

**ANNOTATED DUE DILIGENCE CHECKLIST WITH SAMPLE
CONSULTANT FORMS AND GLOSSARY OF TERMS**

**Written by:
JERRY C. SAEGERT**

Table of Contents

I. INTRODUCTION	1
II. DUE DILIGENCE DEFINED.....	1
III. DUE DILIGENCE CHECKLIST	2
A. The Checklist.....	2
B. Annotations.	3
IV. CONTRACTING FOR THE SITE.....	3
V. CONTRACTING FOR THE WORK TO BE DONE.....	7
A. Engineers.....	7
B. Know Who You Are Contracting With.....	8
C. Consultant Contracts.....	9
VI. KNOWING THE TERMINOLOGY	9
VII. CONCLUSION	9

APPENDICES:

Form #1 - Due Diligence Checklist with Annotations Attached

Form #2 - Engineering Professional Services Agreement

Form #3 - Consulting Agreement for Phase One Environmental Site Assessment

Form #4 - Agreement for Conducting Golden-Cheeked Warbler Survey

Form #5 - Glossary of Terms

ANNOTATED DUE DILIGENCE CHECKLIST WITH SAMPLE CONSULTANT FORMS AND GLOSSARY OF TERM

"From a Buyer's perspective, in a perfect world, before the land is purchased and a construction contract signed, the project would be platted, zoned, site plan approved, and building permits issued."

I. INTRODUCTION

After determining the nature and possible scope of the project, site analysis becomes the next step in determining the property to be acquired and the design of the improvements to be constructed on the property. Analyzing the site through due diligence may begin even before the property is under contract and continue until the final project has been constructed.

The attorney's role in the due diligence process should be well defined from the beginning with one's client, either in the fee agreement or in a supplemental letter setting out the attorney's specific obligations.

This presentation is designed to help attorneys and owners to organize the due diligence process through use of a due diligence checklist with attached annotations. The annotations are added to provide the attorney and owners with further references to obtain information of various aspects of the due diligence process. Also included are sample forms for use in contracting with other professional consultants to assist in the process. A glossary is provided to help understand various terms used by the other professionals and various governmental entities involved in the process.

II. DUE DILIGENCE DEFINED

Due diligence is defined by Webster's Dictionary of Law as follows: due -- "satisfying or capable of satisfying an obligation; duty, or requirement under the law" and diligence -- "earnest and persistent application of effort especially as required by law", Merriam-Webster's Dictionary of Law (1996). Due diligence is defined by Webster's Dictionary as follows: due -- "that which is required or expected in the prescribed common normal or logical course of events" and diligence -- the attention and care legally expected or required of a person,

Webster's New Collegiate Dictionary (7th ed. 1969). Since even the law recognizes the uniqueness of each piece of land, determining what is "normal" is usually not a possibility, but is an ongoing process for each tract. Determining "the attention and care legally expected or required" is set by the standards of each profession of the person performing some aspect of the due diligence process.

To confuse the issue more, Black's Law Dictionary's definition of Diligence indicates that "there may be a high degree of diligence, a common degree of diligence and a slight degree of diligence with their corresponding degrees of negligence. . . ." Black's Law Dictionary 411 (5th ed. 1974); and Due diligence is defined as: "Such a measure of prudence, activity, or assiduity, as is properly to be expected from, and ordinarily exercised by, a reasonable and prudent man under the particular circumstances; not measured by any absolute standard, but depending on the relative facts of the special case."

We have purposely not given any definitive set due diligence definition since Westlaw has about 4,000 Texas cases that include a definition of due diligence. The following two cases give an example of the courts' definition relating to care cases: Missouri Pac. RR Co. v. Liberty County Water Control and Improvement Dist No. Six, 483 S.W.2d 50,52 (Tex.Civ. App.-- Beaumont 1972, writ ref'd n.r.e) (due diligence is the exercise of ordinary care as defined in tort law); Texas Pac Coal & Oil Co. v. Stuard, 7 S.W.2d 878 (Tex.Civ.App.--Eastland 1928, writ ref'd) (due diligence is a legal term and should be defined for jury guidance; due diligence is such diligence as would be used by a reasonably prudent person in the same or similar circumstances).

The purpose of discussing the definitions and requirements should be advisory. It begs the question, "What is the attorney's responsibility (liability) in representing the client in some or all of the process. As discussed in previous papers on this topic, the attorney often finds that they are the team organizer or manager of the due diligence process. This could include selection and coordinating with the various consultants to complete the process. Great care should be given

in defining the scope of your employment and limiting your responsibility to not include the

III. DUE DILIGENCE CHECKLIST

Since the maze of clearly analyzing the site and taking it through the construction phase can be overwhelming, we have prepared a due diligence checklist to assist in evaluating site.

A. The Checklist

The Due Diligence Checklist for Evaluating a Site for Acquisition and Construction is attached as Form #1 to this paper. Most of those familiar with the process know that new items are required to be added to a checklist from time to time to keep up with changes in state, federal or local laws, construction means and methods, and new projects that may have never been considered before. By way of example, technology continues not only to influence how things are done, but what is constructed so as to support the technology industry itself. By way of example look at the Glossary of Terms and see how many terms have developed over the past ten years.

This form is designed to be used in the initial conference with the client about the client's project and the property on which the project is to be constructed, and also to be used as various meetings are held with the design professionals for the buyer as well as with the seller and the seller's representatives. As a result, the form when filled out can assist in drafting the earnest money contract and assisting in the due diligence process during the site acquisition stage as well as after site acquisition during the construction phase. In addition to the information in this paper, there are three other excellent sources that are available regarding the due diligence process.

1. *Due Diligence: A Developer's Checklist*; by William S. Dahlstrom; 5th Annual Land Use Conference, University of Texas School of Law, 2001, Tab 12;

2. *Guide for Due Diligence on Income Producing Properties*; by William H. Locke, Rick

work to be performed by other consultants or Professionals on the due diligence team.

Triplett, State Bar of Texas 2000 Annual Advanced Real Estate Law Course, Chapter 17; and

3. *Site Analysis*, Architect's Handbook of Professional Practice, Volume 2, Section 3.62 published and distributed by the American Institute of Architects. This handbook can also be used as a resource in the drafting of various agreements in the construction process, and is made up of four volumes.

To help in determining changes in local government requirements, many cities and counties in Texas are beginning to use websites to provide information to the public, as well as their staffs. There is an easy "government" webpage that can give you links to all of these sites, as well as state agencies, at www.texas.gov. One potential problem with these links is that they tend to be to the chamber of commerce instead of the actual city website.

There is also a "standard" web address for cities and counties, with the abbreviation "ci" or "co", followed by the name, and abbreviations for the state and county. (Not all use the standard.) The city name is not abbreviated (cities with more than one word in their title use a dash in between the words; e.g. cedar-park). Examples are www.ci.austin.tx.us and www.co.travis.tx.us. (Many counties posted election returns on their websites this last round of elections, so you could view as the precincts came in.) You can always try this standard web address first, in case that will bring you right to where you want to be. Below is a sample of websites in the Central Texas area and an indication of what is available. I usually compile a list for the area of each project that might affect the development and add it to the Due Diligence Checklist.

Local Cities and Counties With Websites:

Austin: www.ci.austin.tx.us

Travis County: www.co.travis.tx.us

Pflugerville: www.cityofpflugerville.com

Ordinances or Forms Available Online?

Yes, ordinances (searchable) and forms

No

Yes, some ordinances (not all) and forms

Williamson County: www.co.williamson.tx.us	No
Round Rock: www.ci.round-rock.tx.us	No
Georgetown: www.georgetown.org	No, but some good info in "Development"
Cedar Park: www.ci.cedar-park.tx.us	Yes, both ordinances and forms
Leander: www.ci.leander.tx.us	No
Hays County: www.co.hays.tx.us	No
San Marcos: www.ci.san-marcos.tx.us	Yes, ordinances (searchable) and forms
Bastrop:	No
Bastrop County:	No
Caldwell County:	No
Lockhart:	No
Jonestown:	No
Westlake: www.westlake-tx.org	Yes, both ordinances and forms

B. Annotations.

Added to the Due Diligence Checklist by footnotes attached are annotations that refer to statutory, case law and other references to assist in helping to understand the impact of a particular item on the project being developed. The annotation is by no means inclusive of all matters that could be listed for a particular item on the project being developed. It does not take into account local codes, ordinances and

standards, which will need to be determined by the location of the project. As you assist buyers in multiple projects in the same jurisdictions, you should footnote the various requirements to the checklist and then add your own annotations for future use. Care should be given in using the annotations because there may be other legal requirements not listed for a particular item.

IV. CONTRACTING FOR THE SITE

In drafting Earnest Money contracts for Buyers, three main sections are important to the due diligence process. The first is the feasibility study section. The second is the section requiring delivery of items in the seller's possession about the site. A third section is provisions for governmental approvals, which is often assumed to be part of the feasibility study. Since the seller may be required to sign applications in order for the buyer to obtain necessary governmental approvals, a third section to the contract should be included for governmental approval. Samples of these three sections are as follows:

Sample Clause #1:

FEASIBILITY STUDY AND INSPECTION:

(a) Buyer is granted the right to conduct engineering and/or market and economic feasibility studies of the Property and a physical inspection of the Property, including studies or inspections to determine the existence of any environmental hazards or conditions (collectively, the "Feasibility Study") during the period (the "Feasibility Period") commencing on the effective date of this Contract and ending at 5:00 p.m., _____, Central Standard Time. Buyer or its designated agents may enter upon the Property for purposes of analysis or other tests and inspections which may be deemed necessary by Buyer for the Feasibility Study. Buyer will exercise its best efforts to conduct or cause to be conducted all inspections and tests in a manner and at times which will not unreasonably interfere with any Seller's use and occupancy of the Property. If Buyer determines, in its sole judgment, that the Property is not suitable for Buyer's intended use or purpose, then Buyer shall give written notice of the same to

Seller prior to expiration of the Feasibility Period, in which event this Contract shall automatically terminate, the Earnest Money shall be returned to Buyer, and neither party shall have any further right or obligation hereunder other than as set forth herein with respect to rights or obligations that survive termination. If Buyer fails to give Seller such notice of termination within such period of time, this Contract shall continue in full force and effect. The Feasibility Study shall be at Buyer's expense.

*(b) Buyer shall restore the Property (except for trees and brush reasonably cut or removed for testing and to access testing sites), to its original condition if damaged or changed due to the tests and inspections performed by Buyer, free of any mechanic's or materialman's liens or other encumbrances arising out of any of the inspections or tests, and shall provide Seller with a copy of the results of any tests and inspections made by Buyer, excluding any market and economic feasibility studies. **BUYER SHALL INDEMNIFY AND HOLD SELLER HARMLESS FROM ALL CLAIMS, LIABILITIES, DAMAGES AND CAUSES OF ACTION ARISING OUT OF BUYER'S ACTIVITIES ON THE PROPERTY IN CONNECTION WITH THE FEASIBILITY STUDY PERFORMED BY BUYER, ITS AGENTS, INDEPENDENT CONTRACTORS, SERVANTS AND/OR EMPLOYEES.***

(c) Within three (3) business days after the execution and delivery of this Contract by Seller to the Title Company (as defined below), Buyer shall deliver to Seller a check in the amount of One Hundred and no/100 Dollars (\$100.00) ("Independent Contract Consideration"), which amount the parties bargained for and agreed to as consideration for Buyer's exclusive right to inspect and purchase the Property pursuant to this Contract and for Seller's execution, delivery and performance of this Contract. The Independent Contract Consideration is in addition to and independent of any other consideration or payment provided in this Contract, is nonrefundable, and is fully earned and shall be retained by Seller notwithstanding any other provision of this Contract and shall not be credited against the Sales Price at Closing.

From a Buyer's perspective this sample clause includes limitations on the restoration of the property because of the need to obtain access for core boring and cut trees if the property is heavily wooded. A seller could require more independent consideration to offset any loss and may also want to require liability insurance. Since most of the information needed to complete the due diligence process and especially to obtain governmental approvals depends on third parties, the contract should include an automatic right of extension of either the feasibility period or the time to obtain governmental approvals by paying additional non-refundable independent consideration. The following clause permits the feasibility period to be extended with the amount to apply to the purchase price if closing occurs, this of course is negotiable.

Notwithstanding anything contained in this Section to the contrary, if additional time is required by Buyer, Buyer shall be entitled to extend the Feasibility Period for one (1) consecutive thirty (30) day periods by delivering to Seller a check in the amount of Five Thousand and No/100 Dollars (\$5,000.00) for each such extension (such payment being referred to herein as the "Additional Independent Contract Consideration"). In the event the Feasibility Period is extended by Buyer, the Feasibility Period as extended is referred to herein as the Extended Feasibility Period. In order to exercise its right to extend the Feasibility Period, Buyer shall remit the Additional Independent Contract Consideration prior to the expiration of the Feasibility Period whereupon such period shall be extended by an additional thirty (30) days.

The Additional Independent Contract Consideration is in addition to and independent of any other consideration or payment provided in this Contract, is nonrefundable, and each is fully earned and shall be retained by Seller notwithstanding any other provision of this Contract and shall be credited against the Sales Price at Closing.

Sample Clause #2:

SUBMISSION MATTERS: Seller shall deliver to Buyer within _____ (_____) days after the effective date of this Contract, copies of the following (the "Submission Matters"), to the extent (and only to the extent) that such items are available and in Seller's actual possession or control:

- (a) all plans and drawings, if any, relating to the development of the Property;
- (b) all licenses, leases, approvals, reservations and permits, if any, with respect to the ownership, use, possession and/or development of the Property;
- (c) the most current real estate tax statements with respect to the Property;
- (d) all reports, studies and tests, if any, pertaining to the Property (other than Seller's economic reports and calculations); and
- (e) all reports, studies and letters, if any, concerning endangered species or protected flora on the Property, including but not limited to, any letters from the U.S. Fish & Wildlife Service and any other governmental entities, agencies and commissions having jurisdiction or approval rights over the endangered species or protected flora.

Seller makes no representation or warranty, express or implied, as to the accuracy or completeness of the information contained in the Submission Matters except to the best of Seller's current, actual knowledge, Seller has delivered all such items in Seller's actual possession or control. If Buyer terminates the Contract pursuant to a provision hereof prior to the Closing having occurred, Buyer agrees to return to Seller within _____ (_____) business days all Submission Matters previously delivered by Seller to Buyer.

The Seller could also require that if Buyer terminated during the feasibility period then the earnest money would not be returned until the Buyer has returned the Submission Matters to Seller.

Sample Clause #3:

GOVERNMENTAL APPROVAL CONTINGENCY; BUYER'S AND SELLER'S CONVENANTS RELATED THERETO:

- (a) Notwithstanding any provision to the contrary contained in this Contract, the obligation of Buyer to purchase the Property is expressly contingent upon Buyer obtaining the following governmental approvals (collectively the "Governmental Approvals") within _____ (____) days after the expiration of the Feasibility Period: (i) preliminary plat approval from the City of _____ and all other applicable governmental authorities for subdividing and platting the Land in accordance

with Buyer's contemplated development and use thereof and (ii) approval by _____ Municipal Utility District (the "MUD") and all other applicable governmental authorities of the contemplated change in use by Buyer of the applicable portion of the Land when compared to the currently approved use of the Land set out in the existing master plan of the MUD. The requisite receipt of any Governmental Approvals may be waived in writing, in whole or in part, by Buyer at or prior to the Closing. Buyer shall have the right to terminate this Contract by written notice delivered to Seller at any time before the expiration of such ____-day period if Buyer determines in its reasonable discretion, after reasonable diligence, that one or more of the Governmental Approvals will not be received by Buyer within such ____-day period. Upon such termination of this Contract after the expiration of the Feasibility Period, but within such ____-day period, the Earnest Money (save and except \$____,000.00, which shall be immediately delivered to and retained by Seller as consideration for the ____-day period for obtaining Governmental Approvals) shall be returned to Buyer, with neither party having any further rights or obligations hereunder, other than as set forth herein with respect to rights or obligations that survive termination.

(b) As soon as is reasonably possible after the expiration of the Feasibility Period, Buyer shall submit to the City of _____, the MUD and other necessary governmental authorities Buyer's applications for the Governmental Approvals. Buyer expressly acknowledges and agrees that Seller must approve any proposed subdivision and platting application for the Property or changes in required use of the Property prior to submission of the same by Buyer to the City of _____ and all other appropriate governmental authorities (such approval by Seller not to be unreasonably withheld, delayed or conditioned), and no material amendment or other material change to any of such applications or submittals shall be made without Seller's prior approval (such approval by Seller not to be unreasonably withheld, delayed or conditioned). After Buyer has applied for all of the Governmental Approvals, Buyer agrees to thereafter continuously use reasonably diligent efforts to obtain the Governmental Approvals as soon as possible. Upon written request by Seller, Buyer further agrees that not less frequently than once each calendar month, Buyer shall provide Seller with a written summary of the steps Buyer has taken during the previous period to obtain the Governmental Approvals and copies of all correspondence and submittals during each such period between Buyer, its agents and any governmental authority relating to the obtaining of the Governmental Approvals. Seller shall cooperate with Buyer in all reasonable respects in connection with Buyer's efforts to obtain the Governmental Approvals, including without limitation, execution and delivery of any and all requests or applications for such Governmental Approvals that are consistent and in substantial compliance with Buyer's intended development of the Property. Seller and Buyer acknowledge and agree that Buyer shall pay all costs and expenses incurred in connection with obtaining the Governmental Approvals and that Seller shall have no obligation to pay or reimburse Buyer for all or any of such costs. Buyer also agrees to notify Seller in writing promptly after Buyer obtains the last of the Governmental Approvals. Notwithstanding any provision to the contrary set forth in this Section or in any other Section of this Contract, Buyer shall not finalize any subdivision plat, preliminary plat, site plan, or other agreements regarding the Property, including, but not limited to, any restrictions, easements, use designations, donations of parkland, utility agreements, or any other agreements that would bind Seller to perform any obligation or bind any portions of the Property then remaining subject to the lien of the Deed of Trust, unless agreed to in writing by Seller. Seller agrees to respond to Buyer within seven (7) days after receipt of any written request from Buyer for Seller's approval of any item

which requires Seller's approval in accordance with the provisions of this subparagraph (b).

(c) *In connection with Buyer's efforts to obtain the Governmental Approvals, Buyer shall have no right to grant, create, or cause to arise any liens on the Property as a result of any work upon the Property by or on behalf of Buyer. Buyer hereby agrees to indemnify and hold Seller harmless from and against any and all claims, liabilities, damages, and injuries relating to Buyer's and/or any of its agent's work and/or presence on the Property pursuant to the provisions of this Section.*

Notice that, in this sample clause, the right to obtain governmental approvals does not start until the end of the feasibility period, but clearly this could be revised to run concurrently. Also note that the buyer has an obligation to proceed with due diligence to obtain the governmental approvals and to give monthly reports to the seller. A seller may want to require a monetary amount to be deducted from the earnest money each time the buyer fails to be timely in its obligations. In any case, the buyer should be sure to require specific times for information to be furnished by its development team. Seller may also want to retain a right of assignment of any work product of buyer's professionals, including the right to finish the project if abandoned by the buyer.

For more on drafting Earnest Money Contracts and the law on development issues, see:

Earnest Money Contract Drafting and Due Diligence Issues, by Jerry Saegert, State Bar of Texas 1999 Advanced Real Estate Law Course; and

Selected Issues in Drafting an Earnest Money Contract for the Purchase and Sale of to be Developed Property by Jerry C. Saegert, State Bar of Texas 1997 Advanced Real Estate Drafting Course.

V. CONTRACTING FOR THE WORK TO BE DONE

Often the attorney is called upon to be a team coach or team manager and to help in assembling a development team of professionals to perform the due diligence process on the site. Contracting with the various professionals seems to fall by the wayside in that often only a proposal in limited outline is submitted by the various parties. As a result, each of those parties may have tunnel vision in its review of the project.

Working with the client to draft contracts with the various professionals and to determine the scope of each professional's work and who has ultimate responsibility is a vital role of the attorney. Great care is often given in drafting the Architect and Contractor Agreements without considering the need for contracting with the surveyor, the environmental consultant, the engineers and the others who provide instrumental parts to the final determination under the due diligence process.

A. Engineers

One of the most key parties in the due diligence process can be the consulting engineer. Attorneys and clients are often confused by the type of engineer necessary, their expertise in particular areas, and the support that they will provide to the project. The terms civil engineer, structural engineer, electrical engineer, and the like are used to designate a particular area that the engineer is specialized in handling. In fact, Texas law only recognizes the following categories of engineers, which are "engineer, professional engineer," "registered engineer," "registered professional engineer," "licensed professional engineer," or "licensed engineer," Texas Engineering Practice Act. (TEX. REV. CIV. STAT. ANN. art. 3271a §2(3).) All of which means a person who has been duly licensed by the Texas Board of Professional Engineers. The "practice of engineering" or "practice of professional engineering" "shall mean any service or creative work, either public or private, that the adequate performance of which requires engineering education, training or experience in

the application of special knowledge or judgment of the mathematical, physical, or engineering sciences to such services or creative work," Texas Engineering Practice Act. (TEX. REV. CIV. STAT. ANN. art. 3271a §2(4).) Often confusing is the engineer or the engineering firm that will be providing boundary or title surveys of the real property. The Texas Engineering Practice Act defines engineering surveys, "as all surveys activities required to support the sound conception, planning, design, construction, maintenance and operation of an engineered project, but specifically excludes the surveying of real property and other activities regulated under the Professional Land Surveying Practicing Act." (TEX. REV. CIV. STAT. ANN. art. 3271a §2(4)(B); TEX. REV. CIV. STAT. ANN. art. 5282c.) The Texas Engineering Practice Act pamphlet may be obtained by contacting the Texas Board of Professional Engineers, P. O. Drawer 18329, Austin, Texas 78760-8324 or calling (512) 440-7723 or downloading the information from their website at www.tbpe.state.tx.us.

For an analysis of the hiring of a surveyor and requirements of the type of surveys, see James Noble Johnson's article, *Land Surveying for Development*, Advanced Real Estate Law Course, State Bar of Texas, 2001.

Highly recommended for one's library is a pamphlet put out by the Texas Board of Professional Engineers entitled, The State of Texas, Texas Engineering Practice Act and Rules Concerning the Practice of Engineering and Professional Engineering Licensing. In addition to the copy of the act, it includes the practice and procedure bylaws and definitions of the board and the board rules as promulgated.

Under the Board Rules, for dealing with Professional Conduct and for engineers there are guidelines to the attorney and/or its client in dealing with engineers during the due diligence process. Often a client, in an attempt to save time and money, will engage an engineer for its specific project who has already been retained by the seller of the property in the overall development of surrounding property. In such circumstances, Section 131.152(d), under the board rules for professional conduct and ethics states that a conflict of interest exists when an engineer accepts employment when a reasonable probability exists that the engineer's own financial, business, property, or personal interest may affect any professional judgment, decisions or practices exercised on behalf of the client or employer.

Many times the analysis that an engineer brings to the table during the due diligence process is for purposes of determining whether to purchase the property. If the engineer also represents the seller in the overall project one must be careful in assessing the professional judgment of the engineer and how it affects their analysis and outcome for the buyers project. Section 131.152(d) further state that an engineer may accept such an employment where a conflict exists only if all parties involved in the potential conflict of interest are fully informed in writing and the client or employer confirms the knowledge of the potential conflict in writing. Additionally, Section 131.154 requires engineers to maintain confidentiality of clients so like attorneys one would assume that a written acknowledgment of a potential conflict would also require that the engineer disclose what might be confidential material to both the seller and the buyer if representing both in a transaction.

Another issue that often arises is the sealing of final work that is to be submitted on a project such as for site plans, subdivisions and the like. Section 131.166(c) of the board rules provides the engineers shall only seal work done by them or performed under their direct supervision. Many times a project has been previously engineered either by the seller's engineer or another party who did not complete the purchase or construction. Even though the previous plans will be helpful and save time and money in the engineering process, the buyer's engineer cannot simply be asked to seal that information for submittal and the buyer must either retain the previous engineer or have the new engineer complete the work to be sealed and submitted.

Attached, as Form #2 is a sample Professional Services Agreement that can be used with engineers, and could include all or part of the various items listed.

B. Know Who You Are Contracting With

Many people enter into contracts with others before really knowing who they are, or are not. You want the correct viable legal entity to perform its contractual obligations. Also, in the event of a contract breach you want to be able to pursue legal remedies against an existing entity.

Check the status of corporations and limited liability companies or partnerships at the Secretary of State in Austin, Texas. You may call 512-463-5555 or 463-5586, or visit in person. You may conduct a search of computer records and filings for copies at the offices of the Secretary of State.

General partnerships and sole proprietor filings can be verified at your County Clerk Office. Verify first hand whether the entity you are contemplating contracting with is active, registered, an assumed name, or legally dead.

Check with the State Comptroller's office to verify the entity is in good standing and has paid its taxes. The failure to pay taxes can cause the business to be not in good standing and can cause the state or any agency of the state to be prohibited by law from contracting with such entity. TEX.BUS.CORP. ACT ANN. art. 2.45.

Insurance companies and agents can be checked at the Texas Department of Insurance. Check their licensing, standing, complaint history and any pending actions. Verify certificates of coverage issued by an agent with the insurance carrier company. Be sure the company stands behind the certificate and coverage is real.

Other licensed professionals can be verified at their licensing boards, commission or agencies. Most Texas agencies can be found on the web at www.state.tx.us/agency/agencies.html. Be sure everyone you are contracting with is up to par before making a contract. Invest some time and expense up front to best avoid extensive costs, embarrassment or violation of law in the future.

An additional due diligence task, which could be a part of the attorney's role, is to ensure that the professionals and entities proposed to be involved on the project are licensed and properly registered with respective boards, commissions and/or the secretary of state as stated above. Clients typically appreciate this extra attention, and early detection of any issues can help avoid later entanglements.

C. Consultant Contracts

Attached as Sample Forms are three (3) consultant agreements that could be used in the Due Diligence process. Form #2 does not include a description of the scope of work and therefore requires a detailed Exhibit A, Basic Services, and Exhibit B, Additional Services to be completed. This could include a specific need such as preparing a site plan for the project or an overall feasibility study that include the following:

- Site Description
- Zoning
- Water Quality and Detention
- T.N.R.C.C. Regulations
- Topography and Geology, Drainage, and Recharge Zone Information
- Environmental Issues and Endangered

- Species Habitat
- Vehicular Access
- Easements
- Utility Service Availability
- Development Process - Preliminary
- Subdivision Land Plan

If possible, the engineers responsibilities should be coordinated with the land planner. Form #3 for the Phase One Environmental Site Assessment (Phase I ESA), includes Exhibit C, a proposed description of the Scope of Work. Form #4, an Agreement for Conducting Golden-Cheek Warbler Survey (Bird Survey) is more specialized and is needed after the Phase I ESA is completed, and it is determined that there is endangered species habitat located on the property. Coordinating the Phase I ESA and the Bird Survey timing can be important. As an example, Bird Surveys for Golden-Cheeked Warblers must be conducted during the mating season of March 20 to May 15.

A full discussion of the contents of these form agreements is beyond the scope of this paper. Some attorneys do prefer that some of the consultants agreements be through their firm to protect confidentiality of the information contained in the studies.

VI. KNOWING THE TERMINOLOGY

To assist (or as the case may be confuse) in understanding the due diligence process, attached is a Glossary of Terms. This Glossary is not an attempt to include all areas of terminology needed in the due diligence process nor is there my legal research to support the definitions used for the terms. It consists of information from three major sources as well as other terms added along the way. These sources are: the City of Austin Criteria Manuals for Environmental, Transportation and Drainage. The Phase I ESA glossary from the records search part done by EcoSearch Environmental Resources, Inc., August 1998, and a list from a paper by Jim Johnson entitled *New Land Survey Practices and Standards*.

VII. CONCLUSION

Attorneys representing buyers in the due diligence process should ensure that all steps outlined are carried out, and this may be accomplished through contractual delegation. This includes the contract for the attorney's services. The checklist can help to determine what is needed to analyze the site for a particular project

and then delineating responsibilities among the contacting parties. Remember that as development and environmental standards become more comprehensive, new items will have to be added to the checklist and new professionals will be needed to complete the due diligence process.

Thanks goes to Rebecca Combs and Stephen Jon Moss from our offices for their contributions to this paper. Additional thanks goes to Rusty Parr of Lockwood Engineers Inc. and the Austin offices of Horizon Environmental Services for their contributions. Last but more important thanks goes to my legal assistant, Jan Tedrow for putting this paper together.

FORM #1

**DUE DILIGENCE CHECKLIST FOR EVALUATING A SITE
FOR ACQUISITION AND CONSTRUCTION**

PROJECT NAME: _____

I. PARTIES

Seller:

Email: _____
Address: _____
Phone: (____) _____ **Fax:(____)** _____
Cell: (____) _____

Buyer/Owner:

Email: _____
Address: _____
Phone: (____) _____ **Fax:(____)** _____
Cell: (____) _____

Real Estate Agent:

Email: _____
Address: _____
Phone: (____) _____ **Fax:(____)** _____
Cell: (____) _____

Seller's Attorney:

Email: _____
Address: _____
Phone: (____) _____ **Fax:(____)** _____
Cell: (____) _____

Buyer's Attorney:

Email: _____
Address: _____
Phone: (____) _____ **Fax:(____)** _____
Cell: (____) _____

Seller's Engineer:

Email: _____
Address: _____
Phone: (____) _____ **Fax:(____)** _____
Cell: (____) _____

Buyer's Engineer: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Buyer's Architect: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Seller's Land Planner: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Surveyor: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Geo-technical Engineer: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Other Site and Design Team Members: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Environmental Assessment Provider: _____
Email: _____
Address: _____
Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Lender: _____
Email: _____

Address: _____

Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

Lender's Attorney: _____

Email: _____

Address: _____

Phone: (____) _____ Fax:(____) _____
Cell: (____) _____

THIS CHECKLIST SHOULD NOT BE CONSIDERED AS ALL INCLUSIVE. NEW ITEMS SHOULD BE ADDED AS EACH PROJECT MAY DETERMINE AND AS NEW REGULATIONS MAY REQUIRE.

II. PROJECT

A. Building and/or Project Type

B. Building Foot Print

- 1. Approximate size _____
- 2. Projected number of floors _____
- 3. Preliminary configuration - Attached Drawing _____

C. Subdivision Construction

D. Utility Construction

E. Other

III. CONTRACT INFORMATION

A. Property Information

D.

- 1. **What is the legal description?** _____
- 2. Is the parcel a legal lot or unplatted acreage?ⁱ _____
- 3. Legal Description of Easements? _____
- 4. Is the property within the city limits or ETJ of a municipality?ⁱⁱ _____
- 5. Is the property within a watershed protection area?ⁱⁱⁱ _____
- 6. What county is the property in? _____

B. Minerals and Crops

1. What minerals will be conveyed? _____
2. What reservations will be required? _____
3. What about surface protection against mineral reservations? _____
4. Are mineral easements present? _____
5. Are licenses, profits or other interests present? _____

C. Tax Information

1. Parcel numbers _____
2. Taxing Authorities _____
3. Any need for notice to purchasers for MUDs, etc.? _____
4. Any tax exemptions? _____
5. What are rollback issues? _____
6. Will tax protests be necessary as to values before closing? _____

D. Title Company

1. Name of title company _____
2. Are there special title insurance endorsements? _____

E. Restrictive Covenants

1. Are there any restrictive covenants?^{iv} _____
2. Is there a property or homeowners association?^v _____
 3. If so, are there additional rules or regulations issued by the POA or HOA?^{vi} _____
 4. Is there an Architectural Control Committee?^{vii} _____

IV. SITE OBSERVATIONS

A. Physical Information

1. Describe the existing site conditions: _____
2. Is site near a church, school, hospital or airport?^{viii} _____
3. Door to door distance? _____
4. Where is site with respect to street grade? _____
5. How does site drain? _____
6. What vegetation is on site? _____
7. Is demolition or relocation of a structure required that would trigger historical landmark review?^{ix} _____
8. Items identified for demolition (preliminary) _____
9. Is relocation of underground or overhead utilities necessary? _____
Explanation: _____
10. Is relocation of signs necessary? _____
11. Is access by private driveway, easement or dedicated roadway?^x _____
12. Other: _____

B. Environmental Information - Are there any known environmental issues, on site or adjacent to the site, that will impact this project?

1. Dump sites? _____
 2. Underground storage tanks? _____
 3. Prior usage? _____
 4. Endangered or threatened species? _____
 5. Caves or karst? _____
 6. Critical environmental features? _____
 7. Ponds, lakes, tanks, springs, streams, creeks, waterways? _____
 8. Floodplain, "Wetlands" or "Jurisdiction Waters"? _____
 9. Water wells? _____
 10. Recharge features? _____
 11. Aquifers? _____
 12. Oil or gas wells? _____
-
13. Oil or gas pipelines? _____
 14. Historical or archeological features? _____

See Sample Form, Consulting Agreement for Phase One Environmental Site Assessment, attached. Also, see Brian Rider's paper for a detailed environmental checklist.

V. SURVEY REQUIREMENTS

1. Type of survey required - land title or boundary?^{xi} _____
2. Additional surveys needed: topographical, tree survey, "as-built" survey, others: _____
3. Sellers or buyers responsibility? _____
4. Survey by: _____
5. Survey (due/received): _____

VI. ZONING REQUIREMENTS^{xii}

1. Is the property subject to zoning regulation?^{xiii} _____
2. What is the current zoning classification?^{xiv} _____
3. Does this zoning classification allow the desired use? _____
4. What is the current use of the property? _____
5. Is the current use legal, non-conforming, accessory, or illegal?^{xv} _____
6. How is the site listed in the city's comprehensive plan?^{xvi} _____
7. Is the site located within an "overlay" district?^{xvii} _____
8. Are there any restrictions specific to zoning? _____
9. What are the adjacent zoning and uses of the property? _____
10. Are there any special requirements due to adjacent zoning? _____
11. Is re-zoning required for the desired use?^{xviii} _____
12. Is the applicant required to obtain adjacent property owners' list for notification?^{xix} _____
13. Who are the "interested parties"?^{xx} _____
14. Which Neighborhood Association has jurisdiction? _____
15. Will re-zoning be by a consent procedure or opposed by a valid petition from the neighbors?^{xxi} _____
16. Will a variance or special exception from the Board of Adjustment allow the use?^{xxii} _____

VII. SUBDIVISION/PLATTING REQUIREMENTS

1. Is the property subdivided/platted?^{xxiii} _____
2. Will the property need to be subdivided to effect the sale?^{xxiv} _____
3. Does the property fall within any exception to the platting requirements?^{xxv} _____
4. If already platted, does the plat on the property need to be vacated, re-platted or amended?^{xxvi} _____
5. Jurisdictions and time limits for approval?^{xxvii} _____
6. Preliminary and final subdivision plan required?^{xxviii} _____
7. What plat notes, restrictions, or reservations are required on the plat?^{xxix} _____
8. What type of exactions are expected?^{xxx} _____
9. When does the preliminary plat expire?^{xxxi} _____
10. Groundwater certification needed?^{xxxii} _____
11. Tax certificates for filing?^{xxxiii} _____

FOR ITEMS BELOW SEE LOCAL CODE AND DESIGN CRITERIA MANUALS. DESIGN PROFESSIONALS MAY BE RESPONSIBLE FOR THE FOLLOWING ITEMS THAT SHOULD BE COMPREHENSIVELY ADDRESSED EARLY IN THE DEVELOPMENT PROCESS

VIII. SITE PLAN REQUIREMENTS

1. Is site plan required? _____
2. Jurisdiction approving site plan? _____
3. Topo survey? _____
4. Tree survey? _____
5. Soils report required? _____ and ordered? _____
6. Other plans or support documents required for approval? _____

IX. BUILDING PERMIT REQUIREMENTS

1. Is a building permit required prior to closing? _____
2. What approvals are required prior to building department submissions? _____
3. What site plans are required to be submitted for a building permit? _____
4. Is a separate permit required for site work? _____

X. SITE DESIGN REQUIREMENTS

A. Roadway And Traffic Requirements

1. What are the existing roadway conditions providing access to the site?

2. What is the jurisdiction of the adjacent road(s)? _____
3. What is the name and R.O.W. width of the road providing access to the site?

4. Are there any roadway improvements scheduled for this area? _____
5. Will any roadway improvements be required by this project? _____
6. Is a traffic impact study required? _____
7. What standards are used for design? _____
8. How many driveways are allowed? _____

9. What is the required width of the driveway? _____
10. What is the minimum distance from the side property line to the centerline of the driveway? _____
11. Is curb and gutter required within the ROW? _____
12. Are acceleration or deceleration lanes required? _____
13. Is a new median cut needed? _____
14. Is a traffic signal needed? _____
15. Sidewalks required? _____
16. Sidewalks existing? _____
17. Sidewalks to be located in the ROW? _____
 - Adjacent to roadway? _____
 - Adjacent to property/ROW line? _____
18. What is sidewalk width? _____
19. Is a separate permit required to work in the ROW? _____
20. Is a separate permit required for driveway? _____
 - 21. Are utility construction permits required in ROW? _____
 - 22. Is there street parking? _____
 - 23. Additional dedication of right-of-way necessary? _____
 - For utilities? _____
 - For roads? _____

B. Water

1. What is needed? _____
 - Size of line? _____
 - Capacity? _____
 - Location: _____
2. What is currently available to the site or area? _____
3. Name of provider. _____
4. Easement required? _____
5. Any restrictions on installation? _____
6. Is water service capacity available? _____
7. Is offsite extension of the water line required? _____
8. Is there an existing water service line adjoining the site? _____
 - Location? _____ Size? _____
 - Approximate depth? _____
9. What is the pressure of the water line? _____ What Pressure Plan? _____
 - 10. Will easements be required? _____
 - 11. What is the capacity fee formula? _____
 - 12. What are the meter fees? _____
13. What is the connection/tap fee? _____
 - 14. Does municipality or private contractor make the tap? _____
 - 15. Is a separate irrigation meter required? _____
 - 16. Is a backflow preventer required for the irrigation? _____
 - 17. Is a backflow preventer required for the fire line? _____
 - 18. Which utility provider has a CCN certificate covering the subject property? _____
19. Is a Service Extension Request (SER) required? _____

C. Water Quality

1. What is needed? _____
 - Local requirements: _____

- State (TNRCC) requirements: _____
 Federal (EPA) requirements: _____
2. Are regional facilities available? _____
 3. Easement required? _____
 4. Is property located in recharge/water quality zone? _____
 5. Water Pollution Abatement Plan (WPAP) required? _____
 6. NPDES permit prepared and filed? _____
 7. Buffer zones setbacks required? _____

D. Wastewater

1. What is needed? _____
 Size of line? _____
 Capacity? _____
 Location: _____
2. What is currently available to the site or area? _____
3. Name of provider _____
4. Is an Easement required? _____
5. Any restrictions on installation? _____
6. Is wastewater service capacity available? _____
7. Is offsite extension of the wastewater line required? _____
8. Is there an existing water service line adjoining the site? _____
 Location? _____
 Size? _____
 Approximate depth? _____
9. Is there an existing wastewater line adjoining the site? _____
 Location? _____
 Size? _____
 Approximate depth? _____
10. Is there an existing wastewater lateral to the site? _____
 Location? _____
 Size? _____
 Approximate depth? _____
11. Is existing line gravity or force main? _____
12. Will a lift station be required? _____
13. If there is an existing lift station, will it need modifications? _____
14. Will easements be required? _____
15. Which utility provider has a CCN covering the subject property? _____
16. Is a Service Extension Request (SER) required? _____

E. Storm Drainage/Water Quality

1. Storm Drainage

- a. What is needed? _____
 Size of line? _____
 Capacity? _____
 Location? _____
- b. What is currently available to the site or area? _____
- c. Easement required? _____
- d. Is an off site storm sewer outfall available? _____
 If not, what is the preferred route to a positive outfall? _____

- e. Is the site in the 100-year flood plain? _____
- f. What is the FEMA firm panel number? _____
- g. What is the flood zone? _____
- h. What is the design criteria for retention/detention? _____
- i. Is drainage approval required by any other agencies? _____

F. Electric Utility

- 1. What is needed? _____
Voltage/phase? _____
Overhead/underground? _____
Location? _____
- 2. What is currently available to the site or area? _____
- 3. Name of provider? _____
- 4. Is an easement required? _____
- 5. Any restrictions on installation (who installs, location of transformer, etc.)?

G. Gas Utility

- 1. What is needed? _____
Size of line? _____
Capacity? _____
Location? _____
- 2. What is currently available to the site or area? _____
- 3. Name of gas provider _____
- 4. Is an easement required? _____
- 5. Are there any restrictions on installation (who installs, location of meter, etc.)?

H. Telephone /Computer /Cable

- 1. What is needed? _____
Overhead/underground? _____
Location? _____
- 2. What is currently available to the site or area? _____
- 3. Name of provider? _____
- 4. Is an easement required? _____
- 5. Any restriction on installation? _____

I. Handicap Accessibility (add elevators and restrooms)

- 1. Are there any special requirements for:
parking? _____
bus stops? _____
side walks? _____
elevators? _____
restrooms? _____
- 2. Other: _____
- 3. Who certifies to ADA compliance? _____ Done? _____

J. Fire Department

1. Are there any special requirements for:
 - fire lines? _____
 - sprinklers? _____
 - fire hydrants? _____
 - water pressure? _____

K. Signage

1. General

- a. Are sign easements needed? _____
- b. Is there a sign ordinance? _____
 Note: _____
- c. Is there a maximum combined sign area for the entire site? _____
- d. What is the minimum sign setback from the property line? _____
- e. Are there any restrictions? _____
- f. Are there existing signs? _____
- g. Do existing signs need to meet current ordinance? _____

2. Pole Signs

- a. Are pole/pylon signs permitted? _____
- b. How many pole/pylon signs are allowed? _____
- c. What is the maximum height? _____
- d. What is the minimum clearance? _____
- e. What is maximum square footage? _____
- f. Is the sign area calculation based on one side only? _____

3. Ground Signs

- a. How many ground signs are allowed? _____
- b. What is the maximum size allowed? _____

4. Building Signs

- a. How many building signs are allowed? _____
- b. What is the maximum size allowed? _____
- c. Are building signs counted towards site signage? _____

5. Directional Signs:

- a. How many directional signs are allowed? _____
- b. What is the maximum height? _____
- c. What is the maximum size allowed? _____
- d. Are logos permitted on directional signs? _____
- e. Are directional signs counted towards overall site signage? _____

6. Sign Permits:

- a. Are separate sign permits required? _____
- b. What is the time frame for review? _____
- c. Can plans be submitted for review without a contractor? _____

L. Building Characteristics

1. What is the maximum building height? _____
2. Is there a building floor area ratio limit? _____
 3. Are there any restrictions for architectural elevations, colors or material use?

 4. Setbacks:
 - a. What are the building setbacks? (Facing front of store)
Front: _____ Side/Interior: _____
Rear: _____ Street: _____
 - b. Do setbacks apply to canopies? _____
Signs? _____
Other? _____
 - c. Is a drive-thru proposed? _____
 - d. If so, what are the queuing requirements? _____

 - e. Is a by-pass lane required? _____

 5. If so, are these setbacks by:
Municipal ordinance? _____
County ordinance? _____
Restrictive covenant? _____
6. Are there any restrictive covenants? _____

M. Parking/Loading:

1. What is the parking formula? _____
2. What is the number of spaces required? _____
3. How many of these spaces must be handicap accessible? _____
4. Is employee parking identified? _____
5. Is curbing required? _____
6. If so, where and what are city and/or county standards? _____

1. N. Dumpsters/Compactors:

1. *Is a dumpster/compactor service provided by the city/county or privately contracted?* _____
2. Is screening or fencing around dumpster/compactor required? _____
3. Design requirements: _____
4. Are there are requirements? _____ Minimum distance in front for pick up?

O. Landscape Requirements

1. Is a landscape plan required? _____
2. Is there a landscape ordinance? _____
3. Are there any xeriscape requirements? _____
4. Is there a maximum impervious cover limit? _____

5. What are buffer requirements? _____
 6. Can the car overhang into the planting area count towards the length of the parking space? _____
 7. What are interior landscape requirements? _____

 8. What is the maximum number of parking spaces in a row allowed before an island is required? _____
9. What is the minimum size of landscaped islands? _____
10. Is there a list of acceptable plants available? _____
 11. Irrigation system designer? _____

P. Tree Requirements

1. Is there a tree ordinance? _____
2. What trees are required? _____
3. What are the tree preservation requirements? _____
4. What is the mitigation formula for tree removal? _____
5. What is the tree removal permit process? _____
6. Is an arborist involved? _____
7. Party responsible for and preparing tree survey? _____

Q. Parks and Open Spaces

1. Open space requirements? _____
2. Park and playground requirements? _____
3. Screening from adjacent uses? _____

FORM #2ENGINEERING PROFESSIONAL SERVICES AGREEMENT

THIS ENGINEERING PROFESSIONAL SERVICES AGREEMENT ("Agreement") is entered into and effective as of the ____ day of ~~November~~ _____, 20____, by and between _____ ("OWNER") having a mailing address of _____, and _____ ("Engineer") having a mailing address of _____.

(OWNER) PROPERTY:

(OWNER) hereby retains Engineer for services to be performed at the following (OWNER) properties:

(Property description - street addresses)

THE WORK CONTEMPLATED

(Describe work)

THE SERVICES AND COMPENSATION:

1. Basic Services. Engineer shall render (OWNER) the basic services ("Basic Services") described on Exhibit "A" attached hereto and incorporated herein by reference. In consideration of Engineer's performance of the Basic Services, (OWNER) agrees to pay Engineer a fee of _____ Dollars (\$_____).

2. Additional Services. Engineer shall render (OWNER) the additional services ("Additional Services") described on Exhibit "B", attached hereto and incorporated herein by reference, as may be required and authorized in writing by (OWNER). In consideration of Engineer's performance of the Additional Services, (OWNER) agrees to pay, in addition to the fee for Basic Services set forth above, as follows:

- a) Registered Professional Engineer \$_____/HR
- b) Engineer/Designer \$_____/HR
- c) Draftsman/Other Technical \$_____/HR
- d) Typists/Secretarial \$_____/HR

3. Reimbursable Expenses. (OWNER) shall reimburse Engineer, in addition to fees paid for Services, all of the following actual expenses incurred by the Engineer in the execution of Engineer's duties under this Agreement:

- a) transportation in connection with Engineer's duties (including \$_____ per mile for use of personal vehicle);
- b) fees paid by Engineer for securing approval of authorities having jurisdiction over Engineer's work product, to the extent that such fees have not already been paid by (OWNER);
- c) reproductions, plats, standard form documents, postage, handling and delivery of instruments of service, to the extent not included in Basic Services;

- d) renderings, mock-ups and models requested by (OWNER) to the extent not included in the Basic Services
- e) other reimbursable expenses related to Engineer's work product under this Agreement, as approved by (OWNER) before such expenses are incurred.

Reimbursable expenses shall be paid to Engineer at a multiple of _____ times the expenses incurred.

4. Payments to Engineer

- a) (OWNER) shall make monthly progress payments to Engineer for Basic Services provided that Engineer has submitted invoices by the 15th of the month following the month in which the Basic Services were rendered, no later than thirty (30) days following receipt of such invoices, and subject to the following percentages of the total Basic Services fee:
 - i) Schematic Design Phase _____%
 - ii) Design Development Phase _____%
 - iii) Construction Documents Phase _____%
 - iv) Bidding or Negotiation Phase _____%
 - v) Construction Phase _____%
- b) (OWNER) shall, in addition to amounts paid for Basic Services, pay Engineer for Additional Services, provided that Engineer has submitted invoices by the 15th of the month following the month in which the Additional Services for which Engineer seeks remuneration were rendered, no later than thirty (30) days following receipt of such invoices.
- c) (OWNER) shall, in addition to amounts paid under (a) and (b) above, pay Engineer for reimbursable expenses as set forth in 3(c) above, provided that Engineer has submitted invoices therefore no later than the 15th day of the month following the month in which those expenses were incurred, no later than Thirty (30) days following receipt of such invoices.

5. (OWNER)'S Responsibilities

- a) (OWNER) shall provide full information in a timely manner regarding requirements for and limitations on the work required by Engineer or any contractor, including a written program which shall set forth the (OWNER)'s objectives, schedule, constraints and criteria, including space requirements and relationships, flexibility, expandability, special equipment, systems and site requirements, as applicable.
- b) (OWNER) shall establish and periodically update an overall budget for the work contemplated including the Construction Cost, (OWNER)'s other costs and reasonable contingencies related to all of these costs.
- c) (OWNER) shall designate a representative authorized to act on its behalf with respect to the work contemplated. (OWNER) or such designated representative shall render decisions in a timely manner pertaining to documents submitted by the Engineer in order to avoid unreasonable delay in the orderly and sequential progress of the Engineer's services.
- d) If applicable, (OWNER) shall furnish surveys to describe physical characteristics, legal limitations and utility locations for the site(s) specified in (2) above, and a written legal description of the site(s). The surveys and legal information shall include, as applicable, grades and lines of streets, alleys, pavements and adjoining property and structures; adjacent drainage; rights-of-way, restrictions, easements, encroachments, zoning, deed restrictions, boundaries and contours of the site(s); locations, dimensions and necessary data with respect to existing buildings, other improvements and trees; and information concerning available utility services and lines, both public and private, above and below grade, including inverts and depths.
- e) (OWNER) shall furnish structural, mechanical, and chemical tests; tests for air and water pollution; tests for hazardous materials; and other laboratory and environmental tests; inspections and reports required by law, all as applicable to the work contemplated.

f) (OWNER) shall furnish all legal and accounting services that may be necessary at any time for the work contemplated to meet (OWNER)'s needs and interests. Such services shall include auditing services (OWNER) may require to verify any contractor's Applications for Payment or to ascertain how or for what purposes a contractor has used the money paid by or on behalf of (OWNER).

g) The services, information, surveys and reports required above shall be furnished at (OWNER)'s expense, and the Engineer shall be entitled to reasonably rely upon the accuracy and completeness thereof. h) (OWNER) shall provide Engineer with access to all areas at all sites when Engineer is required to complete Engineer's services.

6. Dispute Resolution All claims or disputes under, arising out of or relating to this Agreement or the breach thereof shall be first submitted to mediation as follows:

a) Claims, disputes or other matters in question between the parties listed above arising out of or relating to this Agreement, or breach thereof shall be subject to mediation according to and governed by the provisions of the Texas Civil Practice & Remedies Code §164.023 (Mediation), §164.062 (Qualifications of Impartial Third Party); §164.071 (Effect of Written Settlement Agreement); and §164.073 (Confidentiality of Communications in Dispute Resolution).

b) Mediation may be requested by either party at any time. The parties agree that once mediation is requested, the parties shall select a mediator, schedule and complete the mediation all in good faith and as expeditiously as is reasonable under the circumstances. Unless the parties agree otherwise, all expenses of mediation shall be shared equally by all parties to the dispute. Although they are not obligated to reach an agreement in mediation, the parties agree that any agreement they do reach shall be reduced to writing and shall be fully enforceable in the same manner as any other written agreement.

c) In no event shall the request for mediation be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statutes of limitations.

d) If necessary for the preservation of legal rights, this section shall not be construed as an infringement upon any party's access to the legal process.

7. Termination. (OWNER) shall have the right to terminate this Agreement at any time upon seven (7) days written notice to Engineer for any of the following reasons:

a) Termination for cause, which for purposed of this Agreement includes, without limitation (i) if Engineer is a corporation, partnership or association, its merger, consolidation or dissolution or the transfer of a controlling interest in the shares, or the transfer of a controlling partnership interest; (ii) Engineer's negligence or misconduct that would make its continued association with (OWNER) prejudicial to the best interest or reputation of (OWNER); (iii) the filing of a petition in bankruptcy by, against, or on behalf of Engineer; (iv) an adverse change in the financial condition of Engineer which affects the ability of Engineer to perform the services or fulfill the indemnities requires hereunder; (v) Engineer's breach of any term or condition of this Agreement; or

b) Termination without Cause, for (OWNER)'s convenience. In the event of termination with or without cause, (OWNER) shall incur no liability to Engineer by reason of such termination, except that Engineer shall be compensated for all services performed prior to the termination date in accordance with the terms of this Agreement.

8. Insurance. As a condition precedent to this Agreement, Engineer shall submit to (OWNER) proof of insurance for the following coverages, which shall be maintained by Engineer at all times during the life of this Agreement:

a) Commercial General Liability Combined Single Aggregate Limit

arising out of Engineer's services hereunder. In the event any such lien or claim is filed by anyone claiming by, through or under Engineer, Engineer shall remove and discharge same within ten (10) days of the filing thereof.

j) Nondiscrimination. Engineer agrees not to discriminate against any employee or applicant for employment for race, color, religion, sex, disability or national origin. Engineer agrees to take affirmative action to ensure the applicants are employed and employees are treated during employment without regard to race, color, religion, sex, disability, or national origin.

k) Notices. Notices or other communications required to be given under this Agreement shall be effective in writing to the address of the party to be noticed as set forth below their signature by (i) delivering same in person; or (ii) upon receipt of the same deposited in the United States Mail, certified first class mail, postage prepaid with return receipt; or (iii) depositing the same with a nationally recognized courier service; or (iv) by sending same by telefax (subject to electronic confirmation) with confirming copy sent by first class mail.

l) Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and all of which taken together shall be deemed one and the same document.

m) Independent Contractor. The parties agree that the relationship of Engineer to (OWNER) shall be that of an independent contractor. Neither Engineer nor employees or Subcontractors of Engineer shall be deemed to be employees of (OWNER).

10. Engineer's Representations and Certifications. The undersigned Engineer hereby certifies:

a) Special Training. Engineer represents and warrants that all of its employees and subcontractors entering the sites described in (2) above and adjacent premises during the performance of the services under this Agreement have received necessary information concerning the sites and any related concerns and have received appropriate training regarding the services to be performed including, among other things, training to address adequately the actual or potential danger, if any, of such performance. Engineer represents and warrants that, to the extent necessary or required by law, Engineer is currently certified and licensed in compliance with all applicable federal, state and other governmental and quasi-governmental requirements and shall maintain such certification and licensing throughout performance of the services.

b) Neither the Engineer, nor the firm, corporation or partnership or institution represented by the Engineer, nor anyone acting for the Engineer has violated Federal antitrust law or Texas antitrust law under Business and Commerce Code §15.01 et seq.;

c) Engineer has not offered, confirmed or agreed to confer any "benefit" as defined by the Texas Penal Code §36.01(5), or any other thing of value as consideration for (OWNER)'s decision, opinion, recommendation, vote or other exercise of discretion concerning acceptance of this Agreement;

d) Engineer certifies and represents that Engineer has neither coerced or attempted to influence the exercise of discretion by any officer, trustee, agent or employee of the (OWNER) concerning this proposal on the basis of any consideration not authorized by law;

e) Engineer further certifies and represents that Engineer has not violated any state, federal or local law, regulation or ordinance relating to bribery, improper influence, collusion or the like and that Engineer will not in the future offer, confer, or agree to confer any pecuniary benefit or other thing of value to any officer, trustee, agent or employee of (OWNER) in return for the person having exercised the person's official discretion, power or duty with respect to this Agreement.

This Agreement is entered into and effective as of the day and year first written above.

II. (OWNER):

By: _____
Name: _____
Title: _____
Date: _____
Address: _____

(ENGINEER)

By: _____
Name: _____
Title: _____
Date: _____
Address: _____

Exhibits:

A - Basic Services

B - Additional Services

FORM #3

CONSULTING AGREEMENT
for
PHASE ONE ENVIRONMENTAL SITE ASSESSMENT

ARTICLE 1
GENERAL PROVISIONS

Parties

1.01 This consulting agreement ("Agreement") is entered into by and between _____ ("Client"), having a mailing address of _____, and _____ ("Consultant"), having a mailing address of _____.

III. PURPOSE

1.02 Consultant shall conduct services ("the Services") known as a Phase One Environmental Site Assessment, ("Phase One ESA"), on the property in order to identify and evaluate actual and potential environmental risks and liabilities associated with the property, as specified in Article Two of this Agreement.

Property Site Location

1.03 The property is located at _____, in _____ County, Texas, as further described in the plat and survey attached as **Exhibit "A"** ("Property"). The Services shall be conducted in an area defined as the "Site," as shown on the Map and Property Boundary Sketch attached as **Exhibit "B."**

IV. WARRANTY OF EXPERTISE

1.04 (a) Consultant warrants that it possesses the degree of skill necessary to conduct the Services required under this Agreement and that it shall be performed in accordance with the highest generally accepted national standards of care, skill, diligence, and professional competence applicable to Consultant.

(b) Consultant shall perform all of the Services required under this Agreement and shall not contract with any third party for the performance of such Services without the express written permission of Client. In the event that Client agrees to Consultant's use of a subcontractor for the performance of any Services required under this Agreement, any Agreement between Consultant and the subcontractor shall contain provisions requiring that the work of the subcontractor be kept strictly confidential, in accordance with the requirements of this Agreement.

(c) *Consultant warrants that all of its employees and subcontractors entering the Site and any adjacent premises during the performance of this Phase One ESA have received necessary information concerning the Site and any related concerns, and have received appropriate and adequate training regarding the activities to be performed.*

(d) *Consultant represents and warrants that, to the extent necessary or required by law, Consultant is currently certified and licensed in compliance with all applicable federal, state and other governmental and quasi-governmental requirements and shall maintain such certification and licensing throughout performance of this Phase One ESA.*

Independent Contractor

1.05 The parties agree that the relationship of Consultant to Client shall be that of an independent contractor. Neither Consultant nor employees or Subcontractors of Consultant shall be deemed to be employees of Client.

V. CONFIDENTIALITY

1.06 (a) Consultant, its agents, and subcontractors have been and will be granted access to the Site, and to certain confidential information contained in the records of Client, in the course of performing the Services required under this Agreement. Consultant warrants that it shall keep all such information strictly confidential.

(b) Consultant further understands that all communications between Consultant and Client, including any written reports and evaluations of the Site, shall be strictly confidential. The word "CONFIDENTIAL" shall be prominently marked on both the envelope containing correspondence between Client and Consultant and on the correspondence itself. Consultant shall not disclose to any third party any matter whatsoever related to its work for Client without the express written permission of Client.

(c) Consultant shall only follow instructions given by Client in providing its Services under this Agreement. All reports, drafts of reports, and any other documents generated by Consultant's work are the property of Client.

(d) Consultant's obligation to maintain confidentiality concerning all matters covered by this Agreement shall not terminate on completion of the Services required but shall survive the termination of this Agreement by whatever manner.

VI. COMPENSATION

1.07 Client shall pay Consultant a fee of not more than \$3,800.00 for the Services to be performed under this Agreement, upon completion of the work. In addition, Client shall reimburse Consultant for all reasonable costs and expenses incurred in connection with the performance of the Services required under this Agreement, provided that Consultant provides documentation and receipts for those costs and expenses. However, Consultant shall not incur any cost or expense in an amount exceeding \$300.00 without first obtaining Client's written approval.

ARTICLE 2 SCOPE OF WORK

Scope

2.01 The Consultant shall conduct a Phase One ESA in accordance with the industry standard to qualify for the "innocent landowner" defense as stated in the American Society for Testing and Materials (ASTM) Practice E-1527-00. The Services included in the Scope of Work for this Phase One ESA shall be those Services described on **Exhibit "C"** attached hereto and incorporated herein by reference. The Services shall also address conditions on the Site that may pose a potential contamination threat or asset management concern, (that are not included in the ASTM E-157-00 standards), including the potential for asbestos-containing materials, radon, threatened or endangered species, jurisdictional wetlands, cultural resources, and the presence of other environmental features that may trigger regulatory considerations. The Services shall not include Site sampling during the on-Site investigation, (which if warranted would be done under a Phase Two ESA), analysis of local land use controls and title easements affecting the Site.

U.S. Fish and Wildlife Service Limitations

2.02 Client is contracting to purchase the Property described in **Exhibit "A"** from _____ ("Contract"). Said Contract provides that the Property is being purchased subject to the terms and provisions of that certain letter agreement with the U.S. Fish & Wildlife Service ("USFWS"), which is captioned _____ the "Letter Agreement") dated _____, that certain "First Amendment To Agreement Regarding Mitigation Requirements For _____" to the Letter Agreement, dated effective as of _____, – the Second Amendment" to the Letter Agreement and which is dated _____, Conservation Easement Agreement _____, _____ County, Texas passed by the _____ County Commissioners Court on _____ and _____ Agreement regarding Participation Reports and Conservation Easement also approved by the _____ County Commissioners Court on _____, copies of which have been delivered to Consultant all of which are listed on **Exhibit "F"** (collectively, the "USFWS Agreement"). Consultant shall review the documents and include within its report to Client an analysis as to the effect of these documents on Client's use of the Property for an elementary school and in regards to any threatened or endangered species or habitat found on the property.

Property Specific Information

2.03 Consultant acknowledges, by it's signature at the end of this Agreement, that it has received from Client all information specific to this Property which Consultant needs to proceed with this Phase One ESA. This information includes:

- (a) Property Description: _____, in _____ County, Texas. See **Exhibits "A" and "B"**.
- (b) Legal Description: See **Exhibits "A" and "B"**.
- (c) Map section or recent aerial photograph showing the location, topography, 100-year floodplain and shape of the site property: See **Exhibit "D"**.
- (d) Tree survey: See **Exhibit "E"**.
- (e) Description of any structures on property: _____.
- (f) Contact person: _____.
- (g) Owner's Name and Phone Number: _____.
- (h) Environmental Lien or Specialized Use Information: _____.

Schedule

- 2.04 (a) The Phase One ESA shall begin no later than _____.
- (b) Consultant shall provide Client with a bi-weekly verbal progress report of the results of the work through completion.
- (c) Consultant shall provide Client with a draft written report containing the results of the Phase One ESA either three days after the final completion of the Services or by _____, whichever date is sooner. If requested by Client, the Consultant shall provide a final written report containing the results of the Phase One ESA by _____.
- (d) Client reserves the right to terminate this Agreement at any time.

Records

2.05 Consultant shall maintain full and accurate records, which shall be made available to Client on request, with respect to all data collected in this Phase One ESA, and all charges, expenses, and disbursements incurred or made by Consultant, its agents, or subcontractors.

Compliance With Law

2.06 In performing the Services required under this Agreement, Consultant shall comply with all applicable federal, state, and local laws, regulations, and ordinances.

A. Insurance

2.07 *Consultant shall, at its sole expense, maintain in effect at all times during this Agreement, insurance coverage, including worker's compensation, commercial general liability, comprehensive automobile liability, umbrella excess liability and professional liability, with insurers licensed to do business in the state in which the Site is located and acceptable to Client, and with limits and under forms of policies satisfactory to Client. None of the requirements contained herein as to types, limits or Client's approval of insurance coverage to be maintained by Consultant is intended to and shall not in any manner limit, qualify, or quantify the liabilities and obligations assumed by Consultant under this Agreement or otherwise provided by law.*

Indemnification

2.08 *To the fullest extent permitted by applicable law, Consultant agrees to indemnify, protect, defend and hold harmless the Client and each of the Client's affiliated companies, partners, officers, directors, shareholders, employees, agents, successors, assigns, heirs, legal representatives, and devisees (collectively, "Indemnitees") for, from and against all liabilities, claims, damages, losses, liens, causes of action, suits, judgments, and expenses (including court costs, attorneys' fees, and costs of investigation), of any nature, kind, or description of any person or entity, directly or indirectly arising out of, caused by, or resulting from (in whole or in part), (1) the performance of the Services hereunder, or any part thereof, (2) this Agreement or (3) any act, error, or omission of Consultant, any Subcontractor, anyone directly or indirectly employed by them, or anyone that they control or exercise control over (collectively, "Liabilities"), even if such Liabilities are caused in part by the negligence of any Indemnitee. The only Liabilities with respect to which Consultant's obligation to indemnify the Indemnitees does not apply is with respect to Liabilities resulting solely from the negligence or willful misconduct of an Indemnitee; provided, however, that with respect to professional liability, Consultant's obligation to indemnify the Indemnitees shall apply only to those Liabilities resulting from errors, omissions, or negligent acts of Consultant, any Subcontractor, anyone directly or indirectly employed by them, or anyone that they control or exercise control over. This indemnification shall not be limited to damages, compensation, or benefits payable under insurance policies, workers' compensation acts, disability benefit acts, or other employees' benefit acts.*

ARTICLE 3 MISCELLANEOUS PROVISIONS

Entire Agreement

3.01 This Agreement and the attached Exhibits constitute the entire agreement between the parties relating to the Services to be provided by Consultant for Client. Any prior agreements, promises, negotiations, or representations not expressly set forth in this Agreement are of no force and effect. Any amendment to this Agreement shall be of no force and effect unless it is in writing and signed by Consultant and Client.

Binding Effect

3.02 This Agreement shall be binding on and inure to the benefit of the parties to this Agreement and their heirs, personal representatives, successors, and assigns, except as otherwise provided in this Agreement.

Governing Law

3.03 This Agreement and the legal relations between the parties shall be governed by and construed in accordance with the laws of the State of Texas.

Assignment

3.04 Consultant may not assign this Agreement without Client's prior written consent. The valid assignment of this Agreement shall not relieve Consultant of liability under this Agreement.

Waiver

3.05 The waiver by any party to this Agreement of a breach of any provision of this Agreement shall not be deemed a continuing waiver or a waiver of any subsequent breach of that or any other duty provision of this Agreement.

Prohibition of Liens

3.06 Consultant shall save and keep Client and the Property free from all mechanics' and materialmen's liens, and all other liens or claims, legal or equitable, arising out of Consultant's Services hereunder. In the event any such lien or claim is filed by anyone claiming by, through or under Consultant, Consultant shall remove and discharge same within ten (10) days of the filing thereof.

Nondiscrimination

3.07 Consultant agrees not to discriminate against any employee or applicant for employment for race, color, religion, sex, disability or national origin. Consultant agrees to take affirmative action to ensure the applicants are employed and employees are treated during employment without regard to race, color, religion, sex, disability, or national origin.

Dispute Resolution

3.08 All claims or disputes under, arising out of or relating to this Agreement or the breach thereof shall be first submitted to mediation as follows:

(a) Claims, disputes or other matters in question between the parties listed above arising out of or relating to this Agreement, or breach thereof shall be subject to mediation according to and governed by the provisions of the Texas civil Practice & Remedies Code §164.023 (Mediation), §164.062 (Qualifications of Impartial Third Party); §164.071 (Effect of Written Settlement Agreement); and §164.073 (Confidentiality of Communications in Dispute Resolution).

(b) Mediation may be requested by either party at any time. The parties agree that once mediation is requested, the parties shall select a mediator, schedule and complete the mediation all in good faith and as expeditiously as is reasonable under the circumstances. Unless the parties agree otherwise, all expenses of mediation shall be shared equally by all parties to the dispute. Although they are not obligated to reach an agreement in mediation, the parties agree that any agreement they do reach shall be reduced to writing and shall be fully enforceable in the same manner as any other written agreement.

(c) In no event shall the request for mediation be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statutes of limitations.

(d) If necessary for the preservation of legal rights, this section shall not be construed as an infringement upon any party's access to the legal process.

Attorney's Fees

3.09 If an action or proceeding, arising out of or relating to this Agreement is commenced by either party to this Agreement, then as between Client and Consultant, the prevailing party shall be entitled to receive from the other party, in addition to any other relief that may be granted, the reasonable attorney's fees, costs, and expenses incurred in the action, proceeding, or arbitration by the prevailing party.

Notices

3.10 Notices or other communications required to be given under this Agreement shall be effective in writing to the address of the party to be noticed as set forth below their signature by (i) delivering same in person; or (ii) upon receipt of the same deposited in the United States Mail, certified first class mail, postage prepaid with return receipt; or (iii) depositing the same with a nationally recognized courier service; or (iv) by sending same by telefax (subject to electronic confirmation) with confirming copy sent by first class mail.

Counterparts

3.11 This Agreement may be executed in multiple and separate counterparts, and proof may be made by introducing copies signed by each party on the same or separate counterparts with either original or facsimile signatures, absent proof of withdrawal of approval prior to execution by all such parties.

Effective Date

3.12 The effective date of this Agreement will shall for all purposes be the date of the execution of the last to sign, whether the Client or the Consultant.

Exhibit List

3.13 The flowing Exhibits are attached to this Agreement and incorporated by reference herein:

- Exhibit "A" Plat and Survey
- Exhibit "B" Map and Property Boundary Sketch
- Exhibit "C" Scope of Work
- Exhibit "D" Base Map
- Exhibit "E" Tree Survey

CLIENT:

CONSULTANT:

By: _____

By: _____

Date: _____

Date: _____

EXHIBIT "C"**SCOPE OF WORK
PHASE I ENVIRONMENTAL SITE ASSESSMENT**

The following presents _____ scope of work for the performance of a Phase I Environmental Site Assessment. Work activities and sources of information described herein represent a minimum effort, and other inquiries during the course of the assessment will be based upon an evaluation of the site-specific circumstances of the subject property.

The Phase I Environmental Site Assessment for the subject property will be performed in accordance with customarily accepted good and sound professional practices and procedures at the time the work is undertaken. _____ assumes no responsibility for the accuracy of property-specific information provided by its client (or its client's agent) and/or federal, state, or local agency file information. Moreover, _____ assumes no responsibility for client liabilities and related costs which may arise in the future from property features which could not have been reasonably identified at the time work is performed.

1.0 HISTORICAL LAND USE REVIEW

A historical land use review of the subject property and any improvements will be performed regardless of current ownership or title. Sources of information to be reviewed include the following:

- 1.1 Property abstracts or title search and governmental records. Chain of title documents for a minimum of 50 years, as available.
- 1.2 Aerial photographs for past 50 years, as available.
- 1.3 U.S. Geological Survey maps.
- 1.4 Business listing.
- 1.5 Street directories.
- 1.6 Sanborn Maps (insurance company maps showing locations of businesses), as available.
- 1.7 Interviews with neighbors or other knowledgeable persons in the site area to determine prior land use of the subject property, adjacent properties, and surrounding area. *Client confidentiality will be recognized.*
- 1.8 Plats and surveys, building and/or site development plans as required (e.g., potential asbestos usage).
- 1.9 Information pertaining to stormwater runoff management (i.e., contaminated area or landfill as opposed to flood control runoff).
- 1.10 Radon evaluation: if on-site structures exist, review the property for location within an area with a known potential for radon exposure and accumulation.

2.0 REVIEW OF CORPORATE AND GOVERNMENTAL RECORDS

A thorough review of corporate and/or governmental records related to the subject property will be performed. This work activity will include the following:

- 2.1 Interviews with officials and/or review records of federal, state, and local (e.g., city, county, or municipality) environmental authorities to determine:
 1. Whether site is subject to pending enforcement actions, consent orders, notices of violations or cleanup orders; and
 2. Whether any existing on-site activities require environmental permits or other authorizations, and determine if permits are current and adequate as required under current legislation.

Agency interviews and record search will include the following, as applicable:

1. U.S. Environmental Protection Agency (EPA);
 2. Texas Natural Resource Conservation Commission (TNRCC);
 3. Texas Water Development Board (TWDB);
 4. Texas Department of Health (TDH);
 5. Railroad Commission of Texas (RCT);
 6. Texas Historical Commission (THC);
 7. Local environmental health department;
 8. Title records at the County Clerk's office and/or the title company; and
 9. Other boards and agencies whose actions may affect the subject property and/or neighboring properties.
- 2.2 Review Texas Natural Resource Conservation Commission files and those of other appropriate local agencies for registration of above-ground and/or underground storage tanks on or immediately adjacent to the subject property.
 - 2.3 Determine location and proximity of site to water supply wells and whether state, county or other agencies restrict the use of local ground water.
 - 2.4 Review agency records regarding history of compliance with federal, state, and local laws and regulations (e.g., agency site inspection reports), as applicable.
 - 2.5 Determine whether the subject property or adjacent properties are NPL-listed, on CERCLIS or on state hazardous waste site list.
 - 2.6 Review governing agencies files and inspect the subject property for active or inactive oil and/or gas wells and pipelines.

3.0 ON-SITE INVESTIGATION

A specific on-site investigation will be performed (i.e., aerial survey, if justified by property size). *A site walk-over will be performed in all circumstances.* The on-site investigation will include observation of physical conditions of land and

structures or improvements of the subject property for potential indicators of hazardous substance contamination or other environmental problems. Observations of the land, structures, and improvements for potential indicators of hazardous substance contamination or other environmental problems related to properties immediately adjacent to the subject property will also be performed. Representative photographs of the subject property and adjacent properties will be taken to document conditions at the time of the on-site investigation.

During the on-site visit, certain features of the subject property and adjacent properties will be investigated. These features will include, but are not necessarily limited to:

- 3.1 Leaking pipes associated with on-site structures.
- 3.2 Electrical transformers (where possible, manufacturer and size will be noted and ownership determined).
- 3.3 Tanks, drums, barrels or containers, or any machinery or other operating equipment.
- 3.4 Spills around loading docks, raw material storage area, surface drains or maintenance areas.
- 3.5 Discolored or stained soils.
- 3.6 Distressed or dead vegetation or wildlife.
- 3.7 General air quality, including noticeable fumes or odors.
- 3.8 Discolored water surfaces (e.g., pools, lagoons, drainage ditches, canals, reservoirs, etc.).
- 3.9 Unusual topographical features of ground surface such as depressions or rises which may indicate buried materials, where apparent and not obscured by landscaping or construction.
- 3.10 Evidence of hazardous or toxic materials usage, material storage, and improper fuels management, as applicable.
- 3.11 General determination of the existence of wildlife habitat, wetlands, beach frontage, swamps, surface water or other natural resources on the subject property and any noticeable destruction or disruption to same as a result of existing and/or previous land use.
- 3.12 Suspected uses of properties in the surrounding area to determine likelihood of contamination of subject property from third-party sources.
- 3.13 Presence of underground or above ground storage tanks for petroleum or non-petroleum products.
- 3.14 Presence of oil and/or gas wells and associated transportive systems (e.g., pipelines, gathering lines, etc.)
- 3.15 Investigation of buildings on the subject property for presence of possible contaminants (e.g., asbestos, PCB, and lead in drinking water, and/or paint).
(Does not include specific sampling and analysis.)

Addendum A provides _____'s on-site investigation checklist.

4.0 REPORT

Two copies of a written report will be prepared presenting the findings of the Phase I Environmental Site Assessment. The report will include:

- 4.1 Site name, location (i.e., address, city, county, and state), and legal description.
- 4.2 A general description of the subject property improvements and surrounding property usages.
- 4.3 The date(s) and person(s) performing the site inspection and accreditation(s).
- 4.4 Maps or site plans representing both site and the surrounding area properties.
- 4.5 Current aerial (as available) and site inspection photographs of the subject property and its environs.
- 4.6 Copy of any current site sampling results and laboratory report, as applicable.
- 4.7 Overview of compliance history and surrounding environment of the subject property, as applicable.
- 4.8 Actual and potential problems identified from site records and/or inspection, if any.
- 4.9 Recommended tests necessary to confirm or disprove and to evaluate and quantify problems identified during Phase I, to be performed during a Phase II site assessment, as applicable.
- 4.10 Chronology and sources of the information reviewed and the persons interviewed.
- 4.11 Professional qualifications of all individuals involved in the performance of the site assessment.

**ADDENDUM A
PHASE I ON-SITE INVESTIGATION CHECKLIST**

*** SITE USE ***

% of total acreage

Buildings: _____ Pavement: _____ Cleared Not Used: _____
Parking: _____ Concrete: _____ Uncleared Not Used: _____
Streets: _____ Asphalt: _____ Cleared Used: _____
Other: _____

Comments:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____

Recommendations:

Reviewed by: _____ Date:

FORM #4**AGREEMENT FOR CONDUCTING GOLDEN-CHEEKED WARBLER SURVEY****ARTICLE 1
GENERAL PROVISIONS****Parties**

1.01. This consulting agreement ("Agreement") is entered into by and between _____ (Client"), having a mailing address of _____, and _____ ("Consultant"), having a mailing address of _____.

VII. PURPOSE

1.02. Consultant shall conduct a golden-cheeked warbler survey, ("bird survey"), of a portion of the property and on a _____ acre adjacent tract in order to establish the presence or absence of golden-cheeked warblers as specified in Article 2 of this Agreement.

Property and Bird Survey Site Location

1.03. The property is defined as _____ acres of land more or less out of _____ in _____ County, Texas, as further described in the legal description attached as Exhibit "A" ("Property"). The bird survey shall be conducted in an area defined as the "Site," as shown on the map attached as Exhibit "B," which consists of a portion of the Property (potential on-site habitat) and the _____ acre adjacent tract of land located immediately south of the Property, (potential off-site habitat).

VIII. WARRANTY OF EXPERTISE

1.04. (a) Consultant warrants that it possesses the degree of skill necessary to conduct the bird survey required under this Agreement. Consultant shall perform all work required under this Agreement and shall not contract with any third party for the performance of such work without the express written permission of Client. In the event that Client agrees to Consultant's use of a subcontractor for the performance of any services required under this Agreement, any Agreement between Consultant and the subcontractor shall contain provisions requiring that the work of the subcontractor be kept strictly confidential, in accordance with the requirements of this Agreement.

(b) Consultant warrants that the bird survey will be conducted by an individual with a minimum of three years of full-time work in the field of wildlife biology. Consultant further warrants that members of its staff have been educated and trained in threatened and endangered species monitoring and habitat assessment in the following areas: golden-cheeked warbler surveys.

IX. CONFIDENTIALITY

1.05. (a) Consultant, its agents, and subcontractors have been and will be granted access to the Site, and to certain confidential information contained in the records of Client, in the course of performing the services required under this Agreement. Consultant warrants that it shall keep all such information strictly confidential.

(b) Consultant further understands that all communications between Consultant and Client, including any written reports and evaluations of the Site, shall be strictly confidential. The word "CONFIDENTIAL" shall be prominently marked on both the envelope containing correspondence between Client and Consultant and on the correspondence itself. Consultant shall not disclose to any third party any matter whatsoever related to its work for Client without the express written permission of Client.

(c) Consultant shall only follow instructions given by Client in providing its services under this Agreement. All reports, drafts of reports, and any other documents generated by Consultant's work are the property of Client.

(d) Consultant's obligation to maintain confidentiality concerning all matters covered by this Agreement shall not terminate on completion of the services required but shall survive the termination of this Agreement by whatever manner.

X. COMPENSATION

1.06. Client shall pay Consultant a fee of not more than \$ _____ for the services to be performed under this Agreement, upon completion of the work. In addition, Client shall reimburse Consultant for all reasonable costs and expenses incurred in connection with the performance of the services required under this Agreement, provided that Consultant provides documentation and receipts for those costs and expenses. However, Consultant shall not incur any cost or expense in an amount exceeding \$ _____ without first obtaining Client's written approval.

ARTICLE 2 INVESTIGATION

Scope

2.01. (a) Consultant shall conduct a bird survey in accordance with the Minimum Procedures for Determining the Presence/Absence of Golden-Cheeked Warblers and Black-Capped Vireos dated August 18, 1999, as established by the U.S. Fish and Wildlife Service, a copy of which is attached as Exhibit "C" and incorporated by reference into this Agreement.

(b) Subject to weather conditions, the bird survey shall begin no later than _____.

(c) Consultant shall provide Client with a verbal report of the results of each Site visit within two days after each Site visit.

(d) Consultant shall provide Client with a draft written report containing the results of the bird survey either three days after the final completion of the bird survey or by May 16, 2001, whichever date is sooner. If requested by Client, the Consultant shall provide a final written report containing the results of the bird survey by _____.

(e) Client reserves the right to terminate this Agreement at any time.

Records

2.02. Consultant shall maintain full and accurate records, which shall be made available to Client on request, with respect to all data collected in this bird survey, and all charges, expenses, and disbursements incurred or made by Consultant, its agents, or subcontractors.

Compliance With Law

2.03. In performing the investigation required under this Agreement, Consultant shall comply with all applicable federal, state, and local laws, regulations, and ordinances.

ARTICLE 3 MISCELLANEOUS PROVISIONS

Assignment

3.01. Consultant may not assign this Agreement without Client's prior written consent. The valid assignment of this Agreement shall not relieve Consultant of liability under this Agreement.

Notices

3.02. Any notice, tender, delivery, or other communication made pursuant to this Agreement shall be addressed to the recipient party at the address indicated for that party at the end of this Agreement.

Entire Agreement

3.03. This Agreement and the attached Exhibits constitute the entire agreement between the parties relating to the services to be provided by Consultant for Client. Any prior agreements, promises, negotiations, or representations not expressly set forth in this Agreement are of no force and effect. Any amendment to this Agreement shall be of no force and effect unless it is in writing and signed by Consultant and Client.

Attorney's Fees

3.04. If an action or proceeding, arising out of or relating to this Agreement is commenced by either party to this Agreement, then as between Client and Consultant, the prevailing party shall be entitled to receive from the other party, in addition to any other relief that may be granted, the reasonable attorney's fees, costs, and expenses incurred in the action, proceeding, or arbitration by the prevailing party.

Binding Effect

3.05. This Agreement shall be binding on and inure to the benefit of the parties to this Agreement and their heirs, personal representatives, successors, and assigns, except as otherwise provided in this Agreement.

Governing Law

3.06. This Agreement and the legal relations between the parties shall be governed by and construed in accordance with the laws of the State of Texas.

Waiver

3.07. The waiver by any party to this Agreement of a breach of any provision of this Agreement shall not be deemed a continuing waiver or a waiver of any subsequent breach of that or any other duty provision of this Agreement.

Prohibition of Liens

3.08 Consultant shall save and keep Client and the Property free from all mechanics' and materialmen's liens, and all other liens or claims, legal or equitable, arising out of Client's services hereunder. In the event any such lien or claim is filed by anyone claiming by, through or under Consultant, Consultant shall remove and discharge same within ten (10) days of the filing thereof.

Nondiscrimination

3.09 Consultant agrees not to discriminate against any employee or applicant for employment for race, color, religion, sex, disability or national origin. Consultant agrees to take affirmative action to ensure the applicants are employed and employees are treated during employment without regard to race, color, religion, sex, disability, or national origin.

Notices

3.10 Notices or other communications required to be given under this Agreement shall be effective in writing to the address of the party to be noticed as set forth below their signature by (i) delivering same in person; or (ii) upon receipt of the same deposited in the United States Mail, certified first class mail, postage prepaid with return receipt; or (iii) depositing the same with a nationally

recognized courier service; or (iv) by sending same by telefax (subject to electronic confirmation) with confirming copy sent by first class mail.

Independent Contractor

3.11 The parties agree that the relationship of Consultant to Client shall be that of an independent contractor. Neither Consultant nor employees or Subcontractors of Consultant shall be deemed to be employees of Client.

Dispute Resolution

3.12 All claims or disputes under, arising out of or relating to this Agreement or the breach thereof shall be first submitted to mediation as follows:

(a) Claims, disputes or other matters in question between the parties listed above arising out of or relating to this Agreement, or breach there of shall be subject to mediation according to and governed by the provisions of the Texas Civil Practice & Remedies Code §164.023 (Mediation), §164.062 (Qualifications of Impartial Third Party); §164.071 (Effect of Written Settlement Agreement); and §164.073 (Confidentiality of Communications in Dispute Resolution).

(b) Mediation may be requested by either party at any time. The parties agree that once mediation is requested, the parties shall select a mediator, schedule and complete the mediation all in good faith and as expeditiously as is reasonable under the circumstances. Unless the parties agree otherwise, all expenses of mediation shall be shared equally by all parties to the dispute. Although they are not obligated to reach an agreement in mediation, the parties agree that any agreement they do reach shall be reduced to writing and shall be fully enforceable in the same manner as any other written agreement.

(c) In no event shall the request for mediation be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statutes of limitations.

(d) If necessary for the preservation of legal rights, this section shall not be construed as an infringement upon any party's access to the legal process.

Counterparts

3.13 This Agreement may be executed in multiple and separate counterparts, and proof may be made by introducing copies signed by each party on the same or separate counterparts with either original or facsimile signatures, absent proof of withdrawal of approval prior to execution by all such parties.

Effective Date

3.14 The effective date of this Agreement will shall for all purposes be the date of the execution of the last to sign, whether the Client or the Consultant.

CLIENT:

CONSULTANT:

By: _____

By: _____

Date: _____

Date: _____

**MINIMUM PROCEDURES FOR DETERMINING THE PRESENCE/ABSENCE OF
GOLDEN-CHEEKED WARBLERS AND BLACK-CAPPED VIREOS**

1. Endangered Species Permits must be obtained from U.S. Government of Interior, Fish and Wildlife Service (USFWS) - Region 2 Office in Albuquerque (Sandra Duran-Poole 505-248-6649) prior to work in occupied endangered species habitat. Texas Parks and Wildlife Department (TPWD) also requires persons working on endangered species to obtain a permit (Rosie Roegner 512-389-4800 ext 4491). If there is a question about whether a permit is needed for conducting work in endangered species habitat, please call the Austin Ecological Services Office at (512) 490-0057).
2. The Survey seasons are as follows:
 - a. Black-capped vireo (BCV) - April 10 to July 15
 - b. Golden-cheeked warbler (GCW) - March 20 to May 15
3. A minimum of five visits with no more than 1 visit within any 5-day period is necessary.
4. Total survey time should be a minimum of 4 hours per 100 acres of habitat per visit (habitat is defined in the U.S. Department of Interior, Fish and Wildlife Service's "Guidance Concerning Review of Endangered Species Habitat", Revised April 1994).
5. Surveys should be conducted on days when weather conditions are suitable for the detection of bird singing. Robbins (1981) makes recommendations for acceptable limits of weather conditions and optimal conditions for increasing detection. Robbins (1981) recommends a wind speed of 12 mph as a generally acceptable maximum for satisfactory count results.
6. A minimum of 1 hour per visit is needed regardless of the size the site.
7. Taped or play back recordings of BCV or GCW or screech owl calls may be used only after the above methodology (5 visits, 4 hours/visit) have been exhausted and no birds have been located. Tapes must be used judiciously to avoid behavioral impacts. Tapes must be used to verify negative results (absence of target birds).
8. Reports must include date and year, weather (e.g., wind speed, temperature, precipitation), start and end time, number of birds heard or observed, site name (particularly if there are more than 1), whether tapes were used, and observers' name (s). Maps of the site (7.5 min quad maps or preferably larger scale maps) should be included in the report that records the location of the project area and the survey route taken as well as the bird detections as described by the International Bird Census Committee (Committee) (1970). Descriptions of habitats found on the site must also be included in the report.

The above methodology is limited to determining the presence/absence of GCWs or BCVs. It does not provide sufficient data to determine bird densities or territories. If at any point in the presence/absence survey a target species is detected, then the survey may be discontinued. The results of surveys must be reported (as described above) to the USFWS in the annual permit report whether or not the survey detected any target species.

If bird densities or territorial mapping is needed then the methodology described by the Committee (1970) should be followed. The following exceptions apply: (1) the entire project area will be censused, not a sample plot; (2) all detections on the edge of the project area will be recorded even if more than half of the territory is off the project area; (3) the survey season is as described above; and (4) the time spent per visit and the number of visits should be sufficient to

document the densities of the target species and suspected territories in the project area. Report should include the information discussed above (for presence/absence reports) as well as the locations of all bird detection by sex and age if identifiable), nests (if incidentally found), contemporaneous detections, etc. registered on 7.5 minute quad maps (or larger size) as established by the Committee. Actual locations should be mapped in addition to actual locations. Descriptions of habitats found on the site, whether or not birds were located in it, must also be included in the report.

9. Exceptions to this methodology may be allowed only through coordination with and approval of the Austin Ecological Services Office.

Field Supervisor
U.S. Fish & Wildlife Service
10711 Burnet Road, Suite 200
Austin, Texas 78758
(512) 490-0057/FAX (512) 490-0974
Email: r2few.tx@fws.gov

LITERATURE CITED

- International Bird Census Committee. 1970. An International standard for a mapping method in bird census work recommended by the International Bird Census Committee. Audubon Field Notes. 2496): 722-726.
- Robbins, C.S. 1981. Bird activity levels related to weather. Pp. 301-310 in C.J. Ralph and J. M. Scott (eds). Estimating Numbers of Terrestrial Birds. Studies in Avian Biology No. 6. Cooper Ornithological Society. Lawrence, Kansas.

FORM #5**GLOSSARY OF TERMS**

<u>Abutment</u> :	A wall supporting the end of a bridge or span, and sustaining the pressure of the abutting earth.
<u>Acceptable Outlet</u> :	That point where stormwater runoff can be released into a watercourse or drainage adequate capacity without causing scour or erosion.
<u>Acid</u> :	A large class of substances having a pH less than seven. An acid waste is considered hazardous when the pH is 2.0 or less.
<u>Acute Effect</u> :	An adverse effect on a human or animal body, with severe symptoms developing rapidly and coming quickly to a crisis.
<u>Acute Exposure</u> :	A dose that is delivered to the body in a single event or in a short period of time.
<u>ADT</u> :	Average Daily Traffic: Average number of vehicles that pass a specified point during a 24 hour period.
<u>Aerobic</u> :	Occurring in the presence of free oxygen.
<u>Alkaline</u> :	A substance with a pH between 7 and 14. An alkaline waste is considered hazardous when its pH is 12.5 or greater.
<u>Alluvial Fan</u> :	A sloping, fan-shaped mass of sediment deposited by a stream where it emerges from an upland onto a plain
<u>Alluvium</u> :	A general term for all detrimental material deposited or in transit by streams, including gravel, sand, silt, clay and all variations and mixtures of these. Unless otherwise noted, alluvium is unconsolidated.
<u>Ambient</u> :	Existing conditions of air, water, and other media at a particular time.
<u>Anaerobic</u> :	Occurring in the absence of oxygen.
<u>Angle of Repose</u> :	The angle between the horizontal and the maximum slope that a soil assumes through natural processes.
<u>Annual</u> :	A plant that lives and grows for only one (1) year or season, during which the life cycle is completed
<u>Antiseep Collar</u> :	An impermeable diaphragm, usually of sheet metal or concrete, constructed at intervals within the zone of saturation along the conduit of a principal spillway to increase the seepage length along the conduit and thereby prevent piping or seepage along the conduit.

Antivortex Device: A device, usually a vertical or a horizontal plate, carefully designed and placed

at the entrance of a pipe to prevent the formation of a vortex in the water at the pipe entrance.

Apron: A floor or lining of concrete, timber, or other suitable material located at the inlet or discharge side of hydraulic structures (box culverts, spillways, etc.) designed to protect the waterway from erosion from falling water or turbulent flow.

Aspect: The direction a slope faces is a physiographic feature on steep slopes which influences plant growth and adaptation.

Asphalt:

- a. Cutback - Asphalt thinned with lighter hydrocarbons, such as kerosene or naphtha.
- b. Emulsion - An emulsion of water and asphalt.
- c. Liquid - (In this application) asphalt which has a sufficiency low viscosity to be sprayed without thinning.

Assessment: An analysis or examination.

Associated Facility: An apparatus or improvement that is used in conjunction with a water or wastewater line that provides water or wastewater service to a tract of land, regardless of where the associated facility is located. The term includes a lift station, force main, pump station, storage tank, a decentralized wastewater system component, or an addition to an existing facility that increases the capability of the existing facility to provide water or wastewater service.

Atterberg Limits: Soil properties measured for soil materials the Number 40 sieve.

- a. Liquid Limit - The water content corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil.
- b. Plastic Limit - The water content corresponding to an arbitrary limit between the plastic and semisolid states of consistency of a soil.
- c. Plastic Index: The numerical difference between the liquid limit and the plastic limit.

Background Environmental Sample: Samples that are considered to contain no contaminants or known concentrations of contaminants.

Backwater Curve: The term applied to the longitudinal profile of the water surface in an open channel when flow is steady but non-uniform.

Backwater: The rise of the water level upstream due to an obstruction or constriction in the channel.

Baffle Chute: A drop structure in a channel or outlet of a pond with baffles for energy dissipation to permit the lowering of the hydraulic energy gradient in a short distance to accommodate topography.

Baffles: Deflector vanes, guides, grids, gratings, or similar devices constructed or placed

in flowing water, to: (1) cause a more uniform distribution of velocities; (2) dissipate energy; (3) divert, guide, or agitate the flow; and (4) mitigate eddy currents.

- Barrel: The usually mildly sloping closed conduit used to convey water under or through a dam; part of a principal spillway.
- Base Flow: The stream discharge from ground water accretion.
- Base: A substance which forms a salt when reacted with an acid. Bases have a pH of greater than seven.
- Bearing Source: A bearing assigned to a known line on which other bearings are based. It is the source of the beginning point of the survey and the initial direction of "North", in relation to which the survey measurements are made. This initial direction can be:
- Magnetic North: The direction that a compass needle would point. Magnetic north may vary several degrees as the earth's magnetic field varies and is used today only as a basis for adjusting historical data to true north;
 - True North: The direction to the geographic north pole, which can be determined by Polaris;
 - Assumed North: An assigned or arbitrarily assumed bearing to a specific line of the survey. It is calculated north based upon two corners of a previously surveyed tract, which corners, when found on the ground, are used with a given reading or call; OR
 - Grid North: A north orientation which maintains a character of being parallel as one moves east or west. The Texas coordinate System uses a grid north.
- Bedload: The sediment that moves by sliding, rolling or bounding on or very near the stream bed; sediment moved mainly by tractive or gravitational forces or both, but at velocities less than the surrounding flow.
- Berm: A shelf that breaks the continuity of a slope.
- Bicycle Lane: A portion of roadway which has been designated for preferential or exclusive use by bicycles. It is distinguished from the portion of the roadway for motor vehicle traffic by a paint stripe, curb, or other similar device.
- Bicycle: A device having two (2) tandem wheels propelled exclusively by human power upon which any person may ride.
- Blind Drain: A type of drain consisting of an excavated trench refilled with previous material, such as coarse sand, gravel or crushed stone, through whose voids water percolates and flows to an outlet. Often referred to as a French drain because of its initial development and widespread use in France.
- Boundaries: A series of straight or curved lines which represents a perimeter of a parcel of land.

- a. Deed Line: The boundary line described in the former deed (the line which has been traditionally surveyed).
- b. Occupation Line: The fence line or other line denoting the area actually occupied. Usually was not surveyed until the 1950s, and usually was not even noted on plats until the 1930s.

Buffer Area: A landscape area on a lot, situated between all street views and all vehicles, structures and areas to be buffered from those views.

Buffer Zone: An area of land which surrounds a hazardous waste facility and on which certain land uses and activities are restricted to protect the public health and safety and the environment from existing or potential hazards caused by the migration of hazardous waste.

Buffering: The use of landscaping (other than mere grass on flat terrain) or the use of landscaping along with berms, walls or decorative fences that at least partially and periodically obstruct the view from the street, in a continuous manner, of vehicular use areas, parking lots and their parked cars and detention ponds.

Building Set Back Line: A line beyond which buildings must be set back from the right of way line.

Calibration: Process of checking, adjusting, or standardizing operating characteristics of instruments and model appurtenances on a physical model or coefficients in a mathematical model. The process of evaluating the scale readings of an instrument in terms of the physical quantity to be measured.

Caliper: The diameter of an installed tree measured six (6) inches above ground level for small trees (four (4) inches diameter or less) at time of planting; measured at 12 inches above ground level for large trees (greater than four (4) inches diameter). The caliper of installed multi-stemmed trees is determined by adding the full diameter of the largest stem to half the diameter of each additional stem.

Call: The statement of a course and distance describing a particular boundary line. The call may also include intention statements and references to monuments of the line described.

Canopy Cover: That geographic area covered by the vertical projection of the drip line or outer branches of a tree or group of trees in a woodland tract, which may be measured directly from aerial photography and/or measured for all trees at least 30 feet in height.

Carcinogen: A substance or agent capable of causing or producing cancer in mammals.

Catchment Area: The area, defined by topographic relief, which drains to a point recharge or critical environmental feature.

Category: One of nine types of survey services delineated by the Texas Society of Professional Surveyors in their Manual of Practice.

- Caustics: A large class of substances which form solutions having a high pH.
- Cave: A natural underground cavity, recess, chamber or series of chambers generally produced by the solution of limestone by subterranean water.
- Certification: A written statement signed and sealed by the surveyor warranting that the survey work was performed and the products were prepared using the required standards and are accurate to the degree specified.
- Channel Improvement: The improvement of the flow characteristics of a channel by clearing, excavation, realignment, lining or other means in order to increase its water carrying capacity.
- Channel Roughness: The estimated measure of texture at the perimeters of channels and conduits. Usually represented by the Manning coefficient “n” used in the Manning Equation.
- Channel Stabilization: Erosion prevention and stabilization of distribution in a channel using jetties, drops, revetments, structural linings, vegetation and other measures.
- Check Dam: A small dam constructed in a gully or other small watercourse to decrease the stream flow velocity (by reducing the channel gradient), minimize channel scour and promote deposition of sediment.
- Chronic Effect: An adverse effect on a human or animal body, with symptoms which develop slowly over a long period of time or which reoccur frequently.
- Chronic Exposure: Low doses repeatedly received by the body over a long period of time.
- Chute: A high velocity, open channel for conveying water to a lower level without erosion.
- Chute: An inclined conduit or structure used for conveying water to a lower level.
- Clay (Soils):
- A mineral solid separate consisting of particles less than 0.002 millimeter in equivalent diameter.
 - A soil texture class.
 - (Engineering) A fine grained soil (more than 50 percent passing the Number 200 sieve) that has a high plasticity index in relation to the liquid limit (Unified Soil Classification System).
- Clear Zone: Their roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. Establishment of a minimum width clear zone implies that rigid objects and certain other hazards with clearance less than the minimum width should be removed, relocated to an inaccessible position or outside the minimum clear zone, remodeled to make safely traversable or breakaway, or shielded.
- Clearance: Lateral distance from edge of traveled way to a roadside object or feature.
- Closure: A mathematical computation employed by the surveyor to test the quality of the

field measurements and the completeness of the geometrical form created by the relevant boundaries. Closure does not guarantee the accuracy of the survey. It is simply a tool to check for substantial errors or level of precision in measurement.

Combustible: A term used by the NFPA, DOT, and others to classify certain liquids that will burn on the basis of flash points. Both the NFPA and DOT generally define “combustible liquids” as having a flash point of 100°F or higher.

Compaction: To unite firmly. With respect to construction work with soils, engineering compaction is any process by which the soil grains are rearranged to decrease void space and bring them into closer contact with one another, thereby increasing the weight of solid material per unit of volume, increasing the shear and bearing strength and reducing permeability.

Compost: A mixture of vegetable refuse, manure or other organic material which has gone through a decaying process.

Concentration: The relative amount of a substance when combined or mixed with other substances.

Condition _____ of Classes: A set of precision-of-measurement criteria for land surveys based upon the nature and assumed relative value of the property.

Conduit: Any channel intended for the conveyance of water, whether open or closed.

Conduit: Any open or closed device for conveying flowing water.

Conflict Point: Point at which vehicle paths cross.

Construction: With reference to a facility, means only the actual physical construction of the facility. The term does not include the designing of, surveying for, or laying out of a facility that occurs before the physical construction of the facility.

Contingency Plan: A document setting out an organized, planned, and coordinated course of action to be followed in case of a fire or explosion or release of a hazardous waste from a TSD or a generator’s facility that could threaten human health or the environment (RCRA).

Contour:

- a. An imaginary line on the surface of the earth connecting points of the elevation.
- b. A line drawn on a map connecting points of the same elevation.

Contractor: Any individual, association, or corporation engaged in the business of installing or altering walks, driveway approaches, curbs, gutters or pavements or appurtenances on public property. This term shall also include those who represent themselves to be engaged in the business whether or not actually doing the work.

Controlling A well-known and monumented point to which a land survey is referenced.

Monument or
Controlling Point
of Reference:

- Corrosive: As defined by DOT, a corrosive material is a liquid or solid that causes visible destruction or irreversible alterations in human skin tissue at the site of contact or in the case of leakage from its packaging a liquid that has a severe corrosion rate on steel. A solid or liquid which exhibits these characteristics can be regulated as hazardous waste.
- Course or Bearing: A statement of direction for a straight line based upon a degree variation from the bearing source used.
- Crest:
- The top of a dam, dike, spillway or weir, frequently restricted to the overflow portion.
 - The summit of a wave or peak of a flood.
- Criteria: A standard or rule on which a judgment or decision is based.
- Critical Area or Site: Sediment producing, highly erodible or severely eroded areas.
- Critical Depth (Hydraulics): That slope which will sustain a given discharge at uniform critical depth in a given channel.
- Critical Environmental Features: Features which have been determined to be of critical importance to the protection of one (1) or more environmental resources. They include such features as bluffs, springs, canyon rimrocks, caves, sinkholes and wetlands.
- Critical Flow: The state of flow for a given discharge at which the specific energy is a minimum with respect to the bottom of the conduit.
- Critical Root Zone: The area of undisturbed natural soil around a tree defined by a concentric circle with a diameter in feet equal to twice the number of inches of trunk diameter.
- Critical Slope: The minimum slope of a conduit which will produce critical flow.
- Critical Water Quality Zone: Zones along creeks and tributaries as may be defined by some city codes.
- Crown (of Slope): Top of slope, apex.
- Crown: Branch structure of a tree.
- Crown:
- The highest point on a transverse section of a conduit.
 - The highest point of a roadway cross section.
- Crushed Stone: Aggregate consisting of angular particles produced by mechanically crushing rock.

- Cul-de-sac: A turnaround to the reverse direction point of a street or network of streets.
- Culm: The stem of grasses, sedges and rushes, which is jointed and usually hollow in grasses and usually solid in sedges and rushes.
- Cultipacker Seeder: In addition to being a cultipacker, this is a farm tool equipped with a seed box which drops the seed between cultipacker rollers to place the seed on firm soil where they will be pressed into the soil by the second corrugated roller.
- Cultipacker: A corrugated roller used to crush sods and eliminate coarse pores in soil by firming the seed bed.
- Culvert: Pipe or other conduit through which flow passes under a road or street.
- Curb Basis: The distance between the right of way or property line and lip of gutter as indicated in design criteria.
- Curb Standard: A vertical or sloping structure located along the edge of a roadway, normally constructed integrally with the gutter, which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators
- Curb, Concrete Ribbon (Laydown): A concrete curb flush and contiguous with the pavement which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators.
- Curb: A vertical or sloping structure located along the edge of a roadway normally constructed integrally with the gutter, which strengthens and protects the pavement edge and clearly defines the pavement edge to vehicle operators.
- Curve: The path of a line in a consistent arc of a circle. Curves are described by a reference to the following geometric terms:
- An Arc: A segment of a circumference of a circle. On a plat of survey, the arc length is commonly denoted as "L".
 - Central Angle or Delta Angle: The angle formed by the intersection of the two radii lines extending to the center of the circle from the points of curve.
 - Chord: A straight line between the beginning and ending points of a curve, expressed in a course and distance.
 - Critical Elements of a Curve: The arc length, central angle, chord length, radius and tangent. A curve is best described by the radius and central angle, but it may be described accurately by stating any two of the elements listed above, because given those two elements, the others may be computed. For non-tangent curves (curves in which the straight sides leading into the curve are not tangents of the imaginary circle which would be formed by an extension of the curve), the chord length, in addition to any two other elements, is necessary to identify the curve.
 - Point of Curve: The point where a particular curve starts.
 - Point of a Compound Curve: The point at which a curve with one radius stops and another curve in the same direction but with a different radius begins.
 - Point of a Reverse Curve: The point at which a curve going one direction

stops and a new curve going in the opposite direction begins.

- h. Point of Tangency: The point where a curve stops and a straight line begins.
- i. Radius: Half of the diameter of a circle.
- j. Tangent: A straight line drawn outside of a circle touching the circumference at only one point and being perpendicular to a radius line drawn to that point.

<u>Customer</u> :	The owner or operator of the property for which services are requested or an authorized representative (builder, engineer, contractor, plumber, etc.).
<u>Cut</u> :	Portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to excavated surface.
<u>Cut-and-Fill</u> :	Process of earth moving by excavating part of an area and using the excavated material for adjacent embankments or fill areas.
<u>Cutoff</u> :	A wall or other structure, such as a trench, filled with relatively impervious material intended to reduce seepage of water through porous strata.
<u>Cyclone (Seeder)</u> :	A hand-turned or tractor-drawn seeder that broadcasts seed onto the seed bed by a rotary motion that slings the seed outward from the seeder.
<u>Dam</u> :	A barrier to confine or raise water for storage or diversion, to create a hydraulic head, to prevent gully erosion or for retention of soil, sediment or other debris.
<u>Date of Survey</u> :	The date on which the field work of the survey was completed.
<u>Debris</u> :	Broken remains of plants, objects and rocks that form trash or remains.
<u>Decentralized Wastewater System</u> :	A wastewater system that includes an on-site wastewater disposal system, a cluster wastewater system, or a small wastewater plant.
<u>Deciduous</u> :	Plants that shed their leaves annually, as opposed to evergreen.
<u>Decomposition</u> :	Breakdown of material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into elements or simpler compounds.
<u>Decontamination</u> :	The process of removing contaminants from individuals and equipment.
<u>Deep Irrigation</u> :	The process of slowly applying small amounts of water on or beneath the root system of plants.
<u>Deep Well Injection</u> :	Disposal of wastes by injecting them into a geological formation deep in the ground, sometimes after pretreatment to avoid solidification.
<u>Deposition</u> :	The accumulation of material dropped because of a slackening movement of the transporting agent, water or wind.
<u>Desiccation</u> :	Drying out as of root systems of plants before they are planted.

<u>Design Storm or Flood:</u>	The storm or flood which is used as the basis for design, i.e., against which the structure is designed to provide a stated degree of protection or other specified result.
<u>Desilting Area:</u>	An area of grass, shrubs or other vegetation used for inducing deposition of silt and other debris from flowing water, located above a pond, field or other area needing protection from sediment accumulation (see filter strip).
<u>Desirable:</u>	A condition which should be met when attainable. Desirable values will normally be used where the social, economic or environmental (S.E.E.) impacts are not critical.
<u>Detention Dam:</u>	A dam constructed for the purpose of temporary storage of stream flow or surface runoff which releases the stored water at controlled rates.
<u>Detention:</u>	<p>The storage of storm runoff for a controlled release during or immediately following the design storm.</p> <ol style="list-style-type: none"><u>Off-site detention</u> – A detention pond located outside the boundary of the area it serves.<u>On-site detention</u> – A detention pond which is located within the specific site or subdivision it serves.<u>On-stream detention</u> – The temporary storage of storm runoff behind embankments or dams located in a channel. <p><u>Regional detention</u> – Detention facilities provided to control excess runoff based on a watershed-wide hydrologic analysis.</p>
<u>Diameter:</u>	The diameter of an existing tree at 4-1/2 feet above natural grade (diameter breast height - dbh) as determined by measuring the trunk circumference and dividing by pi (3.14).
<u>Dike (Engineering):</u>	An embankment to confine or control water; for example, one built along the banks of a river to prevent overflow of lowlands; a levee.
<u>Disturbed Area:</u>	An area in which the natural vegetation or soil cover has been removed or altered, which is therefore susceptible to erosion.
<u>Diversion:</u>	A channel with a supporting ridge on the lower side constructed across the slope to divert water from areas where it is in excess, to sites where it can be used or disposed of safely. Diversions differ from terraces in that they are individually designed.
<u>Double-Walled:</u>	Constructed with more than one (1) containment layer with space between the layers sufficient to all monitoring of any leakage into or from the enclosed space. Laminated, coated or clad materials shall not be considered as double-walled construction.
<u>Drain (Noun):</u>	<ol style="list-style-type: none">A buried pipe or other conduit (subsurface drain).A ditch or channel (open drain) for carrying off surplus surface water or

ground water.

- Drain (Verb):
- a. To provide channels, such as open ditches or closed drains, so that excess water can be removed by surface flow or internal flow.
 - b. To lose water (from the soil) by percolation.
- Drainage Area (Watershed): All land and water from which runoff may run to a common (design) point.
- Drainage Area: The area contributing storm runoff to a stream or drainage system at a particular point.
- Drainage:
- a. The removal of excess surface water or ground water form land by means of surface or subsurface drains.
 - b. Soil characteristics that affect natural drainage.
- Dripline: A vertical line extending downward from the outermost extremities of a tree's branches.
- Driveway Approach: A facility between the roadway and private property designed for and intended to provide vehicular access from the roadway to private property.
- Drop Inlet Spillway: An overfall structure in which the water drops through a vertical riser connected to a discharge conduit.
- Drop Spillway: An overfall structure in which the water drops over a vertical wall onto an apron at a lower elevation.
- Drop Structures: The function of a drop structure is to reduce channel velocities by allowing for flatter upstream and downstream channel slopes. The drop may be vertical or inclined.
- Droughty (Soil or Slope): Lacking medium to high moisture during part of the poor growing season during a typical year.
- Effluent: Waste material either treated or untreated, discharged into the environment.
- Emergency Spillway: A dam spillway designed and constructed to discharge flow in excess of the principal spillway design discharge.
- Encroachment: Any structure or device positioned within, over or upon right of way, that is not the property of the City of Austin.
- Energy Dissipater: A designed device, such as an apron of riprap or a concrete structure, placed at the end of a water-transmitting apparatus, such as a pipe, paved ditch or paved chute, for the purpose of reducing the velocity, energy and turbulence of the discharged water.

Energy Gradient A line representing the energy in flowing water. The elevation of the energy

- Line: line is equal to the summation of elevation of the flow line plus the depth plus the velocity head plus the pressure head.
- Engineer: A professional engineer registered to practice engineering in Texas is referred to as “engineer”.
- Entrance Head: The height of water required to cause flow into a conduit or other structure, including both entrance loss and velocity head.
- Entrance Loss: Head lost in eddies or friction at the inlet to a conduit, headwall or structure.
- Environmental Assessment: The measurement or prediction of the transport, dispersion, and final location of a hazardous substance when released into the environment.
- Environmental Emergencies: Incidents involving the release (or potential release) of hazardous materials into the environment which require immediate remedial action.
- Environmental Hazard: A condition capable of posing risk of exposure to air, water, soil, plants or wildlife.
- EOP: Edge of Pavement: used for determining roadway width where standard curb and gutter does not exist.
- EPA ID Number: This unique number assigned by EPA to each generator, transporter, or TSD.
- Erosion:
- a. The wearing away of land surface by running water, wind, ice or other geological agents, including such processes as gravitational creep.
 - b. Detachment and movement of soil or rock fragments by water, wind, ice or gravity. The following terms are used to describe different types of water erosion.

Accelerated erosion: Erosion much more rapid than normal, natural or geological erosion, primarily as a result of the influence of the activities of man or in some cases of other animals or natural catastrophes that expose base surfaces; for example, fires.

Gully erosion: The erosion process whereby water accumulates in narrow channels and over short periods removes the soil from this narrow area to considerable depths, ranging from one (1) or two (2) feet to as much as 75 to 100 feet (see gully).

Rill erosion: An erosion process in which numerous small channels only several inches deep are formed (see rill).

Sheet erosion: The removal of a fairly uniform layer of soil from the land surface by runoff water.

Splash erosion: the spattering of small soil particles caused by the impact of raindrops on wet soils. The loosened and spattered particles may or may not be subsequently removed by surfaces runoff.
- Errors:
- a. Accidental Error: An error for which it is equally probable that the sign of the error is a plus or minus value, or an error for which there is no proportional change or relationship between measurements, conditions, and

the sign or magnitude of the error, or an error, evident in a series of measurements, which is compensated in total effect. An example would be a simple mis-measurement of a distance.

- b. Systematic Error: An error where known changes in measurement conditions result in proportional changes of values which remain unchanged, both in magnitude and sign; an error, evident in a series of measurements, which is cumulative in total effect. An example would be the use of a measuring device which is incorrectly calibrated, so that all of its measurements appear longer than the actual measurement.
- c. Error of Closure: A discrepancy of the field measurements, which without adjustment, would not produce a geometric shape.

Esthetic
(Aesthetic):
Evergreen:

Pleasing to look at.

Plants which have leaves or needles year long, as opposed to those that lose their leaves during part of the year.

Excelsior Blanket:

An erosion retardant material made from excelsior strands held together with net-like strands of plastic or other material.

Exception Report:

A report that generators who transport waste off-site must submit if they do not receive a properly completed copy of their manifest within 45 days of the date on which the initial transporter accepted the waste.

Existing Tree:

A tree which exists on a site or easement prior to any development or disturbance.

Existing
Underground
Storage Tank
Installation:

Any underground storage tank system in existence as of or being constructed on the effective date of the City Code or any underground storage tank installation for which a building permit was applied for prior to that date.

Exposure (Slope):

- a. North - Slopes facing in any compass direction clockwise between N45W and S45E.
- b. South - Those slopes which face in any compass direction clockwise between S45E and N45W.

Facility:

A building or buildings, appurtenant structures and surrounding land area used by a person at a single location or site.

Faults and
Fractures:

Significant fissures or cracks in rock which may permit infiltration of surface water to underground cavities and channels.

Field Notes:

The notes made by a surveyor which describe the surveyor's findings regarding the surveyed parcel from measurements taken on and an examination of the land. Field notes describe courses and distances, monuments found or placed, and historical evidence, which collectively constitute a description of the surveyor's examination and professional conclusions.

Filter Strip:

A strip of permanent vegetation above ponds, diversions and other structures to retard flow of runoff water, causing deposition of transported material, thereby reducing sediment flow.

<u>Fines (Soil):</u>	Generally refers to the silt and clay size particles in soil.
<u>Fiscal Requirements:</u>	The total fees and charges required by the City to compensate for all work and services provided to the customer including any charges for water and wastewater improvements included in subdivision or other land use requirements.
<u>Flat Terrain:</u>	Topography conducive to generally long sight distance potential with little or no construction difficulty or major expense.
<u>Flood Control:</u>	The elimination or reduction of flood losses by the construction of flood storage reservoirs, channel improvements, dikes and levees, by-pass channels, or other engineering works.
<u>Floodplain:</u>	The land area adjacent to a waterway necessary to contain a 100 year flood under fully developed conditions in accordance with the Drainage Criteria Manual, as well as all land contained within a Critical Water Quality Zone.
<u>FOC:</u>	Face of Curb
<u>Forbs:</u>	Vascular plants other than trees, shrubs, woody vines or grasses.
<u>Freeboard (Hydraulics):</u>	The vertical distance between the maximum water surface elevation anticipated in design and the top of retaining banks or structures. Freeboard is provided to prevent overtopping due to unforeseen conditions.
<u>Freeboard:</u>	The distance between the calculated water surface elevation and the maximum physical elevation of the channel or pond, which is provided as an additional factor of safety.
<u>Frequency (of storms, floods):</u>	Average recurrence interval of events, over long periods of time. Mathematically, frequency is the reciprocal of the exceedance probability.
<u>Friction Slope:</u>	The friction head or loss per unit length of channel or conduit. For uniform flow the friction slope coincides with the energy gradient, but where a distinction is made between energy losses due to bends, expansions, impacts, etc., a distinction must also be made between the friction slope and the energy gradient. The friction slope is equal to the bed or surface slope only for uniform flow in uniform open channels.
<u>Front Wall (Building):</u>	A building wall facing and parallel to a street or a building wall facing a street at an angle less than 45 degrees.
<u>Gabion Mattress:</u>	A thin gabion, usually six (6) or nine (9) inches thick, used to line channels for erosion control.
<u>Gabion:</u>	A flexible, woven wire basket composed of two (2) to six (6) rectangular cells filled with small stones. Gabions may be assembled into many types of structures, such as revetments, retaining walls, channel liners, drop structures

and groins.

Generator: The person or facility who, by nature or ownership, management or control, is responsible for causing or allowing to be caused, the creation of hazardous waste.

Glovebag: A device used to remove a section of pipe insulation without isolating the entire space or room.

Grade Stabilization Structure: A structure for the purpose of stabilizing the grade of a gully or other watercourse, thereby preventing further head cutting or lowering of the channel grade.

Grade:

- a. The slope of a road, channel or natural ground.
- b. The finished surface of a canal bed, roadbed, top of embankment or bottom of excavation; any surface prepared for the support of construction, like paving or laying a conduit.
- c. To finish the surface of a canal bed, road bed, top of embankment or bottom of excavation.

Grade: The inclination or slope of a channel, conduit, or natural ground surface, usually expressed in terms of the ratio of vertical rise to horizontal distance.

Grade: The change in elevation between two (2) points along the vertical alignment of a roadway. Usually expressed as the change per 100 feet of percent.

Gravel Envelope: Selected aggregate placed around the screened or perforated pipe section of well casing or a subsurface drain to facilitate the entry of water into the well or drain.

Gravel Filter: Washed and graded sand and gravel aggregate, placed around a drain or well screen to prevent the movement of fine materials from the surrounding material into the drain or well.

Gravel:

- a. Aggregate consisting of mixed sizes of 1/4 inch to three (3) inch particles, which normally occur in or near old stream beds and have been worn smooth by the action of the water.
- b. A soil having particle sizes, according to the Unified Soil Classification System, ranging from the Number 4 sieve size (approximately 1/4 inch) to three (3) inches. Particles may be natural gravel or angular in shape, as produced by mechanical crushing.

Ground Cover: Plants which are low-growing and provide a thick growth which protects the soil, as well as providing some beautification of the area occupied.

Groundwater Hydrology: The study of the movement of water below the earth's surface.

Gully: A channel or miniature valley cut by concentrated runoff through which water commonly flows only during and immediately after heavy rains. The distinction between gully and rill is one of depth. A gully is sufficiently deep enough not to be obliterated by normal tillage operations, whereas a rill is of less depth and would be smoothed by ordinary farm tillage.

Gutter: A generally shallow waterway adjacent to a curb used or suitable for drainage of

water.

- Hazard Classes: A series of nine descriptive terms that have been established by the UN Committee of Experts to categorize the hazardous nature of chemical, physical, and biological materials. These categories are: flammable liquids, explosives, gases, oxidizers, radioactive materials, corrosives, flammable solids, poisonous and infectious substances, and dangerous substances.
- Hazard: A circumstance or condition that can cause harm. Hazards are often categorized into four groups: biological, chemical, physical, and radiation
- Hazardous Waste: Any material that is subject to the hazardous waste manifest requirements of the EPA specified in the CFR, Title 40, Part 262 or would be subject to these requirements in the absence of an interim authorization to a State under CFR, Title 40, Part 123, Subpart F.
- Head (Hydraulics):
- The height of water above any plane or reference.
 - The energy, either kinetic or potential, possessed by each weight of a liquid expressed as the vertical height through which a unit weight would have to fall to release the average energy possessed. Used in various compound terms such as pressure head, velocity head and head loss.
- Headwall: The normal functions of properly designated headwalls and endwalls are to anchor the culvert in order to prevent movement due to hydraulic and soil pressures, to control erosion and scour resulting from excessive velocities and turbulence and to prevent adjacent soil from sloughing into the waterway opening.
- Headwater: (1) The upper reaches of a stream near its sources; (2) the region where ground waters emerge to form a surface stream; (3) the headwater depth on the upstream side of a structure. (See Entrance Head).
- Heavy Metals: Certain metallic elements having a high density and generally toxic, e.g., lead, silver, mercury, and arsenic.
- Herbaceous Perennial (Plants): A plant whose stems die back to the ground each year.
- Herbicide: chemical formulations used to control weeds or brush.
- Hilly Terrain: A condition where the natural slopes consistently rise above and fall below the road or street grade and where occasional steep slopes offer some restriction to normal horizontal and vertical alignment.
- Hulled (Seed): Seed without hulls such as Sericea lespedeza. Seed are usually processed after threshing to take off outer hull to facilitate scarification and quicken germination.
- Hydraulic Grade Line: In a closed conduit, a line joining the elevations to which water could stand in risers or vertical pipes connected to the conduit at their lower end and open at their upper end. In open channel flow, the hydraulic grade line is the free water

surface.

Hydraulic Gradient: A hydraulic profile of the piezometric level of the water, representing the sum of the depth of flow and the pressure head. In open channel flow it is the water surface.

Hydraulic Jump: The hydraulic jump is an abrupt rise in the water surface which occurs in an open channel when water flowing at supercritical velocity transitions to subcritical velocity. The transition through the jump results in a marked loss of energy, evidenced by turbulence of the flow within the area of the jump. The hydraulic jump is sometimes used as a means of energy dissipation.

Hydraulic Radius: The cross-sectional area of a channel divided by its wetted perimeter. The "r" in Manning's Formula.

Hydraulics: A branch of science that deals with practical applications of the mechanics of water movement.

Hydrograph: A graph or table showing discharge versus time at a given point on a stream or conduit.

- Synthetic Hydrograph: Runoff or unit hydrographs which are devised by empirical means (as opposed to derivation based upon natural, measured data).
- Unit Hydrograph: The direct runoff hydrograph resulting from one inch of precipitation excess distributed uniformly over a watershed for a specified duration.

Hydrology: The science that deals with the processes governing the depletion and replenishment of the water resources of the earth.

Hydroseeder: A machine designed to apply seed, fertilizer, lime and short fiber wood or paper mulch to the soil surface.

Hydroseeding: Seeding with a hydroseeder.

Hyetograph: A histogram or graph of rainfall intensity versus time for a storm.

Immediate Removal: Actions undertaken to prevent or mitigate immediate and significant risk of harm to human life or health or the environment. As set forth in the National Contingency Plan, these actions shall be terminated after \$1 million has been obligated or six months have elapsed from the date of initial response.

Impervious: a term applied to a material through which water cannot pass, or through which water passes with great difficulty.

In-Channel Detention: Detention accomplished by channel storage or onstream storage, as opposed to offstream or upland detention (see the Drainage Criteria Manual).

Incident: The release or potential release of a hazardous substance into the environment.

Inert: Exhibiting no chemical activity.

<u>Infiltration:</u>	The absorption of water by the soil, either as it falls as precipitation, or from a stream flowing over the surface.
<u>Inlet:</u>	<ol style="list-style-type: none">A surface connection to a closed drain.A structure at the entrance end of a conduit.The upstream end of any structure through which water may flow.
<u>Innocent Land Owner's Defense:</u>	The defense of a purchaser of real property that he or she exercised due diligence in having hazards assessed prior to purchase.
<u>Installed Tree:</u>	A tree which is planted on a site after development occurs.
<u>Intensity:</u>	See Rainfall Intensity.
<u>Interceptor Drain:</u>	A surface or subsurface drain or a combination of designed and installed to intercept flowing water.
<u>Interim Status:</u>	Allows owners and operators of TSDs that were in existence, or for which construction had commenced, prior to November 19, 1980 to continue to operate without a permit after this date pending final issuance from RCRA.
<u>Intersection:</u>	The common area embraced between the projected lines of the edge of two (2) or more roadways which join at any angle whether or not one (1) such street crosses the other.
<u>Invert:</u>	The floor, bottom, or lowest portion of the internal cross section of a conduit. Used particularly with reference to sewers, tunnels, and drains.
<u>Irrigation:</u>	Providing water to plants in an amount and frequency adequate to sustain growth of the plants on a permanent basis.
<u>Isobutylidene Urea:</u>	A slowly soluble synthetic organic compound containing 31 percent nitrogen.
<u>Isolated Building:</u>	A detached building in front of and physically separate from the main building or buildings on a site and smaller in square footage than the anchor building.
<u>Joint and Several Liability:</u>	Under federal law each party that contributed to damages may be held liable for all damages, but each has the right to compel the others to contribute and indemnity.
<u>Jute:</u>	A coarsely woven material of jute yarn which can be used to control soil erosion in waterways and on steep slopes.
<u>Karst Feature:</u>	For the purpose of these guidelines a karst feature is defined as a cave, fault, fracture, joint, sinkhole or other associated features formed in limestone, dolomite or associated geologic strata..
<u>Lag Time:</u>	In hydrograph analysis lag time is the time from the centroid of the mass of excess rainfall to the peak of the runoff hydrograph.

- Landscape Area: Any area within the boundaries of a given lot which is devoted to and consists of living plant material and other landscape material, including but not limited to grass, trees, shrubs, flowers, vines, groundcover, native plant materials, existing native vegetation areas, planters, brick, stone, natural forms, water forms, and other landscape features, but not including the use of smooth concrete, asphalt or aggregate. Provided, however that the use of nonliving landscape materials shall not predominate over the use of organic living plant material within any single landscape area.
- Landscape Island: A landscape area completely surrounded by a parking area and/or a vehicular use area.
- Landscape Median: A linear landscape area between two (2) rows of parking, between two (2) drives or between a row of parking and a drive.
- Landscape Peninsula: A landscape area surrounded on two (2) or three (3) sides by a parking area and/or a vehicular use area.
- Large Shrub: A woody plant of smaller proportions than a tree which usually produces several branches from the base and will reach a mature height of over four (4) feet.
- Layering: A shoot or twig attached to the living stock for the purpose of propagation.
- Legal Description: The information necessary to distinguish and locate a particular parcel of real estate from all other property.
- Liability: Being subject to legal action for one's behavior.
- Licensed State Land Surveyor (LSLS): A surveyor Licensed by the Texas Board of Professional Land Surveying to survey land in which the State or the Public Free School Fund have an interest, or other original surveys, for the purpose of filing field notes in the General Land Office. When acting in this official capacity, a licensed state land surveyor is an agent of the State of Texas.
- Lime: Basic calcareous materials used to raise pH of acid soils for benefit of plants being grown. May be either ground limestone or hydrated lime.
- Limits of Construction: The outer limits of the area which will be disturbed by a proposed development activity including the area of all proposed cuts, fills, regrading, structures, ancillary facilities, temporary utilities, temporary or permanent spoil storage area, access roads, storage areas, staging areas and any other activities or facilities which may cause temporary or permanent loss or damage of vegetation or disruption of the soil surface.
- Lineament: A linear figure that is perceived from an aerial photograph of a site, is continuous with definable end points and lateral boundaries, has a relatively high length/width ratio and hence a discernible azimuth and is shown or presumed to be correlated with natural structural geological features.

<u>Linear Development</u> :	Development which is typically not confined to one site and is linear in nature such as a utility or waterway alteration project.
<u>LOG</u> :	Lip of gutter; used for determining roadway width.
<u>Manifest</u> :	Form which indicates generator, quantity, and type of waste for each shipment of hazardous wastes disposed in off-site facilities.
<u>Manning Coefficient</u> :	The coefficient of roughness used in the Manning Equation.
<u>Manning's Formula (Hydraulics)</u> :	<p>A formula used to predict the velocity of water flow in an open channel or a pipeline:</p> $V = \frac{1.486 R^{2/3} S^{1/2}}{n}$ <p>Wherein V is the mean velocity of flow in feet per second; R is the hydraulic radius; S is the slope of the energy gradient or for assumed uniform flow the slope of the channel, in feet per foot; and n is the roughness coefficient or retardance factor of the channel lining.</p>
<u>May</u> :	A permissive condition. No requirement for design or application is intended.
<u>Medium Shrub</u> :	A woody plant of smaller proportions than a tree which usually produces several branches from the base and will have a maximum mature height of between four (4) and six (6) feet.
<u>Metes and Bounds</u> :	The description of boundary Lines of land with their terminal points and angles, consisting of courses, distances, references to natural or artificial objects as monuments, and joinder with adjacent lands. These are descriptive materials by which the outer perimeter of a particular tract of land is identified.
<u>Mixed Use</u>	A single development containing two or more significant land uses which are functionally and physically integrated and are developed under a coherent plant.
<u>Monuments</u> :	<p>Any physical object which assists in identifying a particular point on the face of the earth.</p> <ol style="list-style-type: none"> a. <u>Artificial Monument</u>: An artificial object placed at the end of or along a boundary line to mark the location of the boundary. b. <u>Natural Monument</u>: A river, creekbed, mountain, tree, or other natural object used to delineate a boundary or reference a particular point. c. <u>Record Monument</u>: A monument described in any documentary material filed in the public records of a city, county or state office that pertains to the location of real property.
<u>MSDS Material Safety Data Sheet</u> :	Required by OSHA of owners to alert employees to hazards, their effect, and protective action.

<u>Mulch Anchoring Tool:</u>	A tool that looks like a dull disk designed to press straw and similar mulches into the soil to prevent loss due to wind, water or gravity.
<u>Mulch:</u>	Covering on surface of soil to protect and enhance certain characteristics, such as water retention qualities.
<u>Must:</u>	This is a mandatory condition. Where certain requirements in the design or application of the guidelines are described with the “must” stipulation, it is mandatory that the requirements be met.
<u>National Contingency Plan:</u>	Policies and procedures that the Federal Government follows in implementing responses to incidents involving hazardous substances.
<u>The National Geodetic Survey: (Formerly the United States Coast and Geodetic Survey):</u>	The national agency which performs surveys to determine the longitudes and latitudes of points on the earth's surface within the United States.
<u>Native Plants:</u>	Plants native to the Austin area or adjacent areas of the Edwards Plateau, which are compatible with environmental conditions of a site or portions of a site. The standard reference for this criterion shall be the <u>Manual of Vascular Plants of Texas</u> by Correll and Johnston, published by the University of Texas at Dallas (1970).
<u>Natural Area:</u>	Area of a site existing in a natural state.
<u>Natural Forms:</u>	Features in a natural landscape other than plants, such as ponds, streams, rock outcroppings, cliffs, etc.
<u>Natural Ground Cover:</u>	Any organic material either existing prior to construction or installed after construction.
<u>Natural Ground:</u>	Ground surface which as not been disturbed by man.
<u>Natural State:</u>	Substantially the same conditions of the land which existed prior to any development, including, but not limited to, the same type, quality, quantity and distribution of soils, ground cover, vegetation and topographic features.
<u>Netting (Mulch):</u>	Plastic, paper or cotton material used to hold mulch material on the soil surface.
<u>New Underground Storage Tank Installation:</u>	Any underground storage tank installation for which a building permit was applied for after the effective date of this article or any existing underground storage tank installation which is substantially modified or added to after that date.
<u>Nitrogen Fixing</u>	Bacteria having the ability to fix atmospheric nitrogen, making it available for

<u>(Bacteria):</u>	use by plants. Inoculation of legume seeds is one way to insure a source of these bacteria for specified legumes.
<u>Normal Depth:</u>	Depth of flow in an open conduit during uniform flow for the given conditions (see uniform flow).
<u>Noxious Weeds:</u>	Harmful; undesirable; hard to control.
<u>100-Year Flood:</u>	Size of flood which might be expected to be equaled or exceeded once in 100 years on the average, or has a 1% chance of occurring in any given year. Usually associated with the 100-year storm.
<u>100-Year Storm:</u>	Size of storm equaled or exceeded on the average once in 100 years (with given duration), or that storm having a 1% chance of occurring in any given year.
<u>Optional:</u>	Not a requirement. Purely the applicants choice.
<u>Orifice:</u>	An opening with closed perimeter, and of regular form in a plate, wall, or partition through which water may flow.
<u>Outfall:</u>	The point where water flows from a conduit, stream or drain.
<u>Outlet Channel:</u>	A waterway constructed or altered primarily to carry water from manmade structures, such as terraces, subsurface drains, diversions and impoundments.
<u>Outlet:</u>	The point at which water discharges from such things as a stream, river, lake, tidal basin, pipe, channel or drainage area.
<u>Ovate:</u>	Egg-shaped in outline.
<u>Overbank:</u>	The area outside the immediate natural stream channel or outside the pilot channel of a new channel which contains the 100 year floodplain.
<u>Overfall:</u>	Abrupt change in stream channel elevation; the part of a dam or weird notch over which the water flows.
<u>Overland Flow:</u>	Runoff which is not considered concentrated. Other term is sheet flow.
<u>Oversize:</u>	With reference to a water or wastewater line or an associated facility, means an increase in the size or capacity of the line or associated facility above the minimum size or capacity, including fire flow requirements, that is necessary to provide utility service.
<u>Ovoid:</u>	A three (3) dimensional solid, ovate in outline.
<u>P Wastes:</u>	A federal waste list comprised of substances categorized as acutely hazardous.
<u>Pads:</u>	Individual pieces of sod cut to supplier's standard width and length.
<u>Paper Fiber:</u>	A short fiber mulch material usually applied by hydroseeder along with fertilizer and seed.

<u>Parent Material:</u>	The unconsolidated rock material from which the soil profile develops.
<u>Parking Bay:</u>	A parking area serviced by one (1) drive and including back-up space. This may include a single bay with one (1) row of parking or a double bay with two (2) rows of parking sharing a common drive.
<u>Parking Structure:</u>	Any parking area which is totally or partially enclosed overhead or in which the parking surface is not at finish grade.
<u>Parkway:</u>	A subcategory of freeway; a parkway is a roadway which has fully controlled access, no at-grade crossings and no continuous frontage roads; requires the acquisition or donation of access rights; has generous greenspace buffer between the roadway and adjacent development and which preserves and enhances the natural landscape as much as possible.
<u>Patent:</u>	A quit claim out of the sovereign; may not be the most senior survey.
<u>Peak Flow:</u>	(Peak Rate of Runoff) – the maximum rate of flow past a particular point for a given storm.
<u>Pedestrian Way:</u>	A travelway designed primarily for pedestrian travel.
<u>Permanent Seeding:</u>	Results in establishing perennial vegetation which may remain on the area for many years.
<u>Permanent Storage or Permanently Storing:</u>	Shall mean storage for a period of over thirty (30) days.
<u>Permeable Paving:</u>	A paving surface which permits adequate gas exchange and water penetration to sustain a tree root system beneath it.
<u>Permissible Velocity (Hydraulics):</u>	The highest average velocity at which water may be carried safely in a channel or either conduit. The highest velocity that can exist through a substantial length of a conduit and not cause scour of the channel. Safe, noneroding or allowable velocity.
<u>Permit:</u>	Any Hazardous Material Underground Storage Tank Registration Permit issued pursuant to the City Code.
<u>Permittee:</u>	Any person to which a permit is issued pursuant to the City Code and any authorized representative, agent or designee of such person.
<u>Person:</u>	Any individual, firm, trust, partnership, corporation, joint venture, association or other legal entity; any group of the foregoing, organized or united for a business purpose; or any governmental entity.
<u>pH:</u>	A number denoting the common logarithm of the reciprocal of the hydrogen ion concentration. A pH of seven (7.0) denotes neutrality, higher values indicate alkalinity and lower values indicate acidity.

<u>Phreatic Line:</u>	The upper surface of the zone of saturation in an embankment is the phreatic (zero pressure) surface; in cross section, this is called the phreatic line.
<u>Pipes or Piping:</u>	Any pipeline system which is used for the transfer of hazardous materials in connection with an underground storage tank within the confines of a facility.
<u>Piping</u>	Removal of soil material through subsurface flow channels or “pipes” developed by seepage water.
<u>Planned Removal:</u>	The removal of released hazardous substances from the environment within a non-immediate, long term time period. Under CERCLA: Actions intended to minimize increases in exposure such that time and cost commitments are limited to six months and/or \$1 million.
<u>Plant Materials :</u>	Living plants which are part of an installed landscape.
<u>Plastic Limit:</u>	See Atterberg limits.
<u>Plasticity Index:</u>	See Atterberg limits.
<u>Plat or Map or Plot of Survey:</u>	A scaled drawing of the findings and conclusions of a surveyor in conducting a particular survey.
<u>Plugs:</u>	Pieces of turf or sod, usually cut with a round tube, which can be used to propagate the turf or sod by vegetative means.
<u>Point of Beginning:</u>	The initial corner described by the surveyor of the particular tract surveyed. The point of beginning has no greater authority than of any other corner of the survey.
<u>Point Recharge Feature:</u>	Any cave, sinkhole, fault, joint or other specific natural feature situated over the Edwards Aquifer Recharge Zone which may be demonstrated to transmit, or has the potential to transmit, a significant amount of surface water into the subsurface strata.
<u>Poison , Class B:</u>	A DOT term for liquid, solid, paste, or semisolid substances, other than Class A poisons, which are known to be toxic to man as to afford a hazard to health during transportation.
<u>Poison, Class A:</u>	A DOT term for extremely dangerous poisons, that is, poisonous gases or liquids of such nature that a very small amount of the gas , or vapor of the liquid, mixed with air is dangerous to life. Some examples: phosgene, cyanogen, and hydrocyanic acid.
<u>Policy:</u>	A definite course or method of action selected to guide and determine present and future decisions.
<u>Pollutant:</u>	A substance or mixture which after release into the environment and upon exposure to any organisms will or may reasonably be anticipated to cause

adverse effects in such organisms and their offspring.

- Positional Tolerance: A measure of the accuracy of a monumented boundary corner with respect to its described location. In the State Regulations: "the relative location of any two monuments."
- Precipitation: Any moisture that falls from the atmosphere, including snow, sleet, rain and hail.
- Precision Test: Any test performed on an underground storage tank system which is capable of measuring a quantitative leak rate and which controls, eliminates, measures or otherwise takes into account changes in the coefficient of expansion of the liquid due to temperature changes, containment system deformations due to pressure changes, evaporative losses and other relevant variables during the course of the test, as discussed in NFPA 329, "Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids," as amended and published by the National Fire Protection Association.
- Press Wheel: A wheel which usually follows a seeding and presses seed into or onto the surface of the seed bed.
- Primary Containment: The first level of containment or the inside portion of an underground storage tank system, which comes into immediate contact on its inner surface with hazardous material being contained including the piping.
- Principal Roadway Area: Areas designated in the Principal Roadway Area Ordinance generally reflective of major arterials.
- Priority Pollutants: A list of chemicals selected from the list of toxic pollutants by the EPA as priority toxic pollutants for regulation under the Clean Water Act.
- Prismatic Channel: A channel built with unvarying cross section and constant bottom slope.
- Private Street: A vehicular access way under private ownership and maintenance.
- Probable Maximum Flood (PMF): The flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region.
- Probable Maximum Precipitation: The critical depth-duration-area rainfall relationship which would result from a storm containing the most critical meteorological conditions considered probably of occurring.
- Procumbent: Lying down prone; trailing as a vine, usually not rooting at the nodes.
- Product Tight: Impervious to the hazardous material which is contained so as to prevent the release of the hazardous material from the primary containment. To be product tight, the tank shall be made of a material that is highly resistant to physical or chemical deterioration by the environment and the hazardous material being

contained or shall be equipped with an inner liner which protects the construction material of the tank from the environment and the contained material.

Professional Land Surveying:

The activity, for compensation, of determining the boundaries or the topography of real property, or delineating the routes, spaces, or sites on real property for public or private use, using relevant elements of law, title research, measurement, analysis, computation, mapping, and land description writing.

Protected Riparian Areas:

Those ecological features within a floodplain associated with a waterway segment, which contribute to the natural and traditional character of the waterway, as follows:

1. Floodplain woodlands. Any wooded area in a floodplain with all of the following characteristics:

- a. Has a minimum extent of canopy cover of 1/2 acre;
- b. Voids in the canopy cover comprise less than 30 percent of the total woodlands area;
- c. At least 50 percent of all trees which have diameters of eight (8) inches or greater measured at 4-1/2 feet above the ground are comprised of the following species:

pecan	<u>Carya illinoensis</u>
American elm	<u>Ulmus americana</u>
Arizona walnut	<u>Juglans major</u>
bald cypress	<u>Taxodium distichum</u>
black walnut	<u>Juglans nigra</u>
bur oak	<u>Quercus macrocarpa</u>
cedar elm	<u>Ulmus crassifolia</u>
little walnut	<u>Juglans microcarpa</u>
green ash	<u>Fraxinus pennsylvanica</u>
Texas Sugarberry	<u>Celtis laevigata</u>
American Sycamore	<u>Platanus occidentalis</u>
Eastern Cottonwood	<u>Populus deltoides</u>
Black willow	<u>Salix nigra</u>

2. Spring. As defined in Section 13-7-3 of the Interim Land Development Code.

3. Wetlands (other than springs). As defined in Section 13-7-1 of the Interim Land Development Code.

4. Permanent natural pools in perennial or intermittent waterways.

Protected Tree:

A tree having a trunk circumference of 60 inches or more, measured at 4-1/2 feet above natural ground level.

Public Street:

A vehicular access way designated, dedicated or acquired for public use under public ownership and control and/or accepted for maintenance by the appropriate governmental authority.

Qualified Person:

Experienced as defined in A.P.I. (American Petroleum Institute) Bulletin 1631, 1987 edition.

Rainfall Duration:

The length of time over which a discrete rainfall event lasts.

<u>Rainfall Frequency:</u>	The average recurrence interval of rainfall events, averaged over long periods of time.
<u>Rainfall Intensity:</u>	The rate of accumulation of rainfall, usually in inches per hour.
<u>Rational Formula:</u>	A traditional means of relating runoff from an area and the intensity of the storm rainfall ($Q=CiA$).
<u>Reach:</u>	Any length of river or channel. Usually used to refer to sections which are uniform with respect to discharge, depth, area or slope, or sections between gaging stations.
<u>Recommended:</u>	A condition which should be met if it is physically and economically reasonable to do so.
<u>Recurrence Interval:</u>	The average interval of time within which a given event will be equaled or exceeded once. For an annual series (as opposed to a partial duration series) the probability or occurrence in any one year is the inverse of the recurrence interval. Thus a flood having a recurrence interval of 100 years has a 1 percent probability of being equaled or exceeded in any one year.
<u>Registered Professional Land Surveyor (RPLS) [formerly Registered Public Surveyor (RPS)]:</u>	An individual registered by the Texas Board of Professional Land Surveying.
<u>Release:</u>	Any spilling, leaking, emitting, discharging, escaping, leaching or disposing into ground water, surface water or soils.
<u>Remedial Actions:</u>	Responses to releases of hazardous substances on the NPL that are consistent with a permanent remedy which would prevent or mitigate the migration of materials into the environment.
<u>Required:</u>	This is a mandatory condition. Where certain requirements in the design or application of the guidelines are described with the “required” stipulation, it is mandatory that they be met.
<u>Residues (Plant):</u>	Dead parts of plants which may be left on the soil surface following harvest, grazing or cutting.
<u>Restoration:</u>	(See Revegetation)
<u>Retention:</u>	The amount of precipitation on a drainage area that does not escape as runoff. It is the difference between total precipitation and total runoff.
<u>Return Period:</u>	See Recurrence Interval.
<u>Revegetation:</u>	The installation of native trees, shrubs, grasses and wildflowers in an area after

its disturbance, along with subsequent maintenance, intended to restore the area to a natural state.

- Revetment: Facing of stone or other materials, either permanent or temporary, placed along the edge of a stream or shoreline to stabilize the bank and to protect it from the erosive action of water.
- Rhizome: Any prostrate, more or less elongated stem growing partly or completely beneath the surface of the ground; usually rooting at the nodes and becoming upcurved at the apex.
- Rill: A small channel cut by concentrated runoff, but through which water commonly flows only during and immediately after rains. A rill is usually only a few inches deep (but no more than one (1) foot) and hence, no obstacle to tillage operations.
- Ripping: Pulling a chisel or subsoiling implement through the soil to reduce compaction and promote infiltration of water into the soil. Does not invert the soil.
- Riprap
(Revetment): Forms of bank protection, usually using rock. Riprap is a term applied to stone which is dumped rather than placed more carefully.
Riprap: Broken rock, cobbles or boulders placed on earth surfaces, such as the face of a dam or the bank of a stream, for protection against the action of water (waves); also applies to brush or pole mattresses or brush and stone or similar materials used for soil erosion control.
- Risk: The probability that an unwanted event will occur.
- Roadway: A paved area within the right of way ordinarily used for vehicular traffic movement. With curbs and gutters, the pavement width is measured from the lip of gutters; without standard curbs and gutters, pavement width is measured from the edge of the pavement, excluding any required shoulders or ribbon curbs.
- Roughness
Coefficient
(Hydraulics): A factor in velocity and discharge formulas representing the effect of channel roughness on energy losses in flowing water. Manning's "n" is a commonly used roughness coefficient.
- Routing: Routing is a technique used to protect the temporal and spatial variations of a flood wave as it traverses a river reach or reservoir. Generally, routing techniques may be classified into two categories – hydrologic routing and hydraulic routing.
- ROW (Right of Way): Right of passage, as over another's property. A route that is lawful to use. A strip of land dedicated for public streets and/or related facilities, including utilities and other transportation uses.
- ROW Width: The shortest horizontal distance between the lines which delineate the right of way of a street.
- Runoff
(Hydraulics): That portion of the precipitation on a drainage area that is discharged from the area in stream channels. Types include surface runoff, ground water runoff or seepage.

<u>Runoff Coefficient (C):</u>	A decimal number used in the Rational Formula which defines the runoff characteristics of the drainage area under consideration. It may be applied to an entire drainage basin as a composite representation or it may be applied to a small individual area such as one residential lot.
<u>Runoff:</u>	That part of the precipitation which reaches a stream, drain or sewer.
<u>Sand:</u>	<ol style="list-style-type: none">(Agronomy) A soil particle between 0.05 and 2.0 millimeters in diameter.A soil textural class.(Engineering) According to the Unified Soil Classification System, a soil particle larger than the Number 200 sieve (0.074 millimeters) and passing the Number 4 sieve (approximately 1/4 inch).
<u>Screened:</u>	Shielded, concealed and effectively hidden from the view of a person standing at ground level on an abutting site or outside the area or feature so screened, by a fence, wall, hedge, berm or similar architectural or landscape feature which is, or will grow to, at least six (6) feet in height.
<u>SCS Runoff Curve Number (CN):</u>	Index number used by the Soil Conservation Service as a measure of the tendency of rainfall to run off into streams rather than evaporate or infiltrate.
<u>Second Responders:</u>	Those personnel required to assist or relieve first responders at a hazardous material incident due to their specialized knowledge, equipment, or experience. These include State environmental protection or health officials, commercial response, cleanup companies, and appropriate industry representatives.
<u>Secondary Containment:</u>	The level of containment external to, and separate from, the primary containment, consisting of an impervious layer of materials which are installed so that any release of hazardous materials from the primary containment of an underground storage tank installation will be prevented from contacting the environment outside said impervious layer.
<u>Sediment Discharge (Sediment Load):</u>	The quantity of sediment, measured in dry weight or by volume, transported through a stream cross section in a given time. Sediment discharge consists of both suspended load and bedload.
<u>Sediment:</u>	Solid material, both mineral and organic, that is in suspension, is being transported or has been moved from its site of origin by air, water, gravity or ice and has come to rest on the earth's surface either above or below sea level.
<u>Sedimentation:</u>	Deposition of detached soil particles.
<u>Seepage Length:</u>	In sediment basins or ponds, the length along the pipe and around the antiseep collars that is within the seepage zone through an embankment (see phreatic line).

- Seepage: a. Water escaping through or emerging from the ground.
b. The process by which water percolates through the soil.
- Service Extension: A water or wastewater line or associated facility that is necessary to provide new or additional water or wastewater service to a tract of land.
- Service Stub: A branch pipe of the City Water and Wastewater System extending from the “main” line to the approximate location of the property line or easement line.
- Shadowing: Area of roadway protected from through traffic, i.e., left-turn bay or wide median opening.
- Shall: A mandatory condition. Where certain requirements in the design or application of the guidelines are described with the “shall” stipulation, it is mandatory that the requirements be met.
- Shared Parking: Parking that can be used to serve two or more individual land uses without conflict or encroachment.
- Sheet Flow: Water, usually storm runoff, flowing in a thin layer over the ground surface.
- Should: An advisory condition. Where the word “should” is used, it is considered to be advisable usage, recommended but not mandatory.
- Shoulder: A portion adjacent to the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses.
- Side Slopes (Engineering): The slope of the sides of a canal, dam or embankment. It is customary to name the horizontal distance first, as 1.5:1 meaning a horizontal distance of 1.5 feet to one (1) foot vertical.
- Side Wall (Building): A building wall perpendicular to a street; a building wall facing a street at an angle of more than 45 degrees.
- Sidewalk: A paved area within the street right of way or sidewalk easement specifically designed for pedestrians and/or bicyclists.
- Significant Tree: A tree determined to be significant by the Department of Environmental Protection using the tree evaluation method described in Section 3.5.1.

- XI. SILT:**
- a. (Agronomy) A soil separate consisting of particles between 0.05 and 0.002 millimeter in equivalent diameter.
 - b. A soil textural class.
 - c. (Engineering) According to the Unified Soil Classification System, a fine grained soil (more than 50 percent passing the Number 200 sieve) that has a low plasticity index in relation to the liquid limit
- XII. SINGLE-WALLED:** Constructed with walls made of but one (1) thickness of material. Laminated, coated or clad materials shall be considered as single-walled construction.
- XIII. SINKHOLE :** A circular or oblong depression formed in soluble rock by the action of subterranean water which is a potential point of significant recharge.
- XIV. SITE SPECIFIC DEVELOPMENT:** Development which is typically confined to one (1) lot and is not linear in nature.
- XV. SLURRY:** A thickened, aqueous mixture of such things as seed, fertilizer, short fiber mulch or soil.
- XVI. SMALL GRAIN MULCH MATERIAL:** Straw material from oats, barley, wheat or rye.
- XVII. SMALL SHRUB:** A woody plant of smaller proportions than a tree which usually produces several branches from the base and will have a maximum mature height of between two (2) and four (4) feet.
- XVIII. SOD:** **A. A piece of earth containing grass plants with their matted roots; turf.**
- XIX. SODDED WATERWAY:** A grassed waterway vegetated by sodding with adapted species of grasses.
- Soffit: The bottom of the top of a pipe. In a sewer pipe, the uppermost point on the inside of the structure. In contrast, the crown is the uppermost point on the outside of the pipe wall.
- Soil Test: Chemical analysis of soil to determine needs for fertilizers or amendments for species of plants being grown.
- Soil:
- XX.**
- a. (Agronomy) The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.
 - b. (Engineering) Earth and rock particles resulting from the physical and chemical disintegration of rocks and may or may not contain organic matter. It includes fine material (silts and clays), sand and gravel.
- Specific Energy: The energy of a stream referred to its bed, namely, depth plus velocity head of mean velocity.
- Spillway: An open or closed channel or both, used to convey excess water from reservoir. It may contain gates, either manually or automatically controlled, to regulate the

	discharge of excess water.
<u>Spot-in-Field:</u>	The location of service not available at the time of tap sale. Customer to meet City inspector at site to verify location.
<u>Spreader (Hydraulics):</u>	A device for distributing water uniformly in or from a channel.
<u>Stabilization:</u>	Providing adequate measures, vegetative and/or structural, that will prevent erosion from occurring.
<u>Stabilized Area:</u>	An area sufficiently covered by erosion resistant material, such as a good cover of grass or paving by asphalt, concrete or stone, in order that erosion of the underlying soil does not occur.
<u>Stabilized Grade:</u>	The slope of a channel at which neither erosion nor deposition occurs.
<u>Stable (Stream or Channel):</u>	The condition of a stream, channel or other water course in which no erosion or deposition occurs; adequately protected from erosion.
<u>Stage (Hydraulics):</u>	The variable water surface or the water surface elevation above any chosen datum.
<u>State Land Surveying:</u>	The practice of land measurement according to established and recognized methods engaged in and practiced as a professional service for the location of original land grant boundaries and corners or the surveying of land in which the State or the Public Free School Fund have an interest; and the field notes and/or maps which are to be filed in the General Land Office.
<u>Static Head:</u>	Head resulting from elevation difference; for example, the difference in elevation in headwater and tailwater in a hydroelectric plant.
<u>Steady Flow:</u>	Open channel flow is said to be steady if the depth of flow does not change or if it can be assumed to be constant during the time interval of consideration.
<u>Stilling Basin:</u>	An open structure of excavation at the foot of an overfall, conduit, chute, drop or spillway to reduce the energy of the descending stream of water.
<u>Stolon:</u>	A trailing or reclining above ground stem capable of rooting and/or sending up new shoots from the nodes.
<u>Storage Tank:</u>	Any tank, sump, vault or other containment vessel which has a primary storage capacity of 60 gallons or more.
<u>Storm Hydrology:</u>	The branch of hydrology that concentrates on the calculation of runoff from storm rainfall.
<u>Street View:</u>	The view into a site from any point on an adjacent street or roadway.
<u>Street Classifications:</u>	<u>Alley:</u> An alley is a passageway designed primarily to provide access to or from the rear or side of property otherwise abutting on a public street.

Local Street: The primary function of a local street is to serve abutting land use, and traffic within a neighborhood or limited residential district. A local street is not generally continuous through several districts.

Collector Street: The primary function of a collector street is to intercept traffic from intersecting local streets and expedite the movement of this traffic in the most direct route to an arterial street or other collector street.

Arterial Street: Arterial streets are designed to carry high volumes of through traffic. Access is usually limited to intersections and major driveways. Arterial streets serve as a link between major activity centers within the urban area.

Freeway: Freeways are divided arterial highways designed with full control of access and grade separations at all intersections. Freeways provide movement of high volumes of traffic at relatively high speeds. This system carries most of the trips entering and leaving the urban area, as well as most of the through movements bypassing the central city.

Parkway: A parkway is a freeway which does not have continuous frontage roads. Parkway have a greenspace buffer between the roadway and adjacent development and preserves and enhances the natural landscape as much as possible.

<u>Street Yard</u> :	The street yard is the area of a lot which lies between the street right of way line and the actual front wall line of the building, as such building wall line extends from the outward corners of the building parallel to the street, until such imaginary extensions of such front building wall line intersects the side property lines.
<u>Strict Liability</u> :	Holds a party responsible for damages irrespective of the amount of care taken in handling a hazardous substance.
<u>Strips and Gores</u> :	Accidental, usually small and very narrow overlaps or gaps between boundary lines. A strip is rectangular. A gore is triangular.
<u>Structural</u> :	Relating to something constructed or built by man.
<u>Structure (Soil)</u> :	The combination or arrangement of primary soil particles into secondary particles, units or pads.
<u>Subcritical Flow</u> :	Flow at velocities less than critical velocity.
<u>Subgrade</u> :	The soil prepared and compacted to support a structure or a pavement system.
<u>Subsoil</u> :	Roughly, that part of the soil below plow depth.
<u>Sump</u> :	A pit or well in which liquids collect.
<u>Sumpage</u> :	Water that enters a primary or secondary containment system other than by direct precipitation or runoff.
<u>Survey</u> :	A term with several different uses, including: reference to an original layout or definition of a land grant from the sovereign; the process of measuring land and reviewing public records to determine boundaries; the land itself as described

	by the field notes of the surveyor.
	a. <u>System of Surveys</u> : a series of parcels surveyed at the same time.
	b. <u>Senior Survey</u> : an older survey of the subject or an adjacent tract. A survey which creates a boundary line which is first or prior in time.
	c. <u>Junior Survey</u> : a more recent survey of the subject or an adjacent tract.
<u>Syneraistic</u> :	The action of two materials together which is greater in effect than the sum of the individuals actions
<u>Synthetic Hydrograph</u> :	See Hydrograph.
<u>Tailwater (Hydraulics)</u> :	Water in a river or channel immediately downstream from a structure.
<u>Tailwater</u> :	The depth of flow in the stream immediately downstream of a hydraulic structure.
<u>Tank Installation</u> :	Any one (1) or combination of storage tank system.
<u>Tank System</u> :	A storage tank and all piping and appurtenances in connection with it which is used for the storage, transfer or containment of hazardous materials at a facility.
<u>Temporary Seeding</u> :	A seeding which is made to provide temporary cover from the soil while waiting for further construction or other activity to take place.
<u>Terrace</u> :	An embankment or combination of an embankment and channel constructed across a slope at a suitable spacing to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope. Normally used only on cropland.
<u>Texas Society of Professional Surveyors (TSPS), [formerly Texas Surveyors Association (TSA)]</u> :	The trade association for professional surveyors in Texas.
<u>Texture (Soil)</u> :	The relative proportions of various soil separates in a soil material.
<u>Thatch</u> :	A tightly intermingled layer of living and dead stems, leaves and roots of grasses.
<u>TIGER Files</u> :	The US Census Bureau's TIGER files provide a nationwide computerized map with address range information.
<u>Time of Concentration</u> :	XXI. TIME REQUIRED FOR WATER TO FLOW FROM THE MOST REMOTE PART OF A WATERSHED IN A HYDRAULIC SENSE TO THE OUTLET.

<u>Time of Concentration:</u>	The time associated with the travel of runoff from an outer point which best represents the shape of the contributing area.
<u>Toe (of Slope):</u>	XXII. WHERE THE SLOPE OR LEVELS OUT. THE BOTTOM OF THE SLOPE.
<u>Toe Wall:</u>	XXIII. THE DOWNSTREAM WALL OF A STRUCTURE, USUALLY TO PREVENT FLOWING WATER FROM ERODING UNDER THE STRUCTURE.
<u>Tolerance:</u>	The allowable imperfection of any value stated or established in a survey.
<u>Topsoil:</u>	<ol style="list-style-type: none">Presumably fertile or desirable soil material used to top dress road banks, subsoils, parent material, etc.Effective Soil – Surface soils which contain a variable mixture of weathered minerals, organic matter and in some cases, coarse fragments. The effective topsoil volume includes only that portion of the total volume which is the fine earth fraction (<two (2.0) mm in diameter grain size). This soil zone reflects the area of major root development, bacterial activity, cation exchange and physical filtration.
<u>Tort:</u>	A legal wrong, sometimes referred to as negligence.
<u>Total Head:</u>	In the flow process, the total energy for a given point is represented by the summation of $V^2/2g$, p/ρ and z . The units for these three items are foot-pounds force per pound force. It is common practice to lump all these three items together as total head in feet. The item of $V^2/2g$ is called velocity head (in feet) and p/ρ is the pressure head (in feet).
<u>Toxicity:</u>	The ability of a substance to produce injury by non-mechanical means once it reaches a susceptible site in or on the body.
<u>Trap Efficiency:</u>	The capability of a reservoir to trap sediment. The ratio of sediment trapped to the sediment delivered, usually expressed in percent.
<u>Trash Rack:</u>	Grill, grate or other device at the intake of a channel, pipe, drain or spillway for the purpose of preventing oversize debris from entering the structure.
<u>Traveled Way:</u>	The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.
<u>Tree Clusters:</u>	A group of three (3) or more trees with trunk diameters ranging from two (2) to six (6) inches which can be enclosed in a circle with a radius of ten (10) feet.
<u>Tree Removal:</u>	The uprooting or severing of the main trunk of a tree or any act which causes or may reasonably be expected to cause a tree to die, including, but not limited to, damage inflicted upon the root system by machinery, storage of materials or

soil compaction; substantially changing the natural grade above the root system or around the trunk; excessive pruning or paving with concrete, asphalt or other impervious materials in a manner which may reasonably be expected to kill a tree.

- Trunk Line: The primary collector line of a storm sewer system.
- Tufts: Having a cluster of hairs or other slender outgrowths; stems in a very close cluster.
- Type I Driveway Approach: A concrete driveway approach designed and intended to serve as access from a roadway to a lot or parcel of land which is a location for a one (1) or two (2) family residence.
- Type II Driveway Approach: A concrete driveway approach designed and intended to serve as access from a roadway to a lot or parcel of land used for any development or purpose other than one (1) or two (2) family residences.
- Type III Driveway Approach: A temporary asphalt driveway approach intended to provide vehicular access to a lot or parcel of land; such access being from a roadway not yet constructed to permanent lines and grades or a roadway not having curb and gutter.
- Type IV Driveway Approach: A concrete/asphalt driveway approach designed and intended to serve as access from a principal roadway area (PRA) roadway to a lot or parcel of land used for any development or purpose other than one (1) or two (2) family residences.
- Typical: A common condition; not to be used as sole basis for establishing criteria or classifications.
- U Wastes: A federal list of hazardous wastes which consists of substances deemed to be hazardous for hazards other than acute hazards.
- Underground Storage Tank: That portion of a storage tank system which has its available primary containment volume beneath the final cover and is surrounded by a backfill material.
- Unhulled (Seed): Seed still encased with a hull. Example: Sericea lespedza before it is rendered hullless by mechanically removing the hull.
- Unified Soil Classification System (Engineering): A classification system based on the identification of soils according to their particle size, gradation, plasticity index and liquid limit.
- Uniform Channel: A channel with a constant cross section and roughness.
- Uniform Flow: A state of steady flow when the mean velocity and cross sectional area are equal at all sections of a reach.

<u>Uniform Flow:</u>	Open channel flow is said to be uniform if the depth of flow is the same at every section of the channel, for a constant flow.
<u>Unit Hydrograph:</u>	See Hydrograph.
<u>Units of Measurement:</u>	<p>Descriptions of lengths or areas.</p> <ul style="list-style-type: none"> a. <u>Foot:</u> 12 inches exactly; the basic English unit of measurement. b. <u>Meter:</u> 39.37 inches; the basic international unit of measurement adopted by the National Bureau of Standards. c. <u>Vara:</u> 33 1/3 inches exactly; the basic Spanish unit of measurement. To convert varas to feet, multiply by 100 and divide by .36. To convert feet to varas, multiply by .36. d. <u>Labor:</u> 1,000 varas square; 1,000,000 square varas; 177.136 acres. e. <u>One League:</u> 5,000 varas square; 25,000,000 square varas; 4,428.4 acres. f. <u>Rod or Pole or Perch:</u> 16.5 feet; 5.94 varas; an older unit of measurement. g. <u>Chain:</u> 66 feet; 100 links; 4 rods; an older method of measurement. h. <u>Link:</u> 7.92 inches. i. <u>Mile:</u> 5,280 feet; 1,760 yards; 80 chains; 320 rods; 1,900.8 varas. j. <u>Acre:</u> 208.708 feet square; 43,560 square feet. To convert square feet to acres, divide by 43,560. Ten square chains is one acre. Ten chains squared is ten acres. k. <u>Section:</u> An area of land one mile square as part of a grid system; 640 acres.
<u>Universal Soil Loss Equation:</u>	An equation used for the design of water erosion control system: $A = RKLSCP$, wherein "A" is average annual soil loss in tons per acre per year; "R" is rainfall factor; "K" is soil erodibility factor; "L" is length of slope; "S" is percent of slope; "C" is cropping and management factor; and "P" is conservation practice factor.
<u>Uplift (Hydraulics):</u>	The upward force of water on the base or underside of a structure.
<u>Ureaform-Uramite/Ureaformaldehyde:</u>	A slowly soluble synthetic organic fertilizer containing 38 percent nitrogen, which contains about 30 percent readily available nitrogen.
<u>Variety:</u>	A variant within a species which reproduces true by seed or vegetative propagation as applicable.
<u>Vehicular Areas:</u>	Use Areas of a site used for the movement or other operation of vehicles, such as drives, loading docks, fire lanes, etc.
<u>Velocity Head (Hydraulics):</u>	Head due to the velocity of a moving fluid equal to the square of the mean velocity divided by twice the acceleration due to gravity (32.16 feet per second).
<u>Wastewater Tap:</u>	The connection between the customer's wastewater drain line and the City Wastewater System.
<u>Water Course:</u>	A stream of water (such as a river, brook, creek, or bayou) or a visible channel for water (such as a ditch, channel, or stream bed).

<u>Water or Wastewater Line:</u>	A necessary appurtenance to a water distribution or wastewater collection system. The term includes a valve, manhole, connection, air release, diversion, and other equipment necessary to make the water distribution or wastewater collection system operable in compliance with the design criteria and standards in the Utilities Criteria Manual, or the equivalent design criteria and standards as determined by the Director of the Water and Wastewater Utility.
<u>Water Surface Profile (Hydraulics):</u>	The longitudinal profile assumed by the surface of a stream flowing in an open channel; the hydraulic grade line.
<u>Water Tap:</u>	The connection between the customer's water line and the City Water System.
<u>Watershed:</u>	The total area contributing storm runoff to a stream or creek.
<u>Weep-Holes (Engineering):</u>	Openings left in retaining walls, aprons, linings or foundations to permit drainage and reduce pressure.
<u>Weir:</u>	A weir is a notch of regular form through which water flows.
<u>Wetted Perimeter (Hydraulics):</u>	The length of the line of intersection of the plan of the hydraulic cross section with the wetted surface of the channel.
<u>Wing-Wall:</u>	Side wall extensions of a structure used to prevent sloughing of banks or channels and to direct and confine overfall.
<u>Winterkill:</u>	Killed by low temperatures during winter months.
<u>Wood Fiber:</u>	A short fiber mulch material, usually applied with a hydroseeder in an aqueous mixture.
<u>Working Sketch:</u>	A sketch prepared from record data depicting the relationship of various record tracts, usually in, but not limited to, the immediate vicinity of the parcel being considered or surveyed.
<u>Xeriscape:</u>	A method of landscaping using certain principles of design and installation which conserve water and energy.

ⁱ Upon written request from a landowner, a municipality must certify within 20 days if a parcel must be platted. Tex. Loc. Gov't. Code § 212.0115 (Vernon 2001). State law prohibits the connection of utility service to any parcel that is not legally platted or excepted from the platting requirements of the municipality. *Id.* § 212.012. In Austin, "legal lot" status depends on whether the tract has existed in the same configuration prior to either Austin's first subdivision ordinance (March 14, 1946) or prior to the extension of its subdivision regulations into its extra-territorial jurisdiction (June 9, 1951). Any tract existing in the same configuration prior to either of these respective dates is a "legal lot". In Austin, if seeking an exception to platting, file a Land Status Determination Application.

ⁱⁱ Tex. Loc. Gov't. Code ch. 41 (Vernon 2001)(Municipal Boundaries); *Id.* at ch. 42 (Extraterritorial Jurisdiction of Municipalities); and *Id.* at ch. 43 (Municipal Annexation).

ⁱⁱⁱ Tex. Loc. Gov't. Code § 401.002 and § 401.003 (Vernon 2001); Austin Land Development Code ch.25-8.

^{iv} Tex. Prop. Code tit. 11 (Vernon 2001).

^v Tex. Prop. Code chs. 202, 203 and 204 (Vernon 2001).

^{vi} Tex. Prop. Code § 204.010 (Vernon 2001).

^{vii} Tex. Prop. Code § 204.011 (Vernon 2001).

^{viii} There may be a 300' or 1,000' alcohol-free zone around a church, school or hospital. *See* Tex. Alco. Bev. Code § 109.33 (Vernon 2001); Tex. Educ. Code § 38.007 (Vernon 2001). The Code of Federal Regulations contains rules on noise levels, access, and what can be built in the flight path in areas administered by the Federal Aviation Administration. A local zoning classification may also restrict aviation services. *See* Austin Land Development Code §25-2-142.

^{ix} If a current structure needs to be removed, either by relocation or demolition, carefully analyze the options before applying for a relocation or demolition permit. In certain instances this may result in the city initiating a historic landmark zoning case on the property without the property owner's approval, which can add months to the development timeline. Tex. Loc. Gov't. Code § 214.00111 (Vernon 2001); Austin Land Development Code ch. 25-11.

^x If access is not obvious by driveway or roadway, Texas case law establishes an easement by necessity. *Koonce v. Brite Estate*, 663 S.W.2d 451 (Tex. 1984). The elements needed to establish an implied easement by necessity are unity of ownership prior to separation, access must be a necessity and not a mere convenience, and the necessity must exist at the time of the severance of the two estates. *Id.* at 452.

^{xi} **The purpose of a Category 1A: Land Title Survey is for insuring title. It involves a comprehensive investigation and evaluation of the factors affecting the location of boundaries and easements within or adjacent to the property, along with all other recorded or visible evidence of encumbrances upon the title to the property. A Category 1B: Standard Land Survey is often referred to as a boundary or traditional survey and is expressly not for title insuring purposes. It's focus is the location on the ground of the perimeters of the tract and determines the area within these boundaries. For a detailed discussion of the different survey categories, practices and professional standards see James Noble Johnson's article, *New Land Survey Practice and Standards*, Advanced Real Estate Law Course, State Bar of Texas, 1998.**

^{xii} In Texas the authority to adopt zoning regulations is generally delegated to municipalities. Tex. Loc. Gov't. Code. ch. 211 (Vernon 2001). "The powers granted...are for the purpose of promoting the public health, safety, morals, or general welfare and protecting and preserving places and areas of historical, cultural or architectural importance and significance." *Id.* at § 211.001. The municipality may regulate: "(1) the height, number of stories, and size of buildings and other structures; (2) the percentage of a lot that may be occupied; (3) the size of yards, courts and other open spaces; (4) population density; and (5) the location and use of buildings, other structures, and land for business, industrial, residential and other purposes." *Id.* at § 211.001(a). In certain instances a municipality, "may regulate the construction, reconstruction, alteration, or razing of buildings and other structures." *Id.* at § 211.001(b). Texas counties have some limited, miscellaneous zoning authority. *See e.g.* § 241.014 (Joint Airport Zoning Board), § 231.221 (Development Regulations in Hood County), and § 231.031 (Amistad Recreational Area).

^{xiii} Is the property located within the city's boundaries or the cities extraterritorial jurisdiction ("ETJ"). *See* Tex. Loc. Gov't. Code chs. 41 and 42 (Vernon 2001). Even if a site is located in the county, is annexation a concern? A city may extend its zoning regulation into a county by limited purpose annexation. *See* Tex. Loc. Gov't. Code § 43.121 (Vernon 2001).

^{xiv} Tex. Loc. Gov't. Code § 211.005 (Vernon 2001). Review the local Zoning District Map and Summary of Zoning Classifications. Obtain a Zoning Verification Letter from the city.

^{xv} A non-conforming use is one which was in existence prior to zoning, re-zoning of the property, or changes in the zoning code, but which does not comply with the current zoning regulations. An accessory use is determined by a particular city to be typically or necessarily associated with the permitted or primary use. Consult your local city zoning official and Board of Adjustment. Tex. Loc. Gov't Code § 211.008-.011 (Vernon 2001).

^{xvi} Tex. Loc. Gov't. Code § 211.004 (Vernon 2001).

^{xvii} In addition to zoning classifications, various "overlay districts" may provide further restrictions.

^{xviii} If a change in zoning is required there are specific procedures to follow regarding notice, hearing, and "interested parties" Tex. Loc. Gov't. Code § 211.006 (Vernon 2001).

^{xix} See Tex. Local Gov't Code § 211.006 (Vernon 2001).

^{xx} If a change in zoning is required "interested parties" have the right to participate in, and possibly defeat, the re-zoning application. Check the local zoning code for its definition of an "interested party" to confirm that all petition signatures protesting a zoning change are valid. Tex. Loc. Gov't. Code § 211.006(d) (Vernon 2001). In Austin an interested party can be anyone who communicates an interest in the matter and occupies a primary residence or is the record owner of property within 500' of the site, or is an officer of an environmental or neighborhood organization. Austin City Code, § 25-2-131. It is advisable to obtain the 20 percent land calculation directly from the city zoning official making the calculation. See § 211.006 (d) & (e).

^{xxi} Tex. Loc. Gov't. Code § 211.006 (Vernon 2001).

^{xxii} See if the desired use can be achieved through a variance or by special exception from the Board of Adjustment. See Tex. Loc. Gov't. Code § 211.008-.010 (Vernon 2001).

^{xxiii} Is there a plat covering the property recorded with the county clerk? Tex. Prop. Code § 12.002 (Vernon 2001); Tex. Loc. Gov't. Code §§ 212.004(d) and 232.001(d) (Vernon 2001). Upon written request from a landowner, a municipality must certify within 20 days if a parcel must be platted. Tex. Loc. Gov't. Code § 212.0115 (Vernon 2001). In Austin, file a Land Status Determination Application.

^{xxiv} If the property will be divided into two or more parts to lay out a subdivision, it must be platted. Tex. Loc. Gov't. Code § 212.004 and § 232.001 (Vernon 2001); Austin Land Development Code Ch. 25-4. State law prohibits the connection of utility service to any parcel that is not legally platted or excepted from the platting requirements of the municipality. Tex. Loc. Gov't. Code § 212.012 (Vernon 2001).

^{xxv} For exceptions to the platting requirements see Tex. Loc. Gov't. Code § 212.004(a) and § 232.0015 (Vernon 2001). A municipality may specify other platting exceptions. Tex. Loc. Gov't. Code § 212.0045. See Austin Land Development Code § 25-4-2(A) (Legal Tract Platting Exception), § 25-4-2(B) (Health and Safety Hazard Platting Exception), and § 25-4-2(C) (1987 Rule Platting Exception).

^{xxvi} Tex. Loc. Gov't. Code §§ 212.013-.016 (Vernon 2001).

^{xxvii} Since both municipalities and counties have jurisdiction over plat approval, this will depend on location, population and any interlocal agreements. Tex. Loc. Gov't. Code § 212.006, § 232.002, and § 242.001 (Vernon 2001). A municipality must act on a plat within 30 days of filing, and the plat is considered approved unless expressly disapproved. Tex. Loc. Gov't. Code § 212.009. In Austin all plats are routinely disapproved to avoid this 30 day limit. For time limits on county plat approval see Tex. Loc. Gov't. Code § 232.0025.

^{xxviii} The process to move from preliminary to final plat starts at Austin Land Development Code § 25-4-51.

^{xxix} Different jurisdictions require that certain conditions are recorded on the face of the plat for subdivision approval. See Austin Land Development Code § 25-4-83. For an extensive discussion of plat note issues see R. Alan Haywood's article, *Plat Notes in Austin: Practice, Problems and Possible Solutions*, Real Estate Section, Travis County Bar, March 14, 2000.

^{xxx} During the platting process typically right-of-way and infrastructure cost participation are extracted from the applicant. These exactions must meet a two part test which requires an essential nexus (substantial relationship) between the impact from development and the exaction. Nollan v. California Coastal Commission, 483 U.S. 825, 107 S.Ct. 3141 (1987). The second part of the test requires the city to make an individualized determination that the condition to development, or exaction, is roughly proportional to the proposed development's impact. Dolan v. City of Tigard, 512 V.S. 374, 114 S.Ct. 2309 (1994); Mayhew v. Town of Sunnyvale, 964 S.W. 2d 922, (Tex. 1998).

^{xxxi} In Austin, preliminary plats expire after three years in the drinking water protection zone and after five years in the desired development zone. Austin Land Development Code § 25-4-62. However, depending upon when a particular plan was filed the subdivider may be protected under House Bill 1704. See Tex. Loc. Gov't. Code ch. 245 (Vernon 2001).

^{xxxii} If a subdivision relies on groundwater for its water supply, a registered engineer must certify that the groundwater source is adequate to serve the subdivision. Tex. Loc. Gov't. Code § 212.0101 (Vernon 2001).

^{xxxiii} Before a subdivision plat can be recorded in the county clerks office it must have original tax certificates attached showing no delinquent ad valorem taxes. Tex. Prop. Code § 12.002 (Vernon 2001).