TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 17, 2010

Mr. J. L. Guerra, Jr.
Westpointe Residential, Ltd.
PO Box 212
Colonial Heights, VA, 23834

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: The Enclave at Westpointe Village; Located at the southwest corner of Oak Run Pkwy and Independence Drive, New Braunfels, Texas
TYPE OF PLAN: Request for the Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
San Antonio File No. 2942.00; Investigation No. 858288; Regulated Entity No. RN105991145

Dear Mr. Guerra:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP application for the above-referenced project submitted to the San Antonio Regional Office by Bury+Partners on behalf of Westpointe Residential, Ltd. on August 23, 2010. Final review of the WPAP was completed after additional material was received on October 15, 2010, November 12, 2010 and November 16, 2010. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 48.18 acres. It will include the construction of 134 residential houses, three sedimentation filtration basins, a parkland/amenity center and associated roadways and sidewalks. The impervious cover will be 22.63 acres (46.97 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Water Recycling Center owned by New Braunfels Utility.

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, three sand filter basins, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (RG-348, 2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 20,313 pounds of TSS generated from the 22.63 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The individual treatment measures will consist of three single-chamber, earthen sand filter basins. Each basin will have a 12 inch clay liner and three to one side slopes. The filtration system will consists of an 18 inch sand layer separated from the eight inch gravel layer by a geotextile fabric layer. The 4 inch underdrain pipes will be placed on the bottom of the basins. The required and the designed water quality volumes, sand filter areas and TSS removal amounts for each basin are summarized in table below.

Table 1: Permanent BMP TSS Removal and Sizing Summary Table

Drainage Area	Total Area (ac)	Imp. Cover (ac)	Req. TSS Removal (lb/yr)	Design TSS Removal (lb/yr)	Req. WQV (ft^3)	Design WQV (ft^3)	Req. Sand Filter Area (ft^2)	Design Sand Filter Area (ft^3)
DA-1 West Basin	12.59	7.35	6,597	6,910	61,065	63,830	4,039	18,310
DA -2 East Basin	19.68	10.25	9,200	9,775	63,332	65,370	6,334	17,401
DA-3 SW Basin	6.24	3.55	3,186	3,630	39,703	50,272	3,971	7,366
Uncaptured	3.91	1.48	1,328	0	---	---	---	---
Total	42.42	22.63	20,313	20,315	---	---	---	---

GEOLOGY

According to the geologic assessment included with the application, three geologic features were located at the site. Two features were evaluated as non-sensitive by the project geologist. One feature was ranked as sensitive and is further discussed below. The San Antonio Regional Office conducted a site assessment on September 27, 2010, which revealed the site was adequately described in the geologic assessment.

Sensitive Features

A natural buffer was proposed for one sensitive solution cavity (F-2). No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffer area. In accordance with Ch. 5 of RG-348, the size of the natural buffer is based on the size of the feature and on the drainage area to the sensitive feature. The buffer will extend a minimum of 50 feet in all directions from the edge of the two foot by one foot feature and will extend 100 feet

upgradient of the feature, to the edge of the feature's drainage area. The natural buffer layout is detailed and labeled on the WPAP site plan and exhibits.

SPECIAL CONDITIONS

I. The permanent BMP shall be operational prior to occupancy of any residential house lots, occupancy of any sales office (model homes) or public use of the roadways within the respective BMP's drainage area.

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

III. Any change in the design, specifications, size or layout of the permanent BMPs or any change in the approved regulated activities that would impact the ability of the temporary and permanent BMPs to prevent pollution of the Edwards Aquifer may require prior approval of a WPAP modification.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.

3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.

5. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.

6. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.

7. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.

8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

<u>During Construction</u>:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 6, above.

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of

the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. No wells are located on the site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.

14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.

15. Intentional discharges of sediment laden storm water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.

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

17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

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

18. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.

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

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

22. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Charly Fritz of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4065.

Sincerely,

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

MRV/CEF/eg

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

cc: Mr. Aaron Parenica, P.E., Bury+Partners
Mr. Wesley Hamff, New Braunfels Utilities
Mr. Thomas Hornseth, P.E., Comal County Engineer
Mr. Karl Dreher, General Manager, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

Bury+Partners
ENGINEERING SOLUTIONS

November 12, 2010

Ms. Charly Fritz
San Antonio – Edwards Aquifer
Protection Program
Texas Commission on Environmental Quality
14250 Judson Road
San Antonio, Texas 78233

Project No.: R0101769-50001.61

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: The Enclave at Westpointe Village: (WPAP); Located at the SW corner of Oak Run Pkwy and Independence Dr., New Braunfels, Texas PLAN TYPE: Request for the Approval to an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213;
San Antonio File No. 2942.00

Dear Ms. Fritz:

The following is our response to the review comments received from your office dated November 1, 2010.

General

1. ***Comment:*** *The response to the first NOD stated each drainage area will have approximately 0.50 acres of impervious cover associated to parks, playgrounds or amenity centers. However, for a WPAP to be approved, the plan must show all lots, recreation centers, buildings, roads and sidewalks, must provide the amount of impervious cover and must detail the drainage from these areas. Please indicate the location or locations of any parks, playgrounds or amenity centers on the site plan and provide the layout of these items with the amount of impervious cover and the direction of storm water flow.*

BURY+PARTNERS-SA, INC.
922 Isom Road, Suite 100
San Antonio, Texas 78216

TEL (210) 525-9090
FAX (210) 525-0529

www.burypartners.com

Response: Per our conversation on November 9, 2010, the WPAP Site Plan shows all lots and roads that are proposed for this subdivision that will be constructed by the developer. However, actual sidewalk placement, house footprints, and amenities (including clubhouse) will be constructed by the homebuilder. Those plans have not been developed at this stage of the design process. Therefore, careful design considerations, such as additional impervious area, as well as the TCEQ Technical Guidance Manual, have been incorporated in this plan to account for such future building pads and amenities. Furthermore, as requested, parkland areas have been labeled on the Drainage Area Map, as well as the assigned lot for the location of the Recreational Center.

2. ***Comment:*** *For the WPAP site plan, please remove the utility lines and labels (water, sewer) to provide a clearer map.*

Response: The utility lines for water, sewer, and proposed force main have been removed to provide a clearer map.

3. ***Comment:*** *Provide elevation labels for all final contours.*

Response: Elevation labels for final contours have been provided.

4. ***Comment:*** *Do not include the water quality basins or detention basins with the drainage areas for the water quality basins. The drainage area for a basin should reflect the amount of previous and impervious cover captured by that basin. Update the calculations as necessary.*

Response: The drainage areas have been revised to exclude the areas encompassing the detention and water quality basins. The calculations have been updated on the WPAP Calculation Sheet.

5. ***Comment:*** *Label any uncaptured areas on the drainage area map and update. Any uncaptured areas should not be included within the basin drainage areas. If impervious cover is uncaptured and untreated, the TSS amount from that impervious cover can be accounted for in a basin. Increasing the TSS amount treated by the basin in Step 5 of the sizing calculation spreadsheet.*

Response: There is a 3.91-acre area on the northwest corner of the project site, adjacent to the existing residential neighborhood that will not be treated. The imperious coverage in this area has been added to the Summary Tables on the WPAP Calculation Sheet. The TSS load and volume requirement for this area has been accounted for with the over treatment provided by the three water quality ponds, as well as the increase in the desired TSS treatment in Step 5 of the TCEQ Calculation Spreadsheet for each pond. The surplus load treatment and volume is shown to be greater than the volume and load removal required by this 3.91 acre portion of the project site.

6. ***Comment:*** *Review the drainage area map. There appear to be areas included in a drainage area that either drain to adjacent drainage area or are uncaptured, more specifically, contour line sand flows do not agree with drainage boundary lines. Please revise the map and basin sizing calculation as necessary.*

Proposed Westpointe Drive:

a) Based upon contours, there appears to be storm water flowing onto Westpointe Drive from Oak Run Pkwy. As part of the original Westpointe development, TSS from this parkway is treated by the existing sand filter basin at the northern corner of the site. Either revise the intersection design to have storm water flow, from the parkway, continue to the existing sand filter basin or account for the parkway TSS in the WPAP.

b) At the boundary between DA-1 and DA-2, there appears to be storm water flowing along the roadway from DA-2 into DA-1.

c) At the boundary between DA-1 and DA-3, there appears to be storm water from DA-3 that flows into DA-1 and therefore, is not captured by the SW basin.

d) For DA-3, the roadway appears to be at a lower elevation than the inlet to the basin and storm drains are not provided.

Response: There will be water flowing from Oak Run Parkway onto Westpointe Drive. Drainage Area 2 (DA-2) has been revised to reflect the additional drainage from Oak Run Parkway. Also, the contours between DA-1 and DA-2 do depict cross flow between the two drainage areas. The future addition of two curb inlets at this junction will prevent runoff from DA-2 from entering into DA-1. These inlets are not shown as the plans for this segment of Westpointe Drive have not been designed. Such plans will be part of Phase II of the project. As noted during our meeting on November 9, 2010, a future pond system will be connected in series to a pipe leading to the proposed East Water Quality Pond. As discussed, the before-mentioned inlets will connect to that pipe. Please note that the pond system is designed such that the water upgradient from this drainage basin would be treated and detained by a future water quality and detention pond prior to being conveyed through the pipe. In addition, the boundary between DA-1 and DA-3 has been revised to match the proposed high point along Westpointe Drive; however, we have removed a portion of the roadway from DA-3. Once this segment of Westpointe Drive is designed in the future, a separate WPAP will have to be submitted for this segment of the roadway as well as the portions of the adjacent tract to the south that are not included in this application.

DA-1:

a) The boundary between DA-1 and DA-3, in the western corner of the site, does not appear to be at the high point based upon contour lines.

b) The house lots outside the internal roadway (i.e., that backup to the existing neighborhood) do not appear to drain towards the roadway and therefore, might not be captured by the basin.

Response: The boundary between DA-1 and DA-3 at the western corner of the site has been revised to match the high points shown. Furthermore, the house lots on the outside of the internal roadway are now labeled as an area not captured. The volume and load removal requirements are satisfied through overtreatment and capture by the proposed water quality ponds. Calculations are provided and shown on the WPAP Calculation Sheet.

DA-3:

a) The house lots outside the internal roadway do not appear to drain towards the roadway and therefore, might not be captured by the basin.

b) As state above under Westpointe Drive item, the roadway and the upgradient drainage area appears to be at a lower elevation than the basin inlet and will not be captured by the basin.

Response: As previously mentioned, the house lots on the outside of the internal roadway are now part of and labeled as an area not being captured. The volume and load removal requirements are satisfied through overtreatment and capture by the proposed water quality ponds. Furthermore, the westernmost segment of Westpointe Drive has been removed from DA-2 and will be treated by a separate WPAP submittal once design and development of this area commences.

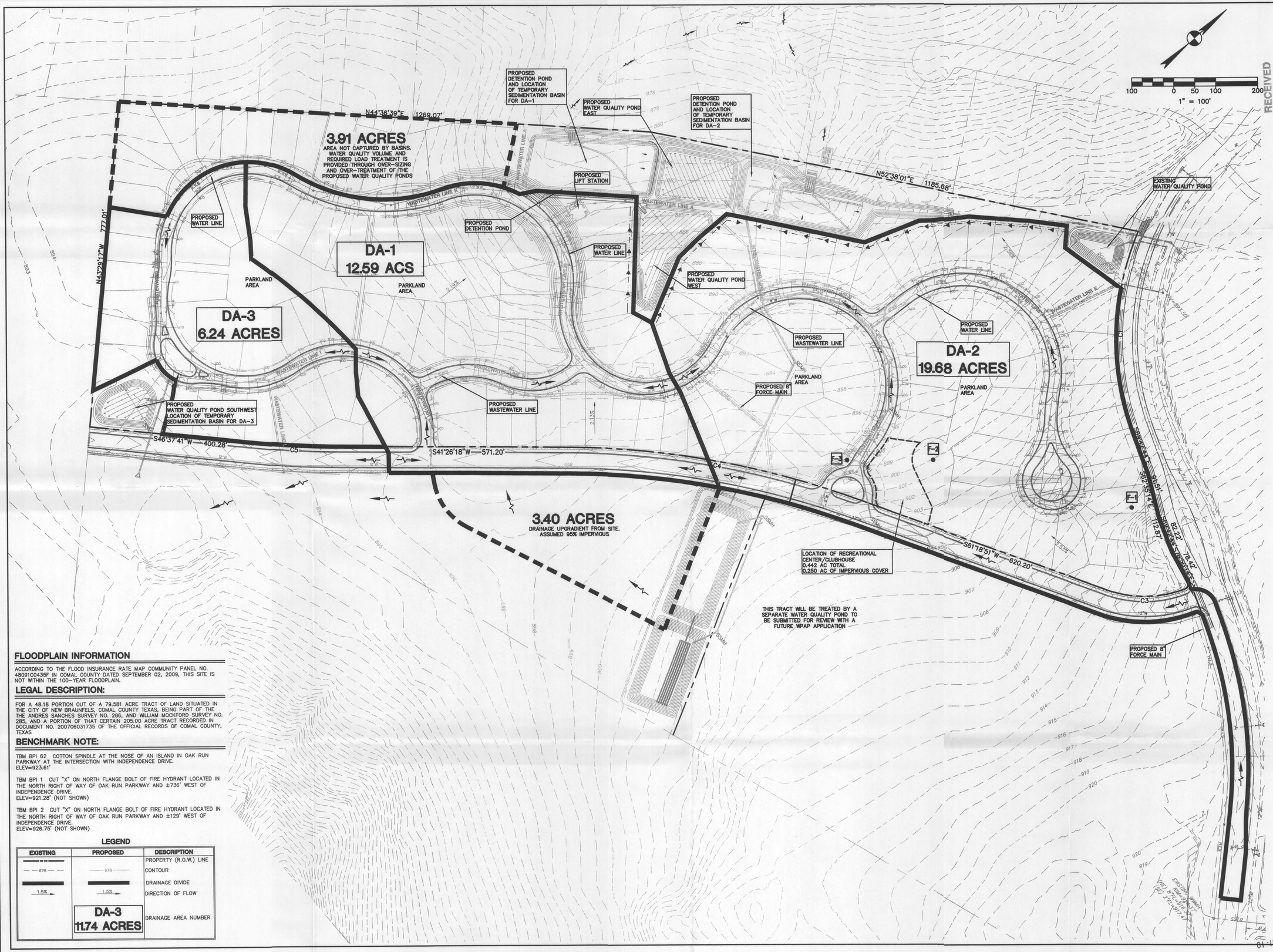
If you have further questions or need additional information, please do not hesitate to contact me.

Sincerely,

Aaron K. Parenica, P.E.
Associate/Project Manager
Bury+Partners-SA, Inc. TBPE F-1048

Attachments

I:\101769\50001\Letters\111210 Fritz.doc.mm.sg



RECEIVED
NOV 19 2010
COUNTY ENGINEER

NO.	DATE	REVISION	APPROVAL
1	10/13/2010	TCEQ COMMENTS #1	
2	11/09/2010	TCEQ COMMENTS #2	

Bury+Partners
ENGINEERING SOLUTIONS
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San Antonio, Texas 78216
Tel. (210)525-9090 Fax (210)525-0529
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STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED PROFESSIONAL ENGINEER
11-09-10

TCEQ DRAINAGE AREA MAP

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NO. 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY (R.O.W.) LINE
678	678	CONTOUR
		DRAINAGE DIVIDE
1.5%	1.5%	DIRECTION OF FLOW
	DA-3 11.74 ACRES	DRAINAGE AREA NUMBER

THE ENCLAVE AT WESTPOINTE VILLAGE

NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= XX'	
DATE REVISED: November 10, 2010	
FILE: c:\101769\001\1220\DA0107.dwg	
DRAWN BY: KNB	
DESIGNED BY: SSL	
REVIEWED BY: AKP	
PROJECT NO.: 101769001	

SHEET
DAM

Date: Nov 10, 2010, 3:18pm User ID: slm
File: c:\101769\001\1220\DA0107.dwg

DA-1 WATER QUALITY POND (WEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 11/8/2010

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

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

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

County * =	Comal	
Total project area included in plan * =	38.51	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.15	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	18984	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	3	

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	12.59	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.35	acres
Post-development impervious fraction within drainage basin/outfall area =	0.58	
$L_{M\ THIS\ BASIN}$ =	6602	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	89	percent

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

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

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 =	12.59	acres
A_I =	7.35	acres
A_P =	5.24	acres
L_R =	7557	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	6910	lbs.
F =	0.91	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.41	
On-site Water Quality Volume =	33658	cubic feet

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

Off-site area draining to BMP =	3.40	acres
Off-site Impervious cover draining to BMP =	3.23	acres
Impervious fraction of off-site area =	0.95	
Off-site Runoff Coefficient =	0.78	
Off-site Water Quality Volume =	17230	cubic feet
Storage for Sediment =	10178	
Total Capture Volume (required water quality volume(s) x 1.20) =	61065	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	NA	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	61065	cubic feet
Minimum filter basin area =	1870	square feet
Maximum sedimentation basin area (2' Depth) =	16829	square feet
Minimum sedimentation basin area (8' Depth) =	4207	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	61065	cubic feet
Minimum filter basin area =	3366	square feet
Maximum sedimentation basin area (2' Depth) =	13463	square feet
Minimum sedimentation basin area (8' Depth) =	841	square feet

DA-2 WATER QUALITY POND (EAST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 11/8/2010

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

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

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

County * =	Comal	
Total project area included in plan * =	38.51	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.15	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	18984	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	3	

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

Drainage Basin/Outfall Area No. =	2	
Total drainage basin/outfall area =	19.68	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	10.25	acres
Post-development impervious fraction within drainage basin/outfall area =	0.52	
$L_{M\ THIS\ BASIN}$ =	9205	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	89	percent

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

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

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 =	19.68	acres
A_I =	10.25	acres
A_P =	9.43	acres
L_R =	10571	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	9775	lbs.
F =	0.92	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	2.00	inches
Post Development Runoff Coefficient =	0.37	
On-site Water Quality Volume =	52777	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	10555	
Total Capture Volume (required water quality volume(s) x 1.20) =	63332	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	NA	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	63332	cubic feet
Minimum filter basin area =	2932	square feet
Maximum sedimentation basin area (2' Depth) =	26388	square feet
Minimum sedimentation basin area (8' Depth) =	6597	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	63332	cubic feet
Minimum filter basin area =	5278	square feet
Maximum sedimentation basin area (2' Depth) =	21111	square feet
Minimum sedimentation basin area (8' Depth) =	1319	square feet

DA-3 WATER QUALITY POND (SOUTHWEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 11/8/2010

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

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

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

County * =	Comal	
Total project area included in plan * =	38.51	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.15	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	18984	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	3	

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

Drainage Basin/Outfall Area No. =	3	
Total drainage basin/outfall area =	6.24	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.55	acres
Post-development impervious fraction within drainage basin/outfall area =	0.57	
$L_{M\ THIS\ BASIN}$ =	3188	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	89	percent

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

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

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 =	6.24	acres
A_I =	3.55	acres
A_P =	2.69	acres
L_R =	3652	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	3630	lbs.
F =	0.99	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	3.66	inches
Post Development Runoff Coefficient =	0.40	
On-site Water Quality Volume =	33086	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	6617	
Total Capture Volume (required water quality volume(s) x 1.20) =	39703	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	NA	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	39703	cubic feet
Minimum filter basin area =	1838	square feet
Maximum sedimentation basin area (2' Depth) =	16543	square feet
Minimum sedimentation basin area (8' Depth) =	4136	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	39703	cubic feet
Minimum filter basin area =	3309	square feet
Maximum sedimentation basin area (2' Depth) =	13234	square feet
Minimum sedimentation basin area (8' Depth) =	827	square feet

SUMMARY TABLE

DA-1
Residential Lots 47-62, 86-95, and 111-130

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	7	4000	28000
Lots < 10K SF	29	3500	101500
SUB-TOTALS	36	LOTS	129500
		2.97	Acres
Additional Impervious Area			
Roadway w/ Sidewalk		2.60	Acres
Proposed Westpointe Drive		0.93	Acres
Lift Station		0.10	Acres
300 SF/Lot Add. Imp. Cover		0.25	Acres
Parkland Facilities		0.50	Acres
TOTAL		**7.35**	**Acres**

DA-2
Residential Lots 2-46 and 96-107

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	18	4000	72000
Lots < 10K SF	39	3500	136500
SUB-TOTALS	57	LOTS	208500
		4.79	Acres
Additional Impervious Area			
Roadway w/ Sidewalk		2.51	Acres
Proposed Westpointe Drive		1.11	Acres
300 SF/Lot Add. Imp. Cover		0.39	Acres
Recreational Center		0.25	Acres
Parkland Facilities		0.50	Acres
Oak Run		0.70	Acres
TOTAL		**10.25**	**Acres**

DA-3
Residential Lots 69-74, 77-85, 108-110, and 131-136

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	7	4000	28000
Lots < 10K SF	15	3500	52500
SUB-TOTALS	22	LOTS	80500
		1.85	Acres
Additional Impervious Area			
Roadway w/ Sidewalk		1.05	Acres
300 SF/Lot Add. Imp. Cover		0.15	Acres
Parkland Facilities		0.50	Acres
TOTAL		**3.55**	**Acres**

Note: Unit value is based off of Table 3-2 of the Edwards Aquifer Technical Guidance Manual

Area Uncaptured
Residential Lots 53-68

		Unit	Area
Lots > 15K SF	1	5000	5000
Lots 10K - 15K SF	4	4000	16000
Lots < 10K SF	11	3500	38500
SUB-TOTALS	16	LOTS	59500
		1.37	Acres
300 SF/Lot Add. Imp. Cover		0.11	Acres
TOTAL		**1.48**	**Acres**

Note: The Uncaptured Area calculated above will require a removal of 1325 Pounds of TSS and an additional Water Quality Volume of 6960 Cubic Feet. 100% of the Load is accounted for by overtreatment provided by the surplus of the water quality ponds. 100% of the volume requirement is captured by the water quality ponds.

Water Quality Ponds Summary Table

Total Site Acreage	38.51
Total Existing Impervious Coverage:	0
Proposed Impervious Coverage:	21.15
Impervious Percentage within DA's:	55%
Total Required Removal Load (L_M)	**18,984**

Total Desired Load Removed by Ponds:

DA-1	6,910
DA-2	9,775
DA-3	3,630
Total	**20,315**
Surplus Load Removal (LBS):	**1,331**

Pond Sizing

	Filter Area Required	Filter Area Provided
DA-1 Pond	3,366	18,310
DA-2 Pond	5,278	17,401
DA-3 Pond	3,309	7,366

	Volume Required (CF)	Volume Provided (CF)
DA-1 Pond	61,065	63,830
DA-2 Pond	63,332	59,486
DA-3 Pond	39,703	50,272
	164,100	**173,588**
Surplus Volume (CF):		**9,488**

"RECEIVED TCEQ SAN ANTONIO REGION" 2010 NOV 12 AM 11:10

DATE	NO.	REVISION	APPROVAL
10/15/2010	1	TCEQ COMMENTS #1	
11/09/2010	2	TCEQ COMMENTS #2	

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1048

STATE OF TEXAS — AARON K. PARENICA — 99323 — LICENSED PROFESSIONAL ENGINEER — 11-10-10

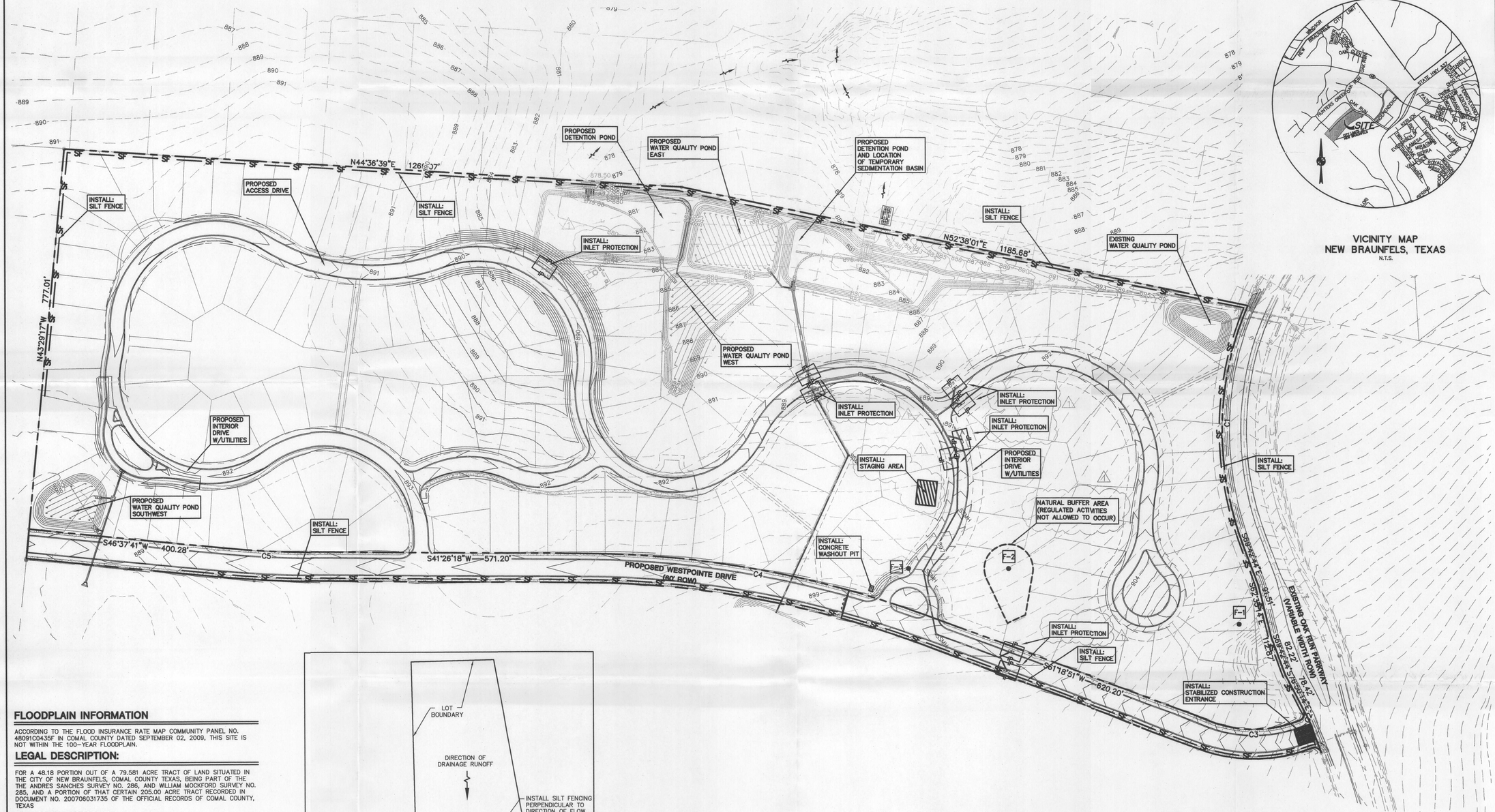
WATER QUALITY POND CALCULATIONS

WESTPOINTE RESIDENTIAL, LTD
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: November 10, 2010
FILE: 101769001CALC.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET C13.05

Date: Nov 10, 2010 3:05pm User ID: slin
File: G:\101769\001\PONDS\101769001CALC.dwg



VICINITY MAP
NEW BRAUNFELS, TEXAS
N.T.S.

TBMP FOR LOT CONSTRUCTION DETAIL
SCALE: N.T.S.

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NO. 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

NO.	DATE	REVISION	APPROVAL
1	10/15/2010	TCEQ COMMENTS #1	
2	11/08/2010	TCEQ COMMENTS #2	

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TBPE Registration Number F1046
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STATE OF TEXAS
AARON K. PARENICA
98323
LICENSED
PROFESSIONAL ENGINEER
11-3-2010

TCEQ WPAP SITE PLAN

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 50'
DATE REVISED: November 08, 2010
FILE: EXHIBIT.dwg
DRAWN BY: WFF
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101789001

SHEET
EXH

Date: Nov 08, 2010, 4:25pm User ID: karaganza
File: G:\101789\001\12210\EXHIBIT.dwg

2010 NOV 12 AM 11:10
RECEIVED FROM
SAN ANTONIO
REGION

Charlyne Fritz - Enclave at Westpointe Village - WPAP and SCS

From: "Lin, Steve" <slin@burypartners.com>
To: <cfritz@tceq.state.tx.us>
Date: 11/16/2010 3:25 PM
Subject: Enclave at Westpointe Village - WPAP and SCS
CC: "Parenica, Aaron" <aparenica@burypartners.com>
Attachments: C13.05 Water Quality Pond Calculations.pdf; C13.01 East Water Quality and Detention Ponds.pdf; Enclave - Comment 2 Response.pdf

Charly,

As promised during our conversation this afternoon, attached are the two revised plan sheets stemming from the revision of the easternmost water quality pond. Also attached are the two items needed to address your SCS comments for this same project. It includes our response letter as well as an updated application fee form. Please let us know if you'll need hardcopies of any of the attached items (and quantity). We can have them sent over first thing tomorrow morning. Thanks again for all your help regarding this project.

Sincerely,

Steve L.

STEPHEN S. LIN
Engineer Associate

Bury+Partners
ENGINEERING SOLUTIONS
TBPE Registration No. F1048

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DA-1 WATER QUALITY POND (WEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 11/8/2010

1. The Required Load Reduction for the total project.

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

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

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

County =	Comal	
Total project area included in plan * =	36.51	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.15	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	18984	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	3	

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	12.59	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	7.35	acres
Post-development impervious fraction within drainage basin/outfall area =	0.58	
$L_{M\ THIS\ BASIN}$ =	6682	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	89	percent

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

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

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 =	12.59	acres
A_I =	7.35	acres
A_P =	5.24	acres
L_R =	7557	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	6910	lbs
F =	0.91	

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

Calculations from RG-348, Pages 3-34 to 3-36

Rainfall Depth =	1.80	inches
Post Development Runoff Coefficient =	0.41	
On-site Water Quality Volume =	33658	cubic feet

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

Off-site area draining to BMP =	3.40	acres
Off-site Impervious cover draining to BMP =	3.23	acres
Impervious fraction of off-site area =	0.95	
Off-site Runoff Coefficient =	0.78	
Off-site Water Quality Volume =	17230	cubic feet
Storage for Sediment =	10178	
Total Capture Volume (required water quality volume(s) x 1.20) =	61066	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348, Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	NA	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348, Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348, Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	61065	cubic feet
Minimum filter basin area =	1870	square feet
Maximum sedimentation basin area (2' Depth) =	16829	square feet
Minimum sedimentation basin area (8' Depth) =	4207	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	61065	cubic feet
Minimum filter basin area =	3366	square feet
Maximum sedimentation basin area (2' Depth) =	13463	square feet
Minimum sedimentation basin area (8' Depth) =	841	square feet

DA-2 WATER QUALITY POND (EAST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 11/8/2010

1. The Required Load Reduction for the total project.

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

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

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

County =	Comal	
Total project area included in plan * =	36.51	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.15	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	18984	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	3	

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

Drainage Basin/Outfall Area No. =	2	
Total drainage basin/outfall area =	19.68	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	10.25	acres
Post-development impervious fraction within drainage basin/outfall area =	0.52	
$L_{M\ THIS\ BASIN}$ =	9285	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	89	percent

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

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

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 =	19.68	acres
A_I =	10.25	acres
A_P =	9.43	acres
L_R =	10571	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	9775	lbs
F =	0.92	

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

Calculations from RG-348, Pages 3-34 to 3-36

Rainfall Depth =	2.00	inches
Post Development Runoff Coefficient =	0.37	
On-site Water Quality Volume =	52777	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	10555	
Total Capture Volume (required water quality volume(s) x 1.20) =	63332	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348, Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	NA	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348, Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348, Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	63332	cubic feet
Minimum filter basin area =	2912	square feet
Maximum sedimentation basin area (2' Depth) =	26388	square feet
Minimum sedimentation basin area (8' Depth) =	6597	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	63332	cubic feet
Minimum filter basin area =	5778	square feet
Maximum sedimentation basin area (2' Depth) =	21111	square feet
Minimum sedimentation basin area (8' Depth) =	1319	square feet

DA-3 WATER QUALITY POND (SOUTHWEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 11/8/2010

1. The Required Load Reduction for the total project.

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

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

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

County =	Comal	
Total project area included in plan * =	36.51	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	21.15	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	18984	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	3	

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

Drainage Basin/Outfall Area No. =	3	
Total drainage basin/outfall area =	6.23	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.55	acres
Post-development impervious fraction within drainage basin/outfall area =	0.57	
$L_{M\ THIS\ BASIN}$ =	3188	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	SF	abbreviation
Removal efficiency =	89	percent

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

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

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 =	6.24	acres
A_I =	3.55	acres
A_P =	2.69	acres
L_R =	3652	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	3630	lbs.
F =	0.99	

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

Calculations from RG-348, Pages 3-34 to 3-36

Rainfall Depth =	3.44	inches
Post Development Runoff Coefficient =	0.48	
On-site Water Quality Volume =	33086	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	6617	
Total Capture Volume (required water quality volume(s) x 1.20) =	39703	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348, Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr
Irrigation area =	NA	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348, Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348, Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	39703	cubic feet
Minimum filter basin area =	1838	square feet
Maximum sedimentation basin area (2' Depth) =	16543	square feet
Minimum sedimentation basin area (8' Depth) =	4136	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	39703	cubic feet
Minimum filter basin area =	3309	square feet
Maximum sedimentation basin area (2' Depth) =	13234	square feet
Minimum sedimentation basin area (8' Depth) =	827	square feet

SUMMARY TABLE

DA-1
Residential Lots 47-62, 86-95, and 111-139

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	7	4000	28000
Lots < 10K SF	29	3500	101500
SUB-TOTALS	36	LOTS	129500
		2.97	Acres

Additional Impervious Area

Roadway w/ Sidewalk	7.60	Acres
Proposed Westpointe Drive	0.93	Acres
Lift Station	0.10	Acres
300 SF/Lot Add. Imp. Cover	0.25	Acres
Parkland Facilities	0.50	Acres
TOTAL	7.35	Acres

DA-2
Residential Lots 3-46 and 96-107

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	18	4000	72000
Lots < 10K SF	39	3500	136500
SUB-TOTALS	57	LOTS	208500
		4.79	Acres

Additional Impervious Area

Roadway w/ Sidewalk	2.51	Acres
Proposed Westpointe Drive	1.11	Acres
300 SF/Lot Add. Imp. Cover	0.39	Acres
Recreational Center	0.25	Acres
Parkland Facilities	0.50	Acres
Oak Run	0.70	Acres
TOTAL	10.25	Acres

DA-3
Residential Lots 69-74, 77-85, 108-110, and 131-136

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	7	4000	28000
Lots < 10K SF	15	3500	52500
SUB-TOTALS	22	LOTS	80500
		1.85	Acres

Additional Impervious Area

Roadway w/ Sidewalk	1.05	Acres
300 SF/Lot Add. Imp. Cover	0.15	Acres
Parkland Facilities	0.50	Acres
TOTAL	3.56	Acres

Note: Unit value is based off of Table 3-2 of the Edwards Aquifer Technical Guidance Manual

Area Uncaptured
Residential Lots 53-68

		Unit	Area
Lots > 15K SF	1	5000	5000
Lots 10K - 15K SF	4	4000	16000
Lots < 10K SF	11	3500	38500
SUB-TOTALS	16	LOTS	59500
		1.37	Acres
300 SF/Lot Add. Imp. Cover		0.11	Acres
TOTAL		1.48	Acres

Note: The Uncaptured Area calculated above will require a removal of 1325 Pounds of TSS and an additional Water Quality Volume of 6960 Cubic Feet. 100% of the Load is accounted for by overtreatment provided by the surplus of the water quality ponds. 100% of the volume requirement is captured by the water quality ponds.

Water Quality Ponds Summary Table

Total Site Acreage	36.51
Total Existing Impervious Coverage	0
Proposed Impervious Coverage	21.15
Impervious Percentage within DA's	55%
Total Required Removal Load (L_M)	18,984

Total Desired Load Removed by Ponds

DA-1	6,910
DA-2	9,775
DA-3	3,630
Total	20,315
Surplus Load Removed (LBS)	1,331

Pond Sizing

	Filter Area Required	Filter Area Provided
DA-1 Pond	3,366	18,310
DA-2 Pond	5,778	17,401
DA-3 Pond	3,309	7,366

	Volume Required (CF)	Volume Provided (CF)
DA-1 Pond	61,065	63,830
DA-2 Pond	63,332	65,370
DA-3 Pond	39,703	50,272
	164,100	179,472
Surplus Volume (CF)		15,372

DATE	NO.	REVISION	APPROVAL
11/16/2010	3	TCEQ COMMENTS #3	
11/09/2010	2	TCEQ COMMENTS #2	
10/15/2010	1	TCEQ COMMENTS #1	

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TBPE Registration Number F1048
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STATE OF TEXAS — AARON K. PARENICA — 99323 — LICENSED PROFESSIONAL ENGINEER
11-16-10

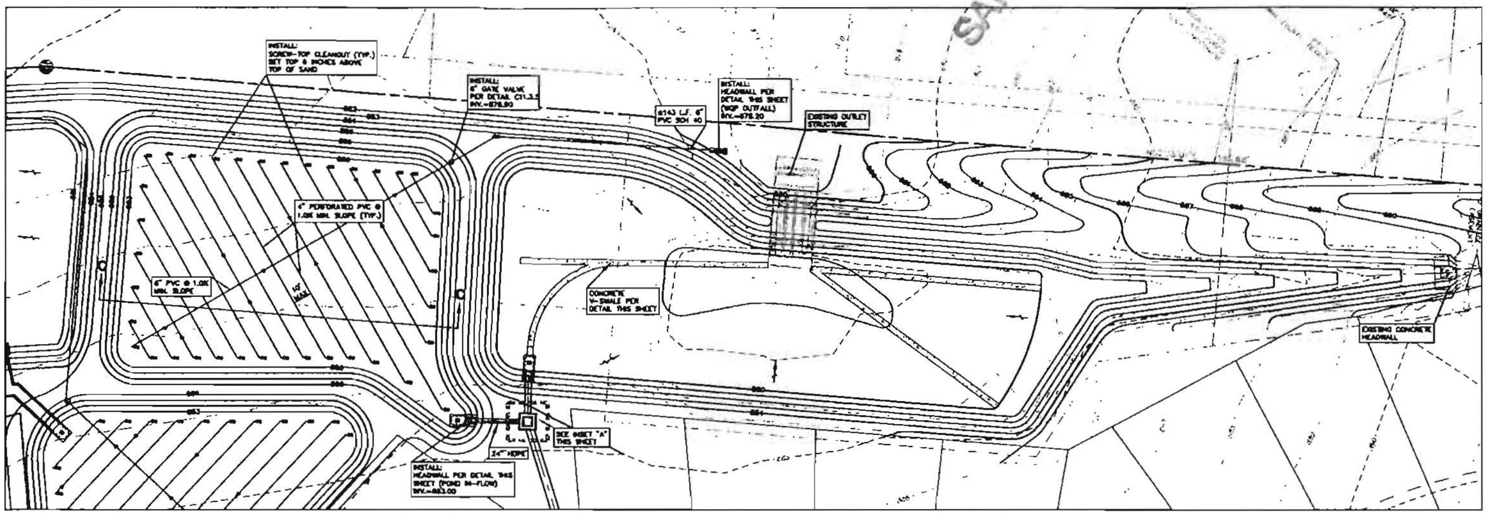
TCEQ-R13 NOV 16 2010 SAN ANTONIO

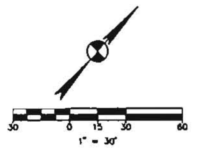
WATER QUALITY POND CALCULATIONS

WESTPOINTE RESIDENTIAL, LTD
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

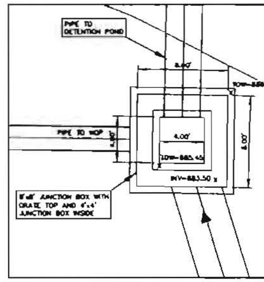
PLOTTING SCALE: 1"= 1'
DATE REVISED: November 16, 2010
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101789001

SHEET C13.05

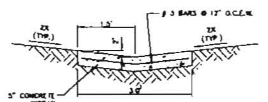




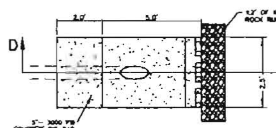
EAST WATER QUALITY & DETENTION PONDS
(FOR DA 2)
SCALE: 1"=30'



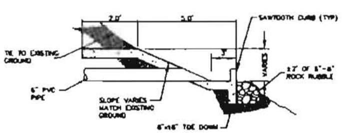
INSET "A"



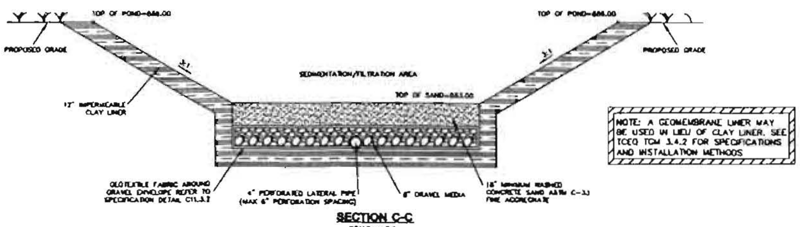
V-SWALE CHANNEL
SCALE: N.T.S.



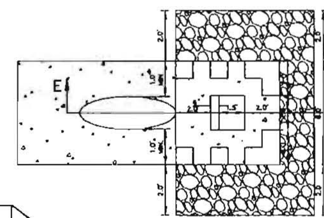
PLAN VIEW
SCALE: N.T.S.



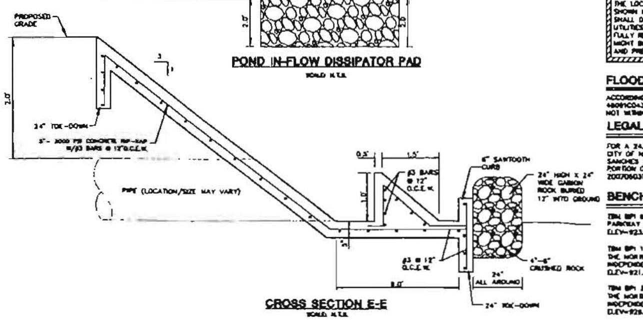
SECTION D-D
CONCRETE HEADWALL DETAIL (WQP OUTFALL)
SCALE: N.T.S.



SECTION C-C
SCALE: N.T.S.



POND IN-FLOW DISSIPATOR PAD
SCALE: N.T.S.



CROSS SECTION E-E
SCALE: N.T.S.

WATER QUALITY POND NOTE:

THE TOPS OF PROPOSED CLEAN-OUTS WILL SERVE AS SEDIMENT DEPTH MARKERS WITHIN THE FILTRATION BASIN OF THE WATER QUALITY POND(S)

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0438F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 24.118 ACRE TRACT, (1,050,576 SQ. FT.) OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, BEING PART OF THE ANDRES SANCHES SURVEY NO. 284, AND WILLIAM WOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NO. 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS

BENCHMARK NOTE:

TBM BPI 63 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.41'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.26' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=928.75' (NOT SHOWN)

DATE	NO.	REVISION	APPROVAL
11/16/2010		TCEQ COMMENTS #2	

Bury+Partners
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STATE OF TEXAS — AARON K. PARENICA — 99323 — LICENSED PROFESSIONAL ENGINEER

EAST WATER QUALITY & DETENTION PONDS

WESTPOINTE RESIDENTIAL, LTD
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: November 16, 2010
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 10178001

SHEET
C13.01

Bury+Partners
ENGINEERING SOLUTIONS

October 15, 2010

Ms. Charly Fritz
San Antonio – Edwards Aquifer
Protection program
Texas Commission on Environmental Quality
14250 Judson Road
San Antonio, Texas 78233

Project No.: R0101769-50001.61

Re: Edwards Aquifer, Comal County
NAME OF PROJECT: The Enclave at Westpointe Village (WPAP); Located at the SW Corner of Oak Run Parkway and Independence Drive, New Braunfels, Texas;
PLAN TYPE: Request for the Approval to an Approved Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213; San Antonio File No. 2942.00

Dear Ms. Fritz:

The following is our response to the review comments received from your office dated October 1, 2010:

General Items

1. ***Comment:*** *Please provide the average area disturbed per lot. On the site plan, include a general schematic of the temporary BMPs to be implemented for individual lot construction.*

   Response: There are a total of 134 residential lots, comprised of ±28.70 acres. Using Table 3-2 of the Edwards Aquifer Technical Guidance Manual, the assumed impervious coverage for all 134 lots is ±11.26 acres. The average area disturbed per lot is 11.26/28.70 or 39% of impervious cover. Finding the average lot size by dividing 28.70 acres by 134 comes out to be 0.214 acres per lot. At 39% impervious cover per lot, this results in an average of 0.084 acres of impervious acres per lot. A general schematic of the temporary BMPs to be implemented for individual lot construction has been provided on the Site Plan.

2. ***Comment:*** *To help confirm the total impervious cover for the site, please provide the assumed impervious cover per lot. If Table 3-2 from the Edwards Aquifer Technical Guidance Manual (RG-348) was used, provide information on the lot size(s) at the site and the corresponding amount of impervious cover from the table.*

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Response: Table 3-2 for the Edwards Aquifer Technical Guidance Manual (RG-348) was used to calculate the assumed impervious cover per lot. Using the calculations in response to Comment #1 above, the 134 lots are comprised of ±28.70 acres, having an estimated 11.26 acres of impervious cover per RG-348 Table 3-2. A calculation table has been provided on the WPAP Calculation Sheet C13.05.

3. ***Comment:*** *Are there any proposed parks, playgrounds, or amenity centers that will increase the impervious cover amount? A future increase in impervious cover will require a modification to this plan (if approved).*

Response: Yes, each drainage area had an additional ±0.50 acres of impervious area added to supplement facilities and amenities that may increase the overall site's impervious coverage amount. This has been annotated on the revised WPAP Calculation Sheet (C13.05).

4. ***Comment:*** *The number of house lots on the SCS plan states 135 lots and the WPAP states 136. Please update either plan as necessary.*

Response: There are actually 134 residential lots on this project. At this time, Lots 75 and 76 will be utilized for the Southwest Water Quality Pond.

5. ***Comment:*** *Has the impervious cover associated with the lift station been accounted for in this WPAP?*

Response: Yes, an area of ±0.15 acres of impervious cover was used to account for the impervious area of the lift station in Drainage Area 1 (DA-1). See the revised WPAP Calculation Sheet.

6. ***Comment:*** *On September 2, 2010, TCEQ received correspondence between Gene Majors with the Majors Law Firm PLLC and Mr. Guerra. Based upon this correspondence and the upcoming SCS review, is the proposed lift station in its final location?*

Response: The proposed lift station has been relocated slightly south of the original location and will be reflected on the revised SCS and Force Main Plans to accommodate requests from the neighbor.

7. ***Comment:*** *The application, specifically the Project Description, Impervious Cover Table, and BMPs for Upgrdient Storm Water, indicates the design and sizing calculations of the permanent BMPs include future land uses up-gradient of the site. This WPAP (if approved) can only grant the activities proposed in the plan. Future development and future impervious cover will be approved when a specific plan is submitted. In addition to clarifying and/or revising attachments in the application, please update the following:*

a. *The Impervious Cover of the Proposed Project table states there is 31.37 acres of impervious cover but the note under the table states there is 24.20 acres of impervious cover within the 48.18 acre site. This table should reflect the impervious cover amounts for the site, not drainage areas.*

b. *The permanent BMP sizing calculations appear to also be based upon drainage area. These calculations need to reflect the actual on-site drainage areas. Upgradient or offsite water either needs to be bypassed around the basins or the volume accounted for in the sizing calculations. To account for offsite or upgradient water in the TCEQ BMP sizing spreadsheet, see step #6 of the spreadsheet.*

Response: The total impervious cover within the site was recalculated based on minor revisions and now totals ±23.27 acres. The WPAP Calculation Sheet (C13.05) has been revised and now reflects the site having such amount. Furthermore, the WPAP spreadsheets have been revised as such that up-gradient or offsite water is calculated separately for the volume requirement in the Permanent Water Quality Ponds in Step #6. All revisions can be found on C13.05.

Sensitive Feature S-2

8. ***Comment:*** *The natural buffer area only appears to extend approximately 100 feet from the edge of the feature. Chapter 5 of RG-348 states that the natural buffer area should extend to the boundary of the drainage area or 200 feet, whichever is less. Based upon the one foot contours it appears that additional flow from outside the indicated area will drain to the feature. Revise the drainage area so it is consistent with RG-348 or provide a statement from the project geologist indicating the natural buffer on the site plan accurately depicts the field conditions.*

Response: Please see the attached letter from the project geologist in regards to the natural buffer on the site plan relative to field conditions.

9. ***Comment:*** *To prevent any accidental encroachment on the natural buffer area for feature S-2, please move the staging area to another location.*

Response: The Staging Area has been moved west of the original location, on the other side of the proposed drive, to create less of an encroachment hazard to the natural buffer area around Feature S-2

10. ***Comment:*** *On the site plan, indicate that the area around feature S-2 is a natural buffer area where regulated activities are not allowed to occur. How will the natural buffer area and restrictions on regulated activities be conveyed to the lot/home buyers for the lots that surround the natural buffer area?*

Response: The natural buffer area around Feature F-2 has been labeled on the site plan. Furthermore, the natural buffer area is annotated on the subdivision plat for this entire development, along with other "open space" areas that are not intended for regulated activities.

Site Plan and Drainage Area Map

11. ***Comment:*** *Please include the TCEQ WPAP Site Plan within the bound Water Quality Pond Plans.*

Response: As not all of the pond sheets were updated, we will be submitting unbound copies of only the sheets that were revised. We can collate upon delivery if necessary.

12. ***Comment:*** *Update and/or revise the drainage area map as necessary.*

    a. *Provide additional direction flow arrows.*

    b. *Provide high point indicators and/or labels for the final contours for the roadways.*

    c. *Drainage from Westpointe Drive into the neighborhood is unclear. At the southern entrance, portions of roadway, within DA-3, appear to drain through DA-1 in order to reach the southwest basin.*

    d. *Label the areas where storm water will drain offsite without first passing through a water quality basin.*

    e. *Drainage from the residential lots adjacent to the existing subdivision (western side of the site), based upon contours, appear to drain offsite and are not captured by a water quality pond.*

    f. *Lots adjacent to the west water quality pond but located in DA-2 appear to drain into the west basin. See item #18 of this fax.*

Response: Additional flow arrows are now shown on the drainage area map, as well as locations of swales and high points. Contours of the roadways are shown with drainage arrows showing the direction of flow and runoff. Interceptor channels will be placed behind lots to divert water to the pond inlets.

Temporary Storm Water and BMPs

13. ***Comment:*** *The sizing of temporary sediment ponds is based upon the volume of runoff or 3,600 cubic feet of storage* ***per acre drained.*** *The statement on the Temporary Sedimentation Basin Exhibit that the total volume of the three temporary sedimentation basins exceeds the required amount (calculated from 31.37 acres) is not sufficient. Describe the amount of area disturbed in each separate drainage area then determine if the individual temporary sediment ponds are sufficient sized based upon the individual drainage areas.*

Response: The sizing of the Temporary Sedimentation Basins is as follows, utilizing the disturbed acres:

Temporary Sedimentation Calculation					
Area	Disturbed Acre	Volume per Acre	Volume Required	Pond	Volume Provided
DA-1	8.06	3,600	29,016	West	63,830
DA-2	12.57	3,600	45,252	East	59,486
DA-3	5.05	3,600	21,060	SW	52,272

A revised exhibit for the Temporary Sedimentation basin is included with this letter.

14. ***Comment:*** *As stated in the application, the development of the site will be phased. Revise the Sequence of Major Activities (Attachment C of TCEQ—0602) to be site specific and provide the activities as they will occur in each phase.*

Response: The "Sequence of Major Activities (Attachment C of TCEQ-0602) has been revised to show the activities that will occur within the phasing schedule.

15. ***Comment:*** *On the site plan, provide temporary inlet protection BMPs at the inlets the water quality basins. Also provide details and specifications for all temporary BMPs used at the site.*

Response: Inlet protection has been added to the inlets conveying storm water to the water quality ponds. Details of the Temporary BMPs are included for reference.

Permanent BMPs

16. ***Comment:*** *Is the inlet structure leading into the west basin a pipe or a trench? The structure appears to be a trench but the Pond In-Flow detail displays a pipe leading into the basin. Are the dissipater pad and concrete blocks sufficient in preventing erosion of the sand media from a 5 foot wide trench instead of a smaller opening from a pipe?*

Response: The inlet structure leading into the west basin is a channel. We have updated the detail to show both pipe and channel leading into the basin. Furthermore, the dissipater pad is sufficient to prevent erosion of the sand media at the point of discharge from the channel opening.

17. ***Comment:*** *Please ensure the specifications presented on Sheet C13.04 for the Geotextile Fabric specifications meets or exceed the requirements of the revised specifications found on* the RG-348 Errata sheet (attached).

Response: The detail on Sheet C13.04 for the Geotextile Fabric specification has been revised and now meets the requirements found on the RG-348 Errata sheet.

18. ***Comment:*** *Based on the design requirements for the flow splitter (weir) that the structure should be capable of isolating the capture volume and bypassing additional flow around the sand filter system, revise the designs of the basins to prevent inflow from the surrounding lots or areas. All storm water to be treated by the basin must flow through the weir structure.*

Response: Interceptor channels will be provided between the back of lots and the basins, which are now shown on the drainage area map. There will not be direct runoff from any of the lots into the pond(s).

19. ***Comment:*** *Verify that the Goulds submersible pump will be sufficient in drawing down the water quality volume of 50,272 cubic feet within 48 hours after the rainfall event. Based upon the performance ratings for the SP035M model, the pump operates at a range between 480 GPH and 2,490 GPH. If operating at the greatest GPH amount, it will still take approximately 6 days to empty the full basin of 50,272 cubic feet or 376,060 gallon. The performance ratings were taken from the SP02/03 Product Bulletin found at http://www.goulds.com/GP-Product-ID-257.asp.*

Response: Typically, the general contractor will select a supplier and meet with a pump engineer to determine the pump capacity and size so that it meets the requirements above. In-lieu-of specifying a particular pump on the plans, we have revised the note with "contractor to install submersible pump with performance rating capable of drawing down volume of pond between 24 and 48 hours" to ensure the pump will meet the required parameters.

If you have further questions or need additional information, please do not hesitate to contact me.

Sincerely,

Aaron K. Parenica, P.E.
Associate/Project Manager
Bury+Partners-SA, Inc.-F-1048

Attachments

I:\101769\50001\Letters\101510 Fritz.doc.sl.mm

PROJECT DESCRIPTION

The Enclave at Westpointe Village is a ±48.18-acre development located near the southwest corner of the intersection of State Highway 46 and Loop 337, directly south of Oak Run Parkway. This entire development lies within the city limits of the City of New Braunfels in Comal County, Texas. The project is located in the Edwards Aquifer Recharge Zone (EARZ), and is within watershed of the Guadalupe River via the Blieders Creek tributary.

Currently, the site is undeveloped with natural vegetation and trees. There is no existing impervious coverage on the site. The proposed development will be constructed in two phases. Phase I will consist of residential subdivision units for the eastern most portion of the site fronting Oak Run Parkway. This includes the construction of an access drive into the residential subdivision, Phase I of the Sewage Collection System (SCS), and construction of the proposed Water Quality Ponds and detention basins. Phase I will total ±24.12-acres and increase the impervious cover by ±9.54-acres (40%). Phase II will consist of the remaining western half of the proposed residential subdivision, including the extension of the access drive, the addition of the western portion of the SCS, and an additional Water Quality Pond. Phase II consists of a total of ±24.06-acres.

Three Sand Filter Water Quality Ponds will be used as Permanent Best Management Practices (BMP's) onsite to treat stormwater generated from the development. These BMP's have been designed in accordance with TCEQ's Technical Guidance Manual to remove 80% of the increased Total Suspended Solids (TSS) for the proposed development. The proposed Water Quality Ponds have been designed to provide treatment to the entire residential subdivision as well as account for future development of the adjacent property within the entire drainage basin. Moreover, storm water will also be detained prior to being released into two existing drainage easements within the Hunters Creek subdivision. All areas not covered by the building footprint, sidewalks, or pavement will be stabilized with either sod or landscaping prior to the removal of all temporary Best Management Practices (BMPs).

The public SCS will be used to convey wastewater from the development to a Sanitary Sewer Lift station. The lift station will convey sanitary sewer through a force main into an existing waste water main operated and maintained by New Braunfels Utilities. Of the overall SCS, the gravity mains total ±6,266 linear feet of 8" SDR 26 PVC Pipe and the sanitary sewer force main totals ±3,031 linear feet. The entire SCS will comprise of two separate gravity branches, and will be constructed in accordance with the phasing plan mentioned above. The lift station along with the force main will be constructed during Phase I.

Both SCS and WPAP calculations incorporate future growth and development of the area south of the site as both the drainage and sewer sheds to the south of this development contributes to the SCS and Water Quality Ponds. This area will consist of a commercial development, with assumed impervious coverage of 95%, which will require a separate WPAP.

Based on the Geological Assessment, there are three geologic features within the project boundary. One of these features (F-2) has been deemed as sensitive. Protection of this sensitive feature will be based upon Section 5.1.2 of the TCEQ RG-348 Technical Guidance Manual, having a natural buffer extending 50 feet in all directions. The area within this buffer will be maintained in its natural state and will not have any construction activities within.

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

REGULATED ENTITY NAME: THE ENCLAVE AT WESTPOINTE VILLAGE

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ✓ Residential: # of Lots: 134
   - ___ Residential: # of Living Unit Equivalents: ___
   - ___ Commercial
   - ___ Industrial
   - ___ Other: ___

2. Total site acreage (size of property): 48.18 Acres

3. Projected population: 472

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

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	530,700	÷ 43,560 =	12.18
Parking	5,000	÷ 43,560 =	0.11
Other paved surfaces	477,853	÷ 43,560 =	8.77
Total Impervious Cover	1,013,553	÷ 43,560 =	23.27
Total Impervious Cover ÷ Total Acreage x 100 = (31.37/53.82) x 100			49%

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

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

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

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

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. (±24.12 acres Phase I)

3. Clear site for streets and ponds. (±9.10 acres Phase I)

4. Install any remaining Control Measures and Devices that could not be installed prior to site clearing.

5. Grade site and construct temporary sedimentation pond. Install Erosion Control around catch basins. (±4.83 acres Phase I)

6. Set Sewage Collection System manholes and install all underground utilities and piping.

7. Install pavement (±4.18 acres Phase I).

8. Install individual residential homes (±4.90 Acres Phase I)

9. 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.

10. Install all Erosion Control Measures and Devices that can be installed prior to site clearing. (±24.06 acres Phase II)

11. Clear site for streets and ponds. (±6.21 acres Phase II)

12. Install any remaining Control Measures and Devices that could not be installed prior to site clearing for Phase II.

13. Grade site and construct temporary sedimentation pond. Install Erosion Control around catch basins. (±0.50 acres Phase II)

14. Install pavement (±5.71 acres Phase II).

15. Install individual residential homes (±6.36 Acres Phase II)

16. 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 ±48.18 acres. Excavation, grading, or other activities throughout the construction process will disturb approximately ±26.48 acres. Post-construction impervious coverage will total ±23.27 acres.

TEMPORARY SEDIMENTATION BASIN NOTES:

1. CONTRACTOR TO CONSTRUCT BASINS IN ACCORDANCE WITH CONSTRUCTION PLANS FOR PERMANENT SEDIMENTATION/FILTRATION WITH THE EXCEPTION OF THE GRAVEL DRAIN LAYER AND SAND FILTER LAYERS.

2. INSTALL PERMANENT STAKE TO INDICATE SEDIMENT LEVEL IN THE BASIN. STAKE SHOULD BE MARKED TO INDICATE WHEN SEDIMENT OCCUPIES 50% OF THE VOLUME OF THE BASIN.

3. SEDIMENT WILL BE REMOVED WHEN MORE THAN 50% OF THE BASIN CAPACITY IS EXCEDDED.

4. CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.

5. CONTRACTOR TO SECURE PIPE TO BOTTOM OF BASIN TO PREVENT BUOYANCY DURING A RAIN EVENT. A CONCRETE ANCHOR MAY BE USED.

6. DISCHARGE PIPE TO BE INSTALLED SO AS TO BE IN PLACE FOR PERMANENT STRUCTURE.

TEMPORARY SEDIMENTATION BASIN CALCULATIONS:

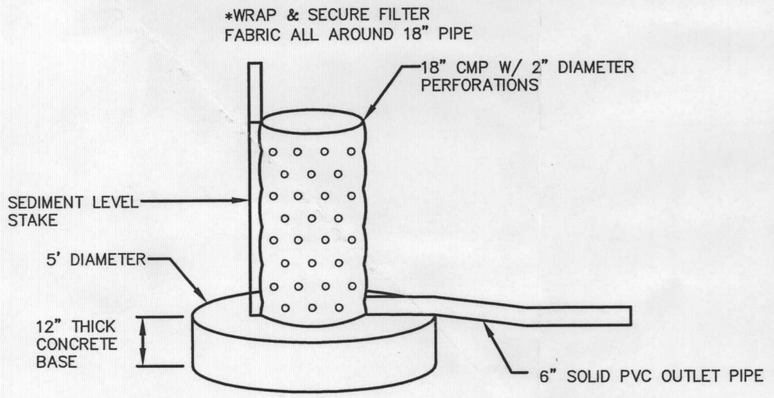
1. THE TEMPORARY SEDIMENTATION BASIN WILL BE LOCATED WHERE THE PROPOSED WATER QUALITY AND DETENTION POND(S) WILL BE CONSTRUCTED.

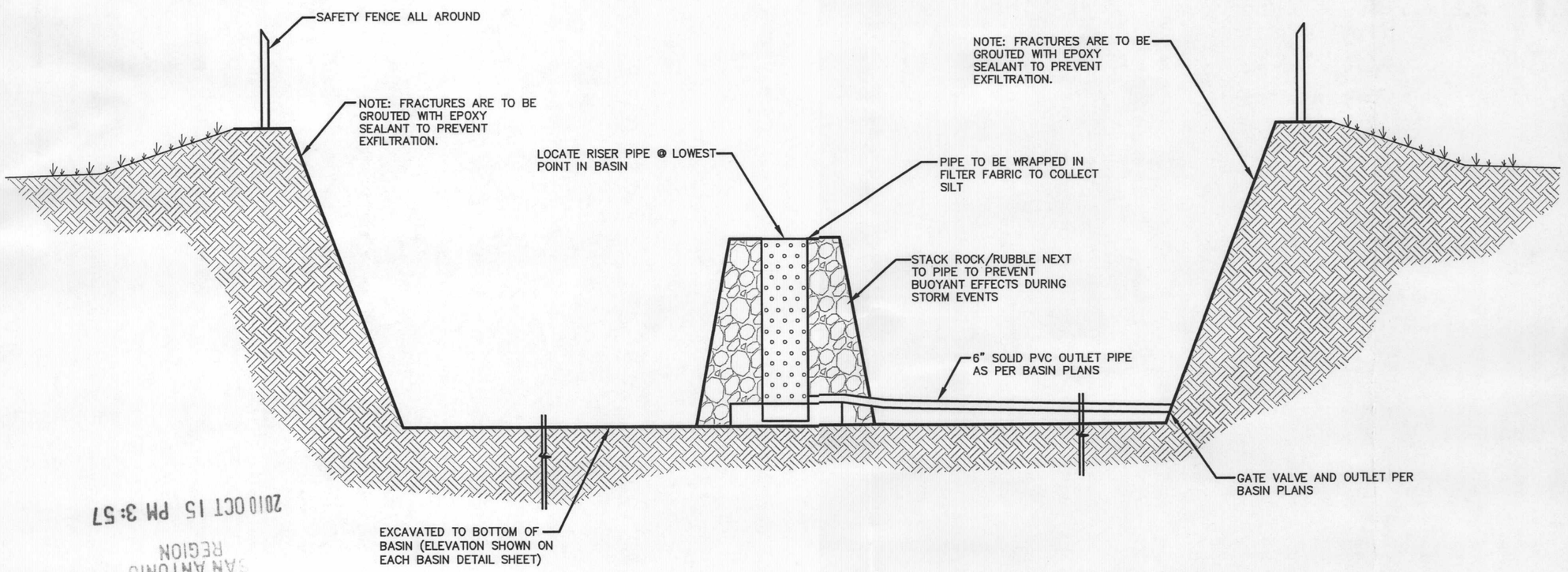
2. TOTAL DISTURBED AREA ONSITE IS 23.27 ACRES

3. 26.48 AC OF DISTURBED AREA x (3,600 CF VOLUME PER ACRE) = 95328 CF (TOTAL) OF WATER VOLUME TO BE CAPTURED IN THE TEMPORARY SEDIMENTATION BASINS

4. COMPARING THE VOLUMETRIC CAPACITY OF THE THREE PROPOSED WATER QUALITY PONDS AND THE DISTURBED AREA WITHIN EACH OF THE PONDS DRAINAGE BASIN, THE INDIVIDUAL VOLUME AVAILABLE FROM THE THREE TEMPORARY SEDIMENTATION BASINS IS SUFFICIENT FOR TREATMENT WITHIN EACH DRAINAGE BASIN. SEE TABLE BELOW:

Temporary Sedimentation Calculation					
Area	Disturbed Acre	Volume per Acre	Volume Required	Pond	Volume Provided
DA-1	8.06	3,600	29,016	West	63,830
DA-2	12.57	3,600	45,252	East	59,486
DA-3	5.85	3,600	21,060	SW	52,272





TBMP

PROJECT No.: R01101769-50001

FILE: J:\101769\001\Reports\SCS\TMP-SED-PND.dwg

DRAWN BY: SSL

SCALE: NTS

DATE: AUGUST 2010

TEMPORARY SEDIMENTATION BASIN

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TEXAS

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9000 Fax (210)525-0529
Bury+Partners-SA, Inc.

aci
consulting

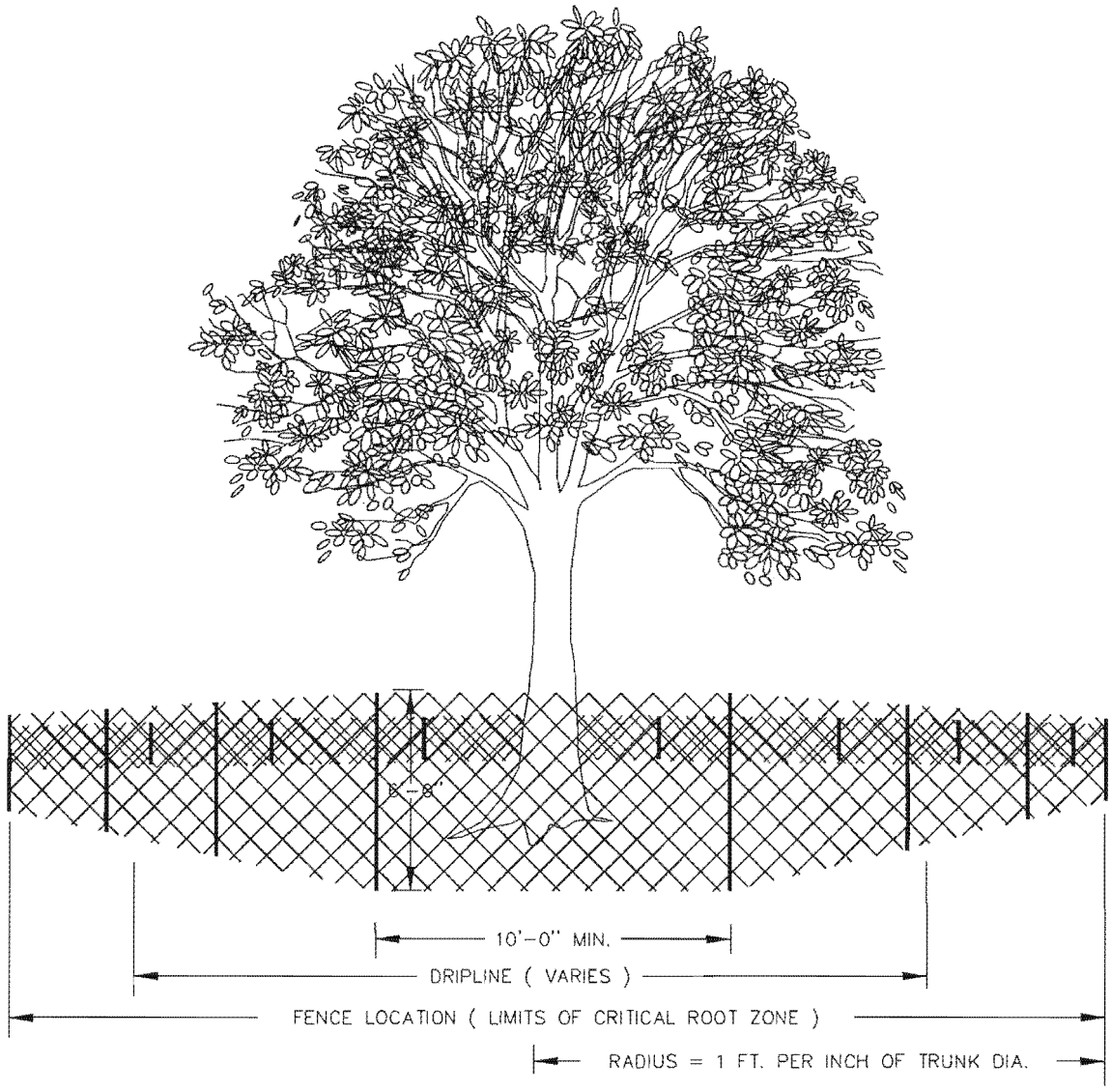
October 12, 2010

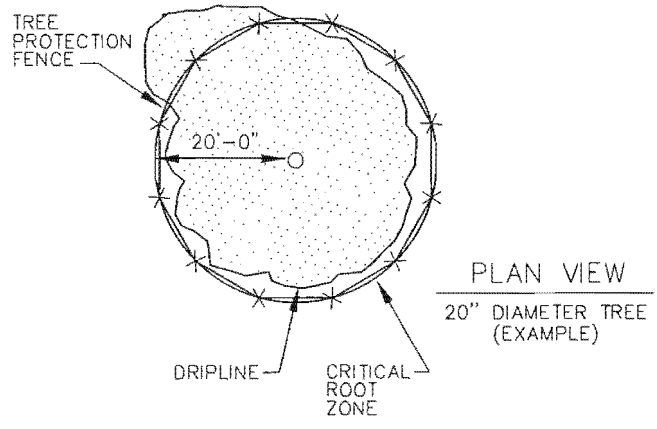
To Whom It May Concern:

I am the project geologist for the proposed Enclave at Westpointe Village in New Braunfels, Texas. I have previously evaluated the karst feature identified as F-2. I recently conducted a review of the TCEQ WPAP site plan provided to me by Bury and Partners, which includes a 100-foot natural buffer for the feature. Following the review, I visited the site on 10/12/10 and have confirmed that the natural buffer indicated on the site plan accurately depicts the field conditions surrounding the feature. The buffer provided is more than adequate to accommodate the drainage area for the feature. If you have any questions, please feel free to contact me at (512) 694-9333 or (512) 852-3872.

Sincerely,

Stan Reece, P.G., C.A.P.M.
aci consulting





PLAN VIEW

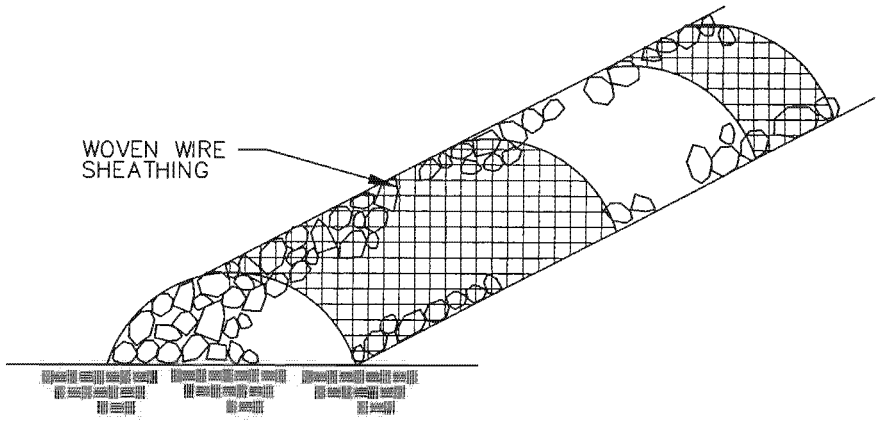
20" DIAMETER TREE (EXAMPLE)

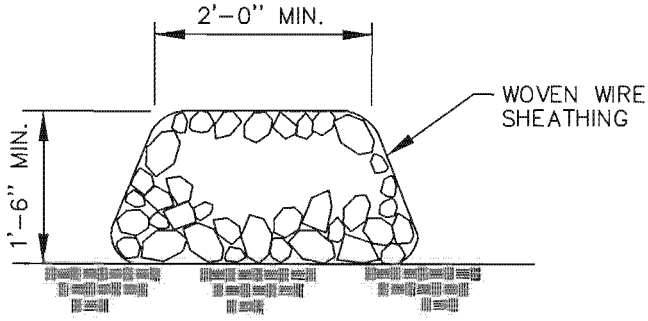
TREE PROTECTION CONSTRUCTION FENCE

EXHIBIT B1

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		
DATE: Oct 14, 2010		
SHEET: 1 OF 10		

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210) 525-0529
TBPE Registration Number F1048





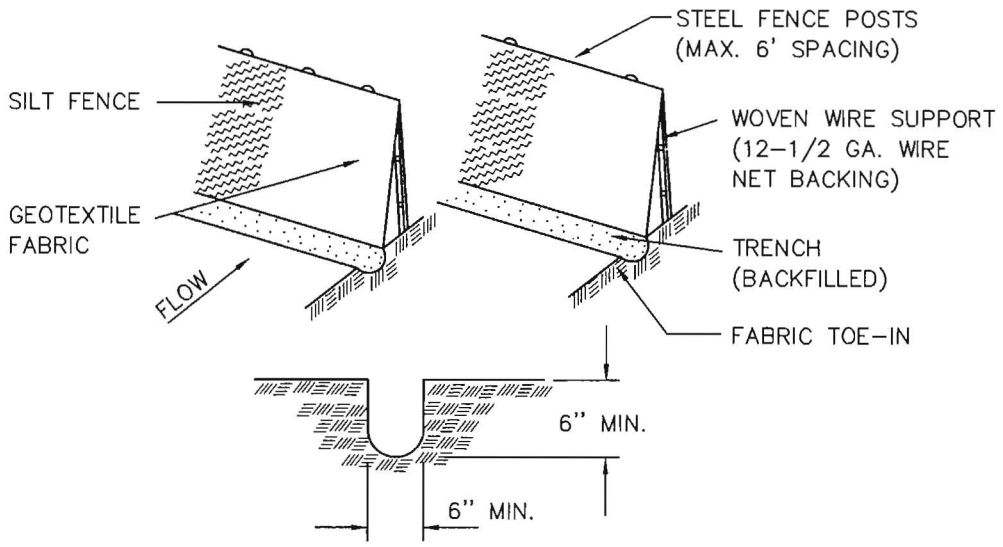
NOTES:

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.

ROCK BERM

EXHIBIT B2

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100
DATE: Oct 14, 2010		San Antonio, TX 78216
SHEET: 2 OF 10		Tel. (210)525-9090 Fax (210) 525-0529
		TBPE Registration Number F1048



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

EXHIBIT B3

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		
DATE: Oct 14, 2010		
SHEET: 3 OF 10		

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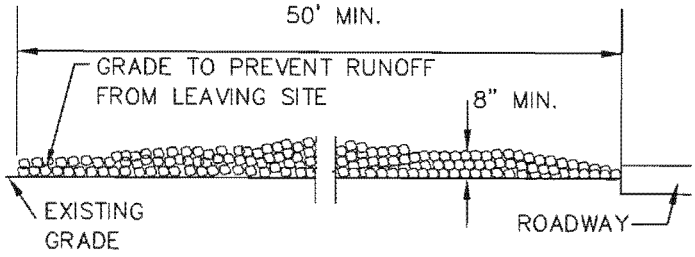
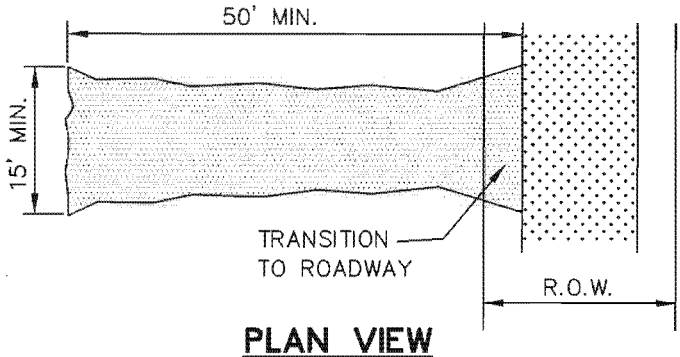
TBPE Registration Number F1048



PROFILE
N.T.S.



PLAN VIEW
N.T.S.

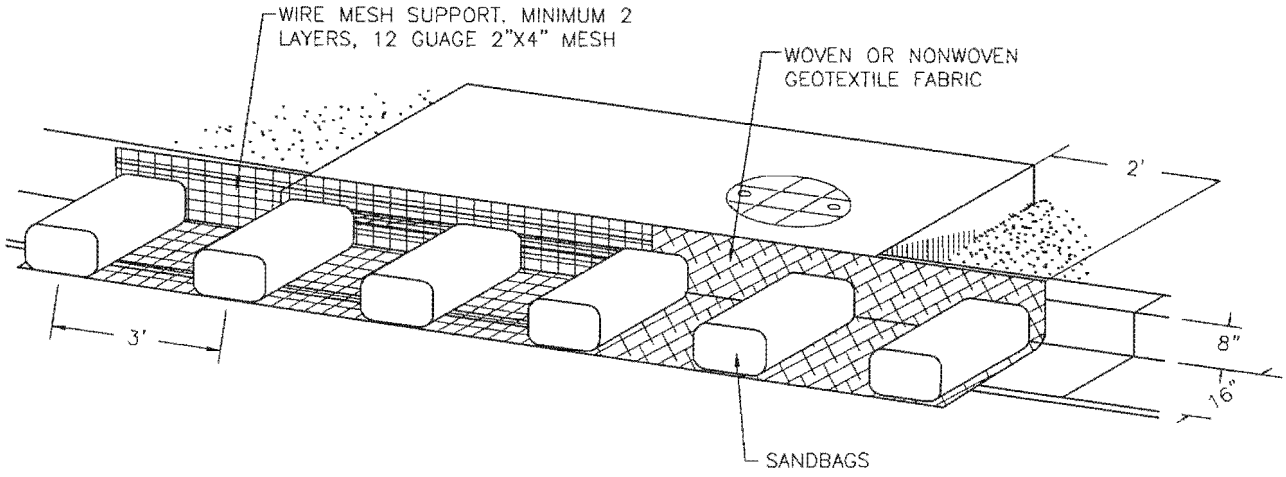
GENERAL NOTES:

1. STONE SIZE– 4 TO 6 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

EXHIBIT B4

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100
DATE: Oct 14, 2010		San Antonio, TX 78216
SHEET: 4 OF 10		Tel. (210)525-9090 Fax (210) 525-0529
		TBPE Registration Number F1048



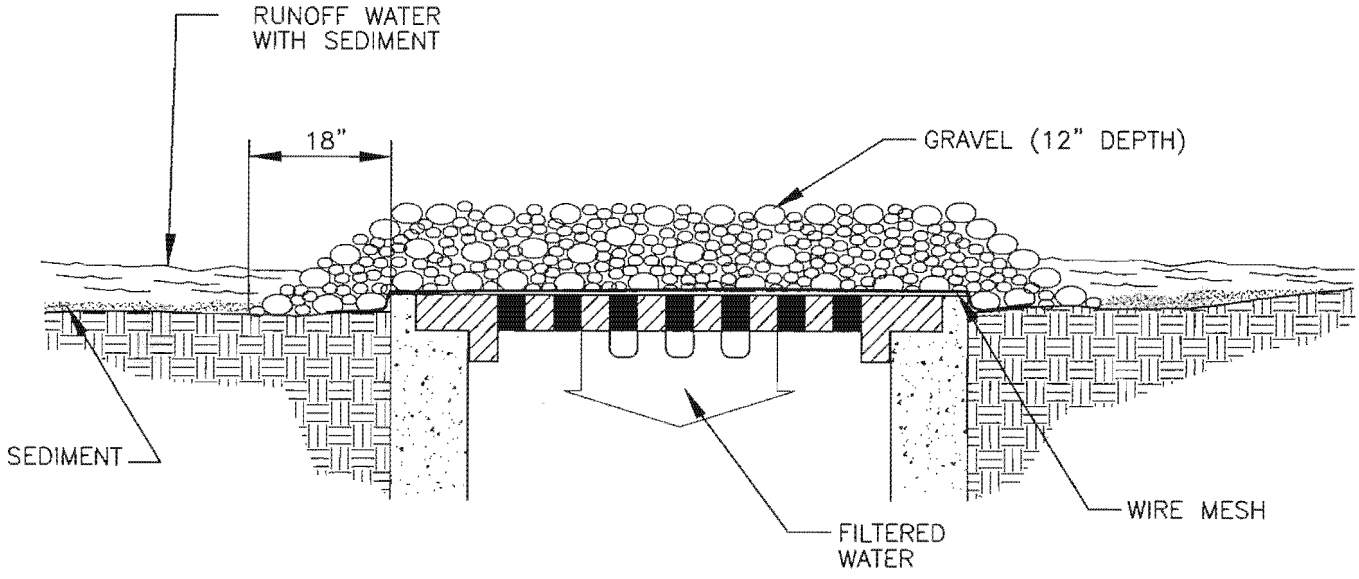
NOTES:

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

EXHIBIT B5

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100 San Antonio, TX 78216 Tel. (210)525-9090 Fax (210) 525-0529 TBPE Registration Number F1048
DATE: Oct 14, 2010		
SHEET 5 OF 10		



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.

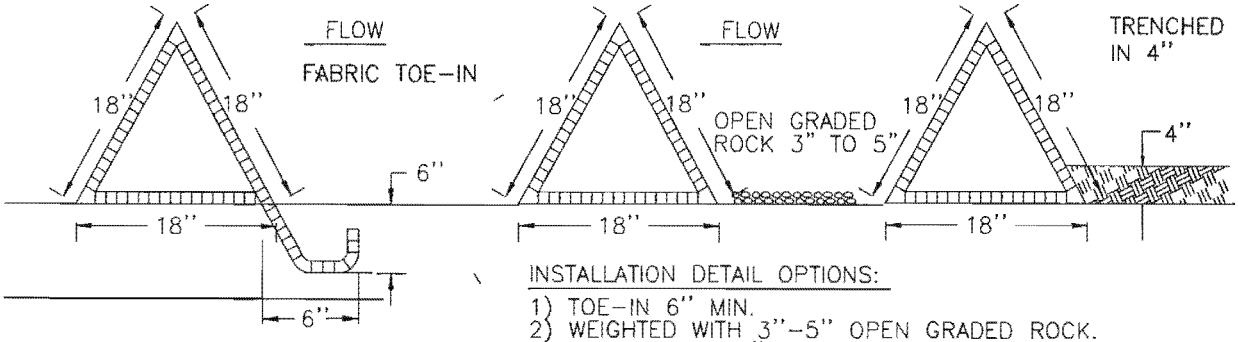
B. AGGREGATE SHALL BE PLACED OVER THE WIRE MESH AS INDICATED ABOVE. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.

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

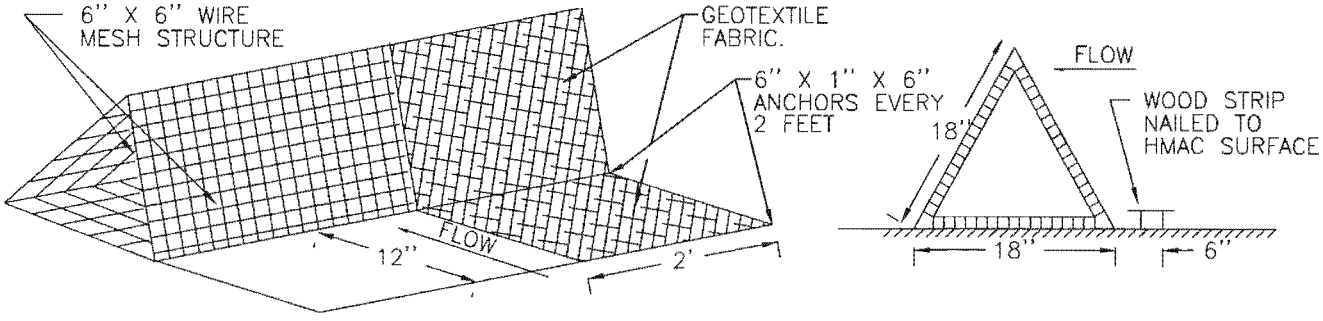
EXHIBIT B6

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100 San Antonio, TX 78216 Tel. (210)525-9090 Fax (210) 525-0529 TBPE Registration Number F1048
DATE: Oct 14, 2010		
SHEET 6 OF 10		



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

EXHIBIT B7

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100 San Antonio, TX 78216 Tel. (210)525-9090 Fax (210) 525-0529 TBPE Registration Number F1048
DATE: Oct 14, 2010		
SHEET 7 OF 10		

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

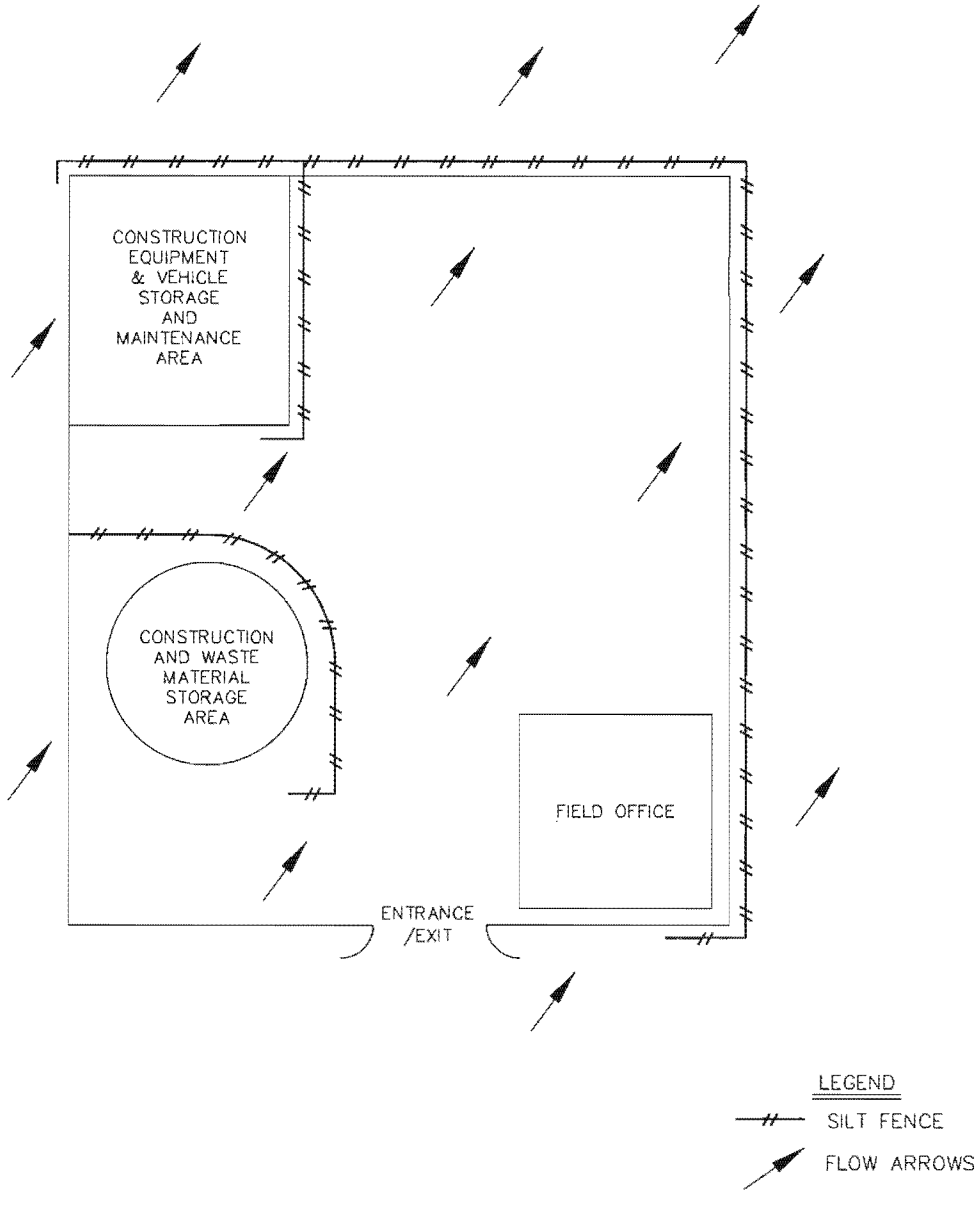
1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS FOR THIS PROJECT AS WELL AS THE CITY'S GENERAL REQUIREMENTS, WHICH PERTAIN TO THIS PROJECT.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURE OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED. (IN ACCORDANCE WITH LANDSCAPE PLANS)
3. BRUSH BERMS, HAY BALES, 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.

EXHIBIT B8

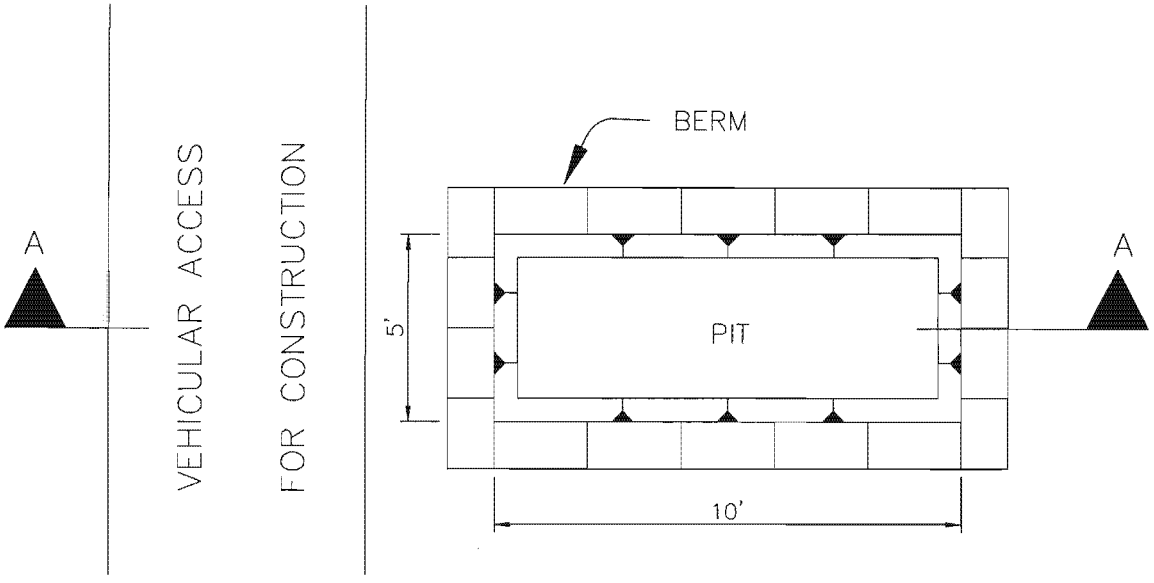
SCALE: NTS	**THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS**	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100 San Antonio, TX 78216 Tel. (210)525-9090 Fax (210) 525-0529 TBPE Registration Number F1048
DATE: Oct 14, 2010		
SHEET 8 OF 10		



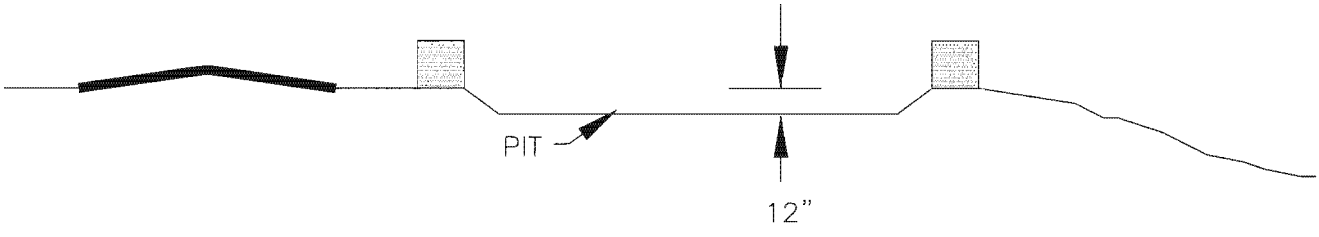
TYPICAL CONSTRUCTION STAGING AREA

EXHIBIT B9

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100
DATE: Oct 14, 2010		San Antonio, TX 78216
SHEET: 9 OF 10		Tel. (210)525-9090 Fax (210) 525-0529
		TBPE Registration Number F1048



PLAN



SECTION A–A

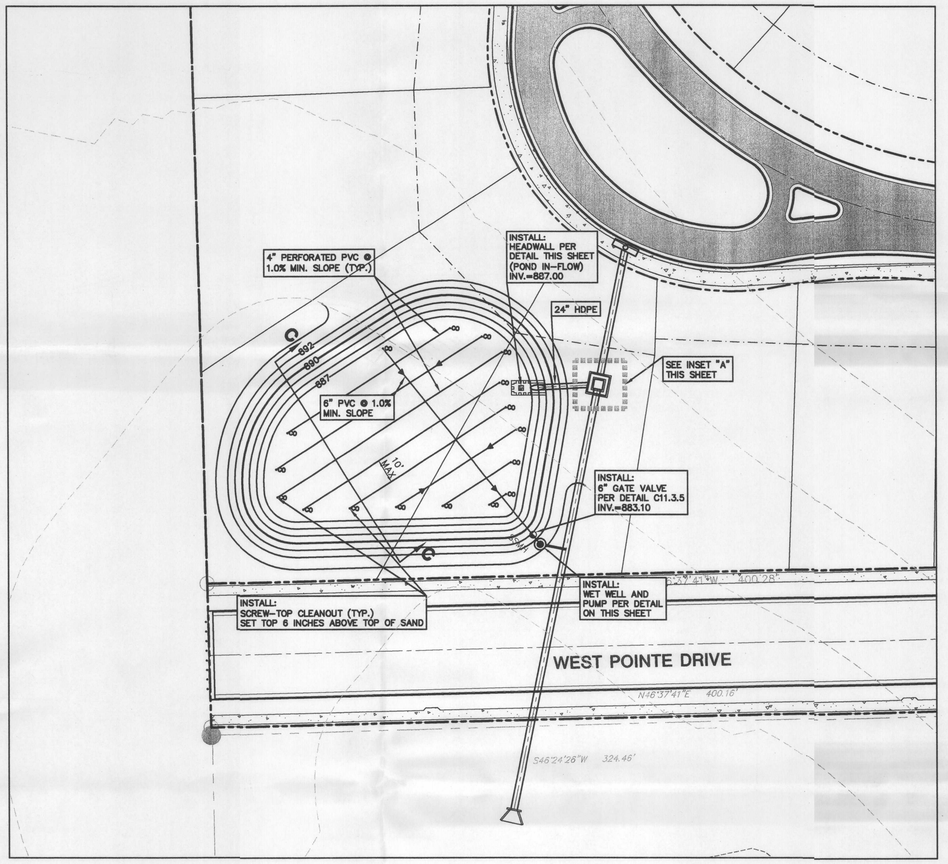
GENERAL NOTES:

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.

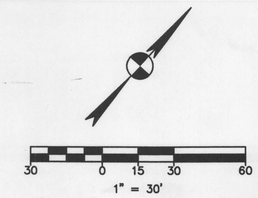
CONCRETE TRUCK WASHOUT PIT

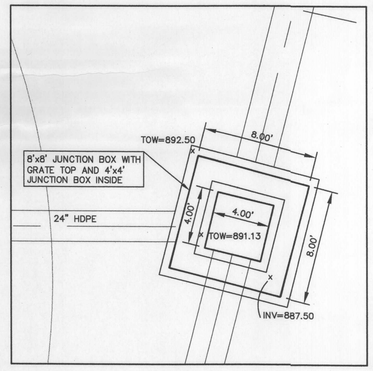
EXHIBIT B10

SCALE: NTS	THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TEXAS	Bury+Partners ENGINEERING SOLUTIONS
DRAWN: SL		922 Isom Road, Suite 100 San Antonio, TX 78216 Tel. (210)525-9090 Fax (210) 525-0529 TBPE Registration Number F1046
DATE: Oct 14, 2010		
SHEET 10 OF 10		



SOUTHWEST WATER QUALITY POND
(FOR DA 3)
SCALE: 1"=30'





INSET "A"
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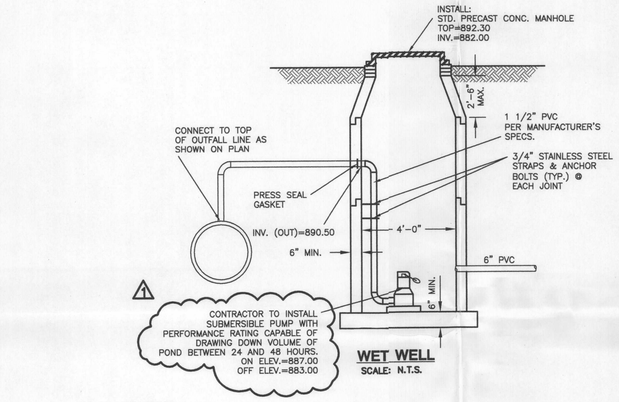

WET WELL
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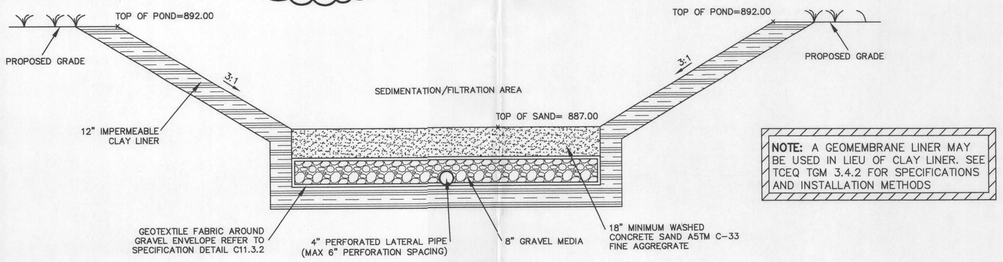
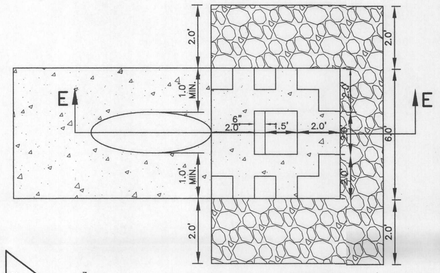
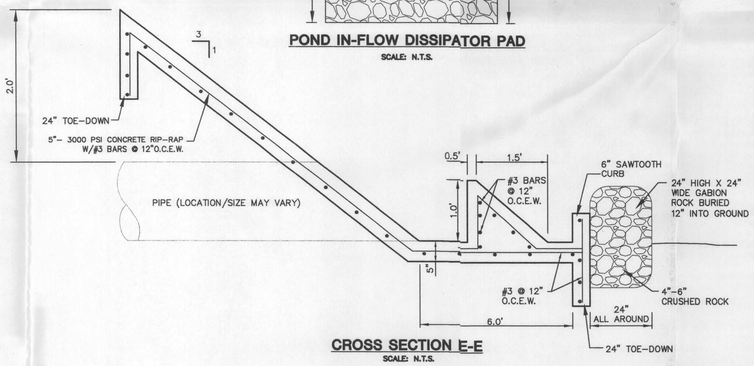


SECTION C-C
SCALE: N.T.S.

NOTE: A GEOMEMBRANE LINER MAY BE USED IN LIEU OF CLAY LINER. SEE TCEQ TGM 3.4.2 FOR SPECIFICATIONS AND INSTALLATION METHODS



POND IN-FLOW DISSIPATOR PAD
SCALE: N.T.S.



CROSS SECTION E-E
SCALE: N.T.S.

WATER QUALITY POND NOTE:

THE TOPS OF PROPOSED CLEAN-OUTS WILL SERVE AS SEDIMENT DEPTH MARKERS WITHIN THE FILTRATION BASIN OF THE WATER QUALITY POND(S)

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 24.118 ACRE TRACT, (1,050,576 SQ. FT.) OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, BEING PART OF THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NO. 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE. ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE. ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE. ELEV=926.75' (NOT SHOWN)

"RECEIVED" TCEQ SAN ANTONIO REGION 2010 OCT 15 PM 3:58

DATE	NO.	REVISION	APPROVAL
10/15/2010	1	TCEQ COMMENTS #1	

Bury+Partners
ENGINEERING SOLUTIONS
823 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9000 Fax (210)525-0529
TBPE Registration Number F1048
Bury+Partners, Inc. Copyright 2010

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL ENGINEER
10-15-10

SOUTHWEST WATER QUALITY POND

WESTPOINTE RESIDENTIAL, LTD
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: October 15, 2010
FILE: 101769001WQP03.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.03

Date: Oct 15, 2010, 1:53pm User ID: bfarley
File: C:\101769\001\PONDS\101769001WQP03.dwg

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER POLLUTION ABATEMENT PLAN NOTES:

1. CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.

2. TOPS OF CLEANOUTS SHALL BE SET AT SIX INCHES ABOVE THE SAND ELEVATION.

3. SEDIMENT WILL BE REMOVED WHEN THE MATERIAL FILLS THE BASIN TO THE TOPS OF THE CLEANOUTS.

4. CONTRACTOR TO HYDROMULCH EARTHEN SLOPES FOR SLOPE STABILIZATION DURING INITIAL BASIN CONSTRUCTION AND MAINTAIN WATERING UNTIL VEGETATION IS FULLY ESTABLISHED.

5. AS AN ALTERNATE TO ITEM 4, CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.

6. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:

   a.) BASIN LINER IN PLACE AND UNDER DRAIN SYSTEM IS IN PLACE WITHOUT GRAVEL.

   b.) GRAVEL AROUND UNDER DRAIN SYSTEM IS IN PLACE AND FILTER FABRIC IS INSTALLED AND ATTACHED TO WALLS OR RIP-RAP.

   c.) SAND FILTER MEDIA HAS BEEN PLACED & BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

7. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

8. UPON SUBSTANTIAL COMPLETION CONTRACTOR TO PROVIDE CERTIFYING ENGINEER WITH FIELD SHOTS VERIFYING ELEVATIONS OF THE FOLLOWING:
- TOP OF BANK AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPE
- OVERFLOW WEIR

9. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY WITH STRUCTURAL ENGINEER SO AS TO PROVIDE APPROPRIATE OPPORTUNITY FOR STRUCTURAL ENGINEER TO MAKE THE NECESSARY CONSTRUCTION OBSERVATIONS DURING INSTALLATION.

10. CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT ALL STRUCTURES HAVE BEEN CONSTRUCTED TO THE DESIGN ELEVATIONS AT THE COMPLETION OF CONSTRUCTION. THIS SHALL INCLUDE ALL STRUCTURAL ELEMENTS, CONCRETE WALLS, BASIN INVERTS, TOP OF EARTH BASIN WALLS, TOP OF SAND ELEVATIONS, INVERTS OF SEDIMENTATION CHAMBER ELEVATIONS, AND ELEVATIONS OF INLET AND OVERFLOW DEVICES.

11. ALL UNDERDRAIN 4" & 6" PVC PIPE WITHIN WATER QUALITY POND TO BE SCHEDULE 40.

GENERAL CONSTRUCTION NOTES:

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST INCLUDE THE DATE ON WHICH HE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.

5. ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.

6. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).

7. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE. IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

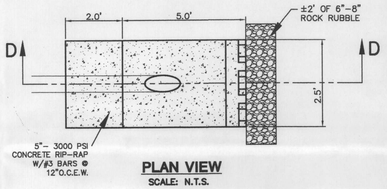
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;

   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

AUSTIN REGIONAL OFFICE
2800 S. IH-35, SUITE 100
AUSTIN, TEXAS 78704-5712
PHONE (512) 339-2929
FAX (512) 339-3795



PLAN VIEW
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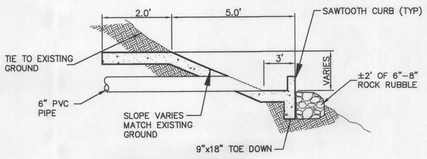

SECTION D-D
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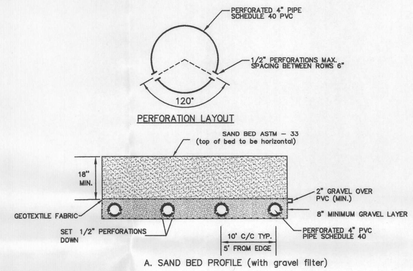


A. SAND BED PROFILE (with gravel filter)

FOR SEDIMENTATION AND FILTRATION PONDS
CLAY LINERS SHALL MEET THE FOLLOWING SPECIFICATIONS:

TABLET 1-7
CLAY LINER SPECIFICATION

PROPERTY	TEST METHOD	UNIT	SPECS.
PERMEABILITY	ASTM D-2434	Cm/Sec	1×10^{-6}
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY

THE CLAY LINER SHALL HAVE A MINIMUM THICKNESS OF 12 INCHES.

GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING SPECIFICATIONS:

PROPERTY	TEST METHOD	UNIT	SPECS.
UNIT WEIGHT	ASTM D-5261	OZ/SQ.YD.	8 (MIN.)
FILTRATION RATE	ASTM D-4491	CM/SEC	0.20 (MIN.)
PUNCTURE STRENGTH	ASTM D-4833	LB.	125 (MIN.)
MULLEN BURST STRENGTH	ASTM D-3786	PSI.	400 (MIN.)
TENSILE STRENGTH	ASTM D-4632	LB.	200 (MIN.)
EQUIV. OPENING SIZE	US STANDARD SIEVE	NO.	80 (MIN.)

SAND BED AND GEOTEXTILE FABRIC

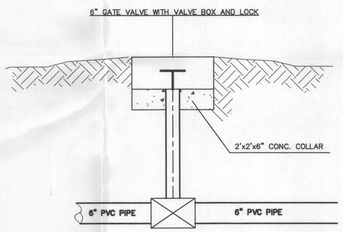
THE TWO LAYERS MUST BE SEPARATED FROM EACH OTHER USING SUITABLE GEOTEXTILE FABRIC MEETING THE FOLLOWING SPECIFICATIONS:
FIRST (TOP) LAYER- FINE SAND, 0.02-0.04 INCH, 12 INCH ASTM - 33 TO 18 INCH DEPTH
SECOND LAYER- 1/2-2 INCH GRAVEL, AT LEAST 1 INCH DEPTH TO 2 INCH DEPTH SURROUNDING UNDERDRAIN PIPING

C13.04.1 **CONCRETE HEADWALL DETAIL (WQP OUTFALL)**
SCALE: N.T.S.

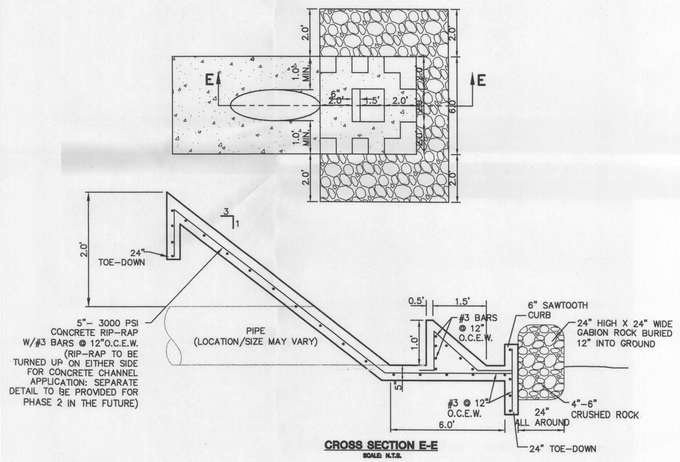
C13.04.2 **FILTRATION POND SAND BED W/ GEOTEXTILE FABRIC**
SCALE: N.T.S.

C13.04.3 **NOT USED**
SCALE: N.T.S.

C13.04.4 **NOT USED**
SCALE: N.T.S.



C13.04.5 **6" GATE VALVE DETAIL**
SCALE: N.T.S.



CROSS SECTION E-E
SCALE: N.T.S.

POND IN-FLOW DISSIPATOR PAD
SCALE: N.T.S.

NO.	DATE	REVISION	APPROVAL
1	10/15/2010	TCEQ COMMENTS #1	

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STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED PROFESSIONAL ENGINEER
10/15/10

WATER QUALITY POND DETAILS

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 50'
DATE REVISED: October 15, 2010
FILE: 101769001WQP01.dwg
DRAWN BY: WFF
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.04

Date: Oct 15, 2010, 2:07pm User ID: khrogonza
File: G:\101769\101\PONDS\101769001WQP01.dwg

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 10/11/2010

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

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

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

County =	**Comal**	
Total project area included in plan * =	**48.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**23.27**	acres
Total post-development impervious cover fraction * =	**0.48**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**20887**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**3**	

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

Drainage Basin/Outfall Area No. =	**1**	
Total drainage basin/outfall area =	**17.81**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**9.07**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.51**	
$L_{M\ THIS\ BASIN}$ =	**8141**	lbs.

3. Indicate the proposed BMP Code for this basin.

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

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

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 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 =	**17.81**	acres
A_I =	**9.07**	acres
A_P =	**8.74**	acres
L_R =	**9356**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**8150**	lbs.
F =	**0.87**	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.44**	inches
Post Development Runoff Coefficient =	**0.36**	
On-site Water Quality Volume =	**33761**	cubic feet

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

Off-site area draining to BMP =	**3.40**	acres
Off-site Impervious cover draining to BMP =	**3.23**	acres
Impervious fraction of off-site area =	**0.95**	
Off-site Runoff Coefficient =	**0.78**	
Off-site Water Quality Volume =	**13784**	cubic feet
Storage for Sediment =	**9509**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**57054**	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**57054**	cubic feet
Minimum filter basin area =	**1876**	square feet
Maximum sedimentation basin area (2' Depth) =	**16881**	square feet
Minimum sedimentation basin area (8' Depth) =	**4220**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**57054**	cubic feet
Minimum filter basin area =	**3376**	square feet
Maximum sedimentation basin area (2' Depth) =	**13505**	square feet
Minimum sedimentation basin area (8' Depth) =	**844**	square feet

DA-1 WATER QUALITY POND (WEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 10/11/2010

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

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

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

County =	**Comal**	
Total project area included in plan * =	**48.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**23.27**	acres
Total post-development impervious cover fraction * =	**0.48**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**20887**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**3**	

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

Drainage Basin/Outfall Area No. =	**2**	
Total drainage basin/outfall area =	**20.87**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**9.54**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.46**	
$L_{M\ THIS\ BASIN}$ =	**8563**	lbs.

3. Indicate the proposed BMP Code for this basin.

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

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

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 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 =	**20.87**	acres
A_I =	**9.54**	acres
A_P =	**11.33**	acres
L_R =	**9874**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**8600**	lbs.
F =	**0.87**	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.44**	inches
Post Development Runoff Coefficient =	**0.33**	
On-site Water Quality Volume =	**36535**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**7307**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**43842**	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**43842**	cubic feet
Minimum filter basin area =	**2030**	square feet
Maximum sedimentation basin area (2' Depth) =	**18267**	square feet
Minimum sedimentation basin area (8' Depth) =	**4567**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**43842**	cubic feet
Minimum filter basin area =	**3653**	square feet
Maximum sedimentation basin area (2' Depth) =	**14614**	square feet
Minimum sedimentation basin area (8' Depth) =	**913**	square feet

DA-2 WATER QUALITY POND (EAST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 10/11/2010

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

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

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

County =	**Comal**	
Total project area included in plan * =	**48.18**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**23.27**	acres
Total post-development impervious cover fraction * =	**0.48**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**20887**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**3**	

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

Drainage Basin/Outfall Area No. =	**3**	
Total drainage basin/outfall area =	**7.59**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**4.66**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.61**	
$L_{M\ THIS\ BASIN}$ =	**4183**	lbs.

3. Indicate the proposed BMP Code for this basin.

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

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

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 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 =	**7.59**	acres
A_I =	**4.66**	acres
A_P =	**2.93**	acres
L_R =	**4782**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**4200**	lbs.
F =	**0.88**	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.50**	inches
Post Development Runoff Coefficient =	**0.43**	
On-site Water Quality Volume =	**17798**	cubic feet

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

Off-site area draining to BMP =	**4.15**	acres
Off-site Impervious cover draining to BMP =	**3.94**	acres
Impervious fraction of off-site area =	**0.95**	
Off-site Runoff Coefficient =	**0.78**	
Off-site Water Quality Volume =	**17514**	cubic feet
Storage for Sediment =	**7062**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**42375**	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	NA	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**42375**	cubic feet
Minimum filter basin area =	**989**	square feet
Maximum sedimentation basin area (2' Depth) =	**8899**	square feet
Minimum sedimentation basin area (8' Depth) =	**2225**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**42375**	cubic feet
Minimum filter basin area =	**1780**	square feet
Maximum sedimentation basin area (2' Depth) =	**7119**	square feet
Minimum sedimentation basin area (8' Depth) =	**445**	square feet

DA-3 WATER QUALITY POND (SOUTHWEST)

DA-1
Residential Lots 47-68, 86-95, and 109-130

		Unit	Area
Lots > 15K SF	1	5000	5000
Lots 10K - 15K SF	13	4000	52000
Lots < 10K SF	40	3500	140000
SUB-TOTALS	54	LOTS	197000
		4.52	Acres
Additional Impervious Area			
Roadway w/ Sidewalk		2.60	Acres
Proposed Westpointe Drive		0.93	Acres
Liftstation		0.15	Acres
300 SF/Lot Add. Imp. Cover		0.37	Acres
Parkland Facilities		0.50	Acres
TOTAL		**9.07**	**Acres**

DA-2
Residential Lots 1-46 and 96-107

		Unit	Area
Lots > 15K SF	1	5000	5000
Lots 10K - 15K SF	18	4000	72000
Lots < 10K SF	39	3500	136500
SUB-TOTALS	58	LOTS	213500
		4.90	Acres
Additional Impervious Area			
Roadway w/ Sidewalk		2.51	Acres
Proposed Westpointe Drive		1.11	Acres
300 SF/Lot Add. Imp. Cover		0.40	Acres
*Clubhouse Facility +5000SF		0.11	Acres
Parkland Facilities		0.50	Acres
TOTAL		**9.54**	**Acres**

*Clubhouse Impervious Coverage is in addition to the impervious coverage already alloted to the residential lot to be used

DA-3
Residential Lots 69-85, 108, and 131-136

		Unit	Area
Lots > 15K SF	0	5000	0
Lots 10K - 15K SF	6	4000	24000
Lots < 10K SF	16	3500	56000
SUB-TOTALS	22	LOTS	80000
		1.84	Acres
Additional Impervious Area			
Roadway w/ Sidewalk		1.05	Acres
Proposed Westpointe Drive		1.12	Acres
300 SF/Lot Add. Imp. Cover		0.15	Acres
Parkland Facilities		0.50	Acres
TOTAL		**4.66**	**Acres**

Note: Unit value is based off of Table 3-2 of the Edwards Aquifer Technical Guidance Manual; Lots 75 and 76 appropriated for WQP

Water Quality Ponds Summary Table

Total Site Acreage	48.18
Total Existing Impervious Coverage:	0
Post-Construction Impervious Coverage:	23.27
Net Increase in Impervious Coverage:	23.27
Total Required Removal Load (L_M)	**20,887**

Total Desired Load Removed by Ponds:

DA-1	8,150
DA-2	8,600
DA-3	4,200
Total	**20,950**

Surplus Load Removal (LBS): 63

Pond Sizing

	Filter Area Required	Filter Area Provided
DA-1 Pond	3,385	17,401
DA-2 Pond	3,998	18,310
DA-3 Pond	1,653	7,366
	Volume Required (CF)	Volume Provided (CF)
DA-1 Pond	57,054	59,486
DA-2 Pond	43,842	63,830
DA-3 Pond	42,375	50,272
	143,271	**173,588**

Surplus Volume (CF): 30,317

SUMMARY TABLE

NO.	DATE	REVISION	APPROVAL
1	10/15/2010	TCEQ COMMENTS #1	

Burry+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-9029
TBPE Registration No. Number F-1046
Burry+Partners, Inc. Copyright 2010

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL ENGINEER
10-15-10

WATER QUALITY POND CALCULATIONS

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: October 14, 2010
FILE: 101769001CALC.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.05

Date: Oct 14, 2010, 5:36pm User ID: afh
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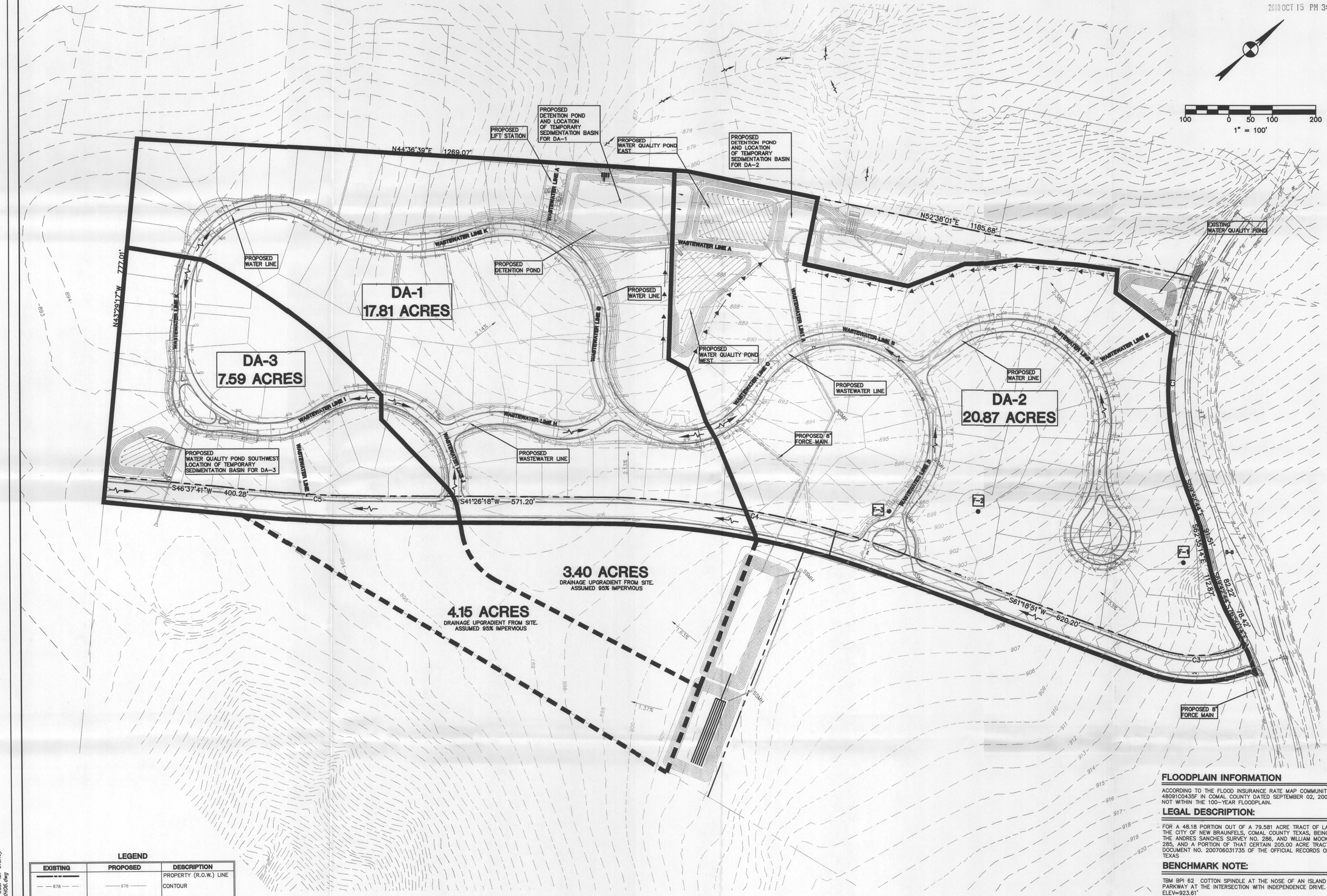


LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY (R.O.W.) LINE
678	678	CONTOUR
		DRAINAGE DIVIDE
1.5%	1.5%	DIRECTION OF FLOW
	DA-3 11.74 ACRES	DRAINAGE AREA NUMBER

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NO. 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

NO.	DATE	REVISION	APPROVAL
1	10/13/2010	TCEQ COMMENTS #1	

Bury+Partners
ENGINEERING SOLUTIONS
825 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9000 Fax (210)525-0529
TBPE Registration Number F1046
Bury+Partners, Inc. ©Copyright 2010

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED PROFESSIONAL ENGINEER
10-15-10

TCEQ DRAINAGE AREA MAP

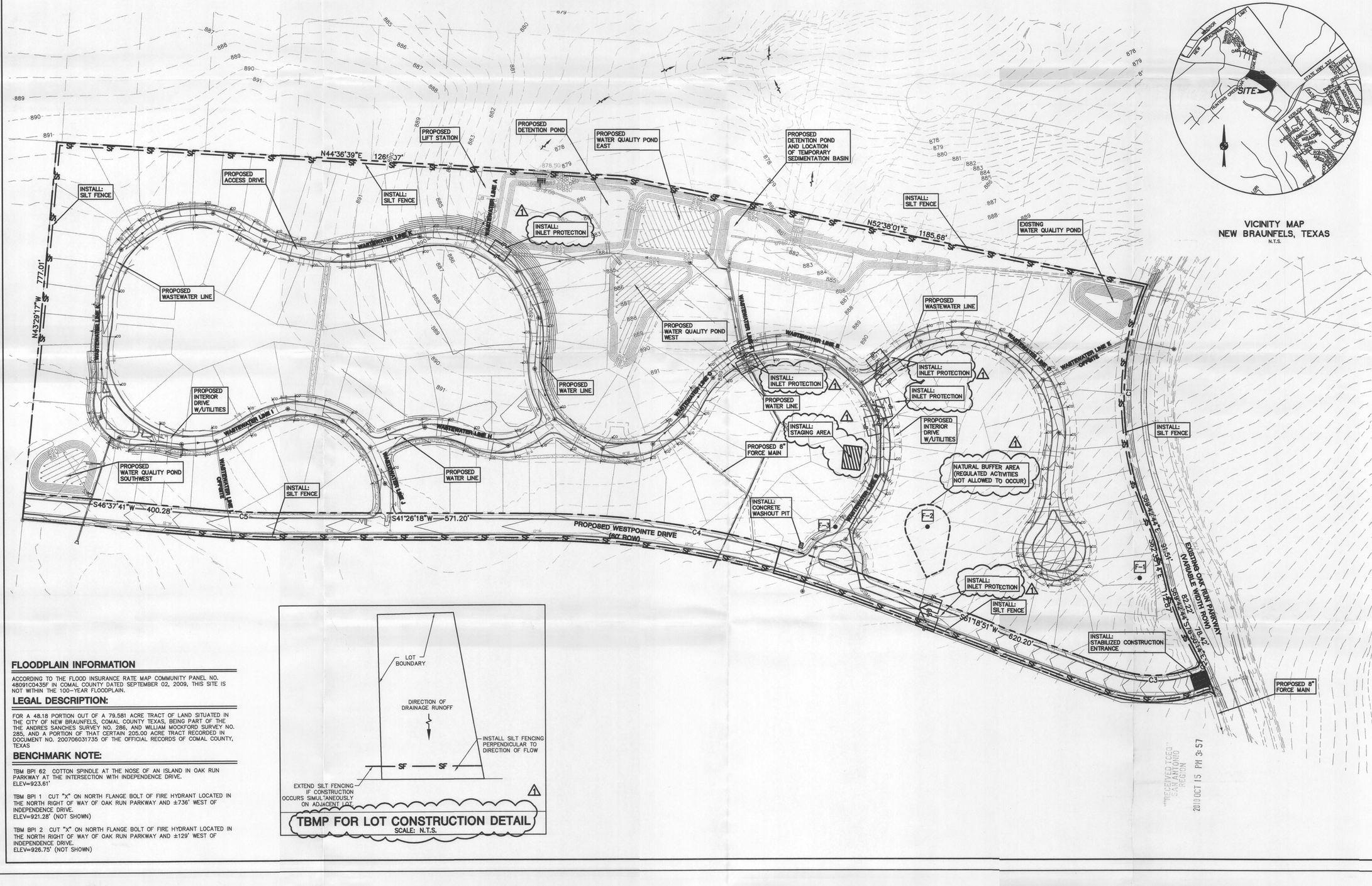
THE ENCLAVE AT WESTPOINTE VILLAGE

NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= XX'
DATE REVISED: October 15, 2010
FILE: G:\101789\001\TCEQ\DA08.dwg
DRAWN BY: KNB
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101789001

SHEET
DAM

Date: Oct 15, 2010, 1:51pm User ID: bfarley
File: G:\101789\001\TCEQ\DA08.dwg



VICINITY MAP
NEW BRAUNFELS, TEXAS
N.T.S.

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100–YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NO. 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

TBMP FOR LOT CONSTRUCTION DETAIL
SCALE: N.T.S.

Date: Oct 15, 2010, 2:06pm User ID: kbraganza
File: G:\101769\001\TCEQ\EXH08.dwg

DATE	NO.	REVISION	APPROVAL
10/15/2010	1	TCEQ COMMENTS #1	

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525–9090 Fax (210)525–0529
TBPE Registration Number F1048
Bury+Partners, Inc. ©Copyright 2010

AARON K. PARENICA
99323
10-15-10

TCEQ WPAP SITE PLAN

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 50'
DATE REVISED: October 15, 2010
FILE: EXH08.dwg
DRAWN BY: WPF
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
EXH

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 25, 2010

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

Re: Edwards Aquifer, Comal County
PROJECT NAME: The Enclave at Westpointe Village, located on the south side of Oak Run Parkway, New Braunfels, Texas
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 2942.00

Dear Mr. Hornseth:

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

Please forward your comments to this office by September 24, 2010.

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

Sincerely

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

Region 13

Water Pollution Abatement Plan

For

THE ENCLAVE AT WESTPOINTE VILLAGE
New Braunfels, Texas

AUGUST 2010

9-23-2010

Prepared By:

Bury+Partners-SA, Inc.
922 Isom Road, Suite 100
San Antonio, Texas 78216
Office: 210-525-9090/Fax: 210-525-0529
TBPE Registration Number F1048

I:\101769\50001\Reports\WPAP\Flysheet.doc.sg.mm

TCEQ

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

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

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

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

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

☒ Yes ☐ No — Water Pollution Abatement (WPAP) Application

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

SECTION II: Customer Information

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

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

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

7. General Customer Information

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

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

8. Type of Customer:			
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☒ Limited Partnership	☐ Other:

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

Westpointe Residential, LTD

10. Mailing Address:

Attn: Mr. J.L. Guerra, Jr.
c/o The M L & E Company, PO Box 212

City	State	ZIP	ZIP + 4
Colonial Heights	VA	23834	0212

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

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

N/A

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(210) 495-8777		(210) 499-4217

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
27-253462	N/A	N/A	801265611

20. Number of Employees

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

21. Independently Owned and Operated?

☒ Yes ☐ No

SECTION III: Regulated Entity Information

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

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

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

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

The Enclave at Westpointe Village

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	(TBD)							
	(TBD)							
	City	New Braunfels	State	TX	ZIP	78132	ZIP + 4	
25. Mailing Address:	Westpointe Residential, LTD							
	c/o The M L & E Company, PO Box 212							
	City	Colonial Heights	State	VA	ZIP	23834	ZIP + 4	2860

26. E-Mail Address:	N/A

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(210) 495-8777	N/A	(210) 499-4217

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)
1521	1531	236115	531210

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

Single Family Residential

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

35. Description to Physical Location:	South side of Oak Run Parkway, New Braunfels, Comal County, Texas

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

37. Latitude (N) In Decimal:	29.7122	38. Longitude (W) In Decimal:	98.1679

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	42	43.85	98	10	4.40

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

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

SECTION IV: Preparer Information

40. Name:	Aaron K. Parenica, P.E.	41. Title:	Associate/Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 525-9090		(210) 525-0529	aparenica@burypartners.com

SECTION V: Authorized Signature

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

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

Company:	Westpointe Residential, LTD	Job Title:	Partner		
Name *(In Print)* :	J.L. Guerra, Jr.			Phone:	(210) 495-8777
Signature:				Date:	8/06/2010

GENERAL INFORMATION FORM

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

REGULATED ENTITY NAME: THE ENCLAVE AT WESTPOINTE VILLAGE

COUNTY: Comal STREAM BASIN: Bleiders Creek

EDWARDS AQUIFER: ✓ RECHARGE ZONE
__ TRANSITION ZONE

PLAN TYPE: ✓ WPAP __ AST __ EXCEPTION
__ SCS __ UST __ MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: J.L. Guerra, Jr.
Entity: Westpointe Residential, LTD
Mailing Address: c/o The ML&E Company, P.O. Box 212
City, State: Colonial Heights, VA Zip: 23834
Telephone: (210) 495-8777 FAX: (210) 499-4217

Agent/Representative (If any):

Contact Person: Aaron K. Parenica, P.E. (and/or Steve Lin)
Entity: Bury+Partners
Mailing Address: 922 Isom Road, Suite 100
City, State: San Antonio, Texas Zip: 78216
Telephone: (210) 525-9090 FAX: (210) 525-0529

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

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

Southside of Oak Run Parkway, directly west of the Westpointe Village Shopping Center

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

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

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

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

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

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

PROHIBITED ACTIVITIES

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

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

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

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

ADMINISTRATIVE INFORMATION

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

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

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

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

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

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

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

___ TCEQ cashier

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

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

13. ✓ Submit one (1) original and four (4) copies of the completed application to the appropriate regional office for distribution by the TCEQ to the local municipality or county, groundwater conservation districts, and the TCEQ's Central Office.

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

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

Aaron K. Parenica, P.E. (w/ Bury+Partners)
Print Name of Customer/Agent

Signature of Customer/Agent

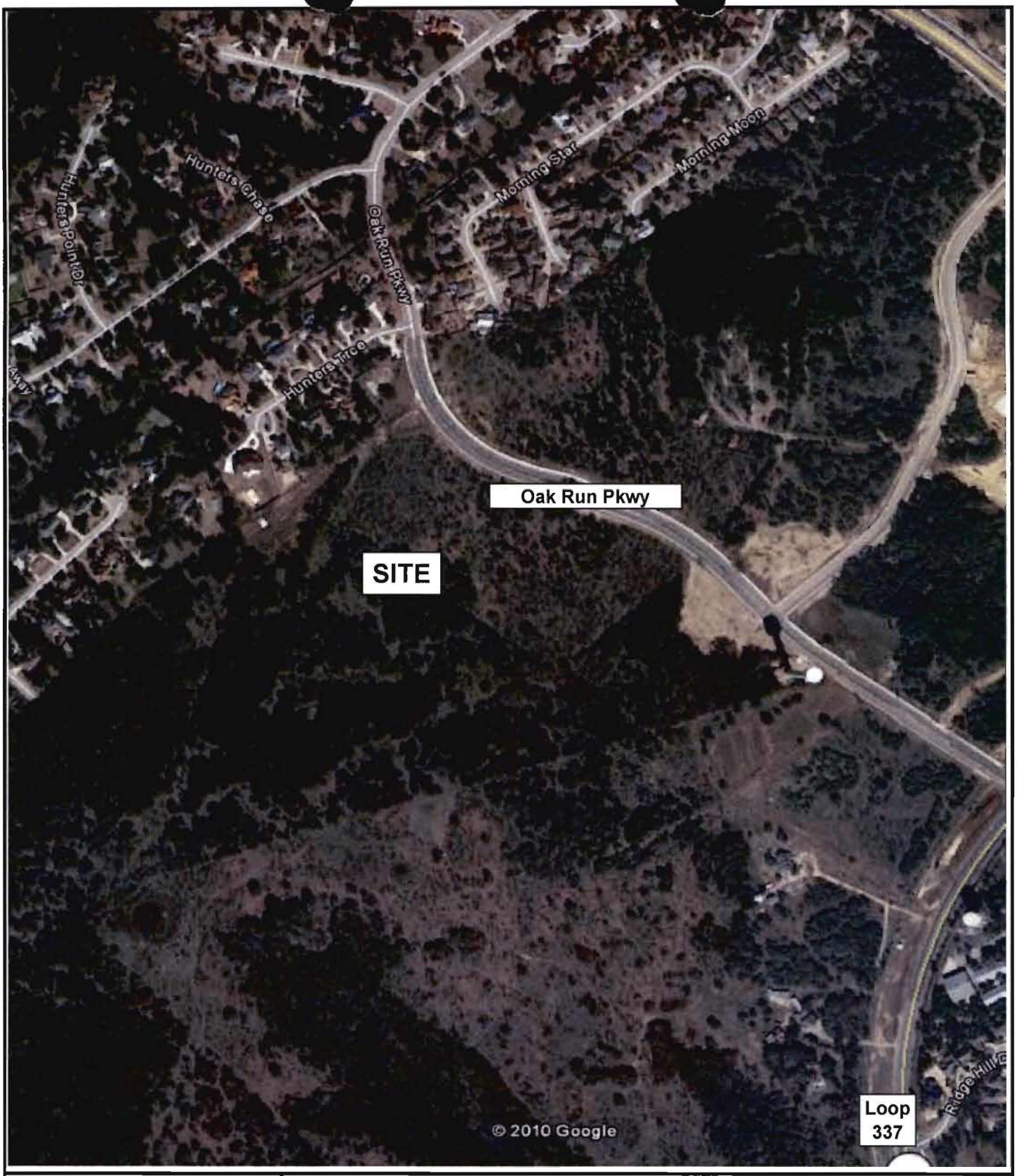
8-23-2010
Date

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

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

ATTACHMENT A

ROAD MAP



Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F-1046

THE ENCLAVES AT WESTPOINTE VILLAGE

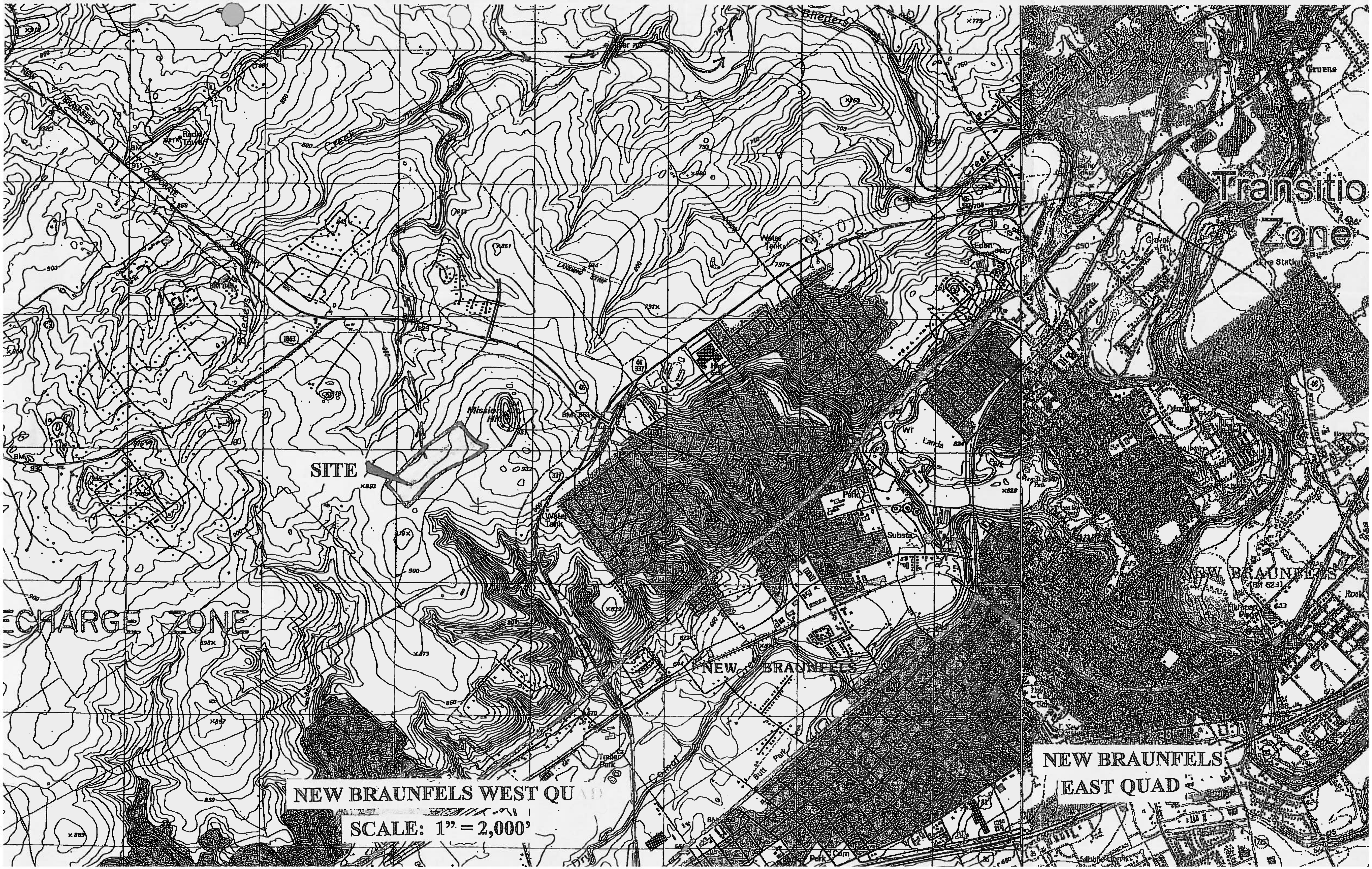
NEW BRAUNFELS, TEXAS

ROAD MAP

JULY 20, 2010	DRAWN BY: SSL	FILE: J:\101769\001\Reports\SCS\Border Template.xls	SCALE: NTS	No.: R0101769-50001

ATTACHMENT B

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


SITE
Mission Hill
ECHARGE ZONE
Transitio
Zone
NEW BRAUNFELS
Landa Park
Water Tank
LANDING STRIP
Gruene
NEW BRAUNFELS WEST QU
SCALE: 1" = 2,000'
NEW BRAUNFELS
EAST QUAD

ATTACHMENT C

PROJECT DESCRIPTION

PROJECT DESCRIPTION

The Enclave at Westpointe Village is a ±48.18-acre development located near the southwest corner of the intersection of State Highway 46 and Loop 337, directly south of Oak Run Parkway. This entire development lies within the city limits of the City of New Braunfels in Comal County, Texas. The project is located in the Edwards Aquifer Recharge Zone (EARZ), and is within watershed of the Guadalupe River via the Blieders Creek tributary.

Currently, the site is undeveloped with natural vegetation and trees. There is no existing impervious coverage on the site. The proposed development will be constructed in two phases. Phase I will consist of residential subdivision units for the eastern most portion of the site fronting Oak Run Parkway. This includes the construction of an access drive into the residential subdivision, Phase I of the Sewage Collection System (SCS), and construction of the proposed Water Quality Ponds and detention basins. Phase I will total ±23.93-acres and increase the impervious cover by ±12.33-acres (58%). Phase II will consist of the remaining western half of the proposed residential subdivision, including the extension of the access drive, the addition of the western portion of the SCS, and an additional Water Quality Pond. Phase II consists of a total of ±23.86-acres.

Three Sand Filter Water Quality Ponds will be used as Permanent Best Management Practices (BMP's) onsite to treat stormwater generated from the development. These BMP's have been designed in accordance with TCEQ's Technical Guidance Manual to remove 80% of the increased Total Suspended Solids (TSS) for the proposed development. The proposed Water Quality Ponds have been designed to provide treatment to the entire residential subdivision as well as account for future development of the adjacent property within the entire drainage basin. Moreover, storm water will also be detained prior to being released into two existing drainage easements within the Hunters Creek subdivision. All areas not covered by the building footprint, sidewalks, or pavement will be stabilized with either sod or landscaping prior to the removal of all temporary Best Management Practices (BMPs).

The public SCS will be used to convey wastewater from the development to a Sanitary Sewer Lift station. The lift station will convey sanitary sewer through a force main into an existing waste water main operated and maintained by New Braunfels Utilities. Of the overall SCS, the gravity mains total ±6,266 linear feet of 8" SDR 26 PVC Pipe and the sanitary sewer force main totals ±3,031 linear feet. The entire SCS will comprise of two separate gravity branches, and will be constructed in accordance with the phasing plan mentioned above. The lift station along with the force main will be constructed during Phase I.

Both SCS and WPAP calculations incorporate future growth and development of the area south of the site as both the drainage and sewer sheds to the south of this development contributes to both the SCS and Water Quality Ponds. This area will consist of a commercial development, with assumed impervious coverage of 95%, which will require a separate WPAP.

Based on the Geological Assessment, there are three geologic features within the project boundary. One of these features (F-2) has been deemed as sensitive. Protection of this sensitive feature will be based upon Section 5.1.2 of the TCEQ RG-348 Technical Guidance Manual, having a natural buffer extending 50 feet in all directions. The area within this buffer will be maintained in its natural state and will not have any construction activities within.

GEOLOGIC ASSESSMENT

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

REGULATED ENTITY NAME: Enclave at Westpointe – Comal County, Texas

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

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

PROJECT INFORMATION

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

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

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group *	Thickness (feet)
Medlin-Eckrant association (MEC), undulating	D	1-2 ft
Krum clay (Krb) – 1 to 3 percent slopes	C	4-5 ft
Rumple-Comfort association (RUD), undulating	D	2.5 ft

* Soil Group Definitions (Abbreviated)

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

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

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

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

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

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

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

The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 100'

Applicant's Site Plan Scale	1" = 100'
Site Geologic Map Scale	1" = 100'
Site Soils Map Scale (if more than 1 soil type)	1" = 100'

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

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

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

9. X Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Feature Map and are described in the attached Geologic Assessment Table.
__ Geologic or manmade features were not discovered on the project site during the field investigation.

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

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

-- There are water wells present within the project corridor study area and the locations are shown and labeled. (Check all of the following that apply.)
__ The wells are not in use and have been properly abandoned.
-- The well is not in use and will be properly abandoned.
__ The well are in use and complies with 16 TAC §76.

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

ADMINISTRATIVE INFORMATION

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

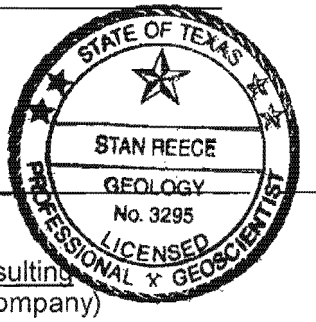
Date(s) Geologic Assessment was performed: September 13 and 17, and October 10, 2007
Date(s)

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

Stan Reece P.G.
Print Name of Geologist

(512) 347-9000
Telephone

(512) 306-0974
Fax



Signature of Geologist

August 17, 2010
Date

Representing: aci consulting
(Name of Company)

If you have questions on how to fill out this form or about the Edwards Aquifer Protection Program, please contact us at 512/939-2929 (Austin) or 210/403-4024 (San Antonio).

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

aci consulting

GEOLOGIC ASSESSMENT
FOR THE
ENCLAVE AT WESTPOINTE
WATER POLLUTION ABATEMENT PLAN (WPAP)
AND
SEWAGE COLLECTION SYSTEM (SCS)

Comal County, Texas

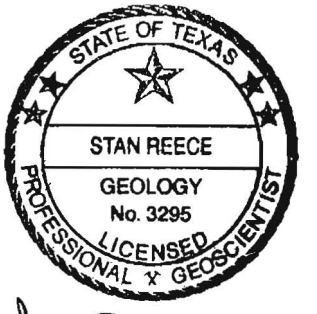
August 2010

Prepared for:

Westpointe Residential, Inc.
11202 Disco Drive
San Antonio, Texas 78216

Prepared by:

aci consulting
1001 Mopac Circle
Austin, Texas 78746



8/17/10

aci consulting

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aci consulting

August 17, 2010

Geologic Assessment for the 54-acre Enclave at Westpointe Sewage Collection System (SCS), Comal County, Texas

1.0 INTRODUCTION

The purpose of this task is to identify "karst" features during a pedestrian survey for the property known as the Enclave at Westpointe in New Braunfels, Comal County, Texas. The approximate 54-acre Enclave at Westpointe property, hereafter referred to as the subject area, is located at the northwest corner of State Loop 337 and Highway 46 in New Braunfels, Comal County, Texas (Figure 1).

2.0 SCOPE

This report is intended to satisfy the requirements for a Geologic Assessment, which shall be included as a component of a Water Pollution Abatement Plan (WPAP) and Sewage Collection System (SCS). The scope of the report consists of a site reconnaissance and field survey and review of existing data and reports. Features identified during the field survey are ranked utilizing the Texas Commission on Environmental Quality (TCEQ) matrix for Edwards Aquifer Recharge Zone Features. The ranking of the features determines their viability as a recharge feature.

3.0 INVESTIGATION METHOD

The following investigation methods and activities were used to develop this report:

- A review of existing files and literature to determine the regional geology and known caves associated with the property;
- A review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the property;
- A site reconnaissance performed by a registered professional geologist to identify and examine caves, recharge features, and other significant geological features; and,
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone.

4.0 PROPOSED SURVEY AREA USE

The site will be utilized for the construction of single family residential lots..

5.0 REGIONAL AND SITE GEOLOGY

The site lies within the Edwards aquifer recharge zone as defined by the TCEQ (TCEQ 2001). The geologic strata associated with the Edwards aquifer in Comal County include the Buda Limestone (Kbu) and the Del Rio formation overlying the Edwards Limestone Group. The dominant structural trend of known faults in the area is to the northeast on a bearing of approximately 40 to 50 degrees to the northeast (USGS, New Braunfels West Quadrangle, 1993).

Surface geology of the site include outcrops of the Edwards Limestone Formation (Ked) and Del Rio Clay (Kdr). Outcrops of the Edwards Limestone on the site occur as light-gray to gray, thick bedded limestone. Some outcrops are dolomitic in nature. Outcrops of Del Rio clay on the property appear as blocky medium-gray to light gray silty clay. Figure 2 depicts the stratigraphic column for the site. A topographic map with formation outcrops is included as Figure 3.

6.0 KARST FEATURES IN COMAL COUNTY, TEXASERROR! BOOKMARK NOT DEFINED.

In limestone terrains, karst is expressed by erratically developed cavernous porosity and the manifestations of sinkholes, voids, and erratic surface drainage. Karst landscapes are typical of the Edwards Limestone, occurring across a vast region of Central Texas west of the Balcones Escarpment, and these processes are critical to understanding the Edwards Aquifer within its various segments. The features produced by karst processes (voids, holes, and solution layers) eventually provide conduits for surface water runoff and "point recharge" for the Edwards aquifer. The identification and protection of these features in established recharge areas is critical to maintaining groundwater quality and species habitat. The United States Fish and Wildlife Service (USFWS) and the TCEQ require protective strategies within these areas to ensure recharge and endangered species habitat protection prior to, during, and upon completion of construction activities. The subject area is located in Comal County which is not within an area where endangered karst invertebrates exist or may be known to exist.

7.0 SITE SOILS

The description of the site soils are derived from two sources:

- Utilization of the "Soil Survey of Comal County, Texas," January, 1984, compiled by the United States Department of Agriculture (USDA) Natural Resource Conservation Service; and,
- Field observations made during the site reconnaissance.

Three soil units are identified within the subject area:

Krum clay (Krb) – 1 to 3 percent slopes – These gently sloping soils occur on stream terraces and valley hills. Typically, the surface layer consists of dark gray clay about 16 inches thick with subsoil, to a depth of 58 inches, consisting of grayish, brown clay. This soil is typically well-drained with moderate permeability.

Medlin-Eckrant association, undulating (MEC) – This association consists of very shallow and deep soils on upland areas in the Edwards Plateau area. The typical surface layer of Medlin consists of nine inches of grayish, brown clay. The subsoil is olive clay to a depth of approximately 24 inches, and mottled pale olive and pale yellow clay to a depth of 38 inches. The Medlin soil is well-drained with rapid surface runoff and slow permeability.

The Eckrant soil consists of a surface layer of dark brown extremely stony clay approximately 17 inches thick with underlying material consisting of fractured limestone bedrock. The Eckrant soil is well drained with rapid surface runoff and moderately slow permeability.

Rumple-Comfort association (RUD), undulating – This association consists of shallow and moderately deep upland soils in the Edwards Plateau area. Rumple soils make up approximately 60 percent of the association, Comfort soils make up 20 percent, and other soils, mainly Tarpley soils, make up 20 percent. The typical surface layer of the Rumple soil consists of dark reddish-brown cherty clay loam about 10 inches thick. The subsoil to a depth of 28 inches is dark reddish-brown extremely stony clay.

The surface layer of the Comfort soil is dark brown, extremely stony clay to about 7 inches. The subsoil to a depth of 12 inches is dark, reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated non-calcareous fractured limestone throughout. All soils in this association are well-drained with moderate surface runoff.

A site soils map is included as Figure 4.

8.0 PREVIOUS SITE INVESTIGATIONS

There are no known previous site investigations conducted for this property according to information received from the property developer.

9.0 DESCRIPTION OF SITE FEATURES

All features listed below were identified and assessed by aci personnel during site visits conducted on September 13 and 17, and October 10, 2007. A total of three geologic features were identified within the development boundaries during the reconnaissance for this geologic assessment. A feature location map is included as Figure 5. All feature descriptions are identified as follows:

Feature 1
GPS: N 29.71298 W -98.16708

This feature is a sinkhole with a length, width and vertical depth of 5 feet, 4 feet, and 1.5 feet, respectively. Infill material consists of cobbles, loose soil, leaf litter, and other organic material. The feature is located on a hillside, and the drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is low (17 points). The TCEQ Geologic Assessment sensitivity rating is 37.

Recommendations: No further activities are recommended for this feature.

Feature 2
GPS: N 29.71223 W -98.16835

This feature is a series of six solution-enlarged cavities, the largest of which has a length, width and vertical depth of 2 feet, 1 foot, and greater than 4 feet, respectively. Infill material consists of cobbles, breakdown, sand, and gravel. Drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is intermediate (30 points). The TCEQ Geologic Assessment sensitivity rating is 50.

Recommendations: A minimum setback of 50-feet corresponding to the associated drainage area is recommended for this feature.

Feature 3
GPS: N 29.71187 W -98.16875

This feature is a natural bedrock feature with a length, width and vertical depth of 20 feet, 5 feet, and 1 foot, respectively. The feature is located on a hillside, and the drainage area

appears to be less than 1.6 acres. Relative infiltration rate of this feature is low (15 points). The TCEQ Geologic Assessment sensitivity rating is 30.

Recommendations: No further activities are recommended for this feature.

10.0 SUMMARY OF FINDINGS

A total of three geologic or manmade features identified within the subject area. Only one of the features was rated as sensitive under TCEQ guidelines.

11.0 RECOMMENDATIONS

Recommendations for each feature are included below the individual feature descriptions.

12.0 REFERENCES

United States Geological Survey (USGS), New Braunfels West Quadrangle (1993), Bureau of Economic Geology, The University of Texas at Austin.

Soil Conservation Service. 1984. Soil Survey of Comal County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.

(TCEQ) Texas Commission on Environmental Quality. 2001. "Edwards Aquifer Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. November 28, 2001. Austin, Texas.

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Enclave at Westpointe WPAP and SCS

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIP	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
F-1	29.71298	-98.16708	SH	20	Kdr	5	4	1.5					C,O	17	37	X		X		Hillside
F-2	29.71223	-98.16835	SC	20	Kdr	2	1	4+				2	C	30	50		X	X		Flat
F-3	29.71187	-98.16875	O	5	Kdr	20	5	1	NE - 30	10			N	15	30	X		X		Hillside

* DATUM WGS 84

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

STATE OF TEXAS
STAN REECE
GEOLOGY
No. 3295
LICENSED
PROFESSIONAL GEOSCIENTIST

Date 8/17/2010

Sheet 1 of 1

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

Enclave at Westpointe
Figure 5. Feature Locations

This map is intended for planning purposes only. Base mapping compiled from best available information. All map data should be considered preliminary and all boundaries and designations are subject to confirmation. This map is conceptual in nature and does not represent any regulatory approval. Plan is subject to change.

100 50 0 100 200 300 Feet

1:1,200 1 inch equals 100 Feet

Features

50 ft Buffer

STATE OF TEXAS
STAN REECE
GEOLOGY
No. 3295
LICENSED
PROFESSIONAL GEOSCIENTIST

8/17/10

TCEQ-R13
AUG 23 2010
SAN ANTONIO

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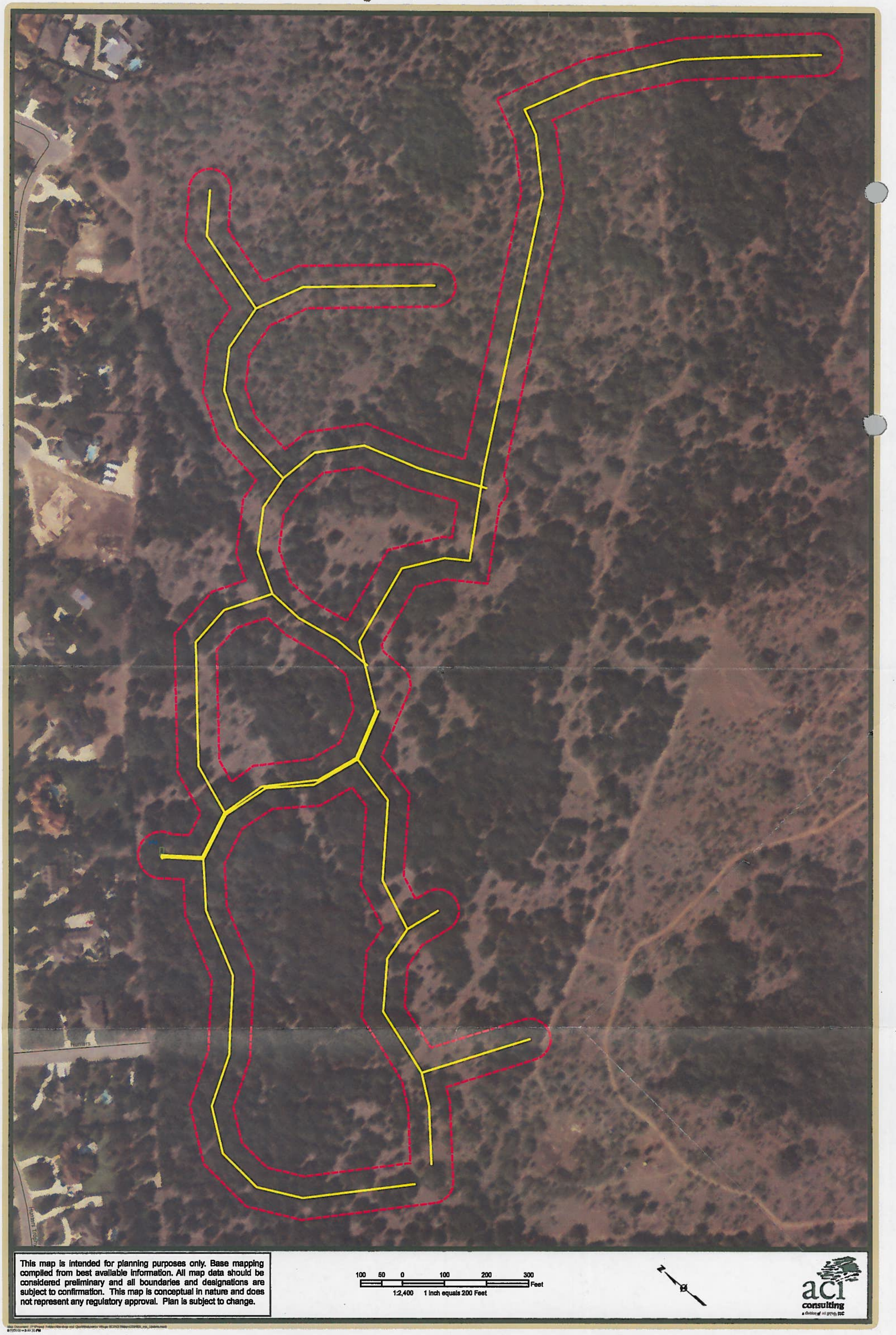
Enclave at Westpointe
Figure 1. Site Location



This map is intended for planning purposes only. Base mapping compiled from best available information. All map data should be considered preliminary and all boundaries and designations are subject to confirmation. This map is conceptual in nature and does not represent any regulatory approval. Plan is subject to change.

100 50 0 100 200 300 Feet

1:2,400 1 inch equals 200 Feet

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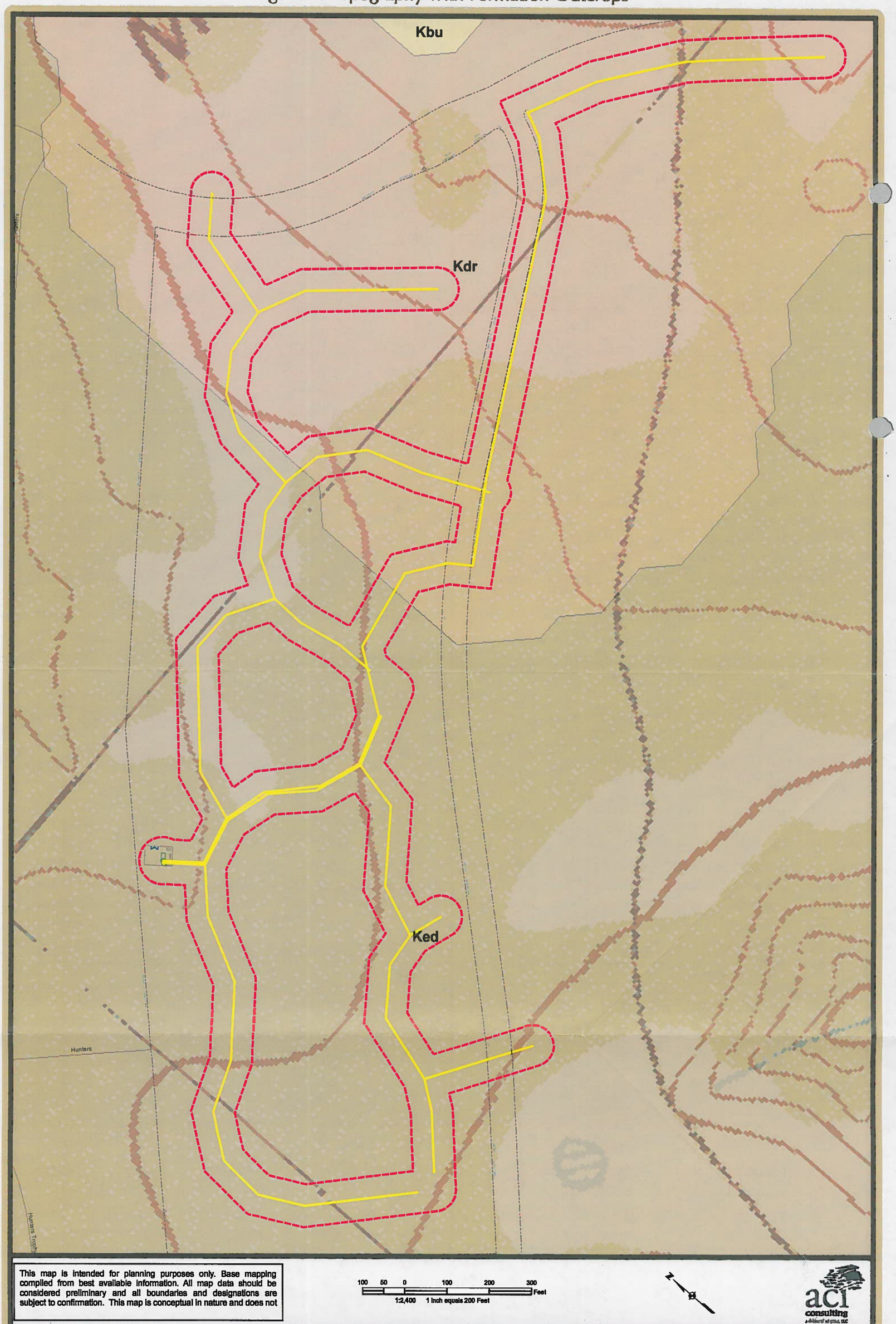
Figure 2
Stratigraphic Column
Enclave at Westpointe

System	Group or Formation	Thickness	Description
Lower Cretaceous	Del Rio Clay (Kdr)	Unknown	Dark gray to olive brown, calcareous clay, some pyretic.
Lower Cretaceous	Edwards Limestone (Ked)	Unknown	Mostly hard and dense, thin bedded, dark gray, fine to medium grained limestone, some dolomitic. Tree cover is sparse in western portion of formation.

Enclave at Westpointe
Figure 3. Topography with Formation Outcrops



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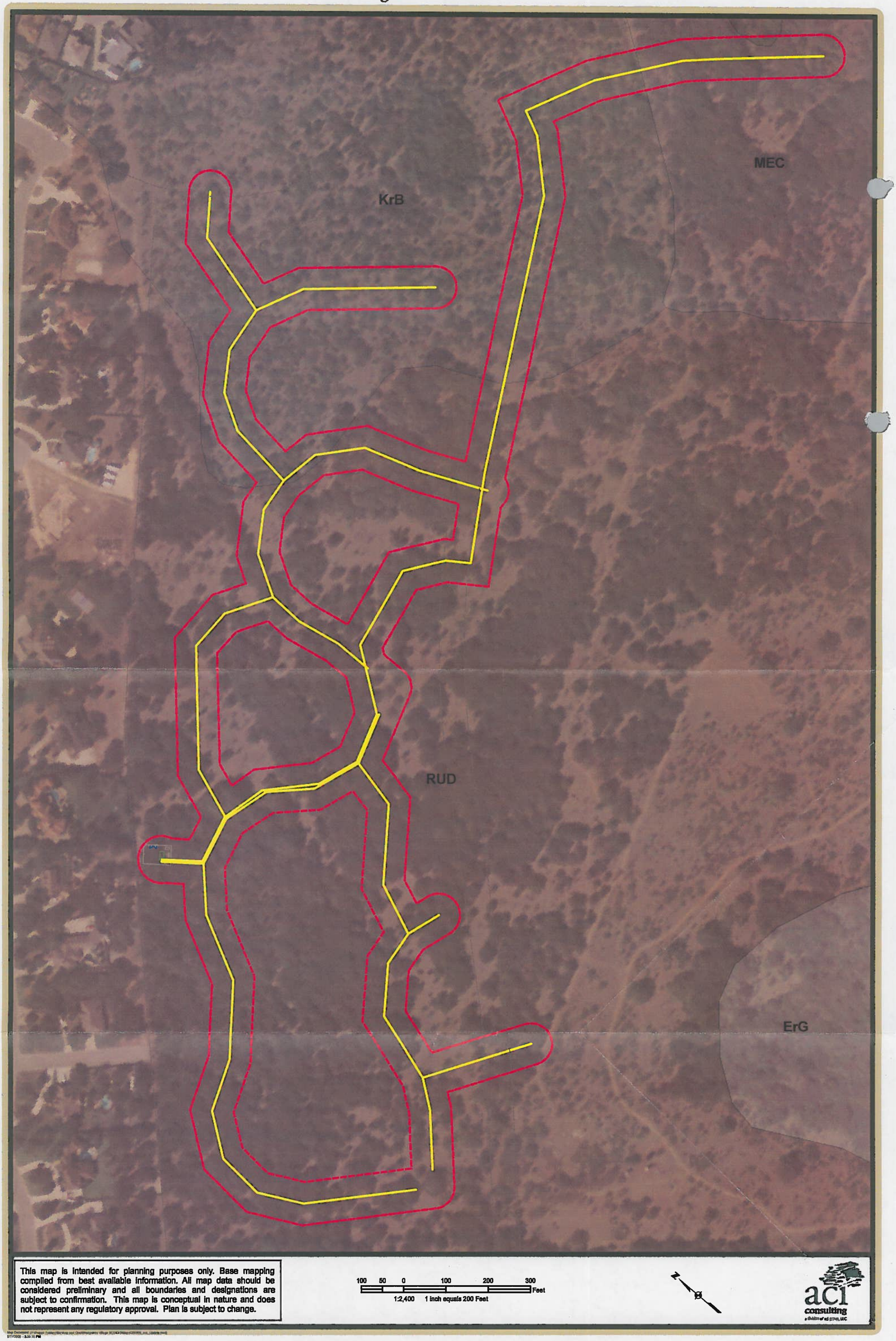
Enclave at Westpointe
Figure 4. Site Soils



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100 50 0 100 200 300 Feet

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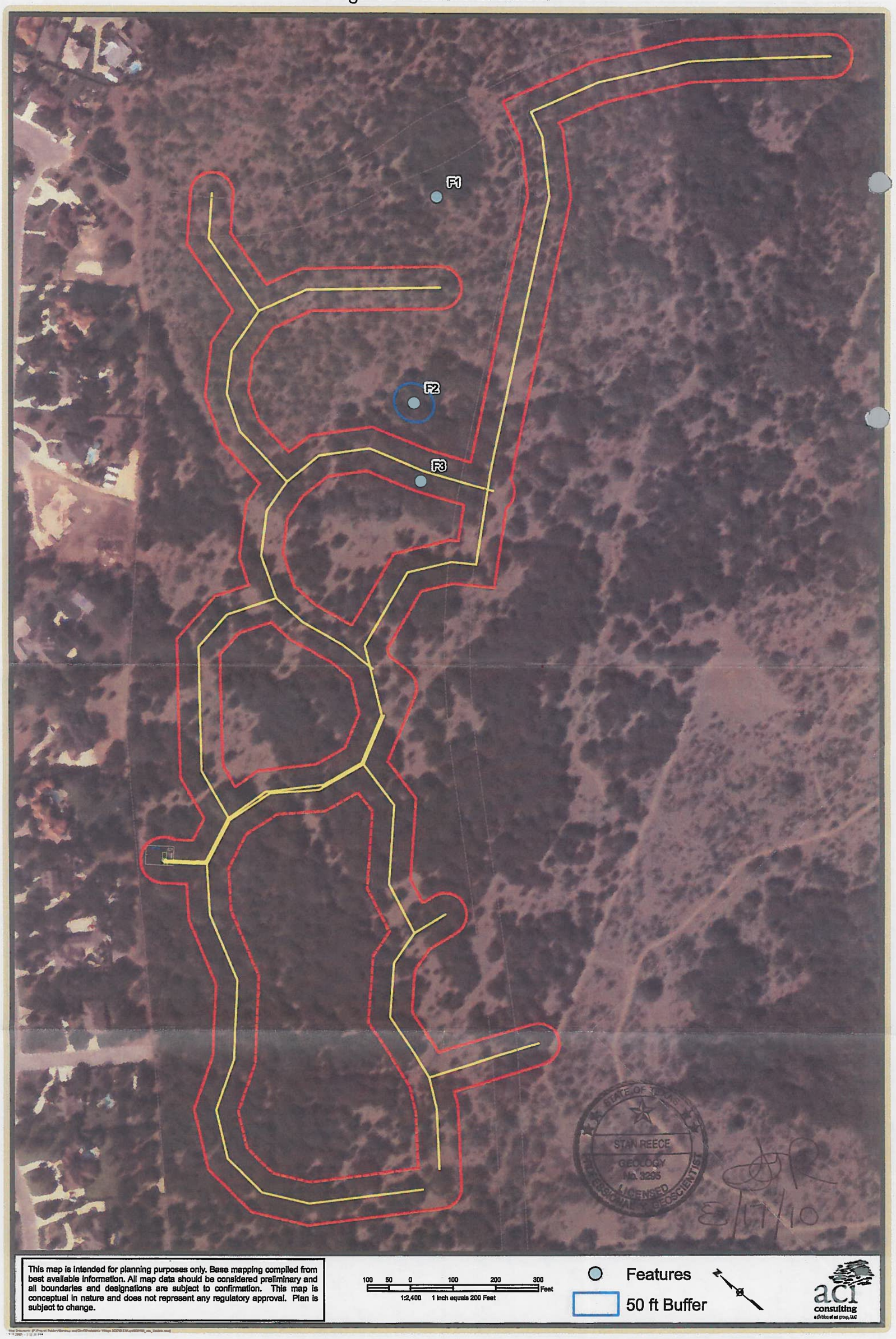
Enclave at Westpointe
Figure 5. Feature Locations



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100 50 0 100 200 300 Feet
1:2,400 1 inch equals 200 Feet

Features
50 ft Buffer

aci consulting

WATER POLLUTION ABATEMENT PLAN APPLICATION

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

REGULATED ENTITY NAME: **THE ENCLAVE AT WESTPOINTE VILLAGE**

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ✓ Residential: # of Lots: 136
   - ___ Residential: # of Living Unit Equivalents: ___
   - ___ Commercial
   - ___ Industrial
   - ___ Other: ___

2. Total site acreage (size of property): 48.18 Acres*

3. Projected population: 472

***Note:**
Calculations for proposed WQPs are based on Total Drainage Area of 53.82 Ac to provide treatment of future commercial tract to the south of project site.

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

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	776,239	÷ 43,560 =	17.82
Parking	208,216	÷ 43,560 =	4.78
Other paved surfaces	382,021	÷ 43,560 =	8.77
Total Impervious Cover	1,366,477	÷ 43,560 =	31.37
Total Impervious Cover ÷ Total Acreage x 100 = (31.37/53.82) x 100			58% *

*NOTE: Using total Acreage within 53.82 ac Drainage Area. Total Impervious percentage within 48.18 ac Project Site is (24.20 ac/48.18ac) x 100 = 50% Impervious Cover.

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

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

FOR ROAD PROJECTS ONLY

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

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

8. Type of pavement or road surface to be used:
   __ Concrete
   __ Asphaltic concrete pavement
   __ Other: _____

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

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

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

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

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

14. The character and volume of wastewater is shown below:

100% Domestic	491,702 gallons/day
__% Industrial	_____ gallons/day
__% Commingled	_____ gallons/day

TOTAL 491,702 gallons/day

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

    ✓ Sewage Collection System (Sewer Lines):
    __ Private service laterals from the wastewater generating facilities will be

connected to an existing SCS.

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

__ The SCS was previously submitted on _____.

✓ The SCS was submitted with this application.

__ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

The sewage collection system will convey the wastewater to the Gruene Wastewater Treatment Plant. The treatment facility is:

✓ existing.

__ proposed.

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

SITE PLAN REQUIREMENTS

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

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 100 '.

18. 100-year floodplain boundaries

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

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

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s):
Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Number 48091C0435F, Effective Date September 25, 2009

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

__ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

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

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

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

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

__ The wells are in use and comply with 16 TAC §76.

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

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

✓ All **sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.

__ No **sensitive** geologic or manmade features were identified in the Geologic Assessment.

N/A **ATTACHMENT D - Exception to the Required Geologic Assessment**. An exception to the Geologic Assessment requirement is requested and explained at the end of this form.

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

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

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

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

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

27. ___ Locations where stormwater discharges to surface water or sensitive features.
✓ There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

28. ✓ One (1) original and four (4) copies of the completed application have been provided.

29. ✓ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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

Aaron K. Parenica, P.E.
Print Name of Customer/Agent

Aaron K. Parenica 9-23-2010
Signature of Customer/Agent Date

ATTACHMENT A

FACTORS AFFECTING WATER QUALITY

FACTORS AFFECTING 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 B

VOLUME AND CHARACTER OF STORM WATER

VOLUME AND CHARACTER OF STORM WATER

There are two existing drainage areas which fully encompass this site and total ±64.88 acres. Using the City of New Braunfels runoff coefficients and incorporating their K-value into the equation, the two existing drainage areas will produce a peak flow of 161 Cubic Feet per Second (cfs) during a 100-year storm event. This existing watershed releases into two existing drainage easements located adjacent to the property, within the Hunters Creek Subdivision. The proposed drainage areas consist of three areas totaling ±53.82 acres. Due to the City of New Braunfels requirements specific to this project, the combined total release rate stemming from the proposed drainage areas can not exceed 150 cfs for the 100-year storm event. All runoff stemming from the drainage areas will be captured and treated by three proposed water quality ponds and detained such that all City of New Braunfels requirements are met.

EXISTING CONDITIONS:

Drainage Area	K	C	I	A	Q_{100}
DA-1	1.25	0.36	4.46	30.50	61.21
DA-2	1.25	0.36	6.45	34.38	99.79

ATTACHMENT C

SUITABILITY LETTER FROM AUTHORIZED AGENT
(Not Applicable)

ATTACHMENT D

EXCEPTION TO THE REQUIRED GEOLOGIC ASSESSMENT
(Not Applicable)

TEMPORARY STORM WATER SECTION

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

REGULATED ENTITY NAME: **THE ENCLAVE AT WESTPOINTE VILLAGE**

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

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

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

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

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

4. ✓ **ATTACHMENT B - Potential Sources of Contamination.** Describe in an attachment at the end of this form any other activities or processes which may be a potential source of contamination.
   ___ There are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

13. ✓ 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 at the end of this form.

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.

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:

Aaron K. Parenica, P.E.
Print Name of Customer/Agent

Aaron K. Parenica
Signature of Customer/Agent

4-23-2010
Date

ATTACHMENT A

SPILL RESPONSE ACTIONS

SPILL RESPONSE ACTIONS

Potential Source:

Spills of Hydrocarbons or other hazardous substances and materials.

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 re-sealable.

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.tceq.state.tx.us/response/html.

Vehicle Measures:

Vehicle and Equipment Maintenance

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

2. Regularly inspect onsite vehicles and equipment for leaks and repair immediately.

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

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

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

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

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

8. Oil filters disposed of in trashcans or dumpsters can leak oil and pollute 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

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:	Connection to existing sewer line.
Preventative Measures:	Contractor shall tie into existing sewer line per NBU regulations and standards via a sanitary sewer manhole. A manhole detail is provided by NBU and shown on the construction details. Any leakage of sewage from the existing waste water line due to the connection will be cleaned up immediately.
Potential Source:	Construction related portable toilets.
Pre-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

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. (±48.18 acres)

3. Clear site for streets and ponds. (±13.20 acres)

4. Install any remaining Control Measures and Devices that could not be installed prior to site clearing.

5. Grade site and construct temporary sedimentation pond. Install Erosion Control around catch basins. (±13.20 acres)

6. Set Sewage Collection System manholes and install all underground utilities and piping.

7. Install pavement (±8.85 acres).

8. 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 ±48.18 acres. Excavation, grading, or other activities throughout the construction process will disturb approximately ±31.37 acres. Post-construction impervious coverage will total ±31.37 acres.

ATTACHMENT D

TEMPORARY BEST MANAGEMENT
PRACTICES AND MEASURES

TEMPORARY BMPs

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 TBMP Site Plan.

Upgradient Water

The site is located due west from the southwest corner of the State Highway 46 and Loop 337 intersection, south of Oak Run parkway. Upgradient water from undeveloped sites upstream of the proposed development will be captured into a storm sewer system and routed northward to a proposed water quality and detention pond upon their completion. Prior to completion, upgradient water will be captured by the Temporary Sedimentation Basin.

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 to protect the areas affected by the Sewage Collection System (SCS) and its construction. These Temporary BMPs will be installed along the down-gradient boundary of the property to filter all runoff that originates on site and sequenced as indicated in the report. 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 due to trenching and bedding of the SCS. A Temporary Sedimentation Basin will be installed to treat runoff going into the existing drainage easements north of the site. Calculations for the Temporary Sedimentation Basin have been provided in Attachment H.

ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE
(Not Applicable)

ATTACHMENT F

STRUCTURAL PRACTICES

STRUCTURAL PRACTICES

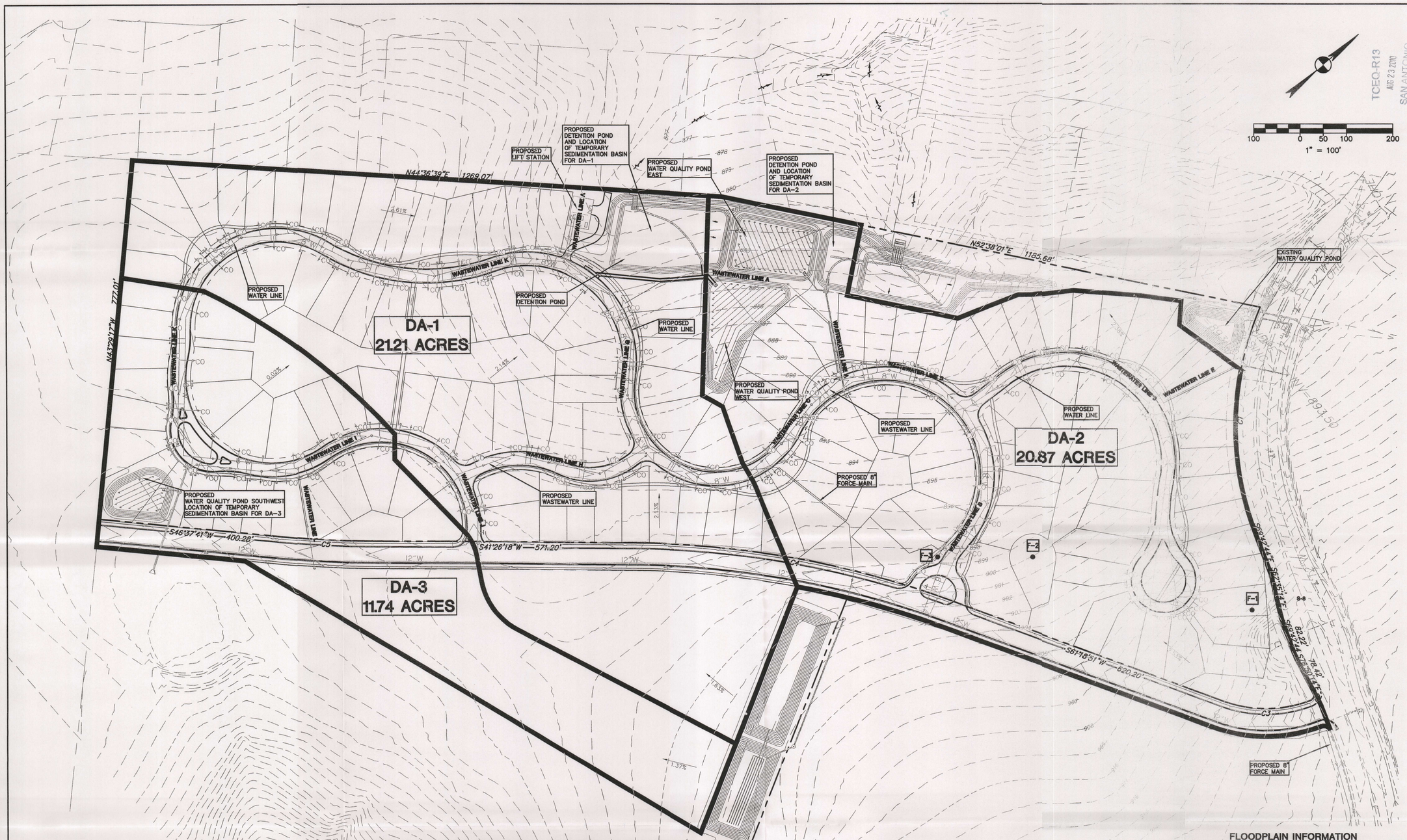
Silt fencing, triangular sediment filter dikes, inlet protection devices, and stabilized construction entrances will be incorporated as temporary erosion control devices and will be removed after permanent stabilization is established.

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 and/or swept 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 and annotated in the Storm Water Pollution Prevention Plan (SWPPP) posted on the site during construction.

ATTACHMENT G

DRAINAGE AREA MAP



LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY (R.O.W.) LINE
678	678	CONTOUR
		DRAINAGE DIVIDE
1.5%	1.5%	DIRECTION OF FLOW
	DA-3 11.74 ACRES	DRAINAGE AREA NUMBER

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NUMBER 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

NO.	DATE	REVISION	APPROVAL

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)826-8000 Fax (210)826-8029
TBPE Registration Number F-1046
Bury+Partners, Inc. ©Copyright 2010

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL ENGINEER
8/23/10

TCEQ DRAINAGE AREA MAP

THE ENCLAVE AT WESTPOINTE VILLAGE

NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= XX'
DATE REVISED: August 23, 2010
File: G:\101769\001\TCEQ\DEV06.dwg
DRAWN BY: KNB
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
DAM

ATTACHMENT H

TEMPORARY SEDIMENT POND(S)
PLANS AND CALCULATIONS

TEMPORARY SEDIMENTATION BASIN NOTES:

1. CONTRACTOR TO CONSTRUCT BASINS IN ACCORDANCE WITH CONSTRUCTION PLANS FOR PERMANENT SEDIMENTATION/FILTRATION WITH THE EXCEPTION OF THE GRAVEL DRAIN LAYER AND SAND FILTER LAYERS.

2. INSTALL PERMANENT STAKE TO INDICATE SEDIMENT LEVEL IN THE BASIN. STAKE SHOULD BE MARKED TO INDICATE WHEN SEDIMENT OCCUPIES 50% OF THE VOLUME OF THE BASIN.

3. SEDIMENT WILL BE REMOVED WHEN MORE THAN 50% OF THE BASIN CAPACITY IS EXCEDDED.

4. CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.

5. CONTRACTOR TO SECURE PIPE TO BOTTOM OF BASIN TO PREVENT BUOYANCY DURING A RAIN EVENT. A CONCRETE ANCHOR MAY BE USED.

6. DISCHARGE PIPE TO BE INSTALLED SO AS TO BE IN PLACE FOR PERMANENT STRUCTURE.

TEMPORARY SEDIMENTATION BASIN CALCULATIONS:

1. THE TEMPORARY SEDIMENTATION BASIN WILL BE LOCATED WHERE THE PROPOSED WATER QUALITY AND DETENTION POND(S) WILL BE CONSTRUCTED.

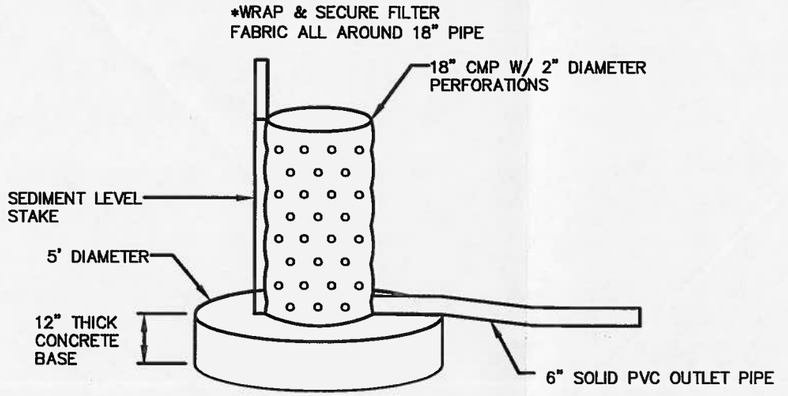
2. TOTAL DISTURBED AREA IS 31.37 ACRES

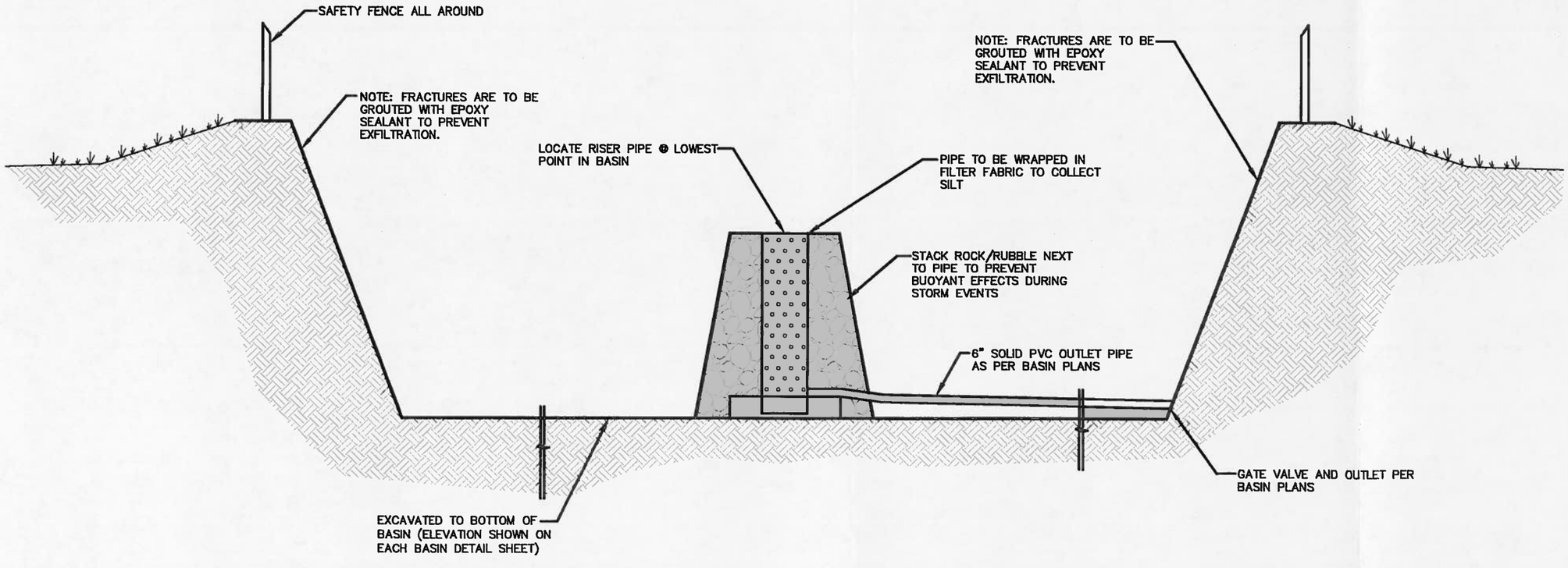
3. 31.37 AC x (3,600 CF VOLUME / ACRE) = 112,932 CF OF WATER VOLUME TO BE CAPTURED IN THE TEMPORARY SEDIMENTATION BASIN

4. USING THE CAPACITY OF THE THREE PROPOSED WATER QUALITY PONDS:

SW	50,272 CF
W	63,830 CF
E	59,486 CF

5. THE TOTAL VOLUME AVAILABLE FROM ALL THREE TEMPORARY SEDIMENTATION BASINS IS 173,588 CF., THEREFORE TOTAL VOLUME IS ADEQUATE FOR THE TEMPORARY SEDIMENTATION BASINS.





TBMP

PROJECT No.: R0101789-50001

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TEMPORARY SEDIMENTATION BASIN

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TEXAS

DRAWN BY: SSL

SCALE: 1"=100'

DATE: AUGUST 2010

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210)625-9090 Fax (210)625-0529

ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMP'S

INSPECTIONS

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 sewer construction/and 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 a Storm Water Pollution Prevention Plan (SWPPP), shall be included in the onsite SWPPP as part of the Texas Pollution Discharge Elimination System (TPDES) Report. Copies of example forms to be used for the inspection and maintenance reports along with their related records, will be included in the onsite SWPPP and are provided for reference.

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.

THE ENCLAVE AT WESTPOINTE VILLAGE
SW of Oak Run Pkwy, Near SH 46 and Loop 337
New Braunfels, Texas

Responsible Party Form Schedule

Prevention Pollution Measure	Responsible Party Company Name											
BEST MANAGEMENT PRACTICES												
Silt fences												
Rock berms												
Drain inlet protection												
Gravel filter bags												
Vehicle exits (offsite tracking)												
Concrete washout pit (leaks, failure)												
Temporary vegetation												
Permanent vegetation												
Sediment control basin												
Other structural controls												
Material storage areas (leakage)												
Equipment areas (leaks, spills)												
Construction debris												
General site cleanliness												
Trash receptacles												
Natural vegetation buffer strips												
Inspections												
SWP3 Modification & Records												
POTENTIAL EROSION SOURCES												
Clearing												
Grading												
Excavation												
Drainage Construction												
Utility Construction												
Roadway or Parking Lot Construction												
Foundation Construction												
Building Construction												
Landscaping Activities												

Identify responsible parties and indicate responsible party for each pollution prevention item listed above by marking an X under the Responsible Party Name.

THE ENCLAVE AT WESTPOINTE VILLAGE
SW of Oak Run Pkwy, Near SH 46 and Loop 337
New Braunfels, Texas

Inspection Report

Prevention Pollution Measure	Inspected in Compliance (Y/N)	Corrective Action Required: Description (use additional sheet if necessary)	Corrective Action Required: Date Completed
BEST MANAGEMENT PRACTICES			
Silt fences			
Rock berms			
Drain inlet protection			
Gravel filter bags			
Vehicle exits (offsite tracking)			
Concrete washout pit (leaks, failure)			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Other structural controls			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Construction debris			
General site cleanliness			
Trash receptacles			
Natural vegetation buffer strips			
EVIDENCE OF EROSION			
Site preparation			
Roadway or Parking Lot Construction			
Utility Construction			
Drainage Construction			
Building Construction			
MAJOR OBSERVATIONS			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

"I 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 that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Inspector's Name (Superintendent)	Inspector's Signature	Date
Name of Owner/Operator (Firm)	Authorized Signature	Date

Note: If there is a "NO" answer in the second column, the right columns will need to be completed and action is required within 7 days. Use additional sheets if necessary.

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

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 filtration 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.

PERMANENT STORM WATER SECTION

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

REGULATED ENTITY NAME: **THE ENCLAVE AT WESTPOINTE VILLAGE**

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

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

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

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

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

   _____

   _____

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

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

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

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

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

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

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

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

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

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

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

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

N/A If permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

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

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

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

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

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

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

10. ✓ **ATTACHMENT F - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and

measures are provided at the end of this form. Design Calculations, TCEQ Construction Notes, all man-made or naturally occurring geologic features, all proposed structural measures, and appropriate details must be shown on the construction plans.

11. ✓ **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.

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

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

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

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

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

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

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

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

Aaron K. Parenica, P.E.
Print Name of Customer/Agent

Signature of Customer/Agent

8-23-2010
Date

ATTACHMENT A

20% OR LESS IMPERVIOUS COVER WAIVER
(Not Applicable)

ATTACHMENT B

BMP'S FOR UPGRADIENT STORM WATER

BMPS FOR UPGRADIENT STORM WATER

The Permanent BMPs for this project will incorporate design for future land uses up-gradient from the site. Therefore, the drainage areas and TCC removal calculations incorporate such areas into the calculation for the three proposed Water Quality Ponds. As such, there are no other surface water, groundwater, nor storm water that originates up-gradient from the site that flow through or across the project site.

ATTACHMENT C

BMP'S FOR ON-SITE STORM WATER

BMPS FOR ON-SITE STORM WATER

Three sand filter water quality ponds are proposed to prevent pollution of surface water or groundwater from runoff that originates on-site or flows off the site.

ATTACHMENT D

BMP'S FOR SURFACE STREAMS
(Not Applicable)

ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE
(Not Applicable)

ATTACHMENT F

CONSTRUCTION PLANS

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NUMBER 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

Date: Aug 23, 2010, 8:16am User ID: kbraganza
File: G:\101769\001\TCEQ\EXH08.dwg

DATE	NO.	REVISION	APPROVAL

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1048

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED PROFESSIONAL ENGINEER
8-23-10

TCEQ WPAP SITE PLAN

WESTPOINTE RESIDENTIAL, LTD

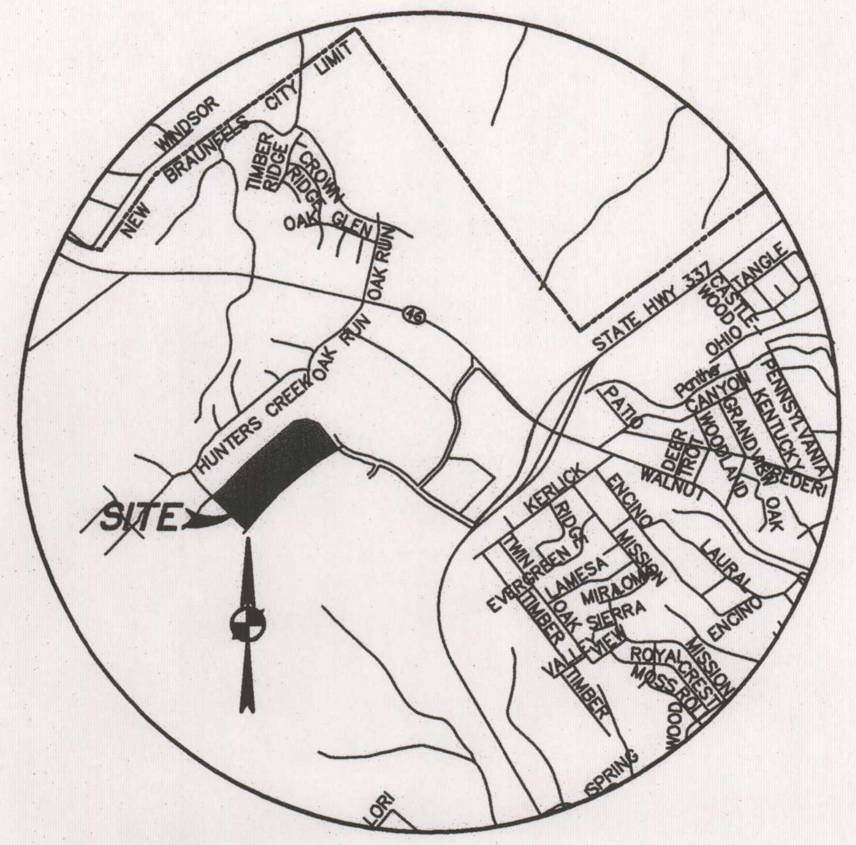
THE ENCLAVE AT WESTPOINTE VILLAGE NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 50'
DATE REVISED: August 23, 2010
FILE: EXH08.dwg
DRAWN BY: WPF
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
EXH

THE ENCLAVE AT WESTPOINTE VILLAGE
OAK RUN PKWY & WESTPOINTE DRIVE
NEW BRAUNFELS, TEXAS

WATER QUALITY POND PLANS



VICINITY MAP
NEW BRAUNFELS, TEXAS
N.T.S.

ENGINEER: BURY+PARTNERS, INC.
922 ISOM ROAD, SUITE 100
SAN ANTONIO, TEXAS 78216
(210) 525-9090
ATTN.: AARON K. PARENICA, P.E.

SURVEY PROVIDED BY: BURY+PARTNERS, INC.
922 ISOM ROAD, SUITE 100
SAN ANTONIO, TEXAS 78216
(210) 525-9090
ATTN.: HAL LANE, R.P.L.S.

BPI JOB NO: 0101769-01

SHEET INDEX

WATER QUALITY POND PLAN	SHEET NO.
COVER SHEET	C13.00
WATER QUALITY POND PLAN 1	C13.01
WATER QUALITY POND PLAN 2	C13.02
WATER QUALITY POND PLAN 3	C13.03
WATER QUALITY POND DETAILS	C13.04
WPAP CALCULATIONS	C13.05

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

WATER POLLUTION ABATEMENT PLAN NOTES:

1. CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.

2. TOPS OF CLEANOUTS SHALL BE SET AT SIX INCHES ABOVE THE SAND ELEVATION.

3. SEDIMENT WILL BE REMOVED WHEN THE MATERIAL FILLS THE BASIN TO THE TOPS OF THE CLEANOUTS.

4. CONTRACTOR TO HYDROMULCH EARTHEN SLOPES FOR SLOPE STABILIZATION DURING INITIAL BASIN CONSTRUCTION AND MAINTAIN WATERING UNTIL VEGETATION IS FULLY ESTABLISHED.

5. AS AN ALTERNATE TO ITEM 4, CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.

6. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:

   a.) BASIN LINER IN PLACE AND UNDER DRAIN SYSTEM IS IN PLACE WITHOUT GRAVEL.

   b.) GRAVEL AROUND UNDER DRAIN SYSTEM IS IN PLACE AND FILTER FABRIC IS INSTALLED AND ATTACHED TO WALLS OR RIP-RAP.

   c.) SAND FILTER MEDIA HAS BEEN PLACED & BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

7. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

8. UPON SUBSTANTIAL COMPLETION CONTRACTOR TO PROVIDE CERTIFYING ENGINEER WITH FIELD SHOTS VERIFYING ELEVATIONS OF THE FOLLOWING:
- TOP OF BANK AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPE
- OVERFLOW WEIR

9. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY WITH STRUCTURAL ENGINEER SO AS TO PROVIDE APPROPRIATE OPPORTUNITY FOR STRUCTURAL ENGINEER TO MAKE THE NECESSARY CONSTRUCTION OBSERVATIONS DURING INSTALLATION.

10. CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT ALL STRUCTURES HAVE BEEN CONSTRUCTED TO THE DESIGN ELEVATIONS AT THE COMPLETION OF CONSTRUCTION. THIS SHALL INCLUDE ALL STRUCTURAL ELEMENTS, CONCRETE WALLS, BASIN INVERTS, TOP OF EARTH BASIN WALLS, TOP OF SAND ELEVATIONS, INVERTS OF SEDIMENTATION CHAMBER ELEVATIONS, AND ELEVATIONS OF INLET AND OVERFLOW DEVICES.

11. ALL UNDERDRAIN 4" & 6" PVC PIPE WITHIN WATER QUALITY POND TO BE SCHEDULE 40.

GENERAL CONSTRUCTION NOTES:

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST INCLUDE THE DATE ON WHICH HE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.

5. ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.

6. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).

7. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE. IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;

   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

AUSTIN REGIONAL OFFICE
2800 S. IH-35, SUITE 100
AUSTIN, TEXAS 78704-5712
PHONE (512) 339-2929
FAX (512) 339-3795

SPECIAL CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL CONTACT THE CITY OF SAN ANTONIO PUBLIC WORKS DEPARTMENT AND ALL UTILITY COMPANIES LOCATOR 48 HOURS BEFORE BEGINNING ANY EXCAVATION.
2. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181. CPS MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
3. THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48 HOURS PRIOR TO EXCAVATION. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY PLANT DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL CONTACT CITY OF SAN ANTONIO PUBLIC WORKS, WATER LINE LOCATOR 48 HOURS PRIOR TO EXCAVATION IN THE IMMEDIATE AREA OF WATER LINE.
5. DAMAGE TO ANY UNDERGROUND DRAINAGE SYSTEM SHALL BE REPORTED TO CITY OF SAN ANTONIO PUBLIC WORKS FOR CONSULTATION WITH THE CITY'S DRAINAGE SUPERINTENDENT. THE SUPERINTENDENT WILL INSTRUCT THE DAMAGING PARTY (CONTRACTOR) ON HOW TO REPAIR THE LINE AT THE CONTRACTORS COST.
6. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROTECTING THE INTEGRITY OF THE POWER POLES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE REQUIRED AT THEIR EXPENSE TO PROVIDE ACCEPTABLE BRACING OF SPECIFIC C.P.S. UTILITIES POLES DURING THE CONSTRUCTION OF THIS PROJECT AND/OR PROVIDE AT THEIR EXPENSE FOR C.P.S. UTILITIES TO PROVIDE BRACING. IN ADDITION IT IS CRITICAL THE CONTRACTOR WORK CLOSELY WITH C.P.S. UTILITIES CONSTRUCTION FORMAN FOR THE SAKE OF SAFETY TO ISOLATE AND/OR PROTECT CONTRACTOR FROM ENERGIZED ELECTRIC CONDUCTORS ABOVE AREAS OF PROPOSED EXCAVATION.

TRENCH EXCAVATION SAFETY PROTECTION:

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

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NUMBER 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

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ELEV=926.75' (NOT SHOWN)

TCEQ-R13
AUG 23 2010
SAN ANTONIO

TCEQ-R13
AUG 23 2010
SAN ANTONIO

SUBMITTED BY: Aaron K. Parenica 8-20-2010

AARON K. PARENICA, P.E.
BURY+PARTNERS, INC.
922 ISOM ROAD, SUITE 100
SAN ANTONIO, TEXAS 78216
(210) 525-9090

DATE

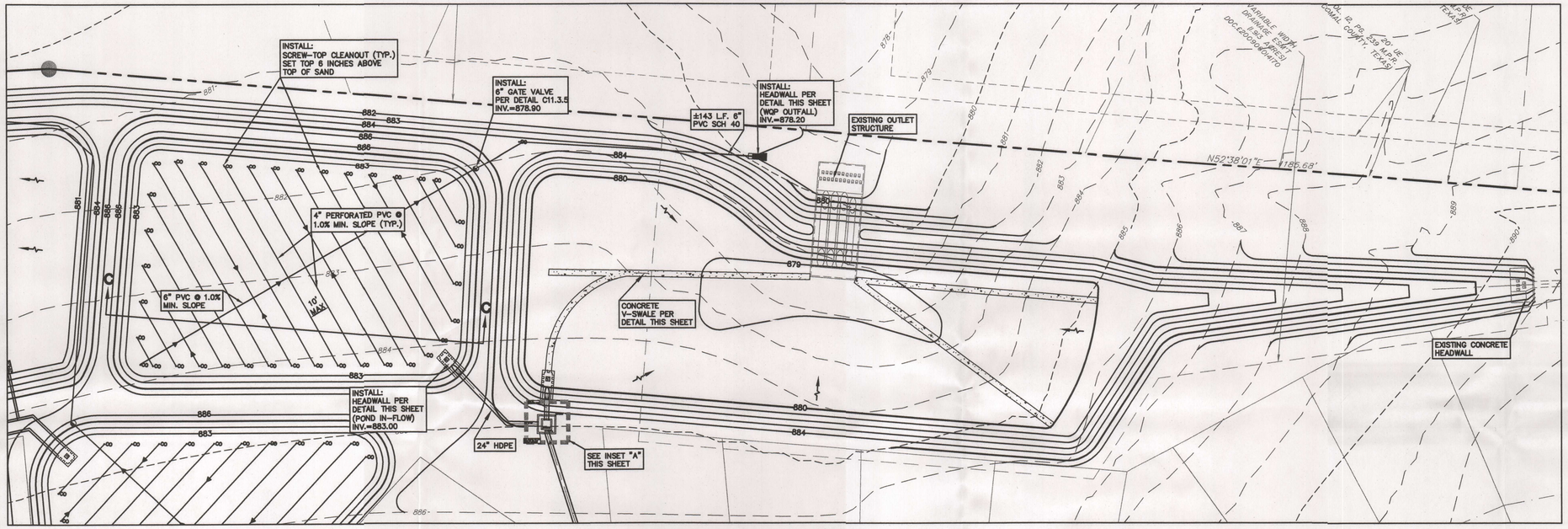
STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL ENGINEER

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1048

Date: Aug 20, 2010, 2:53pm User ID: rreyes
File: G:\101769\001\PONDS\73806CVR.dwg

NO.	REVISION	APPROVAL

SHEET
C13.00



EAST WATER QUALITY & DETENTION PONDS
(FOR DA 2)
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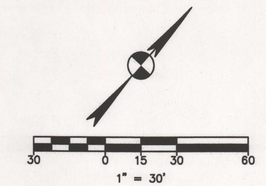

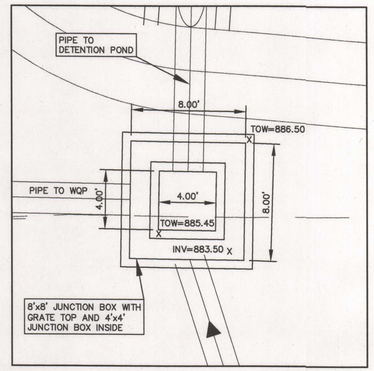

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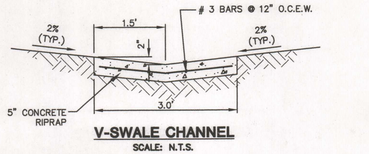

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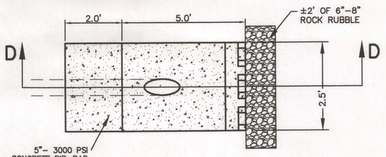

PLAN VIEW
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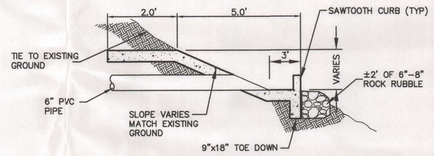

SECTION D-D
CONCRETE HEADWALL DETAIL (WQP OUTFALL)
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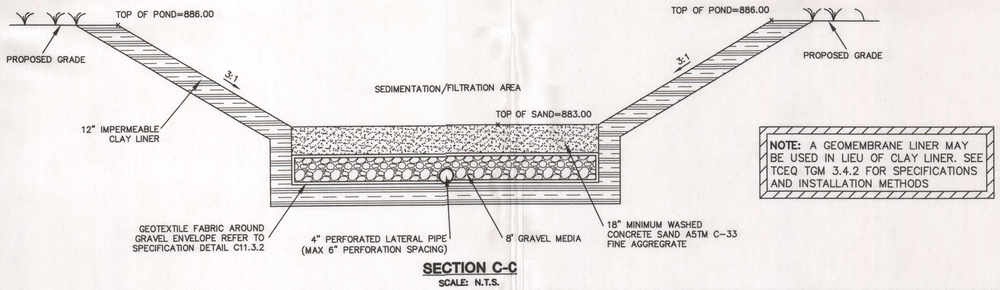
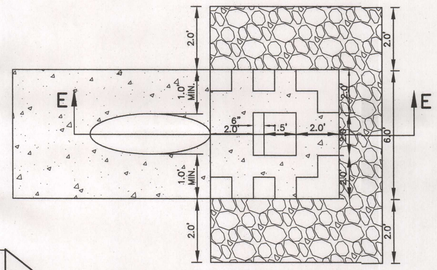
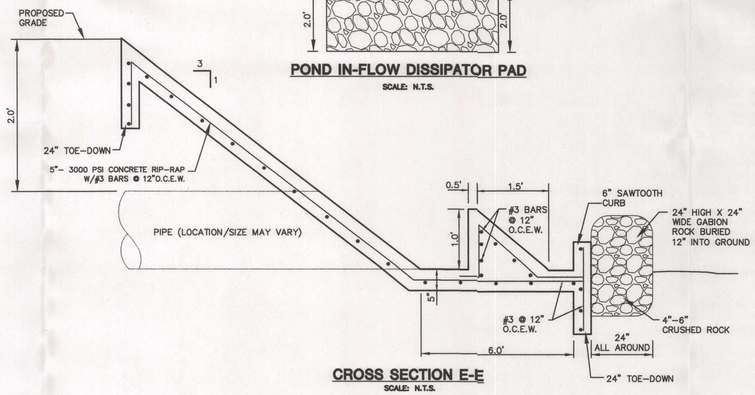


SECTION C-C
SCALE: N.T.S.

NOTE: A GEOMEMBRANE LINER MAY BE USED IN LIEU OF CLAY LINER. SEE TCEQ TGM 3.4.2 FOR SPECIFICATIONS AND INSTALLATION METHODS



POND IN-FLOW DISSIPATOR PAD
SCALE: N.T.S.



CROSS SECTION E-E
SCALE: N.T.S.

WATER QUALITY POND NOTE:

THE TOPS OF PROPOSED CLEAN-OUTS WILL SERVE AS SEDIMENT DEPTH MARKERS WITHIN THE FILTRATION BASIN OF THE WATER QUALITY POND(S)

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

TCEQ-R13
AUG 23 2010
SAN ANTONIO

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ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

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Bury+Partners
ENGINEERING SOLUTIONS
825 Isom Road, Suite 100
San Antonio, Texas 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1048
Bury+Partners, Inc.

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED PROFESSIONAL ENGINEER
10-20-10

EAST WATER QUALITY & DETENTION PONDS

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: August 20, 2010
FILE: 7360WQP01.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.01

Date: Aug 20, 2010, 6:43pm User ID: rreyes
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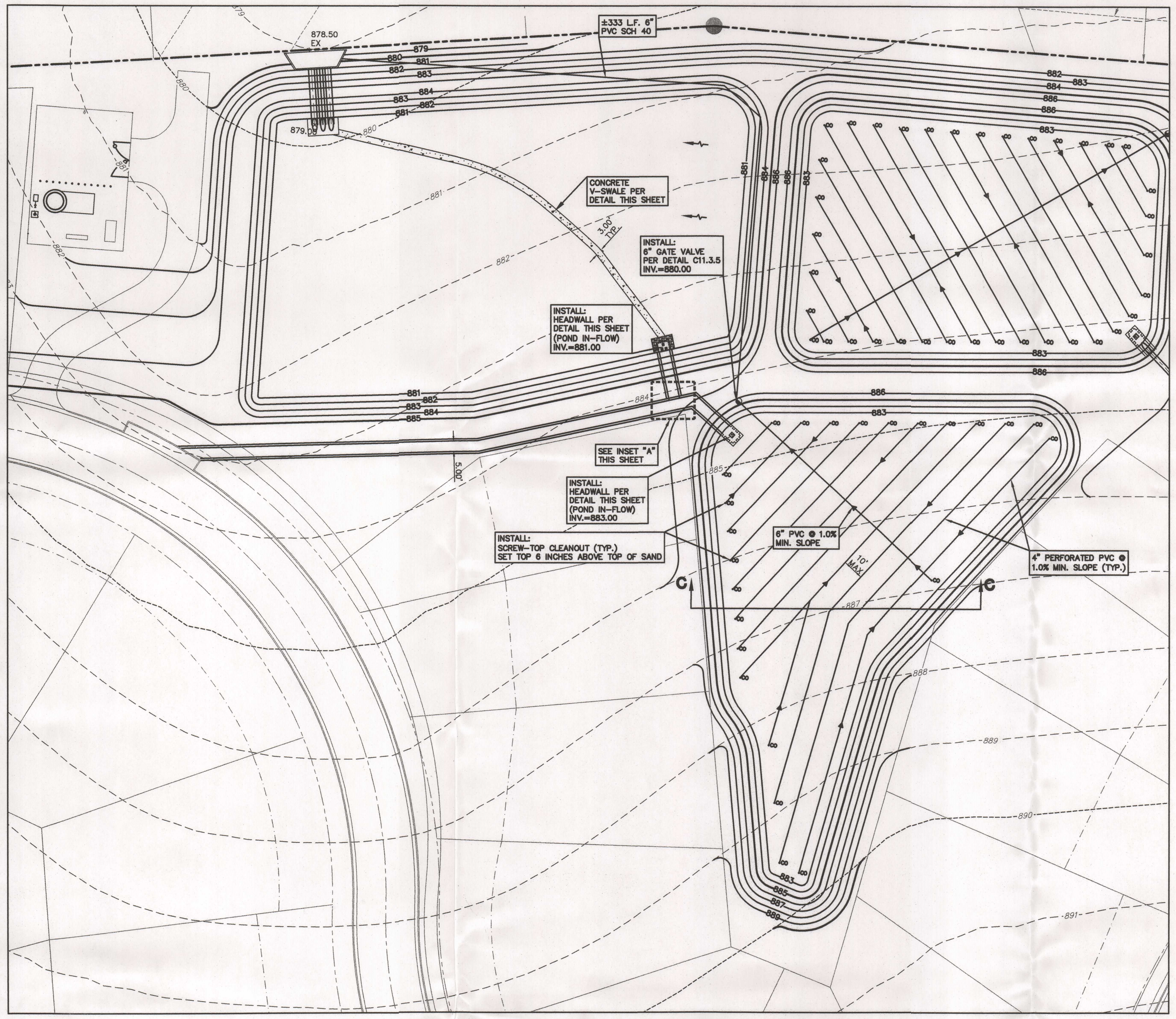

WEST WATER QUALITY & DETENTION PONDS
(FOR DA 1)
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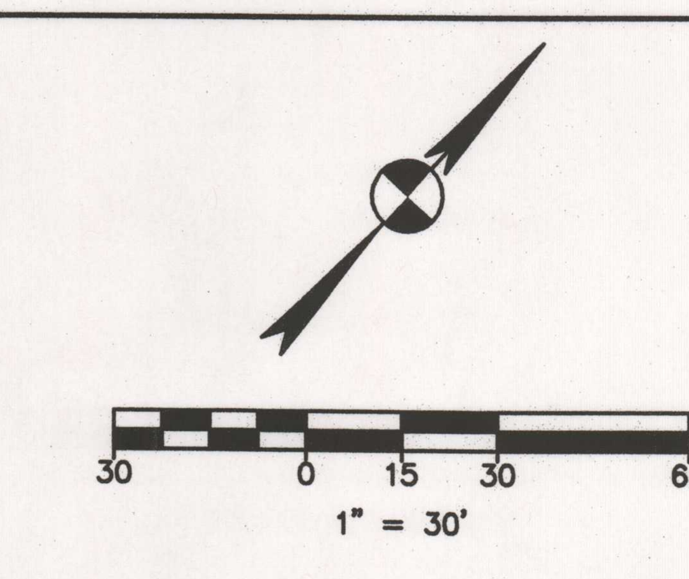

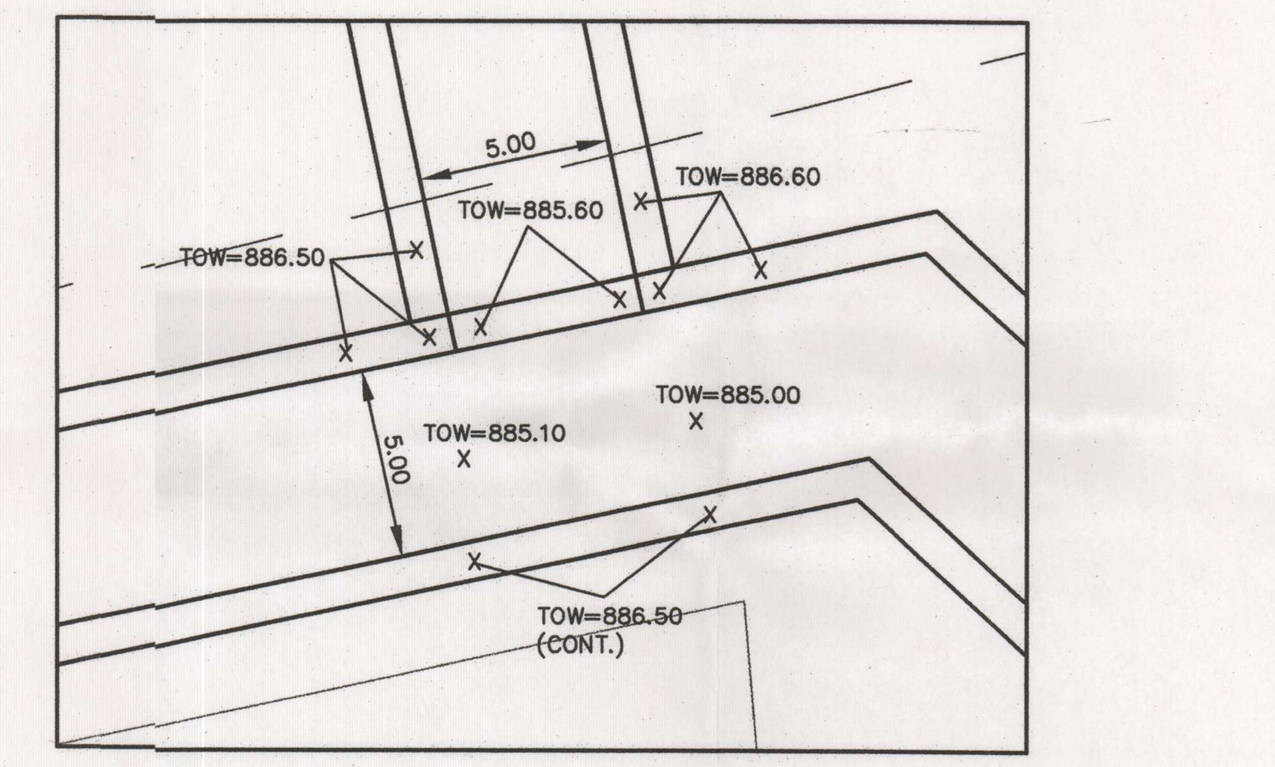

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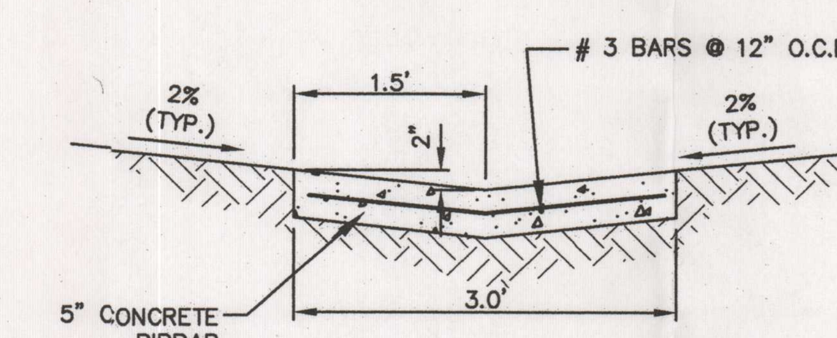
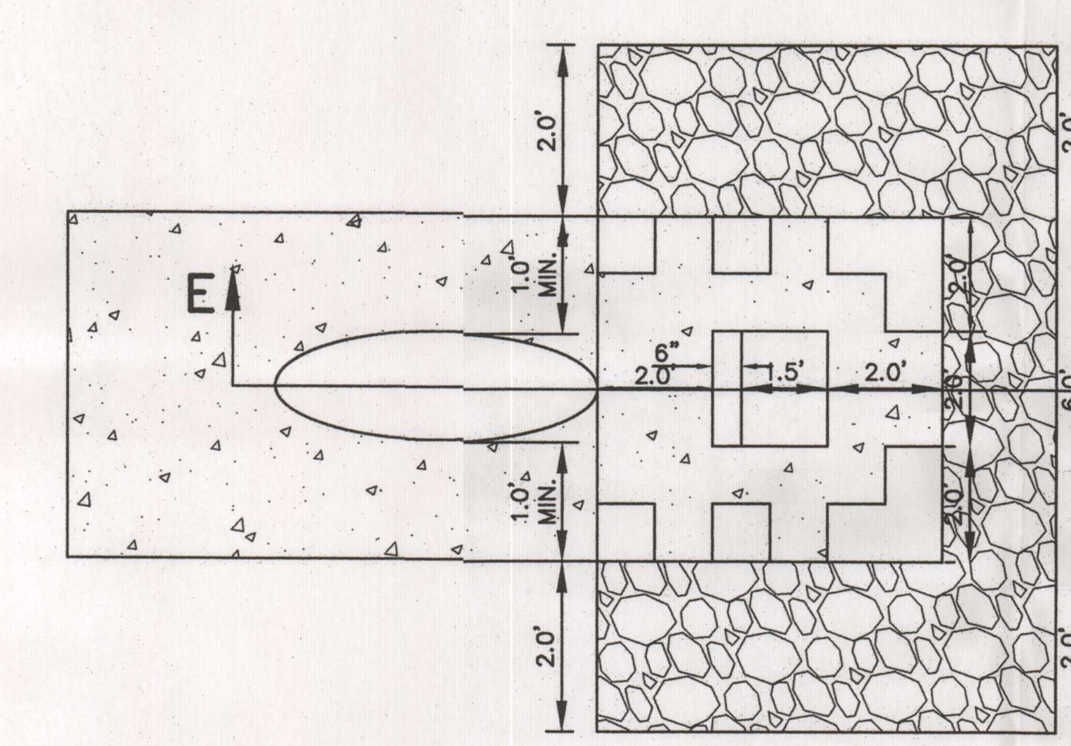
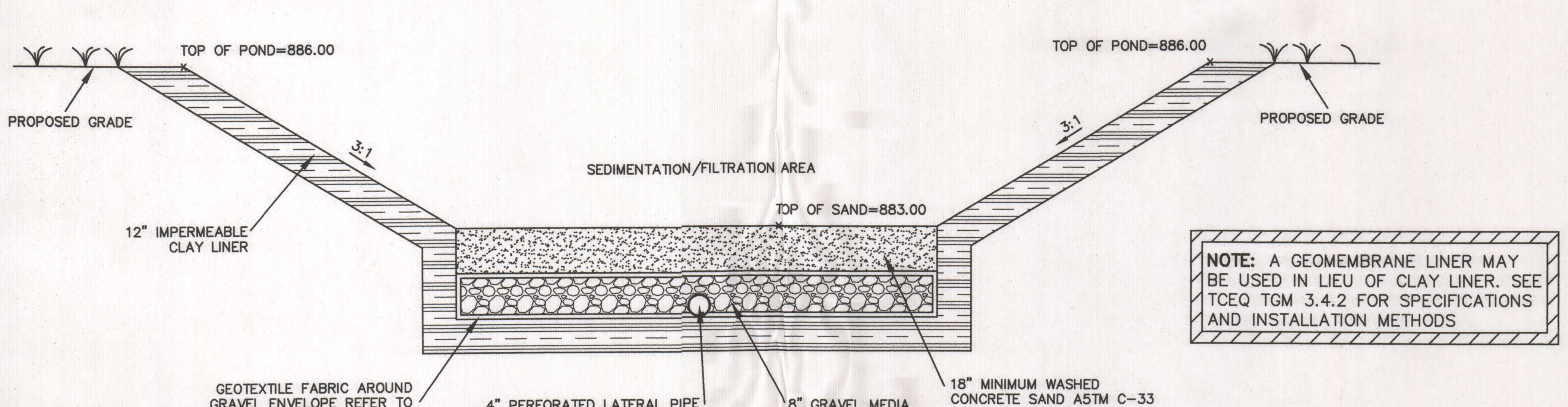


V-SWALE CHANNEL
SCALE: N.T.S.

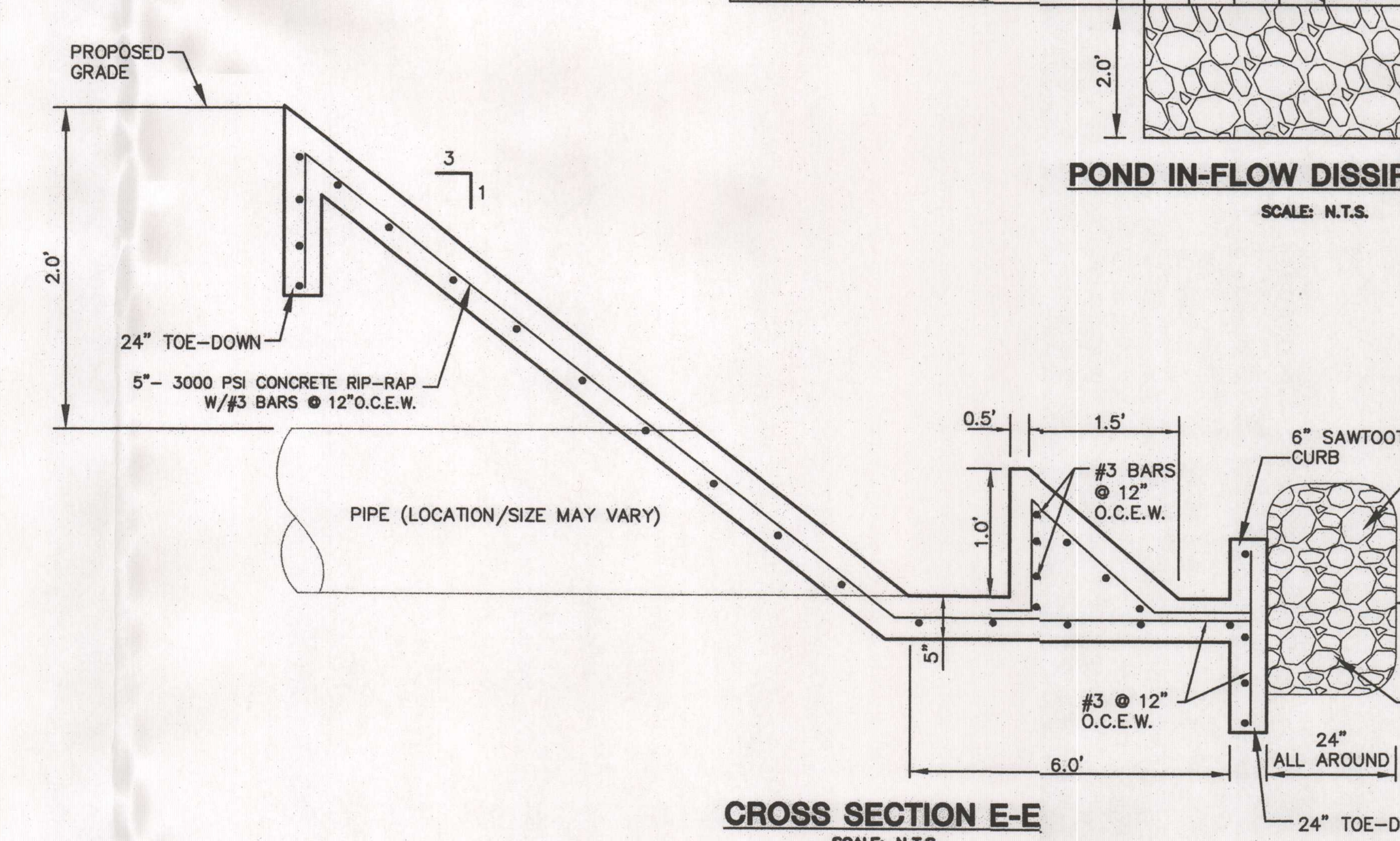


POND IN-FLOW DISSIPATOR PAD
SCALE: N.T.S.



NOTE: A GEOMEMBRANE LINER MAY BE USED IN LIEU OF CLAY LINER. SEE TCEQ TGM 3.4.2 FOR SPECIFICATIONS AND INSTALLATION METHODS

SECTION C-C
SCALE: N.T.S.



CROSS SECTION E-E
SCALE: N.T.S.

WATER QUALITY POND NOTE:

THE TOPS OF PROPOSED CLEAN-OUTS WILL SERVE AS SEDIMENT DEPTH MARKERS WITHIN THE FILTRATION BASIN OF THE WATER QUALITY POND(S)

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NUMBER 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

BENCHMARK NOTE:

TBM BPI 62 COTTON SPINDLE AT THE NOSE OF AN ISLAND IN OAK RUN PARKWAY AT THE INTERSECTION WITH INDEPENDENCE DRIVE.
ELEV=923.61'

TBM BPI 1 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±736' WEST OF INDEPENDENCE DRIVE.
ELEV=921.28' (NOT SHOWN)

TBM BPI 2 CUT "X" ON NORTH FLANGE BOLT OF FIRE HYDRANT LOCATED IN THE NORTH RIGHT OF WAY OF OAK RUN PARKWAY AND ±129' WEST OF INDEPENDENCE DRIVE.
ELEV=926.75' (NOT SHOWN)

DATE	NO.	REVISION	APPROVAL

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1048

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL ENGINEER
8-20-10

WEST WATER QUALITY & DETENTION PONDS

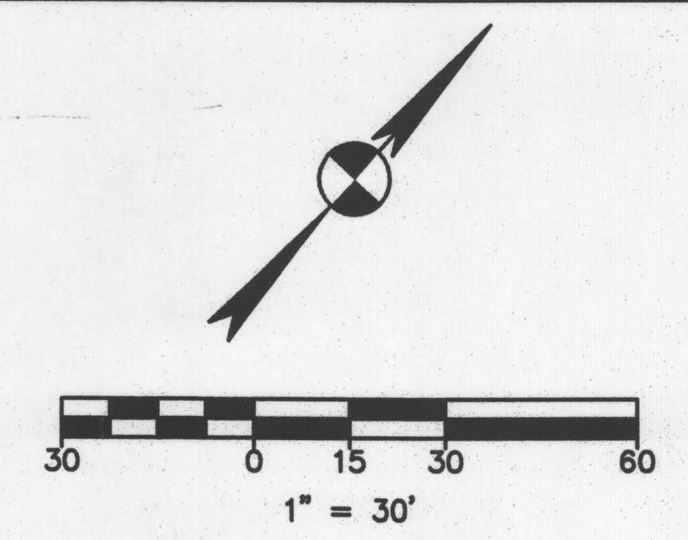
WESTPOINTE RESIDENTIAL, LTD

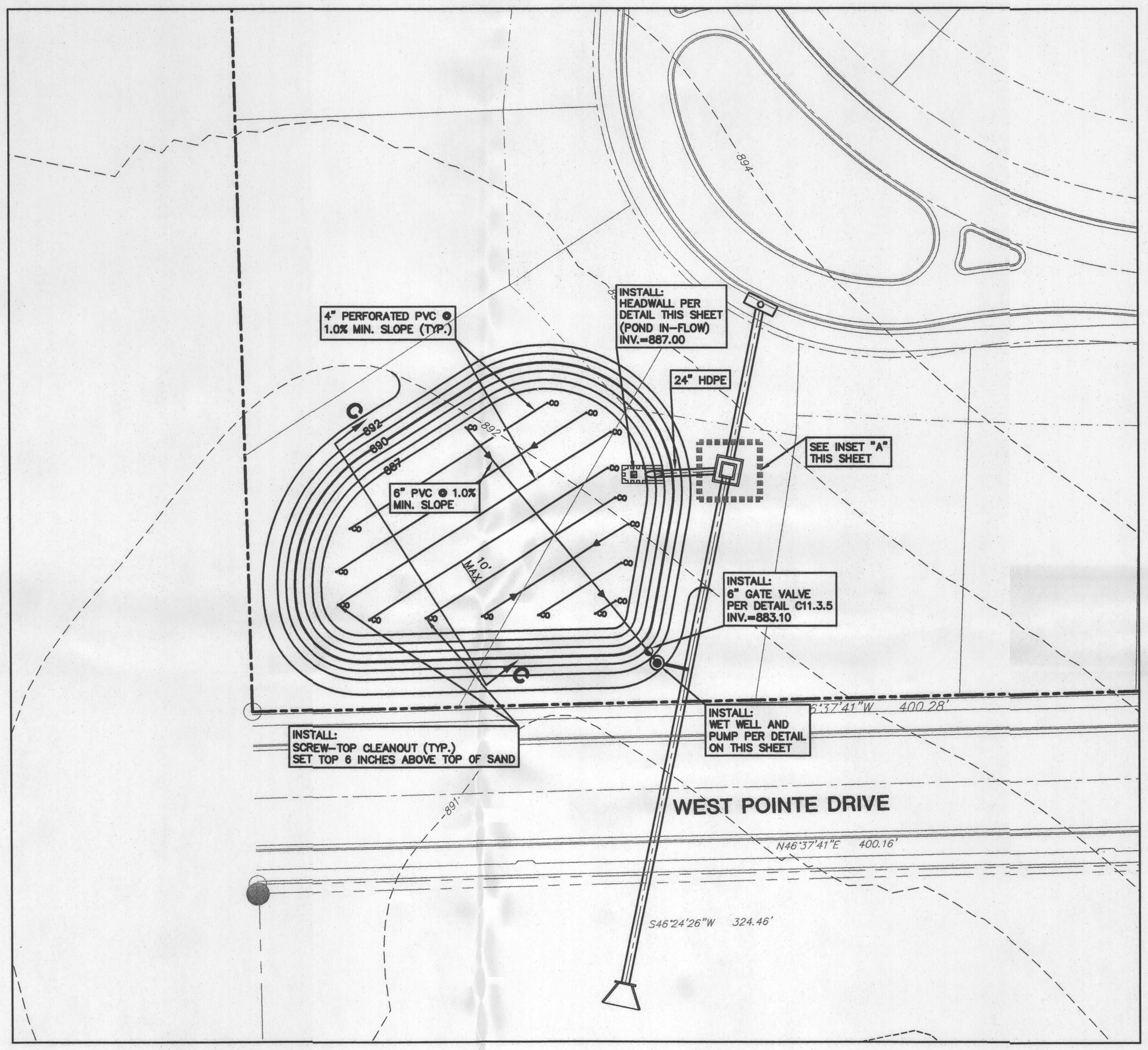
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: August 20, 2010
FILE: 73806WQP02.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

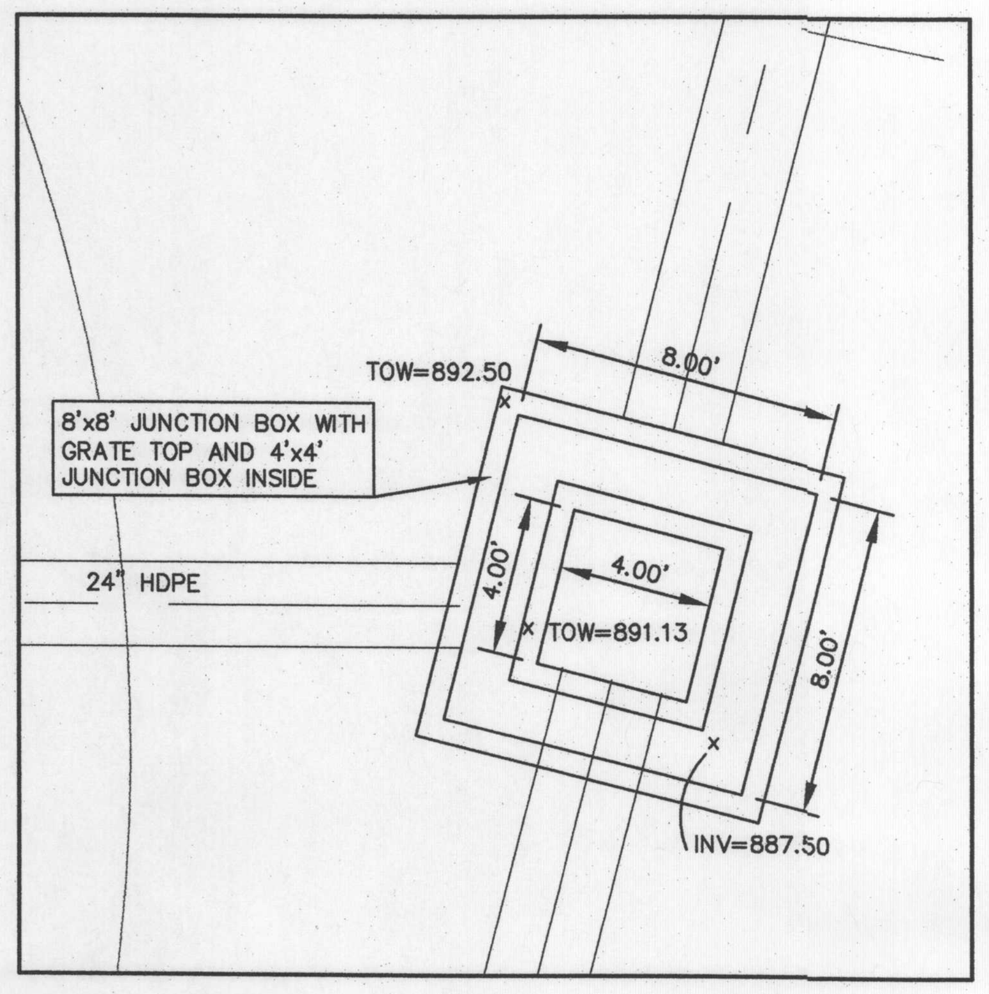
SHEET
C13.02

Date: Aug 20, 2010, 6:50pm User ID: rreyes
File: G:\101769\001\PONDS\73806WQP02.dwg

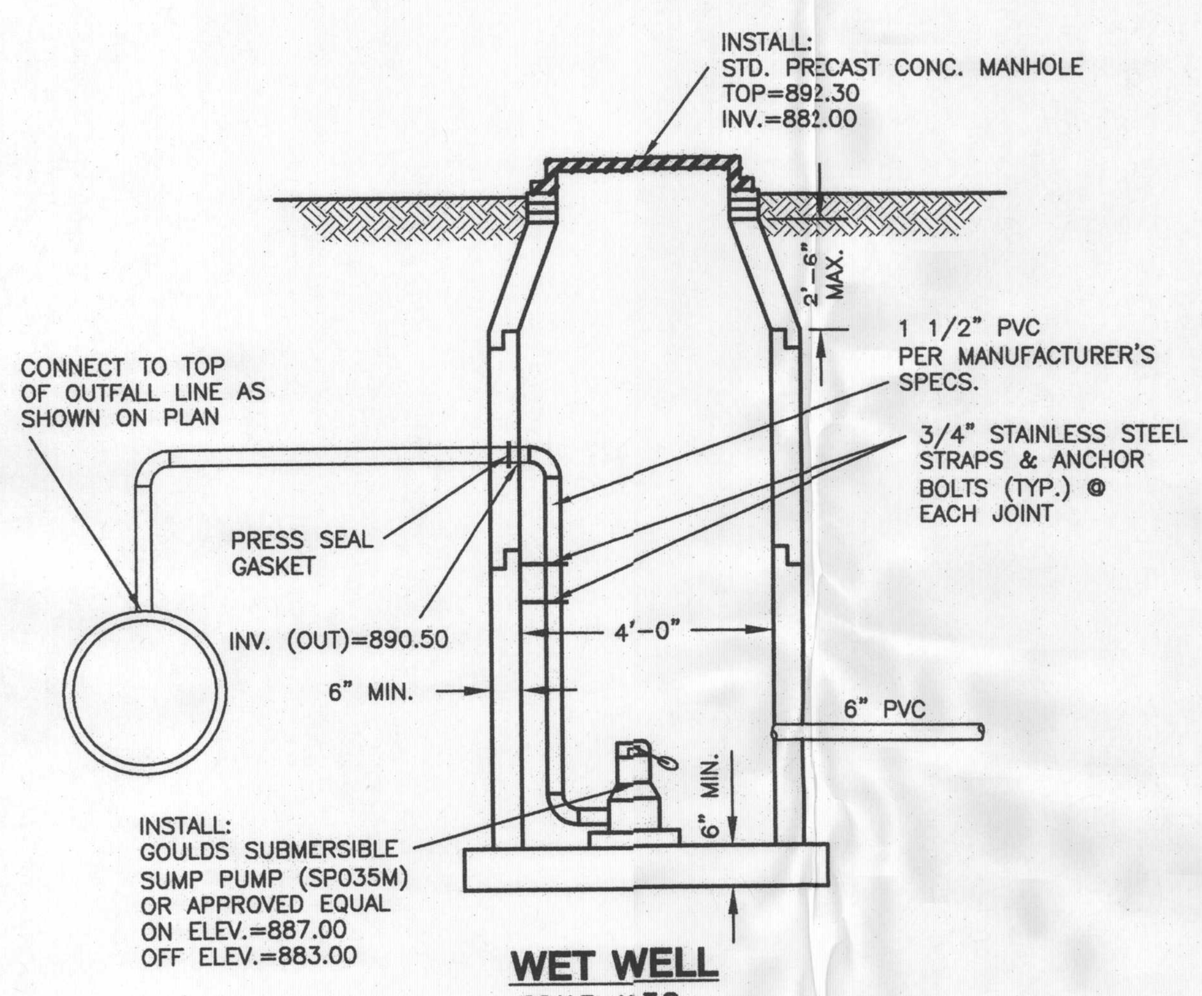




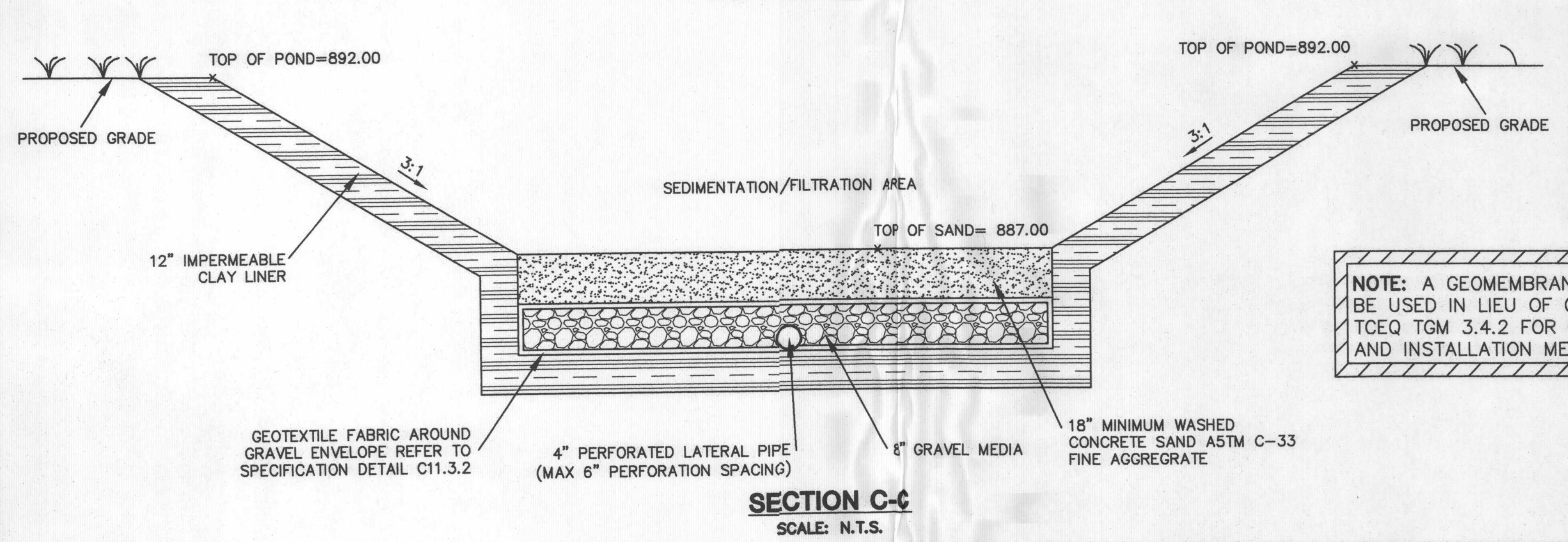
SOUTHWEST WATER QUALITY POND
(FOR DA 3)
SCALE: 1"=30'



INSET "A"
SCALE: 1'=5'

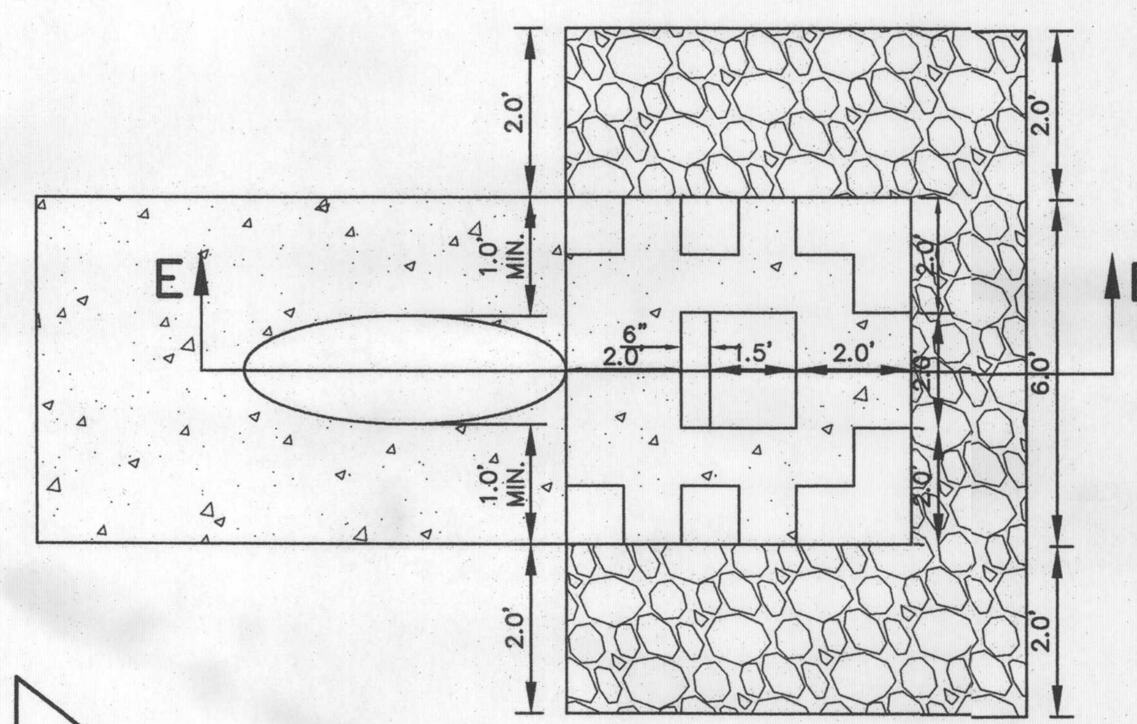


WET WELL
SCALE: N.T.S.

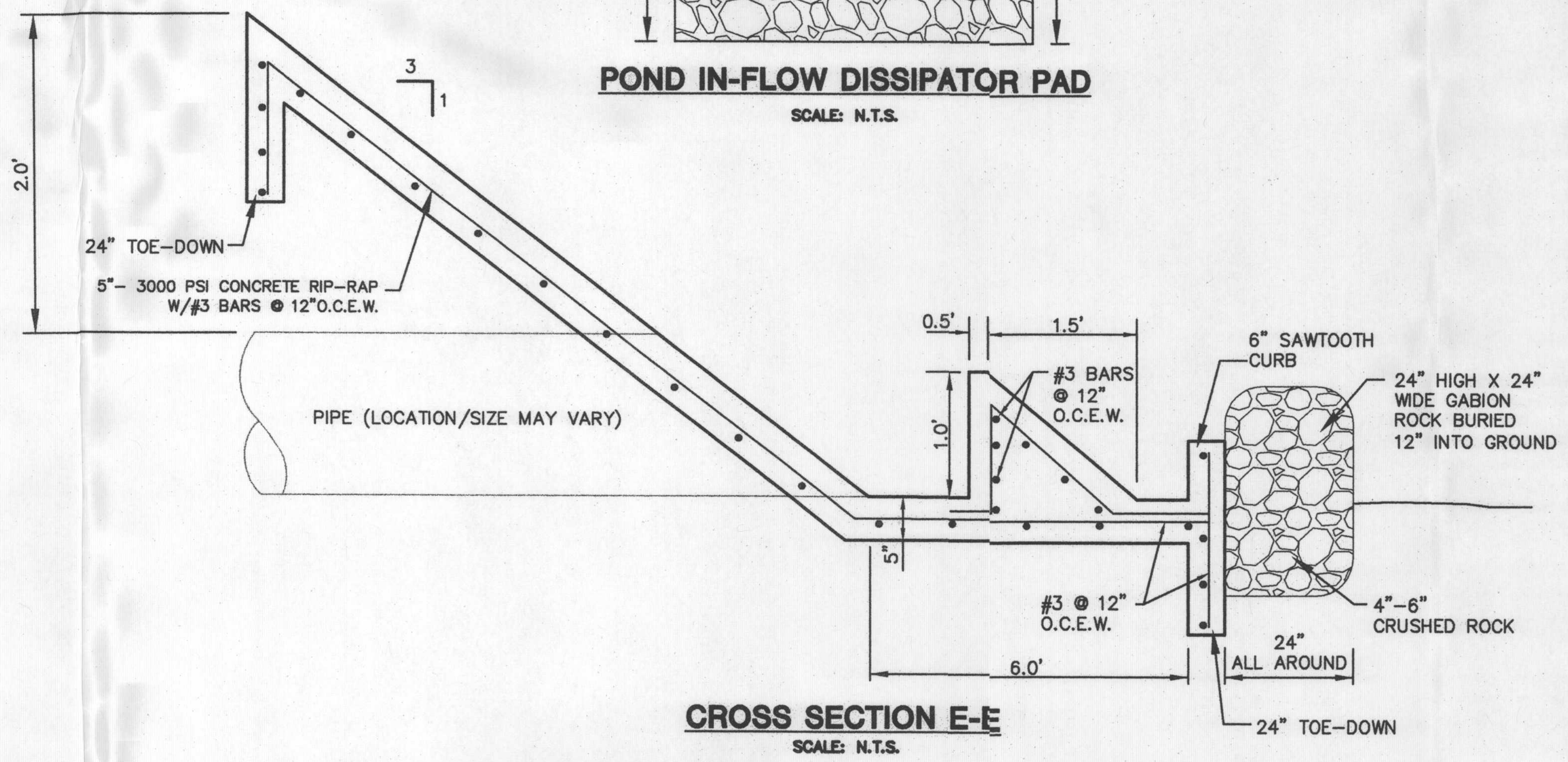


NOTE: A GEOMEMBRANE LINER MAY BE USED IN LIEU OF CLAY LINER. SEE TCEQ TGM 3.4.2 FOR SPECIFICATIONS AND INSTALLATION METHODS

SECTION C-C
SCALE: N.T.S.



POND IN-FLOW DISSIPATOR PAD
SCALE: N.T.S.



CROSS SECTION E-E
SCALE: N.T.S.

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TCEQ-R13
AUG 23 2010
SAN ANTONIO

FLOODPLAIN INFORMATION

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 48091C0435F IN COMAL COUNTY DATED SEPTEMBER 02, 2009, THIS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN.

LEGAL DESCRIPTION:

FOR A 48.18 PORTION OUT OF A 79.581 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY TEXAS, BEING PART OF THE ANDRES SANCHES SURVEY NO. 286, AND WILLIAM MOCKFORD SURVEY NO. 285, AND A PORTION OF THAT CERTAIN 205.00 ACRE TRACT RECORDED IN DOCUMENT NUMBER 200706031735 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

BENCHMARK NOTE:

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ELEV=923.61'

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STATE OF TEXAS
AARON K. PARENICA
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PROFESSIONAL ENGINEER
8-20-10

SOUTHWEST WATER QUALITY POND

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: August 20, 2010
FILE: 73806WQP03.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.03

Date: Aug 20, 2010, 4:56pm User ID: rreyes
File: G:\101769\001\PONDS\73806WQP03.dwg

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER POLLUTION ABATEMENT PLAN NOTES:

1. CONTRACTOR IS ADVISED THAT TCEQ DOES NOT ALLOW CHANGES TO PERMANENT POLLUTION ABATEMENT MEASURES WITHOUT THEIR PRIOR APPROVAL.

2. TOPS OF CLEANOUTS SHALL BE SET AT SIX INCHES ABOVE THE SAND ELEVATION.

3. SEDIMENT WILL BE REMOVED WHEN THE MATERIAL FILLS THE BASIN TO THE TOPS OF THE CLEANOUTS.

4. CONTRACTOR TO HYDROMULCH EARTHEN SLOPES FOR SLOPE STABILIZATION DURING INITIAL BASIN CONSTRUCTION AND MAINTAIN WATERING UNTIL VEGETATION IS FULLY ESTABLISHED.

5. AS AN ALTERNATE TO ITEM 4, CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.

6. CONTRACTOR SHALL NOTIFY CERTIFYING ENGINEER WHEN BASIN CONSTRUCTION HAS PROGRESSED TO THE FOLLOWING MILESTONES:

a.) BASIN LINER IN PLACE AND UNDER DRAIN SYSTEM IS IN PLACE WITHOUT GRAVEL.

b.) GRAVEL AROUND UNDER DRAIN SYSTEM IS IN PLACE AND FILTER FABRIC IS INSTALLED AND ATTACHED TO WALLS OR RIP-RAP.

c.) SAND FILTER MEDIA HAS BEEN PLACED & BASIN HAS BEEN COMPLETELY FINISHED INCLUDING SOD OR SEED PLACEMENT ON SIDE SLOPES (WHERE APPLICABLE).

7. WORK SHALL NOT CONTINUE ON THE BASIN UNTIL THE ENGINEER HAS HAD AN OPPORTUNITY TO OBSERVE THE STATUS OF CONSTRUCTION AT EACH STAGE. CONTRACTOR SHALL PROVIDE ENGINEER A MINIMUM OF 24 HOURS ADVANCE NOTICE PRIOR TO TIME THE BASIN WILL BE AT THE REQUIRED STAGE.

8. UPON SUBSTANTIAL COMPLETION CONTRACTOR TO PROVIDE CERTIFYING ENGINEER WITH FIELD SHOTS VERIFYING ELEVATIONS OF THE FOLLOWING:
- TOP OF BANK AT EACH CORNER OF BASIN
- TOE OF SLOPE AT EACH CORNER OF BASIN (INSIDE BASIN TOE)
- SPLASH PAD/INLET PIPE
- OVERFLOW WEIR

9. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY WITH STRUCTURAL ENGINEER SO AS TO PROVIDE APPROPRIATE OPPORTUNITY FOR STRUCTURAL ENGINEER TO MAKE THE NECESSARY CONSTRUCTION OBSERVATIONS DURING INSTALLATION.

10. CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT ALL STRUCTURES HAVE BEEN CONSTRUCTED TO THE DESIGN ELEVATIONS AT THE COMPLETION OF CONSTRUCTION. THIS SHALL INCLUDE ALL STRUCTURAL ELEMENTS, CONCRETE WALLS, BASIN INVERTS, TOP OF EARTH BASIN WALLS, TOP OF SAND ELEVATIONS, INVERTS OF SEDIMENTATION CHAMBER ELEVATIONS, AND ELEVATIONS OF INLET AND OVERFLOW DEVICES.

11. ALL UNDERDRAIN 4" & 6" PVC PIPE WITHIN WATER QUALITY POND TO BE SCHEDULE 40.

GENERAL CONSTRUCTION NOTES:

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST INCLUDE THE DATE ON WHICH HE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.

5. ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.

6. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS TO WATER QUALITY (E.G., FUGITIVE SEDIMENT IN STREET BEING WASHED INTO SURFACE STREAMS OR SENSITIVE FEATURES BY THE NEXT RAIN).

7. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE. IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

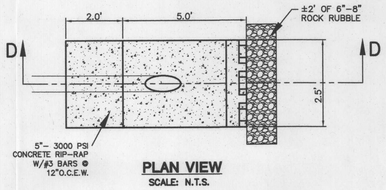
A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;

B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;

C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

AUSTIN REGIONAL OFFICE
2800 S. IH-35, SUITE 100
AUSTIN, TEXAS 78704-5712
PHONE (512) 339-2929
FAX (512) 339-3795



PLAN VIEW
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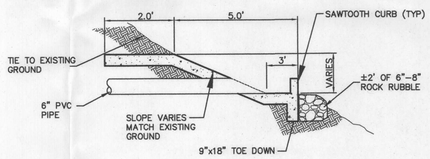
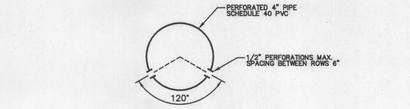


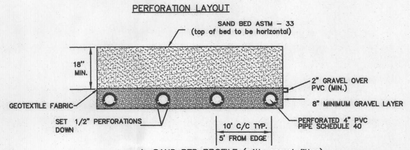
SECTION D-D
SCALE: N.T.S.

C11.3.1 **CONCRETE HEADWALL DETAIL (WQP OUTFALL)**
SCALE: N.T.S.

C11.3.4 **NOT USED**
SCALE: N.T.S.



PERFORATION LAYOUT



A. SAND BED PROFILE (with gravel filter)

FOR SEDIMENTATION AND FILTRATION PONDS
CLAY LINERS SHALL MEET THE FOLLOWING SPECIFICATIONS:

TABLET 1-7
CLAY LINER SPECIFICATION

PROPERTY	TEST METHOD	UNIT	SPECS.
PERMEABILITY	ASTM D-2434	Cm/Sec	1×10^{-6}
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY

THE CLAY LINER SHALL HAVE A MINIMUM THICKNESS OF 12 INCHES.

GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING SPECIFICATIONS:

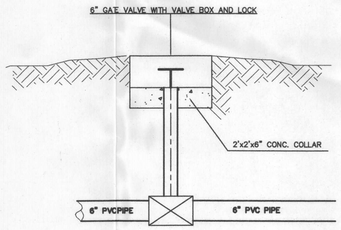
PROPERTY	TEST METHOD	UNIT	SPECS.
MATERIAL			NONWOVEN GEOTEXTILE
UNIT WEIGHT		OZ/SQ.YD.	8 (MIN.)
FILTRATION RATE		IN/SEC	0.08 (MIN.)
GRAB STRENGTH	ASTM D-1682	LB.	400 (MIN.)
PUNCTURE STRENGTH	ASTM D-751(MOD.)	LB.	125 (MIN.)
MULLEN BURST STRENGTH	ASTM D-751	PSI.	400 (MIN.)
TENSILE STRENGTH	ASTM D-1682	LB.	300 (MIN.)
EQUIV. OPENING SIZE	US STANDARD SIEVE	NO.	80 (MIN.)

SAND BED AND GEOTEXTILE FABRIC

THE TWO LAYERS MUST BE SEPARATED FROM EACH OTHER USING SUITABLE GEOTEXTILE FABRIC MEETING THE FOLLOWING SPECIFICATIONS:
FIRST (TOP) LAYER- FINE SAND, 0.02-0.04 INCH, 12 INCH ASTM - 33 TO 18 INCH DEPTH
SECOND LAYER- 1/2-2 INCH GRAVEL, AT LEAST 1 INCH DEPTH TO 2 INCH DEPTH SURROUNDING UNDERDRAIN PIPING

C11.3.2 **FILTRATION POND SAND BED W/ GEOTEXTILE FABRIC**
SCALE: N.T.S.

C11.3.3 **NOT USED**
SCALE: N.T.S.



C11.3.5 **6" GATE VALVE DETAIL**
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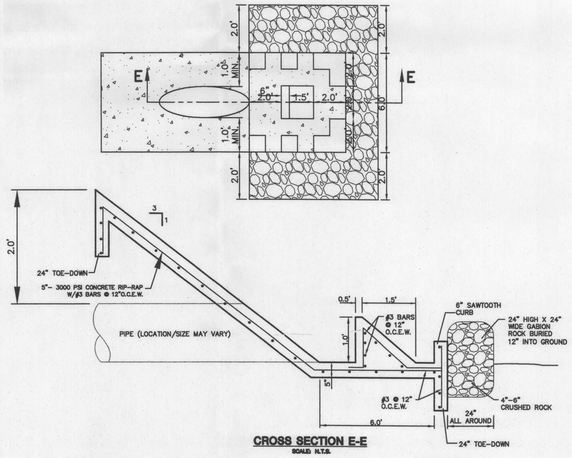

CROSS SECTION E-E
SCALE: N.T.S.

C11.3.6 **POND IN-FLOW DISSIPATOR PAD**
SCALE: N.T.S.

TCEQ-R13
AUG 23 2010
SAN ANTONIO

DATE	NO.	REVISION	APPROVAL

Bury+Partners
ENGINEERING SOLUTIONS
825 Isom Rd, Suite 100
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Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1046
Bury+Partners, Inc. ©Copyright 2010

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL
ENGINEER
8-23-10

WATER QUALITY POND DETAILS

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 50'
DATE REVISED: August 20, 2010
FILE: 7306WQPD01.dwg
DRAWN BY: WFF
DESIGNED BY: SSL
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.04

Date: Aug 20, 2010, 4:58pm User ID: rreyes
File: G:\101769\001\ENGR\CAD\7306WQPD01.dwg

DA-1 WATER QUALITY POND (WEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 8/1/2010

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

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

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

County =	**Comal**	
Total project area included in plan * =	**53.82**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**31.43**	acres
Total post-development impervious cover fraction * =	**0.58**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**28212**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**3**	

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

Drainage Basin/Outfall Area No. =	**1**	
Total drainage basin/outfall area =	**21.21**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**12.33**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.58**	
$L_{M\ THIS\ BASIN}$ =	**11067**	lbs.

3. Indicate the proposed BMP Code for this basin.

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

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

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

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 =	**21.21**	acres
A_I =	**12.33**	acres
A_P =	**8.88**	acres
L_R =	**12671**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**11100**	lbs.
F =	**0.88**	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.50**	inches
Post Development Runoff Coefficient =	**0.41**	
On-site Water Quality Volume =	**47026**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**9405**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**56431**	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	**NA**	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**56431**	cubic feet
Minimum filter basin area =	**2613**	square feet
Maximum sedimentation basin area (2' Depth) =	**23513**	square feet
Minimum sedimentation basin area (8' Depth) =	**5878**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**56431**	cubic feet
Minimum filter basin area =	**4703**	square feet
Maximum sedimentation basin area (2' Depth) =	**18810**	square feet
Minimum sedimentation basin area (8' Depth) =	**1176**	square feet

DA-1 WATER QUALITY POND (WEST)

DA-2 WATER QUALITY POND (EAST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 8/1/2010

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

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

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

County =	**Comal**	
Total project area included in plan * =	**53.82**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**31.43**	acres
Total post-development impervious cover fraction * =	**0.58**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**28212**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**3**	

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

Drainage Basin/Outfall Area No. =	**2**	
Total drainage basin/outfall area =	**20.87**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**10.77**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.52**	
$L_{M\ THIS\ BASIN}$ =	**9667**	lbs.

3. Indicate the proposed BMP Code for this basin.

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

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

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

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 =	**20.87**	acres
A_I =	**10.77**	acres
A_P =	**10.10**	acres
L_R =	**11105**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**9700**	lbs.
F =	**0.87**	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.44**	inches
Post Development Runoff Coefficient =	**0.37**	
On-site Water Quality Volume =	**39981**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**7996**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**47978**	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	**NA**	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**47978**	cubic feet
Minimum filter basin area =	**[illegible]221**	square feet
Maximum sedimentation basin area (2' Depth) =	**19991**	square feet
Minimum sedimentation basin area (8' Depth) =	**[illegible]998**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**47978**	cubic feet
Minimum filter basin area =	**3998**	square feet
Maximum sedimentation basin area (2' Depth) =	**15993**	square feet
Minimum sedimentation basin area (8' Depth) =	**[illegible]000**	square feet

DA-2 WATER QUALITY POND (EAST)

DA-3 WATER QUALITY POND (SOUTHWEST)

Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: The Enclave at Westpointe Village
Date Prepared: 8/1/2010

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

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

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

County =	**Comal**	
Total project area included in plan * =	**53.82**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**31.43**	acres
Total post-development impervious cover fraction * =	**0.58**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**28212**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**3**	

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

Drainage Basin/Outfall Area No. =	**3**	
Total drainage basin/outfall area =	**11.74**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**8.27**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.70**	
$L_{M\ THIS\ BASIN}$ =	**7423**	lbs.

3. Indicate the proposed BMP Code for this basin.

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

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

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

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 =	**11.74**	acres
A_I =	**8.27**	acres
A_P =	**3.41**	acres
L_R =	**8458**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**7500**	lbs.
F =	**0.89**	

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

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.60**	inches
Post Development Runoff Coefficient =	**0.51**	
On-site Water Quality Volume =	**34605**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**6921**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**41527**	cubic feet

7. Retention/Irrigation System

Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin =	**NA**	cubic feet
Irrigation Area Calculations:		
Soil infiltration/permeability rate =	**0.1**	in/hr
Irrigation area =	**NA**	square feet
	NA	acres

8. Extended Detention Basin System

Designed as Required in RG-348 Pages 3-46 to 3-51

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

9. Filter area for Sand Filters

Designed as Required in RG-348 Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	**41527**	cubic feet
Minimum filter basin area =	**1923**	square feet
Maximum sedimentation basin area (2' Depth) =	**17303**	square feet
Minimum sedimentation basin area (8' Depth) =	**4326**	square feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	**41527**	cubic feet
Minimum filter basin area =	**3461**	square feet
Maximum sedimentation basin area (2' Depth) =	**13842**	square feet
Minimum sedimentation basin area (8' Depth) =	**865**	square feet

DA-3 WATER QUALITY POND (SOUTHWEST)

SUMMARY TABLE

Water Quality Ponds Summary Table

Total Area in Drainage Area:	53.82 Acres
Total Existing Impervious Coverage:	0.00 Acres
Post-Construction Impervious Coverage:	31.43
Net Increase in Impervious Coverage:	31.43
Total Required Removal Load (L_M)	**28,212**

Total Desired Load Removed by Ponds:

DA-1	11,100
DA-2	9,700
DA-3	7,500
Total	**28,300**

Surplus Load Removal (LBS): **88**

Pond Sizing

	Filter Area Required	Filter Area Provided
DA-1 Pond	4,703	17,401
DA-2 Pond	3,998	18,310
DA-3 Pond	3,461	7,366

	Volume Required (CF)	Volume Provided (CF)
DA-1 Pond	56,431	59,486
DA-2 Pond	47,978	63,830
DA-3 Pond	41,527	50,272
	145,936	**173,588**

Surplus Volume (CF): **27,652**

SUMMARY TABLE

TCEQ-R13
AUG 23 2010
SAN ANTONIO

Bury+Partners
ENGINEERING SOLUTIONS
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210)525-9090 Fax (210)525-0529
TBPE Registration Number F1048

STATE OF TEXAS
AARON K. PARENICA
99323
LICENSED
PROFESSIONAL ENGINEER
9-23-10

DATE	NO.	REVISION	APPROVAL

WATER QUALITY POND CALCULATIONS

WESTPOINTE RESIDENTIAL, LTD

THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TX

PLOTTING SCALE: 1"= 1'
DATE REVISED: August 23, 2010
FILE: 101769001CALC.dwg
DRAWN BY: RR
DESIGNED BY: AKP
REVIEWED BY: AKP
PROJECT NO.: 101769001

SHEET
C13.05

Date: Aug 23, 2010, 8:38am User ID: rreyes
File: G:\101769\001\PONDS\101769001CALC.dwg

ATTACHMENT G

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TEXAS

The owner of the lot where a sedimentation/filtration basin is located is responsible for the inspection, maintenance, and repair of the water quality pond(s).

- ***First year of operation.*** The sand filter BMPs will be inspected on a *quarterly basis and after large storms for the first year of operation.*

- ***Inspections.*** BMP facilities will be inspected *at least twice a year (once during or immediately following wet weather)* to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP will be identified and repaired or re-vegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) will be identified and repaired immediately. Cracks, voids and undermining will be patched/filled to prevent additional structural damage. Trees and root systems will be removed to prevent growth in cracks and joints that can cause structural damage. The inspections should be carried out with as-built pond plans in hand.

- ***Sediment Removal.*** Sediment will be removed from the inlet structure and sedimentation chamber *when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment will be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.*

- ***Media Replacement.*** Maintenance of the filter media will be performed *when the drawdown time exceeds 48 hours.* When this occurs, the upper layer of sand will be removed and replaced with new material meeting the original specifications. Any discolored sand will also be removed and replaced. In filters that have been regularly maintained, this will be limited to the top 2 to 3 inches.

- ***Debris and Litter Removal.*** Debris and litter that accumulates near the sedimentation basin outlet device will be removed *during regular mowing operations and inspections.* (Particular attention will be paid to floating debris that can eventually clog the control device or riser.)

- ***Filter Underdrain.*** The underdrain piping network will be cleaned to remove any sediment buildup *as needed* to maintain design drawdown time.

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
THE ENCLAVE AT WESTPOINTE VILLAGE
NEW BRAUNFELS, TEXAS

• ***Mowing.*** Grass areas in and around sand filters will be mowed *at least twice annually* to limit vegetation height to 18 inches. Vegetation on the pond embankments will be mowed as appropriate to prevent the establishment of woody vegetation.

• ***Rock Gabion.*** Rock gabion structures, when used, will be removed from pond prior to filter media replacement, cleaned and returned to the original location after the filter media replacement is complete.

• ***Nuisance Control.*** Most public agencies surveyed indicate that control of insects, weeds, odors, and algae may be needed in some water quality ponds. Nuisance control is probably the most frequent maintenance item demanded by local residents. If the ponds are properly sized and vegetated, these problems should be rare in water quality ponds except under extremely dry weather conditions. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.). Biological friendly methods of control are preferable to chemical applications.

Non-Routine Maintenance

• ***Structural Repairs and Replacement.*** Eventually, the various inlet/outlet and riser works in the water quality basins will deteriorate and must be replaced. Some public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 years, while concrete barrels and risers may last from 50 to 75 years. The actual life depends on the type of soil, pH of runoff, and other factors. Polyvinyl chloride (PVC) pipe is a corrosion resistant alternative to metal and concrete pipes. Structural repair and/or replacement may be necessary for any structural objects with signs of corrosion or loss of structural integrity.

J.L. Guerra Jr.
Name of Owner/Agent

Signature of Owner/Agent

8/13/2010
Date

ATTACHMENT H

PILOT-SCALE FIELD TESTING PLAN
(Not Applicable)

ATTACHMENT I

MEASURES FOR MINIMIZING
SURFACE STREAM CONTAMINATION
(Not Applicable)

AUTHORIZATION AND APPLICATION FORMS

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

I J.L. Guerra, Jr.,
Print Name

Partner,
Title - Owner/President/Other

of Westpointe Residential, LTD,
Corporation/Partnership/Entity Name

have authorized Aaron K. Parenica, P.E.
Print Name of Agent/Engineer

of Bury+Partners
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

8/6/2010
Date

THE STATE OF TEXAS §

County of BEXAR §

BEFORE ME, the undersigned authority, on this day personally appeared J.L. Guerra, Jr. 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 6th day of August 2010.

Melanie A. Pierce
NOTARY PUBLIC

Melanie A. Pierce
Typed or Printed Name of Notary

MELANIE A. PIERCE NOTARY PUBLIC STATE OF TEXAS 02-16-2013

MY COMMISSION EXPIRES: 2-16-2013

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

NAME OF PROPOSED REGULATED ENTITY: **THE ENCLAVE AT WESTPOINTE VILLAGE**
REGULATED ENTITY LOCATION: Southside of Oak Run Parkway, New Braunfels, TX
NAME OF CUSTOMER: Westpointe Residential, LTD
CONTACT PERSON: Aaron Parenica or Steve Lin (w/ Bury+Partners) PHONE: (210) 525-9090
(Please Print)

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

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

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

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

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

☐ **Austin Regional Office**

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

☒ **San Antonio Regional Office**

☐ **Overnight Delivery to TCEQ**:
TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-0347

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

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	**48.18 Acres**	**$6,500**
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	$

Aaron K. Parenica
Signature

8-23-2010
Date

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

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

Westpointe Residential Ltd 1030
Vendor No: TCEQ01 / Name: TEXAS COMMISSION 1030

Invoice	Ref	Inv Date	Inv Amt	Discount	Adj Amt	Amt Paid
081710WPAP	WPAP	08/17/10	6500.00	0.00	0.00	6500.00

Acct:
10100 Check Date 08/18/10 Total 6500.00

1030

Westpointe Residential Ltd
325 Brown Street
Petersburg, VA 23803

IBC BANK
San Antonio, TX IBC Voice - (210) 518-2525
30-1328-1140

1030

***Six Thousand Five Hundred & No/100 Dollars

DATE	AMOUNT
08/18/10	$6,500.00

PAY TO THE ORDER OF
TEXAS COMMISSION
ON ENVIRONMENTAL QUALITY

Mark L Wayland
AUTHORIZED SIGNATURE

Security features. Details on back.

⑈001030⑈ ⑆114013284⑆ 2410735479⑈

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

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150