

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 20, 1998

Mr. Jack Dean
Properties of the Southwest
P.O. Box 896
Wimberly, TX 78676

Re: EDWARDS AQUIFER, Comal County
PROJECT: The Pinnacle Subdivision, Project number 1068, Located on northeast side of Hoffman Lane approximately 6,500 feet from southeast of intersection with FM 306, New Braunfels, Texas
TYPE: Request for Approval of Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) §213.5(b); Edwards Aquifer Protection Program

Dear Mr. Dean:

The Texas Natural Resource Conservation Commission (TNRCC) has completed its review of the WPAP application for the referenced project that was submitted by Pro-Tech Engineering Group, Inc. on behalf of Properties of the Southwest to the San Antonio Regional Office on August 28, 1998. Final review of the WPAP submittal was completed after additional material was received on November 5, 1998 and November 12, 1998. The WPAP proposed in the application is in general compliance with 30 TAC § 213.5(b); therefore, approval of the plan is hereby granted subject to applicable state rules and the conditions in this approval letter. *This approval expires two (2) years from the date of this approval unless, prior to the expiration date, construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed residential project will have an area of 343.14 acres and will consist of 262 single-family residential lots. Two existing quarries are present within the project site. The larger quarry (Feature S-18) will be used as a recreational area (soccer, softball, volleyball & basketball). The smaller quarry (Feature S-19) will remain as a natural area. Project wastewater for each residence will be treated by a private on-site septic system. According to an August 17, 1998 letter signed by Thomas H. Hornseth, P.E., Comal County Engineer, the land in the development is acceptable for the use of private sewage facilities. The proposed impervious cover for the development is approximately 31.45 acres (9.16%). The site is located within the City of New Braunfels extraterritorial jurisdiction, and must conform with applicable codes and requirements of the City of New Braunfels.

REPLY TO: REGION 13 • 140 HEIMER RD., STE. 360 • SAN ANTONIO, TEXAS 78232-5042 • 210/490-3096 • FAX 210/545-4329

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrcc.state.tx.us

printed on recycled paper using soy-based ink

GEOLOGY ON SITE

According to the geologic assessment included with the submittal, 26 geologic or manmade features are located on the project site. Seven features were assessed as being sensitive. Fifteen features were assessed as being possibly sensitive. The San Antonio Regional Office site inspection of October 16, 1998, revealed one additional feature not described in the geologic assessment near Lot #148.

GEOLOGY DOWNGRADIENT OF SITE

According to the geologic assessment included with the submittal, one geologic feature was present downgradient of the project site.

PERMANENT POLLUTION ABATEMENT MEASURES

The following measures will be taken to prevent pollution of stormwater originating on-site or up-gradient from the project site and potentially flowing across and off the site after construction:

1. For the feature near Lot #148, after the right-of-way has been cleared, a geologist will evaluate the feature and a Pollution Abatement measure will be submitted to the TNRCC for approval prior to construction in that area.
2. Feature S-11 on Lot #155 will have a 150 foot radius Sanitary Control Easement.
3. Feature S-12 on Lots #94, 95 and 96 will be filled with 6 inches of clay.
4. Feature S-18, the large quarry, will have a permanent sanitary control easement along the west and north sides of the quarry as shown on the plat submitted to the TNRCC.
5. Feature S-19, the small quarry, will have a permanent sanitary control easement along the west side of the quarry as shown on the plat submitted to the TNRCC.
6. Feature S-20 along the drainage channel will be centered with a 300 foot wide Sanitary Control Easement.
7. Before start of construction of the Park (Feature S-18), the TNRCC will be notified in writing with the source and type of fill materials to be used. The fill material will be tested for metals, pesticides and Total Petroleum Hydrocarbons. Test results will be submitted to the TNRCC for approval before fill material is placed in the Park area.
8. All other pollution abatement measures are described in the water pollution abatement plan application.

SPECIAL CONDITIONS

1. If any potential sensitive features are encountered during construction, a geologist shall evaluate the significance of the features. The evaluation shall include representative photographs and a description of the feature forwarded to the San Antonio office. Construction in the vicinity of the features may only continue with written approval from the TNRCC.
2. Placement of hydrocarbon or hazardous substance storage facilities regulated pursuant to 213.5(d) and 213.5(e), requires submittal of all appropriate applications with appropriate fees and must receive prior approval from the TNRCC.
3. The TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of permanent erosion and sedimentation (E&S) control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
4. Construction of any regulated activity in the smaller quarry will require approval, with appropriate fees, of a modification to the water pollution abatement plan.
5. Prior to placement of any imported fill material in the large quarry, Properties of the Southwest will perform the following analyses on representative samples collected from the proposed inert fill material:

RCRA-8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), and

Total Petroleum Hydrocarbons (TPH).

If the concentration of any of the RCRA-8 metals exceeds the values in the table given below, a toxicity characteristics leaching procedure (TCLP) will be conducted for the metal (or metals). If the results of the TCLP analysis are above detection limits, the proposed fill material will not be placed at the site. If the TPH concentration exceeds the detection limit, the proposed backfill material will not be placed at the site.

ANALYTE	TOTAL LIMIT (MG/KG)
Arsenic	36
Barium	2000
Cadmium	10
Chromium	100

Lead	30
Mercury	4
Selenium	20
Silver	100

6. Under 30 TAC §213.8, the following activities are prohibited on the Edwards Aquifer Recharge Zone:
 - A. Land disposal of Class I wastes, as defined by 30 TAC §335.1 of this title (relating to Definitions)
 - B. 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.
7. By July 1, 1999, and each subsequent year, provide the following information to the TNRCC for all fill material from each source site:
 - A. Results of all testing (RCRA-8 metals and TPH).

For petroleum-substance contaminated soil, 30 TAC 334.481 defines "clean fill" as, "Clean fill standard - Soil which is no longer considered waste, e.g. soil cleaned to less than .5 mg/kg for each constituent of BTEX, and less than 10 mg/kg for TPH."
 - B. Results of a composite soil sample collected around existing structures at each source material site, evaluated for presence of chlordane. Should chlordane be present in excess of 0.493 mg/kg (per 30 TAC §335.551 to §335.569) the material shall be disposed of at an authorized landfill.
 - C. An affidavit certifying to the TNRCC that all fill material placed on-site is inert material, as defined by 30 TAC 330.2, and free of hazardous materials, and free of all municipal solid waste, including asphalt and demolition materials.
8. Obtain written approval from the Comal County Floodplain administrator for placement of inert fill material.
9. The TNRCC reserves the right to inspect the site at any time without advanced notice.
10. All permanent pollution abatement measures shall be operational prior to completion of construction.

STANDARD CONDITIONS

1. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity, upon which that person or entity shall assume responsibility for all provisions and conditions of this approval.
2. Any modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a WPAP to amend this approval, including the payment of appropriate fees and all information necessary for its review and approval.
3. Prior to commencing any regulated activity, the applicant or his agent must notify the San Antonio Regional Office in writing of the date on which the regulated activity will begin.
4. The applicant or his agent shall record this WPAP approval in the county deed records within 30 days of receiving this notice of approval. Proof of deed recordation shall be submitted to the San Antonio Regional Office prior to commencing construction. A suggested format that you may use to deed record the approved WPAP is enclosed.
5. All contractors conducting regulated activities at the 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. 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 TNRCC 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.
7. If any significant recharge feature [sensitive feature] 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 potential adverse impacts to water quality.

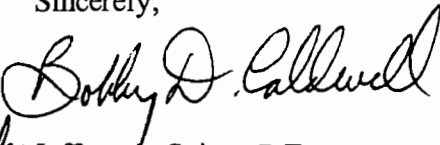
Mr. Jack Dean
November 20, 1998
Page 6

8. 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.
9. Approval of the design of the sewage collection system for this proposed project shall be obtained from the TNRCC prior to commencement of construction of any sewage collection system.
10. Two wells exist on the site. Any abandoned wells shall be plugged in accordance with 30 TAC § 338 or an equivalent method, as approved by the Executive Director.

Any drill holes resulting from core sampling on-site or down-gradient of the site shall be plugged with native soil, from the bottom of the hole to the top of the hole, so as to not allow water or contaminants to enter the subsurface environment.
11. Pursuant to §26.136 of the Texas Water Code, any violations of the requirements in 30 TAC §213 may result in administrative penalties.

If you have any questions or require additional information, please contact John Mauser of the Edwards Aquifer Protection Program at 210/403-4024. Please reference project number 1068.

Sincerely,


for Jeffery A. Saitas, P.E.
Executive Director

JAS/JKM/eg

Enclosure: Deed Recordation Affidavit

cc: Richard McDaniel, Pro-Tech Engineering Group, Inc.
Harry Bennett, City of New Braunfels
Tom Hornseth, Comal County
Greg Ellis, Edwards Aquifer Authority
TNRCC Field Operations, Austin

WPAP

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
EDWARDS AQUIFER PROTECTION PROGRAM
 APPLICATION FEE FORM

1998 AUG 31 AM 11:03

NAME OF PROPOSED PROJECT: THE PINNACLE

SAN ANTONIO REGION

PROJECT LOCATION: RANCH ROAD NO. 12 NEAR HUGO ROAD

NAME OF OWNER/DEVELOPER: PROPERTIES OF THE SOUTHWEST

OWNER'S ADDRESS: P.O. BOX 896, WIMBERLEY, TX 78676

CONTACT PERSON: JACK DEAN

Please Print

PHONE: 512-847-5483

AUSTIN REGIONAL OFFICE

- ☒ Hays
☐ Travis
☐ Williamson

SAN ANTONIO REGIONAL OFFICE

- ☐ Bexar
☒ Comal
☐ Kinney
☐ Medina
☐ Uvalde

APPLICATION FEES MUST BE PAID BY CHECK, CERTIFIED CHECK, OR MONEY ORDER, PAYABLE TO THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION. YOUR CANCELED CHECK WILL SERVE AS YOUR RECEIPT. TO ENSURE CREDIT TO THE PROPER ACCOUNT PLEASE RETURN THIS FORM WITH YOUR FEE PAYMENT. THIS PAYMENT IS BEING SUBMITTED TO (CHECK ONE):

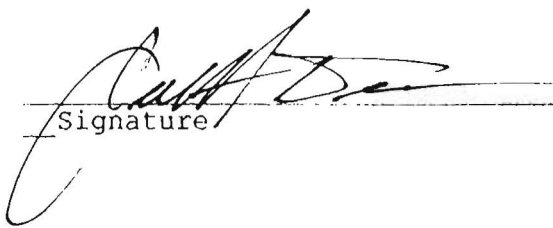
☐ SAN ANTONIO REGIONAL OFFICE ☐ AUSTIN REGIONAL OFFICE

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

☐ Overnight Delivery to TNRCC:
 TNRCC - Cashier
 12100 Park 35 Circle
 Building A, 3rd Floor
 Austin, TX 78753
 512/239-0347

Type of Application	Size	Fee Due		
		New (3373)	Modification (3374)	
WPAP	343.14 Acres	\$ 5,000.00	\$	PAP
SCS	L.F.	\$	\$	SCS
Lift Stations without sewer lines	Acres	\$	\$	
UST/AST	Tanks	\$	\$	HHS
Piping System(s)		\$	\$	

(Installed without tanks)	Each			PSM
Extension of Time	Each	\$	\$	EXT


Signature

8/11/98
Date

GENERAL INFORMATION FORM

FOR

REGULATED ACTIVITIES

ON THE EDWARDS AQUIFER RECHARGE ZONE

AND RELATING TO 30 TAC §§213.4 & 213.5, EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: THE PINNACLE

COUNTY: COMAL County STREAM BASIN: ALLIGATOR CREEK

TYPE: X WPAP AST EXCEPTION
 SCS UST MODIFICATION

Do not write in this box. TNRCC use only.	
Received by Region	
Fee Due:	\$
Payment Verified:	
Inspection Date:	
Judged Administratively <u> </u> complete <u> </u> incomplete	
Written Comments Received From City/County: UWCD within 30 Days:	<u> </u> Yes <u> </u> No <u> </u> Yes <u> </u> No
<u> </u> Approved <u> </u> Incomplete and Returned	

APPLICANT INFORMATION

1. Applicant:

Contact Person: JACK DEAN
Entity: PROPERTIES OF THE SOUTHWEST
Mailing Address: P.O. BOX 896
City, State: WIMBERLEY, TX Zip: 78676
Telephone: 512-847-5483 FAX: 512-847-9414

2. Agent/Representative (if any):

Contact Person: KELLY KILBER, P.E., R.P.L.S.
Entity: PRO-TECH ENGINEERING GROUP, INC.
Mailing Address: 100 E. SAN ANTONIO ST., SUITE 100
City, State: SAN MARCOS, TX Zip: 78666
Telephone: 512-353-3335 FAX: 512-396-0224

PROJECT LOCATION

3. Site Address: N/A
Street: _____
City: _____ Zip: _____

4. _____ This project is inside the city limits of the City of

XX This project is outside the city limits but inside the ETJ
(extra-territorial jurisdiction) of the City of
NEW BRAUNFELS

_____ This project is not located within any city's limits or ETJ,
but is located within _____ County.

5. The location of the project site is described below. Provide
sufficient detail and clarity so that the TNRCC's Regional staff can
easily locate the project for a field investigation.

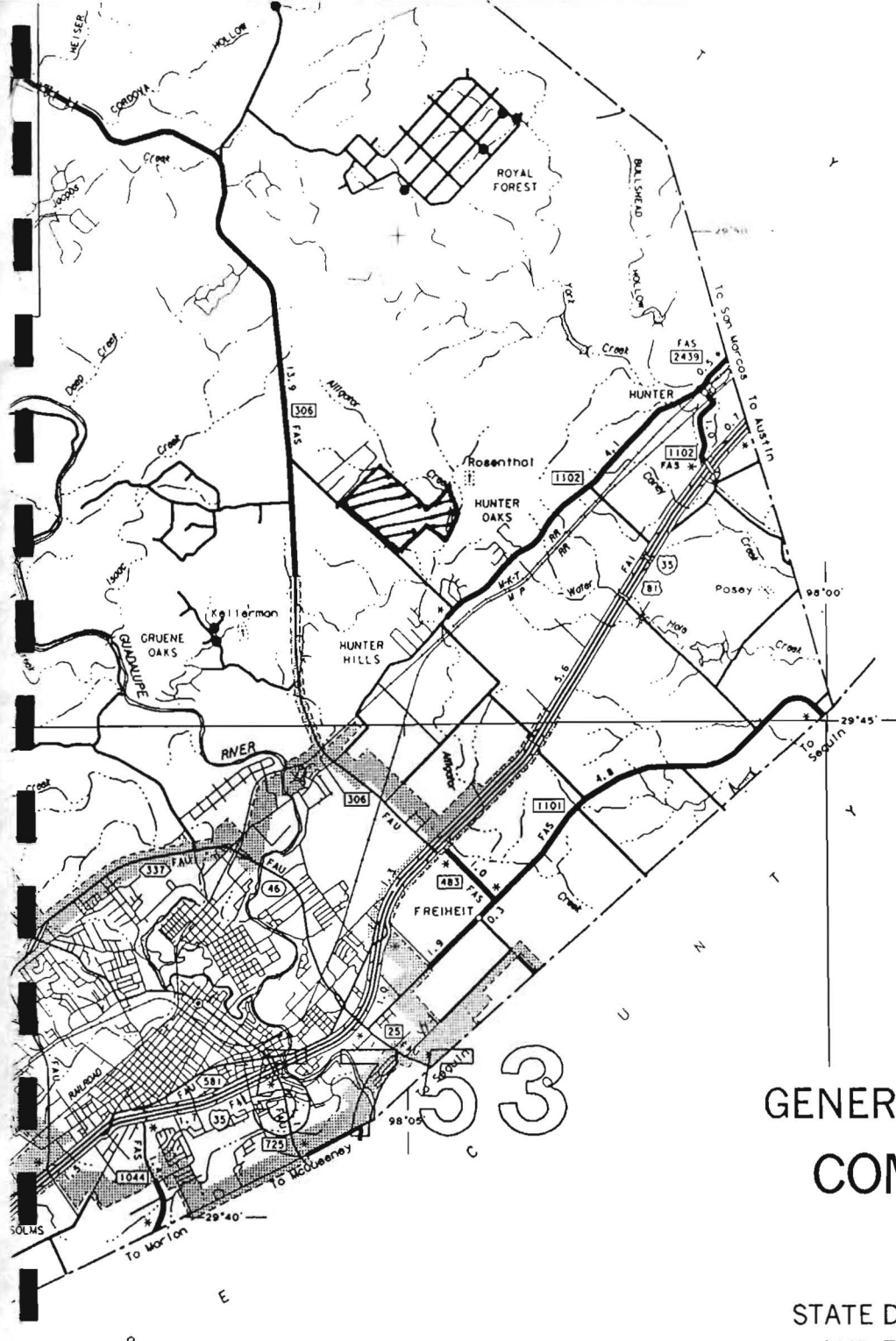
6500 FEET SOUTHEAST FROM THE INTERSECTION OF FM 306 AND
HOFFMAN LANE.

ROAD AND RECHARGE ZONE MAPS

6. XX A Road Map is attached behind this sheet showing directions
to and location of project site.

7. XX A copy of the official 7 1/2 minute USGS Quadrangle Map
(Scale: 1" = 2000') of the Edwards Recharge Zone is attached behind
this sheet. The map(s) should clearly show:

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



GENERAL HIGHWAY MAP COMAL COUNTY TEXAS

PREPARED BY THE
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



1988

1980 CENSUS FIGURES

HIGHWAYS REVISED TO MAY 1, 1989

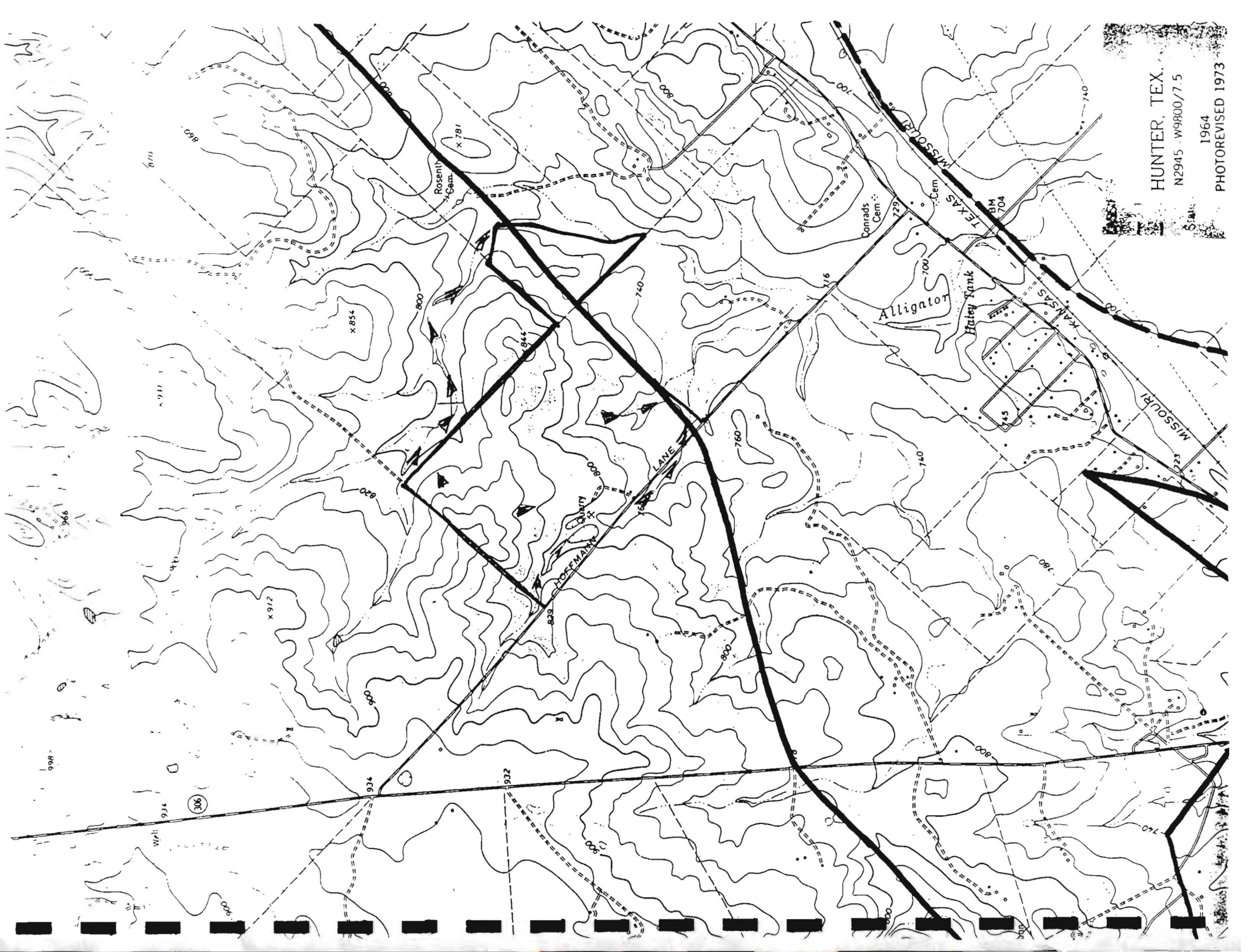
Copies of this map are available for public use at nominal cost
from the State Department of Highways and Public Transportation,
P. O. Box 5051, Austin, Texas 78763

POLYCONIC PROJECTION NORTH AMERICAN DATUM
CONTROL U.S. COAST AND GEODETIC SURVEY AND U.S. GEOLOGICAL SURVEY

Sheet 1 of 1 Base Sheet and 3 Supplementary Sheets

NOTICE

been prepared for internal use within the
Department of Highways and Public Transportation
and is not to be used for any other purpose.
The State Department of Highways and Public Transportation
assumes no responsibility for the validity of available data as
shown.



HUNTER, TEX.

N2945 W9800/7.5

1964
PHOTOREVISED 1973

Recharge/Transition Zone Maps are available from:

Aerographics 512/459-4800

Horton Springs/Edwards Aquifer Con. District 512/282-8441

Edwards Aquifer Authority 210/222-2204

Ferguson Map Company 210/829-7629

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

PROJECT DESCRIPTION

9. ☒ A detailed narrative description of the proposed project is provided directly behind this page.

10. 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: _____

SOLID AND HAZARDOUS WASTES

11. Solid wastes and/or hazardous wastes:

☐ There are areas of trash, debris or other solid waste and hazardous waste on this property which will be disposed of properly at an authorized facility prior to commencing construction.

☒ There are no areas of trash, debris or other solid waste or hazardous waste existing on this property.

☐ Other. A narrative description is provided directly behind this page.

12. Will there be any on-site land disposal of Municipal Solid Waste as defined in 30 TAC §330?

- ☐ Yes
- ☒ No

PROHIBITED ACTIVITIES

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

Project Description:

The Pinnacle is a 343 acre single family residential subdivision located in Southeast Comal County, 2 miles East of the City of New Braunfels, 6500 feet Southeast of the intersection of FM 306 and Hoffman Lane. The project is located in New Braunfels Extra Territorial Jurisdiction.

The development is within the Edwards Aquifer Recharge Zone as determined by the TNRCC. This property is currently open, unused land. Past use has been for ranching and grazing purposes.

The development will consist of approximately 262 single family residential lots 1.0 acre and larger. Approximately 20,000 feet of asphalt roadways will be constructed. Water for the development will be supplied by New Braunfels Utility Co. Wastewater will be treated and disposed of by private septic systems constructed in accordance with the TNRCC and Comal County Health Departments rules and regulations:

The Quarry will be platted as a park and will be deeded to the Home Owners Association. The following page list the amenities to be built for the park.

All natural drainage channels and swells will be left in their natural state so that the flow will not erode the receiving downstream reach and will also act as a sediment trap. There will be no installation of devices to divert flow, store flow or limit runoff.

Temporary erosion and sediment controls will consist of rock berms and silt fences installed down slope of construction activities at all drainage courses.

Permanent erosion and sediment controls will consist of seeding and/or hydromulching all areas disturbed after construction.



Region 450

Properties of the Southwest

Located at: 500 FM 2325

P. O. Box 896 • Wimberley, TX 78676

Phone: 512/847-5483 • Fax: 512/847-9414

Date: 18-Aug-98☒ FAXFrom: Jack Dean
Regional Manager☐ MEMOTo: RICHARD
PRO-TECH ENGINEERINGRe: THE PINNACLE
QUARRY PARK

This is page 1 of 1 page(s).

THE FOLLOWING IS A LIST OF AMENITIES I WOULD LIKE FOR THE QUARRY PARK. PLEASE NOTE THAT ALL THESE MAY NOT BE BUILT OR INSTALLED IN THE INITIAL DEVELOPMENT STAGE.

- * **TENNIS COURTS (2 - MINIMUM)**
- * **JOGGING TRAIL (MADE OUT OF TRACK MATERIAL)**
- * **LITTLE LEAGUE BASEBALL AND/OR SOCCER FIELD**
- * **PRESCHOOL AND EARLY CHILDHOOD PLAYGROUND**
- * **BASKETBALL COURTS**

IF ANY OF THE ABOVE ITEMS CANNOT BE INSTALLED IN THE QUARRY PARK DUE TO ITS SENSITIVITY, THEN THOSE ITEMS CAN BE REMOVED FROM THE LIST.

(1) waste disposal wells regulated under 30 TAC §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).

14. X 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 §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

15. Under 30 TAC §213.14, application fees are due and payable at the time the application is filed. I understand that if the correct fee is not submitted, the TNRCC 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:

 Austin central office

 Austin regional office (for projects in Hays, Travis, and Williamson Counties)

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

16. X One (1) original and three (3) copies of the completed application shall be submitted to the appropriate Regional Office for distribution by the TNRCC to the local municipality or county, groundwater conservation districts, and the TNRCC's Central Office.

17. X All items required for this development, as listed in the **APPLICATION GUIDELINES**, are attached.

18. As applicant for the proposed project I am aware that:

X It is the applicant's responsibility to use the current TNRCC Edwards Aquifer application forms.

The executive director must declare that the application is administratively complete or deficient within 30 days of receipt by the appropriate regional office and must complete the review of an application within 90 days after determining that it is administratively complete. Grounds for a deficient application include, but are not limited to, failure to pay all applicable application fees.

X No person shall commence any regulated activity until a Water Pollution Abatement Plan for such activity has been filed with and approved by the TNRCC.

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 TNRCC review. The application was prepared by:

KELLY KILBER, AGENT

Print Name of Applicant/Owner/Agent


Signature of Applicant/Owner/Agent

8/13/98
Date

GEOLOGIC ASSESSMENT

FOR

REGULATED ACTIVITIES

ON THE EDWARDS AQUIFER RECHARGE/TRANSITION ZONES
AND RELATING TO 30 TAC §213.5(b)(3), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: The PinnacleTYPE OF PROJECT: X WPAP AST SCS UST**PROJECT INFORMATION**

1. Project is on the: Recharge Zone Transition Zone
X Both

Recharge Zone Boundary:

- X The Recharge Zone boundary is located on-site. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site.**
 The Recharge Zone boundary is located within the downgradient area.
 The Recharge Zone boundary is not located within the downgradient area.

2. **100-year floodplain boundaries:**

- X The 100-year floodplain is located on-site. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site and within the 100-year floodplain downgradient of the site for a distance of one-half mile or to the Recharge Zone boundary, whichever is less.**
 The 100-year floodplain is located downgradient of the site within a distance of one-half mile or the Recharge Zone boundary, whichever is less. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site and within the 100-year floodplain downgradient of the site for a distance of one-half mile or to the Recharge Zone boundary, whichever is less.**
 No part of the area downgradient of the site is located within the 100-year floodplain. **This Geologic Assessment includes a description of the geologic or manmade features identified on-site.**

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

Federal Flood Insurance Rate Map, Community panel Number 485463

0110 C, Dated September 29, 1986

3. ☒ This project is part of a multi-phase project. The Geologic Assessment is site specific and covers only that area undergoing review at this time.
☐ This is not a multi-phase project.
4. ☐ Geologic or manmade features are described and evaluated using the attached GEOLOGIC ASSESSMENT TABLE.
5. Soil cover on the project site is 0-5 feet thick. In general, the soil present appears to have the ability to:
☒ transmit fluid flow to the subsurface.
☐ impede fluid flow to the subsurface.
6. ☒ A **stratigraphic column(s)** is attached **directly behind this page**. The outcropping unit is at the top of the stratigraphic column.
7. ☒ A narrative description of the site specific geology for this project is provided directly behind this page.
8. ☒ Appropriate Geologic Map(s) are provided:

SITE GEOLOGIC MAP

The Site Geologic Map must be the same scale as the applicant's Site Plan.

Applicant's Site Plan Scale 1" = 300 '

Site Geologic Map Scale 1" = 300 '

Items 9 through 13 must be included on the Site Geologic Map.

9. ☒ The Project Site is shown and labeled.
10. ☒ Surface Geologic Units are shown and labeled.
11. **Geologic or manmade features.**
☒ 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

Stratigraphic Column		
Stratigraphic Formation	Thickness, Feet	Lithology
Buda Limestone	40 - 50	Buff, light gray, dense mudstone
Del Rio Clay	40 - 50	Blue-green to yellow-brown clay
Edwards Group - Person Formation		
Leached and Collapsed Members, Undivided	80 - 100	Crystalline limestone; mudstone to grainstone; chert; collapsed breccia
Regional Dense Member	20 - 24	Dense, argillaceous mudstone
Edwards Group - Kainer Formation		
Grainstone Member	50 - 60	Miliolid grainstone; mudstone to wackestone; chert
Kirschberg Evaporite Member	50 - 60	Highly altered crystalline limestone; chalky mudstone; chert

SITE GEOLOGY NARRATIVE

The following discussion is a SITE-specific assessment of existing geologic conditions and potential features at the 341 acre Hoffman Ranch SITE, located on Hoffman Lane, approximately 4500 feet southeast of the intersection of State Highway 306 and Hoffman Lane, northeast of New Braunfels, Texas.

As indicated by the topographic contours provided on Plate 1, the predominant direction of surface runoff across the SITE is toward the southeast to Alligator Creek flood plain. The 100 year flood plain is located on the property, however, the Recharge Zone boundary is located on the property and crosses the drainages of the property. Therefore, downstream drainages were not mapped.

A total of 26 potential recharge features were identified at the SITE including sinkholes, closed depressions, fracture zones and vuggy fracture rock zones.

The significance of the features were assessed using the definitions and guidance provided in Instructions to Geologists (TNRCC-0629). All features within the SITE, which meet the criteria presented in this reference, were mapped. The characteristics of all features and the assessments of these features, as defined by the TNRCC, are presented in the attached Geologic Assessment Tables (TNRCC-0629).

Stratigraphy

As presented on the attached Stratigraphic Column information, pertaining to the lithologies of outcropping units on the SITE, was taken from Hanson, J.A., and Small T.A., 1995, Geologic Framework and Hydrogeologic Characteristics of the Edwards Aquifer, Comal County, Texas in conjunction with field observations. The mapped formations at the surface of the SITE are the Del Rio Clay, the Person Formation and the Kainer Formation.

Two members of the Person Formation, which is part of the Edwards Group, were noted at the SITE. The members are identified as the Leached and Collapsed Members and the Regional Dense Member. Two members of the Kainer Formation, which is also part of the Edwards Group, were noted at the SITE. The members are identified as the Grainstone Member and the Kirschberg Evaporite Member. Descriptions of the members and their typical thicknesses are presented on the stratigraphic column.

Structure

The SITE is located within the Balcones Fault Zone, which possesses a distinct structural trend. En echelon, northeast trending, normal faults have been mapped and described throughout the area. Three faults and one inferred fault were mapped by Hanson and Small, based on aerial photographs. Field reconnaissance confirmed the two northeast trending faults, however there was no surface expression for the other two.

Caves / Cave Zones

No caves or cave zones were identified on the SITE.

Sinkholes / Solution Cavities

One sinkhole zone (S-11) and three solution cavities (S-3, S-6, and S-16) were identified on the SITE. One other solution cavity (S-13) was identified just off the property boundary.

Vuggy Rock Outcrops / Vuggy Rock Zones

There were seven vuggy rock outcrops/zones (S-1, S-4, S-12, S-14, S-15, S-21, and S-22) identified at the SITE. Densities and apertures varied. All of the outcrops/zones were discontinuous except for S-4. S-4, S-12, S-21, and S-22 were identified as having a high potential for recharge.

Fractured Rock Outcrops / Fractured Rock Zones

Seven fractured rock outcrops/zones (S-2, S-5, S-7, S-8, S-20, S-24, and S-26) were identified at the SITE. The fractured rock zones are predominantly associated with three intermittent creeks that drain the SITE. Natural weathering has exposed the fracturing, which is oriented in numerous directions and typically filled with fine-grained material.

None of the fractured rock zones were identified as sensitive features.

Closed Depressions

Two closed depressions (S-10 and S-17) were mapped at the SITE. Neither of these features has been classified as sensitive.

Feature S-10 is the only natural closed depression on the SITE. It is a gouge feature located within the creek near the center of the SITE. It measures approximately 15 feet in length, 20 feet in width, and 4 feet deep.

The other closed depression, S17, is a gouge feature that has been enclosed on one side by a pile of overburden associated with the main quarry. This feature measures approximately 6 feet in length, 6 feet in width, and two feet deep.

Manmade Features

Five manmade features (S-9, S-18, S-19, S-23, and S-25) were identified at the SITE. Two of these features, S-18 and S-19, are former quarries. S-9 is a reservoir for cattle use. S-23 and S-25 are bore holes of an unknown depth. All of these features, except S-9, have been classified as sensitive.

REFERENCES

Batte, C.D., Soil Survey of Comal and Hays Counties, Texas, 1984, U.S. Department of Agriculture, Soil Conservation Service, 136 p. and sheet 81.

Bureau of Economic Geology, 1983, Geologic Atlas of Texas, San Antonio Sheet, The University of Texas at Austin, Austin, Texas.

Federal Insurance Rate Map (FIRM), Community Panel Number 485463 0110 C, September 29, 1986.

Hanson, J.A., and Small, T.A. 1995, Geologic Framework and Hydrogeologic Characteristics of The Edwards Aquifer Outcrop, Comal County, Texas, U.S. Geologic Survey, Water-Resources Report 94-4117, pgs. 4-9.

United States Geological Survey, 1973, Hunter Quadrangle, USGS, Denver Colorado

attached Geologic Assessment Table.

____ Geologic or manmade features were not discovered on the project site during the field investigation.

12. X The Recharge Zone boundary and the 100-year floodplain is shown and labeled, if appropriate.

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

 X There are 2 (#) 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.

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

____ The wells are in use and comply with 30 TAC §238.

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

DOWNGRADIENT GEOLOGIC MAP (not applicable)

Downgradient Geologic Map Scale

1" = 400 '

Items 14 through 16 must be included on the Downgradient Geologic Map.

14. X Surface Geologic Units are shown and labeled.

15. **Geologic or manmade features:**

 X Geologic or manmade features were discovered within the downgradient area. They are shown and labeled on the Downgradient Geologic Map and described in the attached Geologic Assessment Table.

____ No geologic or manmade features were discovered within the downgradient area.

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

____ There are 0 (#) 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 30 TAC §238.

ADDITIONAL COMMENTS
SITE Location
(Features S-1 to S-26)

- S-1 Vuggy rock outcrop at northeast side of property.
- S-2 Fractured rock outcrop associated with small branch of Alligator Creek. Fracture directions are variable.
- S-3 Small solution cavity infilled with fine-grained sediment.
- S-4 Continuous vuggy rock zone with no significant infilling.
- S-5 Fractured rock zone along branch of Alligator Creek. Fracture directions are variable. Several gouge features are located along the creek.
- S-6 Same as S-3.
- S-7 Small fractured rock outcrop near the center of the SITE. There was no significant infilling and the fracture directions are variable.
- S-8 Small fractured rock outcrop east of the main quarry. There was no significant infilling and the fracture directions are variable.
- S-9 Manmade reservoir for cattle use.
- S-10 Small, natural, closed depression within S-4 located at the top of the small branch of Alligator Creek.
- S-11 Large sinkhole located north of main quarry. Area around sinkhole is fractured with no infilling. Fracture directions are variable.
- S-12 Discontinuous vuggy rock zone infilled with fine-grained material.
- S-13 Small, horizontal solution cavity located east of the property boundary in Alligator Creek.
- S-14 Small vuggy rock outcrop located at the north end of the property. There was no significant infilling.
- S-15 Same as S-14.
- S-16 Small solution cavity located just north of main quarry.

- S-17 Small closed depression formed by gouge feature and overburden pile.
- S-18 Main quarry pit.
- S-19 Smaller quarry pit.
- S-20 Fractured rock zone in streambed at northeast end of property. Fracture directions are variable. Several gouge features are located along the creek.
- S-21 Vuggy rock outcrop located at northeast end of property. No significant infilling.
- S-22 Same as S-21.
- S-23 Manmade bore hole.
- S-24 Same as S-5.
- S-25 Same as S-23.
- S-26 Same as S-5.

GEOLOGIC ASSESSMENT TABLE										PROJECT NAME: The Pinnacle																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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(1) C = 35, CD = 10, FR = 0, FZ = 15, MM = 35,
SC = 10, SH = 20, VR = 0, ZONE = 35

(2) WALL = Vertical/near vertical wall above 100-yr floodplain
FLOODPLAIN = 100-yr floodplain
STREAM BED = Ordinary High Water Mark

TNRCC - 0629 (2/1/97)

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

Michael Ashby

Geologist signature

7-29-98

Date

[illegible]


(1) C = 35, CD = 10, FR = 0, FZ = 15, MM = 35,
SC = 10, SH = 20, VR = 0, ZONE = 35

(2) WALL = Vertical/near vertical wall above 100-yr floodplain
FLOODPLAIN = 100-yr floodplain
STREAM BED = Ordinary High Water Mark

TNRCC - 0629 (2/1/97)

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

information presented here complies with that document and is a true re

 7-29-98

Geologist signature Date

Sheet 2 of 2

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

ADMINISTRATIVE INFORMATION

17. X One (1) original and three (3) copies of the following forms, in the order listed below, have been provided.

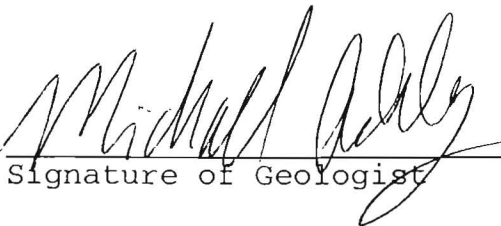
- * THIS FORM
- * GEOLOGIC ASSESSMENT TABLE
- * SITE GEOLOGIC MAP
- * DOWNGRADIENT GEOLOGIC MAP, if needed

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 **GEOLOGIC ASSESSMENT** is hereby submitted for TNRCC review. The application was prepared by:

Date(s) Geologic Assessment was performed: June 22 to July 29, 1998
Date(s)

Michael Ashby
Print Name of Geologist

(512) 339-1745
Telephone


Signature of Geologist

(512) 339-6174
FAX

8-24-98
Date

Representing: Raba-Kistner-Brytest Consultants, Inc.
(Name of Company)

ADDITIONAL COMMENTS
Downgradient Map
SITE Location
(Feature A-1)

- A-1 Discontinuous fractured rock zone along alligator creek. Outcrop was buried in some areas by alluvial deposits. No noticeable preferred fracture orientation. Aperture widths varied from 0.1 to 1.0 inches. Fractures were infilled with coarse and fine-grained material.

FOR

PROJECT NAME: THE PINNACLE

1. The type of project is:

2. Total Acreage (Size of project): 343.14

3. Projected population: 728

4. The amount and type of impervious cover is shown below:

STORMWATER TO BE GENERATED BY THE PROPOSED PROJECT

Page 1

6. This site is divided into four (4) distinct drainage basins. The approximate stormwater runoff for a ten (10) year storm is 515 cfs. The character of the water will be similar to other low density single family residential developments.

WASTEWATER TO BE GENERATED BY THE PROPOSED PROJECT

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

100	% Domestic	91,700	gallons/day
_____	% Industrial	_____	gallons/day
_____	% Commingled	_____	gallons/day
TOTAL		91,700	gallons/day

7. Wastewater will be treated by:

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

An on-site sewage facility will be used to treat and dispose of the wastewater. The **appropriate licensing authority's written approval is attached directly behind this page.** It states that the land is suitable for the use of an on-site sewage facility or identifies areas that are not suitable.

_____ I verify that 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 registered engineer or sanitarian and installed by a licensed installer in compliance with 30 TAC §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 _____ (name) Treatment Plant. A letter from the owner of the Treatment Plant indicating that the plant has sufficient capacity and accepting the wastewater is attached directly behind this page.

8. _____ All private service laterals will be inspected as required in 30 TAC 213.5(c)(3)(I).

SITE PLAN

Items 9 through 16 must be included on the Site Plan.

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



Comal County

OFFICE OF COMAL COUNTY ENGINEER

August 17, 1998

Properties of the Southwest
P.O. Box 896
Wimberley, TX 78676

Re: Proposed subdivision, THE PINNACLE within Comal County, Texas

Dear Property Owner(s):

We have completed the field inspection of the referenced for the recommendation for private sewage facilities and have found the proposed subdivision to be approved with the condition that individual septic systems permits shall be required for the lots within this subdivision.

Please be advised that these individual permits will be required to meet 30 TAC 285.40, SubChapter E. (copy attached) Please specifically reference the one acre minimum lot size and 150 foot distance requirement to recharge features.

Should you have any questions, please feel free to contact us.

Sincerely,

Thomas H. Hornseth, P.E.
Comal County Engineer

**SUBCHAPTER E : SPECIAL REQUIREMENTS FOR OSSFS
LOCATED IN THE EDWARDS AQUIFER RECHARGE ZONE
§285.40**

§285.40. OSSFs on the Recharge Zone of the Edwards Aquifer.

(a) Applicability. In addition to the requirements given in this chapter, the following additional provisions apply to the Edwards Aquifer recharge zone as defined in §285.2 of this title (relating to Definitions) and is not intended to be applied to any other areas in the State of Texas.

(b) Additional application requirements for new OSSFs.

(1) All planning and design materials shall be submitted by a professional engineer or sanitarian registered in Texas.

(2) Site evaluation to be conducted by a certified site evaluator possessing a valid certificate.

(c) Conditions for obtaining a permit to construct. In order to obtain a permit to construct in the Edwards Aquifer recharge zone, the following conditions must be met.

(1) Minimum lot sizes. Each lot or tract of land on the recharge zone on which OSSFs are to be located must have an area of at least one acre (43,560 square feet) per single family dwelling.

(2) Minimum separation distances from recharge features. The following separation distances shall be maintained from recharge features found during a site evaluation or in accordance with a geologic assessment performed in accordance with Chapter 213 of this title (relating to Edwards Aquifer). No sewage treatment tank or holding tank may be located within 50 feet of a recharge feature. No soil absorption system may be located within 150 feet of a recharge feature.

(3) No OSSF may be installed closer than 75 feet from the banks of the Nueces, Dry Frio, Frio, or Sabinal Rivers downstream from the northern Uvalde county line to the recharge zone.

(d) Existing OSSFs. OSSFs licensed by, or registered with, the appropriate permitting authority at the time of adoption of this section shall remain licensed or registered under the terms and conditions of the current license or registration. Any relicensing shall be performed in accordance with §285.3 of this title (relating to Applicability). An OSSF installed on the recharge zone prior to April 11, 1977, in either Uvalde or Kinney Counties is not required to be permitted or licensed, provided the OSSF is not causing pollution, is not a threat to the public health, or is not a nuisance, and has not been substantially modified.

(e) Exceptions for certain lots. Lots platted and recorded with the county in its official plat record, deed, or tax records of the following counties prior to the dates for the counties indicated in this

subsection, are exempted from the one-acre minimum lot size requirement, pursuant to the conditions of subsection (f) of this section.

- (1) Kinney, Uvalde, Medina, Bexar, and Comal Counties--March 26, 1974;
- (2) Hays County--June 21, 1984;
- (3) Travis County--November 21, 1983; and
- (4) Williamson County--May 21, 1985.

(f) Notice. Any person, or his agents or assignees, desiring to construct a residential development with two or more lots in which OSSFs will be utilized in whole or in part on the recharge zone and desiring to sell, lease, or rent the lots therein, must inform in writing each prospective purchaser, lessee, or renter of the following.

- (1) Each lot within the regulated development is subject to the terms and conditions of this section.
- (2) A permit to construct shall be required before an OSSF can be constructed in the subdivision.
- (3) A license to operate shall be required for the operation of an OSSF.
- (4) Whether or not an application for a water pollution abatement plan as defined in Chapter 213 of this title (relating to Edwards Aquifer), has been made, and whether or not it has been approved, and whether any restrictions or conditions have been placed on that approval.

Site Plan Scale: 1" = 300'.

10. ☒ **Layout of the development** (Location of lots, recreation centers, buildings, roads, etc.) is shown and labeled.

11. N/A A narrative description of any on-site chemical storage is provided directly behind this page.

12. **Geologic or manmade features** which are associated with this project:

☒ All **geologic or manmade** features identified in the Geologic Assessment are shown and labeled. Features associated with this project are those located on-site and those located either one-half mile downgradient or to the Recharge Zone boundary, whichever is shorter, and within the 100-year floodplain.

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

☐ A Geologic Assessment is not required; however, **geologic or manmade** features were found and are shown and labeled.

☐ A Geologic Assessment is not required and no **geologic or manmade** features were found.

13. ☒ Existing topographic contours are shown and labeled. The contour interval is 2 feet. (Contour interval must not be greater than 5 feet).

14. ☐ **Finished topographic contours** are shown and labeled. The contour interval is _____ feet. (Contour interval must not be greater than 5 feet).

☒ Finished topographic contours will not differ from the existing topographic configuration and are not shown.

15. **100-year floodplain boundaries**

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

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

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

FEDERAL EMERGENCY MANAGEMENT FLOOD INSURANCE RATE MAPS,
COMAL COUNTY MAP NO. 485463 0110C, SEPTEMBER 29, 1986

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

X There are 2 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

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

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

The wells are in use and comply with 30 TAC §238.

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

ADMINISTRATIVE INFORMATION

17. X One (1) original and three (3) copies of the following forms, in the order listed below, have been provided.

- * GENERAL INFORMATION FORM
- * GEOLOGIC ASSESSMENT
- * THIS FORM
- * TEMPORARY STORMWATER SECTION
- * PERMANENT STORMWATER SECTION
- * ALL THE ADDITIONAL REQUIREMENTS LISTED ON THE APPLICATION

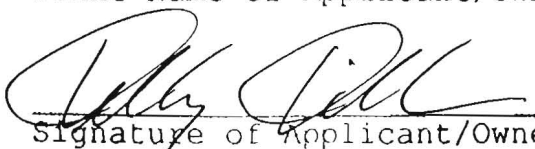
GUIDELINES

- * AGENT AUTHORIZATION FORM, if submitted by agent
- * FEE FORM

18. Any modification of this WPAP will require TNRCC approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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

KELLY KILBER, AGENT
Print Name of Applicant/Owner/Agent


Signature of Applicant/Owner/Agent

8/13/98
Date

Send original copy by certified

return receipt requested mail to:

TNRCC
MC 177
P.O. Box 13087
Austin, TX 78711-3087

State of Texas PLUGGING REPORT

(This form must be completed and filed with the TNRCC
within 30 days following the date the well is plugged as
required by current statutory law.)

Texas Water Well Drillers Advisory Council

MC 177
P.O. Box 13087
Austin, TX 78711-3087
512-239-0530

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER Properties of the Southwest ADDRESS PO Box 896 Wimberley, TX 78676
(Name) (Street or RFD) (City) (State) (Zip)
2) ADDRESS OF WELL Hoffman Rd TX GRID # 68-16-7
County Comal (Street, RFD or other) (City) (State) (Zip)

3) OWNER'S WELL NO. _____

4) WELL TYPE (Check): ☒ Water ☐ Monitor ☐ Injection ☐ De-watering

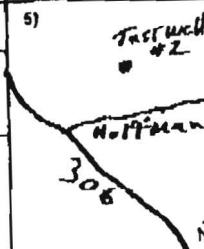
Driller, Pump Installer, or Landowner performing the plugging operations must locate and identify the location of the well within a specific grid on a full scale gridded County map available from the TNRCC/Installers Certification Program. The location of the well should be denoted within the grid by placing a corresponding dot in the grid to the right. The legal description section below is optional.

5) LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____

Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section lines or survey lines: _____



B. HISTORICAL DATA ON WELL TO BE PLUGGED (If available)

6) Driller Joe Martinez License No. 2872 W City New Braunfels
7) Drilled 12-1 1977 8) Diameter of hole 6" inches; 9) Total depth of well 480' feet.

C. CURRENT PLUGGING DATA

10) Date well plugged 8-26 1998

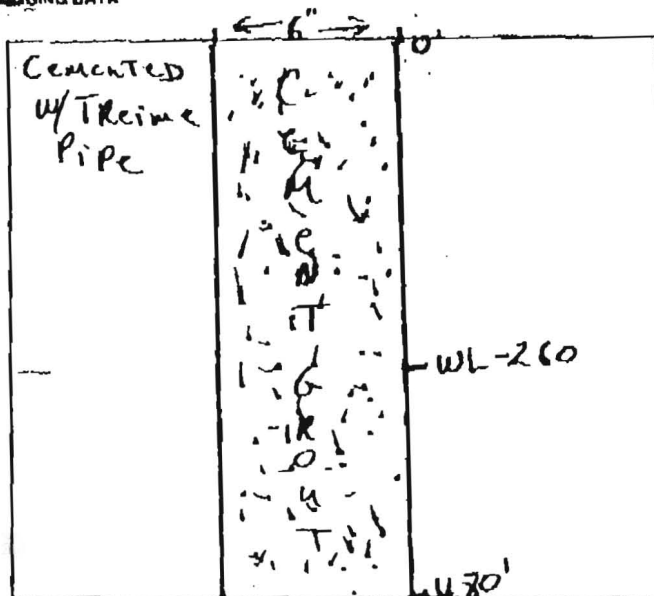
11) Sketch of well: Using space at right, show method of plugging the well including all casing and cemented intervals.

12) Name of Driller/Pump Installer actually performing the plugging operations

Ralph Nicholson
License number #43161

13) Casing and cementing data relative to the plugging operations:

DIAMETER (inches)	CASING LEFT IN WELL	
	FROM (feet)	TO (feet)
	<u>None</u>	
CEMENT PLUG(S) PLACED IN WELL		SACK(S) OF CEMENT USED
FROM (feet)	TO (feet)	
<u>0'</u>	<u>480'</u>	<u>47DS.</u>



D. VALIDATION OF INFORMATION INCLUDED IN FORM

I hereby certify that this well was plugged by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 13 will result in the report(s) being returned for completion and resubmittal.

Company or Individual's Name (type or print) Wellpullers Inc.
Address: Street or RFD 2810 Thousand Oaks #18 City San Antonio State TX Zip 78232

Signatures:

Ralph Nicholson 8-22-98
Licensed Driller/Pump Installer Date

Owner of Well

Date

Trainee/Apprentice

Date

08/27/1998 13:16

18304383694

WELLPULLERS

PAGE 01

Send original copy by certified
return receipt requested mail to:

State of Texas

Texas Water Well Drillers Advisory Council

TNRCC

MC 177

P.O. Box 13087
Austin, TX 78711-3087

PLUGGING REPORT

(This form must be completed and filed with the TNRCC
within 30 days following the date the well is plugged as
required by current regulatory law.)

MC 177

P.O. Box 13087

Austin, TX 78711-3087

512-239-0630

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER PROPERTIES OF Southwest ADDRESS PO Box 896 Wimberley TX 78676
(Name) Jack Bean (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL:
County Comal Hoffman RD Tx GRID # 68-16-7
(Street, RFD or other) (City) (State) (Zip)

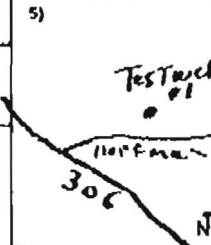
3) OWNER'S WELL NO.: _____ 4) WELL TYPE (Check) ☒ Water ☐ Monitor ☐ Injection ☐ De-watering

Driller, Pump installer, or Landowner performing the plugging operations must locate and identify the location of the well within a specific grid on a full scale gridded County map available from the TNRCC/Installers Certification Program. The location of the well should be denoted within the grid by placing a corresponding dot in the grid to the right. The legal description section below is optional.

☐ LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____

Abstract No. _____ Survey Name _____

Distance and direction from two
intersecting section lines or survey lines: _____

B. HISTORICAL DATA ON WELL TO BE PLUGGED (if available)

6) Driller Joe Martinez License No. 2872 W City New Braunfels
7) Drilled 11-25 1997 8) Diameter of hole 6 inches 9) Total depth of well 360 feet

C. CURRENT PLUGGING DATA

10) Date well plugged 8-26 1998

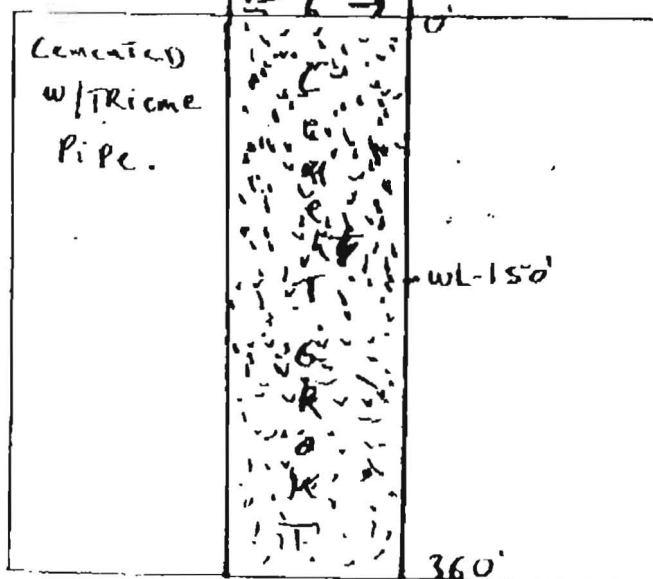
11) Sketch of well: Using space at right, show method of plugging the well including all casing and cemented intervals.

12) Name of Driller/Pump installer actually performing the plugging operations

Ralph NicholsonLicense number #43161

12) Casing and cementing data relative to the plugging operations:

DIAMETER (inches)	CASING LEFT IN WELL	
	FROM (feet)	TO (feet)
	None	
CEMENT PLUG(S) PLACED IN WELL		
FROM (feet)	TO (feet)	SACK(S) OF CEMENT USED
0'	360'	3105-



D. VALIDATION OF INFORMATION INCLUDED IN FORM

I hereby certify that this well was plugged by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 13 will result in the report(s) being returned for completion and resubmittal.

Company or Individual's Name (type or print) Wellpullers Inc.Address: Street or RFD 2810 Thousand Oaks City San Antonio State Texas Zip 78232

Signature Ralph Nicholson #138 Date 8-27-98
Licensed Driller/Pump Installer

Owner of Well

Date

Trainee/Apprentice

Date

TEMPORARY STORMWATER SECTION
 FOR
 REGULATED ACTIVITIES
 ON THE EDWARDS AQUIFER RECHARGE ZONE
 AND RELATING TO 30 TAC §213.5(b)(4), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: THE PINNACLE

PROJECT DESCRIPTION

1. Geologic or manmade features identified on the project site in the geologic assessment are shown below:

# ¹	Feature Type	Relative Infiltration Rate (refer to Geologic Assessment)	Sensitivity of Feature	Temporary Pollution Abatement Measures (Design attached at the end of this form)
S-1	VR	LOW	POSSIBLE	NONE
S-2	FR	LOW	NOT	"
S-3	SC	MODERATE	POSSIBLE	"
S-4	VR2	"	SENSITIVE	ROCK BERM UPGRADIENT
S-5	FRZ	MODERATE	POSSIBLE	NONE
S-6	SC	"	"	"
S-7	FR	LOW	NOT	"
S-8	FR	LOW	NOT	"
S-9	MM	MODERATE	POSSIBLE	"
S-10	CD	MODERATE	POSSIBLE	"
S-11	SH/FRZ	HIGH	SENSITIVE	FILLED IN WITH DIRT
S-12	VRZ	MODERATE	SENSITIVE	NONE
S-13	SC	HIGH	POSSIBLE	"
S-14	VRZ	LOW	POSSIBLE	"
S-15	VRZ	LOW	POSSIBLE	"
S-16	SC	LOW	POSSIBLE	"

1 If there are no features present, enter NONE in this column.

POTENTIAL SOURCES OF CONTAMINATION

TEMPORARY STORMWATER SECTION
FOR
REGULATED ACTIVITIES
ON THE EDWARDS AQUIFER RECHARGE ZONE
AND RELATING TO 30 TAC §213.5(b)(4), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: THE PINNACLE

PROJECT DESCRIPTION

1. Geologic or manmade features identified on the project site in the geologic assessment are shown below:

# ¹	Feature Type	Relative Infiltration Rate (refer to Geologic Assessment)	Sensitivity of Feature	Temporary Pollution Abatement Measures (Design attached at the end of this form)
S-17	CD	MODERATE	POSSIBLE	NONE
S-18	MM	HIGH	SENSITIVE	SILT FENCE UP GRADIENT
S-19	MM	HIGH	"	SILT FENCE UP GRADIENT
S-20	FRZ	LOW	POSSIBLE	NONE
S-21	VR	MODERATE	"	"
S-22	VR	"	"	"
S-23	MM	HIGH	SENSITIVE	WATER WELL TO BE PLUGGED
S-24	FRZ	MODERATE	POSSIBLE	NONE
S-25	MM	HIGH	SENSITIVE	WATER WELL TO BE PLUGGED
S-26	FRZ	MODERATE	NOT	NONE

1 If there are no features present, enter NONE in this column.

POTENTIAL SOURCES OF CONTAMINATION

2. If asphalt is to be used for paving, roofing, etc. describe measures that will be taken during construction to prevent seal coat, emulsion, or other asphaltic products from washing off the project site.

____ No asphalt products will be used on this project.

X Asphalt products will be used on this project. After placement of asphalt, emulsion or coatings, the applicant will be responsible for immediate clean-up should an unexpected rain occur. For the duration of the asphalt product curing time, the applicant should maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur.

____ Other Measures. A narrative description is provided directly behind this page.

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

____ 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. A lined earthen berm providing 150% containment is recommended for the temporary aboveground fuel storage tank.

X 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. A lined earthen berm providing 150% containment will be provided for temporary aboveground fuel storage.

____ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An **Aboveground Hydrocarbon and Hazardous Substance Application** must be submitted to the appropriate Regional Office of the TNRCC prior to moving the tanks onto the project.

I Fuels and hazardous substances will be provided by an off-site facilities.

4. ____ A description of the measures that will be taken to contain any spill of hydrocarbons or hazardous substances is provided directly behind this page.

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

6. X Construction equipment/vehicles will be limited, where possible, to traveling within the limits of the project site. Any soil, mud, etc. carried from the project onto public roads will be cleaned up within 24 hours.

4. Hydrocarbon or Hazardous substances spilled during construction will be contained in a earthen lined berm. Depending upon the volume of the spill, the fuel will be pumped into a tank and removed from the site and disposed of in a appropriate manner. Contaminated soil will be removed in a like manner.

7. X All soil, sand, gravel and excavated materials stockpiled on-site will have appropriately sized erosion and sedimentation controls placed downgradient.

8. X Intentional release of vehicle or equipment fluids onto the ground is prohibited. Contaminated soil resulting from accidental spills will be removed and disposed of properly.

9. X All waste construction material and debris will be disposed of properly at an authorized facility.

10. Other potential sources of contamination. A narrative description is provided directly behind this page.

X There are no other potential sources of contamination.

SITE PLAN

Items 11 through 15 must be included on the Site Plan.

11. X Layout of development (Location of lots, buildings, roads, etc.) is shown and labeled.

12. Temporary pollution abatement measures for Sensitive Features:

X Geologic or manmade features and temporary pollution abatement measures are shown and labeled.

 There are no geologic or manmade features associated with this project.

 No geologic assessment is required.

13. X Stabilized Construction Exits are shown and labeled.

14. Appropriate temporary erosion and sedimentation controls are shown and labeled:

X Silt fences (for drainage areas <2 acres)

X Rock berms (for drainage areas <5 acres)

 Sedimentation basins (drainage <100 acres)

 Other measures. A narrative description is provided directly behind this page.

15. Measures to be taken to prevent pollution of stormwaters **originating on-site or upgradient** of the site.

 Stormwater will be directed around the project site with diversion berms/channels/swales labeled on the TEMPORARY WPAF Site

Plan. Approval has been obtained from the appropriate regulating authority.

X Stormwater flow from upgradient will **flow across** the project site. A narrative description is provided directly behind this page.

Other measures are shown and labeled on the TEMPORARY WPAP Site Plan. A narrative description is provided directly behind this page.

ADMINISTRATIVE INFORMATION

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

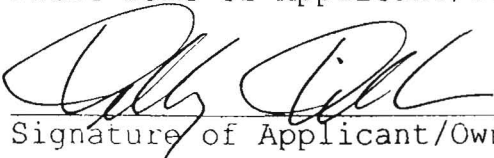
17. X If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TNRCC Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TNRCC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

18. X Contractor will construct and maintain silt fences, diversion berms, and other temporary erosion and sediment controls as appropriate to prevent pollutants from entering sensitive features discovered during construction.

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

KELLY KILBER, AGENT

Print Name of Applicant/Owner/Agent



Signature of Applicant/Owner/Agent

8/13/98

Date

EROSION AND SEDIMENT CONTROLS:

All natural drainage channels and swells will be left in their natural state so that the flow will not erode the receiving downstream reach and will also act as a sediment trap. There will be no installation of devices to divert flow, store flow or limit runoff.

Temporary erosion and sediment control will consist of rock berms and silt fences installed downslope of construction activities at all drainage courses.

Permanent erosion and sediment controls will consist of seeding and/or hydromulching areas all areas disturbed during construction.

OTHER CONTROLS:

The prevention of pollutants from entering the storm water system included the requirement that no no-storm water solid materials, including building material wastes, shall be discharged at the site. Daily cleaning is required to keep the site free from accumulation of waste material and rubbish. All waste materials must be disposed of daily in onsite containers. These containers shall be removed from the site periodically and disposed of at a legal disposal area away from the site. All collection and disposal methods shall be in strict compliance with local codes.

The final permit requires offsite vehicle vehicle tracking of sediments and the generation of dust be minimized. To minimize the tracking of sediments by offsite vehicle hauling of materials, Comal County maintains Hoffman Lane adjacent to the site, will be used as the mail delivery route. These paved roads can be easily cleaned by a front end loader or motor grader to prevent sediment from entering the storm water ditches located on both sides of the roads. The pavement surface should be cleaned as necessary by not less than once a day. By using the asphalt roadway for a delivery route, sediments can be controlled onsite by the previously discussed sediment control procedures. Also stabilized construction entrances shall be installed at both entrance to the site.

Efforts shall be made at all times to prevent the unnecessary accumulation of dust. Earth surfaces subject to dusting shall be kept moist with water.

EO# 14614
erosedcl.doc

PERMANENT STORMWATER SECTION

FOR

REGULATED ACTIVITIES

ON THE EDWARDS AQUIFER RECHARGE ZONE

AND RELATING TO 30 TAC §213.5(b)(4), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: THE PINNACLE

PROJECT DESCRIPTION

1. Geologic or manmade features identified on the project site in the geologic assessment are shown below:

# ¹	Feature Type	Relative Infiltration Rate (refer to Geologic Assessment)	Sensitivity of Feature	Permanent Pollution Abatement Measure ² (Design attached at the end of this form)
S-1	VR	LOW	POSSIBLE	NONE
S-2	FR	LOW	NOT	"
S-3	SC	MODERATE	POSSIBLE	"
S-4	VRZ	"	SENSITIVE	"
S-5	FRZ	MODERATE	POSSIBLE	"
S-6	SC	"	POSSIBLE	"
S-7	FR	LOW	NOT	"
S-8	FR	LOW	NOT	"
S-9	MM	MODERATE	POSSIBLE	"
S-10	CD	MODERATE	POSSIBLE	"
S-11	SH/FRZ	HIGH	SENSITIVE	FILLED IN WITH DIRT
S-12	VRZ	MODERATE	SENSITIVE	NONE
S-13	SC	HIGH	POSSIBLE	"
S-14	VRZ	LOW	POSSIBLE	"
S-15	VRZ	LOW	POSSIBLE	"
S-16	SC	LOW	POSSIBLE	"

1 If there are no features present, enter NONE in this column.

2 If the sensitivity value for a feature is indicated as "NOT", no permanent measures are required.

2. The sealing of naturally occurring sensitive features as a pollution control measure will be avoided where reasonable and

PERMANENT STORMWATER SECTION

FOR

REGULATED ACTIVITIES

ON THE EDWARDS AQUIFER RECHARGE ZONE

AND RELATING TO 30 TAC §213.5(b)(4), EFFECTIVE DECEMBER 27, 1996

PROJECT NAME: THE PINNACLE

PROJECT DESCRIPTION

1. Geologic or manmade features identified on the project site in the geologic assessment are shown below:

# ¹	Feature Type	Relative Infiltration Rate (refer to Geologic Assessment)	Sensitivity of Feature	Permanent Pollution Abatement Measure ² (Design attached at the end of this form)
S-17	CD	MODERATE	POSSIBLE	NONE
S-18	MM	HIGH	SENSITIVE	SEE ATTACHED NOTE
S-19	MM	HIGH	"	SEE ATTACHED NOTE
S-20	FRZ	LOW	POSSIBLE	NONE
S-21	VR	MODERATE	"	"
S-22	VR	"	"	"
S-23	MM	HIGH	SENSITIVE	WATER WELL TO BE PLUGGED
S-24	FRZ	MODERATE	POSSIBLE	NONE
S-25	MM	HIGH	SENSITIVE	WATER WELL TO BE PLUGGED
S-26	FRZ	MODERATE	NOT	NONE

1 If there are no features present, enter NONE in this column.

2 If the sensitivity value for a feature is indicated as "NOT", no permanent measures are required.

2. The sealing of naturally occurring sensitive features as a pollution control measure will be avoided where reasonable and

Most of the area is heavily wooded and only those areas required for the construction of the roads and utilities will be removed by the developer. It is anticipated that homesites will be cleared as house construction takes place. Development of residential yards, i.e., lawns, shrubs, landscaping, etc., by the lot owners will enhance the vegetation in the area. The vegetation will act as a filter for storm water runoff.

practicable alternatives exist and will be evaluated by the executive director on a case-by-case basis.

No naturally occurring geologic features were found on the project.

POTENTIAL SOURCES OF CONTAMINATION

3. List any potential sources of contamination associated with this project after construction is complete:

1. STORM WATER RUNOFF FROM PAVED ROADS
2. _____
3. _____
4. _____
5. _____

FOR MULTI-FAMILY, COMMERCIAL, INDUSTRIAL DEVELOPMENTS ANSWER ITEMS 4 THROUGH 6; OTHERWISE GO TO ITEM 7.

4. Measures to be taken to prevent pollution of stormwaters **originating on-site or upgradient** of the site.

_____ Stormwater will be directed around the project site with diversion berms/channels/swales labeled on the Permanent WPAP Site Plan. Approval has been obtained.

X Stormwater flow from upgradient will flow across the project site and will be included in sizing calculations for any pollution abatement measures. A narrative description is provided directly behind this page.

_____ Other measures are shown and labeled on the Permanent WPAP Site Plan. A narrative description is provided directly behind this page.

5. For multi-family residential, commercial, or industrial projects permanent stormwater pollution controls will be:

_____ **Sedimentation/Filtration basins** designed to capture the first one-half (1/2) inch of stormwater runoff. The criteria used for design of the permanent stormwater controls is from:

- _____ City of Austin Environmental Criteria Manual
 - _____ **Full** sedimentation/filtration basin system
 - _____ **Partial** sedimentation/filtration basin system
- _____ Lower Colorado River Authority Lake Travis Nonpoint Source Pollution Control Ordinance Technical Manual
 - _____ **Full** sedimentation/filtration basin system
 - _____ **Partial** sedimentation/filtration basin system

THE MAJORITY OF THE SUBDIVISION WILL BE LEFT IN ITS NATURAL
STATE AND AS HOMES ARE BUILT YARDS WILL BE LANDSCAPE AND
GRASS PLANTED

Other. A detailed explanation of the design criteria is provided directly behind this page.

Vegetated filter strips (Buffer Zone) designed to treat stormwater runoff. The criteria used for design of the vegetated filter strips is from:

____ City of Austin Environmental Criteria Manual

____ Lower Colorado River Authority Lake Travis Nonpoint Source Pollution Control Ordinance Technical Manual

Other. A detailed explanation of the design criteria is provided directly behind this page.

Alternative method. A detailed explanation of the design criteria, including calculations showing pollutant removal rates, is provided directly behind this page. All submittals shall be signed and sealed by a registered professional engineer.

X This is a single-family residential subdivision.

6. N/A Scaled plans, profiles, and details are included which illustrate that the proposed treatment system is sized appropriately.

Supporting calculations are shown on the plan sheet, including:

____ Volume of stormwater to be treated

____ Sizing of permanent pollution abatement measures.

OPERATION AND MAINTENANCE PROCEDURES

7. N/A The maintenance plan and schedule for each permanent pollution abatement structure or measure is provided directly behind this page.

STREAM CONTAMINATION AND/OR EROSION

8. If construction of the project will increase flashing, create stronger flow and stream velocity, or otherwise increase instream erosion and the degradation of water quality, measures to avoid or minimize the surface stream contamination or changes in the way that stormwater enters the stream must be taken.

X The project will not increase the peak of the downgradient instream stormwater hydrograph or the downgradient velocity of the stream.

____ The project will increase the peak of the downgradient instream stormwater hydrograph and/or the downgradient velocity of the stream. A description of the measures to avoid or minimize the effects of the regulated activity on the downgradient stream is provided directly behind this page.

SITE PLAN

Items 9 through 15 must be included on the Site Plan.

9. ☒ Layout of development (Location of lots, buildings, roads, etc.) is shown and labeled.
10. ☒ Geologic or manmade features are shown and labeled.
☐ There are no geologic or manmade features associated with this project.
11. ☐ Vegetated filter areas are shown and labeled.
☒ There are no vegetated filter areas associated with this project.
12. ☐ Sedimentation/filtration basins are shown and labeled.
☒ There are no sedimentation/filtration basins associated with this project.
13. ☐ Berms, channels, etc. showing velocity controls are shown and labeled.
☒ There are no berms, channels, etc. associated with this project.
14. ☒ Areas of concentrated runoff with appropriately sized energy dissipators at each outfall are shown and labeled.
☒ There are no areas of concentrated runoff (channels, culverts, drainage pipe discharges, etc.) associated with this project.
15. ☒ Other pollution abatement measures are shown and labeled. A narrative description is provided directly behind this page.

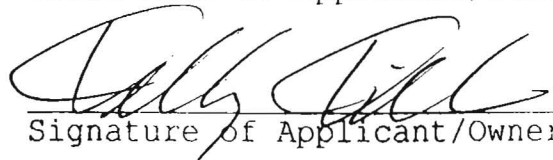
ADMINISTRATIVE INFORMATION

16. ☒ All structural controls will be maintained according to the submitted and approved operation and maintenance plan for the project.
17. ☒ 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 TNRCC Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TNRCC has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

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 TNRCC review. The application was prepared by:

KELLY KILBER, AGENT
Print Name of Applicant/Owner/Agent


Signature of Applicant/Owner/Agent

8/13/90
Date

AGENT AUTHORIZATION FORM
FOR SUBMITTAL OF
EDWARDS AQUIFER PROTECTION PLANS
FOR REGULATED ACTIVITIES ON THE
EDWARDS

AQUIFER

RECHARGE/TRANSITION ZONES

AND RELATING TO 30 TAC §213.4(d), EFFECTIVE DECEMBER 27, 1996

I JACK DEAN,
Print Name

VICE PRESIDENT
Title - Owner/President/Other

of PROPERTIES OF THE SOUTHWEST
Corporation/Partnership/Entity Name

have authorized KELLY KILBER
Print Name of Agent/Engineer

of PRO-TECH ENGINEERING GROUP, 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 Edwards Aquifer Protection Plan application to the Texas Natural Resource Conservation Commission (TNRCC) for the review and approval consideration for construction of regulated activities on the Edwards Aquifer Recharge Zone or Transition Zone (30 TAC §213.4(d)).

I also understand that:

1. No regulated activity is allowed to commence prior to the executive director's approval of the Edwards Aquifer protection plan. If unauthorized construction begins before the approval is granted or if any aspect of the project does not conform to 30 Texas Administrative Code §213 and any condition of the TNRCC's approval letter, the TNRCC is authorized to assess administrative penalties of up to \$10,000 per day per violation.

2. Before beginning any construction related to the approved regulated activity, the appropriate TNRCC regional office must be given 24 to 48 hour written notice of the date when the regulated activity will commence.

3. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and the forms must accompany the completed submittal.

4. Application fees accompanied by an Edwards Aquifer Application Fee Form are due and payable at the time the application is submitted. The application fee must be sent to the Revenues Section of the TNRCC or to the appropriate regional office. **The application will not be considered until the correct fee is received by the commission.**


Applicant's Signature

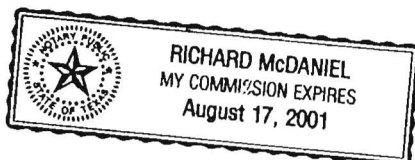
8/11/98
Date

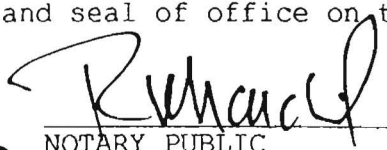
THE STATE OF TEXAS §

County of Hays §

BEFORE ME, the undersigned authority, on this day personally appeared Jack Dean 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 11 day of August, 1998




NOTARY PUBLIC

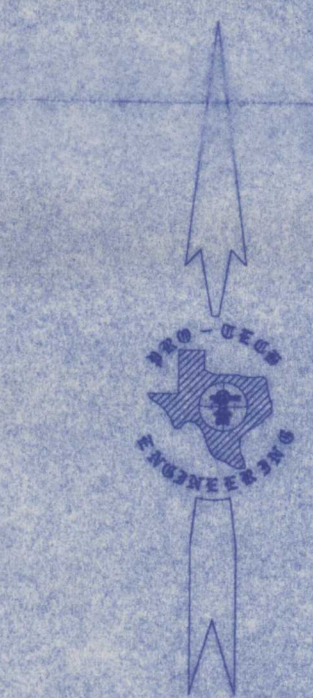
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

Signatories to Applications 30 TAC §213.4(d)

THE PINNACLE

COMAL COUNTY, TEXAS




SCALE: 1" = 300'

EXPLANATION

Kbu	Buda Limestone
Kdr	Del Rio Clay
Kgt	Georgetown Formation
Kep	Person Formation
III	Leached and Collapsed Members, Undivided
IV	Regional Dense Member
Kek	Kainer Formation
V	Grainstone Member
VI	Kirschberg Evaporite Member
U	Primary Fault
D	U-upthrown, D-downthrown
- - - - -	100-Year Flood Plain
- - - - -	Inferred Fault
- - - - -	Recharge/Transition Zone Boundary
CD	Closed Depression
MM	Man Made Feature
FR/FRZ	Fractured Rock/Fractured Rock Zone
VR/VRZ	Vuggy Rock/Vuggy Rock Zone
SC	Solution Cavity
SH	Sink Hole

- NOTES: 1) Topographic Map Supplied By PRO-TECH ENGINEERING GROUP
- 2) Part of This Tract Is In a 100-Year Flood Area According To The Federal Flood Insurance Rate Map Community-Panel Number 485463 010 C, Dated September 29, 1986
- 3) There Were Two Test Holes/Borings Observed On The Site (S-23, S-25)
- 4) Fault Locations Were Taken From Small and Hanson, 1994



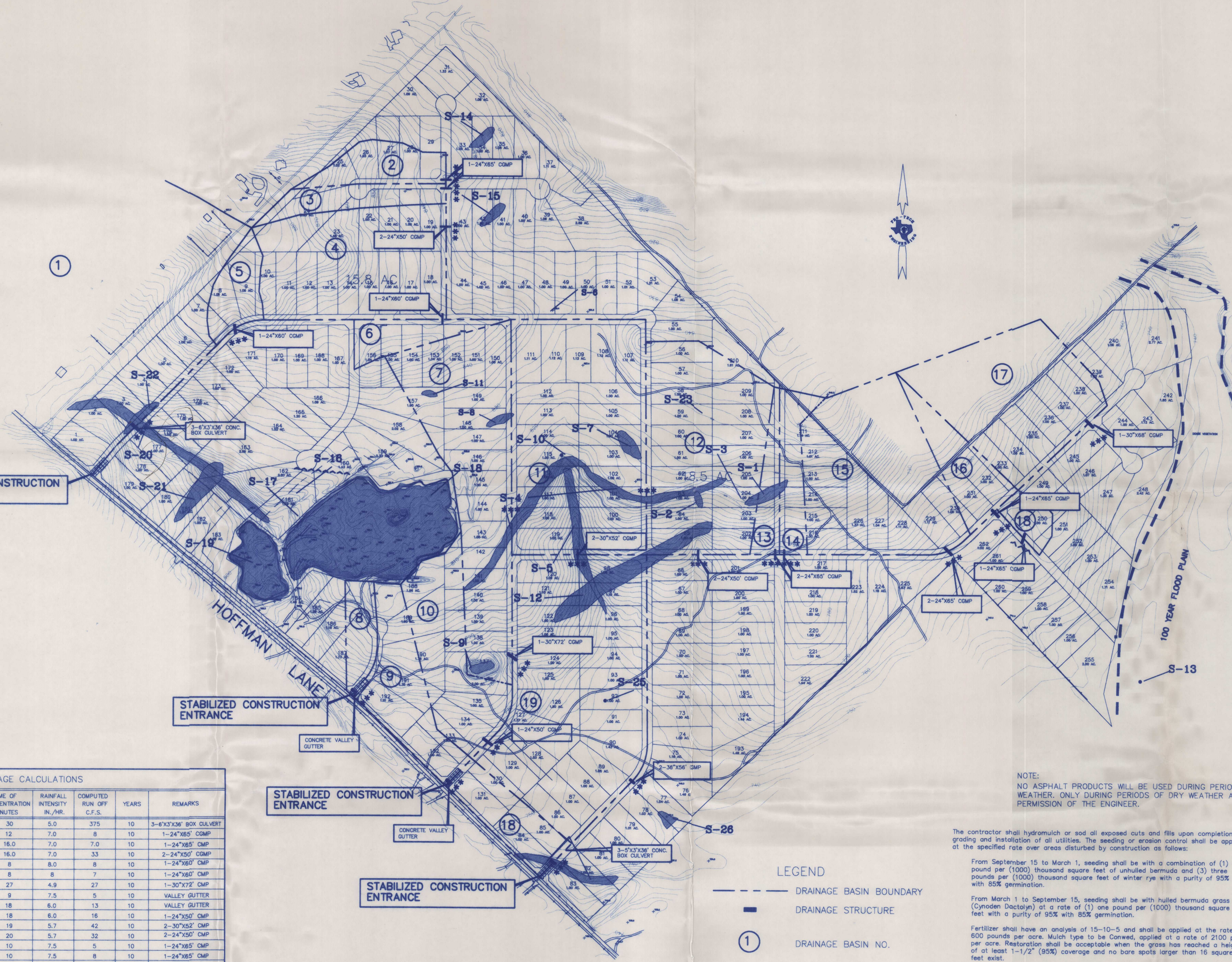
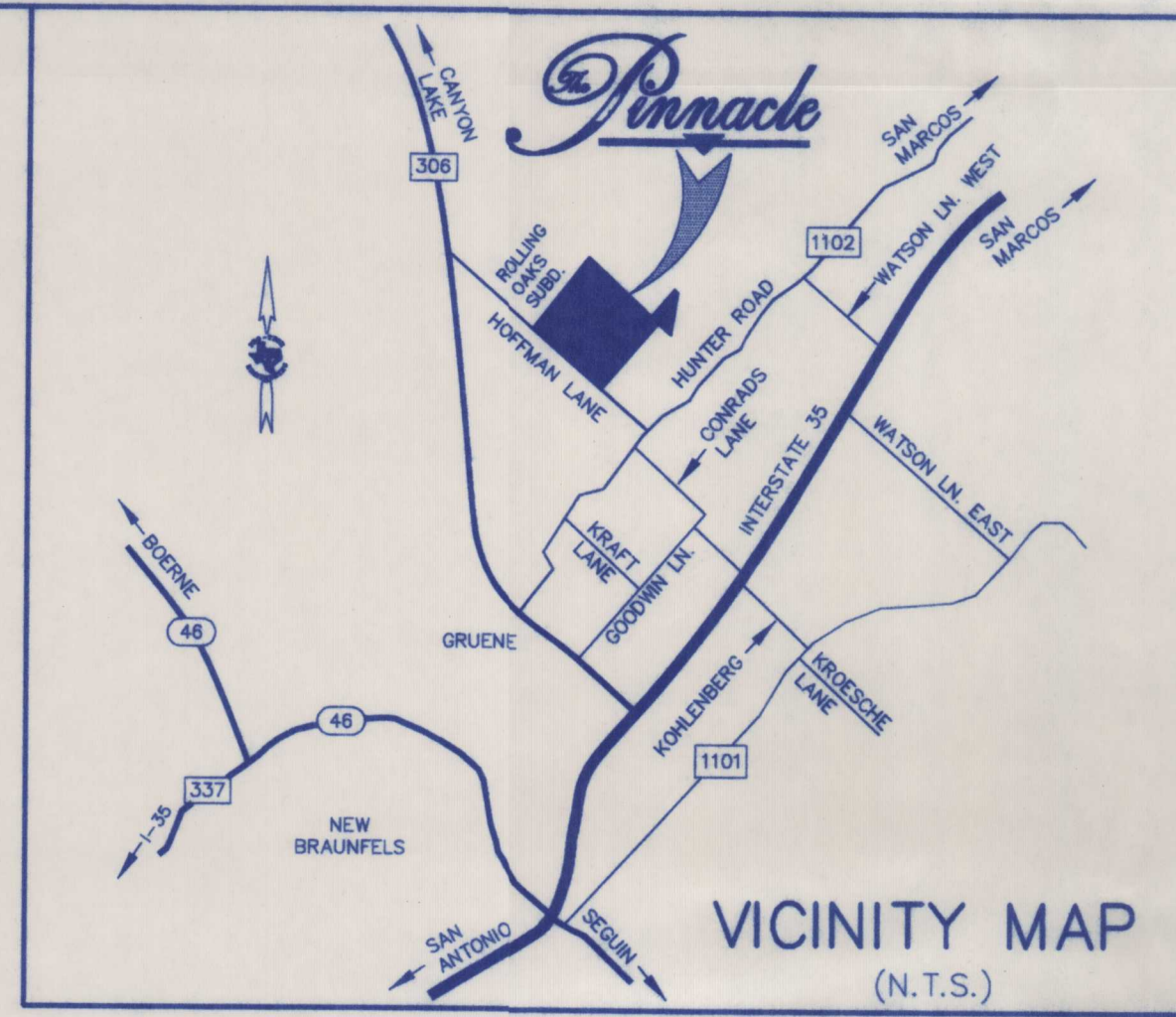
Raba Kistner

Engineers Geologists Scientists Chemists

GEOLOGIC MAP
THE PINNACLE
NEW BRAUNFELS, TEXAS

SCALE: 1"=300' PROJECT NO.:AAB98-002-00 PLATE 1
DRAWN BY: MLA DATE: 7/29/98

RECEIVED 11/20/00
FROM 10-31-11-11-01
SAN ANTONIO REGION



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. The construction activities associated with this project must meet all applicable criteria of the Texas Natural Resource Conservation Commission set forth in 30 Texas Administrative Code (TAC) 2213.5(b) - Water Pollution Abatement Plan for Regulated Activities undertaken on the recharge zone of the Edwards Aquifer.
2. Temporary erosion and sedimentation controls are required during construction. The controls must remain in place until disturbed areas are revegetated and the areas have become permanently stabilized. The temporary erosion and sedimentation controls must be inspected periodically for damage caused by construction activities and following every rainfall. Damaged or obstructed controls must be repaired or replaced as necessary to maintain proper operation.
3. If any sensitive feature is discovered during construction, regulated activities near the sensitive feature must be suspended immediately. The owner must immediately notify the appropriate regional office of the Texas Natural Resource Conservation Commission of the sensitive feature discovered. 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.
4. Any modification to the approved Water Pollution Abatement Plan must be submitted to the appropriate regional office for approval by the executive director of the Texas Natural Resource Conservation Commission before construction of the proposed modification may commence.
5. All contractors conducting regulated activities associated with this project must be provided with copies of the approved Water Pollution Abatement Plan and the INRCC 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.

NOTE:
NO ASPHALT PRODUCTS WILL BE USED DURING PERIODS OF WET WEATHER. ONLY DURING PERIODS OF DRY WEATHER AND WITH PERMISSION OF THE ENGINEER.

The contractor shall hydramulch or sod all exposed cuts and fills upon completion of grading and installation of all utilities. The seeding or erosion control shall be applied at the specified rate over areas disturbed by construction as follows:

From September 15 to March 1, seeding shall be with a combination of (1) one pound per (1000) thousand square feet of unhulled bermuda and (3) three pounds per (1000) thousand square feet of winter rye with a purity of 95% with 85% germination.

From March 1 to September 15, seeding shall be with hulled bermuda grass (Cynodon Dactylon) at a rate of (1) one pound per (1000) thousand square feet with a purity of 95% with 85% germination.

Fertilizer shall have an analysis of 15-10-5 and shall be applied at the rate of 600 pounds per acre. Mulch type to be Combed, applied at a rate of 2100 pounds per acre. Restoration shall be acceptable when the grass has reached a height of at least 1-1/2" (95%) coverage and no bare spots larger than 16 square feet exist.

The seeded or planted area is to be irrigated or sprinkled in a manner which will not erode the topsoil but will sufficiently soak the soil to a depth of 6 inches. The irrigation shall occur at seven day intervals for the first two months. Rainfall occurrences of at least 1 inch shall postpone the watering operation for one week.

LEGEND

- DRAINAGE BASIN BOUNDARY
- DRAINAGE STRUCTURE
- ① DRAINAGE BASIN NO.
- ***** ROCK BERM
- ~~~~~ SILT FENCE

DRAINAGE CALCULATIONS

DRAINAGE AREA	DRAINAGE AREA (ACRES)	C	TIME OF CONCENTRATION MINUTES	RAINFALL INTENSITY IN./HR.	COMPUTED RUN OFF C.F.S.	YEARS	REMARKS
1	280	0.30	30	5.0	375	10	3-6"x3'x36' BOX CULVERT
2	3.6	0.30	12	7.0	8	10	1-24"x85' CMP
3	3.3	0.30	16.0	7.0	7.0	10	1-24"x85' CMP
4	15.8	0.30	16.0	7.0	33	10	2-24"x50' CMP
5	3.2	0.30	8	8.0	8	10	1-24"x85' CMP
6	2.8	0.30	8	8	7	10	1-24"x85' CMP
7	18.2	0.30	27	4.9	27	10	1-30"x72' CMP
8	2.4	0.30	9	7.5	5	10	VALLEY GUTTER
9	7.2	0.30	18	6.0	13	10	VALLEY GUTTER
10	8.8	0.30	18	6.0	16	10	1-24"x50' CMP
11	24.4	0.30	19	5.7	42	10	2-30"x52' CMP
12	18.5	0.30	20	5.7	32	10	2-24"x50' CMP
13	2.2	0.30	10	7.5	5	10	1-24"x85' CMP
14	3.6	0.30	10	7.5	8	10	1-24"x85' CMP
15	17.4	0.30	18	6.0	31	10	2-24"x85' CMP
16	4.3	0.30	16	7	9	10	1-24"x85' CMP
17	14.8	0.30	19	5.7	4	10	1-30"x85' CMP
18	1.5	0.30	10	7.5	28.1	10	1-24"x85' CMP
19	79.5	0.30	33	4.5	107	10	2-36"x56' CMP
20	150	0.30	30	5	276	10	3-5"x3'x36' BOX CULVERT

THE PINNACLE

PAVING AND DRAINAGE IMPROVEMENTS

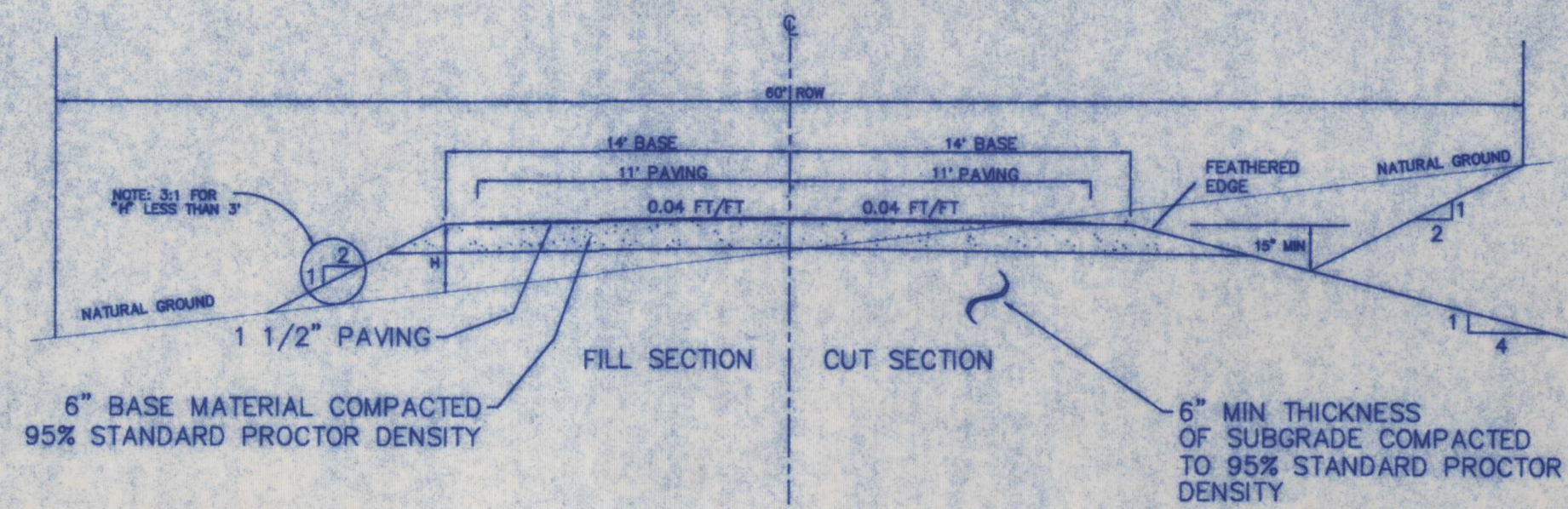
COMAL COUNTY, TEXAS



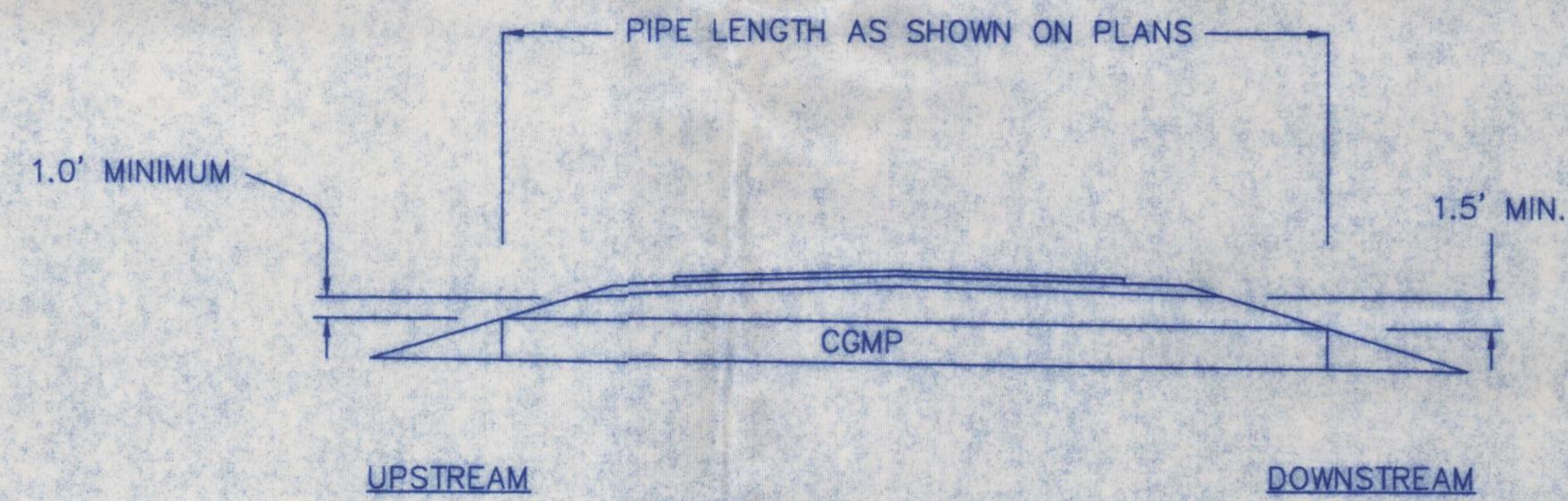
100 E. San Antonio St., Suite 100
San Marcos, TX 78666
(512) 353-3335



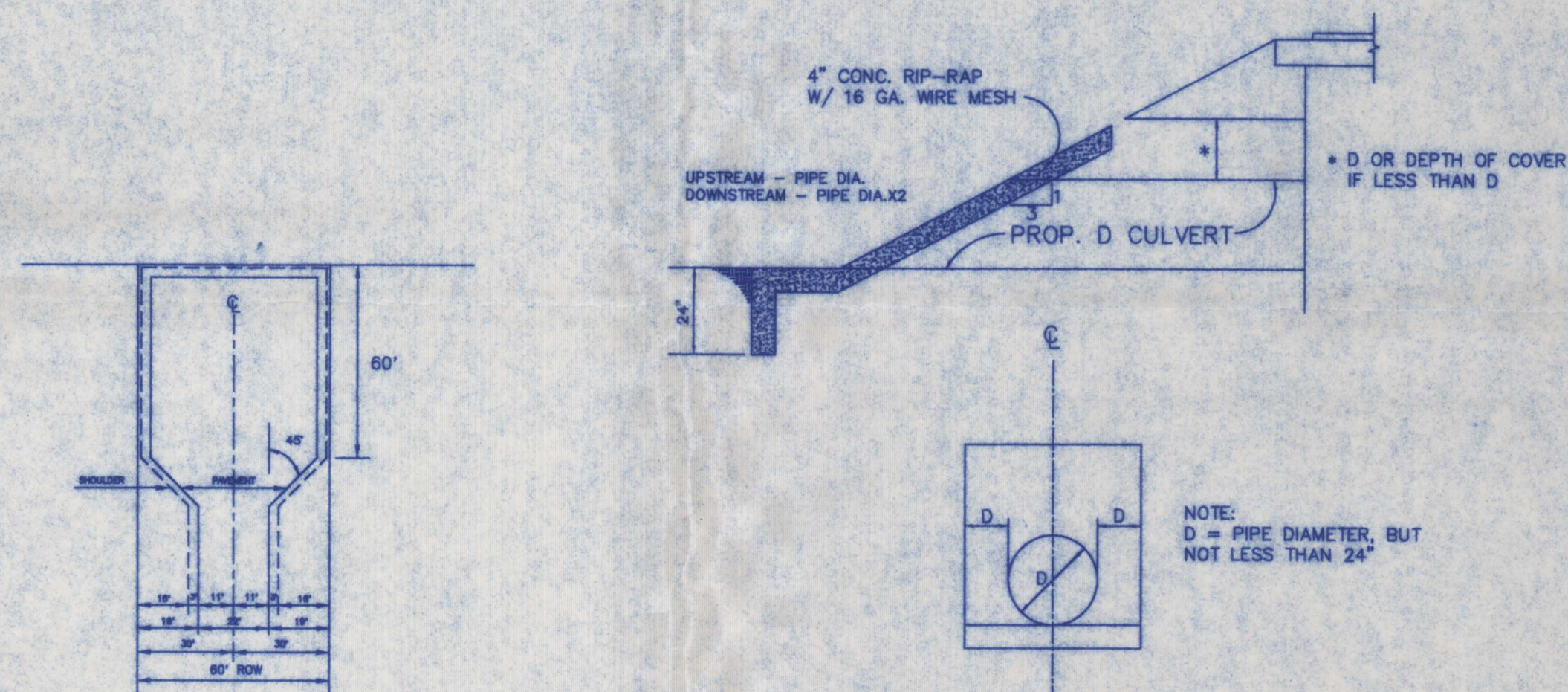
DATE AUGUST 1998



TYPICAL ROAD SECTION

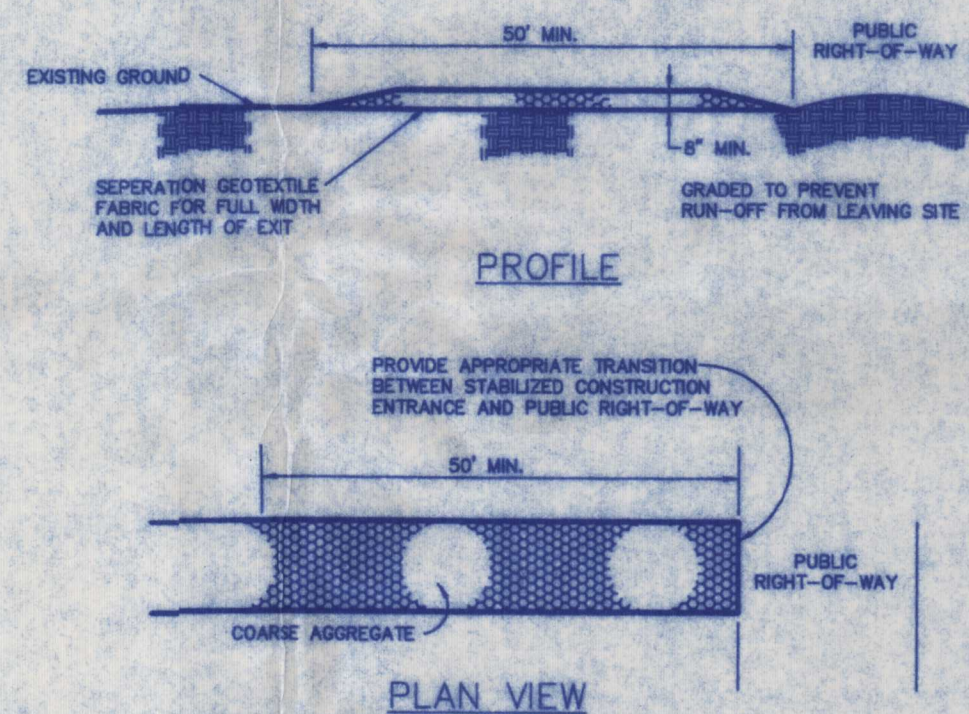


TYPICAL PIPE PROFILE



TYPICAL CONCRETE RIP-RAP DETAIL
N.T.S.

SQUARE OUT TURN-AROUND
ON DEAD-END STREET



GENERAL NOTES:

1. Stone size unless otherwise specified, aggregate shall conform to Grade 1 for coarse aggregates under Specification No. 402 "Concrete for Structures".
2. Length as effective, but not less than fifty (50) feet.
3. Thickness not less than eight (8) inches.
4. Width not less than full width of all points of ingress or egress.
5. Working when necessary, wheels will be cleaned to remove sediment prior to entrance onto public right-of-way. When working is required, it shall be done on an area stabilized with crushed stone which drains into an approved sediment trap or sediment basin. All sediment shall be prevented from entering any storm drain, ditch, or watercourse through use of sand bags, gravel, boards or other approved method.
6. Maintenance the entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic too dressing with additional stone as conditions demand, and repair and/or cleanup of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public right-of-way must be removed immediately.

STABILIZED CONSTRUCTION ENTRANCE
N.T.S.

SUBGRADE:

1. All unstable or otherwise objectionable material of the subgrade shall be removed and replaced with approved material. All holes, ruts, and depressions shall be filled with approved material and, if required, the subgrade shall be thoroughly wetted with water, reshaped, and rolled to the extent directed in order to place the subgrade in an acceptable condition to received the base material.

2. The surface of the subgrade shall be finished to line and grade as established in conformity with typical sections, and any deviation in excess of one half inch (1/2") in cross section and in length of sixteen feet (16') measured longitudinally shall be corrected by loosening, adding, or removing material, reshaping and compacting by sprinkling and rolling. Sufficient subgrade shall be prepared in advance to insure satisfactory culmination of the work.

3. Subgrade material shall be compacted by approved equipment to an apparent dry density of the total material of not less than ninety percent (90%) of the maximum dry density as determined by the modified Proctor compaction test made in accordance with the procedure outlined in the Texas Highway Department Testing Manual. Tests for density will be made within twenty four (24) hours after compaction operations are completed. If the material fails to meet the density specified, it shall be reworked as necessary to obtain the density required.

4. When a fill is required to achieve the prescribed subgrade elevation, such fill shall be placed in uniform lifts covering the entire width of the cross section. Prior to compaction, the layers shall not exceed a six inch (6") depth where pneumatic tire rolling is to be used and shall not exceed eight inches (8") in depth for rolling with other types of rollers. Each lift shall be compacted to the required density before succeeding lifts are placed.

5. The subgrade shall be inspected and approved, in writing, by the County Engineer, or other person designated by the Commissioners' Court, prior to the placement of any base on subject grade.

BASE MATERIAL:

1. All roads and streets shall receive base material in the minimum amounts as shown on Page 13, Minimum Requirements.

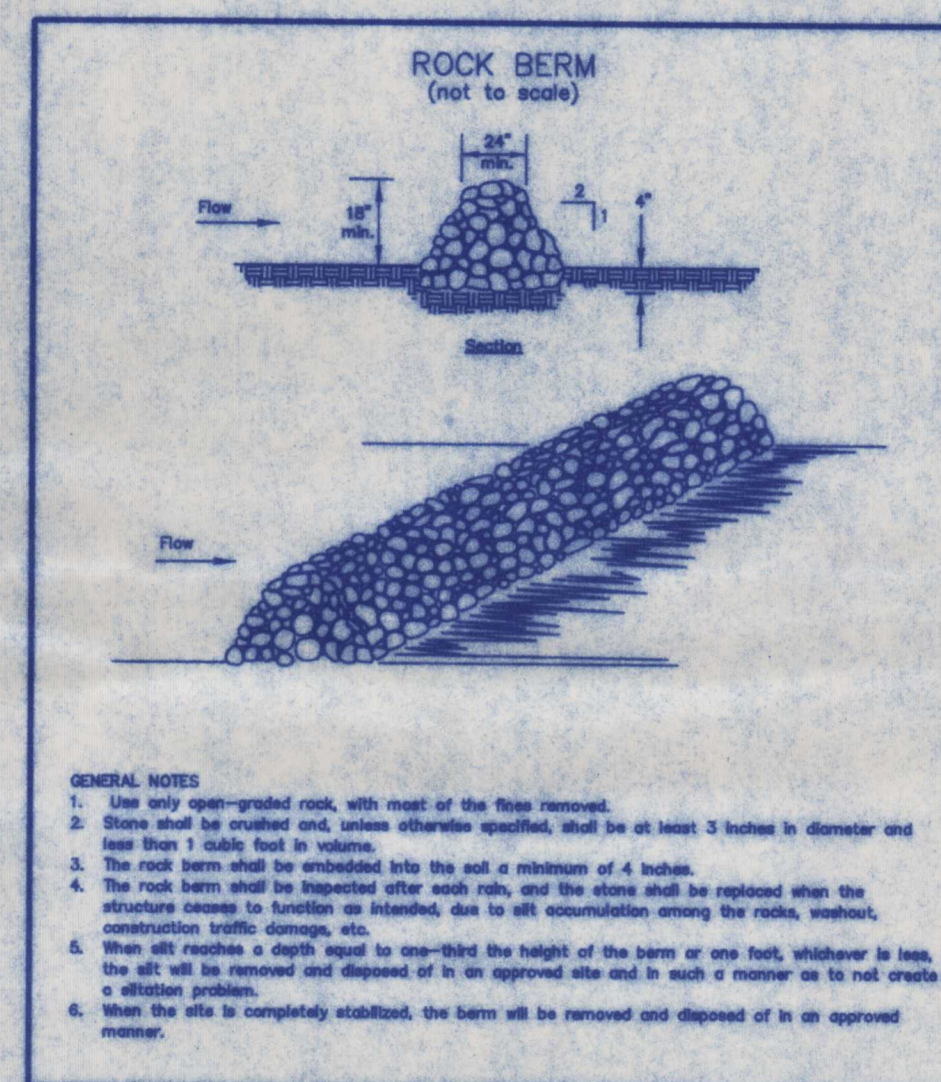
2. Subbase must be approved, in writing, before the placement of any base material.

3. Roadway base material shall conform to the requirements of the Texas Highway Department Standard Specification Item 248 (crushed stone). The crushed stone shall have an abrasion of not more than forty (40) when subject to the Los Angeles Abrasion Test (AASHTO-T96). Caliche or other material is strictly prohibited.

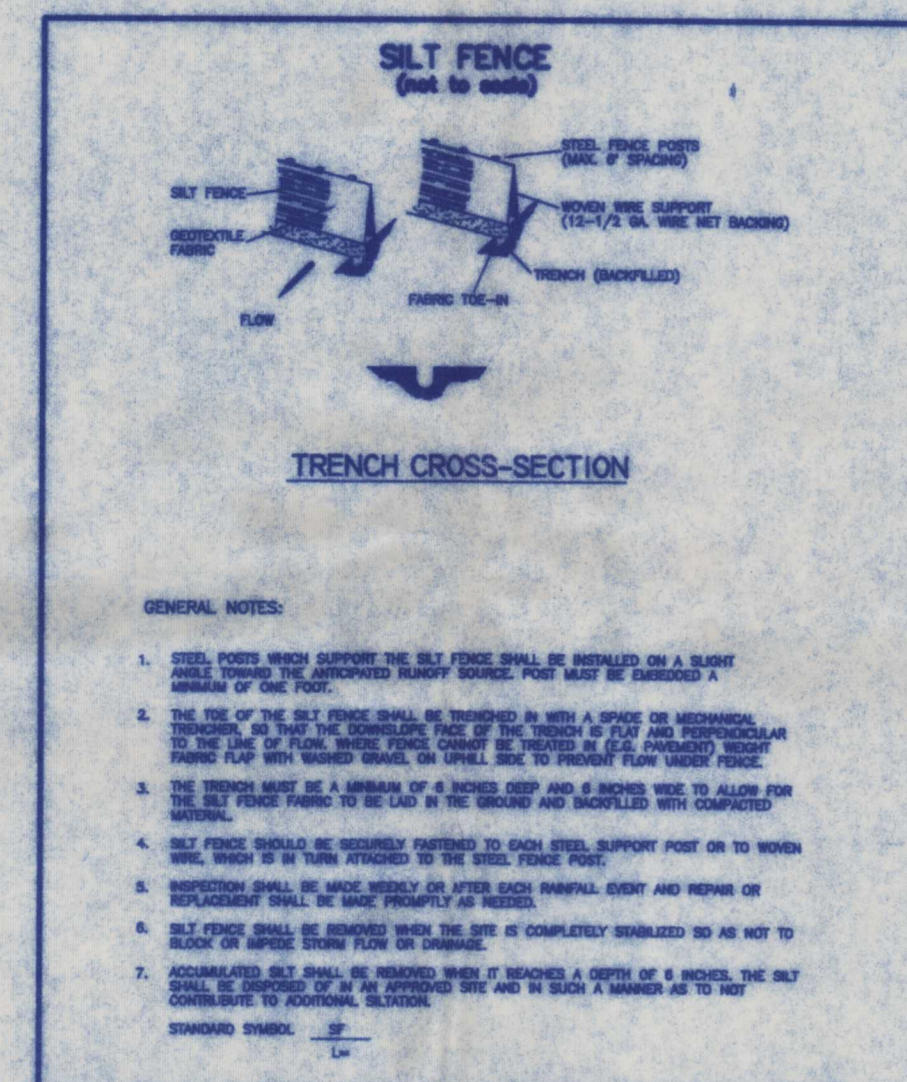
4. Base material shall meet the following minimum requirements:

Retained on a 2 1/4" screen	0 to 10%
Retained on a No. 4 sieve	35% to 75%
Retained on a 40 mesh sieve	60% to 85%
Liquid limit shall not exceed	40
Plasticity index shall not exceed	16

5. Standard methods of compaction shall be used, and base material shall be applied and compacted in a minimum to two (2) courses, and to a minimum density of 95% modified proctor.



ROCK BERM



SILT FENCE

6. Test reports showing base material compliance, from a certified testing laboratory, shall be submitted to the County Engineer. Minimum tests made and submitted shall be one for each 500 cubic yards of base material placed, with a minimum of one per project. Such test shall be made by and at the expense of the owner, by a testing laboratory selected or approved by the County Engineer. Additional tests may be required. Additional tests, if required, will be made at the discretion of the County Engineer.

7. Compliance test reports shall be submitted prior to request for inspection of completed base.

8. The quantity of base material shall be ascertained in a manner acceptable to the County Engineer. The following methods are suggested:

- a. Certified truck tickets
- b. Core samples at selected intervals
- c. Pick and shovel samples at selected locations.

Quantity is to be ascertained prior to final inspection of completed base.

9. Completed base shall be inspected and approved, in writing by the County Engineer or other person designated by the Commissioners' Court, prior to placement of any pavement.

PAVEMENT:

B. Two Course Surface Treatment Pavement

1. The two course surface treatment shall conform to Item 322 of the Texas Highway Department Standard Specifications for street construction, dated 1982, except as modified below:

- a. Prime coat shall be MC-1.
- b. Tack Coat shall be AC-5.
- c. First Course stone shall be Grade 4, Type B.
- d. Second course stone shall be Grade 5, Type PB.

2. The rate of application for the AC-5 shall be .25 - .35 gallon per square yard for the first course and .10 - .20 gallon per square yard for the second course.

3. Rock will be applied at the rate of one (1) cubic yard per ninety (90) square yards for the first course and one (1) cubic yard per one hundred (100) square yards for the second course.

4. Rolling is required to achieve a uniform embedment and the contractor shall broom off loose aggregate remaining. If bleeding occurs, the contractor shall apply sand to the finished surface for whatever period is required to absorb the excess asphalt.

5. The type and grade of all asphaltic material and aggregate shall be approved by the County Engineer prior to application. Variations in asphaltic materials may be required due to various conditions. Test reports from a certified laboratory, showing the type and grade of asphaltic material and aggregates, shall be furnished to the County Engineer. Reports are to be provided, at the expense of the owner, by a testing laboratory selected or approved by the County Engineer.

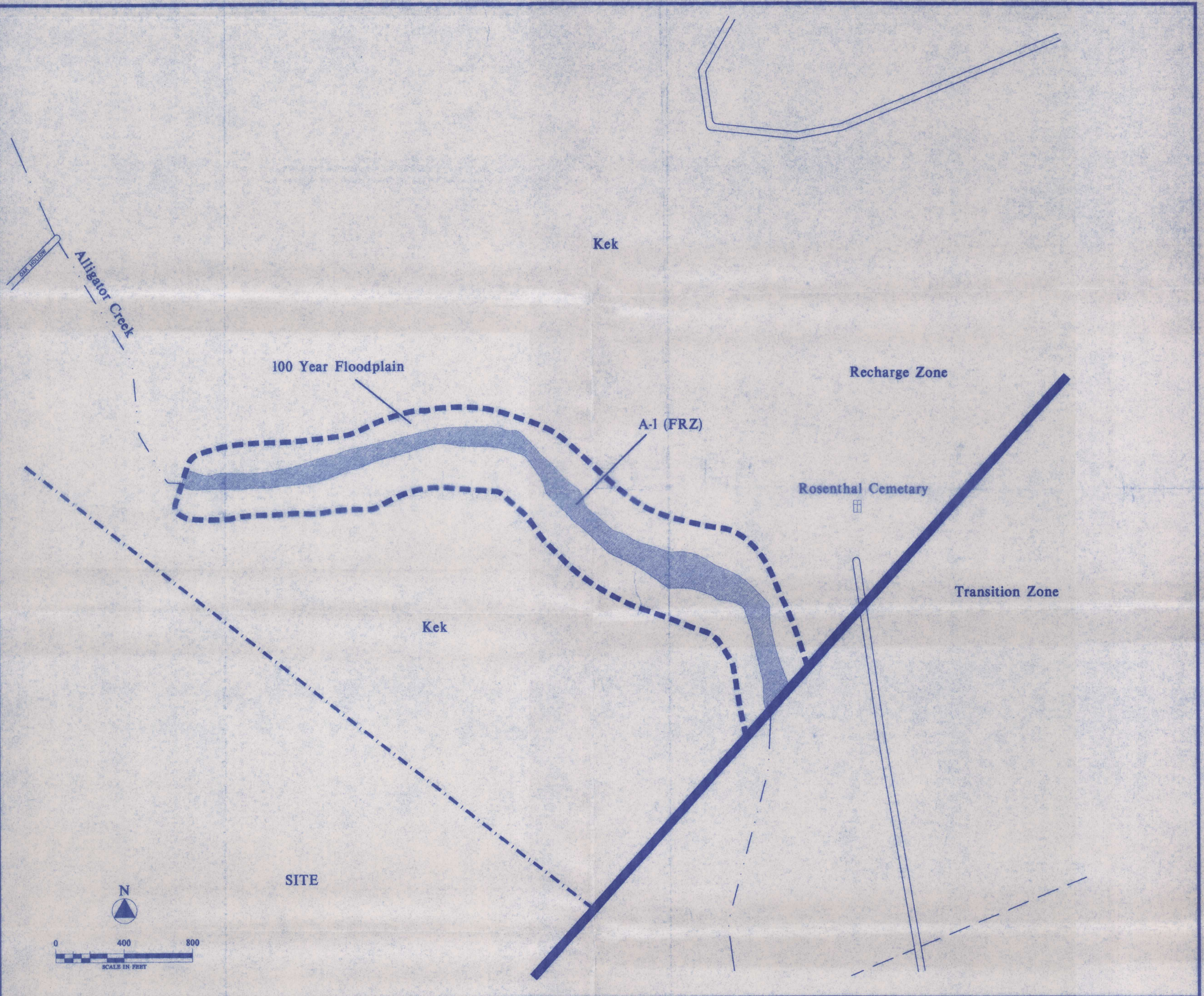
6. The quantities of materials used shall be ascertained in a manner acceptable to the County Engineer.

THE PINNACLE

PAVING AND DRAINAGE DETAILS

COMAL COUNTY, TEXAS





LEGEND:

Kek - Edwards Kainer Formation

FRZ - Fractured Rock Zone

⊠ - Cemetery

--- Creek

———— Transition Zone

----- Floodplain

--- Site Boundary

Notes:

- 1) Map From Street Atlas USA 4.0, Copyright 1996, DeLorme
- 2) There Are No Wells Or Test Holes Observed Within Downgradient Area
- 3) Part Of This Tract Is A 100-Year Flood Area According To The Federal Flood Insurance Rate Map Community Panel Number 485463 0110C, Dated September 29, 1986

Raba Kistner

Engineers Geologists Scientists Chemists

**DOWNGRADIENT GEOLOGIC MAP
THE PINNACLE
NEW BRAUNFELS, TEXAS**

SCALE: 1"=400' PROJECT NO.: AAB98-002-00 PLATE 2
DRAWN BY: MLA DATE: 8/20/98