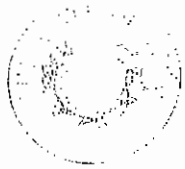

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 17, 2011

Mr. Arnold P. Kochis
Windrock Ranch, LLC
P.O. Box 2536
New Braunfels, TX 78133-0012

Re: Edwards Aquifer, Comal County

Name of Project: Park Place 4 RV's; Located on FM 306 approximately 1,300 feet northwest of its intersection with Purgatory Rd.; Comal County, Texas

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

Edwards Aquifer Protection Program San Antonio File No. 2976.00; Investigation No. 913178; Regulated Entity No. RN106119605

Dear Mr. Kochis:

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 Pawelek & Moy, Inc. on behalf of Windrock Ranch, LLC on April 11, 2011. Final review of the WPAP was completed after additional material was received on June 20, 2011. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

Background

The above referenced site includes two platted lots (Lot 47 and Lot 48A). Lot 47 currently consists of a boat and recreational vehicle (RV) storage yard containing flexible base for parking, two open sided metal [RV/boat storage] buildings, one office structure, and access drive totaling to approximately 4.10 acres of impervious cover. Lot 48A remains undeveloped and uncleared. The structures within Lot 47 were constructed in approximately 2010 prior to authorization and approval of a WPAP.

The WPAP approved by this letter includes the existing impervious cover and the treatment of stormwater runoff from the existing impervious cover, in addition to the proposed activities described below, in an effort to bring the site into compliance with applicable 30 TAC Chapter 213 rules.

Project Description

The proposed commercial project will have an area of approximately 10.05 acres. It will include the construction of five additional RV/boat storage buildings, a parking area, a residential structure, an access drive, a partial sedimentation/filtration basin, and a stormwater detention pond. The impervious cover will be increased to 5.249 acres (52.2 percent). According to a letter dated, April 4, 2011, signed by Mr. Robert Boyd, P.E., with Comal County, the site is acceptable for the use of on-site sewage facilities.

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, engineered vegetated filter strips and a partial sedimentation/filtration basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 4,712 pounds of TSS generated from the 5.249 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 are described in the table below.

Table 1: BMP Summary

Sedimentation/Filtration Basin[1]

Watershed Area	Total Area (ac)	Impervious Cover (ac)	Calc. run-off depth	Req. WQV (ft^3)	Design WQV (ft^3)	Req. sand filter area (ft^2)	Design sand filter area (ft^2)	Req. TSS Removal (lb/yr)	Design TSS Removal (lb/yr)
A1	5.821	4.72	2.40	38,891	39,293	3,241	4,084	4,237	4,814

Engineered Vegetated Filter Strip[2]

Watershed Area	Total Area (ac)	Impervious Cover (ac)	---	Calc. TSS Removal	Design TSS Removal
A5	0.716	0.103	---	92	92
A7	1.83	0.09	---	81	81

Uncaptured Areas[3]

Watershed Areas	Total Area (ac)	Impervious Cover (ac)	---	Calc. TSS Removal	Design TSS Removal
A2, A3, A6, C1, C2	0.571	0.336	---	302	---

Detention Pond Area

A4	0.565	0	---					---	---
A8	0.610	0	---					---	---
Site Total	10.113[4]	5.249	---	---	---	---	---	4,712	783

1. The filtration system for the basin will consist of:
   - 4,084 square feet of sand (3,241 square feet required) with an ASTM rating of C-33, which is 18 inches thick,

- an underdrain piping covered with a minimum two inch gravel layer and a geotextile membrane, and
- an impermeable 12 inch clay liner.

2. Will be constructed in accordance with RG-348's (2005, ed.) engineered vegetated filter strip design criteria.
3. The single chamber sedimentation/filtration basin has been oversized to account for the TSS loading generated from these areas.
4. Includes area C1 and C2 which are offsite (existing and proposed) driveways.

Geology

According to the geologic assessment included with the application, the site is located in the Dolomitic member of the Kainer Formation. The San Antonio Regional Office site assessment conducted on June 16, 2011 revealed no additional features and that the site was generally as described in the application.

Special Conditions

1. The vegetated filter strip located in watershed A5 shall be constructed as soon as practicable but no later than 90 days from the date of this letter.

2. The vegetated filter strips located in watershed A7 shall be operational prior to the use of the new access drive.

3. The partial sedimentation/filtration basin shall be constructed as soon as practicable. A schedule of activities that list and describe the significant dates and activities for the construction of the basin shall be submitted to the Regional Office within 60 days from the date of this letter. The schedule of activities shall include, but not be limited to: when the project will be bided out for contract, commencement of construction, major grading and excavating activities, and completion of construction.

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

5. Activities observed during the site assessment investigations, conducted on June 16, 2011, are alleged to constitute construction without prior approval of an approved water pollution abatement plan as required by Commission rules (30 TAC Chapter 213, Sub-Chapter A). Therefore, the applicant is hereby advised that the after-the-fact approval of the development, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

Standard Conditions

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

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

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

Prior to Commencement of Construction:

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

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

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

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

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

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

During Construction:

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

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to

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

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

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

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

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

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

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

After Completion of Construction:

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

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

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the

new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

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

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

If you have any questions or require additional information, please contact Mr. Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 490-3096.

Sincerely,

Richard Garcia

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

MRV/JA/eg

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

cc: Mr. John J. Moy, P.E., Pawelek & Moy, Inc.
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. Karl J. Dreher, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 17, 2011

Mr. Arnold P. Kochis
Windrock Ranch, LLC
P.O. Box 2536
New Braunfels, TX 78133-0012

Re: Edwards Aquifer, Comal County

Name of Project: Park Place 4 RV's; Located on FM 306 approximately 1,300 feet northwest of its intersection with Purgatory Rd.; Comal County, Texas

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

Edwards Aquifer Protection Program San Antonio File No. 2976.00; Investigation No. 913178; Regulated Entity No. RN106119605

Dear Mr. Kochis:

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Background

The above referenced site includes two platted lots (Lot 47 and Lot 48A). Lot 47 currently consists of a boat and recreational vehicle (RV) storage yard containing flexible base for parking, two open sided metal [RV/boat storage] buildings, one office structure, and access drive totaling to approximately 4.10 acres of impervious cover. Lot 48A remains undeveloped and uncleared. The structures within Lot 47 were constructed in approximately 2010 prior to authorization and approval of a WPAP.

The WPAP approved by this letter includes the existing impervious cover and the treatment of stormwater runoff from the existing impervious cover, in addition to the proposed activities described below, in an effort to bring the site into compliance with applicable 30 TAC Chapter 213 rules.

Project Description

The proposed commercial project will have an area of approximately 10.05 acres. It will include the construction of five additional RV/boat storage buildings, a parking area, a residential structure, an access drive, a partial sedimentation/filtration basin, and a stormwater detention pond. The impervious cover will be increased to 5.249 acres (52.2 percent). According to a letter dated, April 4, 2011, signed by Mr. Robert Boyd, P.E., with Comal County, the site is acceptable for the use of on-site sewage facilities.

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, engineered vegetated filter strips and a partial sedimentation/filtration basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 4,712 pounds of TSS generated from the 5.249 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 are described in the table below.

Table 1: BMP Summary

Sedimentation/Filtration Basin[1]

Watershed Area	Total Area (ac)	Impervious Cover (ac)	Calc. run-off depth	Req. WQV (ft^3)	Design WQV (ft^3)	Req. sand filter area (ft^2)	Design sand filter area (ft^2)	Req. TSS Removal (lb/yr)	Design TSS Removal (lb/yr)
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Engineered Vegetated Filter Strip[2]

Watershed Area	Total Area (ac)	Impervious Cover (ac)	---	Calc. TSS Removal	Design TSS Removal
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Watershed Areas	Total Area (ac)	Impervious Cover (ac)	---	Calc. TSS Removal	Design TSS Removal
A2, A3, A6, C1, C2	0.571	0.336	---	302	---

Detention Pond Area

A4	0.565	0	---					---	---
A8	0.610	0	---					---	---
Site Total	10.113[4]	5.249	---	---	---	---	---	4,712	783

1. The filtration system for the basin will consist of:
   - 4,084 square feet of sand (3,241 square feet required) with an ASTM rating of C-33, which is 18 inches thick,

- an underdrain piping covered with a minimum two inch gravel layer and a geotextile membrane, and
- an impermeable 12 inch clay liner.

2. Will be constructed in accordance with RG-348's (2005, ed.) engineered vegetated filter strip design criteria.
3. The single chamber sedimentation/filtration basin has been oversized to account for the TSS loading generated from these areas.
4. Includes area C1 and C2 which are offsite (existing and proposed) driveways.

Geology

According to the geologic assessment included with the application, the site is located in the Dolomitic member of the Kainer Formation. The San Antonio Regional Office site assessment conducted on June 16, 2011 revealed no additional features and that the site was generally as described in the application.

Special Conditions

1. The vegetated filter strip located in watershed A5 shall be constructed as soon as practicable but no later than 90 days from the date of this letter.

2. The vegetated filter strips located in watershed A7 shall be operational prior to the use of the new access drive.

3. The partial sedimentation/filtration basin shall be constructed as soon as practicable. A schedule of activities that list and describe the significant dates and activities for the construction of the basin shall be submitted to the Regional Office within 60 days from the date of this letter. The schedule of activities shall include, but not be limited to: when the project will be bided out for contract, commencement of construction, major grading and excavating activities, and completion of construction.

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

5. Activities observed during the site assessment investigations, conducted on June 16, 2011, are alleged to constitute construction without prior approval of an approved water pollution abatement plan as required by Commission rules (30 TAC Chapter 213, Sub-Chapter A). Therefore, the applicant is hereby advised that the after-the-fact approval of the development, as provided by this letter, shall not absolve the applicant of any prior violations of Commission rules related to this project, and shall not necessarily preclude the Commission from pursuing appropriate enforcement actions and administrative penalties associated with such violations, as provided in 30 TAC §213.10 of Commission rules.

Standard Conditions

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

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

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

Prior to Commencement of Construction:

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

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

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

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

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

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

During Construction:

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

11. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to

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

12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

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

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

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

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

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

After Completion of Construction:

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

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

20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the

new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.

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

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

If you have any questions or require additional information, please contact Mr. Javier Anguiano of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 490-3096.

Sincerely,

Richard Barrera

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

MRV/JA/eg

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

cc: Mr. John J. Moy, P.E., Pawelek & Moy, Inc.
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. Karl J. Dreher, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 13, 2011

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: Park Place 4 RV's, located at 9320 FM 306, New Braunfels, Texas
PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan, 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP File No.: 2976.00

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 May 12, 2011.

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

PAWELEK & MOY, INC.

CIVIL ENGINEERING & CONSULTING SERVICES

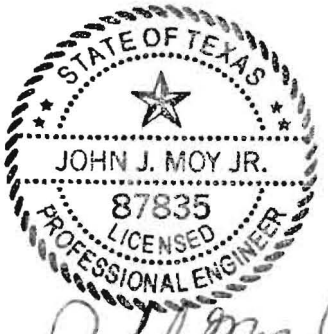
- RESIDENTIAL DEVELOPMENT
- SITE DEVELOPMENT
- PUBLIC WORKS
- UTILITIES

Water Pollution Abatement Plan

Park Place 4 RV's

9320 FM 306

New Braunfels, Texas 78132



John J. Moy, P.E.
4/8/11

by

Pawelek & Moy, Inc.

Job No. 0912.01

April 2011

130 W. Jahn Street, New Braunfels, Texas 78130 P.O. Box 311870 New Braunfels, Texas 78131-1870
tel: (830) 629-2563 fax: (830) 629-2564

Water Pollution Abatement Plan Checklist

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

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

X Water Pollution Abatement Plan Application Form (*TCEQ-0584)*
- ATTACHMENT A - Factors Affecting Water Quality
- ATTACHMENT B - Volume and Character of Stormwater
- ATTACHMENT C - Suitability Letter from Authorized Agent (if OSSF is proposed)
- ATTACHMENT D - Exception to the Required Geologic Assessment (if requesting an exception)
- Site Plan

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

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

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

X Application Fee Form (*TCEQ-0574*)

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

X Core Data Form (*TCEQ-10400)*

General Information 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: Park Place 4 RV's
COUNTY: Comal STREAM BASIN: Jacobs Creek

EDWARDS AQUIFER: X RECHARGE ZONE
__ TRANSITION ZONE

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

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: ~~Pat Kochis~~ Arnold P Kochis DJ2
Entity: Windrock Ranch, LLC
Mailing Address: P.O. Box 2536
City, State: New Braunfels, Texas Zip: 78133-0012
Telephone: (830) 964-3065 FAX: -

Agent/Representative (If any):

Contact Person: John J. Moy, Jr.
Entity: Pawelek & Moy, Inc.
Mailing Address: 130 W. Jahn St.
City, State: New Braunfels, Texas Zip: 78130-7640
Telephone: (830) 629-2563 FAX: (830) 629-2564

2. __ This project is inside the city limits of _____.
__ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
X 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.

The site is located approximately 1300 ft. northwest of the intersection of Purgatory Rd. and FM 306, on FM 306.

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

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

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

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

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

8. Existing project site conditions are noted below:
X Existing commercial site (Approximately 4 acres)
__ Existing industrial site
__ Existing residential site
__ Existing paved and/or unpaved roads
__ Undeveloped (Cleared)
X Undeveloped (Undisturbed/Uncleared) (Approximately 6 acres)
__ Other: _____

PROHIBITED ACTIVITIES

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

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

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

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

ADMINISTRATIVE INFORMATION

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

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

footage of all collection system lines.

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

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

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

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

___ TCEQ cashier

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

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

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

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

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

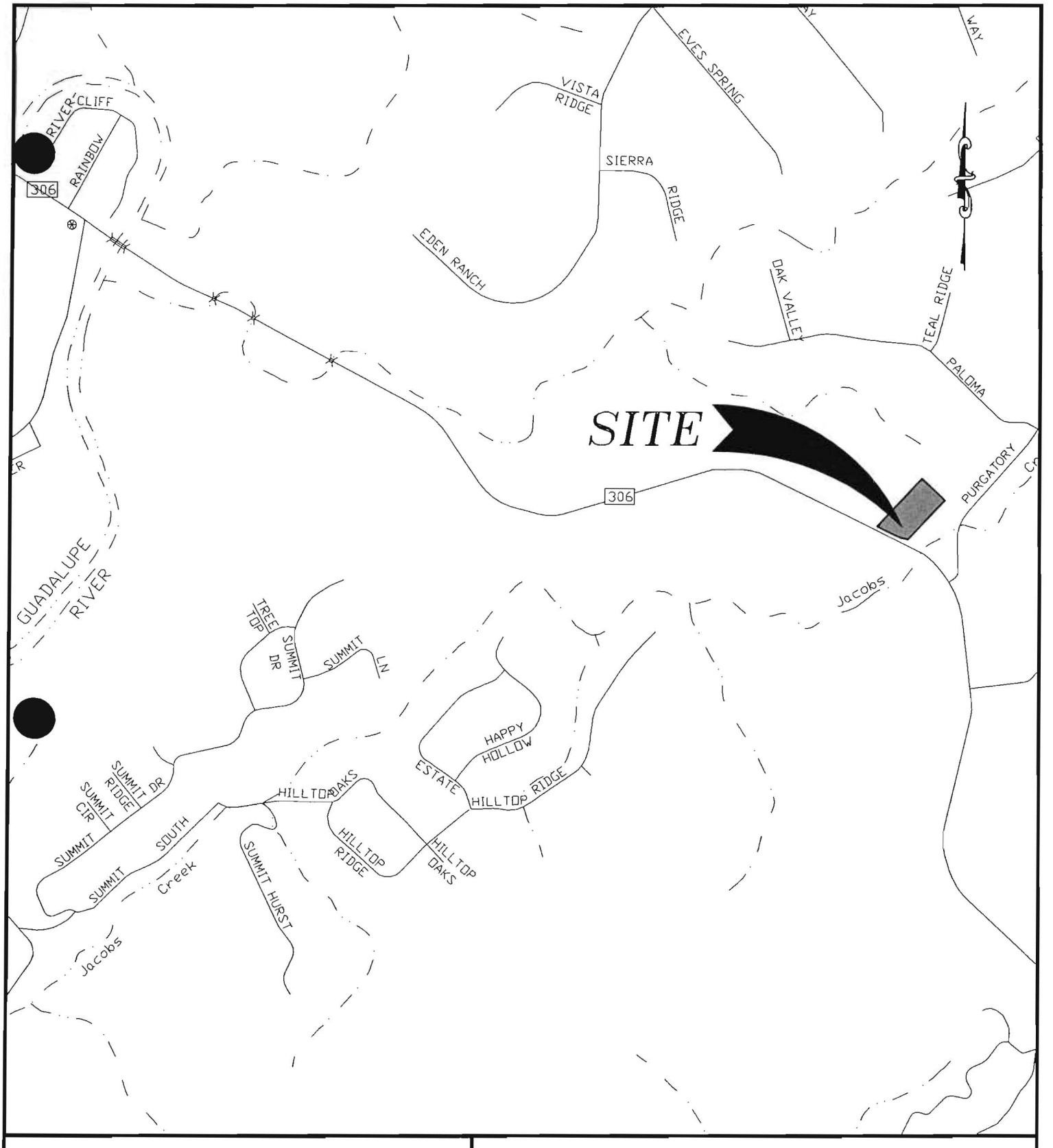
John J. Moy, Jr.
Print Name of Customer/Agent

Signature of Customer/Agent

4/8/11
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.



LOCATION MAP

SCALE: 1" = 2000'

ATTACHMENT A
ROAD MAP

PAWELEK & MOY, INC.
CIVIL ENGINEERING & CONSULTING SERVICES
130 W. Jahn Street
New Braunfels, Texas 78130
tel: (830) 629-2563
fax: (830) 629-2564

TECHNICIAN:	D.G.III	DATE:	02-18-11
JOB NO.	0912.01	SHEET:	R1

ATTACHMENT B

USGS/EDWARDS RECHARGE ZONE MAP

Produced by the United States Geological Survey

Control by USGS ,NOS/NOAA and Texas Department of Highways & Public Transportation

Compiled from aerial photographs taken 1958. Revisions shown in purple compiled from aerial photographs taken 1986 and other sourcesand have been field checked. Map edited 1994 Conflicts mayexist between some updated features and previously mapped contours

North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks : Texas Coordinate System, south central zone (Lambert Conformal Conic)
Blue 1000-meter Universal Transverse Mercator ticks, zone 14

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minuteintersections are obtainable from National Geodetic Survey NADCON software

MN GN 0°28′ 8 MILS 6½° 116 MILS

UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TEXAS
QUADRANGLE LOCATION

2998-441

ROAD CLASSIFICATION

Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route — U. S. Route — State Route

HUNTER, TEX.
29098-G1-TF-024

1964
REVISED 1994
DMA 6343 I SE-SERIES V882

Produced by the United States Geological Survey

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1962. Revisions shown in purple compiled from aerial photographs taken 1986 and other sources and has been field checked. Map edited 1994 Conflicts may exist between some updated features and previously mapped contours

North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks : Texas Coordinate System, south central zone (Lambert Conformal Conic)
Blue 1000-meter Universal Transverse Mercator ticks, zone 14

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

Areas covered by dashed light-blue pattern are subject to controlled inundation

MN GN 0°24′ 7 MILS 6½° 116 MILS

UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TEXAS
QUADRANGLE LOCATION

2998-442

ROAD CLASSIFICATION

Primary highway, hard surface — Light-duty road, hard or improved surface
Secondary highway, hard surface — Unimproved road
Interstate Route — U. S. Route — State Route

SATTLER, TEX.
29098-G2-TF-024

1963
REVISED 1994
DMA 6343 I SW-SERIES V882

ATTACHMENT "C"
PROJECT DESCRIPTION

This 10.05 acre site is located on FM 306 in Comal County near the intersection of Purgatory Road and FM 306. The site consists of two abutting platted lots with the first being Lot 47 of Eden Ranch, Section 2 (5.05 acres) and the second being Lot 48A of a Resubdivision of Eden Ranch, Section 2 (5.00 acres). Lot 47, existing Park Place 4 RV's, is being utilized as a boat and recreational vehicle storage yard and does contain existing impervious cover consisting of approximately 24,037sf of roofs, 148,125sf flexible base, 6256sf of asphalt/concrete pavement, 90sf of concrete slab for a mailbox pad and 144sf of concrete slab for the existing water tank. The project site is located in the Jacobs Creek drainage basin but is not located in a FEMA 100 yr. flood plain according to FEMA FIRM Map 48091C0280F (effective 9/2/2009). The site generally drains from the northwest towards the southeast to a well defined low located on the southeastern property line.

The purpose of this project is to bring the existing Park Place 4 RV's site located on Lot 47 into compliance with the Texas Commission on Environmental Quality (TCEQ) guidelines regarding the Edwards Aquifer Recharge Zone as well as provide permanent Best Management Practices (BMP's) for proposed/future impervious cover located on both lots consisting of additional base material, roofs and pavement. Therefore, this WPAP will cover the entire 10.05 acre project site and will contain a combination of permanent BMP's consisting of a Partial Sedimentation/Filtration Basin to treat the existing impervious cover as well as portions of the future impervious cover located within the drainage basin contributing to this water quality pond. Additionally, Engineered Vegetative Filter Strips will be utilized along the existing driveway and portions of the future driveways.

The following table summarizes the impervious cover areas and the corresponding BMP for a total Impervious Cover of 52.2% for the overall site:

IMPERVIOUS COVER DESCRIPTION	PROPOSED BEST MANAGEMENT PRACTICE
Roof – 80,437 sf **Flexible Base – 126,835 sf** **Pavement – 12,717 sf** **Concrete Pad for Water Tank – 144 sf** **Mail Box Pad – 90 sf**	**Partial Sedimentation/ Filtration Basin**
Pavement – 8,406 sf	**Vegetative Filter Strips**
Total Impervious Cover = 228,629 sf (52.2%)	

GEOLOGIC SITE ASSESSMENT

PREPARED BY

FROST GEOSCIENCES

FOR

PARK PLACE 4 RV's

Geologic Site Assessment (WPAP)

for Regulated Activities / Development
on the Edwards Aquifer Recharge / Transition Zone

Park Place 4 RV's
10.05 Acres
Canyon Lake, Texas

FROST GEOSCIENCES CONTROL # FGS-E10102

August 31, 2010

Prepared exclusively for

Park Place 4RV's, LLC
P.O. BOX 2536
Canyon Lake, Texas 78133

Frost GeoSciences

Geotechnical ▪ Construction Materials
Forensics ▪ Environmental

13402 Western Oak • Helotes, Texas 78023 • Phone: (210) 372-1315 • Fax: (210) 372-1318

Frost GeoSciences
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Forensics • Environmental

13402 Western Oak
Helotes, Texas 78023
Phone (210) 372-1315
Fax (210) 372-1318
www.frostgeosciences.com
TBPE Firm Registration # F-9227
TBPG Firm Registration # 50040

August 31, 2010

Park Place 4RV's, LLC
P.O. BOX 2536
Canyon Lake, Texas 78133

Attn: Mr. Pat Kochis

Re: Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's
10.05 Acres
Canyon Lake, Texas

Frost GeoSciences, Inc. Control # FGS-E10102

Dear Sir:

Attached is a copy of the Geologic Assessment Report completed for the above referenced project site as it relates to 30 TAC §213.5(b)(3), effective June 1, 1999. Our investigation was conducted and this report was prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The results of our investigation, along with any recommendations for Best Management Practices (BMP's), are provided in the following report.

If you have any questions regarding this report, or if Frost GeoSciences, Inc. may be of additional assistance to you on this project, please feel free to call our office. It has been a pleasure to work with you and we wish to thank you for the opportunity to be of service to you on this project. We look forward to being of continued service.

Sincerely,
Frost GeoSciences, Inc.

Steve Frost

Steve Frost, C.P.G., P.G.
President, Senior Geologist

Distribution: (5) Pawelek & Moy, Inc.
(1) Park Place 4RV's, LLC

Table of Contents

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: Park Place 4 RV's

TYPE OF PROJECT: ✓ WPAP ___ AST ___ SCS ___ UST

LOCATION OF PROJECT: ✓ Recharge Zone ___ Transition Zone ___ Contributing Zone within the Transition Zone

PROJECT INFORMATION

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

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

Soil Units, Infiltration Characteristics & Thickness		
Soil Name	Group*	Thickness (feet)
Rumple-Comfort Association	C/D	1 to 2

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

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

Applicant's Site Plan Scale	1" = 40 '
Site Geologic Map Scale	1" = 40 '
Site Soils Map Scale (if more than 1 soil type)	1" = 500 '

6. Method of collecting positional data:

✓ Global Positioning System (GPS) technology.
✓ Other method(s). 2009 Aerial Photograph

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

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

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

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

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

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

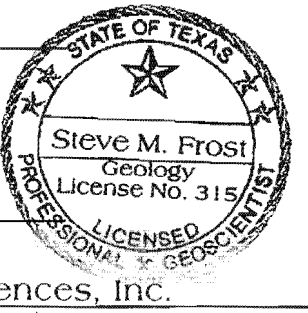
ADMINISTRATIVE INFORMATION

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

Date(s) Geologic Assessment was performed: November 30, 2009 & August 29, 2010
Date(s)

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

Steve Frost, C.P.G., P.G.
Print Name of Geologist



(210) 372-1315
Telephone

(210) 372-1318
Fax

Signature of Geologist

February 23, 2011
Date

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

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

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

Stratigraphic Column

[Hydrogeologic subdivisions modified from Maclay and Small (1976); groups, formations, and members modified from Rose (1972); lithology modified from Dunham (1962); and porosity type modified from Choquette and Pray (1970). CU, confining unit; AQ, aquifer]

Hydrogeologic subdivision		Group, formation, or member			Hydrologic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity/ permeability type
Upper Cretaceous	Upper confining units	Eagle Ford Group			CU	30 – 50	Brown, flaggy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/ low permeability
		Buda Limestone			CU	40 – 50	Buff, light gray, dense mudstone	Porcelaneous limestone with calcite-filled veins	Minor surface karst	Low porosity/low permeability
		Del Rio Clay			CU	40 – 50	Blue-green to yellow-brown clay	Fossiliferous; *Ilymatogyra arietina*	None	None/primary upper confining unit
Lower Cretaceous	I	Georgetown Formation			Karst AQ; not karst CU	2 – 20	Reddish-brown, gray to light tan marly limestone	Marker fossil; *Waconella waconensis*	None	Low porosity/low permeability
	II	Edwards Group	Person Formation	Cyclic and marine members, undivided	AQ	80 – 90	Mudstone to packstone; *miliolid* grainstone; chert	Thin graded cycles; massive beds to relatively thin beds; crossbeds	Many subsurface; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding
	III			Leached and collapsed members, undivided	AQ	70 – 90	Crystalline limestone; mudstone to grainstone; chert; collapsed breccia	Bioturbated iron-stained beds separated by massive limestone beds; stromatolitic limestone	Extensive lateral development, large rooms	Majority not fabric/one of the most permeable
	IV			Regional dense member	CU	20 – 24	Dense, argillaceous mudstone	Wispy iron-oxide stains	Very few; only vertical fracture enlargement	Not fabric/low permeability; vertical barrier
	V		Kainer Formation	Grainstone member	AQ	50 – 60	*Miliolid* grainstone; mudstone to wackestone; chert	White crossbedded grainstone	Few	Not fabric/ recrystallization reduces permeability
	VI			Kirschberg evaporite member	AQ	50 – 60	Highly altered crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame	Probably extensive cave development	Majority fabric/one of the most permeable
	VII			Dolomitic member	AQ	110 – 130	Mudstone to grainstone; crystalline limestone; chert	Massively bedded light gray, *Toucasia* abundant	Caves related to structure or bedding planes	Mostly not fabric; some bedding plane-fabric/water-yielding
	VIII			Basal nodular member	Karst AQ; not karst CU	50 – 60	Shaly, nodular limestone; mudstone and *miliolid* grainstone	Massive, nodular and mottled, *Exogyra texana*	Large lateral caves at surface; a few caves near Cibolo Creek	Fabric; stratigraphically controlled/large conduit flow at surface; no permeability in subsurface
	Lower confining unit	Upper member of the Glen Rose Limestone			CU; evaporite beds AQ	350 – 500	Yellowish tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds; relatively impermeable

GEOLOGIC ASSESSMENT TABLE | PROJECT NAME: Park Place 4 RV's | FGS-E10102

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1	2*	3*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT²)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						< 40	> 40	<1.6	>1.6	
S-1	29° 51.036'	98° 7.277'	CD	5	Kek	2	3	1.5						7	12	12		X		Hillside
S-2	29° 50.957'	98° 7.366'	CD	5	Kek	2	2	1						7	12	12		X		Hillside
S-3	29° 50.938'	98° 7.273'	CD	5	Kek	4	4	2						12	17	17			X	Drainage
S-4	29° 50.940'	98° 7.259'	O^VR	5	Kek	7	25	-	-	-	3/4	0.25	F	12	17	17			X	Drainage
S-5	29° 51.010'	98° 7.191'	SH	20	Kek	3	3	0.5					F	7	27	27		X		Hillside

* DATUM 1984 North American Datum (NAD83)

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

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

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

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

Signature Steve Frost Date August 31, 2010 Sheet 1 of 1

STATE OF TEXAS
SME
Steve M. Frost
Geology
License No. 315
LICENSED PROFESSIONAL GEOSCIENTIST
8/31/10

LOCATION

The project site consists of 10.05 Acres located along and north of F.M. 306 west of the intersection of Purgatory Road in Canyon Lake, Texas. An overall view of the area is shown on copies of the site plan, a street map, the USGS Topographic Map, the Official Edwards Aquifer Recharge Zone Map, the Flood Insurance Rate Map (FIRM), geologic maps, a 2009 aerial photograph at a scale of 1"=500', a 2009 aerial photograph at a scale of 1"=200', and a 1973 aerial photograph at a scale of 1"=500', Plates 1 through 9 in Appendix A.

METHODOLOGY

The Geologic Assessment was performed by Mr. Steve Frost, C.P.G., President and Senior Geologist with Frost GeoSciences, Inc. Mr. Frost is a Licensed Professional Geoscientist in the State of Texas (License # 315) and is a Certified Professional Geologist with the American Institute of Professional Geologist (Certification # 10176).

Frost GeoSciences, Inc. researched the geology of the area in the immediate vicinity of the project site. The research included, but was not limited to, the Geologic Atlas of Texas, San Antonio Sheet, FIRM maps, Edwards Aquifer Recharge Zone Maps, USGS 7.5 Minute Quadrangle Maps, the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, the USGS Water-Resources Investigations Report 94-4117 and the USDA Soil Survey of Comal & Hays County, Texas.

After reviewing the available information, a field investigation was performed to identify any geologic or man-made potential recharge features. A transect spacing of approximately 50 feet or less, depending on vegetation thickness, was used to inspect the project site. A 2009 aerial photograph, in conjunction with a hand held Garmin eTrex Summit Global Positioning System with an Estimated Potential Error ranging from 10 to 15 feet, was used to navigate around the property and identify the locations of potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The locations of any potential recharge features noted in the field were identified with blue and white flagging. The flagging is numbered with the same potential recharge feature I.D. # that is used on the Site Geologic Map

in Appendix C of this report. The Site Geologic Map indicating the limits of the project site is included in Appendix C. A copy of a 2009 aerial photograph at an approximate scale of 1"=200', indicating the locations of the potential recharge features, is included on Plate 8 in Appendix A. The Geologic Assessment Form, Stratigraphic Column and the Geologic Assessment Table have been filled with the appropriate information for this project site and are included on pages 1-4 of this report.

RESEARCH & OBSERVATIONS

7.5 Minute Quadrangle Map Review

According to the USGS 7.5 Minute Quadrangle Map, Hunter, Texas Sheet (1994), the elevation of the project site ranges from approximately 980 feet along the southeastern property line to 1025 feet at the northwestern property corner. These elevations are calculated above mean sea level (AMSL). The surface runoff from the project site flows to the southeast into an unnamed tributary of Jacobs Creek. F.M. 306 is located immediately south of the project site. Purgatory Road is located approximately 750 feet to the east. A copy of the above referenced USGS 7.5 Minute Quadrangle Map , indicating the location of the project site, is included in this report on Plate 3 in Appendix A.

Recharge / Transition Zone

According to Official Edwards Aquifer Recharge Zone Map 31, Hunter, Texas Sheet (1996), the project site is located within the Recharge Zone of the Edwards Aquifer. A copy of Official Edwards Aquifer Recharge Zone Map 31, indicating the location of the project site, is included on Plate 4 in Appendix A.

100-Year Floodplain

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Comal County, Texas, Community Panel Number 48091C0280F (Revised 9/02/09) was reviewed to determine if the project site is located in areas prone to flooding. A review of the above-mentioned panel indicates that no portion of the project site is located within the 100 year floodplain. The project site is located within Zone X. According to the panel legend, Zone X

represents areas determined to be outside the 0.2% annual chance floodplain. A copy of the Comal County, Texas, FIRM map, indicating the location of the project site, is included in this report on Plate 5 in Appendix A.

Soils

According to the United States Department of Agriculture, Soil Conservation Service, Soil Survey of Comal & Hays County, Texas (1982), the project site is located on the Rumple-Comfort Association (RUD). A copy of the 1973 aerial photograph (approximate scale: 1"=500') from the USDA Soil Survey of Comal & Hays County, Texas indicating the location of the project site and the soil types is included on Plate 9 in Appendix A.

The Rumple-Comfort Association (RUD) consists of shallow and moderately deep soils on uplands in the Edwards Plateau Land Resource Area. The surface layer of the Rumple Soil is dark reddish brown very cherty clay loam about 10 inches thick. Rounded chert and limestone cobbles and gravel cover about 20 percent of the surface. The subsoil to a depth of 14 inches is dark reddish-brown very cherty clay, and to a depth of 28 inches it is dark reddish-brown extremely stony clay. The underlying material is indurated fractured limestone. The Comfort Soil is dark brown, neutral, extremely stony clay about 7 inches thick. The subsoil to a depth of 12 inches is dark reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated fractured limestone. The soil is noncalcareous throughout. The soils in this association are well drained. Surface runoff is medium, but varies due to the occurrence of caves, fracture zones, and sinks. Permeability is moderately slow. Water erosion is a moderate hazard.

Narrative Description of the Site Geology

A portion of the project site is currently developed as the Park Place 4 RV's. It is our understanding that the improvements to the project site were constructed without a prior geologic assessment or WPAP. This portion of the development occurred on Lot 47. A considerable amount of base was placed, spread, and compacted, and two large structures

have been constructed to be used for parking RV's, boats, etc. Since the majority of the Lot 47 is now covered and does not allow FGS to visually inspect the ground surface at the site, FGS will rely on historic aerial photographs and the site conditions on immediately adjoining properties to assess the potential for recharge on the property. Frost GeoSciences, Inc. identified five potential recharge features (PRF's) within the limits of the project site at the time of the on-site inspection on November 30, 2009 and August 29, 2010. Lot 47 was inspected on November 30, 2009 and Lot 48A was inspected on August 29, 2010. The five PRF's consisted of three non karst closed depressions, an outcrop of vuggy limestone, and a small area of soil deflation. An excavated hole planned to be used as a pier footing for one of the structures on Lot 47 was inspected at the time of our site visit. The excavated hole was approximately 10 inches in diameter and 2 1/2 feet deep. An inspection of the interior of the excavation indicated that a thin veneer of flex-base was noted at the surface and was underlain by at least 2 feet of dense tan to brown clay with limestone cobbles. These excavated holes appear to be representative of the native conditions on Lot 47 prior to any improvements. This being the case, FGS is of the opinion that the project site would have few rock outcrops and little to no chance for recharge into the Edwards Aquifer. Two PRF's were identified during our site inspection of Lot 47 on November 30, 2009. Three additional PRF's were identified during our site inspection of Lot 48A on August 29, 2010.

PRF # S-1 consists of a non-karst closed depression located along the western fence line of Lot 47. An inspection of the feature shows roots that were torn out. In a conversation with the owner, Mr. Kochis indicated that some trees in the area had to be removed in order to clear for the fence. Frost GeoSciences, Inc., rates the relative infiltration of this feature as low on figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 12 on the sensitivity scale, column 10 in the Geologic Assessment Table on page 4 of this report. FGS is of the opinion that this is not a sensitive feature.

PRF # S-2 is also a non-karst closed depression that appears to have been created when a boulder was plucked out near the southwestern property corner of Lot 47. Frost

GeoSciences, Inc., rates the relative infiltration of this feature as low on figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 12 on the sensitivity scale, column 10 in the Geologic Assessment Table on page 4 of this report. FGS is of the opinion that this is not a sensitive feature.

PRF # S-3 consists of a non karst closed depression resulting from a collapsed animal burrow. The burrow appears to be four feet in diameter and approximately 1.5 to 2 feet deep. A machete used to probe the feature indicated hard reddish brown clay at the bottom. No evidence of dissolution was noted. Frost GeoSciences, Inc., rates the relative infiltration of this feature as low on figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 17 on the sensitivity scale, column 10 in the Geologic Assessment Table on page 4 of this report. FGS is of the opinion that this is not a sensitive feature.

PRF # S-4 consists of a small outcrop of vuggy limestone approximately seven feet wide and twenty five feet long. The vugs average three to four inches in diameter but appear to be surficial and do not extend at depth. The vugs are filled in with loose soils and leaves and hard packed brownish red clay. Frost GeoSciences, Inc., rates the relative infiltration of this feature as low on figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 17 on the sensitivity scale, column 10 in the Geologic Assessment Table on page 4 of this report. FGS is of the opinion that this is not a sensitive feature.

PRF # S-5 consists of a small shallow area of soil deflation. This type of feature is commonly associated with a downed tree or plucked boulder, however, this feature did not appear to be in an area that had been cleared and is most likely an area where surface soils have washed into the subsurface through a small solution cavity or fracture. A machete was used to probe the bottom of the feature and was found to consist of dark brown clay. Frost GeoSciences, Inc., rates the relative infiltration of this feature as low on figure 1 of the TCEQ-0585-Instructions (Rev. 10-01-04). This feature scores a 27 on the sensitivity scale, column 10 in the Geologic Assessment Table on page 4 of this report. FGS is of the opinion that this is not a sensitive feature.

The southern portion of Lot 47 is covered by a sparse stand of vegetative cover. Lot 48A is covered by dense stands of vegetative cover with open areas of native grasses. The overall vegetative cover on the project site consists of Ashe juniper (*Juniperus ashei*), Live Oak (*Quercus virginiana*) and Texas Persimmon (*Diospyros texana*) with a sparse stand of native grasses. The majority of Lot 47 is covered by a flex-base parking area where all of the vegetative cover and native conditions are no longer visible. The variations in the vegetative cover across the project site are visible in the 2009 aerial photographs on Plates 7 and 8 in Appendix A and in the site visit photographs included in Appendix B.

According to the USGS 7.5 Minute Quadrangle Map, Hunter, Texas Sheet (1994), the elevation of the project site ranges from 980 feet to 1025 feet. These elevations are calculated above mean sea level (AMSL). According to topographic data obtained from Pawelek & Moy, Inc., the elevations on the project site range from 998 feet in the southeastern portion of the project site to 1025 feet near the northwestern property corner. A copy of the site plan, indicating the boundary of the project site and the elevations, is included on Plate 1 in Appendix A and on the Site Geologic Map in Appendix C of this report.

According to the WRI 94-4117 Geologic Map of Comal County, Texas, and the Bureau of Economic Geology, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000), the project site is covered by the Dolomitic Member of the Cretaceous Edwards Kainer Limestone.

The Dolomitic Member of the Edwards Kainer Limestone consists of mudstone to grainstone with crystalline limestone and chert. This member is massively bedded and light gray with abundant fossils of Toucasia. Karst features within this member are typically related to structure or bedding planes. Overall thickness ranges from 110 to 130 feet.

The WRI 94-4117 indicates that a fault is located southeast of the project site, however no rock outcrops on the project site or adjoining properties showed evidence of fractures related to this fault. No evidence of the fault was noted in the F.M. 306 Right-of-way.

A copy of the WRI 94-4117 Geologic Map, indicating the location of the project site, is included on Plate 6a in Appendix A. A copy of the Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle, indicating the location of the project site, is included on Plate 6b in Appendix A.

Historical aerial photography was used to obtain information about the native conditions on Lot 47 and when these conditions changed with time. Historical aerial photographs were obtained from 1996, 2004, 2008, and the most current available, 2009.

1996 Aerial Photograph: USGS: This photograph indicates that the project site is covered by a sparse stand of trees with open grassy areas. No evidence of significant rock outcrops are visible at this time. A copy of this aerial photograph is included on Plate 10 in Appendix A.

2004 Aerial Photograph: NAIP: This photograph indicates that a considerable amount of clearing has taken place in the northern portion of Lot 47. Overall the site appears to be covered by a sparse stand of trees with open grassy areas, and large open grassy areas with sparse trees noted in the central and northern portions of Lot 47. Small areas of limestone rubble/outcrop are visible in the northern portion of Lot 47. A copy of this aerial photograph is included on Plate 11 in Appendix A.

2008 Aerial Photograph: LAI: This photograph indicates that the property, for the most part, is the same as the 2004 aerial photograph. Overall the site appears to be covered by a sparse stand of trees with open grassy areas in the southern portion, and large open grassy areas with sparse trees noted in the central and northern portions of Lot 47. A few additional trees have been removed in the central and northern portions of Lot 47. The small areas of limestone rubble/outcrop visible in the previous photograph appear to be mostly grown over by native grasses. This would be indicative of a well developed soil cover. A copy of this aerial photograph is included on Plate 12 in Appendix A.

2009 Aerial Photograph: CCEO: This photograph indicates that Lot 47 appears to be mostly developed at this time. Lot 47 appears to be covered by a sparse stand of trees with open grassy areas in the southern portion, and a large flex-base covered parking area in the central and northern portions. A copy of this aerial photograph is included on Plate 7 in Appendix A.

BEST MANAGEMENT PRACTICE (BMP)

Based on a visual inspection of the ground surface, an inspection of the excavated hole, and the research performed for this project, the overall potential

for fluid flow from the project site into the Edwards Aquifer appears to be low. The potential always exists to encounter subsurface features that lack a surface expression. Frost GeoSciences, Inc. recommends that we be included in the pre-construction meeting to inform construction personnel of the potential to encounter subsurface karst features during excavating activities. Construction personnel should also be informed of the proper protocol to follow in the event that a solution cavity and/or cave is encountered during the excavation and development of the property.

DISCLAIMER

This report has been prepared in general accordance with the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04) by a Licensed Texas Professional Geoscientist. All areas of the project site were carefully inspected for features that could contribute to the recharge of the Edwards Aquifer, however, this survey cannot preclude the presence of subsurface karst features that lack surface expression. This report is not intended to be a definitive investigation of all possible geologic or karst features at this site. All conclusions, opinions and recommendations for Best Management Practices (BMP's) in this report are based on information obtained while researching the project and on the site conditions at the time of our field investigation.

This report has been prepared for and may be relied upon by Park Place 4RV's, LLC, and Pawelek & Moy, Inc. This report is based on available known records, a visual inspection of the project site and the work generally accepted for a Geologic Assessment TAC §213.5(b)(3), effective June 1, 1999.

REFERENCES

1) USGS 7.5 Minute Quadrangle Map, Hunter, Texas Sheet (1994),

2) Official Edwards Aquifer Recharge Zone Map 31, Hunter, Texas Sheet (1996).

3) Stein, W.G. and Ozuna, G.B., 1995, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer Recharge Zone, Comal County, Texas. U.S. Geological Survey Water Resources Investigations 94-4117.

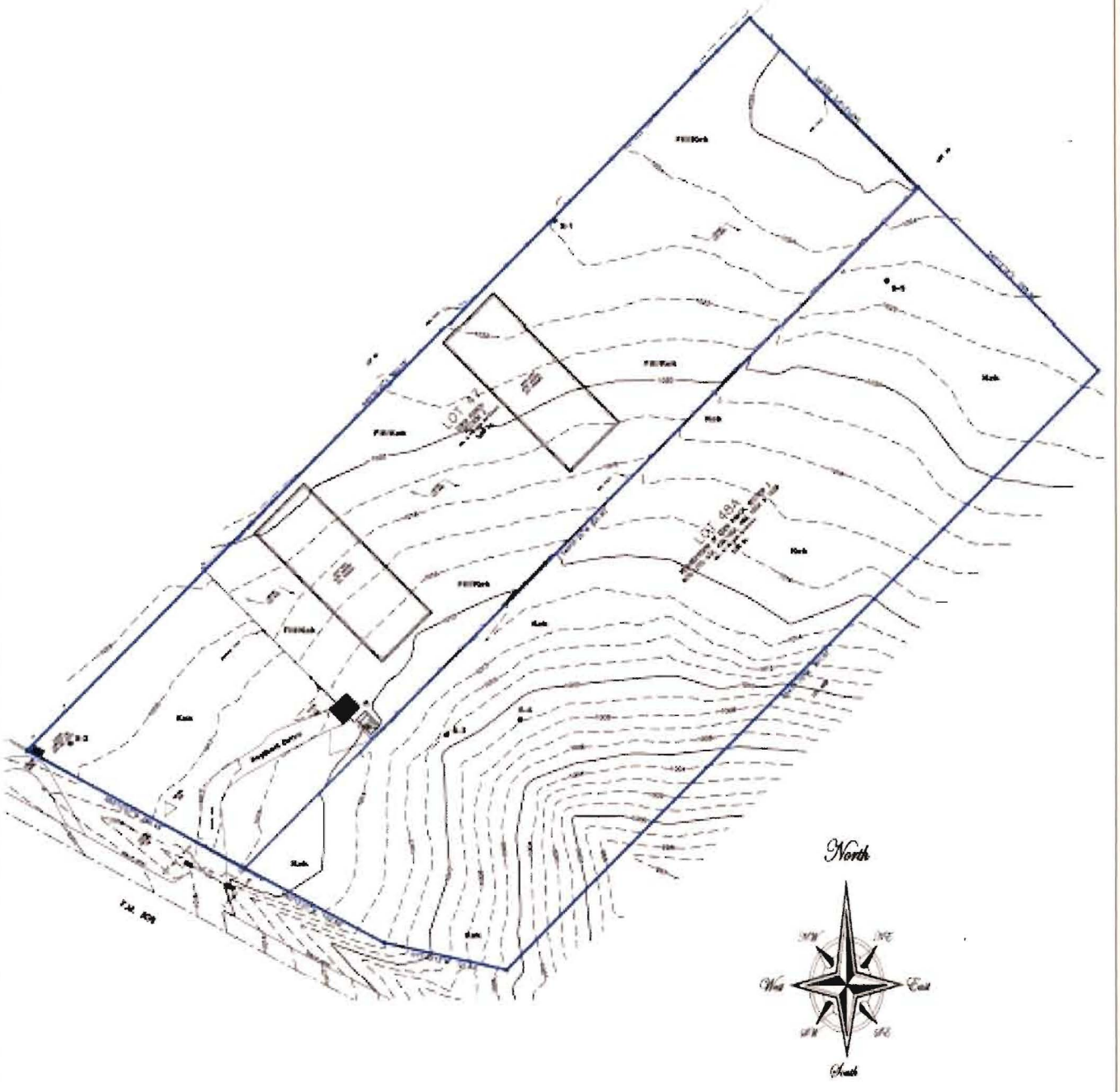
4) Collins, Edward, W., 2000, Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle.

5) Federal Emergency Management Agency (FEMA), Bexar County, Texas and Incorporated Areas, Flood Insurance Rate Map (FIRM), Panel 48091C0280F (9/02/09) FEMA, Washington D.C.

7) USDA Soil Conservation Service, Soil Survey of Comal & Hays Counties, Texas (1982).

8) TCEQ-0585-Instructions (Rev. 10-1-04). "Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zone".

Frost GeoSciences

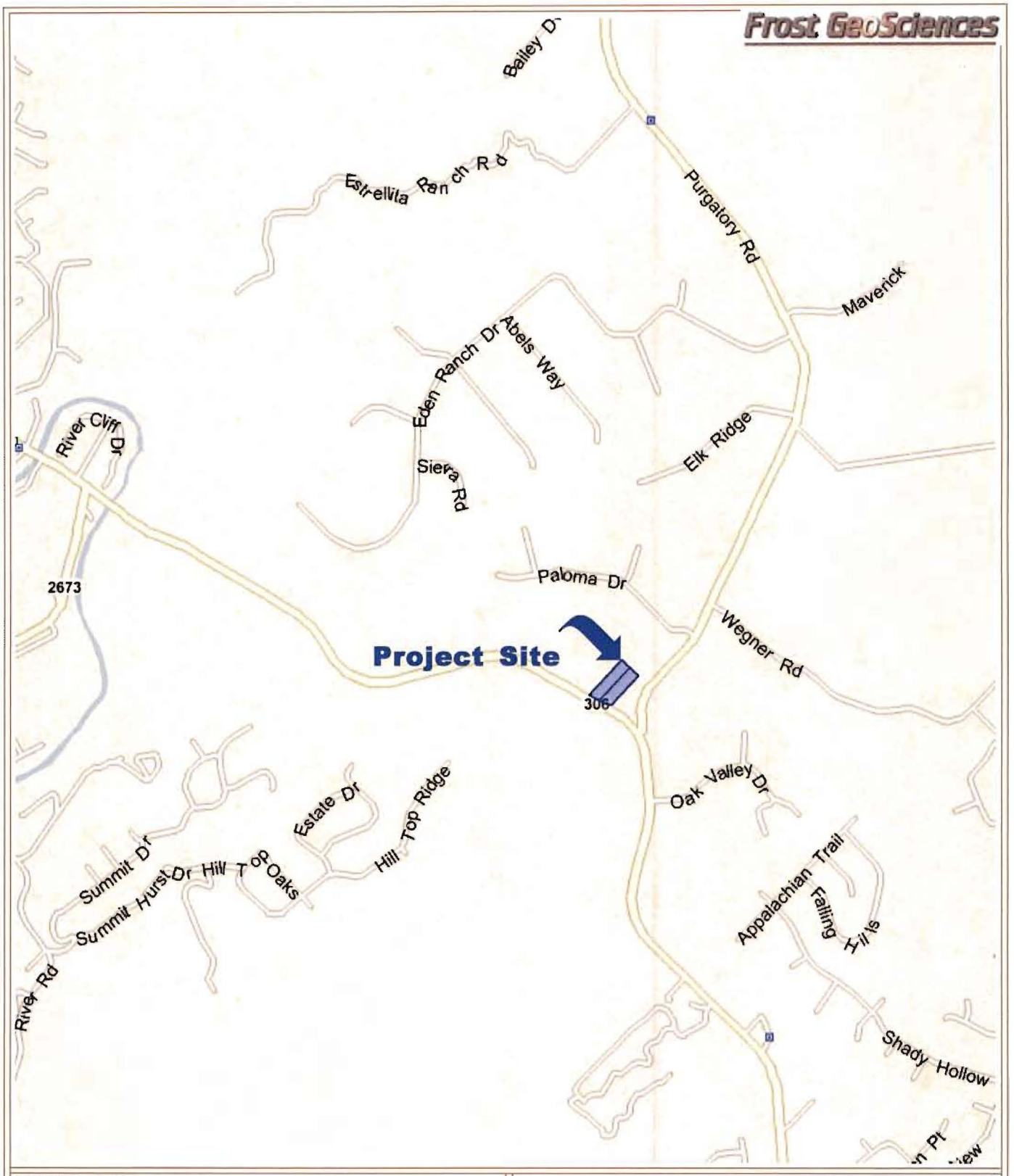


PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

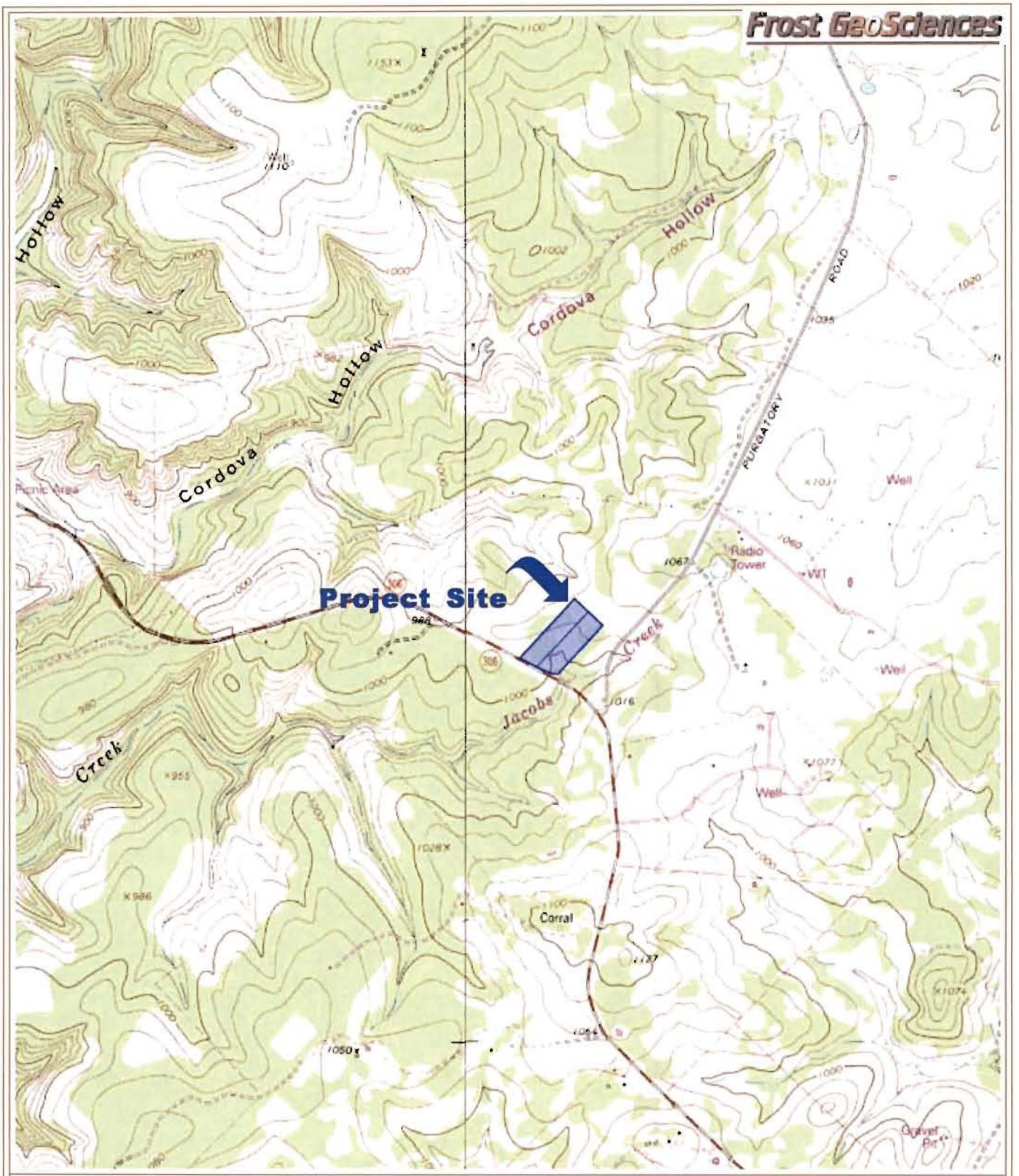
Site Plan

PROJECT NO.: FGS-E10102

DATE: August 31, 2010



PROJECT NAME:	Street Map	
Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone Park Place 4 RV's, 10.05 Acres Canyon Lake, Texas	PROJECT NO.: FGS-E10102	DATE: August 31, 2010



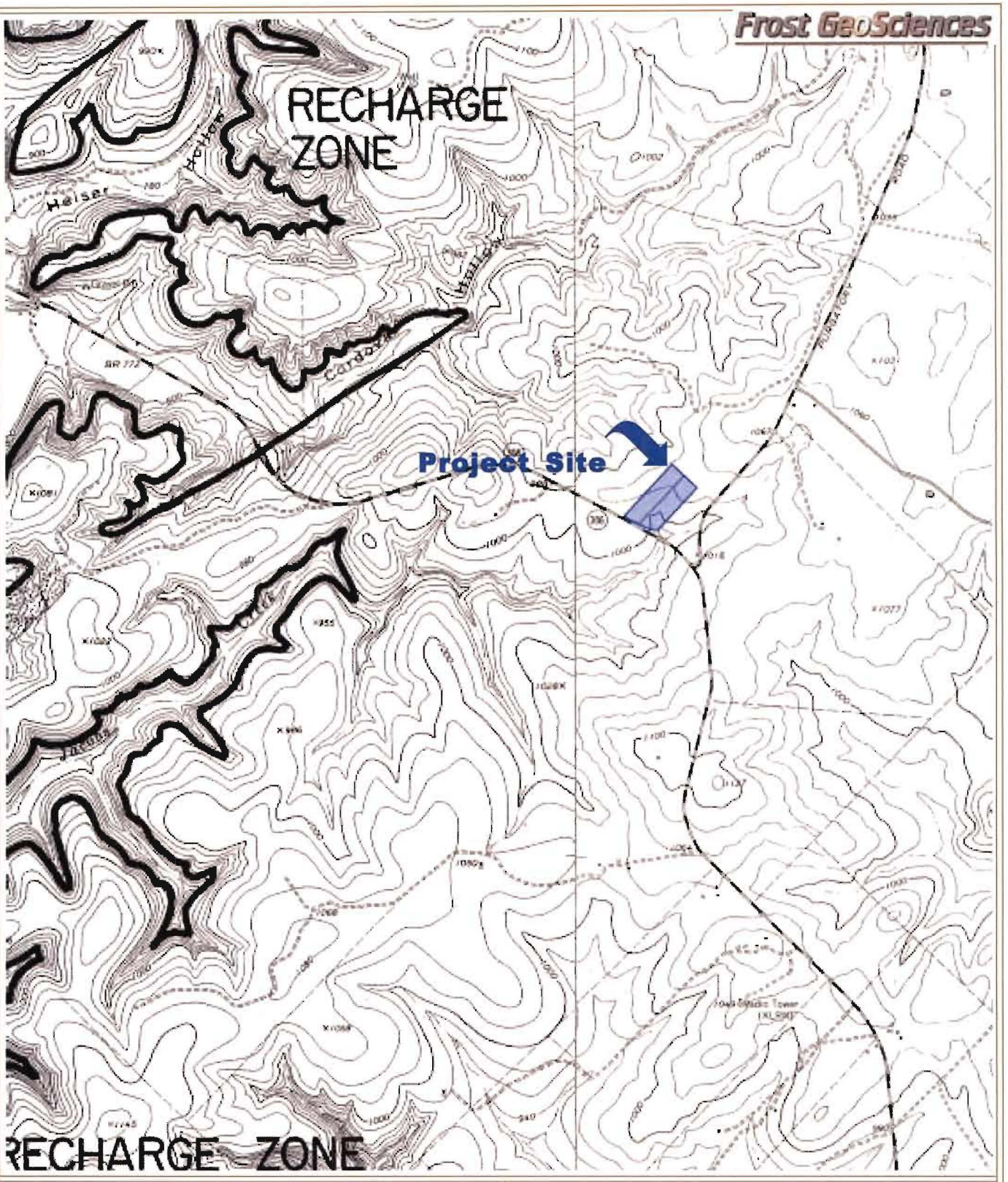
PROJECT NAME:

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

U.S.G.S. 7.5 Minute Quadrangle Map
Hunter, Texas Sheet (1994)

PROJECT NO.: FGS-E10102

DATE: August 31, 2010

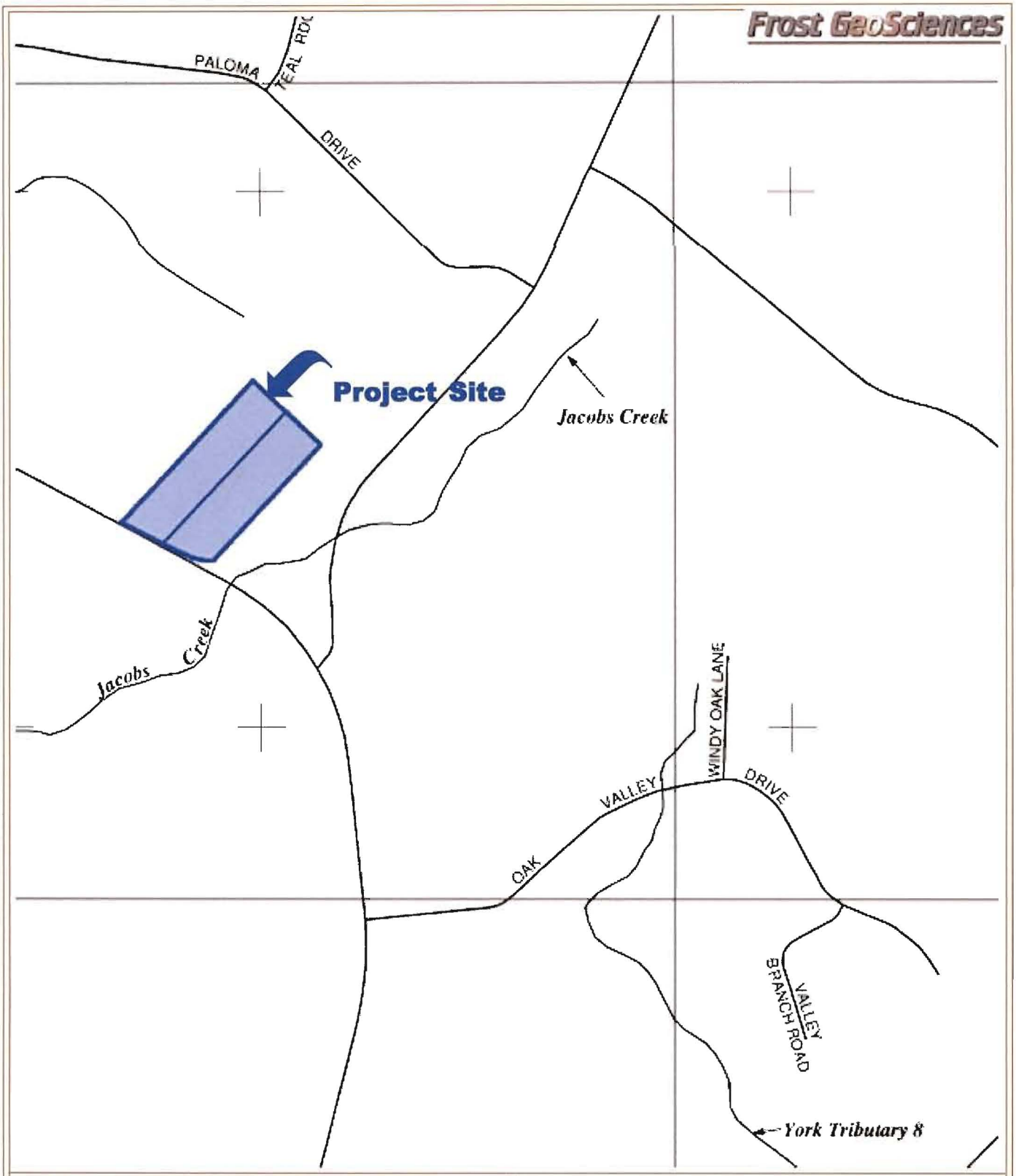


PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

Official Edwards Aquifer Recharge Zone Map
Hunter, Texas Sheet (1996)

PROJECT NO.: FGS-E10102

DATE: August 31, 2010



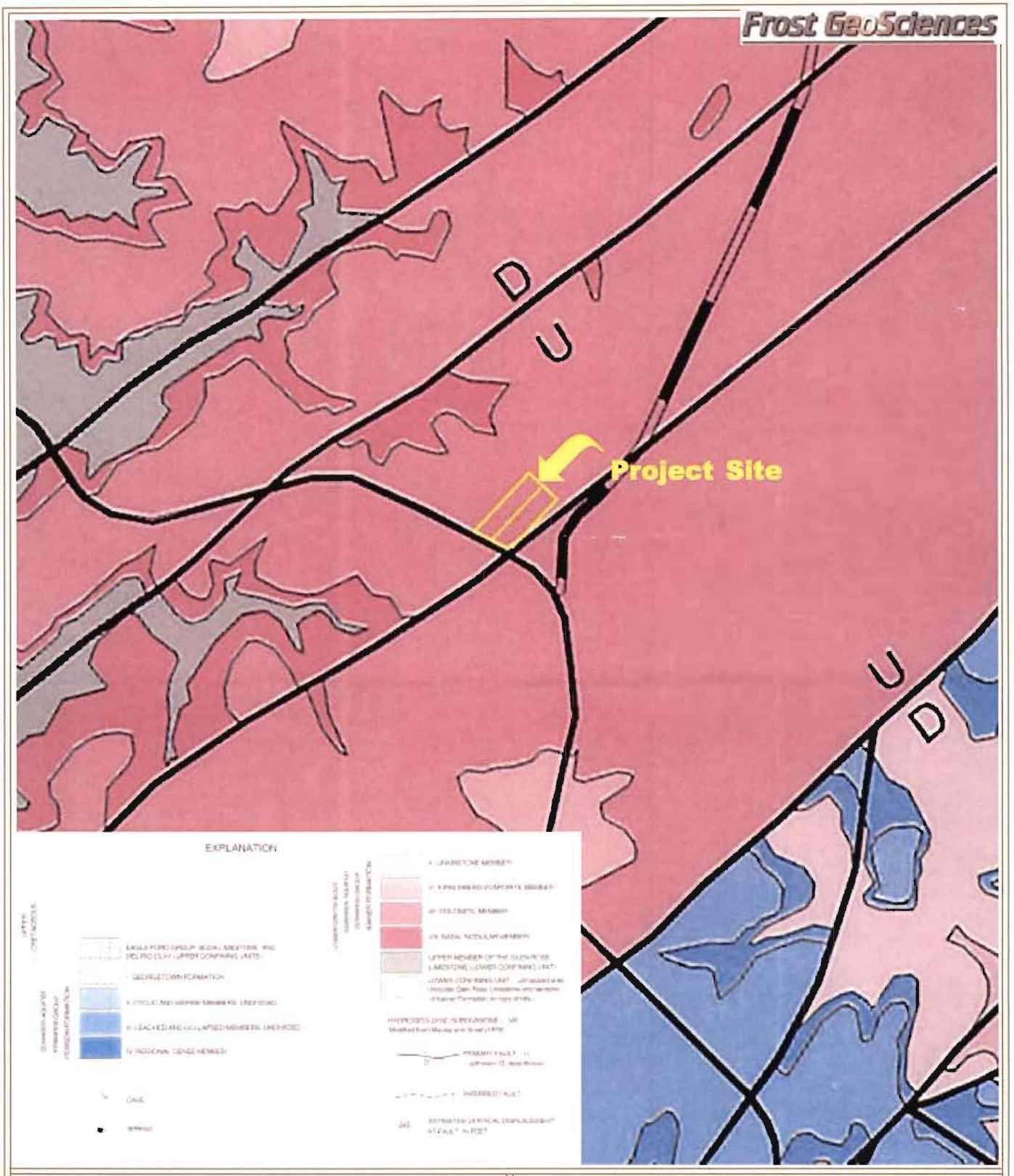
PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

Flood Insurance Rate Map (FIRM)
Community Panel # 48091C0280F
(Revised 9/02/09)

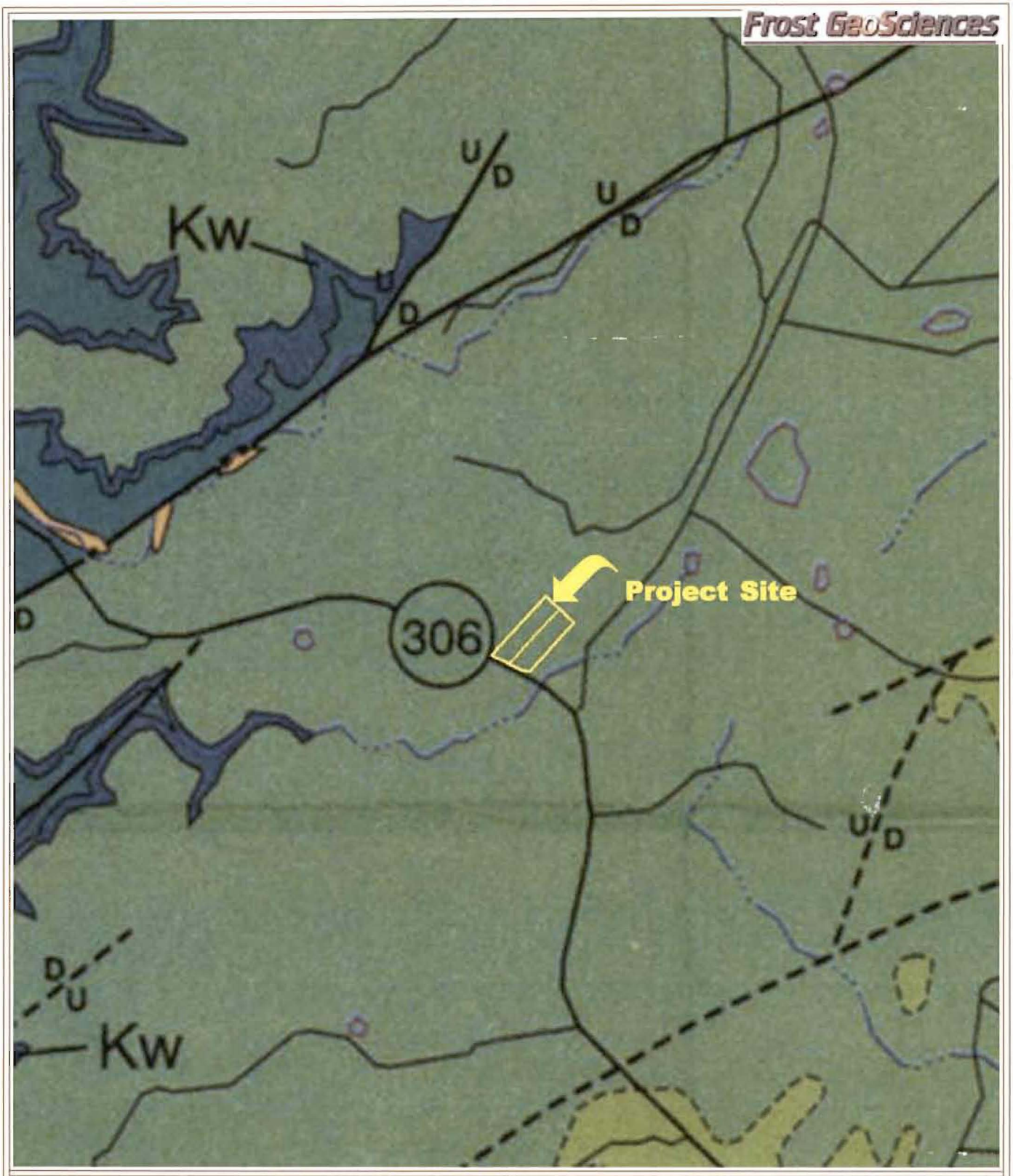
PROJECT NO.: FGS-E10102

DATE: August 31, 2010

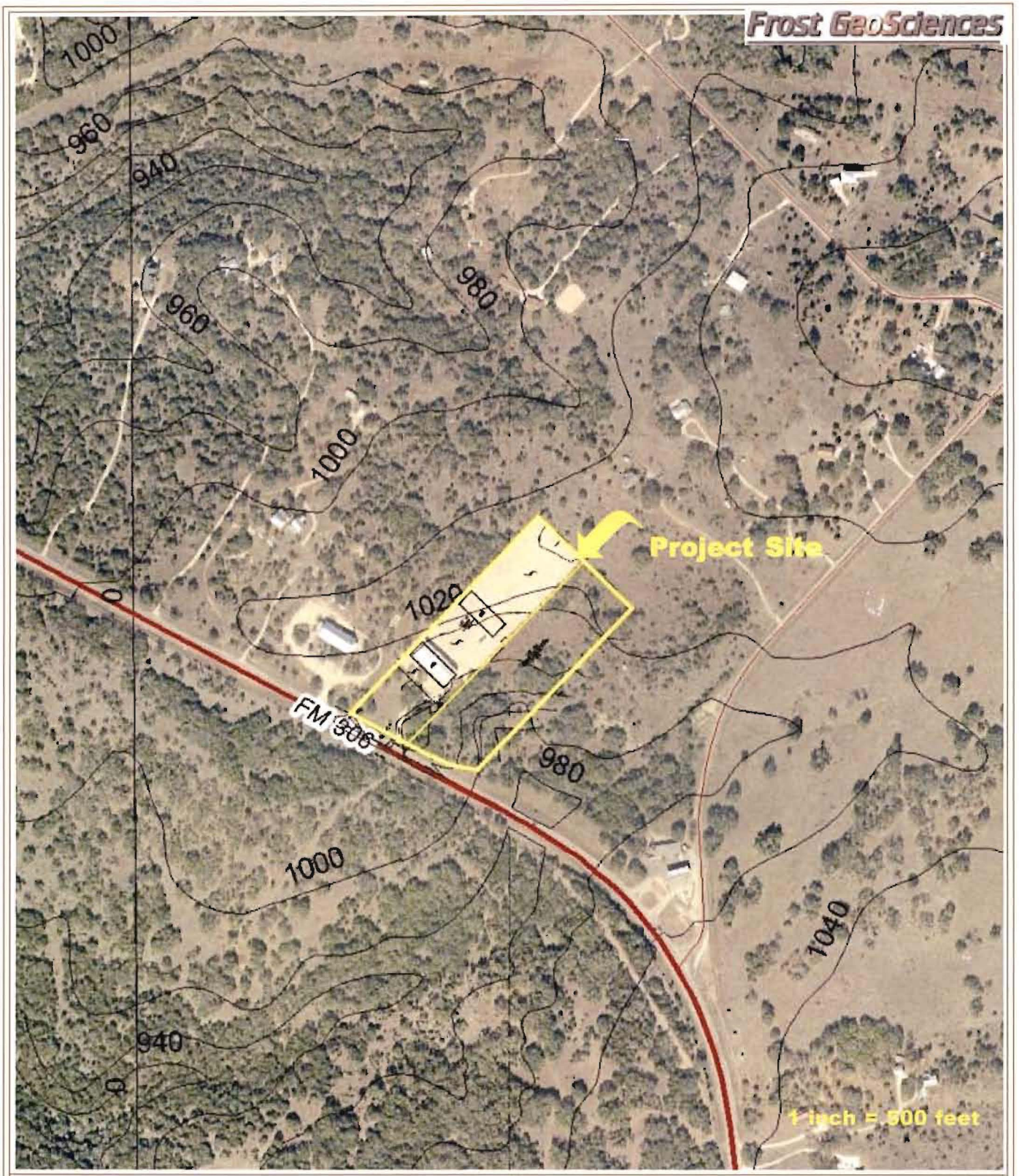
Frost GeoSciences



PROJECT NAME: Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone Park Place 4 RV's, 10.05 Acres Canyon Lake, Texas	United States Geologic Survey Water Resources Investigations #94-4117 Geologic Map of Comal County, Texas
	PROJECT NO.: FGS-E10102 / **DATE:** August 31, 2010



PROJECT NAME:	Bureau of Economic Geology Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000)	
Geologic Site Assessment (WPAP) for Regulated Activities / Development on the Edwards Aquifer Recharge / Transition Zone Park Place 4 RV's, 10.05 Acres Canyon Lake, Texas	PROJECT NO.: FGS-E10102	DATE: August 31, 2010



PROJECT NAME:

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

2009 Aerial Photograph

Comal County Engineers Office

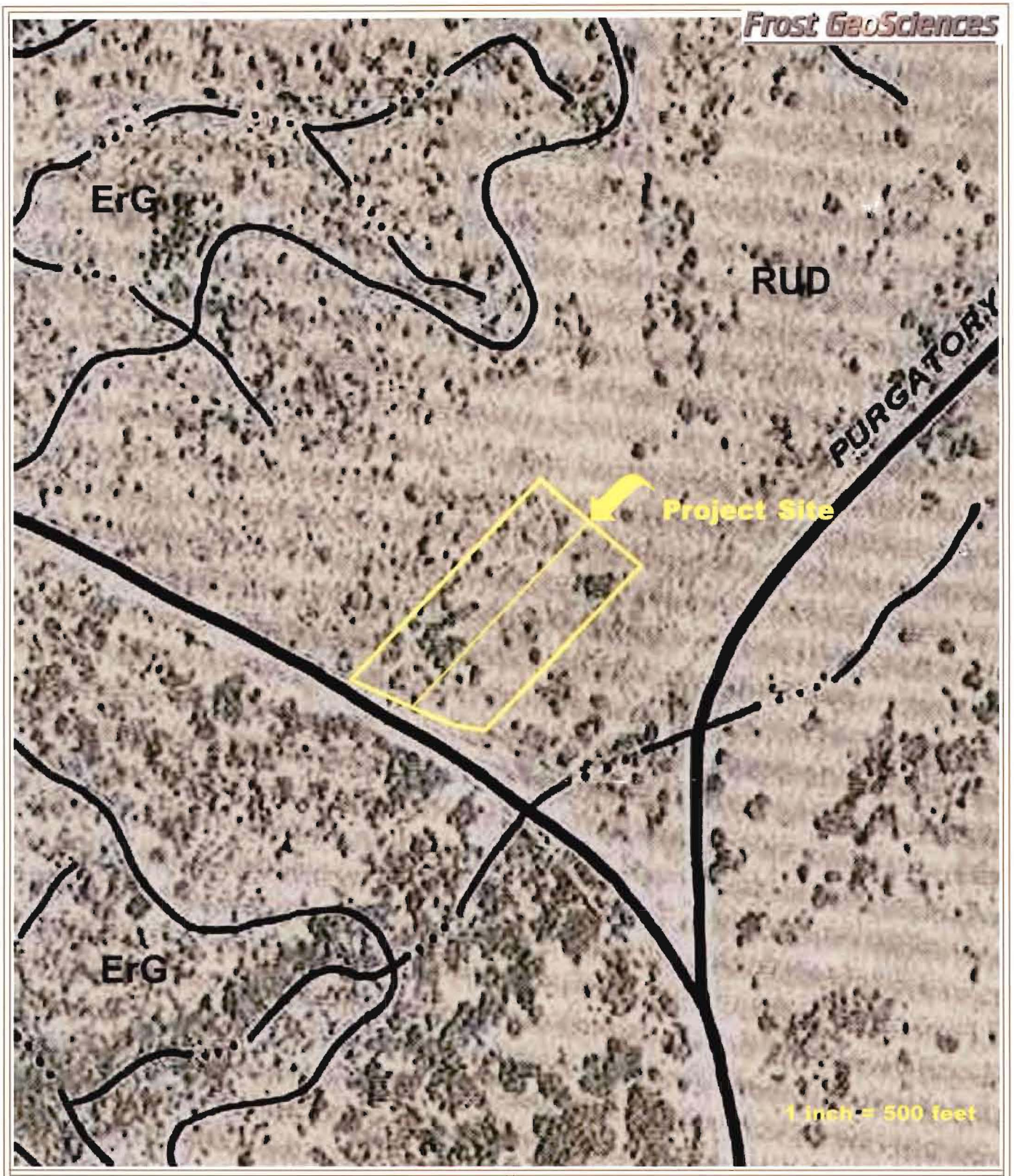
PROJECT NO.:	DATE:
FGS-E10102	August 31, 2010

PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

2009 Aerial Photograph with PRF's
Comal County Engineers Office

PROJECT NO.: FGS-E10102

DATE: August 31, 2010



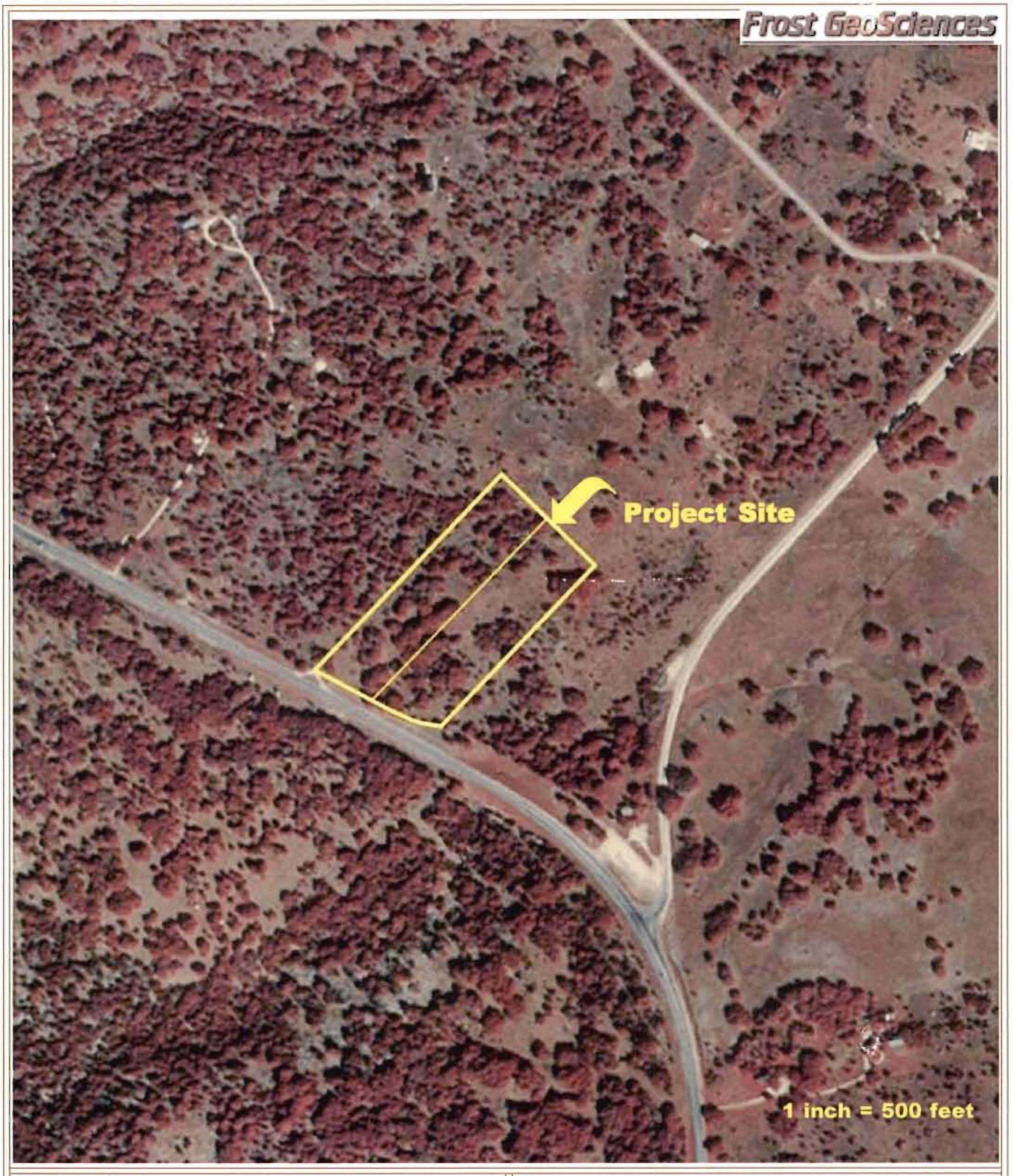
PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

1973 Aerial Photograph

United States Department of Agriculture

PROJECT NO.:	DATE:
FGS-E10102	August 31, 2010

Frost GeoSciences



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

1996 Aerial Photograph
United States Geological Survey

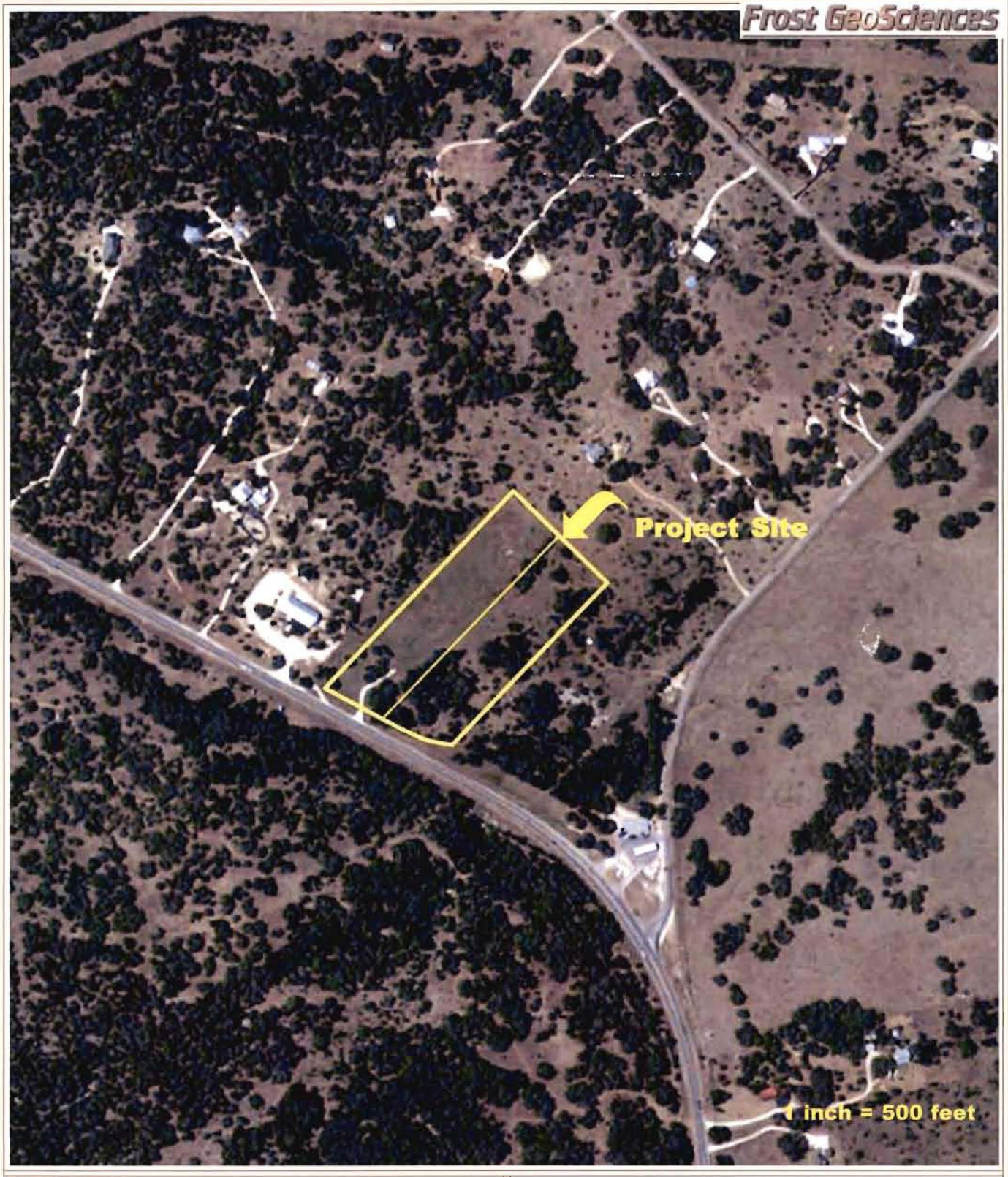
PROJECT NO.:	DATE:
FGS-E10102	August 31, 2010

Frost GeoSciences

PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

2004 Aerial Photograph
National Agricultural Imagery Program

PROJECT NO.:	DATE:
FGS-E10102	August 31, 2010



PROJECT NAME:
Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
Park Place 4 RV's, 10.05 Acres
Canyon Lake, Texas

2008 Aerial Photograph
Landiscor Aerial Information

PROJECT NO.:	DATE:
FGS-E10102	August 31, 2010

View of the entrance into the Park Place 4 RV's property.

View to the north, of the southern portion of Lot 47 along the western property line.

View to the north, of the southern portion of Lot 47 along the Lot 47 / Lot 48A Lot Line.

View to the north, of the central portion of Lot 47 along the Lot 47 / Lot 48A Lot Line.

View of one of the two covered improvements in the central portion of Lot 47.

Typical view of vegetative cover and rock outcrops on Lot 48A.

View to the south, of the northern portion of Lot 47 along the Lot 47 / Lot 48A Lot Line.

View to the east, of Lot 47 along the northern property line.

View to the south, of the northern portion of Lot 47 along the western property line.

View of an excavated footing showing the depth of topsoil on a portion of Lot 47.

Typical view of vegetative cover and rock outcrops immediately north of Lot 47.

View of Potential Recharge Feature # S-4, vuggy rock outcrop.

View to the east, of Lot 48A along F.M. 306.

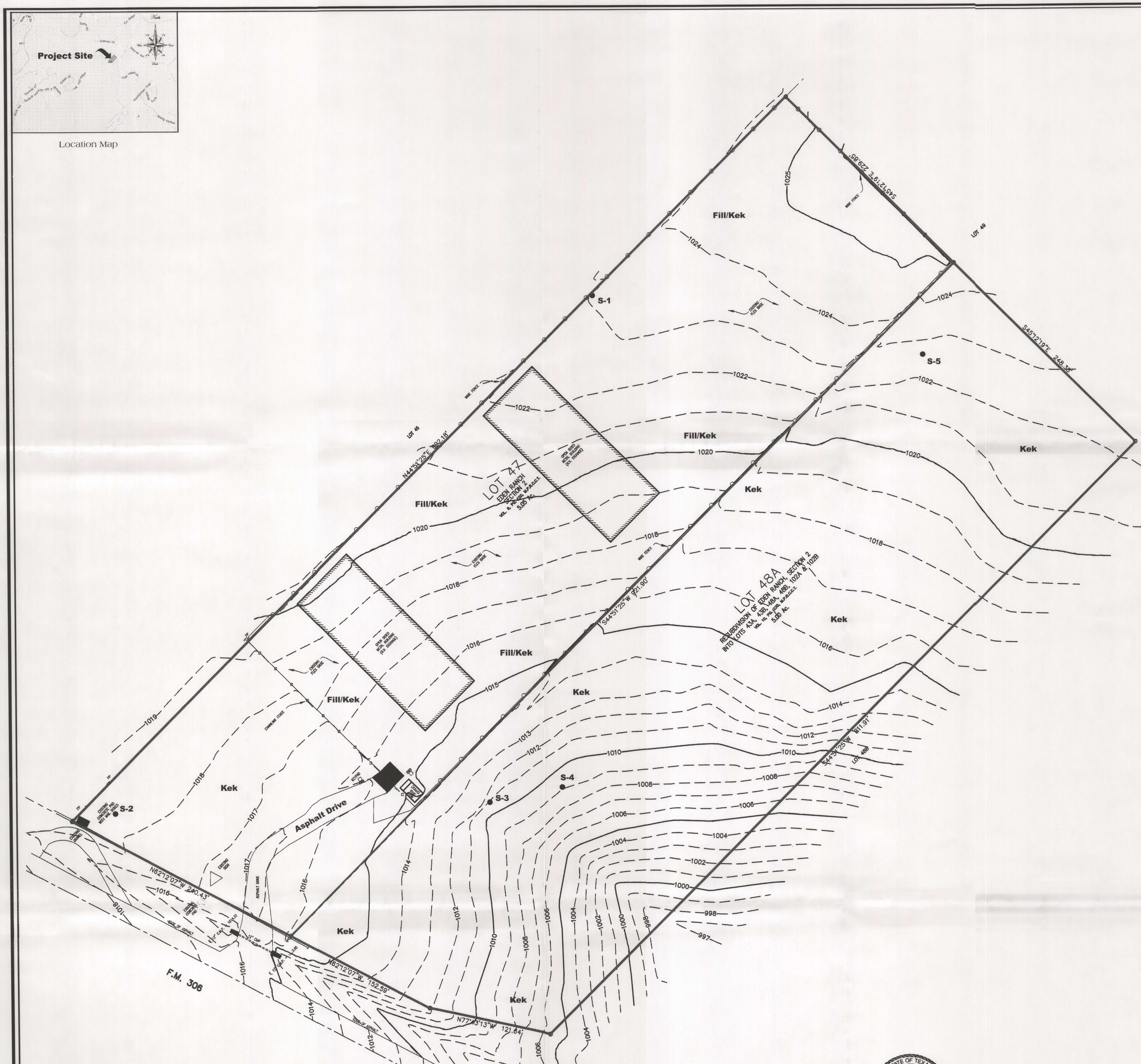
View to the west, of Lot 48A along F.M. 306.

Typical view of vegetative cover noted in the southern portion of Lot 48A.

Typical view of vegetative cover noted in the central portion of Lot 48A.

View to the east, of Lot 48A along the northern property line.

Typical view of vegetative cover in the northern portion of Lot 48A.



STATE OF TEXAS
Steve M. Frost
Geology
License No. 315
LICENSED
PROFESSIONAL GEOSCIENTIST
SMF
8/31/10

Signature of Texas Licensed Geoscientist
Steve Frost, TPG# 315, AIPG # 10176

Frost GeoSciences
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Forensics • Environmental
13402 Western Oak Dr. • Helotes, Texas 78023
Phone: (210) 372-1315 Fax: (210) 372-1318

Site Geologic Map

Geologic Site Assessment (WPAP)
for Regulated Activities / Development on the
Edwards Aquifer Recharge / Transition Zone
for the
Park Place 4 RV's
10.05 Acres
Canyon Lake, Texas

Frost GeoSciences, Inc. Control # FGS-E10102

Legend

Fill - Fill Material
Qal - Alluvium
Kau - Austin Chalk
Kef - Eagle Ford Shale
Kbu - Buda Limestone
Kdr - Del Rio Clay
Kgt - Georgetown Limestone
Kep - Edwards Person Limestone
Kek - Edwards Kainer Limestone
Kgr - Glen Rose Formation

S-# - Potential Recharge Feature (PRF)
- - - - - - Formation Contact
············ - 100-Year Floodplain - Zone A
-·-·-·- - 100-Year Floodplain - Zone AE
-··-··- - Other Flood Hazard Area - Zone X (shaded)

Floodplain Information Obtained From
FIRM: Flood Insurance Rate Map
Comal County, Texas: Panel # 48091C0280F, Revised 9/02/09

Fault Information Obtained From:
Bureau of Economic Geology, Geologic Atlas of Texas, San Antonio Sheet (1983)
U.S. Geological Survey, Water Resources Investigations Report 94-4117 (1994)
Geologic Map of the New Braunfels, Texas 30 X 60 Minute Quadrangle (2000)

North
NW NE
West East
SW SE
South

Graphic Scale
40 0 20 40 80
(In Feet)

1 inch = 40 feet
Representative Fraction 1:480

Contour Interval - 1 foot

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: Park Place 4 RV's

REGULATED ENTITY INFORMATION

1. The type of project is:
   - ___ Residential: # of Lots: _____
   - ___ Residential: # of Living Unit Equivalents: _____
   - X Commercial (with a proposed/future Residential Home on site)
   - ___ Industrial
   - ___ Other: _____

2. Total site acreage (size of property): 10.05 acres

3. Projected population: 3 (Office = 1) + (Future Residential = 2)

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	80,437	÷ 43,560 =	1.847
Parking (Flexible Base Area and Drives)	147,958	÷ 43,560 =	3.397
Other paved surfaces (Mailbox Pad & Water Tank Pad)	234	÷ 43,560 =	0.005
Total Impervious Cover	228,629	÷ 43,560 =	5.249
Total Impervious Cover ÷ Total Acreage x 100 =			52.2%

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

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

FOR ROAD PROJECTS ONLY

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

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

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

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

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

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

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

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

100 % Domestic	400 gallons/day
__% Industrial	_____ gallons/day
__% Commingled	_____ gallons/day

TOTAL 400 gallons/day (Office - 100 gpd + Residence - 300 gpd)

15. Wastewater will be disposed of by:

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

X **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.

X 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.

N/A 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 _____ (name) Treatment Plant. The treatment facility is:
__ existing.
__ proposed.

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

SITE PLAN REQUIREMENTS

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

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 40 '.

18. 100-year floodplain boundaries
__ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
X No part of the project site is located within the 100-year floodplain.

The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s):
FEMA Flood Insurance Rate Map for Comal County, Texas
Community Panel Number 48091C0280F (Rev. 9/02/09)

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

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

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

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

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

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

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

26. X Surface waters (including wetlands).

27. X Locations where stormwater discharges to surface water or sensitive features. (Site drains to an existing natural low)
__ There will be no discharges to surface water or sensitive features.

ADMINISTRATIVE INFORMATION

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

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

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

John J. Moy, Jr.
Print Name of Customer/Agent

Signature of Customer/Agent

4/8/11
Date

WATER POLLUTION ABATEMENT PLAN APPLICATION

5. Attachment A – Factors Affecting Water Quality

The potential sources of contamination on the proposed project include, but are not limited to, hydrocarbons, such as oil and grease, vehicle/machinery fluid leaks, trash or debris, and fertilizers and soil runoff.

All construction equipment will be fueled off-site, and no hazardous materials shall be utilized for the construction of the proposed improvements. Portable toilets will be placed on site for use by construction workers during construction activities. All waste will be hauled off site daily, as generated.

Prior to any construction activity, stormwater pollution prevention controls shall be installed and these controls include silt fence along the southeastern property line (down gradient of soil disturbance), a rock berm in the natural low and the installation of a stabilized construction entrance/exit to reduce sediment removal from the site. The construction contractor will be responsible for the installation, repair and upkeep of all control measures.

After construction is complete and the site has been built, the factors affecting water quality will include runoff from the flexible base areas, roofs, paved areas and greenbelt areas. Chemicals that may be present include pesticides and fertilizers for the greenbelt areas as well as miscellaneous oils or fuels from vehicles utilizing the drives. However, the stormwater runoff from these areas will be treated by the Partial Sedimentation/Filtration pond or Engineered Vegetative Filter strips as shown on the Site Plan, Sheet S-1.

13. Attachment B – Volume and Character of Stormwater

The stormwater runoff generated from this site will consist of runoff from the flexible base areas, roofs, paved areas and greenbelt areas. The runoff may contain small amounts of suspended solids, fertilizers/pesticides for the greenbelt areas or oils/fuel that would be associated with vehicles entering/exiting and/or being stored on the site. The average runoff coefficient for the site is C_{10pre} = 0.60 due to the existing improvements (assumed Pre-Development runoff coefficient of C_{10pre}=0.36 for undeveloped areas), and the average Post-Construction runoff coefficient is C_{10post} = 0.67 used for ultimate/future development runoff calculations for the detention pond sizing (See Drainage Area Map in the Temporary Stormwater Section for hydrology calculations). Based on the BMP calculations provided in this submittal, there will be a Water Quality Volume of 38,891 cf required to treat the existing site and a large portion

of the future site and 39,293 cf has been provided in the design of the Partial Sedimentation and Filtration Pond. Prior to exiting the site, the storm water will be conveyed to a detention pond which will aid in the sedimentation of solids and improve the overall water quality.

ATTACHMENT C

SUITABILITY LETTER

FROM

AUTHORIZED AGENT

Comal County

OFFICE OF COMAL COUNTY ENGINEER

April 4, 2011

Mr. John Moy, P.E.
Pawelek & Moy, Inc.
130 W. Jahn Street
New Braunfels, TX 78130

Re: Park Place 4 RVs On-Site Sewage Facility Suitability Letter, within Comal County, Texas

Dear Mr. Moy:

In accordance with TAC §213.5(b)(4)(F)(ii), Comal County has found that the entire referenced site is suitable for the use of private sewage facilities and will meet the special requirements for on-site sewage facilities located on the Edwards Aquifer recharge zone as specified in TAC §285.40-42 based on the following information submitted to our office on April 1, 2011:

- The Geologic Assessment prepared by Frost Geosciences
- The Water Pollution Abatement Plan prepared by Pawelek & Moy, Inc.

Moreover, according to TAC §285.41(b), Windrock Ranch, LLC, the owner of the referenced site, must inform, in writing, each prospective purchaser, lessee, or renter of the following:

- A Permit to Construct is required from Comal County before an OSSF can be constructed on the Park Place 4 RV's land;
- A License to Operate is required from Comal County before an OSSF can be operated on the Park Place 4 RV's land;
- That an application for a water pollution abatement plan, as defined in TAC §213, has been made, whether it has been approved, and if any restrictions or conditions have been placed on that approval; and
- Minimum separation distances, as outlined in Table 10 of TAC §285.91

Furthermore, according to TAC §285.42(a), if any recharge feature, not listed above, is discovered during construction of an OSSF, all regulated activities near the feature shall be suspended immediately. The owner shall immediately notify the TCEQ San Antonio office of the discovery of the feature. All activities regulated under TAC §213 shall not proceed near the feature until Comal County, in conjunction with the TCEQ San Antonio office, has reviewed and approved a plan proposed to protect the feature, the structural integrity of the OSSF, and the water quality of the aquifer. The plan shall be sealed, signed, and dated by a professional engineer.

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Robert Boyd, P.E.
Comal County Assistant Engineer

cc: Jan Kennady, Comal County Commissioner, Precinct No. 4

Greg W. Johnson, P.E.

170 Hollow Oak
New Braunfels, Texas 78132
830/905-2778

March 8, 2011

Comal County Office of Environmental Health
195 David Jonas Drive
New Braunfels, Texas 78132-3760

RE: Soil Survey & OSSF compatibility for Park Place 4 RV's
Windrock Ranch, LLC
Eden Ranch, Section 2, Lot 47 & 48A

TYPE SOILS AND DRAINAGE

This location was surveyed for soil types and their compatibility with development and installation of septic systems. Tested soils have a moderately high clay content and are a part of the Rumple-Comfort association, undulating (RUD) sloping(1-8%). Soils are moderately well drained. The soil profile consists of a dark reddish brown to dark brown cherty clay with fine blocky structure to 8"-14" over coarsely fractured indurated limestone.

OSSF TYPES

Since the site has mimimal depth soils with a moderately high clay content with poor soil absorption characteristics, a variety of septic systems are suitable depending on each lot. Recommended On Site Sewage Facilities (OSSF) for this site are aerobic treatment plants with spray or drip irrigation . Adequate space is available for any of the referenced OSSF's and their respective replacement areas.

The water service must be routed in such a way to provide a minimum of 10' separation from any part of each OSSF.

Respectfully yours,

Greg W. Johnson, P.E
F2587

OSSF Sizing

Water usage and field requirements:

Q = 100 GPD
Q = 200 GPD
Q= 300 GPD

Drip Irrigation

A = Q/Ra Ra = 0.1 g/sf (Type IV Soil)
A = 100/0.1 = 1000 sf.
A = 200/0.1 = 2000 sf.
A = 300/0.1 = 3000 sf.

Aerobic Treatment Plant (Spray Irrigation)

A = Q / Ri Ri = 0.064 g/sf
A = 100/0.064 = 1563 sf.
A = 200/0.064 = 3125 sf.
A = 300/0.064 = 4688 sf.

ON-SITE SEWERAGE FACILITY
SOIL EVALUATION REPORT INFORMATION

Date Soil Survey Performed: **October 19, 2009**

Site Location: **EDEN RANCH, SECTION 2, LOT 47**

Proposed Excavation Depth: **N/A**

Requirements:

At least two soil excavations must be performed on the site, at opposite ends of the proposed disposal area.
Locations of soil boring or dug pits must be shown on the site drawing.
For subsurface disposal, soil evaluations must be performed to a depth of at least two feet below the proposed excavation depth. For surface disposal, the surface horizon must be evaluated.
Describe each soil horizon and identify any restrictive features on the form. Indicate depths where features appear.

SOIL BORING NUMBER **SURFACE EVALUATION**

Depth (Feet)	Texture Class	Soil Texture	Gravel Analysis	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
0 – 12"	**IV**	**CLAY**	**N/A**	**NONE OBSERVED**	**LIMESTONE @ 12"**	**BROWN**
1						
2						
3						
4						
5						

SOIL BORING NUMBER **SURFACE EVALUATION**

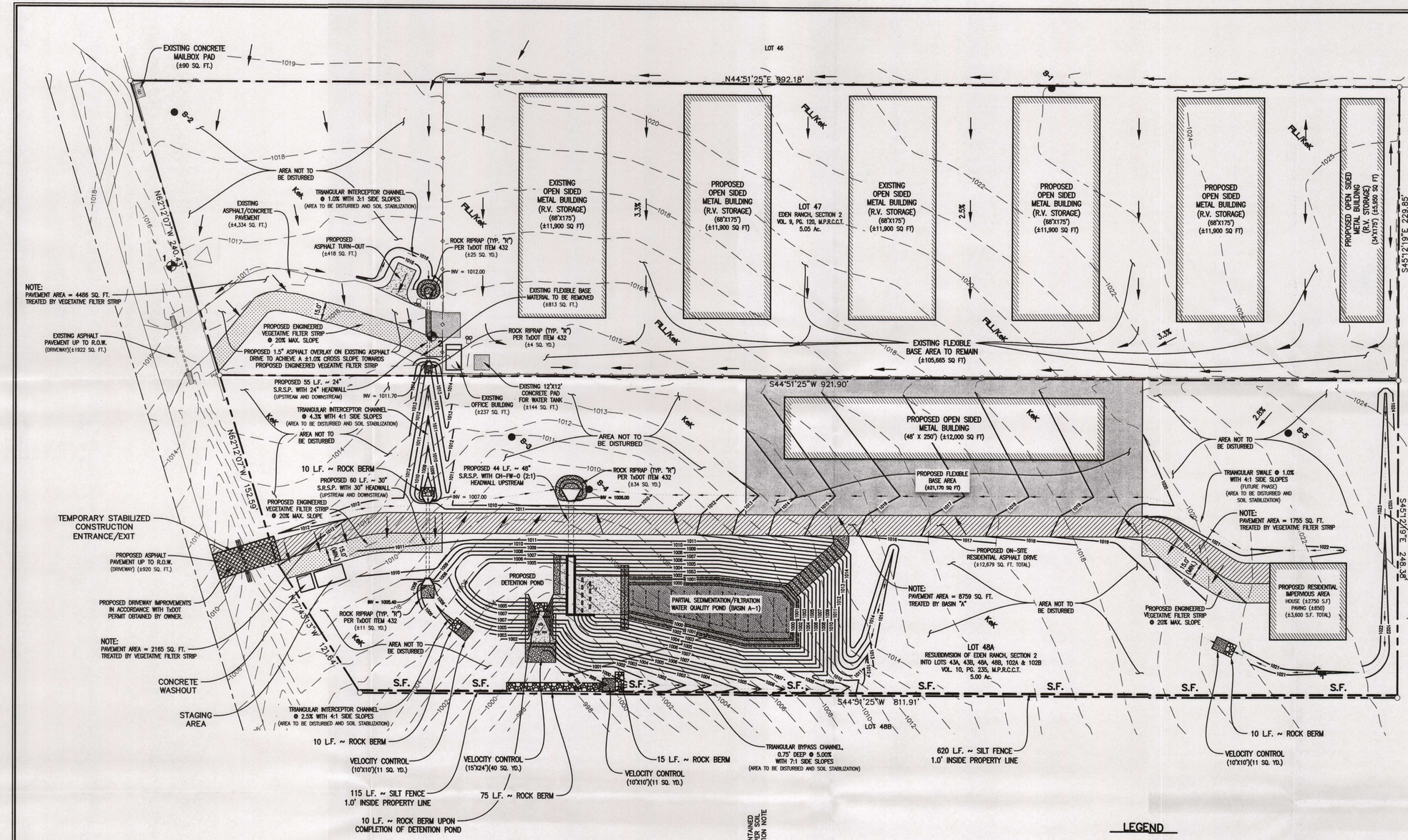
Depth (Feet)	Texture Class	Soil Texture	Gravel Analysis	Drainage (Mottles/ Water Table)	Restrictive Horizon	Observations
0	**SAME**		**AS**		**ABOVE**	
1						
2						
3						
4						
5						

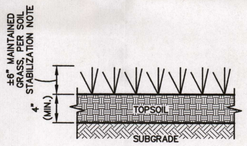
I certify that the findings of this report are based on my field observations and are accurate to the best of my ability.

Greg W. Johnson, P.E. 67587, S.E. 11561

10/19/2009
Date

SITE PLAN





ENGINEERED VEGETATIVE FILTER STRIP DETAIL
N.T.S.

LEGEND

- S.F. — SILT FENCE
- ROCK BERM
- ROCK RIPRAP/VELOCITY CONTROL
- TEMPORARY STABILIZED CONSTRUCTION ENTRANCE/EXIT
- CONCRETE WASHOUT
- 100 — EXISTING CONTOURS
- 100 — PROPOSED CONTOURS
- PROPERTY LINE
- S-# — POTENTIAL RECHARGE FEATURE (PRF) AS PER GEOLOGIC ASSESSMENT, NO SENSITIVE FEATURES WERE IDENTIFIED
- Kep — EDWARDS PERSON LIMESTONE

NOTE:
SEE DRAINAGE AREA MAP, SHEET D1 FOR OVERALL DRAINAGE AREAS AND SUB-AREAS.

SOIL STABILIZATION NOTE
IN ALL AREAS TO BE DISTURBED OUTSIDE OF THE LIMITS OF PAVING, ROCK RIPRAP, ETC., AND FOR THE ENGINEERED VEGETATIVE FILTER STRIP, VEGETATIVE STABILIZATION IN ACCORDANCE WITH RG-348 COMPLYING WITH THE EDWARDS AQUIFER RULES, ITEM 1.3.8-TEMPORARY VEGETATION, ITEM 1.3.9-BLANKETS AND MATTING, ITEM 1.3.10-HYDRAULIC MULCH AND/OR ITEM 1.3.11 SOD SHALL BE IMPLEMENTED. THE AREAS TO BE VEGETATED SHALL BE WATERED SUFFICIENTLY TO ESTABLISH 70% STABILIZATION.

VELOCITY CONTROL NOTE
AT THE POINT WHERE THE PROPOSED DETENTION POND AND BY-PASS CHANNELS OUTFALL, A VELOCITY CONTROL PROCEDURE UTILIZING HEAVY ROCK RIPRAP (TYPE 'R' PER TXDOT ITEM 432) SHALL BE USED TO DISSIPATE THE FLOWS (SEE DETAIL ON SHEET S2). THIS APPLICATION SHALL REMAIN IN PLACE AND NOT BE REMOVED UPON COMPLETION OF THE CONSTRUCTION ACTIVITIES.

FLOODPLAIN NOTE
ACCORDING TO FEMA FIRM MAP PANEL No. 48091C0280F, EFFECTIVE DATE 9/2/2009, THE PROPOSED DEVELOPMENT LIES OUTSIDE THE 100 YR FLOODPLAIN.

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	80,437	÷ 43,560 =	1.847
PARKING (FLEX BASE AREA AND DRIVES)	147,958	÷ 43,560 =	3.397
OTHER PAVED SURFACE (MAIL BOX PAD & WATER TANK PAD)	234	÷ 43,560 =	0.005
TOTAL IMPERVIOUS COVER	228,629	÷ 43,560 =	5.249
TOTAL IMPERVIOUS COVER ÷ TOTAL ACREAGE x 100 =			52.2 %

TOTAL SITE ACREAGE = 10.05 Ac.

BOUNDARY NOTE: (BY KOLODZIE SURVEYING CO.)
THE BOUNDARY SHOWN HEREON IS NOT THE RESULT OF A LAND TITLE SURVEY. THE BOUNDARY SHOWN HEREON IS FOR REFERENCE ONLY AND IS BASED ON RECORD INFORMATION BEST FIT TO THE CORNER MONUMENTS FOUND AT THE TIME OF SURVEY.

TOPOGRAPHIC INFORMATION PROVIDED BY KOLODZIE SURVEYING CO.
PRIMARY BENCHMARK: 2 1/2" TXDOT ALUMINUM DISK ON A BERNTSEN ROD INSIDE AN ACCESS COVER. TRAVEL FM 306 10.93 +/- MILES NORTHWEST OF THE INTERSECTION OF IH 35 AND FM 306, +/- 1.0 MILES EAST OF FM 2673, AND +/- 1.9 MILES WEST OF PURGATORY ROAD. STATION IS LOCATED IN THE SOUTH ROW, +/- 31 FEET SOUTH OF THE EDGE OF PAVEMENT, +/- 31 FEET SOUTH OF A "CURVE ONLY" SIGN, AND +/- 2 FEET OF A WIRE FENCE.
ELEVATION = 796.01 (NAVD 88)

PROJECT BENCHMARK: ⌖1
AN "X" IN SQUARE ON CONCRETE PAD ON NORTH SIDE OF FM 306, 18.8' SOUTH OF A TRIANGULAR SIGN AND 33.9' FROM THE NORTH EDGE OF ASPHALT OF FM 306.
ELEVATION = 1016.99

PROJECT BENCHMARK: ⌖2
AN "X" IN SQUARE ON THE SOUTHEAST SIDE OF CONCRETE DRIVE LEADING TO PARK PLACE 4RV'S, 30.1' SOUTHWEST OF A CHAINLINK FENCE CORNER AND 29.5' SOUTH OF A GATE KEYPAD.
ELEVATION = 1015.68

PAWELEK & MOY, INC.
CIVIL ENGINEERING & CONSULTING SERVICES
130 W. JAHN STREET
NEW BRAUNFELS, TX 78130
TEL: (830) 629-2563
FIRM No. F-9862

STATE OF TEXAS — JOHN J. MOY JR. — 87835 — LICENSED PROFESSIONAL ENGINEER — 04/08/11

OWNER:
WINDROCK RANCH, LLC
P.O. BOX 2536
NEW BRAUNFELS, TX 78133-0012

SITE PLAN FOR PARK PLACE 4 RV'S - BOAT AND RV STORAGE
COMAL COUNTY, TEXAS

REVISIONS

DATE	DESCRIPTION

DRAWN BY: D.G. III
CHECKED BY: J.J.M.
DATE: APRIL 2011
JOB NO.: 0912.01

S1

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

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

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

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

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

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

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

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

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

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

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

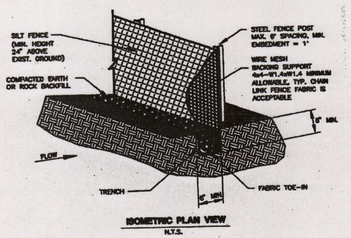
12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

   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.

Austin Regional Office 2800 S. IH 35, Suite 100 Austin, Texas 78704-5712 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329



ISOMETRIC PLAN VIEW
N.T.S.

Materials:

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

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

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

Installation:

(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1-foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

(2) Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

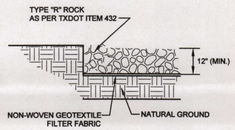
(3) The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill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

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

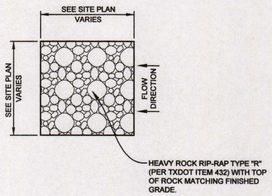
(5) Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

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

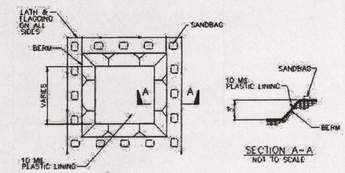
SILT FENCE DETAIL
N.T.S.



ROCK RIPRAP DETAIL
N.T.S.



VELOCITY CONTROL DETAIL
N.T.S.

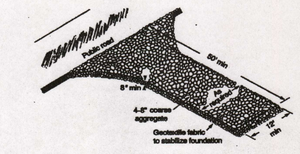


NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.

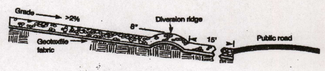
FOR ONSITE WASHOUT:

1) LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, OR WATER BODIES. DO NOT ALLOW RUNOFF FROM THIS AREA BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA LARGE ENOUGH FOR LIQUID AND SOLID WASTE.
2) WASH OUT WASTES INTO THE TEMPORARY PIT WHERE THE CONCRETE CAN SET, BE BROKEN UP, AND THEN DISPOSED OF PROPERLY.
3) PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
4) WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF PROPERLY. MATERIALS USED TO CONSTRUCT THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF PROPERLY.
5) HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.
6) SEE TCEQ RG-348 SECTION 1.4.18 CONCRETE WASHOUT AREAS FOR ANY ADDITIONAL INFORMATION.

CONCRETE WASHOUT DETAIL
N.T.S.



Schematic of Temporary Construction Entrance/Exit



Cross-section of a Construction Entrance/Exit

Materials:

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

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

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

(4) If a washing facility is required, a level area with a minimum of 4 inch diameter washed stone or commercial rack should be included in the plans. Divert wastewater to a sediment trap or basin.

Installation:

(1) Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade crown foundation for positive drainage.

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

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

(4) If the slope toward the road exceeds 2%, construct a ridge, 6 to 8 inches high with 3:1 (H:V) side slopes, across the foundation approximately 15 feet from the entrance to divert runoff away from the public road.

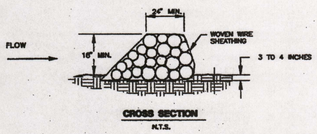
(5) Place geotextile fabric and grade foundation to improve stability, especially where wet conditions are anticipated.

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

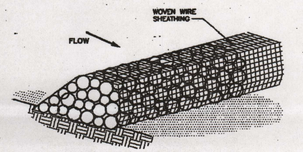
(7) Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

(8) Install pipe under pad as needed to maintain proper public road drainage.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT DETAIL
N.T.S.



CROSS SECTION
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

Materials:

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

(2) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

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

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

(3) Place the rock along the sheathing as shown in the diagram (Figure 1-1), to a height not less than 18".

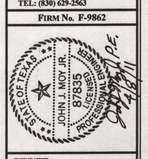
(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

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

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

ROCK BERM DETAIL
N.T.S.

PAWELEK & MOY, INC.
CIVIL ENGINEERING & CONSULTING SERVICES
130 W. JAHN STREET
NEW BRAUNFELS, TX 78130
TEL: (830) 629-2563
FIRM No. F-9862



OWNER:
WINDROCK RANCH, LLC
P.O. BOX 2536
NEW BRAUNFELS, TX 78133-0012

WATER POLLUTION ABATEMENT PLAN GENERAL NOTES AND DETAILS FOR

PARK PLACE 4 RVS - BOAT AND RV STORAGE
COMAL COUNTY, TEXAS

REVISIONS

DATE	DESCRIPTION

DRAWN BY: D.G. III
CHECKED BY: J.J.M.
DATE: APRIL 2011
JOB NO.: 0912.01

S2 OF 2

F:\0912.01 - PARK PLACE FOR RV\dwg\S2.dwg 2011/04/07 1:25pm Domingo

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: Park Place 4 RV's

POTENTIAL SOURCES OF CONTAMINATION

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

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

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

__ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

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

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

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

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

4. __ **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.

X The are no other potential sources of contamination. (None anticipated beyond those listed as Examples under Potential Sources of Contamination shown above.)

SEQUENCE OF CONSTRUCTION

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

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

TEMPORARY BEST MANAGEMENT PRACTICES (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

___ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

___ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

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

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

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

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

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

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

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

SOIL STABILIZATION PRACTICES

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

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

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

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

ADMINISTRATIVE INFORMATION

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

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

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

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

John J. Moy, Jr.
Print Name of Customer/Agent

Signature of Customer/Agent

4/8/11
Date

TEMPORARY STORMWATER SECTION

2. Attachment A – Spill Response Actions

Regarding spill prevention and control, found directly behind this sheet is copy of Section 1.4.16 of the Texas Commission on Environmental Quality (TCEQ) "Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices, pages 1-118 through 1-121, Spill Prevention and Control which covers necessary procedures for spill prevention and control. In the event of a significant or hazardous spill (per the attached TCEQ criteria and guidelines) the contractor or construction personnel shall notify the TCEQ by telephone as soon as possible and within 24 hours at (512) 339-2929 (Austin) or (210) 490-3096 (San Antonio) between 8 am and 5 pm. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(See Spill Prevention and Control information on the following sheets)

RG-348
Revised July 2005

Complying with the Edwards Aquifer Rules

Technical Guidance on Best Management Practices

printed on
recycled paper

Field Operations Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

1.4.16 Spill Prevention and Control

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

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

Education

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

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

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

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

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

General Measures

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

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

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

(4) Train employees in spill prevention and cleanup.

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

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

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

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

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

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

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

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

Cleanup

(1) Clean up leaks and spills immediately.

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

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

Minor Spills

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

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

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

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

(5) Contain the spread of the spill.

(6) Recover spilled materials.

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

Semi-Significant Spills

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

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

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

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

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

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

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

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

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

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

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

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

Vehicle and Equipment Maintenance

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

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

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

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

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

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

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

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

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

Vehicle and Equipment Fueling

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

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

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

5. Attachment C – Sequence of Major Activities

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

Sequence No.	Description of Soil Disturbing Activity	Estimated Area to be Disturbed by each Activity (Acres ~ Total)
1	Clearing/Grubbing/Construction Staging (For Water Quality Basin, Detention Pond, 24" Culvert below existing drive & Interceptor Drains) (Phase 1)	1.67
2	Excavation and Grading (Water Quality Pond, Detention Pond & Interceptor Drains) (Phase 1)	1.42
3	Excavation and Grading (Metal Building, Additional Flexible Base, & Residential House/Drive)(Future Phase)	1.28
4	Final Paving (Future Phase)	1.14

7. Attachment D – Temporary Best Management Practices and Measures

The Temporary Best Management Practices (TBMP's) that will be used for this development are rock berms, silt fences, a concrete washout area and a temporary construction entrance/exit in accordance with the Site Plan. The temporary controls (i.e. rock berms, silt fences, temporary construction entrance/exit and the concrete washout area) shall be in place prior to construction activities and will be maintained by the contractor during construction. The controls shall be removed by the contractor when vegetation is established on all exposed or disturbed areas.

a. There are two small drainage areas that originate off-site and flow onto the project site. This water will enter the site and then be conveyed around the disturbed areas via interceptor channels/by-pass drains. Located at the end of each interceptor drain will be a temporary rock berm and a permanent velocity control measure consisting of rock riprap which will be applied to reduce the velocity of the concentrated flow. The main discharge point from this site will be protected with a rock berm prior to construction. Therefore off-site water required to enter the site will be treated by temporary rock berms/silt fences prior to final stabilization of the disturbed areas.

b. The stormwater that originates on-site will be controlled and filtered by rock berms and silt fences on the down gradient side of the areas of disturbance. The rock berms and silt fences will reduce the velocity of the water and allow the sediment to settle out and be trapped by the control device. After a significant rainfall event, it will be the contractor's responsibility to remove the sediment and debris that is captured.
c. The BMP's will prevent pollutants from entering surface streams, sensitive features (no sensitive features present on this site), or the aquifer by capturing the silts and sediments through the utilization of the previously mentioned control devices such as silt fences and rock berms. These devices are located such that they capture the silts and sediment prior to entering the surface streams, etc. where they would otherwise be carried downstream. The settlement of the silts and sediment is due to the reduction of the velocity of the water.
d. There were no sensitive features located on the site. However, previously described temporary measures will be maintained and incorporated where necessary to prevent contamination of stormwater runoff. In the event a sensitive feature is discovered during construction, the contractor or construction personnel shall notify the TCEQ by telephone as soon as possible and within 24 hours at (512) 339-2929 (Austin) or (210) 490-3096 (San Antonio) between 8 am and 5 pm. At that point an assessment will be made with the TCEQ as to how to best protect what was discovered.

9. Attachment F – Structural Practices

The structural practices that will be used for temporary erosion/sediment control for this development are rock berms, silt fences, temporary construction entrance/exits, and a concrete washout area. The rock berms and silt fences will allow the silts and sediment to settle out prior to discharging into surface streams or sensitive features (no sensitive features present on this site).

10. Attachment G – Drainage Area Map

The drainage area map can be found at the end of this section.

12. Attachment I – Inspection and Maintenance for BMP's

A. Rock Berm Inspection and Maintenance Guidelines:

1) Inspection shall be made weekly and after each rainfall by the contractor.
2) All debris and sediment shall be removed when buildup reaches 6 inches and this accumulated debris/sediment shall be disposed in an approved site and in a manner as to not introduce additional siltation.
3) Any loose wire sheathing shall be repaired.
4) During the inspection, the berm shall be reshaped as needed.
5) The berm shall be replaced when the structure does not function as intended due to silt accumulation, construction traffic, etc.
6) The rock berm shall be left in place until all upstream disturbed areas are stabilized and the accumulated silt has been removed.

B. Silt Fence Inspection and Maintenance Guidelines:

1) Inspection shall be made weekly and after each rainfall by the contractor.
2) All sediment shall be removed when buildup reaches 6 inches.
3) Any torn fabric shall be replaced or a new line of fencing shall be installed parallel to the torn section.
4) Replace or repair areas of silt fence that have been damaged due to construction activity, vehicular access, etc. and if the silt fence is located in an area of high construction traffic, relocate to an area that will provide equal protection but will not obstruct vehicular movements.

C. Temporary Construction Entrance/Exit:

1) The entrance shall be maintained in a way that will prevent tracking of sediment onto the public right-of-way.
2) Any sediment dropped, spilled, washed or tracked on to the public right of way shall be immediately removed by the contractor.
3) When applicable, wheels shall be washed to removed sediment prior to exiting the construction site.
4) When washing is required it shall be performed in an area that is stabilized/protected to prevent sediment from entering any public right of ways, streams or sensitive areas.

D. Concrete Washout Area Inspection and Maintenance Guidelines:

1) Inspection shall be made weekly and after each rainfall by the contractor.
2) When concrete accumulates 6 inches in depth, the concrete shall be broken up, removed and disposed of properly.
3) All controls around the perimeter of the washout area shall be checked, maintained and repaired as needed.
4) Upon completion of construction, the concrete washout area shall be cleaned and all concrete shall be removed and disposed of properly. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facility shall be backfilled and repaired.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT
INSPECTION FORM

Inspection Date: _____

Signature: _____

General Notes

1) Stone Size – 4 to 8 inches crushed rock
2) Length – as effective, but not less than 50 feet.
3) Thickness – not less than 8 inches.
4) Width – not less than 12 feet.
5) Washing – when necessary, wheels shall be cleaned to remove sediment prior to access onto the public roadway. When washing is required, it shall be done so that no sediment leaves the site/development. All unfiltered sediment shall be prevented from entering any storm drain, ditch or watercourse.
6) Maintenance – the entrance shall be maintained in a condition which will prevent tracking of sediment onto the public roadways. This may require periodic addition of stones as necessary, repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto the public roadway must be removed immediately.
7) Drainage – the entrance must be properly graded to prevent runoff from leaving the construction site.

	Yes	No	Comment
Is sediment present on the roadway?			
Is the gravel clean and working properly (relatively free of mud/sediment)?			
Does all traffic use the stabilized entrance to leave the site?			

Maintenance Required for Temporary Construction Entrance/Exit:

_____

_____

_____

_____

To Be Performed by:_____ On or Before:_____

SILT FENCE
INSPECTION FORM

Inspection Date: _____

Signature: _____

General Notes:

1) The steel posts which support the silt fence shall be installed on a slight angle toward the anticipated runoff source. Posts must be embedded a minimum of one foot deep and spaced not more than 6 feet on center.
2) The toe of the silt fence shall be trenched in with a spade or mechanical trencher.
3) The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled and compacted.
4) Silt fence should be securely fastened to each steel support post and to woven wire, which in turn is attached to the steel fence post. There shall be a 3 foot double overlap, securely fastened where ends of fabric meet.
5) Silt fence shall be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.
6) Accumulated silt shall be removed when it reaches a depth of 6 inches. The silt shall be disposed of in an approved site and in such a manner as to not contribute additional silt.

	Yes	No	Comment
Is the bottom of the fabric still buried/secured?			
Is the fabric torn, missing or sagging?			
Are the post tipped over?			
How deep is the sediment?			

Maintenance Required for Silt Fence:

_____

_____

_____

_____

To Be Performed by:_____ On or Before:_____

ROCK BERMS
INSPECTION FORM

Inspection Date: _____

Signature: _____

General Notes:

1) The woven wire sheathing shall be perpendicular to the flow line and the sheathing shall be 20 gauge woven wire mesh with 1 inch openings.
2) The berm shall have a top width of 24 inches with side slopes being 2:1 (H:V) or flatter.
3) Placement of the rock along the sheathing shall not be less than 18 inches.
4) The wire sheathing shall be wrapped around the rock and secured with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.
5) The berm shall be built along the contour at zero percent grade or as near as possible.
6) The ends of the berm shall be tied into the existing upslope grade and the berm shall be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

	Yes	No	Comment
Is the berm a minimum of 18 inches high?			
Does the berm have a top width of 24 inches?			
Is the level of sediment/silt greater than 6 inches?			
Does the rock berm need repair?			

Maintenance Required for Rock Berms:

_____

_____

_____

_____

To Be Performed by:_____ On or Before:_____

CONCRETE WASHOUT AREA
INSPECTION FORM

Inspection Date: _____

Signature: _____

General Notes:

1) The concrete washout shall be located at least 50 feet from sensitive features, storm drains, open ditches or water bodies.
2) The containment area shall be maintained such that there is no concrete or sediment escaping the containment area and shall be lined with 10 mil plastic.
3) Concrete wash out wastes shall be allowed to set, be broken up, and then disposed of properly.

	Yes	No	Comment
Is the concrete washout located near any sensitive features, storm drains, open ditches or water bodies?			
Is the containment area secured and working properly?			
Is there a plastic lining?			
Does the washout area need to be cleaned from too much old concrete?			

Maintenance Required for Concrete Washout Area:

_____

_____

_____

_____

To Be Performed by:_____ On or Before:_____

17. Attachment J – Schedule of Interim and Permanent Soil Stabilization Practices

A. Temporary Stabilization

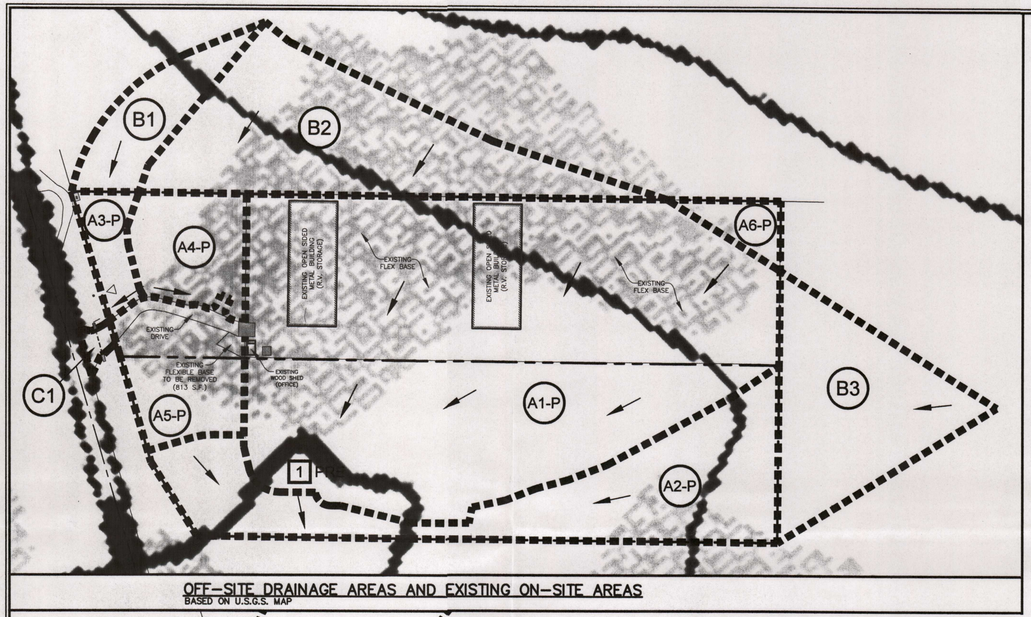
No bare ground exposed during construction will be left to stabilize naturally. Any disturbed area where construction activities have ceased, permanently or temporarily, the contractor shall initiate temporary stabilization of the area by the use of seeding and mulching within 14 days, except in areas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

B. Permanent Stabilization

All disturbed portions of the site where construction activity permanently ceases shall be stabilized with permanent seed no later than 14 days after the last construction activity. The permanent seed mix shall consist of Bermuda Grass, Green Sprangletop and Buffalo Grass with straw or cedar mulch applied on the final layer in accordance with TxDOT Item 164 – Seeding for Erosion Control. Depending on the growing season at the time of construction, the mixture and application rates may be modified. It shall be the contractor's responsibility to sufficiently water the areas to be vegetated to achieve 70% stabilization.

ATTACHMENT G

MASTER DRAINAGE AREA MAP



OFF-SITE DRAINAGE AREAS AND EXISTING ON-SITE AREAS
BASED ON U.S.G.S. MAP

SUMMARY OF HYDROLOGIC CALCULATIONS
PARK PLACE 4 RV'S - DRAINAGE ANALYSIS

EXISTING DRAINAGE AREA DESIGNATION	DRAINAGE AREAS (acres)	PROPOSED DRAINAGE AREA DESIGNATION	DRAINAGE AREAS (acres)
A1-p	6.43	A1	5.82
A2-p	1.92	A2	0.19
A3-p	0.24	A3	0.24
A4-p	0.56	A4	0.56
A5-p	0.72	A5	0.72
A6-p	0.19	A6	0.08
B1	0.50	A7	1.83
B2	1.87	A8	0.61
B3	1.33	**C2	0.02
*C1	0.04		

* EXISTING DRIVEWAY
** PROPOSED DRIVEWAY

*Values Applied to C_{10} to Determine C_{25} & C_{100}	
K_{10}	1.00
K_{25}	1.10
K_{100}	1.25

RATIONAL METHOD (Q=KCIA)

DRAINAGE NODE POINT	CONTRIBUTING DA's	DRAINAGE AREA (acres)	C_{10}	*C_{25}	*C_{100}	Tc (min)	I_{10} (in/hr)	I_{25} (in/hr)	I_{100} (in/hr)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
1pre	A1-p	6.43	0.60	0.66	0.75	10	7.57	9.07	11.90	29.21	38.49	57.39
1post	A1+A8	6.43	0.67	0.74	0.84	10	7.57	9.07	11.90	32.61	43.16	64.27
2pre	A1	5.82	0.62	0.68	0.78	10	7.57	9.07	11.90	27.32	35.90	54.02
2post	A1	5.82	0.70	0.77	0.88	10	7.57	9.07	11.90	30.84	40.65	60.95
3pre	(A4-p) + B2	2.43	0.37	0.41	0.46	10	7.57	9.07	11.90	6.81	9.04	13.30
3post	A4+B2	2.43	0.37	0.41	0.46	10	7.57	9.07	11.90	6.81	9.04	13.30
4pre	(A4-p) + (A5-p) + B2	3.15	0.39	0.43	0.49	10	7.57	9.07	11.90	9.30	12.29	18.37
4post	A4+A5+B2	3.15	0.39	0.43	0.49	10	7.57	9.07	11.90	9.30	12.29	18.37

NODE POINT 1 WAS USED FOR PROPOSED DETENTION POND ANALYSIS.

POND ROUTING SUMMARY NODE PT. 1

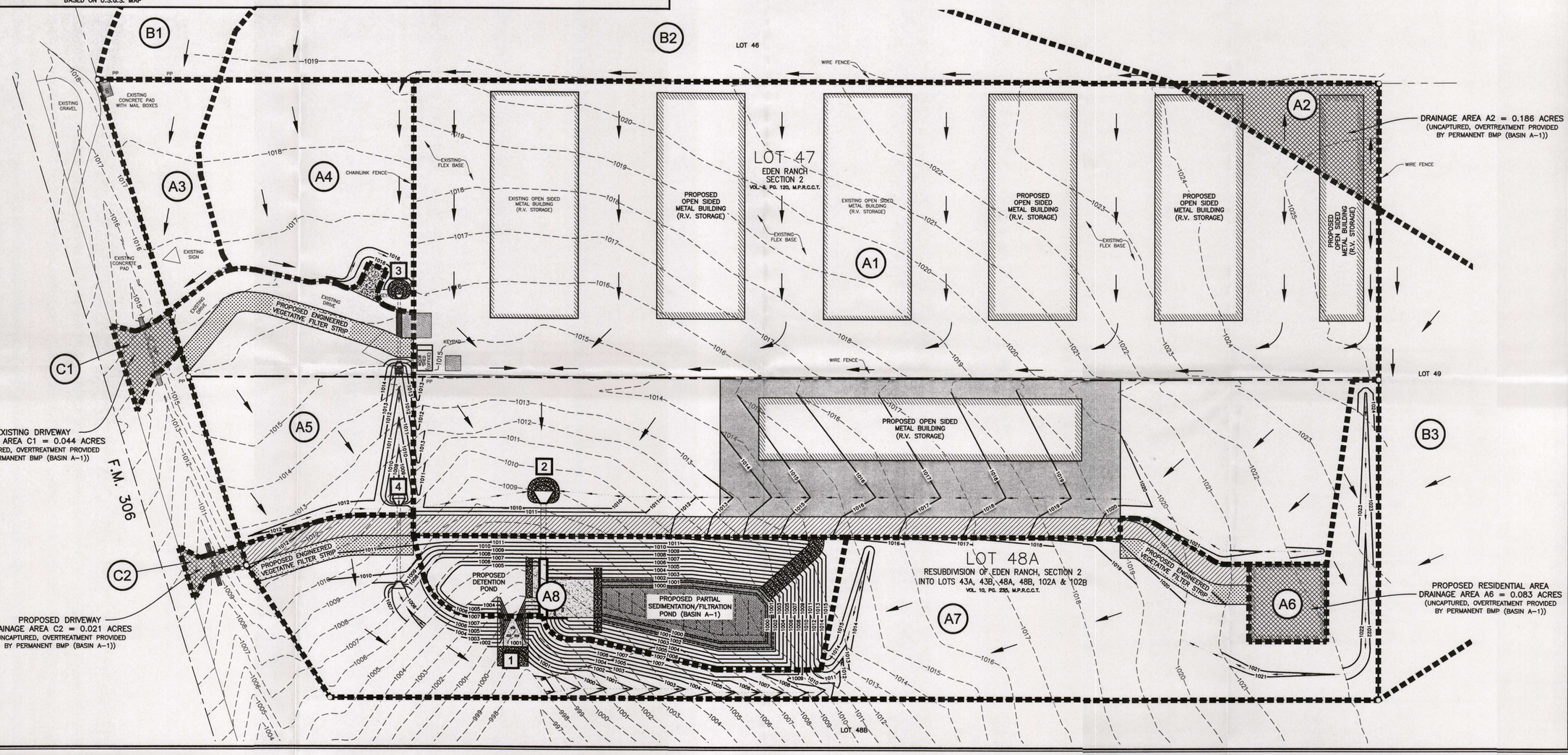
POND RELEASE RATES (NODE PT. 1)
100 yr = 56.00 cfs < 57.39 cfs

LEGEND

- DRAINAGE AREA BOUNDARY
- A1 — DRAINAGE AREA
- 1 — DRAINAGE NODE POINT
- FLOW DIRECTION
- 100 — EXISTING CONTOURS
- 100 — PROPOSED CONTOURS

40 0 20 40
(IN FEET)
1 inch = 40 ft.

NOTE:
SEE SITE PLAN, SHEET S1 OF 2, FOR TEMPORARY AND PERMANENT BEST MANAGEMENT PRACTICES AND MEASURES.



PAWELEK & MOY, INC.
CIVIL ENGINEERING & CONSULTING SERVICES
130 W. JAHN STREET
NEW BRAUNFELS, TX 78130
TEL: (830) 629-2563
FIRM No. F-9862

STATE OF TEXAS — JOHN J. MOY JR. — 87835 — LICENSED PROFESSIONAL ENGINEER — 4/29/11

OWNER:
WINDROCK RANCH, LLC
P.O. BOX 2536
NEW BRAUNFELS, TX 78133-0012

DRAINAGE AREA MAP
FOR
PARK PLACE 4 RV'S - BOAT AND RV STORAGE
COMAL COUNTY, TEXAS

REVISIONS		
DATE	DESCRIPTION	

DRAWN BY:	D.G. III
CHECKED BY:	J.J.M.
DATE:	APRIL 2011
JOB NO.:	0912.01

D1

F:\0912.01 — PARK PLACE FOR RV\dwg\D-1.dwg 2011/04/08 11:58am Domingo

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

REGULATED ENTITY NAME: Park Place 4 RV's

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

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

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

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

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

   _____

   _____

   _____

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

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

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

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

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

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

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

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

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

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

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

X 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.

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

___ If permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form .

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

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

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

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

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

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

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

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

10. X **ATTACHMENT F - Construction Plans.** Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and measures are provided at the end of this form. Design Calculations, TCEQ Construction Notes, all man-made or naturally occurring geologic features, all proposed structural measures, and appropriate details must be shown on the construction plans.

11. X **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.

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

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

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

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

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

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

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

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

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

John J. Moy, Jr.

Print Name of Customer/Agent

Signature of Customer/Agent

4/8/11

Date

PERMANENT STORMWATER SECTION

5. Attachment A- 20% or Less Impervious Cover Waiver

Not Applicable.

6. Attachment B- BMP's for Upgradient Stormwater

Permanent BMP's or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient of the site because the upgradient stormwater runoff that enters this will be conveyed via interceptor drains around on-site permanent BMP' and the off-site water is of different land ownership predominantly in an existing state.

7. Attachment C- BMP's for On-Site Stormwater

A proposed BMP for this site is a partial sedimentation and sand filtration pond. With this BMP, the first flush is captured in the pond (Capture Volume) which allows the larger particles to settle out. The outflow from the sedimentation chamber to the sand filter chamber is controlled by a gabion basket. The sand filters the fines and other contaminated stormwater pollutants that are present in the runoff and a network of perforated PVC piping allows the filtered water to be released from the pond. In the event that a hazardous spill would occur, a gate valve will be located outside of the sand filter to close off flow.

Additionally, engineered vegetative filter strips adjacent to the proposed access drives are also being proposed for the areas outside of the drainage basin conveying runoff to the sedimentation/filtration pond. With this BMP, the storm water will drain, in a sheet flow manner, from the drives across the 15' wide grass filter. With the contributing drainage area being less than 72 feet and the slope of the engineered vegetated filter strip ranging from 2% to 20% (max.), the 80% removal requirement will be achieved (per TCEQ RG-348).

8. Attachment D- BMP's for Surface Streams

The proposed BMP's for this site include a partial sedimentation and sand filtration pond and engineered vegetative filter strips. The water quality pond system will capture and filter the first flush of stormwater runoff which appears to contain the most pollutants and prevent these pollutants from entering the

surface streams, sensitive features (no sensitive features on this site), or the aquifer. Additionally, once the water quality volume is reached in the sedimentation/filtration pond, the remaining storm water discharges into a detention pond which will also allow for additional solids/pollutants time to settle. This additional time for settlement will aid in the improvement of the overall water quality and further reduce the impact of the pollutants on surface streams, sensitive features (no sensitive features on this site), or the aquifer.

The engineered vegetative filter strips will filter the storm water runoff coming off of the access drives. With this BMP, the storm water will drain, in a sheet flow manner, from the drives across the 15' wide grass filter. With the contributing drainage area being less than 72 feet and the slope of the engineered vegetated filter strip ranging from 2% to 20% (max.), the 80% removal requirement will be achieved (per TCEQ RG-348) and will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

9. Attachment E- Request to Seal Features

Based on the Geologic Assessment of the site, there are no sensitive features present.

10. Attachment F- Construction Plans

Construction Plans for the Partial Sedimentation & Filtration Pond, Permanent BMP, are enclosed in this submittal. See Site Plan for the Partial Sedimentation & Filtration Pond and Engineered Vegetative Filter Strip locations.

The design criteria/requirements for the Engineered Vegetative Filter Strips was taken from the TCEQ "Calculation Template 4-20-09" spreadsheet for Vegetative Filter Strips is shown below.

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

11. Attachment G- Inspection, Maintenance, Repair and Retrofit Plan

The Maintenance Plan and Scheduled Inspection Plan is located at the end of this section.

12. Attachment H- Pilot-Scale Field Testing Plan

Not Applicable.

The BMP for this site was designed according to the TCEQ Technical Guidance Manual.

13. Attachment I – Measures for Minimizing Surface Stream Contamination

As mentioned previously, one of the proposed BMP's for this site is a partial sedimentation and sand filtration pond. With this BMP, the first flush is captured in the pond (Capture Volume) which allows the larger particles to settle out. The outflow from the sedimentation chamber to the sand filter chamber is controlled by a gabion basket. The sand filters the fines and other contaminated stormwater pollutants that are present in the runoff and a network of perforated PVC piping allows the filtered water to be released from the pond. In the event that a hazardous spill would occur, a gate valve will be located outside of the sand filter to close off flow. Additionally, once the water quality volume is reached in the sedimentation/filtration pond, the remaining storm water discharges into a detention pond which also allows for additional solids/pollutants time to settle. This additional time for settlement will aid in the improvement of the overall water quality and further reduce the impact of the pollutants on surface streams, sensitive features (no sensitive features on this site), or the aquifer. Located at the outfall of the detention pond and interceptor channels is a proposed velocity control measure which utilizes heavy rock riprap to dissipate the higher flow velocities prior to entering the natural low located downstream of the water quality/detention pond.

CONSTRUCTION PLANS

FOR

PERMANENT BMP'S

PARK PLACE 4 RV'S - PERMANENT BEST MANAGEMENT PRACTICE SUMMARY
10.05 ACRE SITE
5.249 ACRES OF IMPERVIOUS COVER (4712# TSS)

Basin A-1 Summary

Watershed Area	Permanent BMP Basin	Drainage Area (Acres)	Imp. Cover (Acres)	Calc. Min. Capture Volume (cf)	Capture Volume Provided (cf)	Calc. Min. Filter Area (sf)	Filter Area Provided (sf)	Target TSS Removal (lb/yr)	TSS Removal Provided (lb/yr)
A1	Basin A1	5.821	4.720	38,891	39,293	3,241	4,084	4,237	4,814
Uncaptured Area 'A2'	Overtreatment in Basin A1	0.186	0.186	-----	-----	-----	-----	167	0
Uncaptured Area 'A3'	Overtreatment in Basin A1	0.237	0.002	-----	-----	-----	-----	2	0
Uncaptured Area 'A6' (Future Residential-House & Paving)	Overtreatment in Basin A1	0.083	0.083	-----	-----	-----	-----	75	0
*Uncaptured Area 'C1' (Offsite Existing Driveway)	Overtreatment in Basin A1	0.044	0.044	-----	-----	-----	-----	39	0
*Uncaptured Area 'C2' (Offsite Proposed Driveway)	Overtreatment in Basin A1	0.021	0.021	-----	-----	-----	-----	19	0
Sub-Total - Basin A1	-----	6.392	5.056	-----	-----	-----	-----	4,539	4,814

Vegetative Filter Strips

Watershed Area	Permanent BMP Basin	Drainage Area (Acres)	Imp. Cover (Acres)	Calc. Min. Capture Volume (cf)	Capture Volume Provided (cf)	Calc. Min. Filter Area (sf)	Filter Area Provided (sf)	Target TSS Removal (lb/yr)	TSS Removal Provided (lb/yr)
A5	Vegetative Filter Strip	0.716	0.103	-----	-----	-----	-----	92	92
A7	Vegetative Filter Strips	1.830	0.090	-----	-----	-----	-----	81	81
Sub-Total - Vegetative Filter Strips	-----	2.546	0.193	-----	-----	-----	-----	173	173

BY-PASS & POND AREAS

Watershed Area	Permanent BMP Basin	Drainage Area (Acres)	Imp. Cover (Acres)	Calc. Min. Capture Volume (cf)	Capture Volume Provided (cf)	Calc. Min. Filter Area (sf)	Filter Area Provided (sf)	Target TSS Removal (lb/yr)	TSS Removal Provided (lb/yr)
A4	None - (By-Pass)	0.565	0.000	-----	-----	-----	-----	-----	-----
A8	None - Water Quality / Detention Basin Area	0.610	0.000	-----	-----	-----	-----	-----	-----
Sub-Total	-----	1.175	0.000	-----	-----	-----	-----	-----	-----
Total	-----	***10.113**	**5.249**	-----	-----	-----	-----	**4,712**	**4,987**

Notes:
*1. Areas 'C1' and 'C2' are Off-Site Areas (Existing & Proposed Driveways) (Uncaptured) but being treated by Overtreatment provided with the Water Quality Basin A1.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
Date Prepared: 3/7/2011

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =		Comal	
Total project area included in plan	=	10.050	acres
Predevelopment impervious area within the limits of the plan	=	0.000	acres
Total post-development impervious area within the limits of the plan	=	5.249	acres
Total post-development impervious cover fraction	=	**0.52**	
P	=	**33**	inches
$L_{M\ TOTAL\ PROJECT}$	=	**4712**	lbs

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 1 BASIN A-1

Total drainage basin/outfall area =	5.821	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	4.720	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.81**	
$L_{M\ THIS\ BASIN}$ =	**4237**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = **89** percent

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

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

RG-348 Page 3-33 Equation 3.7 L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:

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

A_C =	5.82	acres
A_I =	**4.72**	acres
A_P =	**1.10**	acres
L_R =	**4814**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4539 lbs.

F = **0.94**

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 =	**2.40**	inches
Post Development Runoff Coefficient =	**0.64**	
On-site Water Quality Volume =	**32410**	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 =	**6482**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**38891**	cubic feet

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

7. Retention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = **NA** cubic feet

Irrigation Area Calculations:

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

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

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

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

NOT USED **9A. Full Sedimentation and Filtration System**

Water Quality Volume for sedimentation basin =	**38891**	cubic feet	
Minimum filter basin area =	**1801**	square feet	
Maximum sedimentation basin area =	**16205**	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	**4051**	square feet	For maximum water depth of 8 feet

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

Water Quality Volume for combined basins =	**38891**	cubic feet	39,293 cf (PROVIDED)
Minimum filter basin area =	**3241**	square feet	X 1.20 = 3900 sf (4084 sf PROVIDED)
Maximum sedimentation basin area =	**12964**	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	**810**	square feet	For maximum water depth of 8 feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
Date Prepared: 3/7/2011

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =		Comal	
Total project area included in plan	=	10.050	acres
Predevelopment impervious area within the limits of the plan	=	0.000	acres
Total post-development impervious area within the limits of the plan	=	5.249	acres
Total post-development impervious cover fraction *	=	**0.52**	
P	=	**33**	inches
$L_{M\ TOTAL\ PROJECT}$	=	**4712**	lbs

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 2 BASIN A-2

Total drainage basin/outfall area =	0.186	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.186	acres
Post-development impervious fraction within drainage basin/outfall area =	**1.00**	
$L_{M\ THIS\ BASIN}$ =	**167**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = **89** percent

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
Date Prepared: 3/7/2011

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =	Comal		
Total project area included in plan * =	10.050	acres	
Predevelopment impervious area within the limits of the plan * =	0.000	acres	
Total post-development impervious area within the limits of the plan * =	5.249	acres	
Total post-development impervious cover fraction * =	**0.52**		
P =	**33**	inches	
$L_{M\ TOTAL\ PROJECT}$ =	**4712**	lbs.	

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 3 BASIN A-3

Total drainage basin/outfall area =	0.237	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.002	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.01**	
$L_{M\ THIS\ BASIN}$ =	**2**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = **89** percent

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

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TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =	Comal		
Total project area included in plan =	10.050	acres	
Predevelopment impervious area within the limits of the plan =	0.000	acres	
Total post-development impervious area within the limits of the plan =	5.249	acres	
Total post-development impervious cover fraction * =	0.52		
P =	33	inches	
$L_{M\ TOTAL\ PROJECT}$ =	**4712**	lbs.	

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 4 BASIN A-4

Total drainage basin/outfall area =	0.565	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.00**	
$L_{M\ THIS\ BASIN}$ =	**0**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = **89** percent

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
Date Prepared: 3/7/2011

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3 3 $L_M = 27\ 2(A_N \times P)$

where:

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

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

County =	Comal	
Total project area included in plan =	10.050	acres
Predevelopment impervious area within the limits of the plan =	0.000	acres
Total post-development impervious area within the limits of the plan =	5.249	acres
Total post-development impervious cover fraction * =	**0.52**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**4712**	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 5 BASIN A-5

Total drainage basin/outfall area =	0.716	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.103	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.14**	
$L_{M\ THIS\ BASIN}$ =	**92**	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = **85** percent

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

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

RG-348 Page 3-33 Equation 3 7. L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0 54)

where:

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

A_C =	0 72	acres
A_I =	0 10	acres
A_P =	**0.61**	acres
L_R =	**109**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 92 lbs.

F = **0.84**

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

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Date Prepared: 3/7/2011

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =	Comal		
Total project area included in plan * =	10.050	acres	
Predevelopment impervious area within the limits of the plan =	0.000	acres	
Total post-development impervious area within the limits of the plan =	5.249	acres	
Total post-development impervious cover fraction =	0.52		
P =	33	inches	
$L_{M\ TOTAL\ PROJECT}$ =	4712	lbs.	

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 6 BASIN A-6

Total drainage basin/outfall area =	0.083	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.083	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	75	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = 89 percent

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
Date Prepared: 3/7/2011

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =		Comal	
Total project area included in plan	=	10.050	acres
Predevelopment impervious area within the limits of the plan	=	0.000	acres
Total post-development impervious area within the limits of the plan	=	5.249	acres
Total post-development impervious cover fraction	=	**0.52**	
P =		**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =		**4712**	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 7 BASIN A-7

Total drainage basin/outfall area =	1.830	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.090	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.05**	
$L_{M\ THIS\ BASIN}$ =	**81**	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = **85** percent

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

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:

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

A_C =	1.92	acres
A_I =	0.09	acres
A_P =	**1.83**	acres
L_R =	**115**	lbs

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =	Comal	
Total project area included in plan * =	10.050	acres
Predevelopment impervious area within the limits of the plan =	0.000	acres
Total post-development impervious area within the limits of the plan =	5.249	acres
Total post-development impervious cover fraction =	**0.52**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**4712**	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. =	8		BASIN A-8 (WATER QUALITY AND DETENTION POND AREA)
Total drainage basin/outfall area =	0.610	acres	
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres	
Post-development impervious area within drainage basin/outfall area =	0.000	acres	
Post-development impervious fraction within drainage basin/outfall area =	**0.00**		
$L_{M\ THIS\ BASIN}$ =	**0**	lbs.	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = **89** percent

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

Texas Commission on Environmental Quality

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

where:

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

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

County =	Comal		
Total project area included in plan =	10.050	acres	
Predevelopment impervious area within the limits of the plan =	0.000	acres	
Total post-development impervious area within the limits of the plan =	5.249	acres	
Total post-development impervious cover fraction =	0.52		
P =	33	inches	
$L_{M\ TOTAL\ PROJECT}$ =	**4712**	lbs	

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. =	9		BASIN C1
Total drainage basin/outfall area =	0.044	acres	
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres	
Post-development impervious area within drainage basin/outfall area =	0.044	acres	
Post-development impervious fraction within drainage basin/outfall area =	**1.00**		
$L_{M\ THIS\ BASIN}$ =	**39**	lbs.	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = **89** percent

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

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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27\ 2(A_N \times P)$

where,

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

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

County =		Comal	
Total project area included in plan	=	10.050	acres
Predevelopment impervious area within the limits of the plan	=	0.000	acres
Total post-development impervious area within the limits of the plan*	=	5.249	acres
Total post-development impervious cover fraction	=	0.52	
P	=	33	inches
$L_{M\ TOTAL\ PROJECT}$	=	4712	lbs

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

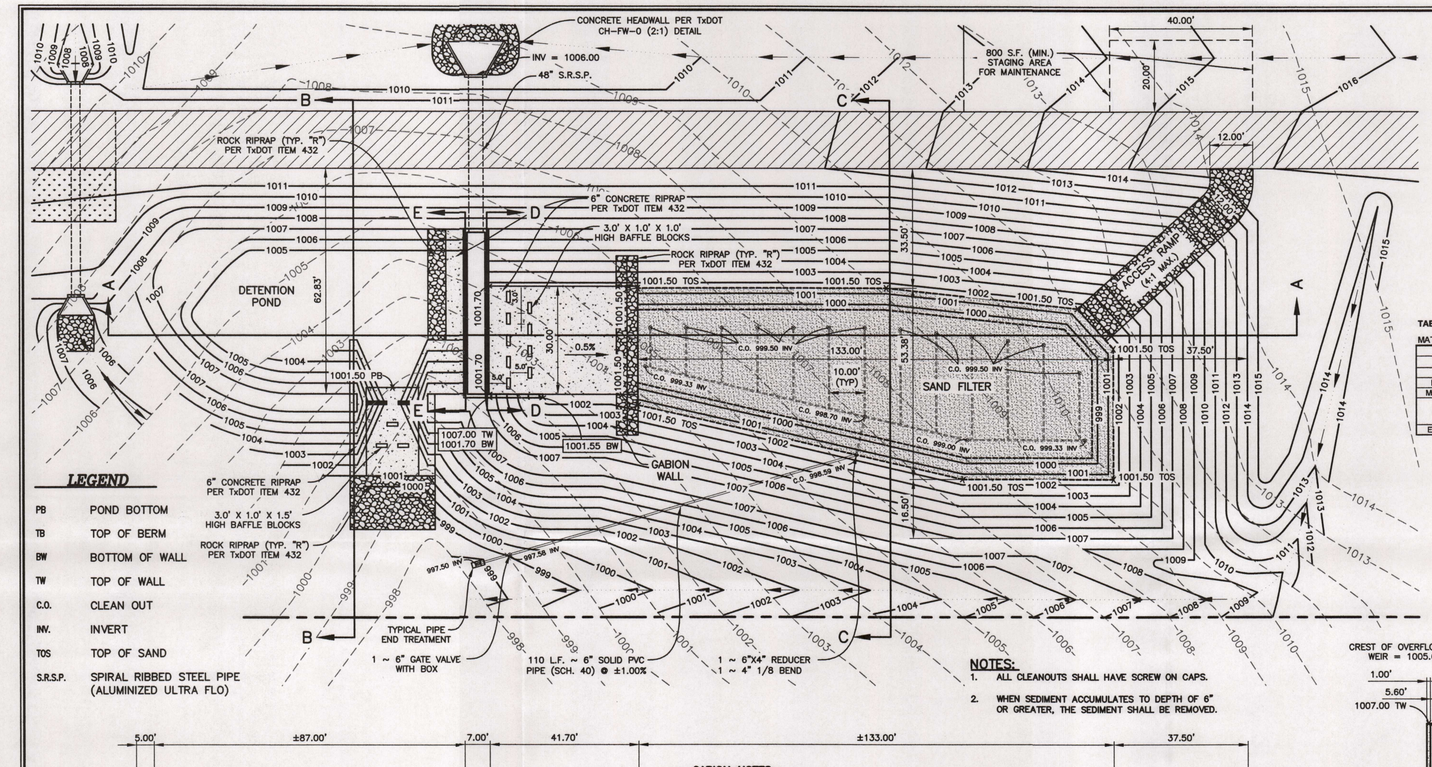
Drainage Basin/Outfall Area No. = 10 BASIN C2

Total drainage basin/outfall area =	0.021	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	0.021	acres
Post-development impervious fraction within drainage basin/outfall area =	1.00	
$L_{M\ THIS\ BASIN}$ =	19	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = 89 percent

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



LEGEND

PB	POND BOTTOM
TB	TOP OF BERM
BW	BOTTOM OF WALL
TW	TOP OF WALL
C.O.	CLEAN OUT
INV.	INVERT
TOS	TOP OF SAND
S.R.S.P.	SPIRAL RIBBED STEEL PIPE (ALUMINIZED ULTRA FLO)

NOTES:
1. ALL CLEANOUTS SHALL HAVE SCREW ON CAPS.
2. WHEN SEDIMENT ACCUMULATES TO DEPTH OF 6" OR GREATER, THE SEDIMENT SHALL BE REMOVED.

NOTE:
1. DETAILS SHOWN ON THIS SHEET ARE SCHEMATIC ONLY AND REPRESENT THE CALCULATED SEDIMENTATION POND AND SAND FILTRATION BASIN REQUIRED FOR THIS WATER QUALITY POLLUTION ABATEMENT PLAN SUBMITTAL.
2. BASIN PLAN DEPICTS MINIMUM INTERIOR DIMENSIONS (LENGTH, WIDTH, AND HEIGHT) FOR TCEQ REVIEW AND APPROVAL. ACTUAL STRUCTURAL PLANS FOR CONSTRUCTION TO BE PREPARED BY STRUCTURAL ENGINEER PER THE CONTRACTOR OR OWNER.

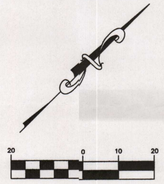
TABLE 3-1 CLAY LINER SPECIFICATIONS (COA, 2004)

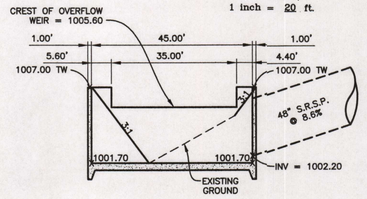
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
Permeability	ASTM D-2434	cm/sec	1×10^{-7}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

TABLE 3-2 GEOTEXTILE FABRIC SPECIFICATIONS (COA, 2004)

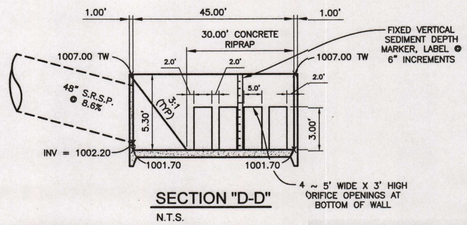
MATERIAL: NONWOVEN GEOTEXTILE FABRIC MEETING THE FOLLOWING SPECIFICATIONS:

PROPERTY	TEST METHOD	UNIT	SPECIFICATION (min)
Unit Weight		oz/yd²	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-7521 (modified)	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D-1682	lb	200
Equiv. Opening Size	US Standard Sieve	No.	80

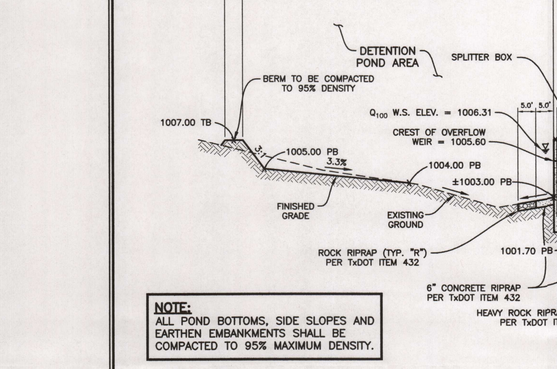




SECTION "E-E"
N.T.S.



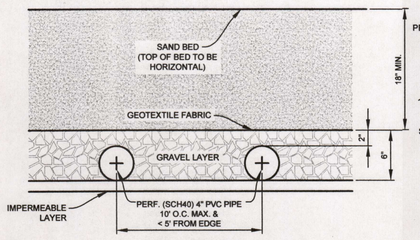
SECTION "D-D"
N.T.S.



GABION NOTES:
1. GABION WALL SHALL BE 3' WIDE X 3.00' TALL X 50.00' LONG.
2. WIRE SHALL BE PLASTIC COATED, MIN. 12 GA., PER CITY OF AUSTIN.
3. GABION BASKET SHALL BE FILLED WITH 5" TO 8"ø ROCKS.

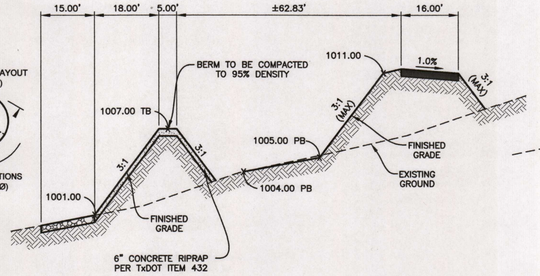
SECTION "A-A"
N.T.S.

NOTE:
ALL POND BOTTOMS, SIDE SLOPES AND EARTHEN EMBANKMENTS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY.

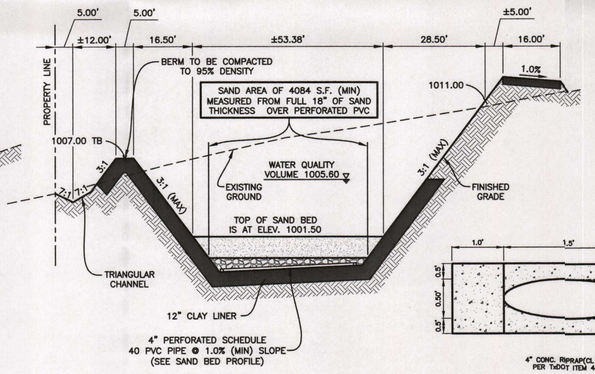


SAND BED PROFILE
(WITH GRAVEL FILTER)

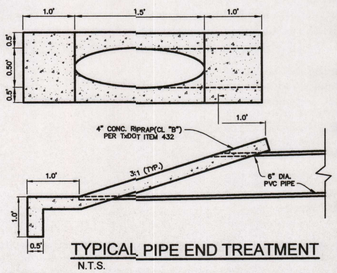
SAND BED WITH GRAVEL LAYER NOTES:
THE TOP LAYER IS TO BE A MINIMUM OF EIGHTEEN (18) INCHES OF 0.02-0.04 INCH DIAMETER SAND WHICH CORRESPOND WITH ASTM C-33 CONCRETE SAND (SMALLER SAND SIZE IS NOT ACCEPTABLE). UNDER THE SAND SHALL BE A LAYER OF ONE-HALF (0.5) TO ONE AND ONE-HALF (1.5) INCH DEAMETER WASHED,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



SECTION "B-B"
N.T.S.



SECTION "C-C"
N.T.S.



TYPICAL PIPE END TREATMENT
N.T.S.

PARK PLACE 4 RV'S - PERMANENT BEST MANAGEMENT PRACTICE SUMMARY
10.05 ACRE SITE
5.249 ACRES OF IMPERVIOUS COVER (4712# TSS)

Basin A-1 Summary

Watershed Area	Permanent BMP Basin	Drainage Area (Acres)	Imp. Cover (Acres)	Calc. Min. Capture Volume (cf)	Capture Volume Provided (cf)	Calc. Min. Filter Area (sf)	Filter Area Provided (sf)	Target TSS Removal (lb/yr)	TSS Removal Provided (lb/yr)
A1	Basin A1	5.821	4.720	39,691	39,293	3,241	4,084	4,237	4,814
Uncaptured Area "A2"	Overtreatment in Basin A1	0.186	0.186	—	—	—	—	167	0
Uncaptured Area "A3"	Overtreatment in Basin A1	0.237	0.002	—	—	—	—	2	0
Uncaptured Area "A4" (Future Residential-House & Paving)	Overtreatment in Basin A1	0.083	0.083	—	—	—	—	75	0
*Uncaptured Area "C1" (Offsite Existing Driveway)	Overtreatment in Basin A1	0.044	0.044	—	—	—	—	39	0
*Uncaptured Area "C2" (Offsite Proposed Driveway)	Overtreatment in Basin A1	0.021	0.021	—	—	—	—	19	0
Sub-Total - Basin A1	—	6.392	5.056	—	—	—	—	4,539	4,814

Vegetative Filter Strips

Watershed Area	Permanent BMP Basin	Drainage Area (Acres)	Imp. Cover (Acres)	Calc. Min. Capture Volume (cf)	Capture Volume Provided (cf)	Calc. Min. Filter Area (sf)	Filter Area Provided (sf)	Target TSS Removal (lb/yr)	TSS Removal Provided (lb/yr)
A5	Vegetative Filter Strip	0.716	0.103	—	—	—	—	92	92
A7	Vegetative Filter Strips	1.830	0.090	—	—	—	—	81	81
Sub-Total - Vegetative Filter Strips	—	2.546	0.193	—	—	—	—	173	173

BY-PASS & POND AREAS

Watershed Area	Permanent BMP Basin	Drainage Area (Acres)	Imp. Cover (Acres)	Calc. Min. Capture Volume (cf)	Capture Volume Provided (cf)	Calc. Min. Filter Area (sf)	Filter Area Provided (sf)	Target TSS Removal (lb/yr)	TSS Removal Provided (lb/yr)
A4	None - (By-Pass)	0.565	0.000	—	—	—	—	—	—
A8	None - Water Quality / Detention Basin Area	0.610	0.000	—	—	—	—	—	—
Sub-Total	—	1.175	0.000	—	—	—	—	—	—
Total	—	*10.113	5.249	—	—	—	—	4,712	4,987

Notes:
*1. Areas "C1" and "C2" are Off-Site Areas (Existing & Proposed Driveways) (Uncaptured) but being treated by Overtreatment provided with the Water Quality Basin A1.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Park Place 4 RV's
Date Prepared: 3/7/2011

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

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

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

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

County =	Comal	`
Total project area included in plan * =	10.050	acres
Predevelopment impervious area within the limits of the plan * =	0.000	acres
Total post-development impervious area within the limits of the plan* =	5.249	acres
Total post-development impervious cover fraction * =	0.52	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	4712	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 10

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

Drainage Basin/Outfall Area No. = 1 ` BASIN A-1

Total drainage basin/outfall area =	5.821	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	4.720	acres
Post-development impervious fraction within drainage basin/outfall area =	0.81	
$L_{M\ THIS\ BASIN}$ =	4237	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = 80 percent

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

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_V x 34.6 + A_P x 0.54)

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

A_C =	5.82	acres
A_I =	4.72	acres
A_P =	1.10	acres
L_R =	4814	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4539 `lbs.

F = 0.94 `

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 =	2.40	inches
Post Development Runoff Coefficient =	0.64	`
On-site Water Quality Volume =	32410	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 =	6482	
Total Capture Volume (required water quality volume(s) x 1.20) =	**38891**	**cubic feet**

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

7. Retention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

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

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

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

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

NOT USED **9A. Full Sedimentation and Filtration System**

Water Quality Volume for sedimentation basin =	38891	cubic feet
Minimum filter basin area =	1801	` square feet
Maximum sedimentation basin area =	16205	square feet For minimum water depth of 2 feet
Minimum sedimentation basin area =	4051	square feet For maximum water depth of 8 feet

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

Water Quality Volume for combined basins =	38891	cubic feet (39,293 cf (PROVIDED))
Minimum filter basin area =	3241	` square feet (X 1.20 = 3900 sf (4084 sf PROVIDED))
Maximum sedimentation basin area =	12984	square feet For minimum water depth of 2 feet
Minimum sedimentation basin area =	810	square feet For maximum water depth of 8 feet

PAWELEK & MOY, INC.
CIVIL ENGINEERING & CONSULTING SERVICES
130 W. JAHN STREET
NEW BRAUNFELS, TX 78130
TEL: (830) 629-2563
FIRM No. F-9862

STATE OF TEXAS — JOHN J. MOY JR. — 87835 — LICENSED PROFESSIONAL ENGINEER — 4/8/11

OWNER:
WINDROCK RANCH, LLC
P.O. BOX 2536
NEW BRAUNFELS, TX 78133-0012

PERMANENT POLLUTION ABATEMENT PLAN (BASIN A-1)

PARK PLACE 4 RV'S - BOAT AND RV STORAGE
COMAL COUNTY, TEXAS

REVISIONS

DATE	DESCRIPTION

DRAWN BY:	D.G. III
CHECKED BY:	J.J.M.
DATE:	APRIL 2011
JOB NO.:	0912.01

P-1

F:\0912.01 – PARK PLACE FOR RV\dwg\P-1.dwg 2011/04/08 12:18pm Domingo

Attachment "G"
Maintenance Plan and Schedule for Sedimentation and Filtration Basin

PROJECT NAME: Park Place 4 RV's

ADDRESS: 9320 FM 306

CITY, STATE, ZIP: New Braunfels, Texas 78132

SEDIMENTATION BASIN

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

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

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

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

SAND FILTER

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

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

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

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

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

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

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

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

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

Responsible Party for Maintenance: Windrock Ranch, LLC – Arnold P. Kochis, Operating Manager
Address: P.O. Box 2536
City, State Zip: New Braunfels, Texas 78133-0012
Telephone Number: (830) 964-3065

Signature of Responsible Party _____ Date

Print Name of Responsible Party: Arnold P. Kochis

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

I Arnold P. Kochis,
Print Name

Owner/Operating Manager,
Title - Owner/President/Other

of Windrock Ranch, LLC,
Corporation/Partnership/Entity Name

have authorized John J. Moy, Jr.
Print Name of Agent/Engineer

of Pawelek & Moy, Inc.
Print Name of Firm

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

I also understand that:

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

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

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

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

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

3-14-11
Date

THE STATE OF Texas §

County of Comal §

BEFORE ME, the undersigned authority, on this day personally appeared Arnold P. Kochis 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 14th day of March, 2011

VICKI L. LASSERE
Notary Public
STATE OF TEXAS
My Comm. Exp. 07-01-2014

Vicki L. Lassere
NOTARY PUBLIC

Vicki L. Lassere
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 07-01-2014

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

NAME OF PROPOSED REGULATED ENTITY: Park Place 4 RV's
REGULATED ENTITY LOCATION: 9320 FM 306 - Comal County
NAME OF CUSTOMER: Windrock Ranch, LLC
CONTACT PERSON: Pat Kochis PHONE: (830) 964-3065
(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
512/239-1278

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

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	10.05 Acres	$ 6,500.00
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature _____ Date 4/8/11

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

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

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

Water Pollution Abatement Plans and Modifications
Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

PROJECT	FEE
Exception Request	$500

Extension of Time Requests

PROJECT	FEE
Extension of Time Request	$150

WINDROCK RANCH LLC
PO BOX 33815
SAN ANTONIO, TX 78265

5018

30-9/1140
01

15 March 2011 Date

Pay to the Order of Texas Commission on Environmental Quality $ 6,500.00

Six Thousand, Five Hundred Dollars

Security Features Details on Back.

Frost
www.frostbank.com

For WPAP Fee

MP

⑈114000093⑈ 5018 ⑆104784588⑈

Harland Clarke

GUARDIAN SAFETY® YELLOW

TCEQ Use Only

TCEQ Core Data Form

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)*

[X] 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.)*

[X] Yes [ ] No — Water Pollution Abatement Plan

3. Customer Reference Number *(if issued)*: CN

Follow this link to search for CN or RN numbers in Central Registry**

4. Regulated Entity Reference Number *(if issued)*: RN

SECTION II: Customer Information

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

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

[X] Owner [ ] Operator [ ] Owner & Operator
[ ] Occupational Licensee [ ] Responsible Party [ ] Voluntary Cleanup Applicant [ ] Other:

7. General Customer Information

[X] 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:

[X] Corporation	[ ] Individual	[ ] Sole Proprietorship- D.B.A	
[ ] City Government	[ ] County Government	[ ] Federal Government	[ ] State Government
[ ] Other Government	[ ] General Partnership	[ ] Limited Partnership	[ ] Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*: Windrock Ranch, LLC

If new Customer, enter previous Customer below

End Date:

10. Mailing Address: P.O. Box 2536

City: New Braunfels State: TX ZIP: 78133 ZIP + 4: 78133-0012

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

12. E-Mail Address *(if applicable)*: parkplace4rvs@gvtc.com

13. Telephone Number: (830) - 964-3065

14. Extension or Code: -

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

16. Federal Tax ID *(9 digits)*: 26-3207214

17. TX State Franchise Tax ID *(11 digits)*: 32037749291

18. DUNS Number *(if applicable)*:

19. TX SOS Filing Number *(if applicable)*: 801017845

20. Number of Employees

[X] 0-20 [ ] 21-100 [ ] 101-250 [ ] 251-500 [ ] 501 and higher

21. Independently Owned and Operated?

[X] 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)*

[X] 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)*: Park Place 4 RV's

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	9320 FM 306						
	City: New Braunfels	State: TX	ZIP: 78132	ZIP + 4: 78132-2205			
25. Mailing Address:	P.O. Box 2536						
	City: New Braunfels	State: TX	ZIP: 78133	ZIP + 4: 78133-0012			
26. E-Mail Address:	parkplace4rvs@gvtc.com						
27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*					
(830) 964-3065	-	( ) -					
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)				
4225		531130					
34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*							
Boat and Recreational Vehicle Storage yard.							

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

35. Description to Physical Location:	Approximately 1300 feet northwest of the intersection of Purgatory Rd. and FM 306, on FM 306.				
36. Nearest City	County	State	Nearest ZIP Code		
New Braunfels	Comal	Texas	78132		
37. Latitude (N) In Decimal:	29.84896	38. Longitude (W) In Decimal:	98.12222		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	50	56	98	07	20

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

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

SECTION IV: Preparer Information

40. Name: John J. Moy, Jr., P.E.		41. Title: Civil Engineer	
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(830)629-2563	-	(830)629-2564	johnmoy711@sbcglobal.net

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:	Pawelek & Moy, Inc.	Job Title:	Project Engineer
Name *(In Print)*:	John J. Moy, Jr.	Phone:	(830) 629.2563
Signature:	John J. Moy Jr.	Date:	4/8/11