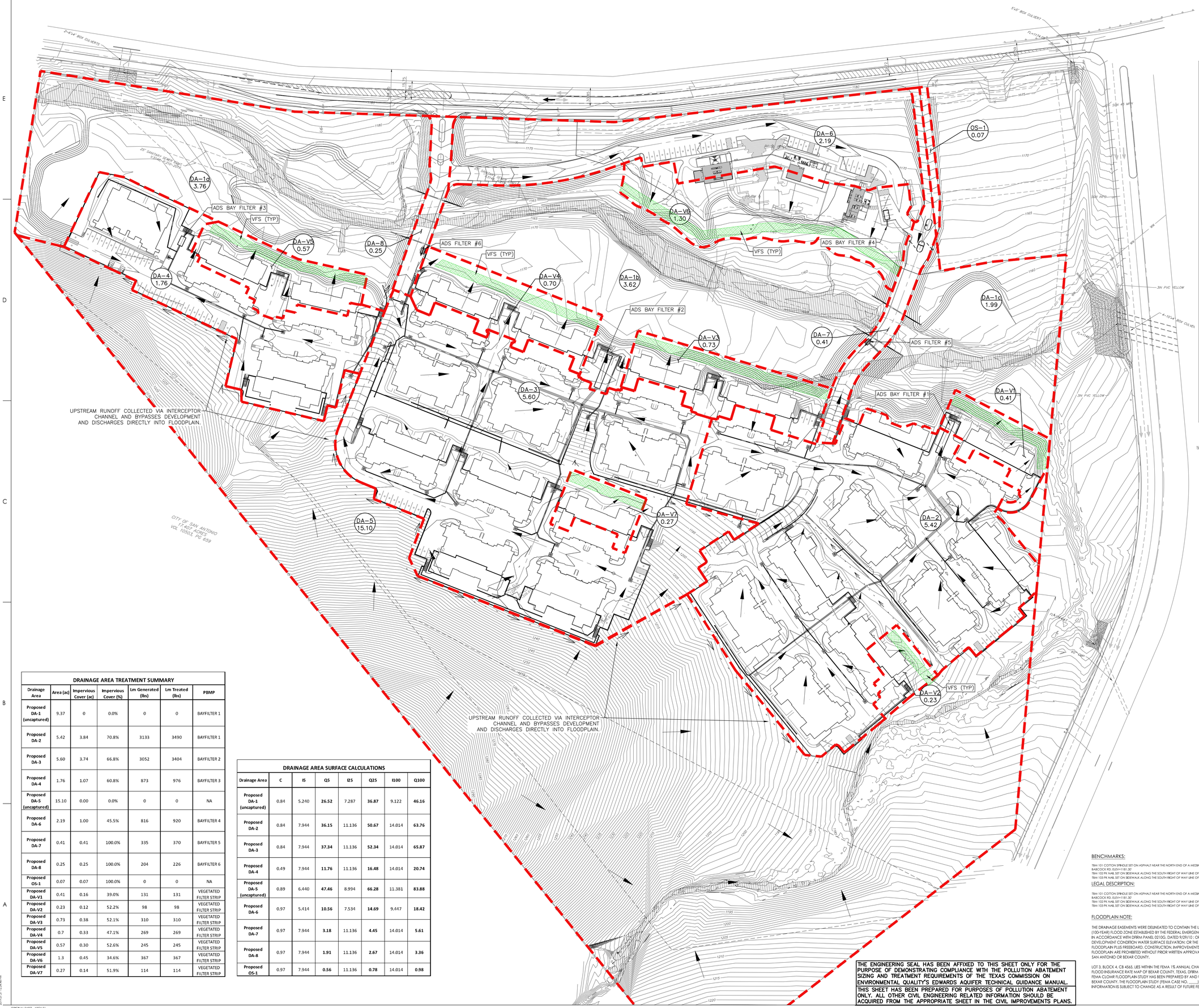
| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
EXISTING CONDITIONS
DRAINAGE AREA MAP

Revision:0 Sheet: 2 of 6

Drawing No.
**C5.1**

ORIGINAL SHEET - ARCH E1




## LEGEND

| EXISTING | DESCRIPTION |
|---|---|
| | PROPERTY (R.O.W.) LINE |
| | 1/2" IRON ROD FOUND (UNLESS OTHERWISE NOTED) |
| | 1/2" IRON ROD SET w/YELLOW CAP STAMPED "STANTEC" |
| (1000) | RECORD INFORMATION |
| | LIGHT POLE |
| | UTILITY POLE |
| | DOWN GUY |
| | FIRE HYDRANT |
| | WATER VALVE |
| | WATER METER |
| WTRMHO | WATER MANHOLE |
| | TELEPHONE RISER |
| | CABLE TV RISER |
| | ELECTRIC BOX |
| | ELECTRIC METER |
| | GAS METER |
| | GAS VALVE |
| TSJC | TRAFFIC CONTROL BOX |
| TSJP | TRAFFIC SIGNAL POST |
| | GRATE INLET |
| | CURB INLET (SIZE VARIES) |
| | WIRE FENCE |
| | WOOD FENCE |
| | CHAIN LINK FENCE |
| | SIGN |
| SS | STORMSEWER LINE |
| W | WATER LINE |
| WW | WASTEWATER LINE |
| G | GAS LINE |
| E | ELECTRIC LINE |
| OE | OVERHEAD ELECTRIC |
| UT | UNDERGROUND TELEPHONE |
| UC | UNDERGROUND CABLE AND INTERNET |
| TC | TELECOMMUNICATIONS LINE |
| EMHO | ELECTRIC MANHOLE (SIZE VARIES) |
| WWMH | WASTEWATER MANHOLE (SIZE VARIES) |
| SSMH | STORMSEWER MANHOLE (SIZE VARIES) |
| TMHO | TELEPHONE MANHOLE (SIZE VARIES) |
| CO | WASTEWATER CLEANOUT |
| | CURB & GUTTER |
| | EDGE OF PAVEMENT |
| | CONCRETE SIDEWALKS |
| 678 | CONTOUR |
| 100.0 x | SPOT ELEVATION |
| 1064 | EXISTING TREE DEAD/IN DECAY |
| 1064 | EXISTING TREE TO REMAIN |
| 1064 | EXISTING TREE TO BE REMOVED |
| | ORDINARY HIGH WATER DELINEATION (WATERS OF THE U.S.) |
| | FLOODPLAIN PER FEMA MAP PANEL 48029C0210G |
| | DRAINAGE AREA |
| | FLOW ARROW |
| | VEGETATED FILTER STRIP (VFS) |
| | IMPERVIOUS COVER TREATED BY VFS |
| | DRAINAGE SWALE |
| | DRAINAGE AREA NAME<br>DRAINAGE AREA ACREAGE |

NOTES:
1. THE MAXIMUM IMPERVIOUS COVER PER LINEAR FOOT BEING TREATED BY THE VEGETATED FILTERED STRIPS IS 72' IN ALL AREAS AND IS IN ACCORDANCE WITH THE TCEQ'S TECHNICAL GUIDANCE MANUAL.

### DRAINAGE AREA TREATMENT SUMMARY

| Drainage Area | Area (ac) | Impervious Cover (ac) | Impervious Cover (%) | Lm Generated (lbs) | Lm Treated (lbs) | PBMP |
|---|---|---|---|---|---|---|
| Proposed DA-1 (uncaptured) | 9.37 | 0 | 0.0% | 0 | 0 | BAYFILTER 1 |
| Proposed DA-2 | 5.42 | 3.84 | 70.8% | 3133 | 3490 | BAYFILTER 1 |
| Proposed DA-3 | 5.60 | 3.74 | 66.8% | 3052 | 3404 | BAYFILTER 2 |
| Proposed DA-4 | 1.76 | 1.07 | 60.8% | 873 | 976 | BAYFILTER 3 |
| Proposed DA-5 (uncaptured) | 15.10 | 0.00 | 0.0% | 0 | 0 | NA |
| Proposed DA-6 | 2.19 | 1.00 | 45.5% | 816 | 920 | BAYFILTER 4 |
| Proposed DA-7 | 0.41 | 0.41 | 100.0% | 335 | 370 | BAYFILTER 5 |
| Proposed DA-8 | 0.25 | 0.25 | 100.0% | 204 | 226 | BAYFILTER 6 |
| Proposed OS-1 | 0.07 | 0.07 | 100.0% | 0 | 0 | NA |
| Proposed DA-V1 | 0.41 | 0.16 | 39.0% | 131 | 131 | VEGETATED FILTER STRIP |
| Proposed DA-V2 | 0.23 | 0.12 | 52.2% | 98 | 98 | VEGETATED FILTER STRIP |
| Proposed DA-V3 | 0.73 | 0.38 | 52.1% | 310 | 310 | VEGETATED FILTER STRIP |
| Proposed DA-V4 | 0.7 | 0.33 | 47.1% | 269 | 269 | VEGETATED FILTER STRIP |
| Proposed DA-V5 | 0.57 | 0.30 | 52.6% | 245 | 245 | VEGETATED FILTER STRIP |
| Proposed DA-V6 | 1.3 | 0.45 | 34.6% | 367 | 367 | VEGETATED FILTER STRIP |
| Proposed DA-V7 | 0.27 | 0.14 | 51.9% | 114 | 114 | VEGETATED FILTER STRIP |

### DRAINAGE AREA SURFACE CALCULATIONS

| Drainage Area | C | I5 | Q5 | I25 | Q25 | I100 | Q100 |
|---|---|---|---|---|---|---|---|
| Proposed DA-1 (uncaptured) | 0.84 | 5.240 | **26.52** | 7.287 | **36.87** | 9.122 | **46.16** |
| Proposed DA-2 | 0.84 | 7.944 | **36.15** | 11.136 | **50.67** | 14.014 | **63.76** |
| Proposed DA-3 | 0.84 | 7.944 | **37.34** | 11.136 | **52.34** | 14.014 | **65.87** |
| Proposed DA-4 | 0.49 | 7.944 | **11.76** | 11.136 | **16.48** | 14.014 | **20.74** |
| Proposed DA-5 (uncaptured) | 0.89 | 6.440 | **47.46** | 8.994 | **66.28** | 11.381 | **83.88** |
| Proposed DA-6 | 0.97 | 5.414 | **10.56** | 7.534 | **14.69** | 9.447 | **18.42** |
| Proposed DA-7 | 0.97 | 7.944 | **3.18** | 11.136 | **4.45** | 14.014 | **5.61** |
| Proposed DA-8 | 0.97 | 7.944 | **1.91** | 11.136 | **2.67** | 14.014 | **3.36** |
| Proposed OS-1 | 0.97 | 7.944 | **0.56** | 11.136 | **0.78** | 14.014 | **0.98** |

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 IMPROVEMENTS PLANS.

BENCHMARKS:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

LEGAL DESCRIPTION:

TBM 101 COTTON SPINDLE SET ON ASPHALT NEAR THE NORTH END OF A MEDIAN ALONG KYLE SEALE PKWY AND THE SOUTH RIGHT OF WAY LINE OF BABCOCK RD. ELEV=1181.30'
TBM 102 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±772 SOUTHWEST OF BABCOCK RD. ELEV=1164.31'
TBM 103 PK NAIL SET ON SIDEWALK ALONG THE SOUTH RIGHT OF WAY LINE OF KYLE SEALE PKWY. BEING ±1250 SOUTHWEST OF BABCOCK RD. ELEV=1181.02'

FLOODPLAIN NOTE:

THE DRAINAGE EASEMENTS WERE DELINEATED TO CONTAIN THE LESSER OF THE BOUNDARIES OF THE 1% ANNUAL CHANCE (100-YEAR) FLOOD ZONE ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) IN ACCORDANCE WITH DFIRM PANEL 0210G, DATED 9/29/10 ; OR THE 1% ANNUAL CHANCE [100-YEAR] ULTIMATE DEVELOPMENT CONDITION WATER SURFACE ELEVATION; OR THE 4% ANNUAL CHANCE (25-YEAR) ULTIMATE DEVELOPMENT FLOODPLAIN PLUS FREEBOARD. CONSTRUCTION, IMPROVEMENTS, OR STRUCTURES WITHIN THE DRAINAGE EASEMENTS AND FLOODPLAIN ARE PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE FLOODPLAIN ADMINISTRATOR OF THE CITY OF SAN ANTONIO OR BEXAR COUNTY.

LOT 3, BLOCK 4, CB 4565, LIES WITHIN THE FEMA 1% ANNUAL CHANCE [100-YEAR] FLOODPLAIN AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP OF BEXAR COUNTY, TEXAS, DFIRM PANEL NUMBERS 48029C AND 48029C , DATED 9/29/10 . A FEMA CLOMR FLOODPLAIN STUDY HAS BEEN PREPARED BY AND WAS APPROVED BY THE CITY OF SAN ANTONIO AND/OR BEXAR COUNTY. THE FLOODPLAIN STUDY (FEMA CASE NO. ____) IS PENDING APPROVAL BY FEMA. FLOODPLAIN INFORMATION IS SUBJECT TO CHANGE AS A RESULT OF FUTURE FEMA MAP REVISIONS AND/OR AMENDMENTS.

Stantec
Stantec Consulting Services Inc.
70 NE Loop 410 Suite 1100
San Antonio TX 78216
Tel. (210) 829-7979
www.stantec.com
TBPE # F-6324
TBPLS # 10194230

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay.
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Consultant

| Issued | By | Appd | YYYY.MM.DD |
|---|---|---|---|
| Revision | By | Appd | YYYY.MM.DD |

Permit/Seal

MARY JANE K. PHILLIPS
102318
LICENSED
PROFESSIONAL ENGINEER
7/31/19

Client/Project
SA BIGHAUSLAND, LLC
BABCOCK ROAD AND KYLE SEALE PARKWAY
SAN ANTONIO, TEXAS

Project No.: 222011059
File Name: 11059C01_I02_DAM

Scale:

| STANTEC | MJP | STANTEC | |
|---|---|---|---|
| Dwn. | Dsgn. | Chkd. | 2019.07.31 |

Title
PROPOSED CONDITIONS DRAINAGE AREA MAP

Revision:0 Sheet: 3 of 6
Drawing No.
**C5.2**

ORIGINAL SHEET - ARCH E1

# ATTACHMENT H

TEMPORARY SEDIMENT POND(S)
PLANS AND CALCULATIONS
(Not Applicable)

# ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMP'S

**Attachment I - Inspection and Maintenance for BMPs.**

Each contractor will designate a qualified person (or persons) to perform the following inspections:

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.

2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.

3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

4. Locations where vehicles enter or exit the site will be inspected for evidence of offsite sediment tracking.

5. Permanent seeding and planting will be inspected for bare spots, washouts and unhealthy growth.

The inspection shall be conducted by the responsible person at least once every seven (7) calendar days and within 24 hours after a storm providing 1/2 inches of rainfall or greater. If one or more of the following conditions apply, the frequency of inspections shall be conducted at least once every month:

1. The site has been either finally or temporarily stabilized.

2. Where runoff is unlikely due to winter conditions (i.e. site is covered with snow, ice, or where frozen ground exists.

3. During seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches).

The information required within an inspection and maintenance report are as follows:

1. Summary of the scope of the inspection.

2. Name(s) and qualifications of personnel making the inspection.

3. The date(s) of the inspection.

4. Major observations relating to the implementation of the storm water pollution prevention plan.

5. Changes required to correct damages or deficiencies in the control measures.

In addition to the required routine inspections, the following record of information will also be maintained:

1. The dates when major grading activities occur.

2. The dates when construction activities temporarily or permanently cease on a portion of the site.

3. The dates when stabilization measures are initiated.

Inspection and maintenance reports as well as all records required by this Storm Water Pollution Prevention Plan shall become part of the Storm Water Pollution Plan. Copies of example forms to be used for the inspection and maintenance reports as well as related records are included in the project's Texas Pollution Discharge Elimination System (TPDES) Report.

**MAINTENANCE**

Based on the results of the inspection, any changes required to correct damages or deficiencies in the control measures shall be made within seven (7) calendar days after the inspection. If existing stabilization/erosion controls need modification or additional stabilization/erosion controls are necessary, implementation shall be achieved prior to the next anticipated storm event. If, however, the execution of this requirement becomes impractical, then the implementation will occur as soon as possible, with the incident duly noted with an explanation of the impracticality, in the inspection report.

Sediment accumulation at each control will be removed and properly disposed when the depth of accumulation equals or exceeds six (6) inches. If sediment accumulation is found to be contaminated, its disposal shall be off-site in a manner which conforms to the appropriate applicable regulations.

**Temporary Construction Entrance/Exit**
(Section 1.4.2, TCEQ TGM, July 2005)

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

**Silt Fence**
(Section 1.4.3, TCEQ TGM, July 2005)

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

**Triangular Sediment Filter Dikes**
(Section 1.4.4, TCEQ TGM, July 2005)

(1) Inspection should be made weekly or after each rainfall event and repair or replacement should be made promptly as needed by the contractor.
(2) Inspect and realign dikes as needed to prevent gaps between sections.
(3) Accumulated silt should be removed after each rainfall, and disposed of in a manner which will not cause additional siltation.
(4) After the site is completely stabilized, the dikes and any remaining silt should be removed. Silt should be disposed of in a manner that will not contribute to additional siltation.

**Rock Berms**
(Section 1.4.5, TCEQ TGM, July 2005)

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

# ATTACHMENT J

SCHEDULE OF INTERIM AND
PERMANENT SOIL STABILIZATION

## Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices.

**During Construction:**

The methodology for handling pollution of on-site or up-gradient storm water during construction will include the following:

1. Silt fencing and rock berms will be used as a temporary erosion and sedimentation controls.

2. Stabilized construction entrances/exits will be put into place to reduce the dispersion of sediment from the site, and to aid in accessibility to the site.

3. A construction staging area will also be put into place for material stockpiles, machinery storage, and machinery maintenance.

4. Concrete truck washout pits will be put into place to prevent contamination of storm water runoff and to aid in the removal of sediments from the site.

5. As required by the TCEQ General Permit, disturbed areas on which construction activity has ceased (temporarily or permanently) and which will be exposed for more than 21 days shall be stabilized within 14 days. Areas receiving less than 20 inches of annual rainfall should be stabilized as soon as practicable and only to pre-project conditions.

6. If construction stops for more than 14 days, hydro-seeding, sod or other TCEQ approved method will be applied to re-stabilize vegetation.

**After Construction:**

This site will provide the following permanent pollution abatement measures to prevent the pollution of storm water originating on-site or upgradient from the project site:

1. Storm water will be directed to grate inlets via curbing and grading and discharged into the sedimentation/filtration basins. The sedimentation/filtration basins have been designed to capture and filter the required runoff from the individual watersheds. The basin has been designed in accordance with the TCEQ Technical Guidance Manual. Each basin will be constructed as that particular phase is built.

2. Native grasses will be used on-site to help reduce the use of fertilizers and this will in turn reduce the levels of phosphates present in the stormwater runoff.

3. Where possible drainage will be directed across vegetated areas to provide some pretreatment prior to discharge into the filter basin.

**Permanent Erosion Control:**

1. All disturbed areas shall be restored as noted below:

   - A minimum of 4" of topsoil shall be placed in all drainage channels (except rock) and between the curb and R.O.W. property lines.

2. Broadcast Seeding:

   - From September 15 to March 1, seeding shall be with a combination of 2 pounds per 1,000 SF of unhulled Bermuda and 7 pounds per 1000 SF of Winter Rye with a purity of 95% with 90% germination.

   - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 2 pounds per 1000 SF with a purity of 95% with 85% germination.

3. Fertilizer shall be a pelleted or granular slow release with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of 1 pound per 1,000 SF.

4. Hydraulic Seeding:

   - From September 15 to March 1, seeding shall be with a combination of 1 pound per 1,000 SF of unhulled Bermuda and 7 pounds per 1,000 SF of Winter Rye with a purity of 95% with 90% germination.

   - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 7 pounds per 1,000 SF with a purity of 95% with 85% germination.

5. Fertilizer shall be a water soluble fertilizer with an analysis of 15-15-15 at a rate of 1 to 1.5 pounds per 1,000 SF (45-65 pounds per acre).

6. Mulch type used shall be hay, straw, or mulch applied at a rate of 45 pounds per 1,000 SF with a soil tackifier at a rate of 1.4 pounds per 1,000 SF.

7. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil but will sufficiently soak the soil to a depth of 6". The irrigation shall occur at ten-day intervals during the first two months. Rainfall occurrences of ½" or more shall postpone the watering schedule for one week.

8. Restoration shall be acceptable when the grass has grown at least 1½" high with 95% coverage, provided no bare spots larger than 16 square feet exist.

# COPY OF NOTICE OF INTENT

**TCEQ Office Use Only**
Permit No.:
RN:
CN:
Region:

# Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

**IMPORTANT:**

- Use the INSTRUCTIONS to fill out each question in this form.
- Use the CHECKLIST to make certain you filled out all required information. Incomplete applications **WILL** delay approval or result in denial.
- Once processed your permit can be viewed at: http://www.tceq.texas.gov/goto/wq-dpa

**ePERMITS:** Sign up now for online NOI: https://www3.tceq.texas.gov/steers/
Pay a $225 reduced application fee by using ePermits.

**APPLICATION FEE:**

- You must pay the **$325** Application Fee to TCEQ for the paper application to be complete.
- Payment and NOI must be mailed to separate addresses.
- Did you know you can pay on line?
  - Go to http://www.tceq.texas.gov/goto/epay
  - Select Fee Type: GENERAL PERMIT CONSTRUCTION STORM WATER DISCHARGE NOI APPLICATION
- **Provide your payment information below, for verification of payment:**

☐ Mailed Check/Money Order Number: _____
Name Printed on Check: _____
Copy of check enclosed? ☐ Yes

☐ EPAY Voucher Number: _____
Is the Payment Voucher copy attached? ☐ Yes

**RENEWAL: Is this NOI a Renewal of an existing General Permit Authorization? (Note: A permit cannot be renewed after June 3, 2013.)**

☐ Yes The Permit number is: TXR15_____
**(If a permit number is not provided, a new number will be assigned.)**

☐ No

## 1) OPERATOR (Applicant)

**a)** If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? You may search for your CN at: http://www.tceq.texas.gov/goto/cr-customer

CN_____

**b)** What is the Legal Name of the entity (applicant) applying for this permit?
SA BigHausLand, LLC
(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

**c)** What is the contact information for the Operator (Responsible Authority)? The mailing address must be recognized by the US Postal Service (USPS). You may verify the address at: https://tools.usps.com/go/ZipLookupAction!input.action
Prefix (Mr. Ms. Miss): Mr.
First/Last Name: Dan Leverett Suffix:
Title: Owner Credential:
Phone Number: (713) 502-6574 Ext: Fax Number:
E-mail: dleverett@placeusa.com
Mailing Address: 1722 Broadmoor Drive, Suite 208
Internal Routing (Mail Code, Etc.):
City: Bryan State: Texas ZIP Code: 77802
If outside USA:
Territory: Country Code: Postal Code:

**d)** Indicate the type of Customer (The instructions will help determine your customer type):

- ☐ Individual
- ☑ Limited Partnership
- ☐ Sole Proprietorship-DBA
- ☐ Joint Venture
- ☐ General Partnership
- ☐ Corporation
- ☐ Trust
- ☐ Estate
- ☐ Federal Government
- ☐ State Government
- ☐ County Government
- ☐ City Government
- ☐ Other Government

**e)** Independent Operator? (If governmental entity, subsidiary, or part of a larger corporation, check "No".)
☑ Yes ☐ No

**f)** Number of Employees:
☑ 0-20; ☐ 21-100; ☐ 101-250; ☐ 251-500; or ☐ 501 or higher

**g)** Customer Business Tax and Filing Numbers:
(REQUIRED for Corporations and Limited Partnerships. Not Required for Individuals, Government, or Sole Proprietors)
State Franchise Tax ID Number:
Federal Tax ID:
Texas Secretary of State Charter (filing) Number:
DUNS Number (if known):

## 2) APPLICATION CONTACT

If TCEQ needs additional information regarding this application, who should be contacted?

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3).

☑ No, complete section below

Prefix (Mr. Ms. Miss):_____
First/Last Name: _____ Suffix: _____
Title:_____ Credential:_____
Organization Name:_____
Phone Number:_____ Ext:_____ Fax Number:_____
E-mail:_____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____ State:_____ ZIP Code:_____
Mailing Information if outside USA:
Territory:_____ Country Code:_____ Postal Code:_____

## 3) REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

If the site of your business is part of a larger business site or if other businesses were located at this site before yours, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at:
http://www.tceq.texas.gov/goto/cr-searchrn

If the site is found, provide the assigned Regulated Entity Reference Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

**a)** TCEQ issued RE Reference Number (RN): RN_____

**b)** Name of project or site (the name known by the community where located):
SA Bighaus

**c)** In your own words, briefly describe the primary business of the Regulated Entity: (Do not repeat the SIC and NAICS code):

Multifamily community

**d)** County (or counties if > 1)

Bexar

**e)** Latitude: 29.622916 N Longitude: -98.645623 W

**f)** Does the site have a physical address?

☐ Yes, complete Section A for a physical address.

☑ No, complete section B for site location information.

***Section A:*** Enter the physical address for the site.
Verify the address with USPS. If the address is not recognized as a delivery address, provide the address as identified for overnight mail delivery, 911 emergency or other online map tools to confirm an address.

Physical Address of Project or Site:
Street Number: _____ Street Name: _____
City:_____ State:_____ ZIP Code:_____

***Section B:*** Enter the site location information.
If no physical address (Street Number & Street Name), provide a written location access description to the site. (Example: located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)

Located on the southwest corner of Babcock Rd and Kyle Seale Pkwy.

City where the site is located or, if not in a city, what is the nearest city:
San Antonio

State: Texas ZIP Code where the site is located: 78255

## 4) GENERAL CHARACTERISTICS

**a)** Is the project/site located on Indian Country Lands?

☐ Yes - If the answer is Yes, you must obtain authorization through EPA, Region 6.

☑ No

**b)** Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes - If the answer is Yes, you may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA, Region 6.

☑ No

**c)** What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?
Primary SIC Code: 1522

**d)** If applicable, what is the Secondary SIC Code(s): _____

**e)** What is the total number of acres disturbed? 44.28

**f)** Is the project site part of a larger common plan of development or sale?

☐ Yes - If the answer is Yes, the total number of acres disturbed can be less than 5 acres.

☑ No - If the answer is No, the total number of acres disturbed must be 5 or more. If the total number of acres disturbed is less than 5 then the project site does not qualify for coverage through this Notice of Intent. Coverage will be denied. See the requirements in the general permit for small construction sites.

**g)** What is the name of the first water body(s) to receive the stormwater runoff or potential runoff from the site?

Leon Creek

**h)** What is the segment number(s) of the classified water body(s) that the discharge will eventually reach?

1907

**i)** Is the discharge into an MS4?

☑ Yes - If the answer is Yes, provide the name of the MS4 operator below.

SAWS

Note: The general permit requires you to send a copy of the NOI to the MS4 operator.

☐ No

**j)** Are any of the surface water bodies receiving discharges from the construction site on the latest EPA-approved CWA 303(d) List of impaired waters?

☐ Yes - If the answer is Yes, provide the name(s) of the impaired water body(s) below.

☑ No

**k)** Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer as defined in 30 TAC Chapter 213?

☑ Yes - If the answer is Yes, complete certification below by checking "Yes."

☐ No

I certify that a copy of the TCEQ approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) is either included or referenced in the Stormwater Pollution Prevention Plan.

☑ Yes

## 5) CERTIFICATION

Check Yes to the certifications below. Failure to indicate Yes to ***ALL*** items may result in denial of coverage under the general permit.

**a)** I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☑ Yes

**b)** I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☑ Yes

**c)** I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☑ Yes

**d)** I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the general permit TXR150000. Note: For multiple operators who operate under a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator. ☑ Yes

**Operator Certification:**

I,_____ _____

Typed or printed name Title

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under **30 Texas Administrative Code §305.44** to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date:_____

*(Use blue ink)*

# Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

General Information and Instructions

## GENERAL INFORMATION

### Where to Send the Notice of Intent (NOI):

BY REGULAR U.S. MAIL
Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
P.O. Box 13087
Austin, Texas 78711-3087

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
12100 Park 35 Circle
Austin, TX 78753

### TCEQ Contact List:

| | |
|---|---|
| Application – status and form questions: | 512/239-3700, swpermit@tceq.texas.gov |
| Technical questions: | 512/239-4671, swgp@tceq.texas.gov |
| Environmental Law Division: | 512/239-0600 |
| Records Management - obtain copies of forms: | 512/239-0900 |
| Reports from databases (as available): | 512/239-DATA (3282) |
| Cashier's office: | 512/239-0357 or 512/239-0187 |

### Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

1) **Administrative Review:** Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(s) on the form must be verified with the US Postal service as receiving regular mail delivery. Never give an overnight/express mailing address.

2) **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.

3) **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.
   -or-
   **Denial of Coverage:** If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

### General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site http://www.tceq.texas.gov. Search using key word TXR150000.

## General Permit Forms

The Notice of Intent (NOI), Notice of Termination (NOT), and Notice of Change (NOC) (including instructions) are available in Adobe Acrobat PDF format on the TCEQ web site http://www.tceq.texas.gov.

## Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

## TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number.

You can find the information on the Central Registry web site at http://www15.tceq.texas.gov/crpub/. You can search by the Regulated Entity (RN), Customer Number (CN) or Name (Permittee), or by your permit number under the search field labeled "Program ID". Capitalize all letters in the permit number.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For General Permits, a Notice of Change form must be submitted to the program area.

## Fees associated with a General Permit

Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

***Application Fee:*** This fee is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit.

Mailed Payments:

Payment must be mailed under separate cover at one of the addresses below using the attached Application Fee submittal form. (DO NOT SEND A COPY OF THE NOI WITH THE APPLICATION FEE SUBMITTAL FORM)

BY REGULAR U.S. MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

ePAY Electronic Payment: http://www.tceq.texas.gov/epay

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

## INSTRUCTIONS FOR FILLING OUT THE NOI FORM

**Renewal of General Permit.** Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied a new permit number will be issued.

### 1. Operator (Applicant)

#### a) Enter assigned Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number.**
If this customer has not been assigned a CN, leave the space for the CN blank.
If this customer has already been assigned this number, enter the permittee's CN.

#### b) Legal Name

Provide the current legal name of the permittee, as authorized to do business in Texas. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512/463-5555, for more information related to filing in Texas. If filed in the county where doing business, provide a copy of the legal documents showing the legal name.

#### c) Operator Contact's (Responsible Authority) Contact Information and Mailing Address

Provide the first and last name, and the title of the person signing the Certification section of the application. This person must be an individual having signatory authority in accordance with 30 TAC Chapter §305.44. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The address must be verifiable with the US Postal Service at https://tools.usps.com/go/ZipLookupAction!input.action for regular mail delivery (not overnight express mail). If you find that the address is not verifiable using the USPS web search, please indicate the address is used by the USPS for regular mail delivery.

The area code and phone number should provide contact to the operator. Leave Extension blank if not applicable.

The fax number and e-mail address are optional and should correspond to the operator.

#### d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for a permit, registration or authorization.

**Sole Proprietorship – DBA**

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

- be under the person's name
- have its own name (doing business as or d.b.a.)
- have any number of employees

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

**Individual**

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

**Partnership**

- A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). A Limited Partnership or Limited Liability Partnership (Partnership) is required to file with the Texas Secretary of State. A General Partnership or Joint Venture is not required to register with the state.
- **Partnership (Limited Partnership or Limited Liability Partnership):** A limited partnership is defined in the Act as a partnership formed by two or more persons under the provisions of Section 3 of the Uniform Limited Partnership Act (Art. 6132a, Revised Civil Statutes of Texas) and having as members one or more general partners and one or more limited partners. The limited partners as such are not bound by the obligations of the partnership. Limited partners may not take part in the day-to-day operations of the business. A Limited Partnership must file with the Texas Secretary of State. A registered limited liability partnership is a general or limited partnership that is registered with the Texas Secretary of State. The partnership's name must contain the words "Registered Limited Liability Partnership" or the abbreviation "L.L.P." as the last words or letters of its name.
- **General Partnership:** A general partner may or may not invest, participates in running the partnership and is liable for all acts and debts of the partnership and any member of it. A General Partnership does not have limited partners. For a General Partnership, there is no registration with the state or even written agreement necessary for a general partnership to be formed. The legal definition of a partnership is generally stated as "an association of two or more persons to carry on as co-owners a business for profit" (Revised Uniform Partnership Act § 101 [1994]).
- **Joint Venture:** A joint venture is but another name for a special partnership. It might be distinguished from a general partnership in that the latter is formed for the transaction of a general business, while a joint venture is usually limited to a single transaction. That is, a joint venture is a special combination of persons in the nature of a partnership engaged in the joint prosecution of a particular transaction for mutual benefit or profit.

**Corporation**

A customer meets all of these conditions:

- is a legally incorporated entity under the laws of any state or country
- is recognized as a corporation by the Texas Secretary of State
- has proper operating authority to operate in Texas.
- The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

**Government**

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the

applicant. A department name or other description of the organization should not be included as a part of the 'legal name' as applicant.

**Trust or Estate**

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

**Other Government**

A utility district, water district, tribal government, college district, council of governments, or river authority. Write in the specific type of government.

### e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

### f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

### g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

**State Franchise Tax ID Number**

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter this number here.

**Federal Tax ID**

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

**TX SOS Charter (filing) Number**

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512/463-5555.

**DUNS Number**

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

## 2. APPLICATION CONTACT

Provide the name, title and communication information of the person that TCEQ can contact for additional information regarding this application.

## 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

### a) Regulated Entity Reference Number (RN)

A number issued by TCEQ's Central Registry to sites (a location where a regulated activity occurs) regulated by TCEQ. This is not a permit number, registration number, or license number. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at: http://www.tceq.texas.gov/goto/cr-searchrn

If the site is found, provide the assigned Regulated Entity Reference Number (RN) and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

**b) Site/Project Name/Regulated Entity**
Provide the name of the site as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

**c) Description of Activity Regulated**
In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

**d) County**
Identify the county or counties in which the regulated entity is located.

**e) Latitude and Longitude**
Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to:
http://www.tceq.texas.gov/gis/sqmaview.html or http://nationalmap.gov/ustopo

**f) Site/Project (RE) Physical Address/Location Information**
Enter the complete address for the site in Section A if the address can be validated through the US Postal Service. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street (or house) number and street name, enter NO ADDRESS for the street name in Section A. In Section B provide a complete written location description. For example: "The site is located 2 miles west from intersection of Hwy 290 & IH35, located on the southwest corner of the Hwy 290 South bound lane."
Provide the city (or nearest city) and zip code of the facility location.

## 4. GENERAL CHARACTERISTICS

**a) Indian Country Lands**
If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA, Region 6, Dallas. Do not submit this form to TCEQ.

**b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources**

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization from EPA Region 6. For more information, see:
http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the Railroad Commission's jurisdiction must be authorized by the EPA and the Railroad Commission of Texas, as applicable. Activities under Railroad Commission of Texas jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the Railroad Commission of Texas; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The Railroad Commission of Texas also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the Railroad Commission of Texas. Under 33 U.S.C. §1342(l)(2) and §1362(24), EPA cannot require a permit for discharges of stormwater from "field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities" unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under §3.8 of this title (relating to Water Protection), the Railroad Commission of Texas prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

**c) Primary Standard Industrial Classification (SIC) Code**

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Bldgs. Other than Single Family Homes
- 1541 - Construction of Industrial Bldgs. and Warehouses

- 1542 - Construction of Non-residential Bldgs, other than Industrial Bldgs. and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, go to:
http://www.osha.gov/pls/imis/sicsearch.html

**d) Secondary SIC Code**
Secondary SIC Code(s) may be provided. Leave blank if not applicable. For help with SIC Codes, go to: http://www.osha.gov/pls/imis/sicsearch.html

**e) Total Number of Acres Disturbed**
Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at (512)239-4671 or by email at swgp@tceq.texas.gov.

**f) Common Plan of Development**
Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on "What is a common plan of development?" go to:
www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage at:
www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If you have any further questions about this item, please call the stormwater technical staff at (512)239-4671.

**g) Identify the water body(s) receiving stormwater runoff**
The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

**h) Identify the segment number(s) of the classified water body(s)**
Identify the classified segment number(s) receiving a discharge directly or indirectly. Go to the following link to find the segment number of the classified water body where stormwater will flow from the site: www.tceq.texas.gov/waterquality/monitoring/viewer.html

You may also find the segment number in TCEQ publication GI-316:
www.tceq.texas.gov/publications/gi/gi-316

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at (512)239-4671 for further assistance.

**i) Discharge into MS4 – Identify the MS4 Operator**
The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at (512)239-4671.

**j) Surface Water bodies on list of impaired waters – Identify the impaired water body(s)**
Indicate Yes or No if any surface water bodies receiving discharges from the construction site are on the latest EPA-approved CWA 303(d) List of impaired waters. Provide the name(s) of surface water bodies receiving discharges or potential discharges from the construction site that are on the latest EPA-approved CWA 303(d) List of impaired waters. The EPA-approved CWA 303(d) List of impaired waters in Texas can be found at:
www.tceq.texas.gov/waterquality/assessment/305_303.html

NOTE: Do not use any "draft" documents.

**k) Discharges to the Edwards Aquifer Recharge Zone and Certification**
See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer at:
www.tceq.texas.gov/field/eapp/viewer.html

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin. The certification must be answered "Yes" for coverage under the Construction General Permit. The TCEQ approved plan must be readily available for TCEQ staff to review at the time that the NOI is submitted.

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

## 5. CERTIFICATIONS

Failure to indicate **Yes** to ALL of the certification items may result in denial of coverage under the general permit.

### a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. (Electronic applications submitted through ePermits have immediate provisional coverage). You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site: www.tceq.texas.gov/goto/construction

### b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at (512)463 5555, for more information related to filing in Texas.

### c) Understanding of Notice of Termination

A permittee shall terminate coverage under this Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

### d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

### Operator Certification:

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

### IF YOU ARE A CORPORATION:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

## IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at (512)239-0600.

**30 Texas Administrative Code**
**§305.44. Signatories to Applications**

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

# Texas Commission on Environmental Quality
# General Permit Payment Submittal Form

**Use this form to submit your Application Fee only if you are mailing your payment.**

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- Do not mail this form with your NOI form.
- Do not mail this form to the same address as your NOI.

**Mail this form and your check to:**

*BY REGULAR U.S. MAIL*

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

*BY OVERNIGHT/EXPRESS MAIL*

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check / Money Order Number: _____
2. Amount of Check/Money Order: _____
3. Date of Check or Money Order: _____
4. Name on Check or Money Order: _____
5. NOI INFORMATION

   If the check is for more than one NOI, list each Project/Site (RE) Name and Physical Address exactly as provided on the NOI. DO NOT SUBMIT A COPY OF THE NOI WITH THIS FORM AS IT COULD CAUSE DUPLICATE PERMIT ENTRIES.

   See Attached List of Sites (If more space is needed, you may attach a list.)

   Project/Site (RE) Name: _____

   Project/Site (RE) Physical Address:

Staple Check in This Space

# NOTICE OF INTENT CHECKLIST (TXR150000)

- Did you complete everything? Use this checklist to be sure!
- Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

This checklist is for use by the operator to ensure a complete application. Missing information may result in denial of coverage under the general permit. (See NOI process description in the Instructions)

## Application Fee:

If paying by Check:

- ☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)
- ☐ Check number and name on check is provided in this application.

If using ePay:

- ☐ The voucher number is provided in this application or a copy of the voucher is attached.

## PERMIT NUMBER:

- ☐ Permit number provided – if this application is for renewal of an existing authorization.

## OPERATOR INFORMATION - Confirm each item is complete:

- ☐ Customer Number (CN) issued by TCEQ Central Registry
- ☑ Legal name as filed to do business in Texas (Call TX SOS 512/463-5555)
- ☑ Name and title of responsible authority signing the application
- ☑ Mailing address is complete & verifiable with USPS. www.usps.com
- ☑ Phone numbers/e-mail address
- ☑ Type of operator (entity type)
- ☑ Independent operator
- ☑ Number of employees
- ☑ For corporations or limited partnerships – Tax ID and SOS filing numbers
- ☑ Application contact and address is complete & verifiable with USPS. http://www.usps.com

## REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE - Confirm each item is complete:

- ☐ Regulated Entity Reference Number (RN) (if site is already regulated by TCEQ)
- ☑ Site/project name/regulated entity
- ☑ Latitude and longitude http://www.tceq.texas.gov/gis/sqmaview.html
- ☑ County
- ☑ Site/project physical address. Do not use a rural route or post office box.
- ☑ Business description

## GENERAL CHARACTERISTICS - Confirm each item is complete:

- ☑ Indian Country Lands –the facility is not on Indian Country Lands
- ☑ Construction activity related to facility associated to oil, gas, or geothermal resources
- ☑ Standard Industrial Classification (SIC) Code www.osha.gov/oshstats/sicser.html
- ☑ Acres disturbed is provided and qualifies for coverage through a NOI
- ☑ Common plan of development or sale
- ☑ Receiving water body(s)
- ☑ Segment number(s)
- ☑ Impaired water body(s)
- ☑ MS4 operator
- ☑ Edwards Aquifer rule

## CERTIFICATION

- ☑ Certification statements have been checked indicating "Yes"
- ☑ Signature meets 30 Texas Administrative Code (TAC) 305.44 and is original.

# AGENT AUTHORIZATION FORM

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

I Dan Leverett,
Print Name

Manager,
Title - Owner/President/Other

of SA BigHausLand, LLC,
Corporation/Partnership/Entity Name

have authorized Mary Jane Phillips
Print Name of Agent/Engineer

of Stantec Consulting Services Inc.
Print Name of Firm

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

I also understand that:

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

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

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

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

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

1 AUGUST 2019
Date

THE STATE OF Texas §

County of Brazos §

BEFORE ME, the undersigned authority, on this day personally appeared Dan B Leverett known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 1st day of August, 2019

STACY K GRAY
Notary ID #11896282
My Commission Expires
July 5, 2021

NOTARY PUBLIC

Stacy K Gray
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 7/5/2021

# APPLICATION FEE FORM

# Application Fee Form

**Texas Commission on Environmental Quality**

Name of Proposed Regulated Entity: SA Bighaus Land

Regulated Entity Location: Babcock Rd and Kyle Seale Pkwy

Name of Customer: Dan Leverett

Contact Person: Mary Jane Phillips Phone: 210-525-9090

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

**Austin Regional Office (3373)**

☐ Hays ☐ Travis ☐ Williamson

**San Antonio Regional Office (3362)**

☒ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

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:

☐ Austin Regional Office

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

☒ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

**Site Location (Check All That Apply):**

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

| *Type of Plan* | *Size* | *Fee Due* |
|---|---|---|
| Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling | 44.28 Acres | $ 8,000 |
| Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks | Acres | $ |
| Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential | Acres | $ |
| Sewage Collection System | L.F. | $ |
| Lift Stations without sewer lines | Acres | $ |
| Underground or Aboveground Storage Tank Facility | Tanks | $ |
| Piping System(s)(only) | Each | $ |
| Exception | Each | $ |
| Extension of Time | Each | $ |

Signature: _____ Date: 7/12/19



TCEQ-0574 (Rev. 02-24-15)

# Application Fee Schedule

**Texas Commission on Environmental Quality**

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

***Water Pollution Abatement Plans and Modifications***

***Contributing Zone Plans and Modifications***

| *Project* | *Project Area in Acres* | *Fee* |
|---|---|---|
| One Single Family Residential Dwelling | < 5 | $650 |
| Multiple Single Family Residential and Parks | < 5<br>5 < 10<br>10 < 40<br>40 < 100<br>100 < 500<br>≥ 500 | $1,500<br>$3,000<br>$4,000<br>$6,500<br>$8,000<br>$10,000 |
| Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur) | < 1<br>1 < 5<br>5 < 10<br>10 < 40<br>40 < 100<br>≥ 100 | $3,000<br>$4,000<br>$5,000<br>$6,500<br>$8,000<br>$10,000 |

***Organized Sewage Collection Systems and Modifications***

| *Project* | *Cost per Linear Foot* | *Minimum Fee-Maximum Fee* |
|---|---|---|
| Sewage Collection Systems | $0.50 | $650 - $6,500 |

***Underground and Aboveground Storage Tank System Facility Plans and Modifications***

| *Project* | *Cost per Tank or Piping System* | *Minimum Fee-Maximum Fee* |
|---|---|---|
| Underground and Aboveground Storage Tank Facility | $650 | $650 - $6,500 |

***Exception Requests***

| *Project* | *Fee* |
|---|---|
| Exception Request | $500 |

***Extension of Time Requests***

| *Project* | *Fee* |
|---|---|
| Extension of Time Request | $150 |

# CORE DATA FORM

# TCEQ Core Data Form

TCEQ Use Only

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

## SECTION I: General Information

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

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

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

| 2. Customer Reference Number (if issued) | | 3. Regulated Entity Reference Number (if issued) |
|---|---|---|
| CN | Follow this link to search for CN or RN numbers in Central Registry** | RN |

## SECTION II: Customer Information

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

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

***The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).***

6. Customer Legal Name (If an individual, print last name first: e.g.: Doe, John) | If new Customer, enter previous Customer below:

SA BigHausLand LLC

| 7. TX SOS/CPA Filing Number | 8. TX State Tax ID (11 digits) | 9. Federal Tax ID (9 digits) | 10. DUNS Number (if applicable) |
|---|---|---|---|
| 0802873097 | 32065566138 | | |

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees

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

13. Independently Owned and Operated?

☒ Yes ☐ No

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

☐ Owner ☐ Operator ☒ Owner & Operator

☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

1722 Broadmoor Drive, Suite ~~280~~ 208

| City | Bryan | State | TX | ZIP | 77802 | ZIP + 4 | 5200 |
|---|---|---|---|---|---|---|---|

| 16. Country Mailing Information (if outside USA) | 17. E-Mail Address (if applicable) |
|---|---|
| | dleverett@placeusa.com |

| 18. Telephone Number | 19. Extension or Code | 20. Fax Number (if applicable) |
|---|---|---|
| ( 713 ) 502 - 6574 | | ( ) - |

## SECTION III: Regulated Entity Information

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

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

***The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).***

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

SA BigHaus

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23. Street Address of the Regulated Entity: (No PO Boxes) | | | | | | | |
| | City | | State | | ZIP | | ZIP + 4 |
| 24. County | | | | | | | |

Enter Physical Location Description if no street address is provided.

| | | | |
|---|---|---|---|
| 25. Description to Physical Location: | Southwest of the intersection of Kyle Seale Pkwy and Babcock Rd | | |
| 26. Nearest City | | State | Nearest ZIP Code |
| San Antonio | | TX | 78256 |

| | | | | | |
|---|---|---|---|---|---|
| 27. Latitude (N) In Decimal: | 29.622916 | | 28. Longitude (W) In Decimal: | -98.645623 | |
| Degrees | Minutes | Seconds | Degrees | Minutes | Seconds |
| 29 | 37 | 22.4 | 98 | 38 | 42.1 |

| | | | |
|---|---|---|---|
| 29. Primary SIC Code (4 digits) | 30. Secondary SIC Code (4 digits) | 31. Primary NAICS Code (5 or 6 digits) | 32. Secondary NAICS Code (5 or 6 digits) |
| 1522 | | 236116 | |

33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)

Multifamily development

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 34. Mailing Address: | 1722 Broadmoor Drive, Suite 208 | | | | | | |
| | City | Bryan | State | TX | ZIP | 77802 | ZIP + 4 5200 |
| 35. E-Mail Address: | dleverett@placeusa.com | | | | | | |

| 36. Telephone Number | 37. Extension or Code | 38. Fax Number (if applicable) |
|---|---|---|
| ( 713 ) 502 - 6574 | | ( ) - |

39. **TCEQ Programs and ID Numbers** Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

| | | | | |
|---|---|---|---|---|
| ☐ Dam Safety | ☐ Districts | ☒ Edwards Aquifer | ☐ Emissions Inventory Air | ☐ Industrial Hazardous Waste |
| | | CZP | | |
| ☐ Municipal Solid Waste | ☐ New Source Review Air | ☐ OSSF | ☐ Petroleum Storage Tank | ☐ PWS |
| | | | | |
| ☐ Sludge | ☐ Storm Water | ☐ Title V Air | ☐ Tires | ☐ Used Oil |
| | | | | |
| ☐ Voluntary Cleanup | ☐ Waste Water | ☐ Wastewater Agriculture | ☐ Water Rights | ☐ Other: |
| | | | | |

## SECTION IV: Preparer Information

| | | | |
|---|---|---|---|
| 40. Name: | Mary Jane Phillips, PE | 41. Title: Principal | |
| 42. Telephone Number | 43. Ext./Code | 44. Fax Number | 45. E-Mail Address |
| ( 210 ) 525 - 9090 | | ( 210 ) 525 - 0529 | maryjane.phillips@stantec.com |

## SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

| | | | |
|---|---|---|---|
| Company: | Stantec Consulting Services, Inc. | Job Title: | Project Manager |
| Name(*In Print*): | Mary Jane Phillips | Phone: | (210) 714-7086 |
| Signature: | MJPhillips | Date: | 7-17-19 |