TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 9, 2016

Mr. Brad Bingham
Blewett, Allen, Bingham, LLC
3979 Old Lehmann Road
Kingsbury, Texas 78638

RECEIVED
JAN 13 2017
COUNTY ENGINEER

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Gruene River Resort and Recreation Center; Located at 1554 Gruene Road; New Braunfels, Texas

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

Regulated Entity No. RN108931213; Additional ID No. 13000262

Dear Mr. Bingham:

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 Jones & Carter, Inc. on behalf of Blewett, Allen, Bingham, LLC on October 6, 2016. Final review of the WPAP was completed after additional material was received on November 30, 2016 and December 6, 2016. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The original WPAP was approved by letter dated March 1, 2016 and had a project area of 8.28 acres. The impervious cover for the project was 3.21 acres (38.8 percent) and consisted of a resort and event center with associated parking lots, sidewalks, drainage, and utilities. One batch detention basin was approved to treat stormwater.

PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 8.28 acres. The purpose of the modification is to increase the number of available parking spots and add a pool area, resulting in an additional 0.57 acres of impervious cover. The new total impervious cover on site will be 3.78 acres (45.7 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Wastewater Treatment Plant owned by New Braunfels Utilities.

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, one batch detention 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 3,393 pounds of TSS generated from the 3.78 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The batch detention basin will have a clay liner with a minimum thickness of 12 inches. The system also has an automated logic controller and valve. The basin is designed with a water quality volume plus 20 percent additional volume for a total capacity of 60,113 cubic feet (39,498 cubic feet required).

Drainage Area (acres)	Impervious Cover (acres)	BMP	TSS Required Removal (pounds/year)	TSS Designed Removal (pounds/year)
5.76	3.23	Batch Detention Basin	2,899	3,393
2.13	0.55	Uncaptured	494*	0
0.39	0.00	Uncaptured	0	0
8.28	3.78	TOTAL	3,393	3,393

*Overtreatment provided for by the batch detention basin.

GEOLOGY

According to the geologic assessment included with the application, the site lies on the Kainer Formation. Five non-sensitive geologic features and eleven non-sensitive manmade features were identified by the project geologist. The San Antonio Regional Office site assessment conducted on November 11, 2016 revealed the site was generally as described in the geologic assessment.

SPECIAL CONDITIONS

I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter dated March 1, 2016.

II. The permanent pollution abatement measure shall be inspected and be fully operational prior to use of newly constructed parking areas.

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

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. One well exists on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden 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 <Austin/San Antonio> Regional Office within 30 days of site completion.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of

the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

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

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Joshua Vacek of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4028.

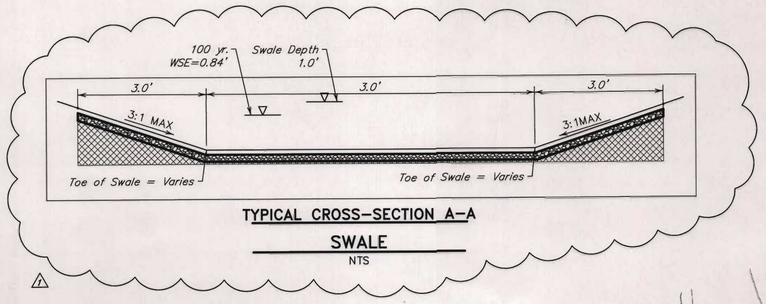
Sincerely,

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

LB/JV/eg

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

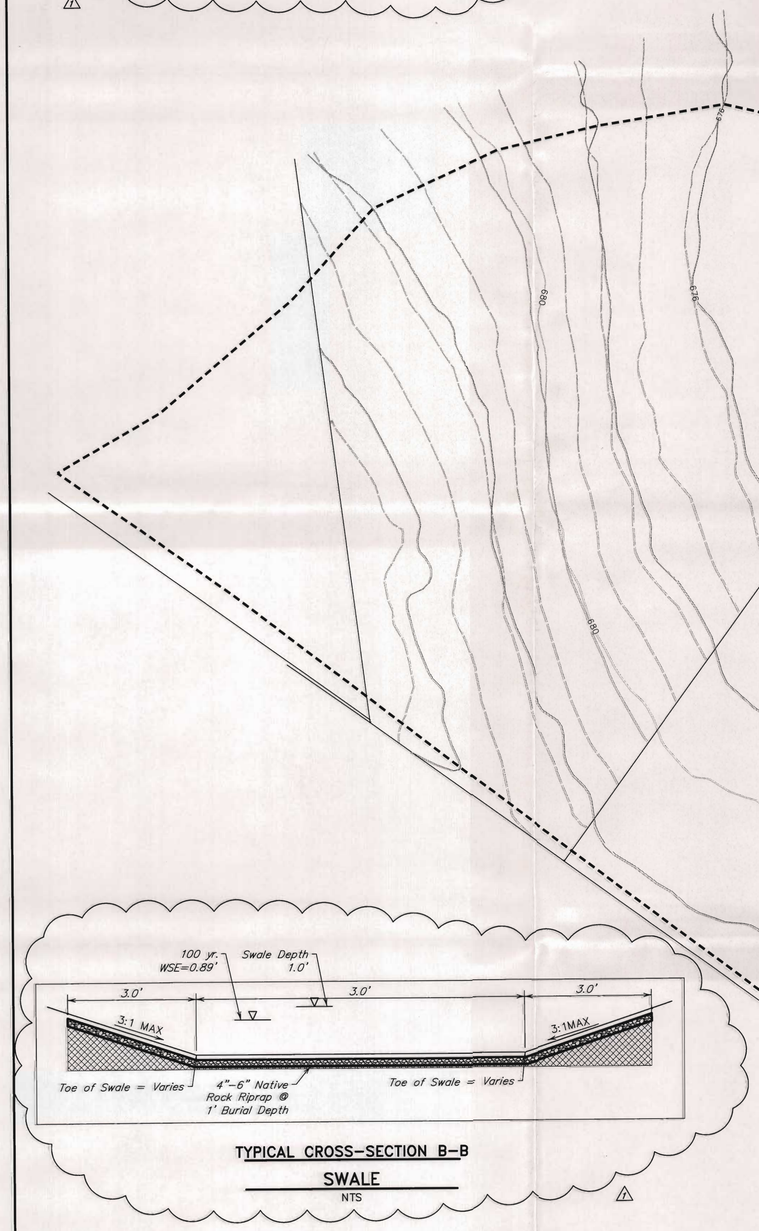
cc: Ms. Kara J. Heasley, P.E., Jones & Carter, Inc.
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. Thomas H. Hornseth, P.E., Comal County Engineer
Mr. H. L. Sauer, Comal Trinity Groundwater Conservation District
Mr. Robert Camareno, City of New Braunfels
TCEQ Central Records, Building F, MC 212



TYPICAL CROSS-SECTION A-A

SWALE

NTS



TYPICAL CROSS-SECTION B-B

SWALE

NTS

LEGEND

- 1.82 AC. — DRAINAGE AREA IN ACRES
- DRAINAGE AREA LINE
- VII — DRAINAGE AREA NUMBER
- SLOPE ARROW
- 890 — EXISTING CONTOURS
- 890 — PROPOSED CONTOURS

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
C.A.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESMT.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
C.C.P.R.	COMAL COUNTY PLAT RECORD

RECEIVED
DEC 14 2016
COMAL COUNTY ENGINEER'S OFFICE

NO.	DATE	REVISIONS	APP.
2	9/14/16	Added Additional Parking	K.H
1	6/1/16	City Comment Revisions	K.H

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

DRAINAGE AREA MAP

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 60' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. --
SUBMITTED: SURV. BY:
F.B. NO.

KARA J. HEASLEY 92590 LICENSED PROFESSIONAL ENGINEER
9/14/16

SHEET NO. 21 OF 28

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JONES|CARTER

4350 Lockhill Selma Rd., Suite 100
San Antonio, Texas 78249
Tel: 210.494.5511
Fax: 210.494.5519
www.jonescarter.com

December 6, 2016

Josh Vacek
TCEQ
14250 Judson Road
San Antonio, Texas 78233

RE: Gruene River Resort and Recreation Center WPAP Modification Comment Corrections

Josh,

The following are the responses to the technical review comments for the Gruene River Resort and Recreation Center Water Pollution Abatement Plan (WPAP) dated December 6, 2016.

1. Update TSS Removal Summary Table.

   Area from drainage 2 and 3 was added to area 1 to capture the increased impervious cover within the pond. The areas that were added to drainage area 1 were not removed from drainage areas 2 and 3 in the summary table. I have attached the updated summary table reflecting this.

Sincerely,

Kara J. Heasley

Kara J. Heasley, P.E.

12/6/16

KJH/lar
Job No. S0879-0001-00

TSS Removal by Drainage Area					
Drainage Area	Drainage Area (Acres)	Impervious Cover (acres)	BMP	TSS Required (lbs.)	TSS Removed (lbs.)
I	5.76	3.23	Batch Detention	2899	3397
II	2.13	0.55	Uncaptured	494	0
III	0.39	0	Uncaptured	0	0
TOTAL	8.28	3.78	TOTAL	3393	3397

Blake Allison

From: Josh Vacek <Josh.Vacek@Tceq.Texas.Gov>
Sent: Tuesday, December 06, 2016 10:53 AM
To: Kara Heasley
Cc: b.binghamllc@yahoo.com; Blake Allison
Subject: Gruene River Resort and Recreation Center

Good Morning Ms. Heasley,

I was reviewing the submitted amended materials for the subject WPAP modification and noted that the Drainage Areas do not add up correctly on the TSS Removal by Drainage Area chart provided.

Here is what was provided:

Drainage Area	Drainage Area (Acres)
I	5.76
II	2.43
III	0.71
Total	8.28

Here is the correct total:

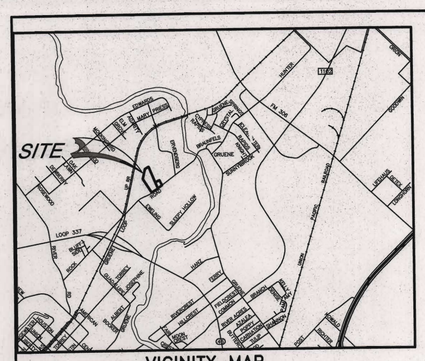
Drainage Area	Drainage Area (Acres)
I	5.76
II	2.43
III	0.71
Total	8.9

Please explain the additional 0.62 acres.

Thank you,

Joshua Vacek

Environmental Investigator, Edwards Aquifer Protection Program
Texas Commission on Environmental Quality, Region 13 – San Antonio
14250 Judson Rd., San Antonio, Texas 78233
Main: 210-490-3096
Fax: 210-545-4329
Office: 210-403-4028
Email: josh.vacek@tceq.texas.gov



BUFFINGTON, BINGHAM, AND BINGHAM SUBDIVISION
14/279 PR

LOT 1,
BLOCK 1

S 28°47'24" E 220.56'

EXIST BLDG

BUFFINGTON, BINGHAM, AND BINGHAM SUBDIVISION
14/279 PR

LOT 2, BLOCK 1
BLEWITT, ALLEN, AND BINGHAM LLC
#201106002725 OPR
1/20/2011

N 67°29'16" E 185.86'

S 54°57'51" W 182.95'

GRUENE ROAD (50' R.O.W.)

OHP & OHT

SMH

0 10 20 40 80 120
SCALE: 1" = 40'

Additional Parking

S 22°31'09" E 671.50

20' Utility Esmt

Existing Water Well

San Sewer MH #5
Sta. 10+20.51

FF=669.83

FF=668.83

Pool Area

N 58°35'45" E 165.04'

Additional Parking

S 22°31'09" E 455.41'

W 22°31'09" W 458.33'

12' Access Esmt

20' Utility Esmt

Prop 4' Sidewalk

GRUENE ROAD (50' R.O.W.)

S 22°31'09" E 245.97'

Maintenance Staging Area

25' B.S.L.

Trash Rack & Perforated Riser
Top of Riser=653.00
Inv=648.60
See Detail Sht. 27

6" Automatic Valve & Logic Controller
See Detail Sht. 27

18" RCP
INV = 653.00

INV = 648.00

INV = 652.73

San Sewer MH #1
Sta. 1+23.20

20' WIDE NEW BRAUNFELS UTILITIES ELEC. LINE RIGHT-OF-WAY #20030605191 OPR

Begin Swale Rock Rip-Rip
Sta. 1+07.44

Prop Pavilion and Water Wheel

7.159 ACRES
BLEWITT, ALLEN, AND BINGHAM LLC
#01006016961 OPR
05/25/2010

S 67°28'51" W 336.74'

Additional Parking

Dumpster Pad

Prop Sanitary Sewer

End Swale Rock Rip-Rip
Sta. 1+65.00

N 13°20'15" E 408.77'

14.778 ACRES
DILLEY RENTAL ESTATES
#201306003129 OPR

Trash Enclosure

Prop Sanitary Sewer

San Sewer MH #4
Sta. 8+23.16

San Sewer MH #3
Sta. 6+97.21

San Sewer MH #2
Sta. 4+84.86

N ..." W 650.99'

Variable Width Drainage Esmt

2.868 ACRES
ROBERT AND PAMELA MAYFIELD
#9506480232 OPR
11/28/1995

For disturbed areas where insufficient soil exist to establish vegetation contractor shall place a minimum of 6" topsoil prior to re-vegetation

RECEIVED
DEC 14 2016
COUNTY ENGINEER

LEGEND

EXISTING	PROPOSED	
890		EXISTING CONTOURS
	890	PROPOSED CONTOURS
		WATERLINE w/ GATE VALVE
		FLUSH VALVE w/ GATE VALVE
		PLUG & CLAMP w/ BLOW OFF
		SANITARY SEWER w/ MANHOLE
		PROPOSED IMPERVIOUS COVER ADDITIONS

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESMT.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
CC.P.R.	COMAL COUNTY PLAT RECORD

NO.	DATE	REVISIONS	APP.
1	5/4/16	SANITARY SEWER UPDATES	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

SITE PLAN

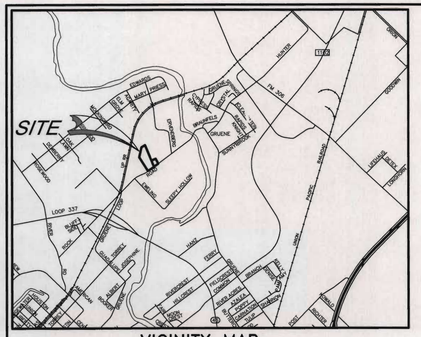
JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 40' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. –
SUBMITTED: SURV. BY:
F.B. NO.

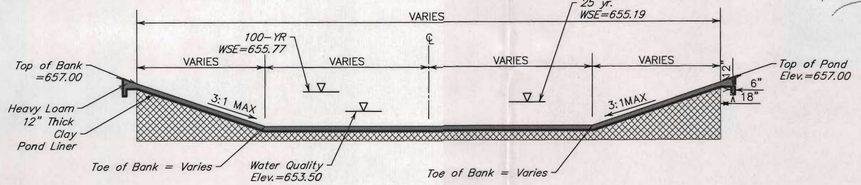
STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
12/12/16

SHEET NO. 1 OF 1

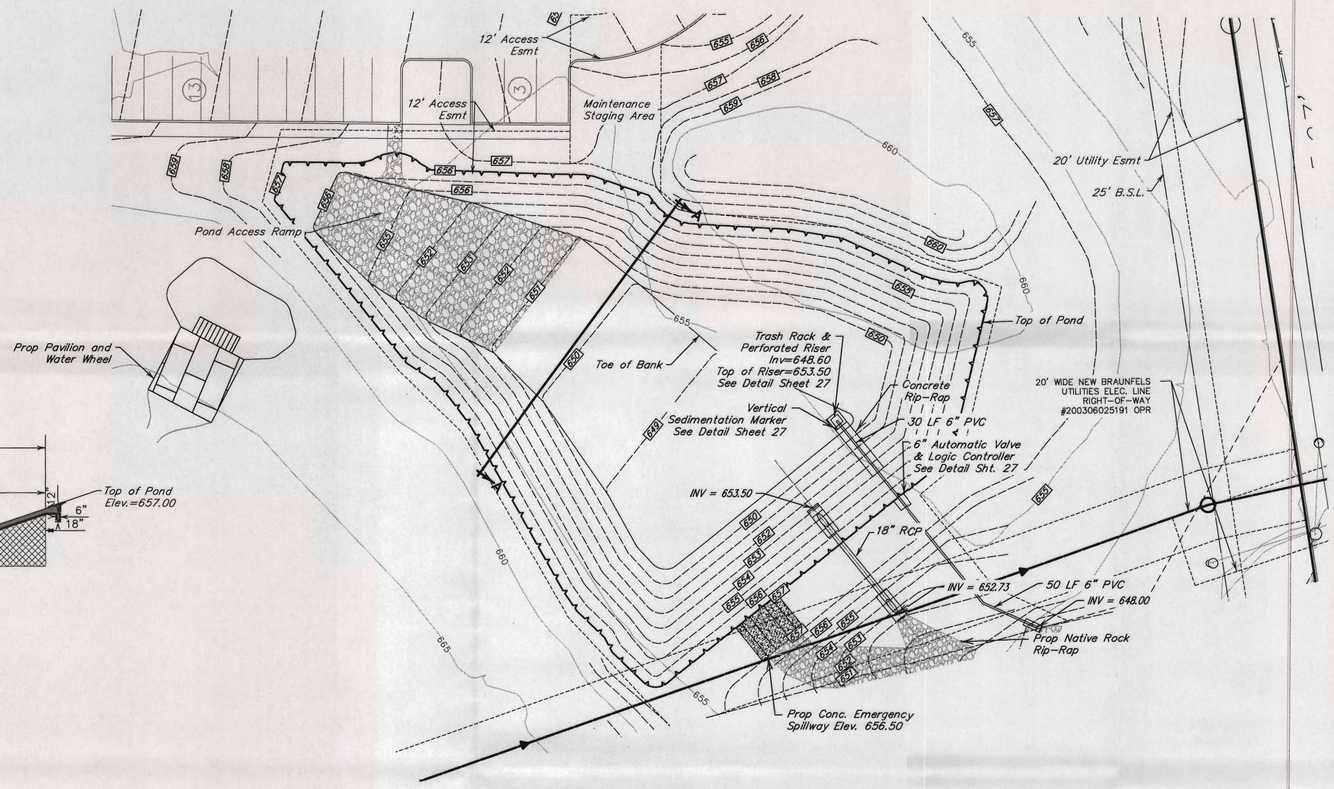
P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\General\Reports\WPAP\S0879-0001 WPAP SITE PLAN.dwg

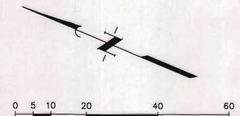


VICINITY MAP
SCALE 1" = 40'



TYPICAL CROSS-SECTION A-A
DETENTION POND
SCALE 1" = 10'





3.4.2 Basin Lining Requirements

Impermeable liners should be used for water quality basins (retention, extended detention, sand filters, wet ponds and constructed wetlands) located over the recharge zone and in areas with the potential for groundwater contamination. Impermeable liners may be clay, concrete or geomembrane. If geomembrane is used, suitable geotextile fabric should be placed on the top and bottom of the membrane for puncture protection and the liners covered with a minimum of 6 inches of compacted topsoil. The topsoil should be stabilized with appropriate vegetation. Clay liners should meet the specifications in Table 3-6 and have a minimum thickness of 12 inches.

Table 3-6 Clay Liner Specifications (COA, 2004)

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Gruene River Resort
Date Prepared: 11/22/2016

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 * =	8.28	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan * =	3.78	acres
Total post-development impervious cover fraction * =	0.46	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	3393	lbs.

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

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

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	5.76	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.23	acres
Post-development impervious fraction within drainage basin/outfall area =	0.56	
$L_{M\ THIS\ BASIN}$ =	2899	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Bioretention (Batch Extended Detention)
Removal efficiency = 91 percent

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

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

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

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

A_C =	5.76	acres
A_I =	3.23	acres
A_P =	2.53	acres
L_R =	3397	lbs

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

Desired $L_{R\ THIS\ BASIN}$ = 3393 lbs.

F = 1.00

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 =	4.00	inches
Post Development Runoff Coefficient =	0.39	
On-site Water Quality Volume =	32915	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 =	6583	
Total Capture Volume (required water quality volume(s) x 1.20) =	39498	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	

TSS Removal by Drainage Area

Drainage Area	Drainage Area (Acres)	Impervious Cover (acres)	BMP	TSS Required (lbs.)	TSS Removed (lbs.)
I	5.76	3.23	Batch Detention	2899	3397
II	2.43	0.55	Uncaptured	395	0
III	0.71	0	Uncaptured	0	0
TOTAL	8.28	3.78	TOTAL	3294	3397

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESM'T.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
CC.P.R.	COMAL COUNTY PLAT RECORD

COUNTY ENGINEER
DEC 14 2016
RECEIVED

NO.	DATE	REVISIONS	APP.
1	9/14/16	Updated Pond Calculations	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

TCEQ ATTACHMENT "F"
CONSTRUCTION PLANS

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 20' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. -
SUBMITTED: SURV. BY:
F.B. NO.

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
12/22/16

SHEET NO. 20 OF 28

P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\Civil\WPAP\S0879-0001 ATTACHMENT F.dwg

JONES|CARTER

Gruene River Resort
&
Recreation Center

New Braunfels, TX

WPAP Modification
NOD 1 Response Letter

November 2016

JONES|CARTER

4350 Lockhill Selma Rd., Suite 100
San Antonio, Texas 78249
Tel: 210.494.5511
Fax: 210.494.5519
www.jonescarter.com

November 22 2016

Josh Vacek
TCEQ
14250 Judson Road
San Antonio, Texas 78233

RE: Gruene River Resort and Recreation Center WPAP Modification Comment Corrections

Josh,

The following are the responses to the technical review comments for the Gruene River Resort and Recreation Center Water Pollution Abatement Plan (WPAP) dated November 17, 2016.

1. The Project Description only mentions that the modification will add impervious cover to the original plan. Please update the project description to specify what impervious cover is being added to the site. In addition, please update the site plan to highlight or mark the additional impervious cover.

   The project description was updated specifying what impervious cover has been added. The site plan has been updated with callouts for added impervious cover.

2. The Project Description explains that the existing house and drive, with 0.065 acres of impervious cover, were constructed post December 5, 1984 and will be accounted for in the treatment calculations. The treatment calculations show 0.11 acres of predevelopment impervious cover. Please explain the additional 0.045 acres of impervious cover.

   The impervious cover of the house and existing driveway is 0.11 acres. The project description has been updated to reflect this.

3. Although the existing house and drive are predevelopment impervious cover, the "predevelopment impervious area within the limits of the plan" part of the calculations should only be either unregulated impervious cover or regulated impervious cover that is already receiving treatment. As the existing house and drive were constructed post December 5, 1984, the impervious cover would be considered regulated, unless sufficient documentation is submitted to prove otherwise. This would increase the required TSS Removal load from 3,294 pounds to 3,393 pounds. According to the sizing of the basin, the basin still has capacity to treat the additional required load. Please submit documentation that supports the existing impervious cover as being unregulated or submit updated TSS removal calculations with the 0.11 acres of predevelopment impervious cover removed.

   The predevelopment impervious cover was removed from the TSS removal calculations. The updated summary table and calculation sheets have been attached.

Sincerely,

Kara J. Heasley

Kara J. Heasley, P.E.

KJH/lar
Job No. S0879-0001-00

Attachment C- Project Description

Approved

Gruene River Resort & Recreation Center is a proposed commercial development located at 1554 Gruene Rd, New Braunfels, TX. 78130. The site is inside the city limits of New Braunfels in Comal County, Texas. The entire 8.28 acre site is located over the Edwards Aquifer Recharge Zone. In accordance with 30 TAC Chapter 213, this WPAP application is being submitted for the entire 8.28 acre tract. The site is owned by Blewett, Allen, Bingham, LLC.

An existing house and driveway are located on the site. Existing impervious cover from the house and drive is approximately 0.11 acres. These structures were constructed post 12/05/84 and will be accounted for in treatment volume calculations. The Water Pollution Abatement Plan (WPAP) Application proposes construction of a resort and event center with associated parking lots, sidewalks, drainage, and utilities. Approximately 3.65 acres will be disturbed by the proposed construction (44% of the site) with a total of 3.21 acres of impervious cover (39% of the site, Total Treatment Required 2,881lbs.). Of the 3.21 acres, 2.8 acres of impervious cover will be captured and treated within the PBMP (Treatment required 2,576lbs.) and 0.41 acres of impervious cover will be uncaptured and consist of drive lanes, sidewalks, and the existing house (Treatment Required 305lbs.).

PBMPs consist of one (1) Batch Detention Basin designed in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348 (rev. 2005) to remove at least 80% of the increased Total Suspended Solids (TSS) from the proposed improvements. The Batch Pond will capture an area of 5.34 acres (65% of the site, TSS Removed 3,013lbs.). Areas of the site untreated by the PBMPs will be compensated for by overtreatment within the Batch Detention basin.

Up gradient runoff from undeveloped offsite areas draining towards the site will be captured in an earthen interceptor channel and diverted around the property to existing drainage ways.

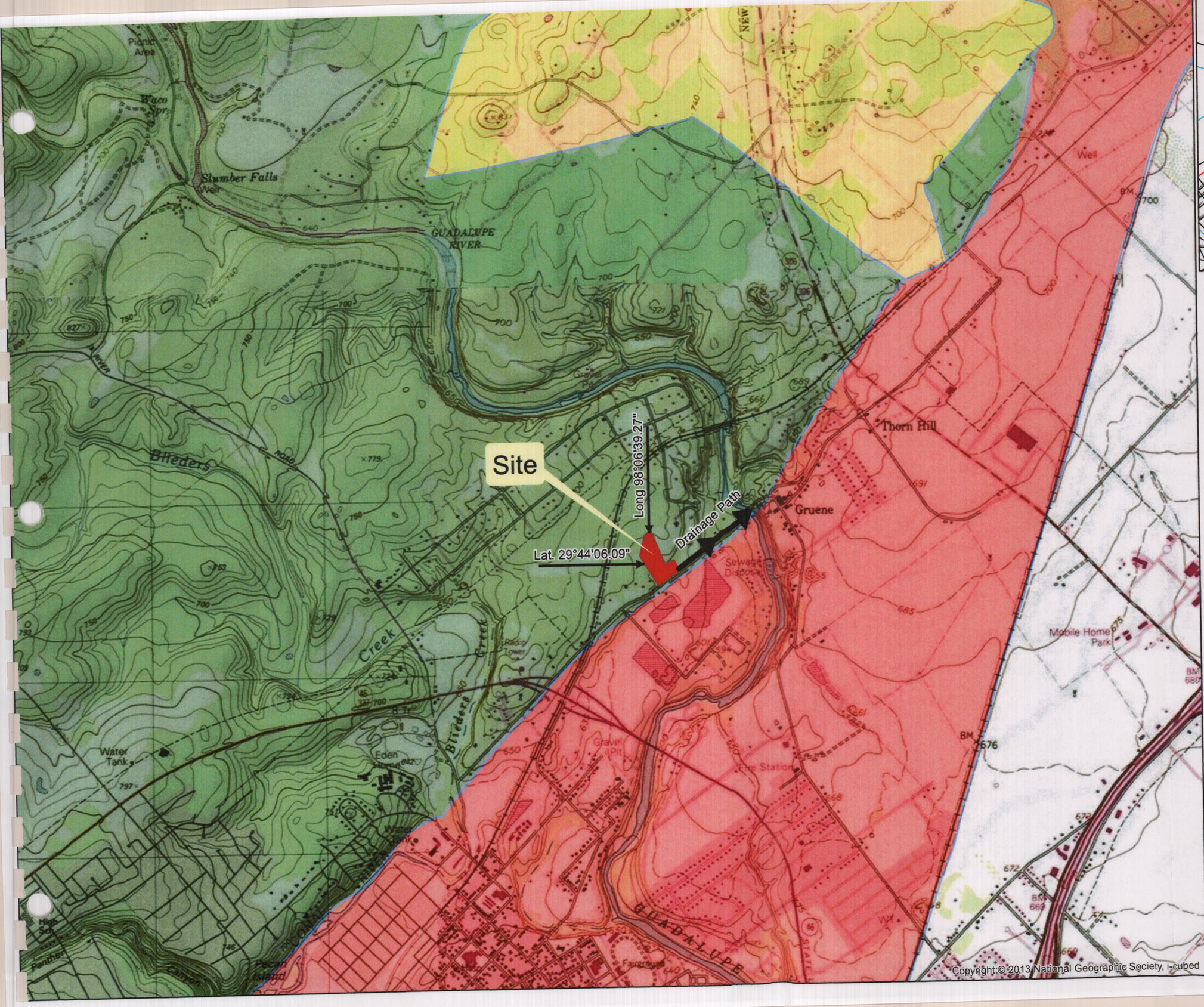
Wastewater generated by the site will be disposed of by conveyance to the Gruene Road Wastewater Treatment Plant operated by New Braunfels Utilities (NBU). Potable water service will also be provided by NBU.

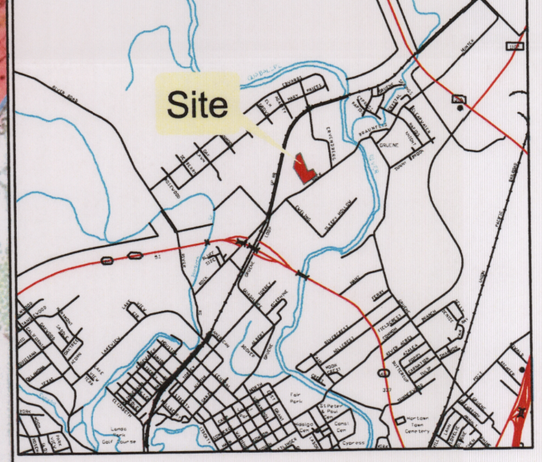
No on site sensitive features were identified in the Geologic Assessment.

Proposed

Proposed changes to the approved WPAP include the addition of parking spaces and pool area (see site plan for additional parking locations). This addition increases the impervious cover from 3.21 acres (39%) to 3.78 acres (46%), drainage area to the pond increased from 5.34 acres to 5.76 acres (70% of total site), and updated pond calculations. The TSS removal required for the increase in impervious cover is 3,393 lbs. The pond will remove 3,397 lbs. of TSS from the captured stormwater.

TSS Removal by Drainage Area					
Drainage Area	Drainage Area (Acres)	Impervious Cover (acres)	BMP	TSS Required (lbs.)	TSS Removed (lbs.)
I	5.76	3.23	Batch Detention	2899	3397
II	2.43	0.55	Uncaptured	494	0
III	0.71	0	Uncaptured	0	0
TOTAL	8.28	3.78	TOTAL	3393	3397





Legend

Site

Edwards Aquifer Zone

TYPE

- Edwards Aquifer Contributing Zone
- Edwards Aquifer Recharge Zone
- Edwards Aquifer Transition Zone

USGS Map: New Braunfels East #29098F1

N

0 1,000 2,000 4,000 Feet

Attachment B

USGS Exhibit

Gruene River Resort & Recreation Center

JONES | CARTER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 6, 2016

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: Gruene River Resort and recreation Center, located at 1554 Gruene Road New Braunfels, Texas

PLAN TYPE: Application for Approval of a Water Pollution Abatement Plan (WPAP) 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program

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. More information regarding this project may be obtained from the TCEQ Central Registry website at http://www.tceq.state.tx.us/permitting/central_registry/.

Please forward your comments to this office by November 6, 2016.

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

for Todd Jones, Water Section Work Leader
San Antonio Regional Office

TJ/eg

JONES | CARTER

Gruene River Resort
&
Recreation Center

New Braunfels, TX

WPAP Modification

September 2016

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

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

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

Technical Review

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

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

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

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

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

1. Regulated Entity Name: Gruene River Resort & Recreation Center						**2. Regulated Entity No.:** 108931213			
3. Customer Name: Brad Bingham						**4. Customer No.:** 603122474			
5. Project Type: (Please circle/check one)	New		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		Non-residential			**8. Site (acres):**		8.28	
9. Application Fee:	$5,000		**10. Permanent BMP(s):**			Batch Detention			
11. SCS (Linear Ft.):	921		**12. AST/UST (No. Tanks):**			No Tanks			
13. County:	Comal		**14. Watershed:**			Middle Guadalupe			

Application Distribution

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

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

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

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

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Kara J. Heasley
Print Name of Customer/Authorized Agent Kara J Heasley 9/29/16
Signature of Customer/Authorized Agent Date

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

General Information Form

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Kara J. Heasley

Date: 9/29/16

Signature of Customer/Agent:

Kara J Heasley

Project Information

1. Regulated Entity Name: Gruene River Resort & Recreation Center
2. County: Comal
3. Stream Basin: Guadalupe River
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☐ SCS
   ☒ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

Contact Person: Brad Bingham
Entity: Blewett, Allen, Bingham, LLC
Mailing Address: 3979 Old Lehmann Road, LLC
City, State: Kingsbury, TX Zip: 78638
Telephone: 512-557-1040 FAX: _____
Email Address: b.binghamllc@yahoo.com

8. Agent/Representative (If any):

Contact Person: Kara Heasley
Entity: Jones | Carter
Mailing Address: 4350 Lockhill Selma Rd., Suite 100
City, State: San Antonio, TX Zip: 78249
Telephone: 210-494-5511 FAX: 210-494-5519
Email Address: kheasley@jonescarter.com

9. Project Location:

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

10. ☒ 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.

1554 Gruene Rd., New Braunfels, TX. 78130

11. ☒ **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **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. The map(s) clearly show:

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

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** 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.

☐ Survey staking will be completed by this date: _____

14. ☒ **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

15. Existing project site conditions are noted below:

- ☐ Existing commercial site
- ☐ Existing industrial site
- ☐ Existing residential site
- ☐ Existing paved and/or unpaved roads
- ☐ Undeveloped (Cleared)
- ☒ Undeveloped (Undisturbed/Uncleared)
- ☐ Other: _____

Prohibited Activities

16. ☒ 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).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☐ 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

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

- ☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, 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.

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

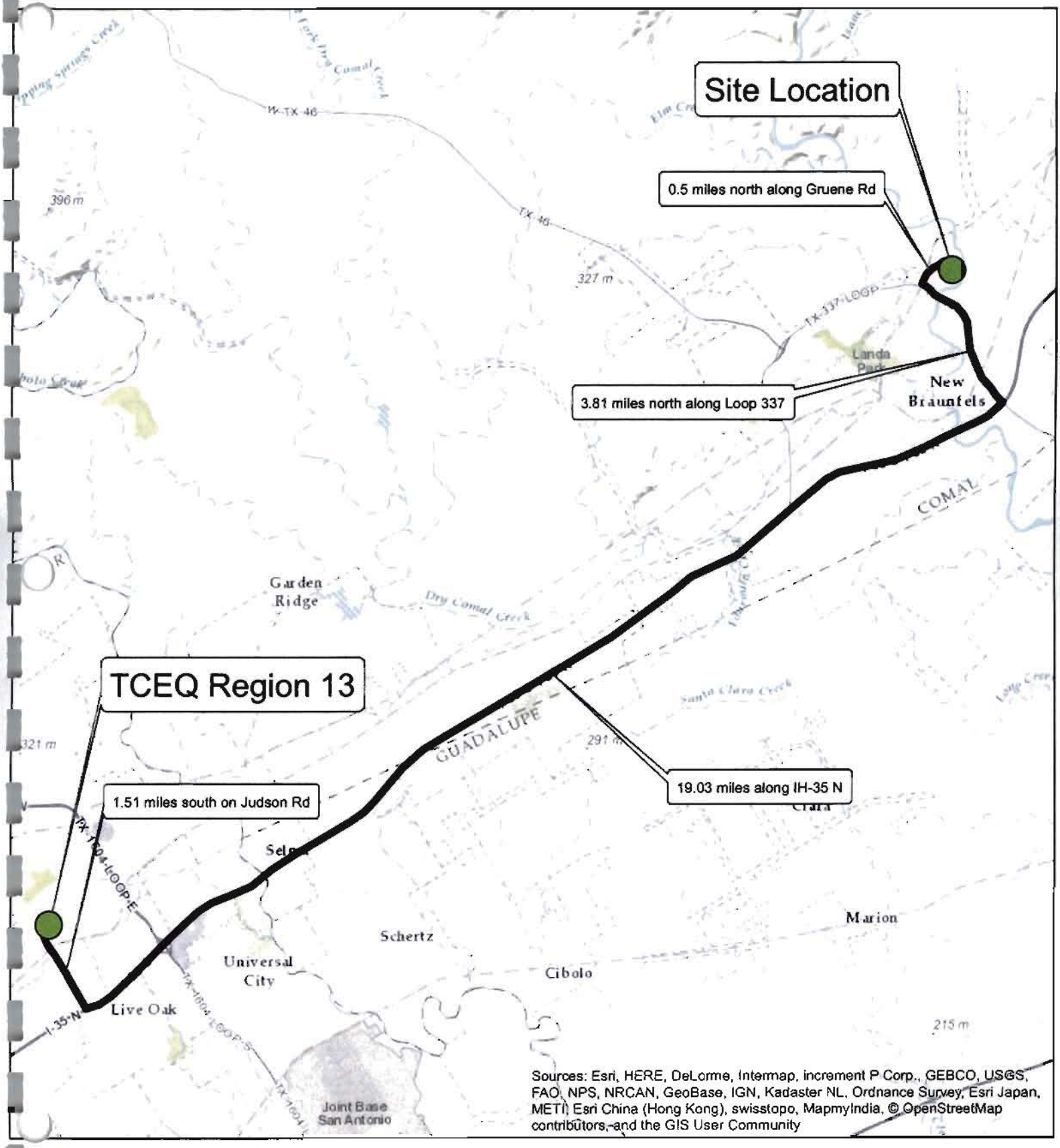
- ☐ TCEQ cashier
- ☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ 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.

21. ☒ 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.

Gruene River Resort & Recreation Center
Water Pollution Abatement Plan

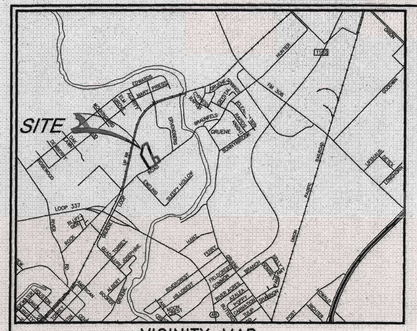
N
W E
S
Not to Scale



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

Attachment A
Road Map



VICINITY MAP
NOT TO SCALE

BUFFINGTON, BINGHAM, AND BINGHAM SUBDIVISION
14/279 PR

LOT 1,
BLOCK 1

S 28°47'24" E 220.56'

EXIST
BLDG

BUFFINGTON, BINGHAM, AND BINGHAM SUBDIVISION
14/279 PR

LOT 2, BLOCK 1
BLEWETT, ALLEN, AND BINGHAM LLC
#201106002725 OPR
1/20/2011

S 52°18'20" W
32.332'

S 54°37'51" W 182.95'

GRUENE ROAD (50' R.O.W.)

N 67°29'16" E 185.86'

S 22°31'09" E 671.50'

N 58°35'45" E 165.04'

S 58°35'20" W 245.79'

GRUENE ROAD (50' R.O.W.)

KeK

S-1 S-7 S-9 S-10 S-11 S-12 S-13 S-14 S-15 S-16 S-8 S-2 S-3 S-4 S-5 S-6

7.159 ACRES
BLEWETT, ALLEN, AND BINGHAM LLC
#01006016961 OPR
05/25/2010

14.778 ACRES
DILLEY RENTAL ESTATES
#201306003129 OPR

N 13°20'15" E 408.77'

N 32°18'49" W 641.11'

2.868 ACRES
ROBERT AND PAMELA MAYFIELD
#9506480232 OPR
11/28/1995

0 10 20 40 80 120
SCALE: 1" = 40'

LEGEND

890	EXISTING CONTOURS
S-1	WATER WELL LOCATION
KeK	KAINER FORMATION

STATE OF TEXAS
TIMOTHY J. DUDUIT
GEOLOGY
5713
LICENSED
PROFESSIONAL GEOSCIENTIST

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
EASM'T.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
C.C.P.R.	COMAL COUNTY PLAT RECORD

GEOLOGIC ASSESSMENT TABLE

S-1	"MB" MANMADE FEATURE IN BEDROCK
S-2	"CD" NON-KARST CLOSED DEPRESSION
S-3	"CD" NON-KARST CLOSED DEPRESSION
S-4	"CD" NON-KARST CLOSED DEPRESSION
S-5	"CD" NON-KARST CLOSED DEPRESSION
S-6	"CD" NON-KARST CLOSED DEPRESSION
S-7	"MB" MANMADE FEATURE IN BEDROCK
S-8	"MB" MANMADE FEATURE IN BEDROCK
S-9	"MB" MANMADE FEATURE IN BEDROCK
S-10	"MB" MANMADE FEATURE IN BEDROCK
S-11	"MB" MANMADE FEATURE IN BEDROCK
S-12	"MB" MANMADE FEATURE IN BEDROCK
S-13	"MB" MANMADE FEATURE IN BEDROCK
S-14	"MB" MANMADE FEATURE IN BEDROCK
S-15	"MB" MANMADE FEATURE IN BEDROCK
S-16	"MB" MANMADE FEATURE IN BEDROCK

NO.	DATE	REVISIONS	APP.

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

WPAP GEOLOGIC MAP

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 40'
DATE: SEPTEMBER 2015
JOB NO. S0679-0001-00
SUBMITTED:
DSN. BY: CBA
DWN. BY: CBA/JS
DWG. NO.
SURV. BY:
F.B. NO.

RECEIVED
OCT 12 2015
COMAL CO. ENGINEER

SHEET NO.
1
OF 1

P:\PROJECTS\S0679 Blewett Allen Bingham\0001 Gruene\Civil\WPAP\S0679-0001 WPAP GEOLOGIC SITE PLAN.dwg

Attachment C- Project Description

Approved

Gruene River Resort & Recreation Center is a proposed commercial development located at 1554 Gruene Rd, New Braunfels, TX. 78130. The site is inside the city limits of New Braunfels in Comal County, Texas. The entire 8.28 acre site is located over the Edwards Aquifer Recharge Zone. In accordance with 30 TAC Chapter 213, this WPAP application is being submitted for the entire 8.28 acre tract. The site is owned by Blewett, Allen, Bingham, LLC.

An existing house and driveway are located on the site. Existing impervious cover from the house and drive is approximately 0.065 acres. These structures were constructed post 12/05/84 and will be accounted for in treatment volume calculations. The Water Pollution Abatement Plan (WPAP) Application proposes construction of a resort and event center with associated parking lots, sidewalks, drainage, and utilities. Approximately 3.65 acres will be disturbed by the proposed construction (44% of the site) with a total of 3.21 acres of impervious cover (39% of the site, Total Treatment Required 2,881lbs.). Of the 3.21 acres, 2.8 acres of impervious cover will be captured and treated within the PBMP (Treatment required 2,576lbs.) and 0.41 acres of impervious cover will be uncaptured and consist of drive lanes, sidewalks, and the existing house (Treatment Required 305lbs.).

PBMPs consist of one (1) Batch Detention Basin designed in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348 (rev. 2005) to remove at least 80% of the increased Total Suspended Solids (TSS) from the proposed improvements. The Batch Pond will capture an area of 5.34 acres (65% of the site, TSS Removed 3,013lbs.). Areas of the site untreated by the PBMPs will be compensated for by overtreatment within the Batch Detention basin.

Up gradient runoff from undeveloped offsite areas draining towards the site will be captured in an earthen interceptor channel and diverted around the property to existing drainage ways.

Wastewater generated by the site will be disposed of by conveyance to the Gruene Road Wastewater Treatment Plant operated by New Braunfels Utilities (NBU). Potable water service will also be provided by NBU.

No on site sensitive features were identified in the Geologic Assessment.

Proposed

Proposed changes to the approved WPAP include increase in impervious cover from 3.21 acres (39%) to 3.78 acres (46%), drainage area to the pond increased from 5.34 acres to 5.76 acres (70% of total site), and updated pond calculations. The TSS removal required for the increase in impervious cover is 3,294 lbs. The pond will remove 3,397 lbs. of TSS from the captured area. Areas not captured by the PBMP will be accounted for through overtreatment.

TSS Removal by Drainage Area					
Drainage Area	Drainage Area (Acres)	Impervious Cover (acres)	BMP	TSS Required (lbs.)	TSS Removed (lbs.)
I	5.76	3.23	Batch Detention	2899	3397
II	2.43	0.55	Uncaptured	395	0
III	0.71	0	Uncaptured	0	0
TOTAL	8.28	3.78	TOTAL	3294	3397

Timothy Jay Duduit, PG

Texas Licensed Professional Geoscientist #5722
931 Serenade Drive
San Antonio, Texas 78213
Ph: (210) 887-6676, Facsimile: (210) 340-8535
E-mail: timduduit@gmail.com

Project No. 2015-16
February 11, 2016

Kara Heasley, PE
Jones & Carter Engineers
1000 Central Parkway North, Suite 100
San Antonio, Texas 78232

This letter serves as a modification to a Geologic Assessment Report on the Gruene River Resort and Recreation Center dated October 6, 2015. In that report, a capped water well was mapped and reported as Geologic Feature B-1. This well was reported as being open but capped and was intended to be used in the future by the property owner. This well has now been properly plugged. This does not affect the assessment of the sensitivity of Geologic Feature B-1, but does represent a change in the status of the well.

I appreciate the opportunity to work with you on this project. If you have any questions, please do not hesitate to call.
Sincerely,

Timothy Jay Duduit, PG
Texas Licensed Professional Geoscientist #5722
Copies: Kara Heasly, PE (1 via e-mail)
tjd (GrueneGAletter.doc)

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Geologist: Timothy J. Duduit Telephone: (210) 887-6676

Date: 10/6/15 Fax: (210) 908-9881

Representing: Timothy Jay Duduit, PG #5722 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Regulated Entity Name: Gruene River Resort and Recreation Center

Project Information

1. Date(s) Geologic Assessment was performed: 8/1/15
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

5. ☒ 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.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Comfort-Rock outcrop complex, 1-8% slopes	D	1-2
Rumple-Comfort association, 1-8% slopes	D	1-2

Soil Name	Group*	Thickness(feet)

** 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.*

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s).** 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" = 1100'

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
12. ☒ 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.
13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are 11 (#) 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

15. ☒ 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.

GEOLOGIC ASSESSMENT TABLE — PROJECT NAME: GRUENE RIVER RESORT AND RECREATION CENTER

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOC	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	≥40	<1.6	≥1.6	
S-1	29.73661	-98.11161	MB	30	Kek	0.8	0.8	65					N	5	35	35		X		HILLSIDE
S-2	29.73508	-98.11138	CD	5	Kek	20	15	1					C	5	10	10			X	STREAMBED
S-3	29.7351	-98.11132	CD	5	Kek	55	5	1					C	5	10	10			X	STREAMBED
S-4	29.73485	-98.11148	CD	5	Kek	35	15	1					C	5	10	10			X	STREAMBED
S-5	29.73482	-98.11157	CD	5	Kek	30	3	1					C	5	10	10			X	STREAMBED
S-6	29.73469	-98.11145	CD	5	Kek	20	15	1					N	5	10	10			X	STREAMBED
S-7	29,736,604	-98.111758	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-8	29.736482	-98.112422	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-9	29.736249	-98.111812	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-10	29.73613	-98.11219	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-11	29.735896	-98.111756	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-12	29.735323	-98.111338	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-13	29.73568	-98.111442	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-14	29.736049	-98.11165	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-15	29.736062	-98.112361	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE
S-16	29.736383	-98.112285	MB	30	Kek	0.8	0.8	?					X	5	35	35		X		HILLSIDE

* DATUM: NAD27

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

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

12 TOPOGRAPHY

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

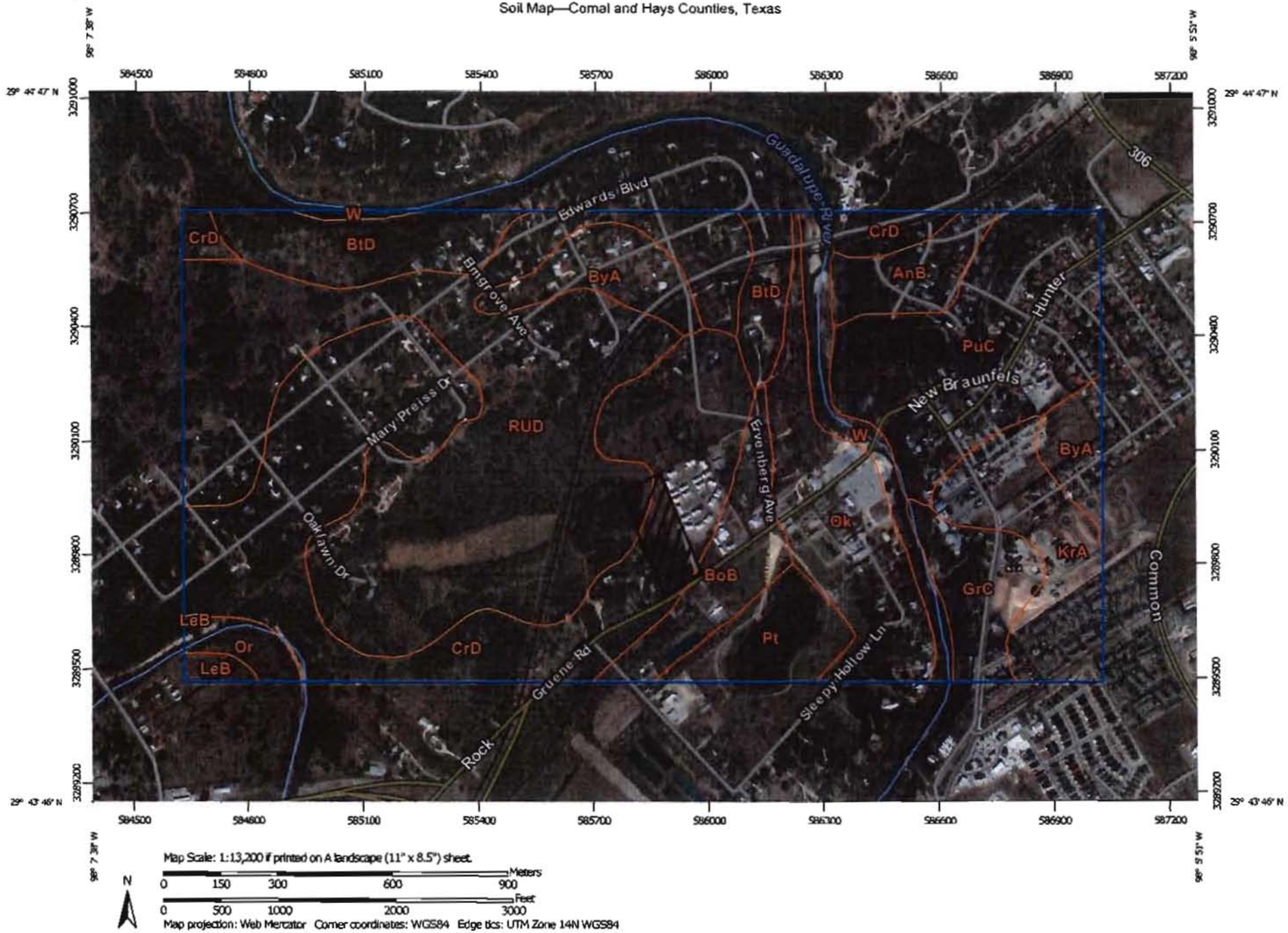
My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date: August 1, 2015

Sheet 1 of 1

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

STATE OF TEXAS — TIMOTHY J. DUDUIT — GEOLOGY — 5723 — LICENSED PROFESSIONAL GEOSCIENTIST



Map Scale: 1:13,200 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Comal and Hays Counties, Texas
Survey Area Data: Version 10, Sep 30, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2011—Feb 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Comal and Hays Counties, Texas (TX604)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AnB	Anhalt clay, 1 to 3 percent slopes	17.1	2.3%
BoB	Boerne fine sandy loam, 1 to 3 percent slopes, rarely flooded	27.2	3.7%
BtD	Brackett-Rock outcrop-Comfort complex, 1 to 8 percent slopes	42.0	5.7%
ByA	Branyon clay, 0 to 1 percent slopes	31.4	4.3%
CrD	Comfort-Rock outcrop complex, 1 to 8 percent slopes	162.1	22.0%
GrC	Gruene clay, 1 to 5 percent slopes	23.4	3.2%
KrA	Krum clay, 0 to 1 percent slopes	38.8	5.3%
LeB	Lewisville silty clay, 1 to 3 percent slopes	3.3	0.4%
Ok	Oakalla silty clay loam, 0 to 2 percent slopes, frequently flooded	52.3	7.1%
Or	Orif soils, 0 to 1 percent slopes, frequently flooded	7.7	1.0%
Pt	Pits	21.3	2.9%
PuC	Purves clay, 1 to 5 percent slopes	78.3	10.6%
RUD	Rumple-Comfort association, 1 to 8 percent slopes	211.3	28.7%
W	Water	20.7	2.8%
Totals for Area of Interest		**737.0**	**100.0%**

SITE SPECIFIC
STRATIGRAPHIC COLUMN

System	Group	Formation	Function	Member or Informal Unit	Function	Thickness Feet	Lithology	Hydrostratigraphy
Cretaceous	Edwards	Kainer (Edwards Aquifer)	AQ	Grainstone	AQ	50 - 60	Limestone, hard, millolid grainstone with associated beds of marly mudstones and wackestones.	Shallow water, lagoonal sediment deposited in a moderately high energy environment. A cavernous honeycombed layer commonly occurs near the middle of the subdivision. Interparticle porosity is locally significant.
				Dolomitic (includes Kirschberg evaporite)	AQ	150 - 200	Limestone, calcified dolomite, and dolomite. Leached, evaporitic rocks with breecias toward top. Dolomite occurs principally in the saline zone of the aquifer.	Supratidal deposits towards top. Mostly tidal to subtidal deposits below. Very porous and permeable zones formed by boxwork porosity in breccias or by burrowed zones.
				Basal Nodular Bed	CB	40 - 70	Limestone, hard, dense clayey; nodular, mottled, stylolitic.	Subtidal deposits. Negligible porosity and permeability.
	Trinity	Glen Rose	CB	Upper part of Glen Rose	CB	300 - 400	Limestone, dolomite, shale and marl. Alternating beds of carbonates and marls. Evaporites and dolomites toward top; variable bedding.	Supratidal and shoreline deposits towards top. Tidal to subtidal deposits below. Unit has little vertical permeability but has moderate lateral permeability.
				Lower part of Glen Rose	AQ	200 - 250	Massive limestone with few thin beds of marl.	Marine deposits - caprinid reef zones and porous and permeable honeycomb porosity near the base.

AQ - Aquifer

CB - Confining Bed

(Modified from U S. Geological Survey Open-File Report 83-537, R. W. Maclay and T. A. Small, 1984)

Timothy J. Duduit, PG

Site Specific Geology and Soil Characteristics

Gruene River Resort and Recreation Center, Gruene, Texas

Area Geologic Setting

The site is located within the outcrop of the Cretaceous-age Edwards Group limestone, which was deposited approximately 90 million years ago. The Edwards Group limestone comprises the Edwards Aquifer, the sole source of drinking water for San Antonio and other communities in central Texas.

The site is located in the Balcones fault zone, which separates the Edwards Plateau from the Gulf Coastal Plain physiographic province. The Balcones fault zone is a series of steep angle, normal faults that generally strike northeast-southwest. Active movement in the Balcones fault zone ceased during the Miocene Epoch. The intense, close spaced faulting along the Balcones fault zone combined with the various rock types of the upper Cretaceous section exposed in central Texas makes rapid changes in rock and soil type the norm rather than the exception.

The depositional environment and lithology of the Edwards Group limestones changes from Kinney County in southwest Texas to Hays County east of San Antonio. The site is located in the San Marcos Arch depositional province.

The entire Edwards Formation is approximately 350 feet thick in the area. The rocks that comprise the Edwards Group include hard, dense calcium carbonate limestone and some magnesium carbonate limestone called dolomite. These limestones are made up of the shells of invertebrate animals that inhabited the shallow seas of the lower Cretaceous period. These shells range from large, reef forming clams to microscopic foraminifers that secrete shells of the mineral calcite or aragonite, which is composed of calcium carbonate. Aragonite shells are more soluble in water, especially the slightly acid, normal rainwater that contains a weak carbonic acid. The wide ranges of specific minerals making up the shells that compose the limestone are soluble in water in differing amounts. The preferential dissolution of fossil shells gives rise to many of the geologic features observed in rocks of the Edwards Group limestone.

The intense faulting and fracturing of the limestone rocks in the Balcones fault zone and the varying ability of minerals to be dissolved by groundwater lead to the formation of the geologic features that are mapped within the Edwards Aquifer Recharge Zone. The combination of faulting, fracturing, rock dissolution, mineral deposition, erosion, and geologic time produce the caves, closed depressions, fractured rock outcrops, fault zones, solution cavities, and vugular rock features which are mapped during a Geologic Assessment. The characteristics and physical settings of these geologic features are described to assign a relative infiltration rate and potential recharge ranking to assist in managing the resource of the Edwards Aquifer.

Site Geology

The site is located in the outcrop of the Edwards Group, according to the Geologic Atlas of Texas, San Antonio Sheet by Virgil E. Barnes, Bureau of Economic Geology, Austin, Texas 1974. The site is located on the outcrop of the Kainer Formation of the Edwards Group,

according to Structure Map of the San Antonio Segment of the Edwards Aquifer and Balcones Fault Zone, South-Central Texas: Structural Framework of a Major Limestone Aquifer: Kinney, Uvalde, Medina, Bexar, Comal, and Hays Counties; Edward W. Collins and Susan D. Hovorka, Bureau of Economic Geology, Miscellaneous Map No. 38, 1997. Both maps show northeast-southwest trending faults in the area but not on the site.

Geologic mapping of the site confirmed the basic stratigraphy and structure outlined above.

Site Soil Characteristics

The soil cover at the site is 1-2 feet thick across most of the site. According to the Web Soil Survey, US Department of Agriculture, the predominant soil at the site is the *Comfort-Rock outcrop complex, 1-8% slopes and Rumple-Comfort association, 1-8% slopes*. These soils are listed in Appendix B of Urban Hydrology for Small Watersheds, by the United States Department of Agriculture, Natural Resources Conservation Service, Conservation Engineering Division, Technical Release 55, June, 1986 and are classified under the Hydrologic Soil Group D.

Structural Geology

The site appears to be unaffected by faulting, as no evidence of offset was noted over the site during the field mapping or aerial photograph review. Outcrops surrounding the site likewise showed no evidence of faulting.

Geologic Features

S-1: This feature is a metal capped water well that is going to be used in the future.

S-2: This closed depression is filled with clay, is caused by stream scour, and will not accept recharge.

S-3: This closed depression is filled with clay, is caused by stream scour, and will not accept recharge.

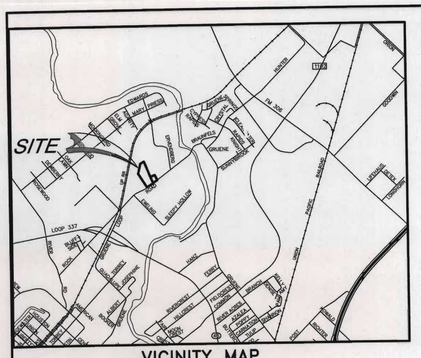
S-4: This closed depression is filled with clay, is caused by stream scour, and will not accept recharge.

S-5: This closed depression is filled with clay, is caused by stream scour, and will not accept recharge.

S-6: This closed depression bottom is solid limestone, is caused by stream scour, and will not accept recharge.

Geologic features S-7 through s-16 are the geotechnical borings conducted by others at the site. The depth of the borings was not available at the time of this report. The geotechnical company who conducted the borings confirmed that they were properly plugged in accordance with state regulations.

In general, there does not appear to be much potential for fluid movement from the surface of the site to the Edwards Aquifer due to the small number of features relative to the size of the site, the absence of sensitive features, the thick Group D soil cover, and the absence of a visible connection between the features and the subsurface.



VICINITY MAP
NOT TO SCALE

BUFFINGTON, BINGHAM, AND BINGHAM SUBDIVISION
14/279 PR

LOT 1,
BLOCK 1

S 28°47'24" E 220.56'

EXIST BLDG

BUFFINGTON, BINGHAM, AND BINGHAM SUBDIVISION
14/279 PR

LOT 2, BLOCK 1
BLEWITT, ALLEN, AND BINGHAM LLC
#201106002725 OPR
1/20/2011

N 67°29'16" E 185.86'

S 52°18'20" W 32.32'

S 54°57'51" W 182.95'

GRUENE ROAD (50' R.O.W.)

OHP & OHT

SMH

0 10 20 40 80 120
SCALE: 1" = 40'

S 22°31'09" E 671.50'

20' Utility Esmt

Existing Water Well

San Sewer MH #5
Sta. 10+20.51

FF=673.83

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San Sewer MH #4
Sta. 8+23.16

12' Access Esmt

20' Utility Esmt

Prop 4' Sidewalk

Maintenance Staging Area

25' B.S.L.

Trash Rack & Perforated Riser
Top of Riser=653.50
Inv=648.60
See Detail Sht. 27

6" Automatic Valve & Logic Controller
See Detail Sht. 27

18" RCP
INV = 653.50

INV = 652.73

INV = 648.00

Begin Swale Rock Rip-Rip
Sta. 1+07.44

San Sewer MH #1
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20' WIDE NEW BRAUNFELS UTILITIES ELEC. LINE RIGHT-OF-WAY
#200306025191 OPR

Prop Pavilion and Water Wheel

7.159 ACRES
BLEWITT, ALLEN, AND BINGHAM LLC
#01006016961 OPR
05/25/2010

Prop Sanitary Sewer

Dumpster Pad

Trash Enclosure

Prop Sanitary Sewer

San Sewer MH #3
Sta. 6+97.21

Variable Width Drainage Esmt

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End Swale Rock Rip-Rip
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N 58°35'45" E 165.04'

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14.778 ACRES
DILLEY RENTAL ESTATES
#201306003129 OPR

2.868 ACRES
ROBERT AND PAMELA MAYFIELD
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For disturbed areas where insufficient soil exist to establish vegetation contractor shall place a minimum of 6" topsoil prior to re-vegetation

LEGEND

890	EXISTING CONTOURS
890	PROPOSED CONTOURS

EXISTING	PROPOSED	
		WATERLINE w/ GATE VALVE
		FLUSH VALVE w/ GATE VALVE
		PLUG & CLAMP w/ BLOW OFF
		SANITARY SEWER w/ MANHOLE

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
C.A.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESMT.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
C.C.P.R.	COMAL COUNTY PLAT RECORD

NO.	DATE	REVISIONS	APP.
1	5/4/16	SANITARY SEWER UPDATES	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

SITE PLAN

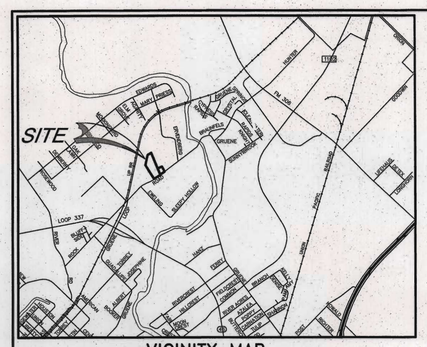
JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 40' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. –
SUBMITTED: SURV. BY:
F.B. NO.

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
9/14/16

SHEET NO. 1 OF 1

P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\Civil\WPAP\S0879-0001 WPAP SITE PLAN.dwg



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COUNTY ENGINEER

RECEIVED
OCT 12 2015

SHEET NO
1
OF 1

P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\Civil\WPAP\S0879-0001 WPAP SITE PLAN.dwg

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Kara J. Heasley

Date: 9/29/16

Signature of Customer/Agent:

Kara J Heasley

Project Information

1. Current Regulated Entity Name: Gruene River Resort & Recreation Center
   Original Regulated Entity Name: Gruene River Resort & Recreation Center
   Regulated Entity Number(s) (RN): 108931213
   Edwards Aquifer Protection Program ID Number(s): 13000050
   ☒ The applicant has not changed and the Customer Number (CN) is: 603122474
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

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

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☐ 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;
   - ☐ 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;
   - ☒ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☐ Physical modification of the approved organized sewage collection system;
   - ☐ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

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

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	8.28	8.28
Type of Development	Resort & Rec Center	Resort & Rec Center
Number of Residential Lots	_____	_____
Impervious Cover (acres)	3.21	3.78
Impervious Cover (%	39%	46%
Permanent BMPs	Batch Detention	Batch Detention
Other	_____	_____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	_____	_____
Pipe Diameter	_____	_____
Other	_____	_____

AST Modification Summary	*Approved Project*	*Proposed Modification*
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	*Approved Project*	*Proposed Modification*
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

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

7. ☐ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☒ Acreage has not been added to or removed from the approved plan.

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 1, 2016

Mr. Brad Bingham
Blewett, Allen, Bingham, LLC
3979 Old Lehmann Road
Kingsbury, Texas 78638

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: Gruene River Resort & Event Center; Located northeast of TX-337 Loop with TX-46 approximately 0.5 miles on Gruene Road, New Braunfels, Texas

PLAN TYPE: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213; Edwards Aquifer Protection Program
Regulated Entity ID: RN108931213; Additional ID No.: 13000050

Dear Mr. Bingham:

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 Jones & Carter, Inc. on behalf of Blewett, Allen, Bingham, LLC on December 22, 2015. Final review of the WPAP was completed after additional material was received on February 12, 2016 and February 22, 2016. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 8.28 acres. It will include the construction of a resort and event center with associated parking lots, sidewalks, drainage, and utilities. There is an existing house and drive, constructed post December 5, 1984, which is accounted for in total impervious cover and treatment calculations. The impervious cover will be

3.21 acres (38.8 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Water Recycling Center owned by New Braunfels Utilities.

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, one (1) batch detention 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 2,881 pounds of TSS generated from the 3.21 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The batch detention basin will have a clay liner with a minimum thickness of 12 inches. The system also has an automated logic controller and valve. The basin is designed with a water quality volume plus 20% additional volume for a total capacity of 43,795 cubic feet (24,529 cubic feet required).

Drainage Area (acres)	Impervious Cover (acres)	BMP	TSS Required Removal (lbs/yr)	TSS Designed Removal (lbs/yr)
5.34	2.80	Batch Detention Pond	2,576	3,013
2.46	0.41	Uncaptured	305	0
1.07	0.00	Uncaptured	0	0
8.28	3.21	TOTAL	2,881	3,013

GEOLOGY

According to the geologic assessment included with the application, the project site is underlain by the Kainer Formation of the Edwards Group. Five (5) non-sensitive geologic features and eleven (11) non-sensitive manmade features were identified during the assessment. The San Antonio Regional Office site assessment conducted on February 10, 2016 revealed the site generally as described in the application.

SPECIAL CONDITIONS

I. All permanent pollution abatement measures shall be operational prior to first occupancy of the facility.

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

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. One (1) well exist on site. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
16. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

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

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

another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

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

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Ms. Lillian Butler of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4026.

Sincerely,

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

LB/LB/eg

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

cc: Ms. Kara Heasley, P.E., Jones & Carter, Inc.
Mr. Charlie Thomas, P.E., City of New Braunfels
Mr. Thomas H. Hornseth, P.E., Comal County
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. George Wissmann, Comal Trinity Groundwater Conservation District
TCEQ Central Records, Building F, MC 212

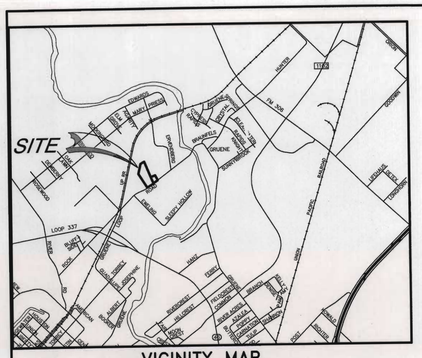
Attachment B- Narrative of Proposed Modification

Approved

The WPAP Application approved construction of a batch detention pond as the PBMP. Proposed impervious cover for the approved plan was 3.21 acres (39%). TSS removal required based on the proposed impervious cover was 2,881 lbs. TSS removal provided by the PBMP was 3,013 lbs.

Modification

Proposed changes to the approved WPAP include increases in impervious cover and updates to pond calculations. Impervious cover increased from 3.21 acres (39%) to 3.78 acres (46%). TSS removal required for the impervious cover increase is 3,294 lbs. TSS removal provided by the PBMP is 3,397 lbs.



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FF=667.83

Prop Sanitary Sewer

Dumpster Pad

Trash Enclosure

Prop Sanitary Sewer

N 13°20'15" E 108.77'

N 32°18'49" W 641.11'

End Swale Rock Rip-Rip
Sta. 1+65.00

San Sewer MH #2
Sta. 4+84.86

Variable Width Drainage Esmt

San Sewer MH #3
Sta. 6+97.21

14.778 ACRES
DILLEY RENTAL ESTATES
#201306003129 OPR

2.868 ACRES
ROBERT AND PAMELA MAYFIELD
#9506480232 OPR
11/28/1995

For disturbed areas where insufficient soil exist to establish vegetation contractor shall place a minimum of 6" topsoil prior to re-vegetation

LEGEND

890	EXISTING CONTOURS
890	PROPOSED CONTOURS

EXISTING	PROPOSED	
		WATERLINE w/ GATE VALVE
		FLUSH VALVE w/ GATE VALVE
		PLUG & CLAMP w/ BLOW OFF
		SANITARY SEWER w/ MANHOLE

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESM'T.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
CC.P.R.	COMAL COUNTY PLAT RECORD

NO.	DATE	REVISIONS	APP.
1	5/4/16	SANITARY SEWER UPDATES	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

SITE PLAN

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 40' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. -
SUBMITTED: SURV. BY:
F.B. NO.

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
5/14/16

SHEET NO. 1 OF 1

P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\Civil\WPAP\S0879-0001 WPAP SITE PLAN.dwg

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

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.
2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) 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(s) (caves, solution cavity, sink hole, etc.) 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. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.
4. No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
6. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
7. Sediment must be removed from the sediment traps or sedimentation basins not later than

when it occupies 50% of the basin's design capacity.

8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.
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. If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.
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 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Such violations may also be subject to civil penalties and injunction. The following listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.
2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.
3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.
4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.
5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.
6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.
8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.
9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet ___ of ___.

   It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.
10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).
11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: N/A

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: N/A

    Special care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.
12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet ___ of ___ (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet ___ of ___ and marked after backfilling as shown in the detail on Plan Sheet ___ of ___.

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.
14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).
15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
    (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
        (1) *Low Pressure Air Test*
            (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
            (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
                (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
                (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3

$$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter (inches)	Minimum Time (seconds)	Maximum Length for Minimum Time (feet)	Time for Longer Length (seconds/foot)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.858

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
    (1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
        (A) *Mandrel Sizing.*
            (i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
            (ii) If a mandrel sizing device is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controled pipe and the average inside diameter for ID controled pipe.
            (iii) All dimensions must meet the appropriate standard.
        (B) *Mandrel Design.*
            (i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
            (ii) A mandrel must have nine or more odd number of runners or legs.
            (iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
            (iv) Each size mandrel must use a separate proving ring.
        (C) *Method Options.*
            (i) An adjustable or flexible mandrel is prohibited.
            (ii) A test may not use television inspection as a substitute for a deflection test.
            (iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
    (2) For a gravity collection system pipe with an inside diameter 27 inches or greater, other test methods may be used to determine vertical deflection.
    (3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
    (4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
    (c) Gravity collection system pipe deflection must not exceed five percent (5%).
    (d) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
    (a) All manholes must pass a leakage test.
    (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
        (1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch-lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

NO.	DATE	REVISIONS	APP.

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER
TCEQ GENERAL NOTES

JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: ___ DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. –
SUBMITTED: ___ SURV. BY: ___
F.B. NO. ___

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
12/9/15

SHEET NO. 3 OF 28

COUNTY ENGINEER
RECEIVED
OCT 12 2016

P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\Civil\Const Docs\General\S0879-0001 GEN NOTES.dwg

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Kara J. Heasley

Date: 9/29/16

Signature of Customer/Agent:

Kara J Heasley

Regulated Entity Name: Gruene River Resort & Recreation Center

Regulated Entity Information

1. The type of project is:

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

2. Total site acreage (size of property):8.28 acres

3. Estimated projected population:0 permanent

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

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	51,290	÷ 43,560 =	1.18
Parking	62,726	÷ 43,560 =	1.44
Other paved surfaces	50,681	÷ 43,560 =	1.16
Total Impervious Cover	164,697	÷ 43,560 =	3.78

Total Impervious Cover 3.78 ÷ **Total Acreage** 8.28 **X 100 =** 46**% Impervious Cover**

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

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

For Road Projects Only

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

7. Type of project:

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

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

☐ Concrete
☐ Asphaltic concrete pavement
☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

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

10. Length of pavement area: _____ feet.

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

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

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

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

Stormwater to be generated by the Proposed Project

13. ☒ **Attachment B - Volume and Character of Stormwater.** A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the 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	3,470.4Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day
TOTAL gallons/day 3,470.4	

15. Wastewater will be disposed of by:

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

☐ **Attachment C - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

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

☒ Sewage Collection System (Sewer Lines):

☒ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

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

☐ The SCS was previously submitted on_____.

☐ The SCS was submitted with this application.

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

☒ The sewage collection system will convey the wastewater to the Gruene Road Wastewater (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

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

Site Plan Requirements

Items 17 – 28 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.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA Firm Map 48091C455F Sept. 9, 2009

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

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

☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.
☒ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

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

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

☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☒ No sensitive geologic or manmade features were identified in the Geologic Assessment.
☐ **Attachment D - Exception to the Required Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.

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

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

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

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

26. ☐ Surface waters (including wetlands).

    ☒ N/A

27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.

28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ 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.

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

Attachment A

Factors Affecting Surface Water Quality

Sources of potential pollution during construction consists of:

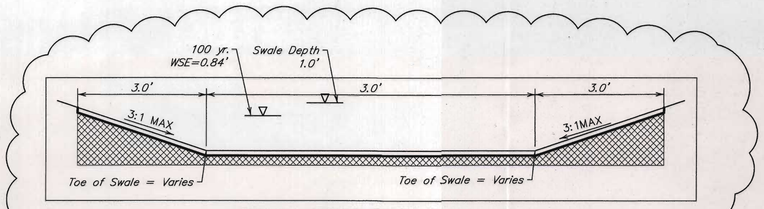
- Soil erosion due to clearing of site
- Contamination from construction equipment and vehicles, fuel, oil, and grease.
- Hydrocarbons from asphalt paving.
- Trash and litter from material wrapping and construction workers.
- Concrete truck washout
- potential spills from portable waste facilities

Water Pollution Abatement Plan Application

Attachment B

Volume and Character of Stormwater

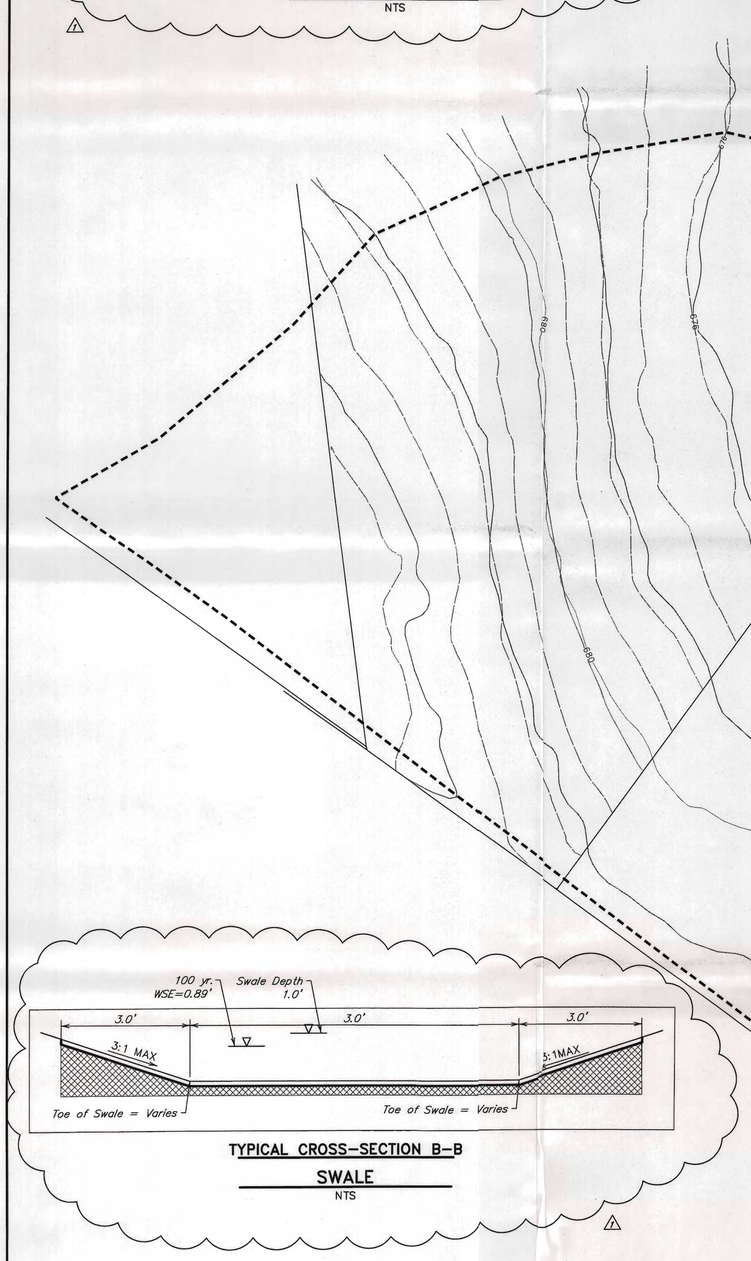
Stormwater runoff from the site will not increase as a result of development. Flowrates from the site are managed through the Batch Detention pond. For the 25-yr storm event, the site will generate approximately 11.8 cfs post development. Pre development runoff for this site is 13.2 cfs. The runoff coefficient for the site changes from approximately 0.37 before development to 0.64 after development. All values are based on the Rational Method using runoff coefficients from the TxDOT Hydraulic Design Manual.



TYPICAL CROSS-SECTION A-A

SWALE

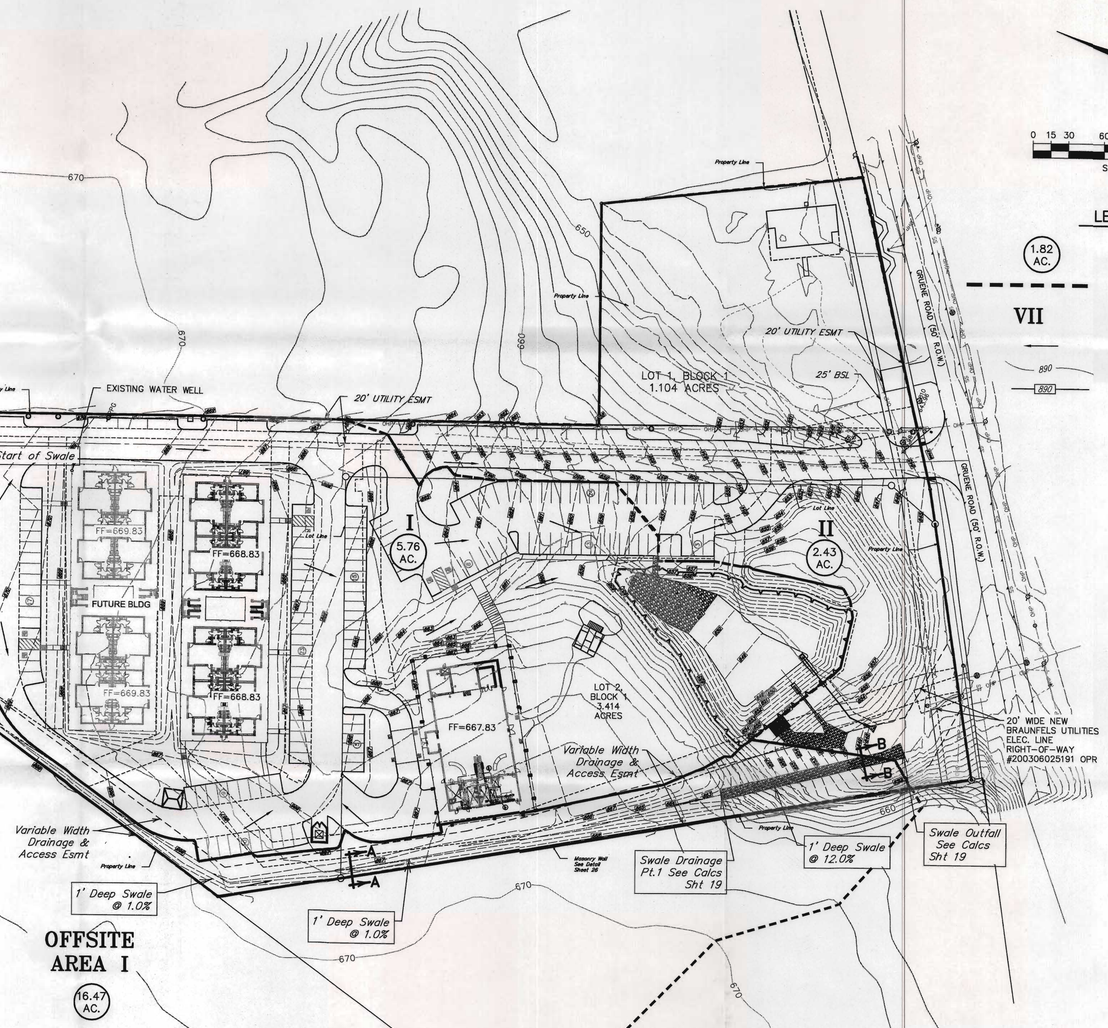
NTS



TYPICAL CROSS-SECTION B-B

SWALE

NTS



ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESMT.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
C.C.P.R.	COMAL COUNTY PLAT RECORD

NO.	DATE	REVISIONS	APP.
1	6/1/16	City Comment Revisions	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

DRAINAGE AREA MAP

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 60'
DATE: JANUARY 2016
JOB NO. S0879-0001-00
SUBMITTED:
DGN. BY: CBA
DWN. BY: CBA/JS
DWG. NO. –
SURV. BY:
F.B. NO.

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
6/14/16

RECEIVED
OCT 12 2016
COMAL COUNTY ENGINEER

SHEET NO. 21 OF 28

P:\PROJECTS\s0879 blewett allen bingham\0001 gruene\Civil\const dwgs\General\S0879-0001 DAM.dwg

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Kara J. Heasley

Date: 9/29/16

Signature of Customer/Agent:

Kara J Heasley

Regulated Entity Name: Gruene River Resort & Recreation Center

Project Information

Potential Sources of Contamination

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

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

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

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

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

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

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

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

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

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

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

Sequence of Construction

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

   ☐ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

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

Temporary Best Management Practices (TBMPs)

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

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

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

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

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

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

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

   ☐ **Attachment E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

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

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

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

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

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

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

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

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

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

    ☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

Temporary Stormwater Section Form

ATTACHMENT A

SPILL RESPONSE ACTIONS

Contractors who work onsite with materials which could potentially cause pollution shall provide for the following measures to help reduce the stormwater impacts of leaks and/or spills.

Education of Employees or Subcontractors Who Handle Materials Which Can Cause Pollution

1. Employees should know 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 a spill must be reported to the TCEQ. Information is available in 30 TAC 327.4 and 40 CFR 302.4.
2. Educate employees and subcontractors on the potential dangers to humans and the environment from spills and leaks, and provide training in spill prevention and cleanup.
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, who will use or handle potential pollutants.
5. Provide for a superintendent or representative to oversee and enforce proper spill prevention and control measures.

General Measures

1. To the extent that work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR part 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
2. Store hazardous materials and waste in covered containers and protect from vandalism.
3. Place spill cleanup materials where it will be readily accessible.
4. Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
5. Do not bury spills onsite.
6. 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 BMP"s.
7. Do not allow water used for cleaning and decontamination to enter storm drains or watercourse. Collect and dispose of contaminated water in accordance with applicable regulations.

Temporary Stormwater Section Form

ATTACHMENT A

SPILL RESPONSE ACTIONS

8. Contain contaminate water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
9. 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.
10. 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, or as soon as it is safely practical.
2. Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent materials 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.

Minor Spills

1. Minor spills such as small quantities of oil, gasoline, paint, etc, should 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:

    a. Contain the spread of the spill.
    b. Recover spilled materials.
    c. Clean the contaminated area and properly dispose of contaminated materials.

Temporary Stormwater Section Form

ATTACHMENT A

SPILL RESPONSE ACTIONS

Semi-Significant Spills

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

Spills should be cleaned up immediately, or as soon as safely practical

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 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 materials to prevent contaminating runoff.

Significant/Hazardous Spills

1. Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austing) 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 40CFR 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 spill 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 contacted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

Temporary Stormwater Section

ATTACHMENT A

SPILL RESPONSE ACTIONS

Vehicle and Equipment Maintenance

1. If maintenance must occur onsite, use a designated area and a secondary containment, located away form 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 onsite.
4. Always use secondary containment, such as 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-recycled. As 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 if as if it cracked. Put into the containment area until you are sure it is not leaking.

Vehicle and Equipment Maintenance

1. If fueling must occur on site, used designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
2. Discourage "topping off" on fuel tanks.
3. Always use secondary containment, such as drain pan, when fueling to catch spill/leaks.

Temporary Stormwater Section Form

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

Asphalt products used on this project

- Preventative measures
    - After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain.

Oil, grease fuel and hydrocarbon fluid contamination from construction equipment and vehicle drippings.

- Preventative measures
    - Vehicle maintenance when possible will be performed within the construction staging area.
    - Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.

Accidental leaks or spills of oil, petroleum products and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site.

- Preventative measures
    - Contractor to incorporate regular safety meetings, a discussion of spill prevention and appropriate disposal procedures.
    - Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures.
    - Hazardous material and wastes shall be stored in covered containers and protected from vandalism.
    - A stockpile of spill cleanup materials shall be stored on site where it will be readily available.

Temporary Stormwater Section Form

ATTACHMENT B (Continued)

Miscellaneous trash and litter from construction workers and material wrappings.

- Preventative measures
    - Trash containers will be placed throughout the site to encourage proper trash disposal.

Construction Debris

- Preventative measures
    - Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case by case basis.

Spills/ Overflow of waste from portable toilets

- Preventative measures
    - Portable toilets will be placed away from high traffic vehicular areas and storm drain inlets.
    - Portable toilets will be placed on a level ground surface.
    - Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.

Temporary Stormwater Section Form

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

The sequence of major activities that disturb the soil during construction of the proposed site will be broken down into two stages. The first stage is site preparation that will include clearing and grubbing of vegetation. The second stage will be construction of the site, including two buildings, parking and drives, installation of utilities, Batch Detention basin, landscaping and site cleanup. Both stages will disturb approximately 3.65 acres of the site.

ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

7a 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.

In order to prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site, the following measures will be implemented

1. Upgradient offsite stormwater originates from one (1) undeveloped area which is adjacent to the North and West boundary of the site. This area is shown on the drainage plan included in Attachment "G" of this section and is identified as Offsite Area "1" (16.80 Ac.). Runoff from Offsite Area 1 will be channeled around the site through an earthen interceptor structure.

7b A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off-site, including pollution caused by contaminated stormwater runoff from the site.

Site preparations will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include:

1. Erection of silt fence along downgradient boundary of construction activities for temporary erosion and sedimentation controls.
2. Installation of rock berms with silt fencing downgradient from areas of concentrated stormwater flow for temporary erosion control.
3. Installation of stabilized construction entrance/exits to reduce the dispersion of sediment from the site.
4. Installation of concrete truck washout.
5. Installation of construction staging areas.

Prior to the initiation of construction, all previously installed control measures will be repaired or reestablished for their designed purpose. The construction contractor will be responsible for the installation of the remaining on-site control measures that includes installation of the concrete truck washouts.

7c A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and suspended solids within the site, they will not enter the aquifer, surface streams and/or sensitive features that may exist downstream of the site.

7d 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

BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site. Features discovered during construction will be reported and assessed in accordance with applicable regulations.

Temporary Storm Water Section Form

ATTACHMENT F

STRUCTURAL PRACTICES

The structural practices listed below are shown on the SWPPP plans and are listed on Attachment D of the WPAP application.

1. A stabilized construction entrance with washout pit will be constructed at all locations where vehicular traffic enters and leaves the site. This will reduce sediments which leave the site and are tracked or fall onto adjacent roadways.

2. A concrete truck washout will be located next to the stabilized construction entrance to prevent pollutants to stormwater from concrete waste.

3. Silt fencing will be installed adjacent to any drainage way which receives sheet flow from upgradient-disturbed areas and along the sideslope perimeter of disturbed areas.

4. Silt fencing with rock berms will be installed in areas where upgradient flow from disturbed areas is concentrated, and washout of silt fencing may occur. Silt fencing with rock berms will also be installed along the sideslope perimeter of disturbed areas if the upgradient flow is concentrated so that washout of silt fencing may occur.

5. Sandbags filled with washed pea gravel will be used at storm drainage inlets prior to stabilization of the drainage areas.

Temporary Stormwater Section Form

ATTACHMENT H

TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

Temporary Sedimentation Ponds

There is no temporary sedimentation ponds required because there are no disturbed areas within this site which will exceed ten (10) acres, and drain to a common outfall point. The sizes of the various drainage areas are shown on the Drainage Area Map.

Other Temporary BMP's

Full size copies of Temporary BMP's are attached separately to this report.

Temporary Stormwater Section Form

ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMP PRACTICES

The following list of items outlines and dictates Inspection and Maintenance for BMPs practices. Inspection and maintenance guidelines come from TCEQ RG-348.

In addition to these measures the contractor will be subject to the provisions of the TCEQ General Permit Number TXR 150000 relating to discharges from construction activities.

Interceptor Swale

1. Interceptor swales should be inspected weekly and after each rain event to locate and repair any damage to the channel or clear debris or other obstruction so as not to diminish flow capacity.
2. Damage from storms or normal construction activities such as tire ruts or disturbance of swale stabilization should be repaired as soon as practical.

Temporary Construction Entrance/Exit

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

Silt Fence

1. Inspect all fencing weekly, and after any rainfall.
2. Remove sediment when buildup reaches 6 inches.
3. Replace any torn fabric or install a second line of fencing parallel to the torn section.
4. Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot to where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.

Temporary Stormwater Section Form

5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

Rock Berm

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

Sand Bag Berm

1. The sand bag berm should be inspected weekly and after each rain.
2. The sandbags should be reshaped or replaces as needed during inspection.
3. When silt reaches 6 inches, the accumulated silt should be removed and disposed of at an approved site in a manner that will not contribute to additional siltation.
4. The sandbag berm should be left in place until all upstream areas are stabilized and accumulated silt removal; removal should be done by hand.

Inlet Protection Barrier

1. Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
2. Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
3. Check placement of devices to prevent gaps between device and curb.
4. Inspect filter fabric and patch or replace if torn or missing.
5. Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

Temporary Stormwater Section Form

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Onsite construction activities shall be conducted in accordance with the SWPPP for the project which included the provisions of the TPDES General Permit Discharge Waste N. TXR150000.

Interim on-site stabilization measures will include minimizing soil disturbances by exposing the smallest practical area of land required for the shortest period of time and maximizing the use of natural vegetation. All disturbed soil will be stabilized as per project specifications in accordance with pages 1-35 to 1-60 of TCEQ Technical Guidance Manual RG-348 (2005).

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 the site. In areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is preclude by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

Interim Stabilization Measures will include one or more of the following methods.

1. Temporary Vegetation
2. Installation of blankets or matting material
3. Hydraulic Mulch
4. Sod

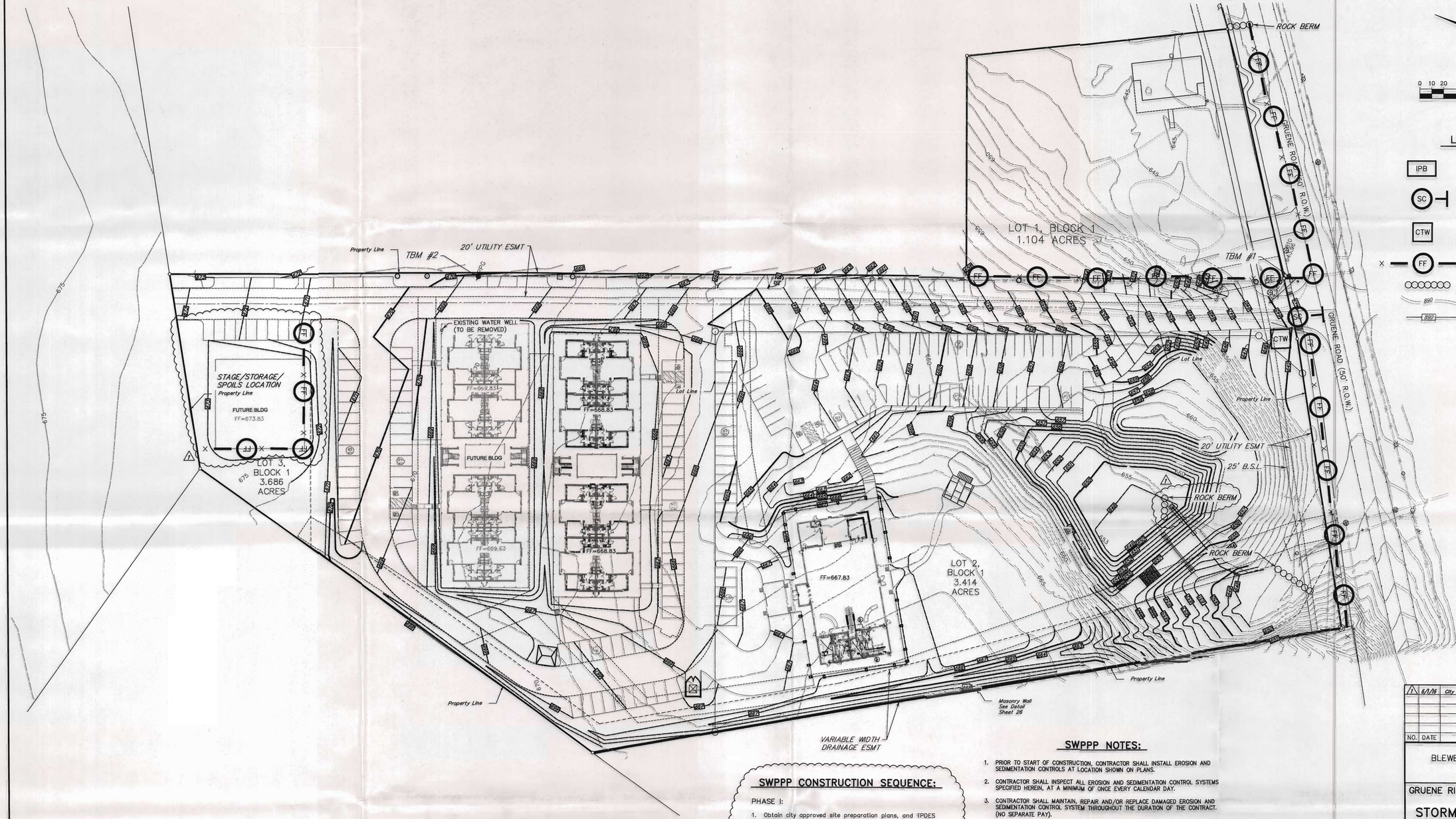
The interim and permanent stabilization will be installed in accordance with the standard specifications for the county or city having jurisdiction over the project, which ever is more stringent. In the event that the governing entity does not have specifications for these items, the work shall be completed in compliance with the procedures and specifications outlined in the current Technical Guidance Manual published by the TCEQ.

Permanent Stabilization measures will include on or more of the following methods.

1. Permanent Vegetation including landscape planting with trees, shrubs or ground cover.
2. Installation of blankets or matting material
3. Hydromulch
4. Grass Sodding
5. Rock or concrete rip-rap

STORMWATER POLLUTION PREVENTION PLAN

A full size copy of the Stormwater Pollution Prevention Plan (SWPPP) follows this page.



LEGEND

- IPB — INLET PROTECTION BARRIERS FOR STAGE II INLETS
- SC — STABILIZED CONSTRUCTION ACCESS
- CTW — CONCRETE TRUCK WASHOUT AREA
- FF — FILTER FABRIC FENCE
- ROCK BERM
- 890 — EXISTING CONTOURS
- 890 — PROPOSED CONTOURS

T.B.M. #1 "PK" NAIL (STAMPED "JONES & CARTER" -- POINT NO. 103) SET ON THE CURB AT SOUTHWEST CORNER OF SIDEWALK
NORTHING = 13,815,884.83
EASTING = 2,250,657.08
ELEVATION = 645.09
(NAVD '88 DATUM) BASED ON GLOBAL POSITIONING SYSTEM (GPS)

T.B.M. #2 COTTON SPINDAL (POINT NO. 104) SET IN POWER POLE
NORTHING = 13,816,513.54
EASTING = 2,250,390.24
ELEVATION = 672.24
(NAVD '88 DATUM) BASED ON GLOBAL POSITIONING SYSTEM (GPS)

SWPPP CONSTRUCTION SEQUENCE:

PHASE I:

1. Obtain city approved site preparation plans, and TPDES permit (not a copy of the TPDES application to TCEQ), if applicable.
2. Post SWPPP Permit at Gruene Road construction entrance location.
3. Install stabilized exit and washout pit at Gruene Road.
4. Install site perimeter filter fabric fence and diversion dam (DD) prior to site clearing and grubbing.

PHASE II:

1. Install the pipe outlet sediment traps (PST) with the construction of drainage channels to act as sedimentation basins.
2. Install temporary erosion and sedimentation controls.

PHASE III:

1. Begin site clearing and grading.
2. Stabilize finished grading with erosion blankets or hydro mulch prior to demobilizing.
3. Restore and re-vegetate all disturbed areas not under impermeable improvements.
4. Complete any remaining "punch list" items.
5. City of New Braunfels final inspection.
6. Once site is stabilized and vegetation is established on 70% of the graded site remove all SWPPP measures. Rye is not accepted.
7. City issues Certificate of Acceptance or Occupancy.

SWPPP NOTES:

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATION SHOWN ON PLANS.
2. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED HEREIN, AT A MINIMUM OF ONCE EVERY CALENDAR DAY.
3. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
4. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
5. CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE SILT FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
6. CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
7. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY).
8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL.
9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY.
10. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.
12. AS PROPOSED INLETS ARE INSTALLED THROUGHOUT THE SITE PROVIDE INLET BARRIER PROTECTION AT EACH INLET IN ORDER TO PROTECT STORM SEWER SYSTEM.
13. SEE SHEET 5 FOR STANDARD SWPPP DETAILS.
14. CONTRACTOR SHALL PROTECT AND PROVIDE CONSTRUCTION FENCING AROUND WETLAND FEATURE. THIS FENCED WETLAND AREA SHALL REMAIN UNDISTURBED.

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESMT.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
C.C.P.R.	COMAL COUNTY PLAT RECORD

NO.	DATE	REVISIONS	APP.
1	6/1/16	City Comment Revisions	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER
STORM WATER POLLUTION PREVENTION PLAN

JONES | CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 40' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. —
SUBMITTED: SURV. BY:
F.B. NO.

STATE OF TEXAS — KARA J. HEASLEY — 92590 — LICENSED PROFESSIONAL ENGINEER — 9/14/16

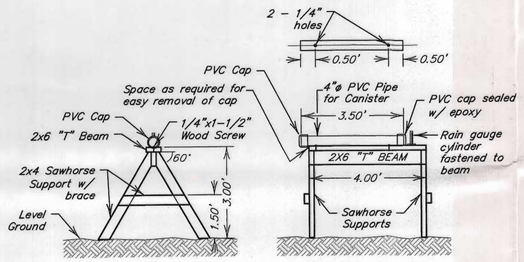
SHEET NO. 22 OF 28

RECEIVED
Oct 12 2016
COMAL COUNTY ENGINEER

P:\PROJECTS\s0879 blewett allen bingham\0001 gruene\Civil\const dwgs\Genero\S0879-0001 SWPPP.dwg

GENERAL S.W.P.P.P. NOTES:

1. The location of Erosion and Sedimentation Control facilities are approximate. Contractor may modify, relocate, or add facilities with prior authorization from the Engineer.
2. Where a note or detail differs from the official Texas Commission On Environmental Quality (TCEQ) latest edition regulations, the TCEQ note or detail shall apply.

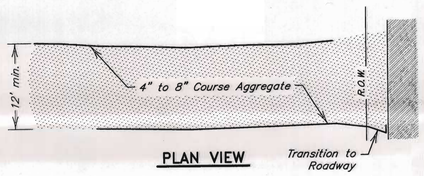


SECTION VIEW PROFILE VIEW

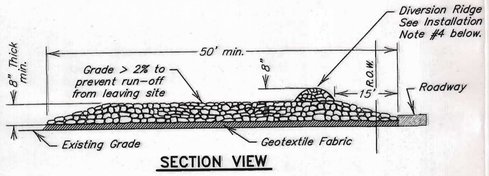
NOTES:

1. This canister shall be used to store the complete Storm Water Pollution Prevention Plan (SWPPP) and all other related documents so that they are available on-site for the inspector.
2. The canister shall be located on solid level ground adjacent to the construction entrance and on the opposite side of the Concrete Washout Area.

S.W.P.P.P. DOCUMENT CONTAINER
(NTS)



PLAN VIEW



SECTION VIEW

MATERIALS:

1. The aggregate should consist of three (3) inch to five (5) inch washed stone over a stable foundation as specified in the plan.
2. The aggregate should be placed with a minimum thickness of eight (8) inches.
3. The geotextile fabric should be designed specifically for use as a soil filtration media with an approximate weight of 6 oz./sq.yd., a Mullen burst rating of 140 #/sq.in., and an equivalent opening size greater that a U.S. Sieve No. 50.
4. If a washing facility is required, a level area with a minimum of four (4) inch diameter washed stone or commercial rock should be included in the plans. Wastewater should be diverted to a sediment trap or basin.

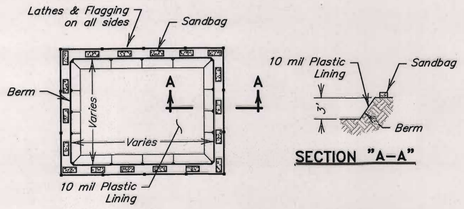
INSTALLATION:

1. Avoid curves on public roads and steep slopes. Remove vegetation and other objectionable material from the foundation area. Grade a crown in the center of the foundation for positive drainage.
2. The minimum width of the facility should be either twelve (12) feet or the full width of Exit roadway, whichever is greater.
3. The Construction Entrance should be at least fifty (50) feet long.
4. If the slope toward the road exceeds two (2) percent, construct a ridge six (6) inches to eight (8) inches high with three to one (3H:1V) side slopes across the foundation approximately fifteen (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 the surface smooth and sloped for drainage.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.
8. Install a pipe under pad as needed to maintain proper public road drainage.

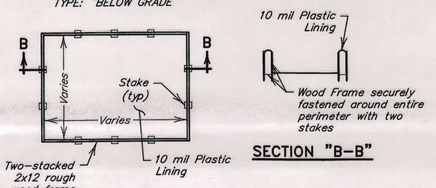
INSPECTION AND MAINTENANCE GUIDELINES:

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

TEMPORARY CONSTRUCTION ENTRANCE/EXIT
(NTS)



PLAN VIEW TYPE: "BELOW GRADE" SECTION "A-A"

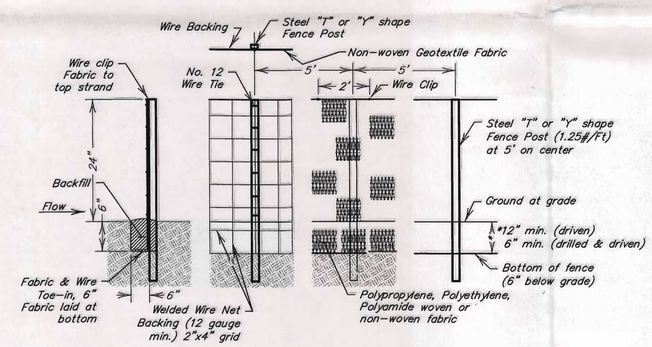


PLAN VIEW TYPE: "ABOVE GRADE" SECTION "B-B"

NOTES:

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 properly.
3. Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. 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. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

CONCRETE WASHOUT AREA
(NTS)



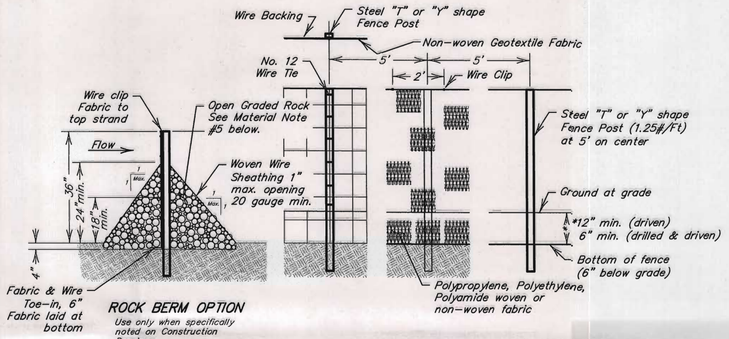
MATERIALS:

1. Silt fence material should be polypropylene, polyethylene, polyamide woven or non-woven fabric. The fabric width should be thirty-six (36) inches with a minimum unit weight of 4.5 oz./sq.yd., a mullen burst strength exceeding 190 #/sq.in., 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 four (4) feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 #/ft, and Brindell hardness exceeding 140.
3. Woven wire backing to support the fabric should be galvanized twelve (12) gauge minimum two by four (2x4) inch welded wire.
4. The berm must be a minimum of six (6) inches deep and six (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 securely fastened three (3) foot overlap where ends of the 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.

INSPECTION AND MAINTENANCE GUIDELINES:

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

SILT FENCE
(NTS)



ROCK BERM OPTION

Use only when specifically noted on Construction Drawings.

MATERIALS:

1. Silt fence material should be polypropylene, polyethylene or polyamide woven or non-woven fabric. The fabric width should be thirty-six (36) inches with a minimum unit weight of 4.5 oz./sq.yd., a Mullen burst strength exceeding 190 #/sq.in., 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 four (4) feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 #/ft, and Brindell hardness exceeding 140. Either #5 or #6 reinforcing bars may also be used to anchor the berm.
3. Woven wire backing to support the fabric should be galvanized twelve (12) gauge minimum two by four (2x4) inch welded wire.
4. The berm structure should be secured with a woven wire sheathing having a maximum opening of one (1) inch and a minimum twenty (20) gauge diameter galvanized wire fastened with shoat rings.
5. Clean, open graded three (3) inch to five (5) inch diameter rock should be used, however in areas where high velocities or areas expected five (5) inch to eight (8) inch diameter rocks may be used.

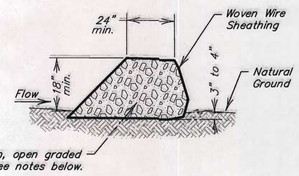
INSTALLATION:

1. Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be twenty (20) gauge woven wire mesh with one (1) inch openings.
2. Install the silt fence along the center of the proposed beam placement, as with a normal silt fence shown in detail this sheet.
3. Place the rock along the sheathing on both sides of the silt fence to a height not less that twenty-four (24) inches. Specifications for rock must meet the criteria in Materials Note #5.
4. Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least two (2) inches. The berm should retain its shape when walked upon.
5. The Rock Berm should be removed when the site is re-vegetated or otherwise stabilized or it may remain in place as a permanent B.M.P. if drainage is adequate.
6. Rock Berms and Silt Fences shall be built to the length specified, including forty-five (45) degree wings at each end. The minimum length of the wings is three (3) feet.

INSPECTION AND MAINTENANCE GUIDELINES:

1. Inspection should be made weekly and after each rainfall by the Responsible Party. For installations in stream beds additional daily inspections should be made on rock berm.
2. Remove sediment and other debris when buildup reaches six (6) inches and dispose of the accumulated silt in an approved method.
3. Repair any lose wire sheathing.
4. The berm should be reshaped as needed during inspection.
5. The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
6. The rock berm should be left in place until all upstream areas are stabilized and accumulated silt is removed.

SILT FENCE WITH ROCK BERM OPTION
(NTS)



MATERIALS:

1. The berm structure should be secured with a woven wire sheathing having a maximum opening of one (1) inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.
2. Clean, open graded three (3) inch to five (5) inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected five (5) inch to eight (8) inch diameter rocks may be used.

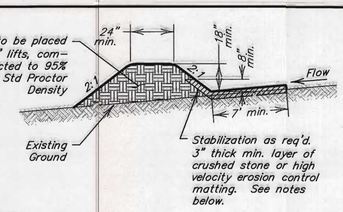
INSTALLATION:

1. Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be twenty (20) gauge woven wire mesh with one (1) inch openings.
2. Berm should have a top width of two (2) feet minimum with side slopes being two to one (2H:1V) ratio slope or flatter.
3. Place the rock along the sheathing as shown above to a height not less than eighteen (18) inches.
4. Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least two (2) inches. The berm should retain 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 up-slope grade and the berm should be buried in a trench approximately three (3) to four (4) inches deep to prevent failure of the control.

INSPECTION AND MAINTENANCE GUIDELINES:

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

ROCK BERM
(NTS)



MATERIALS:

1. Stone stabilization for velocities in excess of six (6) fps should consist of rip-rap placed in a layer at least three (3) inches thick and should extend a minimum height of three (3) inches above the Design Water Surface up the existing slope and the upstream face of the dike. Stabilization rip-rap should conform to the following specifications:

Channel Grade	Rip-rap Stabilization
0.5 – 1.0%	4-inch rock
1.1 – 2.0%	6-inch rock
2.1 – 4.0%	8-inch rock
4.1 – 5.0%	8-inch to 12-inch rip-rap

2. High velocity erosion control matting should be a non-woven polypropylene fabric designed specifically for use as a soil filtration media with an approximate weight of 6 oz./sq.yd., a Mullen burst of 140 psi, and having an equivalent opening size (EOS) greater than a U.S. Sieve No 50.

INSTALLATION:

1. Diversion dikes should be installed prior to and maintained for the duration of construction and should intercept no more than ten (10) acres of runoff.
2. Dikes should have a minimum top width of two (2) feet and a minimum height of compacted fill of eighteen (18) inches measured from the top of the existing ground at the up-slope toe to the top of the dike and having side slopes of 2:1 or flatter.
3. The soil for the dike should be placed in lifts of eight (8) inch or less and be compacted to 95% standard proctor density.
4. The channel which is formed by the dike must have positive drainage for its entire length to an outlet.
5. When the slope exceed two (2) percent or velocities exceed six (6) ft./sec. regardless of the slope stabilization is required.

INSPECTION AND MAINTENANCE GUIDELINES:

1. Swales should be inspected weekly and after each rain event to determine if silt is building up behind the dike or if erosion is occurring on the face of the dike. Locate and repair any damage to the channel and clear debris or other obstructions so as not to diminish flow capacity.
2. Silt should be removed in a timely manner to prevent remobilization and to maintain the effectiveness of the dike.
3. If erosion is occurring on the face of the dike the slopes of the face should either be stabilized through mulch or seeding or the slope of the face should be reduced.
4. Damage from storms or normal construction activities such as tire ruts and disturbance of the swale should be repaired as soon as practical.

DIVERSION DIKE
(NTS)

GUIDELINES FOR INSTALLATION:

1. Preserve natural vegetation or planting in clumps, blocks or strips in generally the easiest and most successful method.
2. All unstable steep slopes should be left in natural vegetation.
3. Fence or flag clearing limits and keep all equipment and construction debris out of the natural areas.
4. Keep all excavations outside the dripline of trees and shrubs.
5. Debris or extra soil should be pushed into the buffer zone area because it will cause from burying and smothering.
6. The minimum width of a vegetative buffer used for sediment control should be fifty (50) feet.

INSPECTION AND MAINTENANCE GUIDELINES:

Inspection and careful maintenance are important to ensure healthy vegetation. The need for routine maintenance such as mowing, fertilizing, irrigating, and weed and pest control will depend on the species of plants and trees, soil types, location, and climatic conditions. County agricultural extension agencies are a good source of this type of information.

VEGETATIVE BUFFER
(NTS)

NO.	DATE	REVISIONS	APP.

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

SWPPP DETAILS (SHEET 1 OF 2)

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: N/A DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. –
SUBMITTED: SURV. BY:
F.B. NO.

STATE OF TEXAS KARA J. HEASLEY 92590 LICENSED PROFESSIONAL ENGINEER
Kara J. Heasley 7/14/16

SHEET NO. 23 OF 28

RECEIVED
OCT 12 2016
COUNTY ENGINEER

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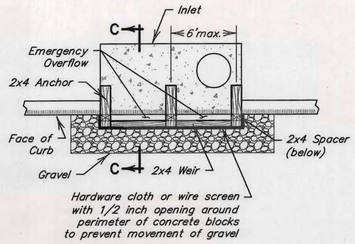
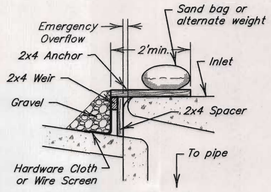


PLAN VIEW



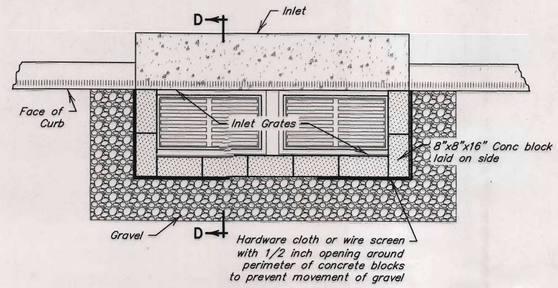
SECTION "C–C"

NOTES:

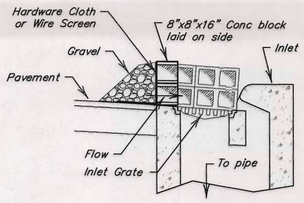
1. Attach a continuous piece of wire mesh with a thirty (30) inches minimum width by the inlet throat length plus four (4) feet to the two by four (2x4) inch wooden weir with a total length of the inlet throat length plus two (2) feet. The wood should be "Construction Grade" lumber.
2. Place a piece of approved filter cloth of the same dimensions as the wire mesh and securely attach to the two by four (2x4) inch wooden weir.
3. Securely nail the two by four (2x4) inch weir to the nine (9) inch long vertical spacers which are to be located between the weir and inlet face at a maximum six (6) foot spacing.
4. Place the assembly against the inlet throat and nail two (2) foot minimum lengths of two by four (2x4) inch board to the top of the weir at the spacer locations. These two by four (2x4) inch anchors should extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly should be placed so that the end spacers are a minimum of one (1) foot beyond both ends of the throat opening.
6. Form the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place coarse aggregate over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
7. This type of protection should be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that the storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.

CURB INLET PROTECTION WITH 2–INCH BY 4–INCH WOODEN WEIR

(NTS)



PLAN VIEW



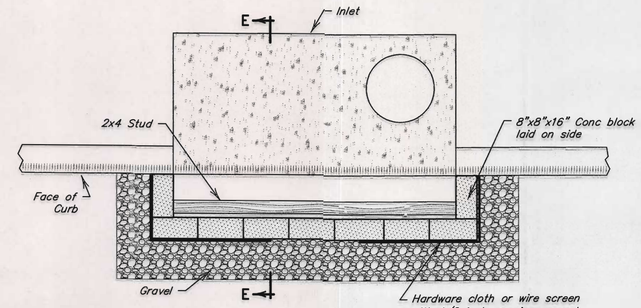
SECTION "D–D"

NOTES:

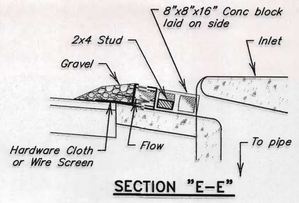
1. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet with the ends of adjacent blocks abutting. Depending on the design needs, the height of the barrier can be varied by stacking combinations of four (4) inch, eight (8) inch, and twelve (12) wide blocks. The barrier of blocks should be between twelve (12) inches and twenty–four (24) inches high.
2. Wire mesh should be placed over the outside vertical face of the concrete blocks to prevent stone from being washed through the openings in the blocks. Wire mesh with one–half (1/2) inch openings should be used.
3. Stone should be piled against the wire to the top of the block barrier.
4. If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stone must be pulled away from the blocks, cleaned, and/or replaced.

BLOCK & GRAVEL DROP INLET SEDIMENT FILTER

(NTS)



PLAN VIEW



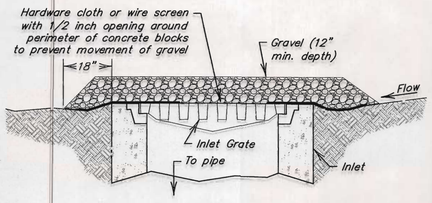
SECTION "E–E"

NOTES:

1. Two concrete blocks should be placed on their sides abutting the curb at either side of the inlet opening.
2. A two by four (2x4) inch stud should be cut and placed through the outer holes of each spacer block to help keep the front blocks in place.
3. Concrete blocks should be placed on their sides across the front of the inlet and abutting the spacer blocks.
4. Wire mesh should be placed over the outside vertical face of the concrete blocks to prevent stone from being washed through the openings in the blocks. Wire mesh with one–half (1/2) inch openings should be used.
5. Coarse aggregate should be piled against the wire to the top of the barrier.
6. If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stone must be pulled away from the blocks, cleaned, and/or replaced.

BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

(NTS)



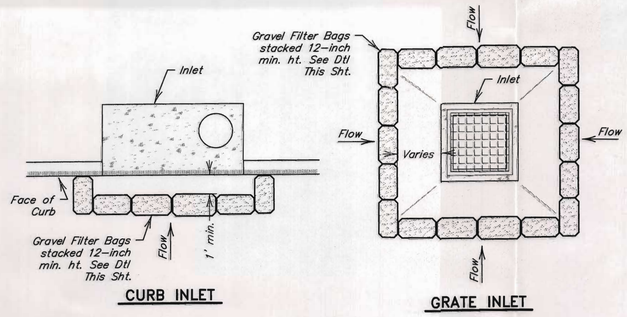
NOTES:

1. Wire mesh should be laid over the grate inlet so that the wire extends a minimum of one (1) foot beyond each side of the inlet structure. Wire mesh with one–half (1/2) inch openings should be used. If more than one strip of mesh is necessary the strips should be overlapped.
2. Coarse aggregate should be placed over the wire mesh as shown above. The depth of stone should be at least twelve (12) inches over the entire inlet opening. The stone should extend beyond the inlet opening a minimum of eighteen (18) inches on all sides.
3. If the stone filter becomes clogged with sediment so that it no longer adequately performs its function the stones must be pulled away from the inlet, cleaned, and/or replaced.
4. Filter Stone Embankment: Filter stone should be placed over the geotextile and is to have a side slope which matches that of the earth embankment of 3:1 and should cover the geotextile/rock core a minimum of 6 inches when installation is complete. The crest of the outlet should be at least 1 foot below the top of the embankment.

THIS FILTERING DEVICE HAS NO OVERFLOW MECHANISM. Ponding is likely especially if sediment is not removed regularly. This type of device should never be used where overflow may endanger an exposed fill slope. Consideration should also be given to the possible effects of ponding on traffic movement, nearby structures, working areas, adjacent property, etc.

GRAVEL & WIRE MESH DROP INLET SEDIMENT FILTER

(NTS)



CURB INLET

GRATE INLET

INSTALLATION:

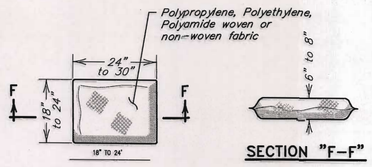
1. The sandbags should be filled with washed pea gravel and stacked to form a continuous barrier and 1 foot high around the inlets.

INSPECTION AND MAINTENANCE GUIDELINES:

1. Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the Contractor.
2. Remove sediment when buildup reaches a depth of three (3) inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
3. Check placement of device to prevent gaps between device and curb (where applicable).
4. Inspect filter fabric and patch or replace if torn or missing.
5. Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

BAGGED GRAVEL INLET FILTER

(NTS)



SECTION "F–F"

MATERIALS:

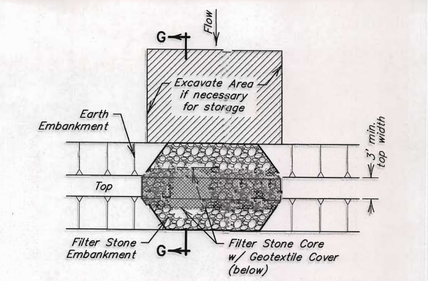
1. The filter bag material shall be made of polyptopylene, polyethylene, pylyamide or cotton woven fabric, minimum unit weight of 4 oz./sq.yd., a mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70%.
2. The bag length should be 24 to 30 inches, width should be 16 to 18 inches and thickness should be 6 to 8 inches.
3. Sandbags should be filled with coarse grade sand, free from deleterious material. All sand should pass through a No. 10 sieve. The filled bag should have an approximate weight of 40 pounds.
4. Outlet pipe should be schedule 40 or stronger polyvinyl chloride (PVC) having a nominal internal diameter of 4 inched.

INSTALLATION:

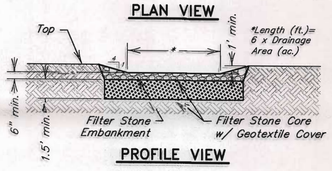
1. The berm should be minimum height of 18 inches, measured from the top of the existing ground at the upslope toe to the top of the berm.
2. The berm should be sized as shown in the plans but should have a minimum width of 48" inches measured at the bottom of the berm and 16 inches measured at the top of the berm.
3. Runoff water should flow over the tops of the sanbags or through 4–inch diameter PVC pipes embedded below the top layer of bags as shown in Figure 1–32.
4. When a sandbag is filled with material, the open end of the sandbag should be stapled or tied with nylon or poly cord.
5. Sandbags should be stacked in at least three rows abutting each other, and in staggered arrangement.
6. The base of the berm should have at least 3 sandbags. These can be reduced to 2 and 1 bag in the second and third rows respectively.
7. For each additional 6 inches of height, an additional sandbag must be added to each row width.

SANDBAG BERM

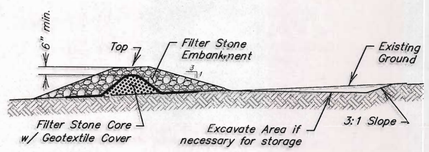
(NTS)



PLAN VIEW



PROFILE VIEW



SECTION "G–G"

MATERIALS:

1. The aggregate should be at least three (3) inches in diameter and should not exceed a volume of one–half (1/2) a cubic foot.
2. The geotextile fabric should be a woven polypropylene, polyethylene or polyamide fabric with a minimum unit weight of 4.5 oz/sq.yd., a Mullen burst strength of at least 250 #/sq.in., ultraviolet stability exceeding 70%, and an equivalent opening size of U.S. Sieve No. 40.

INSTALLATION:

1. Earth Embankment: Place fill material in layers not more the eight (8) inches in loose depth. Before compaction moisten or aerate each layer as necessary to provide the optimum moisture content of the material. Compact each layer to ninety–five (95) percent standard proctor density. Do not place material on surfaces that are muddy or frozen. Side slopes for the embankment are to be three to one (3:1) slope. The minimum width of the embankment should be three (3) feet.
2. A gap is to be left in the embankment in the location where the natural confluence of runoff crosses the embankment line. The gap is to have a width in feet equal to six (6) times the drainage area in acres.
3. Geotextile Covered Stone Core: A core of filter stone having a minimum height of one and one–half (1.5) feet and a minimum width at the base of three (3) feet should be placed across the opening of the earth embankment and should be covered by geotextile fabric which should extend a minimum distance of two (2) feet in either direction from the base of the filter stone core.

INSPECTION AND MAINTENANCE GUIDELINES:

1. Inspection should be made weekly and after each rainfall. Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement. Repair should be made promptly as needed by the contractor.
2. Trash and other debris should be removed after each rainfall to prevent clogging of the outlet structure.
3. Sediment should be removed and the trap restored to its original dimensions when the sediment has accumulated to half of the design depth of the trap.
4. Sediment removed from the trap should be deposited in an approved spoils area and in such a manner that it will not cause additional siltation.

STONE OUTLET SEDIMENT TRAP

(NTS)

NO.	DATE	REVISIONS	APP.

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

SWPPP DETAILS (SHEET 2 OF 2)

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: N/A DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. –
SUBMITTED: SURV. BY:
F.B. NO.

KARA J. HEASLEY 92590 LICENSED PROFESSIONAL ENGINEER
4/14/16

SHEET NO. 24 OF 28

RECEIVED
OCT 24 2016
COUNTY ENGINEER

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Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Kara J. Heasley

Date: 9/29/16

Signature of Customer/Agent

Kara J Heasley

Regulated Entity Name: Gruene River Resort & Recreation Center

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

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

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver.** The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☒ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☐ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater.**

☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

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

☒ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater.**

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☐ **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 attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☒ N/A

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

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

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

☒ Design calculations (TSS removal calculations)
☒ TCEQ construction notes
☒ All geologic features
☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☒ Signed by the owner or responsible party
    ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☒ A discussion of record keeping procedures

    ☐ N/A

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

    ☒ N/A

13. ☐ **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 attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

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

    ☐ N/A

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

    ☐ N/A

Permanent Stormwater Section

ATTACHMENT B

BMPs for Upgradient Stormwater

Upgradient stormwater is bypassed around the property through a proposed earthen interceptor. BMPs for upgradient stormwater are not required because the site adjacent to the property is undisturbed and undeveloped. All BMPs provided are adequate for the drainage areas served

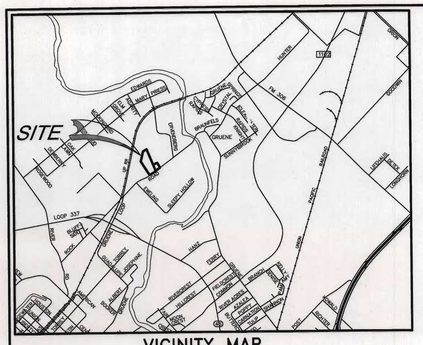
Permanent Stormwater Section

ATTACHMENT C

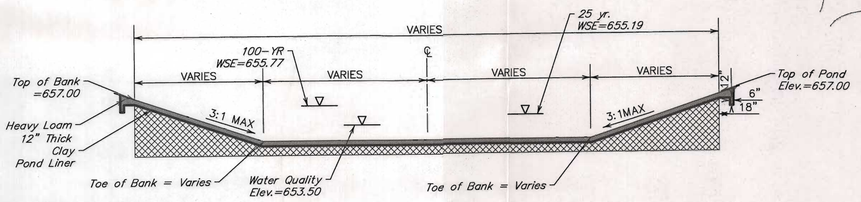
BMPs for On-site Stormwater

PBMPs consist of one (1) Batch Detention Basin designed in accordance with TCEQ's Technical Guidance Manual (TGM) RG-348 (rev. 2005). The batch pond will be designed as an online facility. For online facilities the principal and emergency spillways must be sized to provide 1.0 foot of freeboard during the 25-year event and to safely pass the flow from the 100-year storm. Water quality volume required in the pond is 0.68 acre-ft. The overall volume of the pond is 1.38 acre-ft. Both the 25-year and 100-year storm events are contained within the pond.

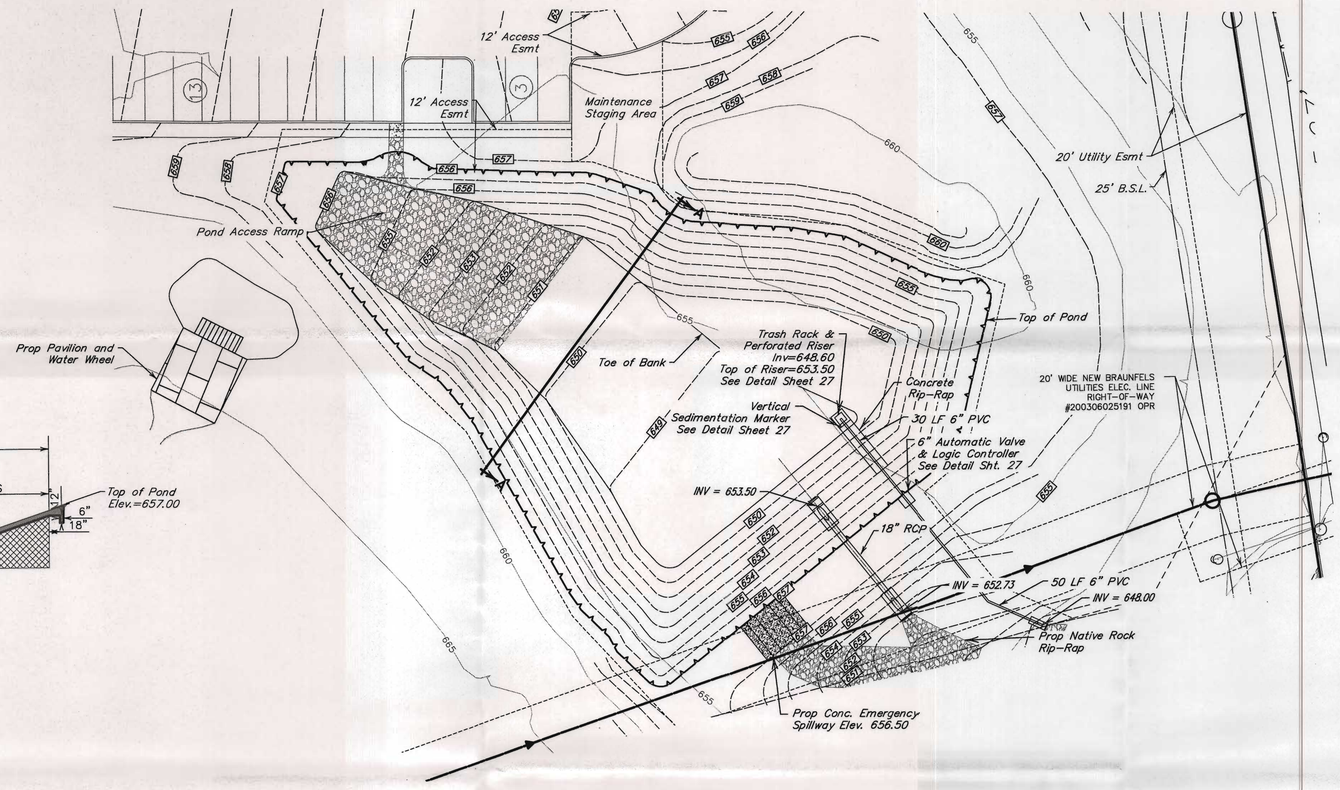
Batch Detention basins capture and temporarily detain the water quality volume from a storm event, for a period of 12-48 hours, using an automated controller and valve. The batch detention outfall details and logic controls can be found on Miscellaneous Detail Sheet (3 of 3).

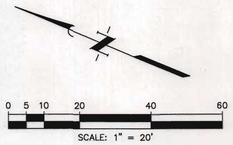


VICINITY MAP
SCALE 1" = 40'



TYPICAL CROSS-SECTION A-A
DETENTION POND
SCALE 1" = 10'





3.4.2 Basin Lining Requirements

Impermeable liners should be used for water quality basins (retention, extended detention, sand filters, wet ponds and constructed wetlands) located over the recharge zone and in areas with the potential for groundwater contamination. Impermeable liners may be clay, concrete or geomembrane. If geomembrane is used, suitable geotextile fabric should be placed on the top and bottom of the membrane for puncture protection and the liners covered with a minimum of 6 inches of compacted topsoil. The topsoil should be stabilized with appropriate vegetation. Clay liners should meet the specifications in Table 3-6 and have a minimum thickness of 12 inches.

Table 3-6 Clay Liner Specifications (COA, 2004)

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Gruene River Resort
Date Prepared: 9/14/2016

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 * =	8.28	acres
Predevelopment impervious area within the limits of the plan * =	0.11	acres
Total post-development impervious area within the limits of the plan* =	3.78	acres
Total post-development impervious cover fraction * =	0.46	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	3294	lbs.

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

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

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	5.76	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.23	acres
Post-development impervious fraction within drainage basin/outfall area =	0.56	
$L_{M\ THIS\ BASIN}$ =	2899	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Bioretention (Batch Extended Detention)
Removal efficiency = 91 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 =	5.76	acres
A_I =	3.23	acres
A_P =	2.53	acres
L_R =	3397	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 3294 lbs.

F = 0.97

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	3.00	inches
Post Development Runoff Coefficient =	0.39	
On-site Water Quality Volume =	24886	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 =	4937	
Total Capture Volume (required water quality volume(s) x 1.20) =	29624	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
Irrigation area =	NA	square feet
	NA	acres

Enter determined permeability rate or assumed value of 0.1

TSS Removal by Drainage Area

Drainage Area	Drainage Area (Acres)	Impervious Cover (acres)	BMP	TSS Required (lbs.)	TSS Removed (lbs.)
I	5.76	3.23	Batch Detention	2899	3397
II	2.43	0.55	Uncaptured	395	0
III	0.71	0	Uncaptured	0	0
TOTAL	8.28	3.78	TOTAL	3294	3397

ABBREVIATIONS

B.S.L.	BUILDING SETBACK LINE
CA.T.V.	CABLE TELEVISION
ELEC.	ELECTRIC
ESM'T.	EASEMENT
FH	FIRE HYDRANT
OE	OVERHEAD ELECTRIC
PP	POWER POLE
R.O.W.	RIGHT-OF-WAY
SS	SANITARY SEWER LINE
SW	SIDEWALK
TELE.	TELEPHONE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
WV	WATER VALVE
C.C.D.R.	COMAL COUNTY DEED RECORD
CC.P.R.	COMAL COUNTY PLAT RECORD

NO.	DATE	REVISIONS	APP.
1	9/14/16	Pond Outfall Adjustment	KJH

BLEWETT, ALLEN, BINGHAM LLC
KINGSBURY, TX

GRUENE RIVER RESORT AND RECREATION CENTER

TCEQ ATTACHMENT "F"
CONSTRUCTION PLANS

JONES|CARTER
Texas Board of Professional Engineers Registration No. F-439
1000 Central Parkway North, Suite 100 • San Antonio, Texas 78232 • 210.494.5511

SCALE: 1" = 20' DGN. BY: CBA
DATE: JANUARY 2016 DWN. BY: CBA/JS
JOB NO. S0879-0001-00 DWG. NO. –
SUBMITTED: SURV. BY:
F.B. NO.

STATE OF TEXAS
KARA J. HEASLEY
92590
LICENSED PROFESSIONAL ENGINEER
9/14/16

SHEET NO. 20 OF 28

RECEIVED
OCT 12 2016
COUNTY ENGINEER

P:\PROJECTS\S0879 Blewett Allen Bingham\0001 Gruene\Civil\WPAP\S0879-0001 ATTACHMENT F.dwg

Permanent Stormwater Section

ATTACHMENT G

SUGGESTED MAINTENANCE PLAN AND SCHEDULE FOR BATCH DETENTION

The following guidelines should be used to develop the maintenance plan for the Batch Detention BMP.

- **Inspections.** Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, repaired/revegetated immediately.

- **Sediment Removal.** A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

- **Mowing.** The basin, basin side slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

- **Debris and Litter Removal.** Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstruction and any debris removed

- **Erosion Control.** The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

- **Nuisance Control.** Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 or 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.)

- **Structural Repairs and Replacement.** With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

- **Logic Controller.** The logic controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level senor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

Permanent Stormwater Section

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: Brad Bingham

Brad Bingham — 12/15/15

Signature of Responsible Party — Date

Design Engineer: KARA J. HEASLEY

Kara J Heasley — 12/15/15

Signature of Design Engineer — Date

Permanent Stormwater Section Form

ATTACHMENT I

Measures for Minimizing Surface Stream Contamination

Any points where discharge from the site is concentrated and erosive velocities exist will include appropriately sized energy dissipaters to reduce to reduce velocities to non-erosive levels.

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

I Brad Bingham,
Print Name

President,
Title - Owner/President/Other

of Blewett, Allen, Bingham, LLC,
Corporation/Partnership/Entity Name

have authorized Kara Heasley
Print Name of Agent/Engineer

of Jones|Carter, 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:

Brad Bingham
Applicant's Signature

9-14-16
Date

THE STATE OF TEXAS §

County of COMAL §

BEFORE ME, the undersigned authority, on this day personally appeared BRAD BINGHAM 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 14 day of SEPTEMBER 2016.

Janet A Boehringer
NOTARY PUBLIC

JANET A BOEHRINGER
Notary ID # 11689942
My Commission Expires
July 28, 2019

JANET A BOEHRINGER
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 7-28-2019

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Gruene River Resort & Recreation Center

Regulated Entity Location: New Braunfels, TX

Name of Customer: Blewett, Allen, Bingham, LLC

Contact Person: Brad Bingham Phone: 512-557-1040

Customer Reference Number (if issued):CN 603122474

Regulated Entity Reference Number (if issued):RN 108931213

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☒ Comal ☐ Kinney

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

☐ Austin Regional Office

☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☒ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	*Size*	*Fee Due*
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	8.28 Acres	$ 5,000.00
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: Kara J Headley Date: 09/14/2016

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 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

TCEQ Core Data Form

TCEQ Use Only

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

SECTION I: General Information

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

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

☐ Renewal (Core Data Form should be submitted with the renewal form) ☒ Other WPAP Modification

2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 603122474		RN 108931213

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)
☒ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership ☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)	

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (If an individual, print last name first: e.g.: Doe, John)	If new Customer, enter previous Customer below:
Blewett, Allen, Bingham LLC - Attn: Brad Bingham	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
		760815754	

11. Type of Customer:	☐ Corporation	☐ Individual	Partnership: ☐ General ☒ Limited
Government: ☒ City ☒ County ☒ Federal ☒ State ☐ Other		☐ Sole Proprietorship	☒ Other:

12. Number of Employees	13. Independently Owned and Operated?
☒ 0-20 ☐ 21-100 ☒ 101-250 ☒ 251-500 ☐ 501 and higher	☐ Yes ☐ No

14. Customer Role (Proposed or Actual) - as it relates to the Regulated Entity listed on this form. Please check one of the following.

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

15. Mailing Address:	3979 Old Lehmann Rd.						
	City	Kingsbury	State	TX	ZIP	78638	ZIP + 4	1440

16. Country Mailing Information (if outside USA)	17. E-Mail Address (if applicable)
	b.binghamllc@yahoo.com

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(512) 557 - 1040		( ) -

SECTION III: Regulated Entity Information

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

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

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

Gruene River Resort and Recreation Center

23. Street Address of the Regulated Entity: (No PO Boxes)	1554 Gruene Rd.						
	City: New Braunfels	State: TX	ZIP: 78130	ZIP + 4: 3331			
24. County	Comal						

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	From TCEQ regional office, proceed S on Judson Rd approximately 1.50 miles towards IH-35, turn left on IH-35 N, follow I-35 N approximately 16.2 miles to I-35 frontage rd in New Braunfels, take exit 189 from I-35 N, turn left onto TX-337 Loop W/TX-46 W approximately 3.8 miles to Gruene Rd., turn right onto Gruene Rd., The site is located approximately 0.5 miles on your left.

26. Nearest City	State	Nearest ZIP Code
New Braunfels	TX	78130

27. Latitude (N) In Decimal:	29.735		28. Longitude (W) In Decimal:	98.11	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29°	44'	06.01"	98°	06'	39.53"

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
7011		721110	

33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)

Resort and Recreation Center

34. Mailing Address:	3979 Old Lehman Rd.						
	City: Kingsbury	State: TX	ZIP: 78638	ZIP + 4: 1440			

35. E-Mail Address:	b.binghamllc@yahoo.com	
36. Telephone Number	37. Extension or Code	38. Fax Number (if applicable)
(512) 557 - 1040		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

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

SECTION IV: Preparer Information

40. Name: Blake Allison			41. Title: Design Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 494 - 5511		(210) 494 - 5519	ballison@jonescarter.com

SECTION V: Authorized Signature

46 By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Jones|Carter	Job Title:	Sr. Project Manager
Name(*In Print*):	Kara J. Heasley	Phone:	(210) 494 - 5511
Signature:	Kara J Heasley	Date:	9/14/16