

## SITE FEASIBILITY

Finding the Fatal Flaws

Plan Design Enable

An abstract graphic consisting of several overlapping, irregular geometric shapes. The shapes are primarily in shades of blue, grey, and beige. A large blue shape is on the left, overlapping a grey shape, which in turn overlaps a larger beige shape. A small dark grey shape is visible on the far right edge.

# Who We Are



Mark McNeal



Dan Brown



Jeremy Henson

# Who We Are

Atkins is a multi-disciplinary professional consulting firm with a global, national, and local presence having extensive experience working with central Texas school districts in an environment that focuses on teamwork, technical excellence, and district satisfaction that ultimately accentuates the success of the schools, students, and communities served.

Working with school districts to provide flexible, budget conscious engineering design solutions has afforded Atkins the opportunity to leverage our years of experience on many different central Texas campuses.

## Texas elementary schools

- Giddens Elementary School, Cedar Park
- Steiner Ranch Elementary School, Austin
- Naumann Elementary School, Cedar Park
- Bagdad Elementary School, Leander
- Cox Elementary School, Cedar Park
- Bush Elementary School, Austin
- Knowles Elementary School, Cedar Park
- Deer Creek Elementary School, Cedar Park
- Pleasant Hill Elementary School, Leander
- Rutledge Elementary School, Austin
- Plain Elementary School, Leander
- Winkley Elementary School, Leander
- River Place Elementary School, Austin
- Grandview Elementary School, Austin
- Parkside Elementary School, Georgetown
- Westside Elementary School, Cedar Park
- Reagan Elementary School, Cedar Park
- River Ridge Elementary School, Austin
- Red Oaks Site, Cedar Park
- Mary Burleson Roberts Site, Leander
- Hill Elementary School, Austin

## Texas middle schools

- Running Brushy Middle School, Cedar Park
- Artie L. Henry Middle School, Cedar Park
- Canyon Ridge Middle School, Austin
- Wiley Middle School, Leander
- Four Points Middle School, Austin
- Mary Burleson Roberts Site, Leander
- Benbrook Site, Leander
- Dobie Middle School, Austin
- Hudson Bend Middle School, Austin

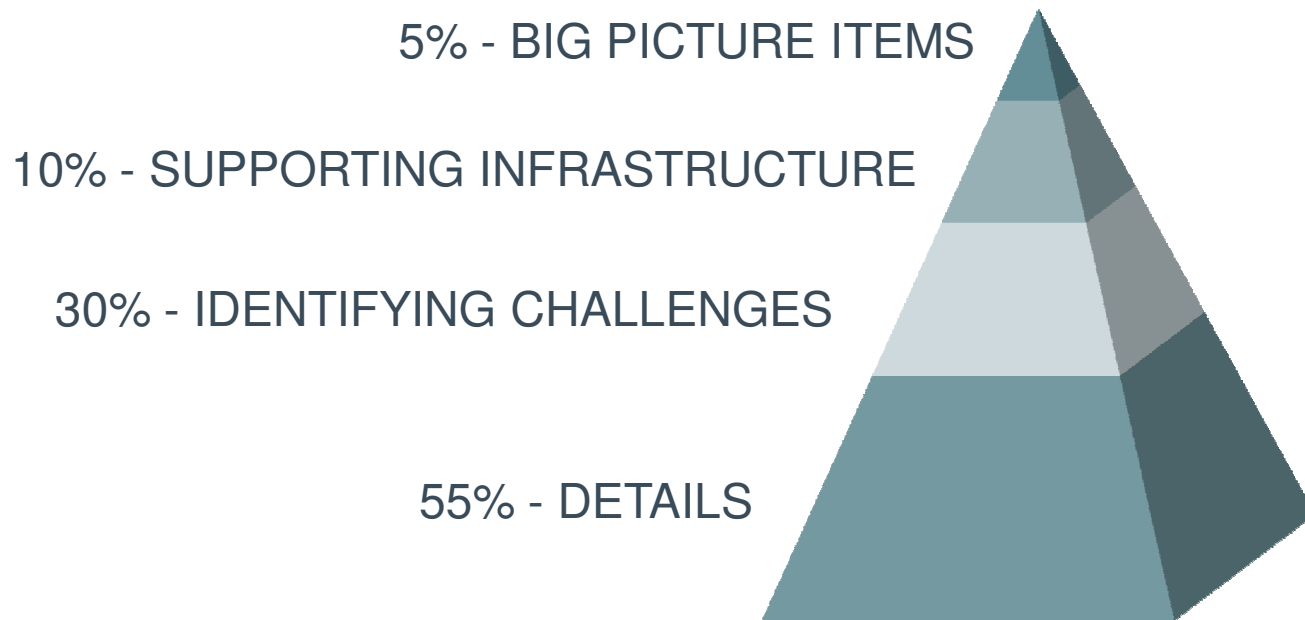
## Texas high schools

- Leander High School, Leander
- Cedar Park High School, Cedar Park
- Vista Ridge High School, Cedar Park
- Rouse High School, Leander
- Vandergrift High School, Austin
- Benbrook Site, Leander
- Sarita Valley Site, Leander

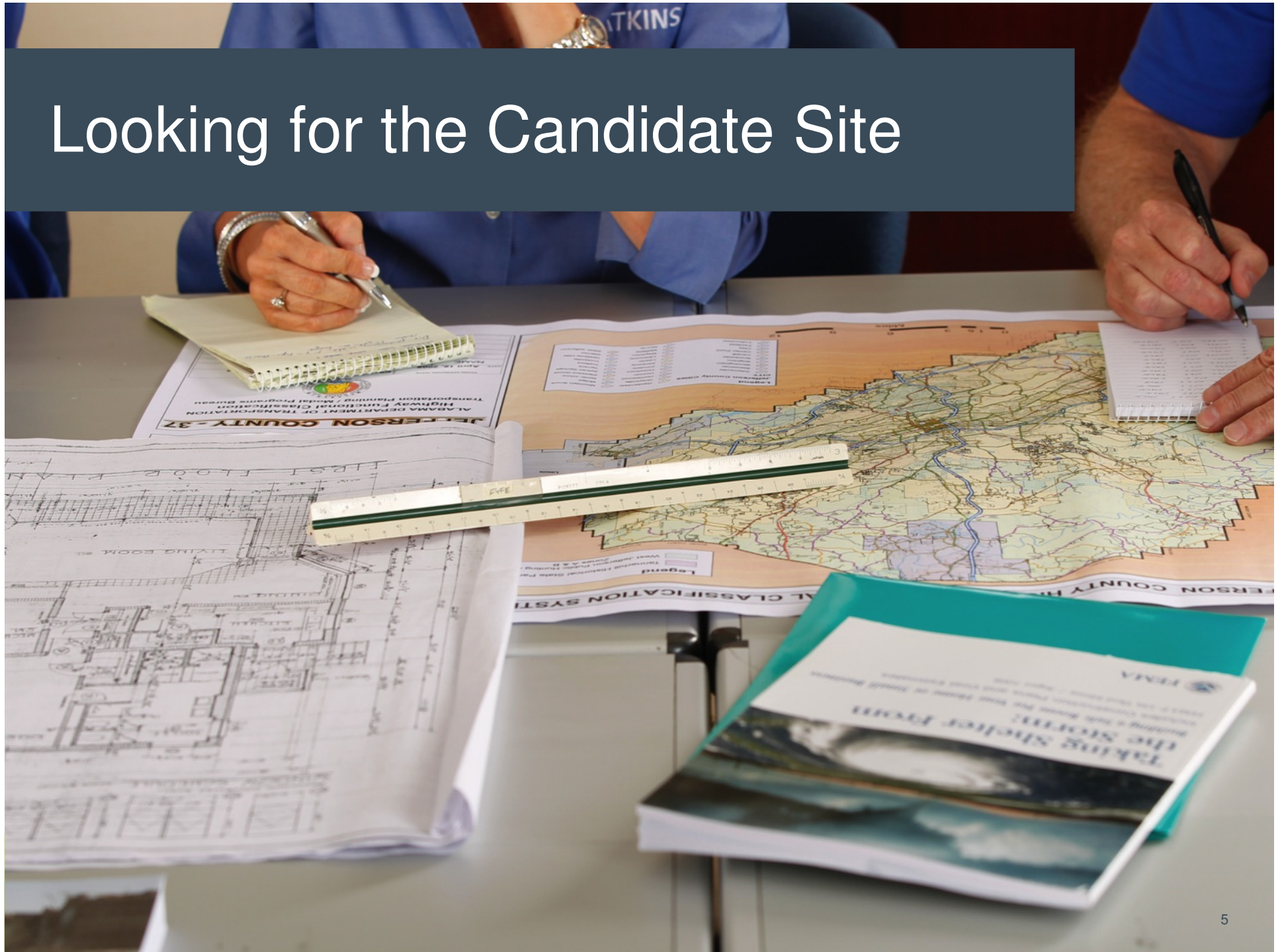
## District facilities

- Leander ISD administration building
- Gupton Way public road improvements, Cedar Park
- Gupton Stadium, Cedar Park
- Bible Stadium, Leander
- Extended opportunity center, Leander
- Leander ISD support services and purchasing
- Transportation department, Leander
- Data technology center, Leander
- Agricultural education facilities, Leander and Cedar Park
- Lago Vista ISD feasibility study Sarita Valley Site, Leander

# Engineer & Scientist's Perspective on Site Selection



# Looking for the Candidate Site



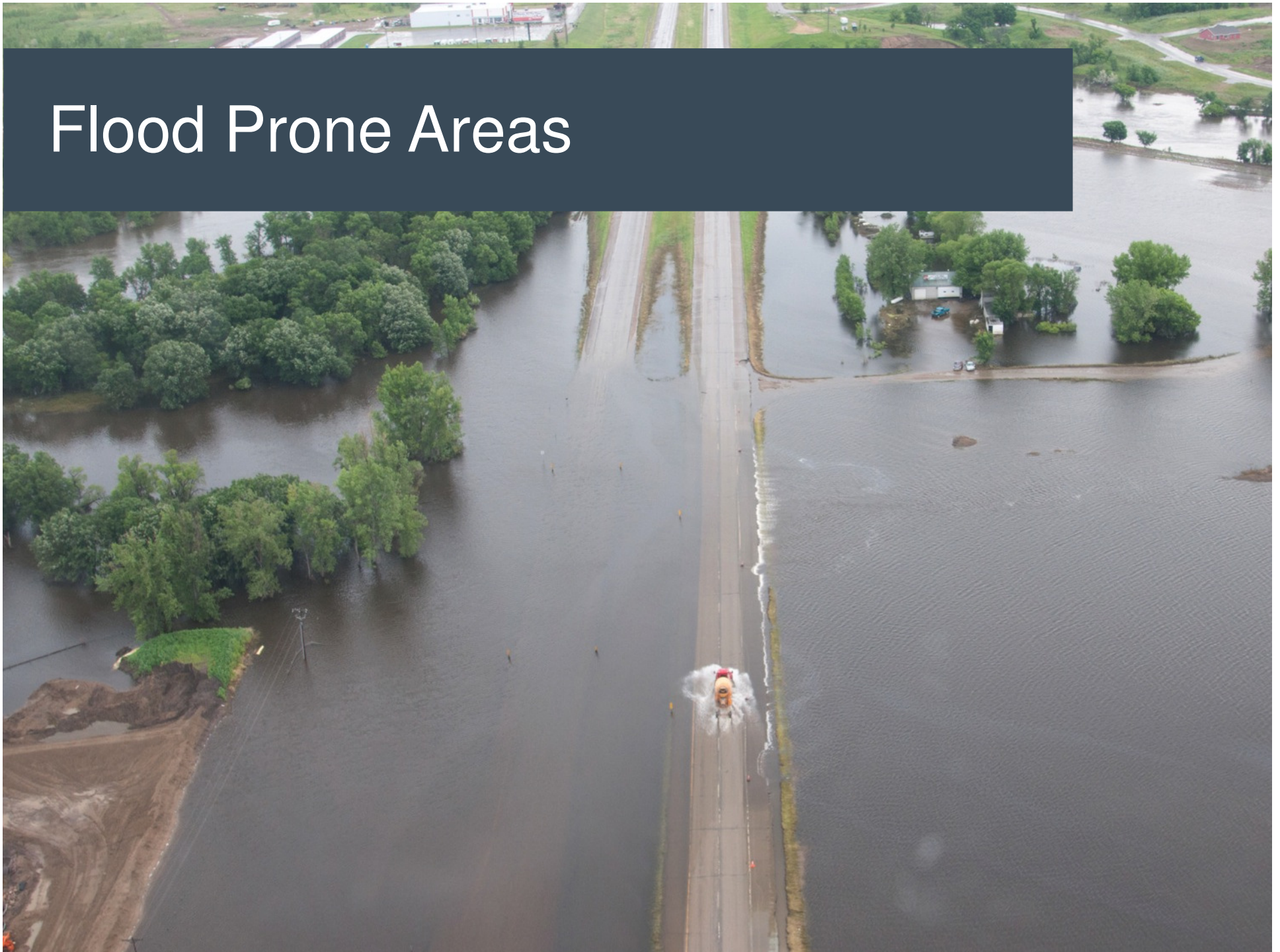
# Compatibility



# Not a Good Neighbour



# Flood Prone Areas





# Candidate Site?



# Top 5%

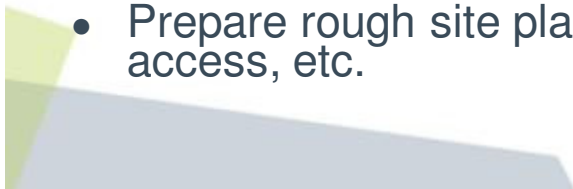
## Big Picture Discussions & Analysis



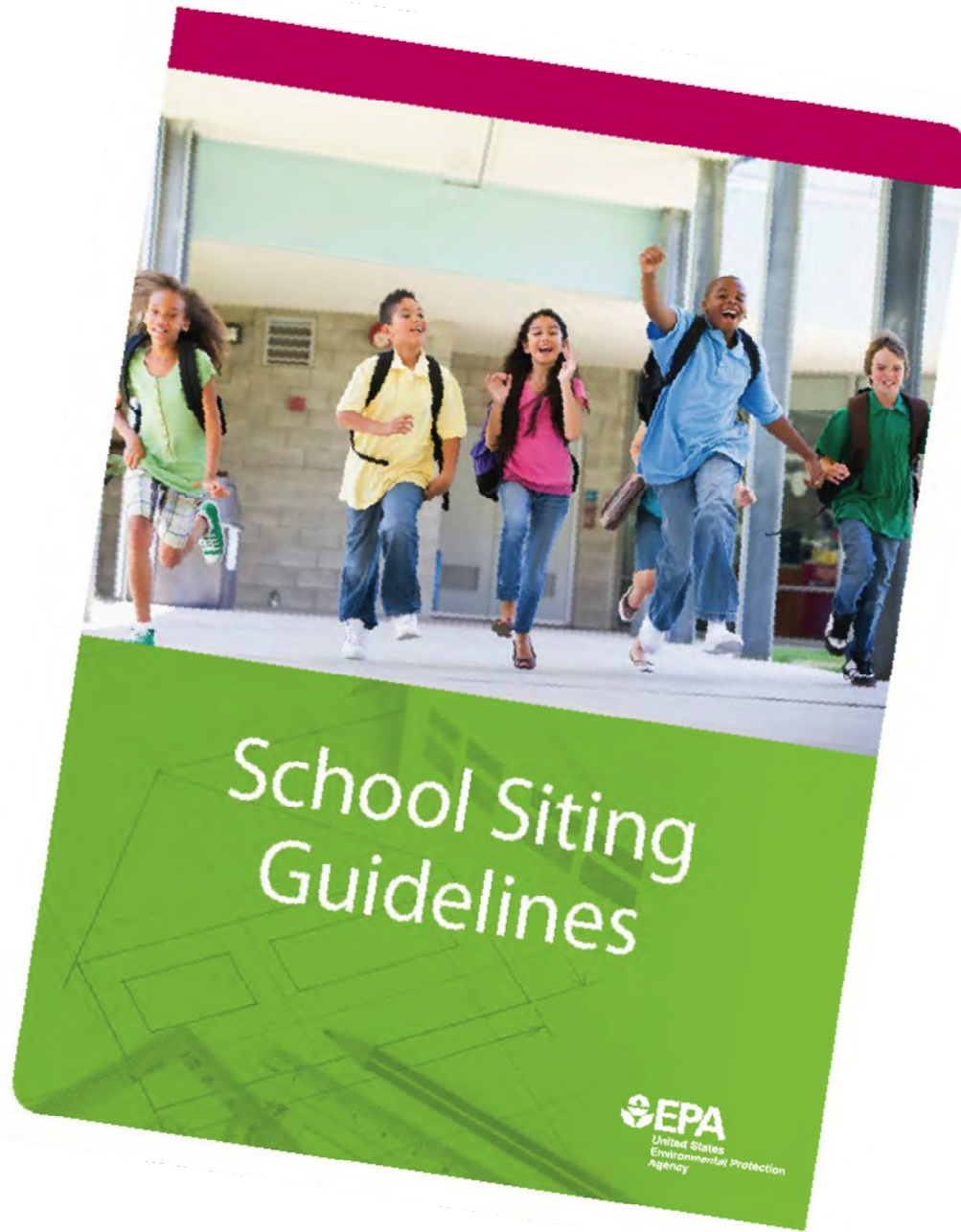
### First 5%:

*Looking for the most obvious characteristics of the property without any records search or local inquiries...*

- EPA School Siting Guidelines – a good design resource
- Hazardous/suspicious materials – apparent from observations or aerials
- General Drainage Patterns, flood plains, etc. – from examination of USGS or other available topo maps
- Compatibility issues or conflicts with adjacent properties – determine from aerials or other available maps
- Existing ground cover e.g. rock, cliffs, marsh, trees, grass, etc. – apparent from observation or aerials
- Existing land use on the property if applicable – aerials or available maps
- Existing visible improvements on site, if any – aerial maps or from on the ground surveillance
- Utilize on-line resources such as city websites, Google Earth, etc.
- Verify the acreage is adequate for the intended use
- Prepare rough site plans to verify building and site configurations, driveways, access, etc.



# Siting



# Existing Visible Improvements

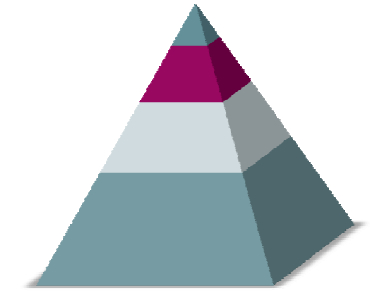


# Initial Site Planning



# The Next 10%

## Supporting Infrastructure



*Looking for major supporting facilities and good compatibility..*

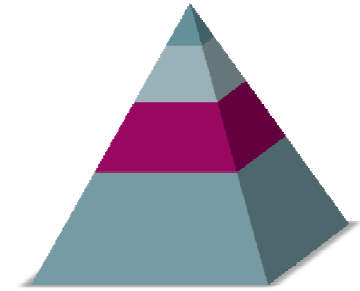
- Access to public streets
- Connecting roadways
- Viable driveway locations – no conflicts with adjoiners
- Availability of public utilities
- Observed utilities – e.g. fire hydrants, manholes, storm drains, utility poles, etc.
- Compatibility with adjacent land uses

# Access/Infrastructure/Compatibility



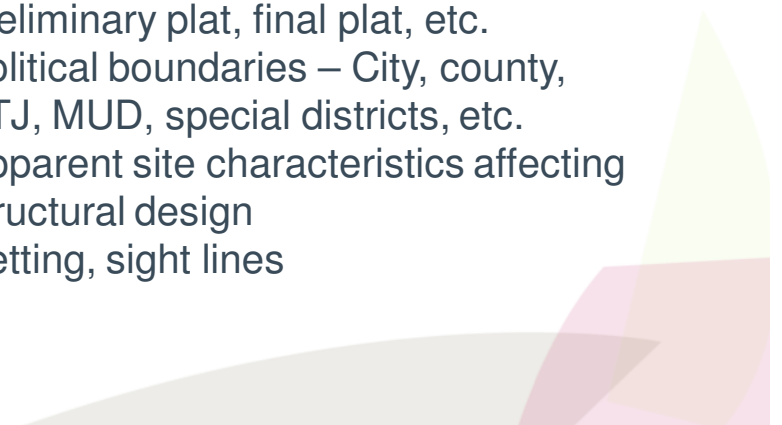
# The Next 30%

## Identifying Challenges



Look for the major project challenges..

- Topography – limitations on cut or fill, impact on earthwork quantities, impact on building/site design
- Impervious cover – limitations on percent of site and amount within slope categories (Austin)
- Drainage/Flood Plain
- FEMA FIRM Maps
- Local Flood Plains
- Record of adjacent or on-site development plans
- Permitting requirements, processes, and timing
  - City, County, State
  - Municipal Utility District
  - Other overlapping authorities  
e.g.:TCEQ, TAS, TDLR, LCRA, etc.
- Annexation
- Platting
- Potential opposition: homeowner's associations, public hearings, etc.
- History or news
- Title research:
  - Deeds
  - Restrictive covenants
  - Easements
  - Survey problems
  - Liens
  - Entitlements
  - Clouds on title
  - Encroachments
- Site reconnaissance – take design team to the site
- Subdivision plats of record – status of preliminary plat, final plat, etc.
- Political boundaries – City, county, ETJ, MUD, special districts, etc.
- Apparent site characteristics affecting structural design
- Setting, sight lines





# Next 30% – Topography



# Next 30% – Stadium



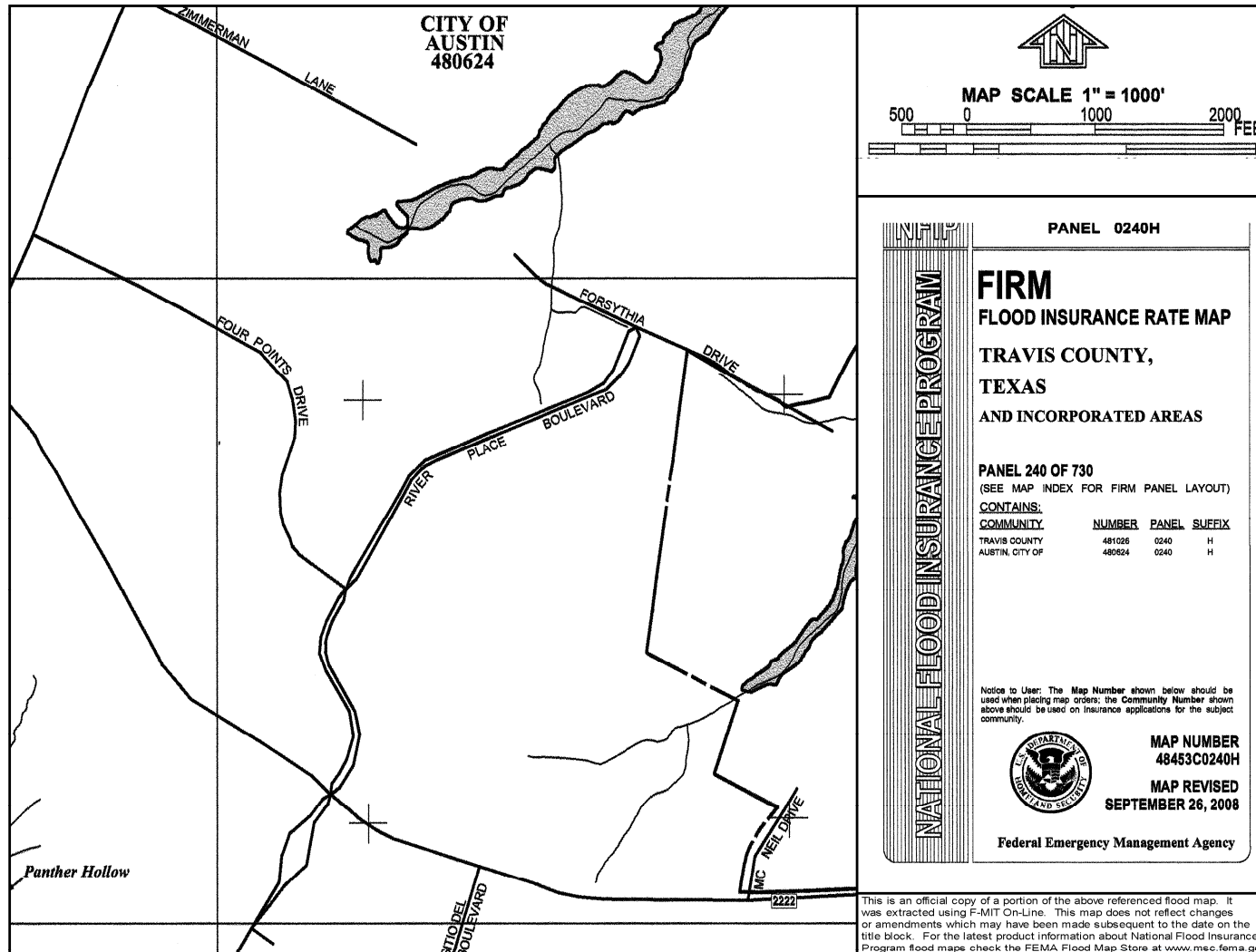
Balancing The Site  
“The Pit”

Next 30% – Stadium



Balancing The Site

# FEMA FIRM



# Municipal & Local Standards



## Cedar Park Fire Department Site Development Standards

### Required Plan Submittals

All site development plans shall include a sheet titled Fire Protection Plan. This sheet shall show a site plan with a building foot print. It shall indicate all fire apparatus access roads with radii, fire lane marking detail, fire hydrants, fire lines, fire department connection and security gates. All other overlays (landscaping, grading, other plumbing, etc.) shall not be indicated on the Fire Protection Plan. All Fire Department related site plan notes (as indicated below) shall also be inserted onto the Fire Protection Plan.

### Fire Apparatus Access Roads (Fire Lanes)

Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction of the Cedar Park Fire Department. The fire apparatus access road shall comply with the requirements of IFC Section 503 and this document. The fire lane shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building.

*(Note on plans)* Fire apparatus access roads shall be installed prior to combustible materials arriving on site and prior to the onset of vertical construction. Contractor should plan to install first lift of asphalt. Road base is not considered a substitute for an approved fire apparatus access road.

# Public Hearings



- Operational Information**
- Academic Programming & Mobility
    - New Topics, New Sites, New Chapters
  - Mobility Strategies
    - New Topics, New Sites, New Chapters
    - Student Transfer, BICA, and PTA
    - New Chapters
  - Naming of Schools
    - 20 articles
  - Transportation & Sidewalks
    - New Topics

# Title/Ownership Challenges

00005858566  
187/20

FILM CODE  
00005858566

**AMENDMENT TO DECLARATION OF  
COVENANTS, CONDITIONS AND RESTRICTIONS  
FOR THE RANCH AT CYPRESS CREEK SECTION ONE**

THE STATE OF TEXAS           §  
  §  
COUNTY OF TRAVIS/WILLIAMSON §

This Amendment to Declaration of Covenants, Conditions and Restrictions is made to be effective the date set forth below by CAPITAL PACIFIC HOLDINGS, LLC (CPH).

**RECITALS:**

A. By Declaration of Covenants, Conditions and Restrictions recorded in Volume 12201, Page 0806, Real Property Records of Travis County, Texas and Volume 2533, Page 0454, Official Records of Williamson County, Texas (the "Original Declaration"), CYPRESS CREEK RANCH, LTD. (CCR) imposed certain covenants, restrictions, charges and liens upon certain real property as therein described.

B. CCR assigns its rights and privileges as "Declarant" under the Declaration to CPH.

C. The Declaration provides that Declarant has the right at any time and from time to time to right to amend or modify the Declaration.

D. CPH desires to modify the Declaration as to said property as hereinafter set forth.

NOW, THEREFORE, CPH hereby declares as follows:

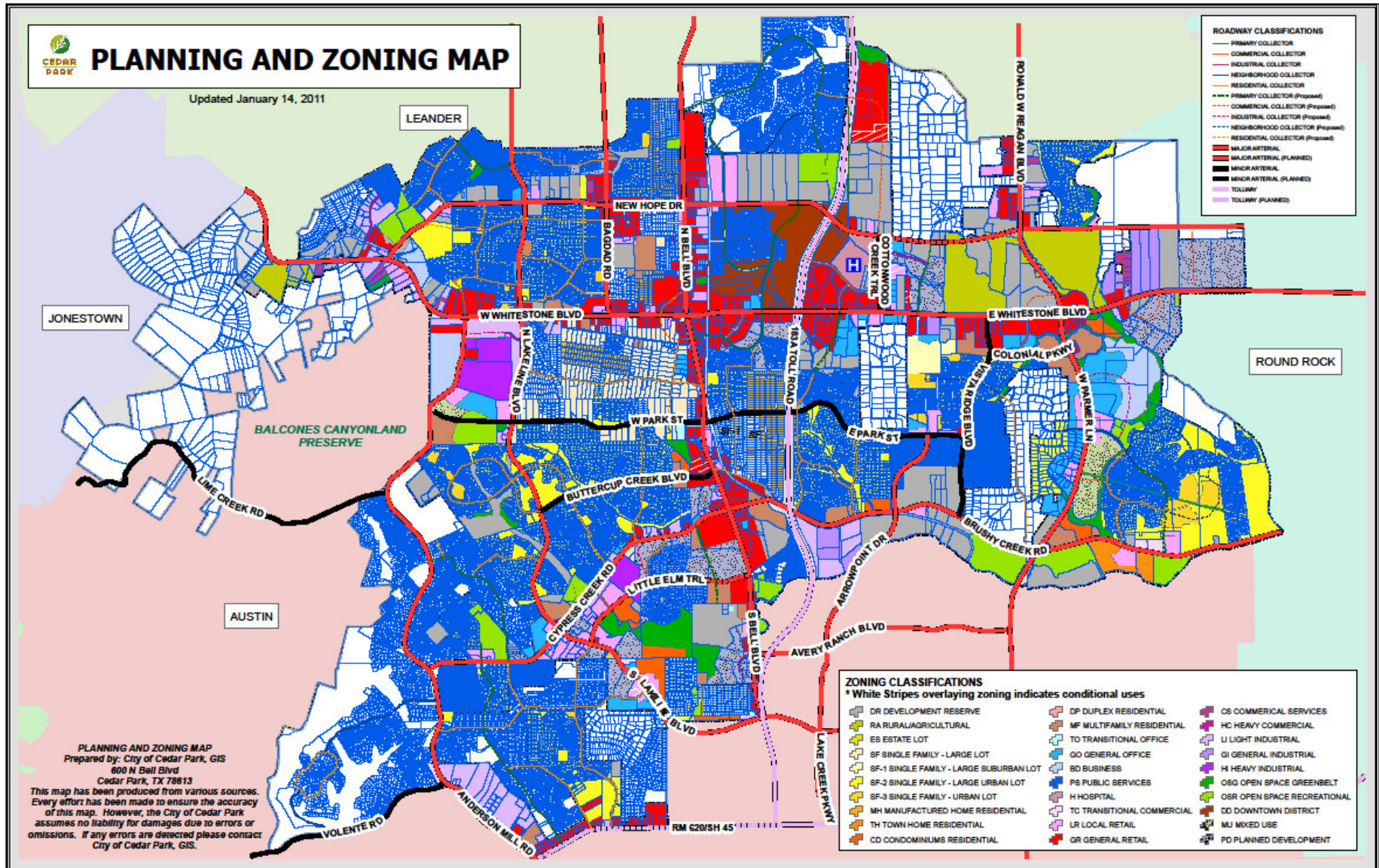
1. Modification of the Declaration as to the Land. The Land shall be held, transferred, sold, conveyed, occupied and used subject to the covenants, restrictions, charges and liens as set forth in the Declaration, provided that as to the same relate to the Additional Land, the terms and provisions of the Declaration are modified as follows:

(a) Paragraph 5.01 of the Declaration is hereby amended to replace the three voting members with Curtis Davidson, Andrea Deaver and Eric Willis.

(b) Paragraph 5.01 of the Declaration is hereby amended by adding the following sentences to the end thereof:

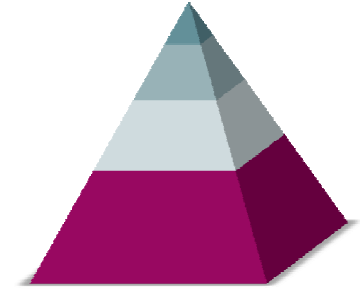
REAL PROPERTY RECORDS  
TRAVIS COUNTY, TEXAS  
13347 0630

# Political Boundaries/Zoning





# The Bottom 55% (Environmental) of the Pyramid



## Remaining 55%:

*Continue with site investigation and layouts drilling down to the details and costs to determine the total cost of the development as well as whether or not a site is suitable for the intended use.*

## Phase One Environmental Site Assessment (ESA)

**Records review – standard environmental records, federal database, state database, tribal database, local**

**Site reconnaissance – hazardous substances, storage tanks, petroleum products, septic systems, etc.**

**Interviews**

**Historic aerial photographs**

**Geological investigation**

**Maps – karst zones, faults, soils maps, strata**

Cultural resources survey

Environmental Setting

Cultural background

Conclusions & recommendations

Antiquities permitting

Cultural resources clearance

Ecological Assessment

Federally threatened and endangered species

Waters of the U.S. including wetlands

Karst survey

10a Permitting/consultation

Biological Assessment

Presence/absence surveys

Field survey – surface expressions, indications, features, caves

Hydrogeology & hydrogeologic column

Voids & back-up plan

# Stewardship

- Serves as the foundation of any truly progressive, innovative, efficient, and cost effective planning program.
- Less focus on “hugging trees” or “saving whales” and more focus on integrating projects into the landscape in a way that minimizes the footprint and promotes the greatest conservation, preservation, and use of natural resources...and may save costs.
- May be personally rewarding, but also establishes a company/organization as a leader in environmental awareness and a partner with the community, which fosters greater future stakeholder support and project success.

# Regulations

## Federal Regulations

- National Environmental Policy Act (NEPA)
- The Endangered Species Act (ESA)
  - Threatened, Endangered, and Candidate Species
  - USFWS is the custodian of the legislation
- The Migratory Bird Treaty Act (MBTA)
  - Applies to many species that are not protected under the ESA
- The Bald and Golden Eagle Protection Act (BGEPA)
  - Provides long-term species management and protection in addition to the ESA and MBTA
- The Clean Water Act (CWA)
  - Streams
  - Wetlands
  - Open Waters

# Regional Issues

## State and Local Regulation

- **State-level threatened and endangered species regulation**
  - States often provide varying degrees of species regulation and/or have few resources for regulatory enforcement
  - California (CEQA) compared to Texas, Oklahoma, etc.
  - For example: CEQA regulates everything. Texas regulates the collection and sale of state-level threatened or endangered species (due to illegal pet trade impacts), but does not directly regulate otherwise lawful activities that may impact these species.
  - Caution: Many state-listed species may also be federally-listed or federal candidate species



# Environmental Studies

- **Feasibility Studies**
- **Environmental Site Assessments (Phase I and II)**
  - Records review
  - General site reconnaissance
- **T&E Habitat Assessments**
  - Desktop assessments
  - Site reconnaissance
- **Potential Jurisdictional Waters/Wetlands Assessments**
  - General assessments
  - Field delineations
- **Presence/Absence Surveys**
  - Focused field surveys, trapping, collection

# Wetland and Stream Regulation

## Waters of the U.S.

- Primary authority is U.S. EPA, but they defer regulatory authority to the U.S. Army Corps of Engineers (USACE).

## Primary regulations are:

- Section 10 of the Rivers and Harbors Act of 1899 – establishes jurisdiction of navigational waters (Waters of the U.S.) under the USACE.
- Clean Water Act of 1972 – establishes surface water quality protection standards.
  - Section 404 – regulates discharge of dredged or fill material into a Waters of the U.S.

## 1987 USACE Wetland Delineation Manual

- Industry Standard for the identification and evaluation of jurisdictional wetlands

**Not all wetlands are “jurisdictional”, yet state or local rules may apply.**

**Small drainages, lakes, or ponds may or may not be Waters of the U.S. (jurisdictional).**



# Wetland and Stream Regulation

**How do you know if your stream or wetland is jurisdictional?**

**Conduct preliminary wetland or stream delineation.**

- Defines potentially jurisdictional boundaries, which helps determine spatial coverage.
- Determine the ordinary high water mark (OHWM) and linear feet of streams.
- Calculate anticipated impacts based on proposed project designs.

**1987 Corps of Engineers Wetland Delineation Manual**

- Provides general foundation for wetland delineation methods.

**Regional Supplements**

- Essentially provide regionalized versions of the 1987 Manual to account for differences in soil chemistry, climate, hydrology, etc.
- Central Texas falls within the Great Plains Supplement. East Texas and the coast of Texas fall within the Atlantic and Gulf Coastal Plain Supplement.

# Wetland and Stream Permitting

## Texas Rapid Assessment Method (TXRAM)

- Method for evaluating the “condition” of an existing wetland or stream.
- The condition aids in the determination of mitigation requires, should the wetland or stream be impacted.
- Currently voluntary (USACE Fort Worth District only).

## Nationwide Permit vs. Individual Permit

- Based on the nature of the proposed activity and the anticipated impacts to jurisdictional waters.
- Nationwide Permits are typically cheaper to prepare and easier to come by.

## Mitigation

- Mitigation Banks
- Creation
- On-site vs. Off-site
- Natural Stream Channel Design
- Wetponds vs. Detention Ponds





# Cultural and Historic Resources

## Four main compliance laws for cultural resources in Texas:

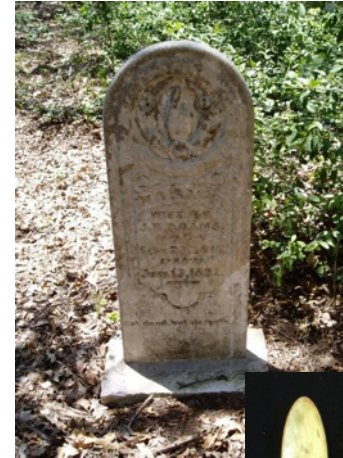
- NEPA,
- Section 106 of the National Historic Preservation Act,
- Texas Health and Safety Code, and
- The Antiquities Code of Texas.

Section 106 applies to projects with a federal nexus (like USACE permits).

The Texas Health and Safety Code requires work to stop in the vicinity of human remains (including cemeteries and graves) and/or consultation with the Texas Historical Commission (THC) before proceeding.

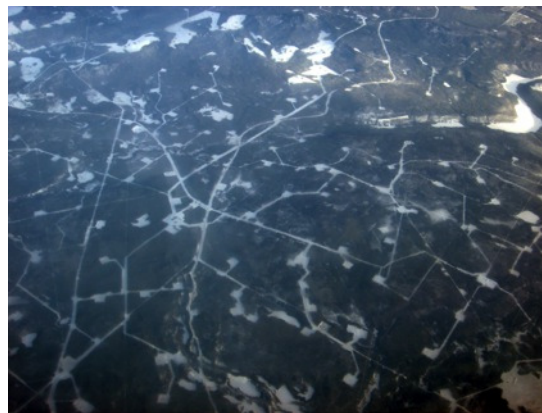
The Antiquities Code of Texas was enacted to protect archeological sites and historic buildings on public land.

- ISDs fall under this code.
- Requires full coordination with the Texas Historical Commission and thorough evaluation of cultural and historic resources.



# General Wildlife Impacts

- Habitat loss, degradation, fragmentation
  - Imparts localized, long-term effects on otherwise common and sustainable wildlife populations
  - Lots of “localized impacts” contribute to a broader cumulative impact, which can lead to negative populations trends
    - Example: Hundreds or thousands of small, individual well pads and lease roads can have a large cumulative effect on the landscape
    - Example: Breeding bird (such as horned larks) activity in grasslands



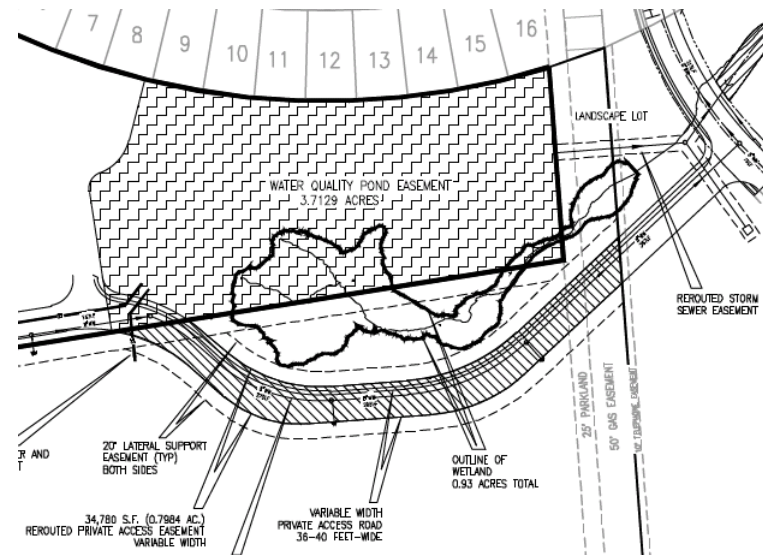
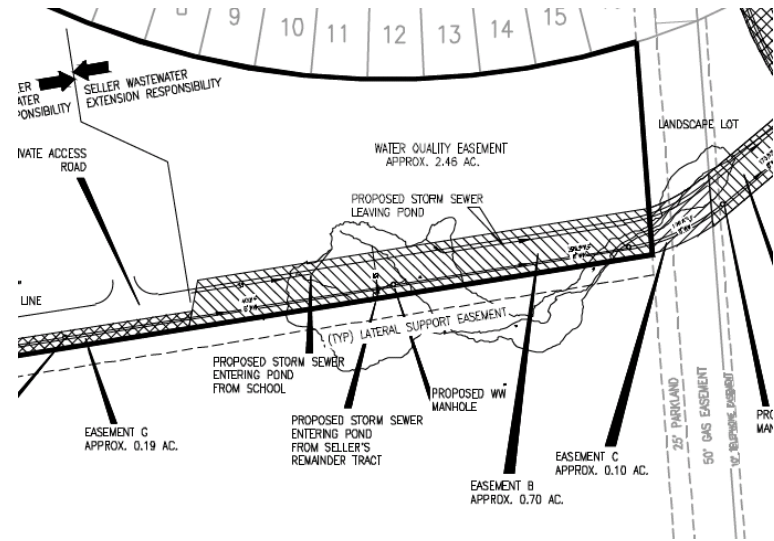
# General Wildlife Impacts

- **Loss of severe wintering ranges for ungulates in colder climates**
  - Federally-listed endangered white-tailed deer, pronghorn antelope, or elk?
    - Bobwhite quail?
- **Loss of niche habitat for specialists such as Colorado green gentian (*Frasera coloradensis*) or species endemic to serpentine formations**
- **Impacts to watersheds**
  - Mussel species, darters, minnows, salamanders, etc.
- **Currently benign and otherwise lawful activities could contribute to future listing of species if not properly managed now.**



Source: Marguerite Gregory – California Academy of Sciences

# Stewardship

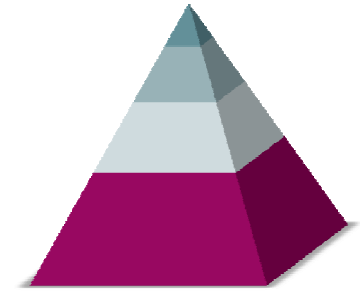


# Stewardship

- Design/plan with the environment, rather than against it.
- Utilize and/or improve the natural resources that are already there.
- Don't destroy something only to have to mitigate for it later.
- Raise the collective awareness of your company and your colleagues.



# The Bottom 55% (Engineering) of the Pyramid



Traffic Impact Analysis (TIA) – driveways, lines of site, school zones, connecting street classifications, signals

Safe Routes to School - design & funding resource

Records of utilities, services, sizes, capacities

Tree impacts, applicable rules, design regulations, and permitting requirements

Existing and required drainage improvements

Off-site infrastructure requirements & processes

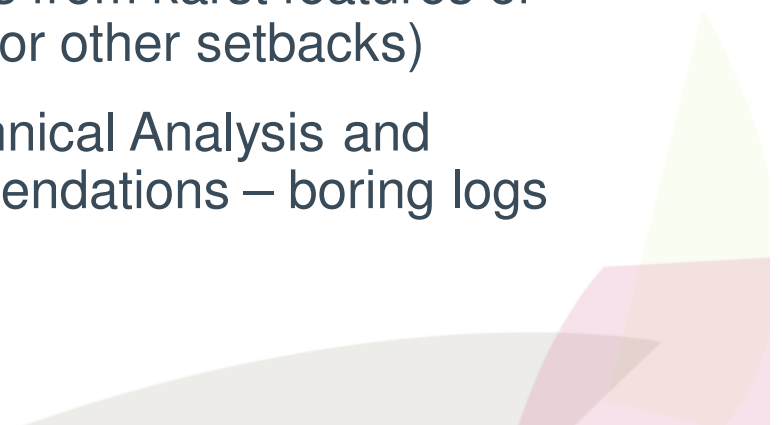
Local codes, rules & regulations, permitting processes and timelines

Special drainage systems – detention/retention, re-irrigation, filtration, dams, regional facilities

Impacts of habitat – mitigation, processes, costs, impacts on schedule (e.g. bird nesting season)

Opportunity cost of land lost to setbacks from karst features or habitat (or other setbacks)

Geotechnical Analysis and recommendations – boring logs

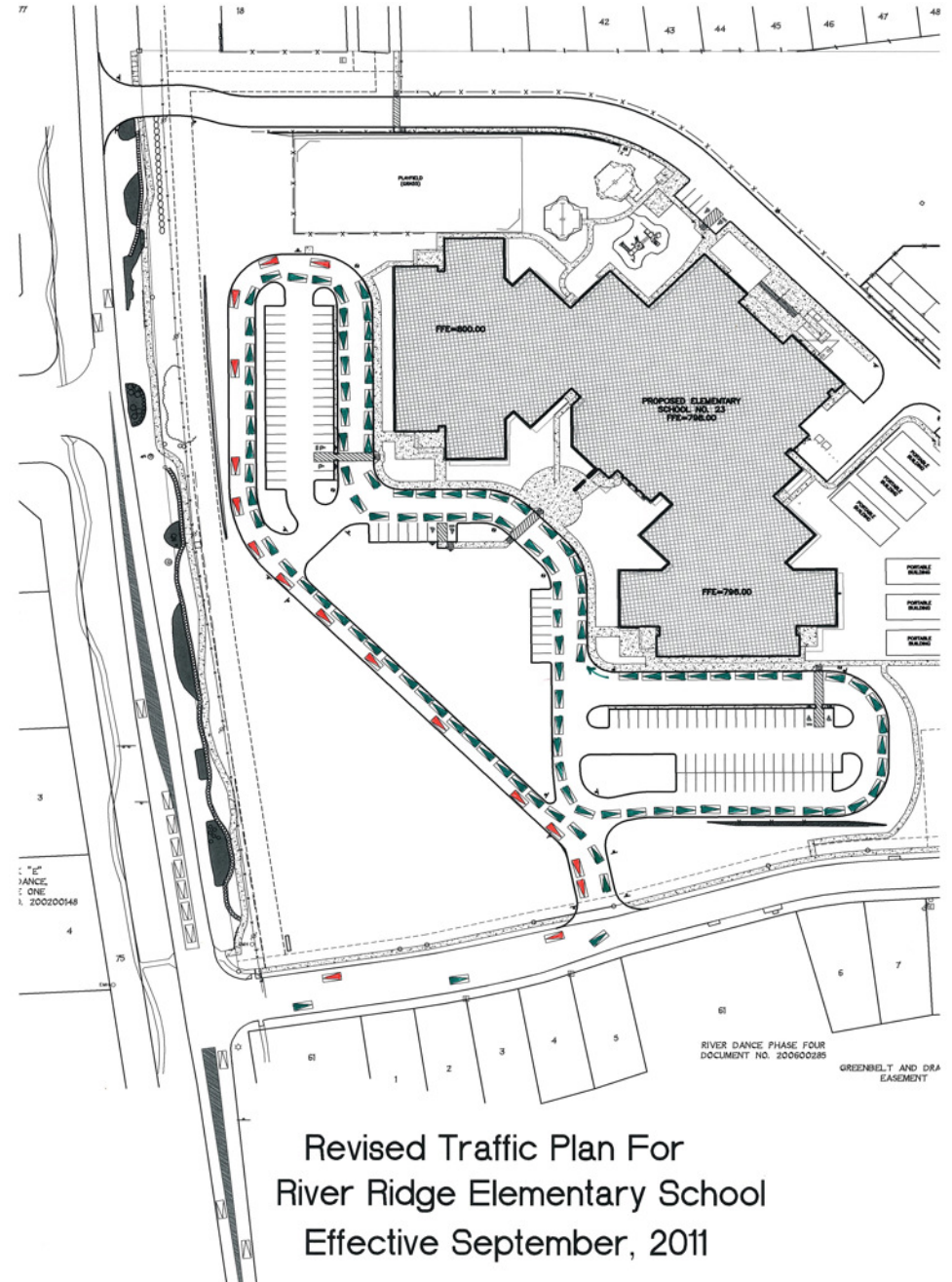


# Drainage/Water Quality



# Next 55%

## Who Doesn't Have Traffic Issues/Concerns?





An aerial photograph of a school campus. The central focus is a large, multi-winged building with a white roof. To the right of the building is a large green sports field, possibly a soccer field, with a baseball field visible in the background. The campus is surrounded by parking lots with several cars and trucks. The surrounding area includes trees and residential-style roads.

Next 55%

Who doesn't have traffic issues and concerns?

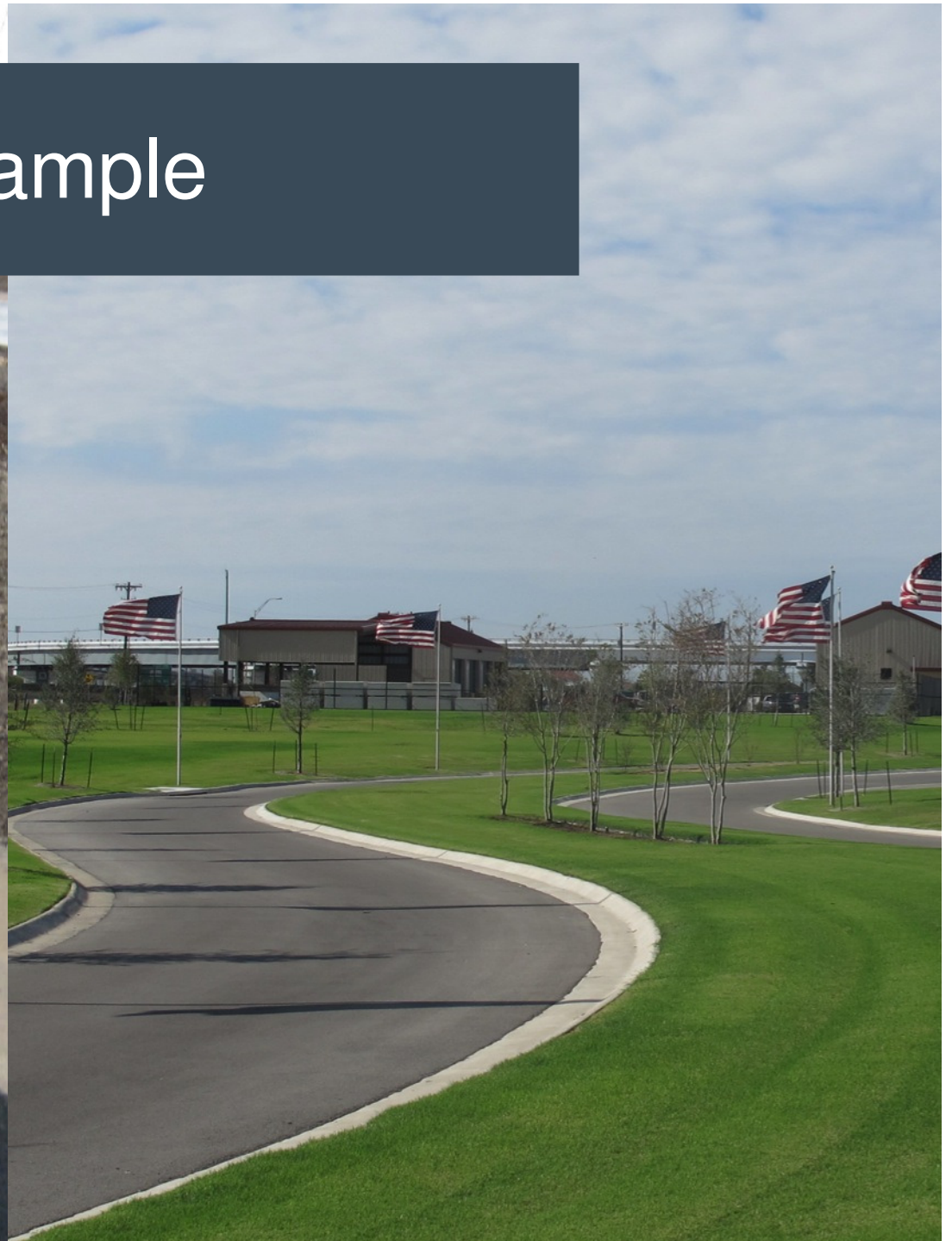
# Bottom 55% – Example



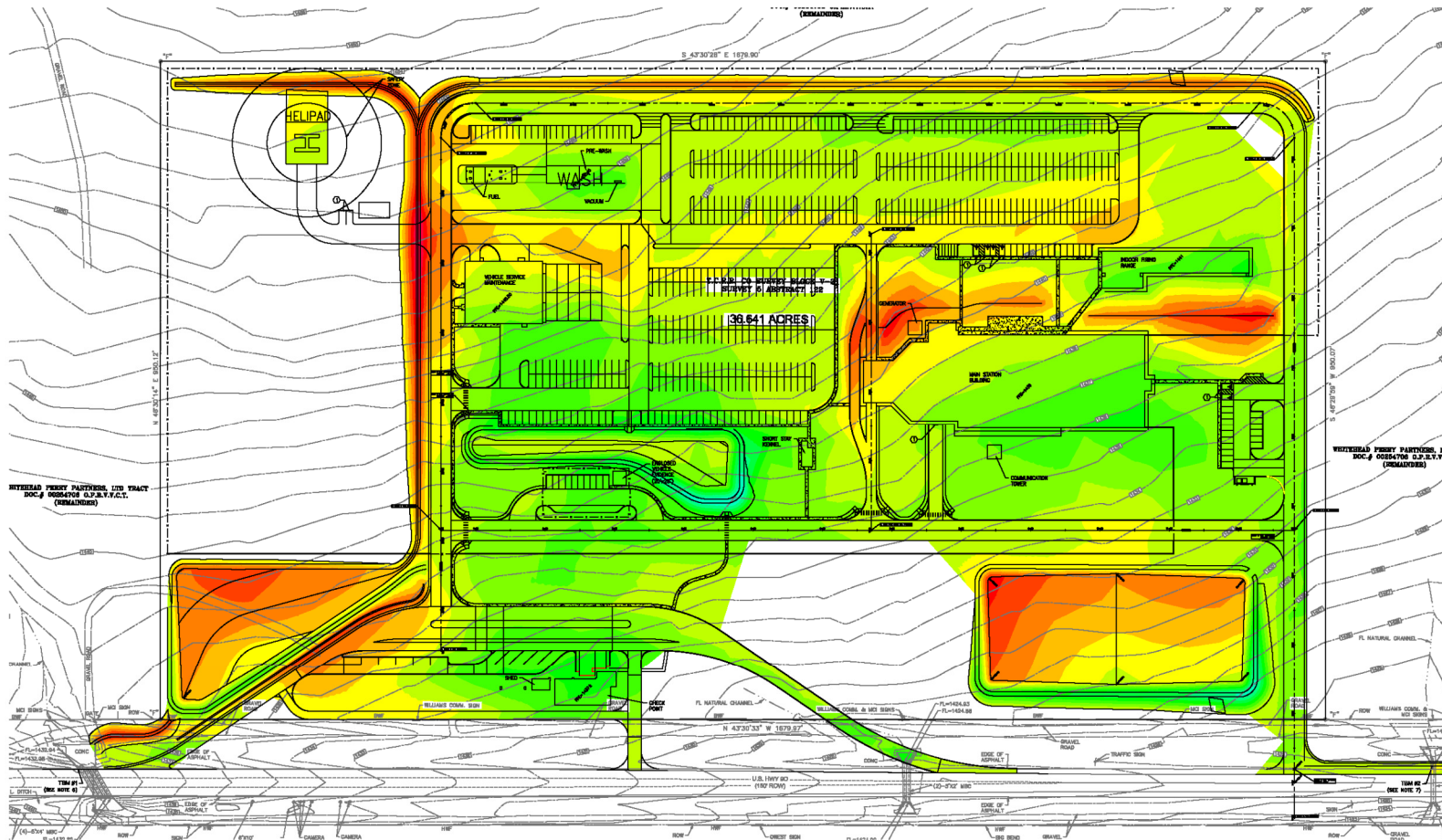
# Bottom 55% – Example



# Bottom 55% – Example

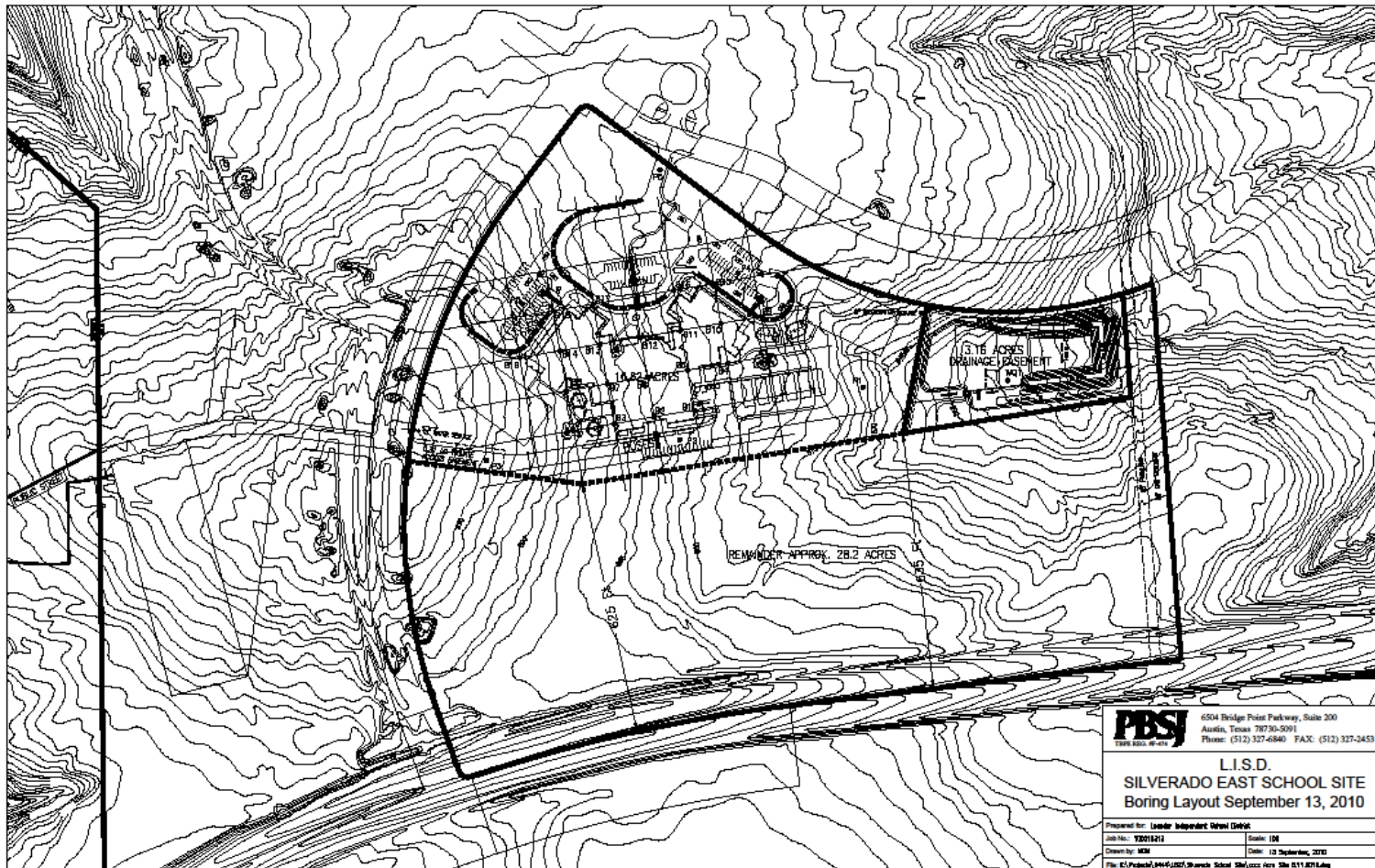


# Bottom 55% - Examples



Balancing The Site

# Bottom 55% - Geotechnical



# The End Result



# The End Result





# Everyone's Happy







# The End Result



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