

# Municipal Setting Designations



MSDs: Another tool for Houston

Ann Marie Stone-Sheridan, PE  
Supervising Engineer



Municipal Setting Designations (MSDs)



# Agenda

- City of Houston - Programmatic
  - What the MSD is
  - Who the MSD impacts
  - Steps in the MSD process
  - **Questions / Comments**
- MSD Applicant - Technical
  - Specific information on the site  
0 North Shepherd
  - **Questions / Comments**



# Environmental Protection in Texas

- The State of Texas has jurisdiction for environmental protection
  - Texas Commission on Environmental Quality (TCEQ)

- Environmental Complaints



- By Phone: 1-888-777-3186

- Online: <http://www5.tceq.texas.gov/oce/complaints/>

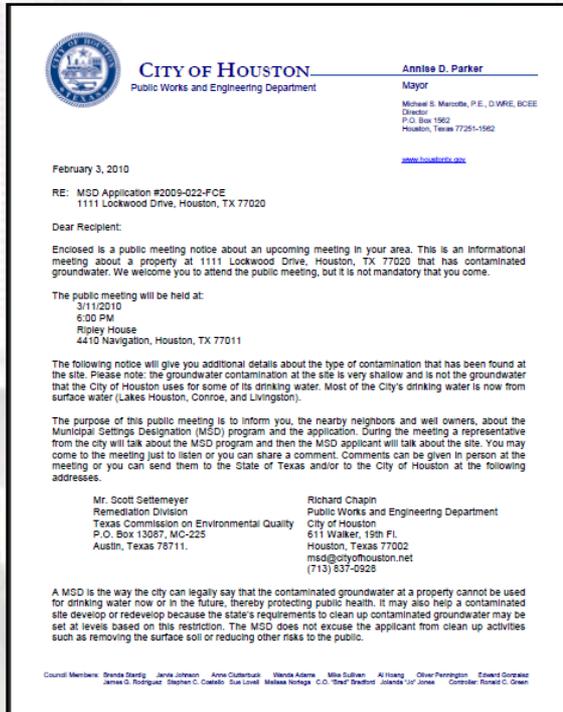


- By Phone: 311

- Online: [http://webintake.houstontx.gov/web\\_intake/Controller](http://webintake.houstontx.gov/web_intake/Controller)

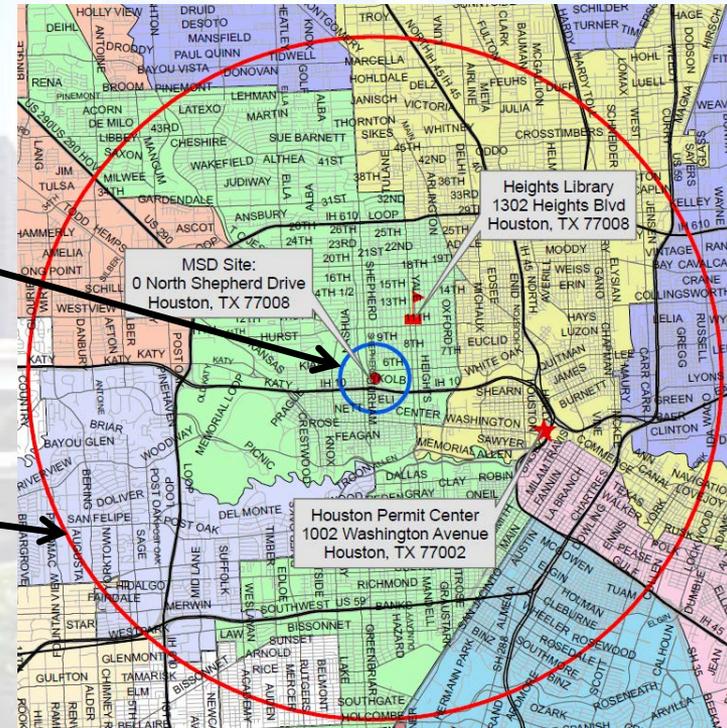


# MSD Notice Letters



Property Owners  
First-Class Mail  
½-Mile Radius  
*City Requirement*

Water Well Owners  
Certified Mail  
5-Mile Radius  
*State Requirement*



*If you received a notice through certified mail that means you have a water well according to the State's records*



**Municipal Setting Designations (MSDs)**

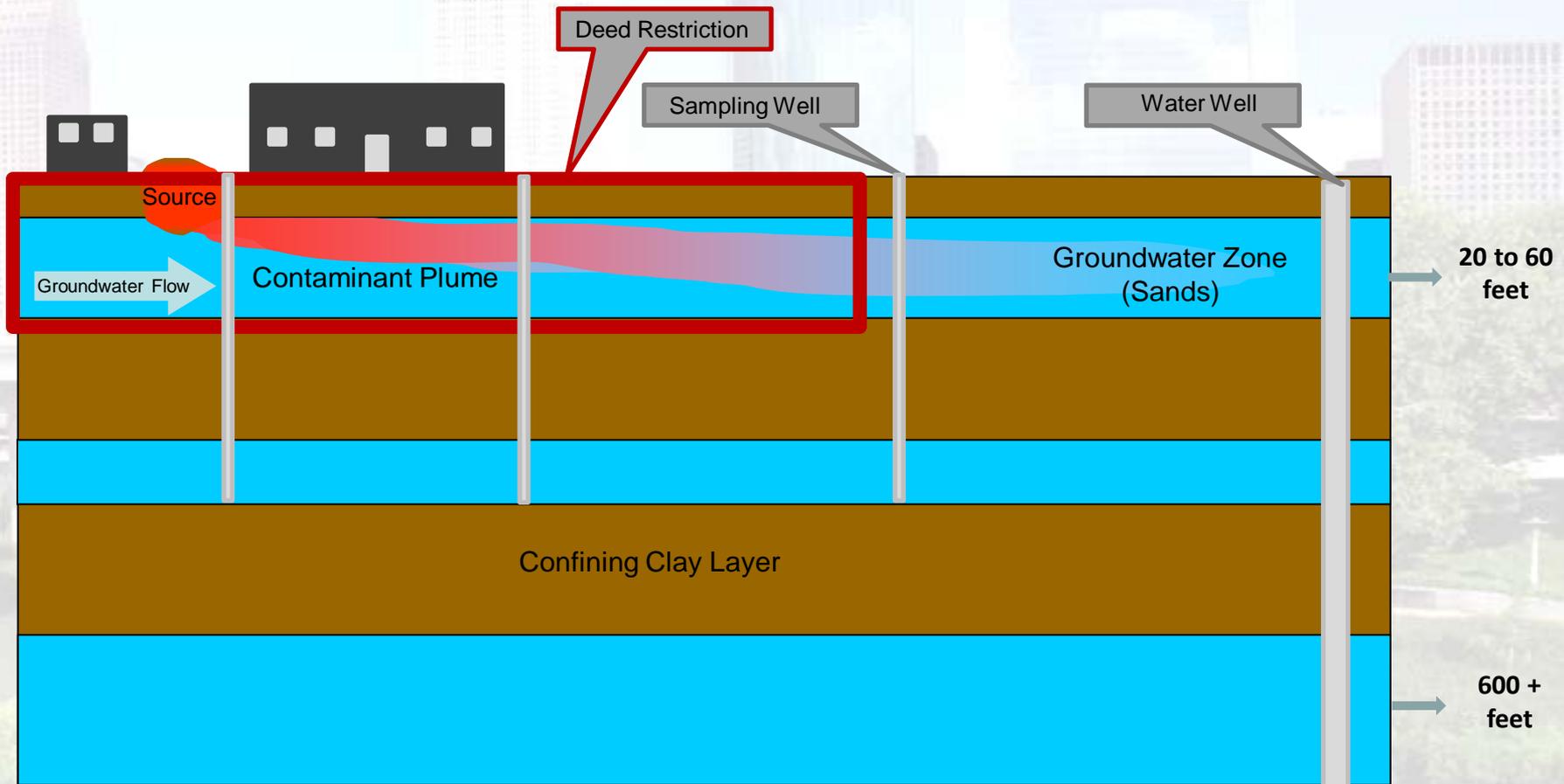


# What an MSD is

- **Voluntary** deed restriction to prevent the use of contaminated groundwater
  - No water wells on the subject property for drinking water purposes
  - A legally binding way to ensure the public is not exposed to contaminants



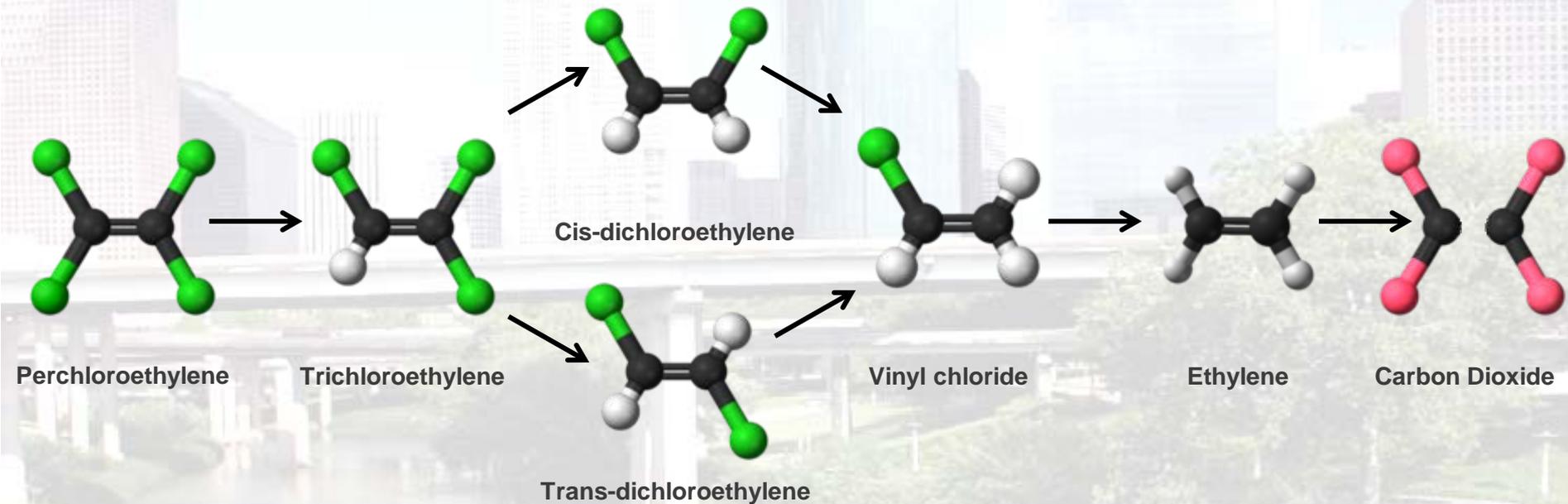
# Groundwater Contamination



*Please Note: Houston has shallow contaminated groundwater scattered across the City*



# Chemical Degradation



This process takes decades, but is found to be the most efficient strategy.

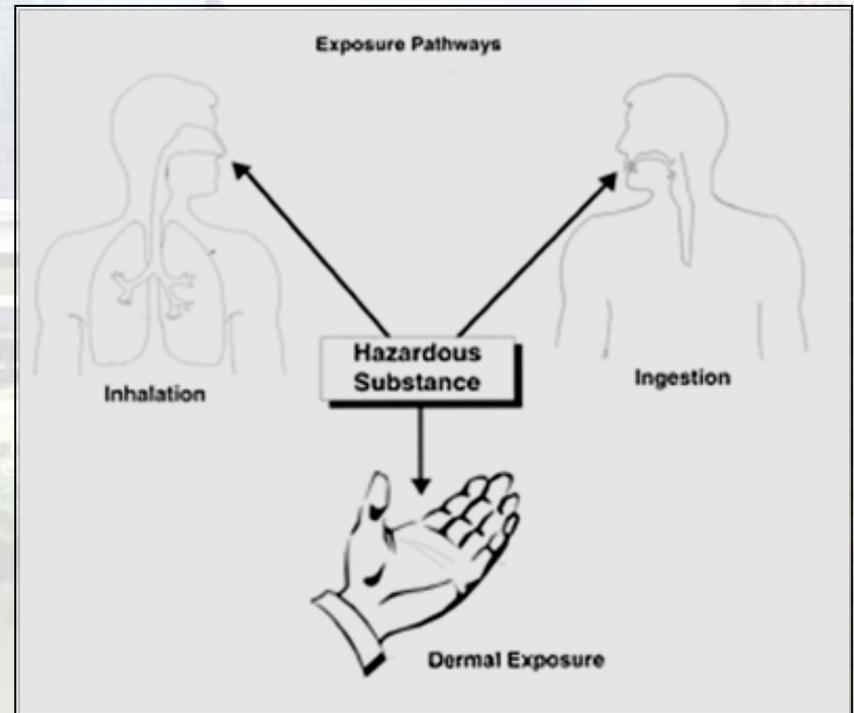


Municipal Setting Designations (MSDs)



# Exposure Pathways

- Cleanup Programs are based on public exposure to contaminants and reducing public health risks
- Exposure Pathways
  - ~~Ingestion~~
  - Inhalation
  - Contact (dermal)
  - Soil
  - Groundwater to surface water
  - Ecological



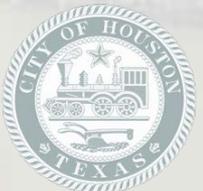
# Environmental Cleanup

- The MSD is only **one step** in the cleanup process
- An MSD does **NOT** excuse the applicant from reducing risks to the public
- Responsible Parties are always responsible



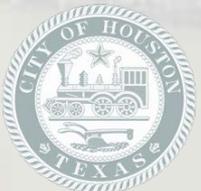
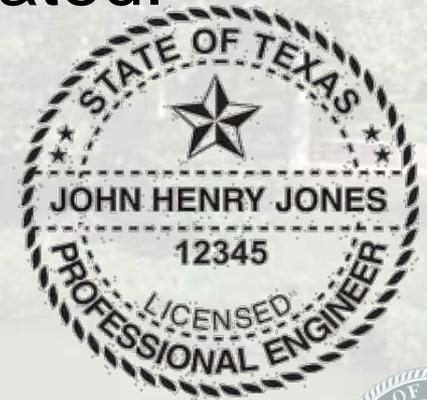
# Who the MSD Impacts

- An MSD does not affect you!
  - An MSD **DOES NOT AFFECT** your property
  - An MSD **DOES NOT AFFECT** your water well
  - There are **NO REQUIREMENTS** on you
- Drinking water supplied by the City is not affected

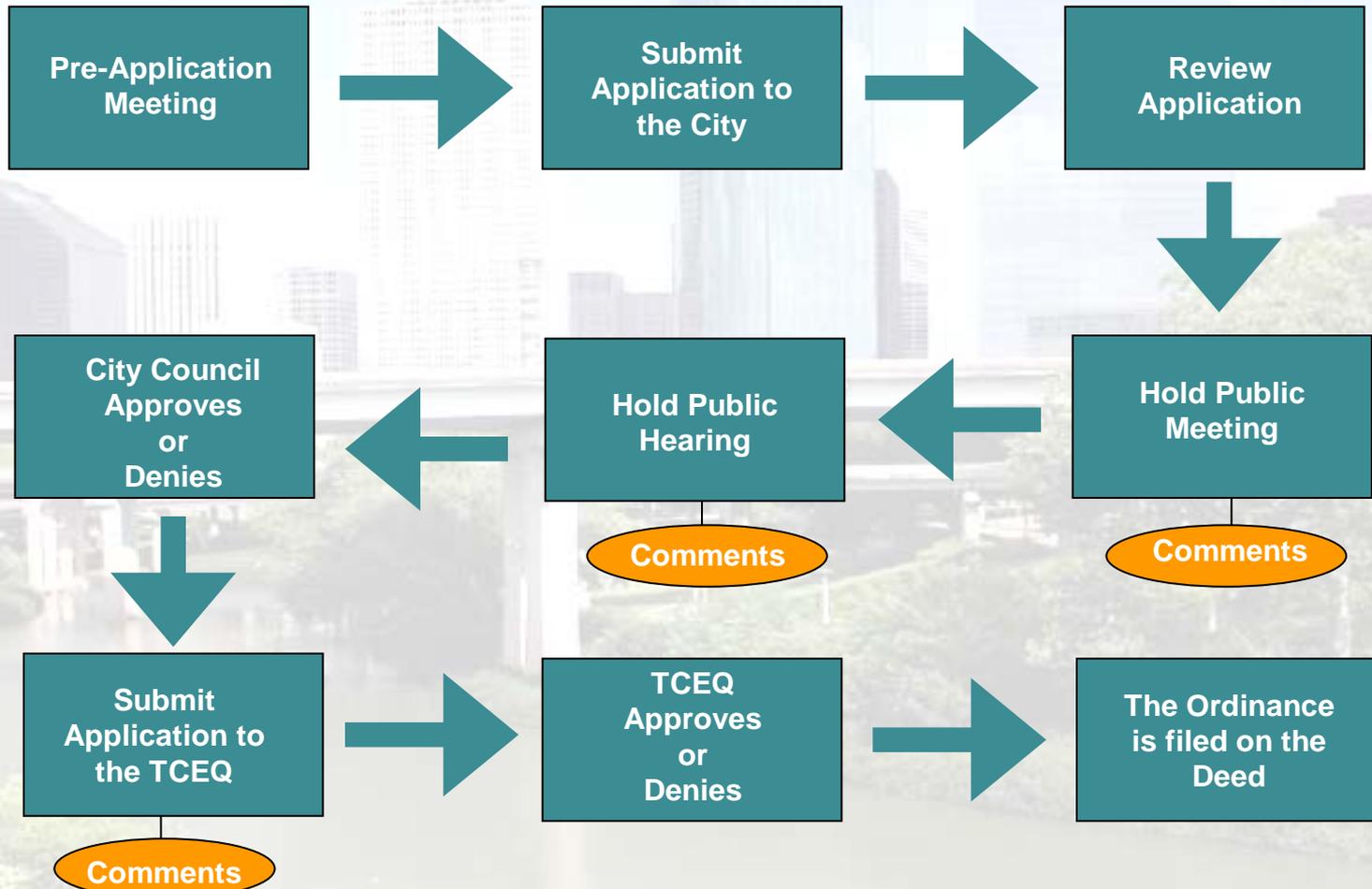


# City's Requirements of the Applicant

- Enrollment in a State or Federal cleanup program
- Thorough investigation
  - Data must show that the groundwater plume is stable or decreasing, and delineated.
- A **third party** Engineer (P.E.) or Geologist (P.G.) must certify application

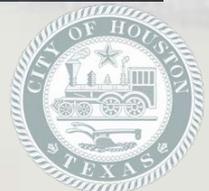


# Steps in the Process

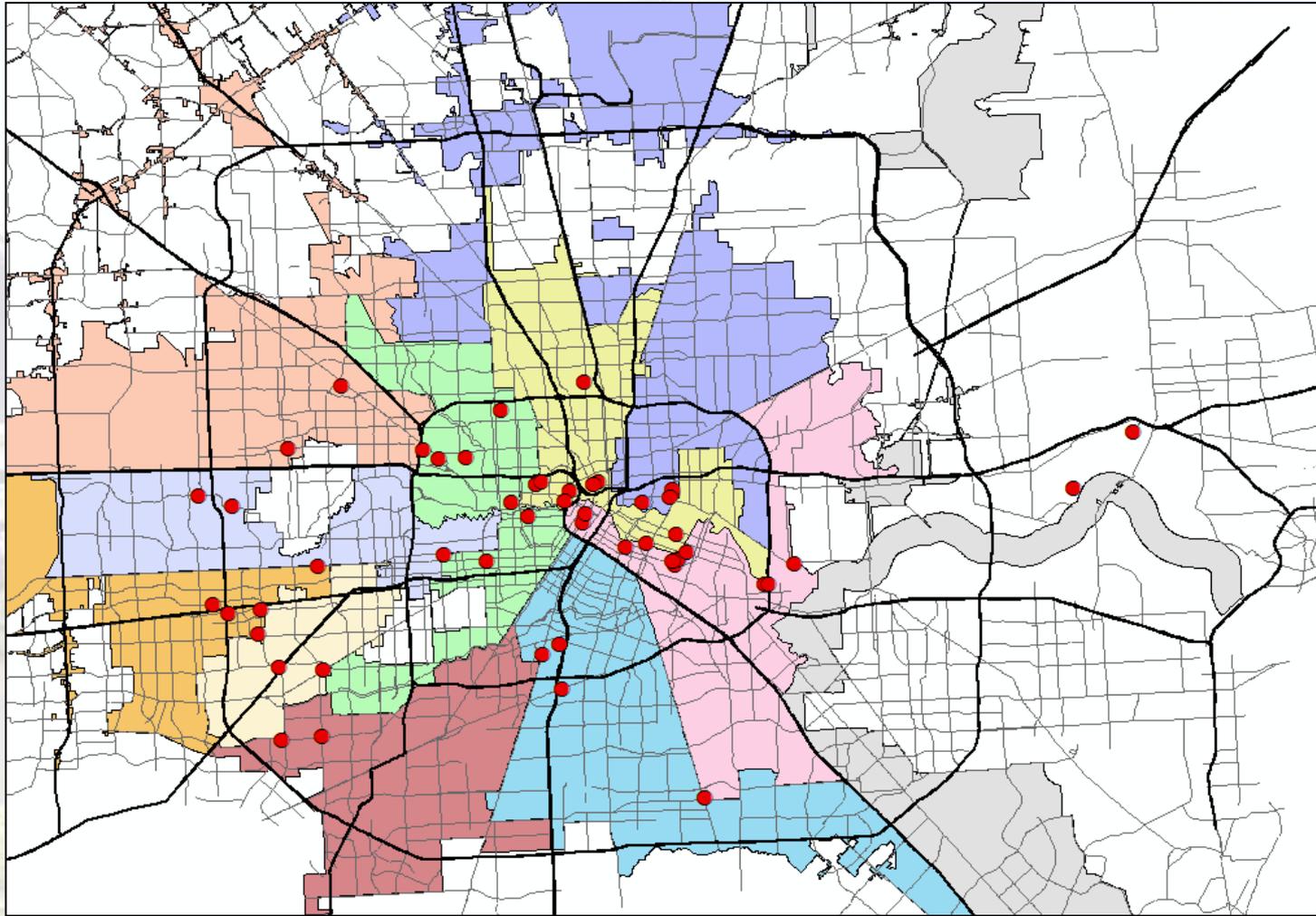


# Why Support An MSD?

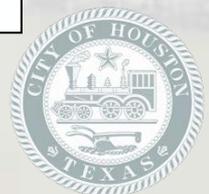
- Protects the public from consumption of contaminated groundwater
- Encourages clean-up of contaminated sites
- Promotes redevelopment of under-utilized properties



# MSD Sites in Houston

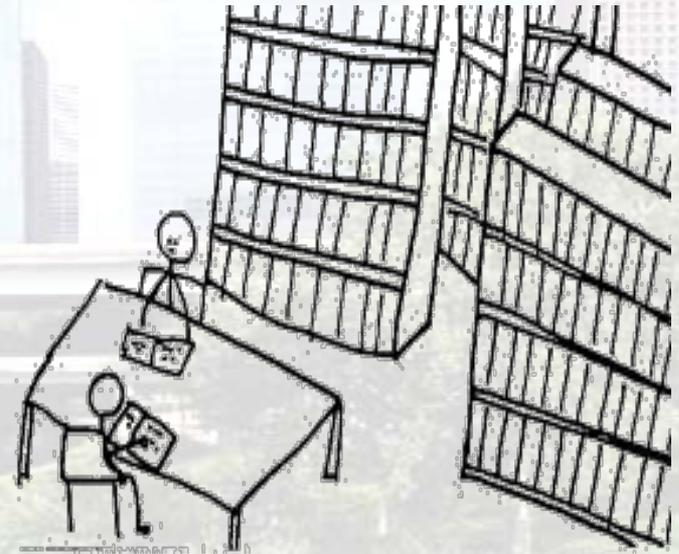


Municipal Setting Designations (MSDs)



# MSD Application Availability

- Heights Library
  - 1302 Heights Blvd
  - Reference Desk
- Also available online at:  
[www.houstonmsd.org](http://www.houstonmsd.org)
  - MSD in Review Page



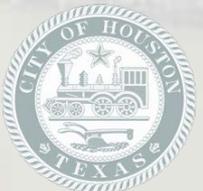
# Public Hearing

- **Date:** September 10, 2013
- **Time:** 10:00 AM
- **Place:** City Council Chamber (Committee Meeting)  
Transportation, Technology, & Infrastructure
- **Address:** 901 Bagby, Second Floor  
Houston, Texas 77002

Any person wishing to speak on this issue must arrive at least 15 min early and sign the speakers list located on the front desk.



**Municipal Setting Designations (MSDs)**



# Contact Information

**Ann Marie Stone-Sheridan, PE**  
Supervising Engineer

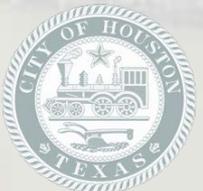
**Public Works & Engineering**  
**City of Houston,**  
**1002 Washington, 3<sup>rd</sup> Floor**  
**Houston, Texas 77002**

**[msd@houstontx.gov](mailto:msd@houstontx.gov)**

**(832) 394-9005**



Municipal Setting Designations (MSDs)





# City of Houston

Municipal Setting Designation Application

MSD-2013-059-FCD

Public Meeting

JULY 30, 2013



# **Harris County Flood Control District**

9900 Northwest Freeway  
Houston, Harris County, Texas

Contact Information:

Glenn W. Laird

Director of Environmental Services Division

Harris County Flood Control District

(713) 684-4192

By:

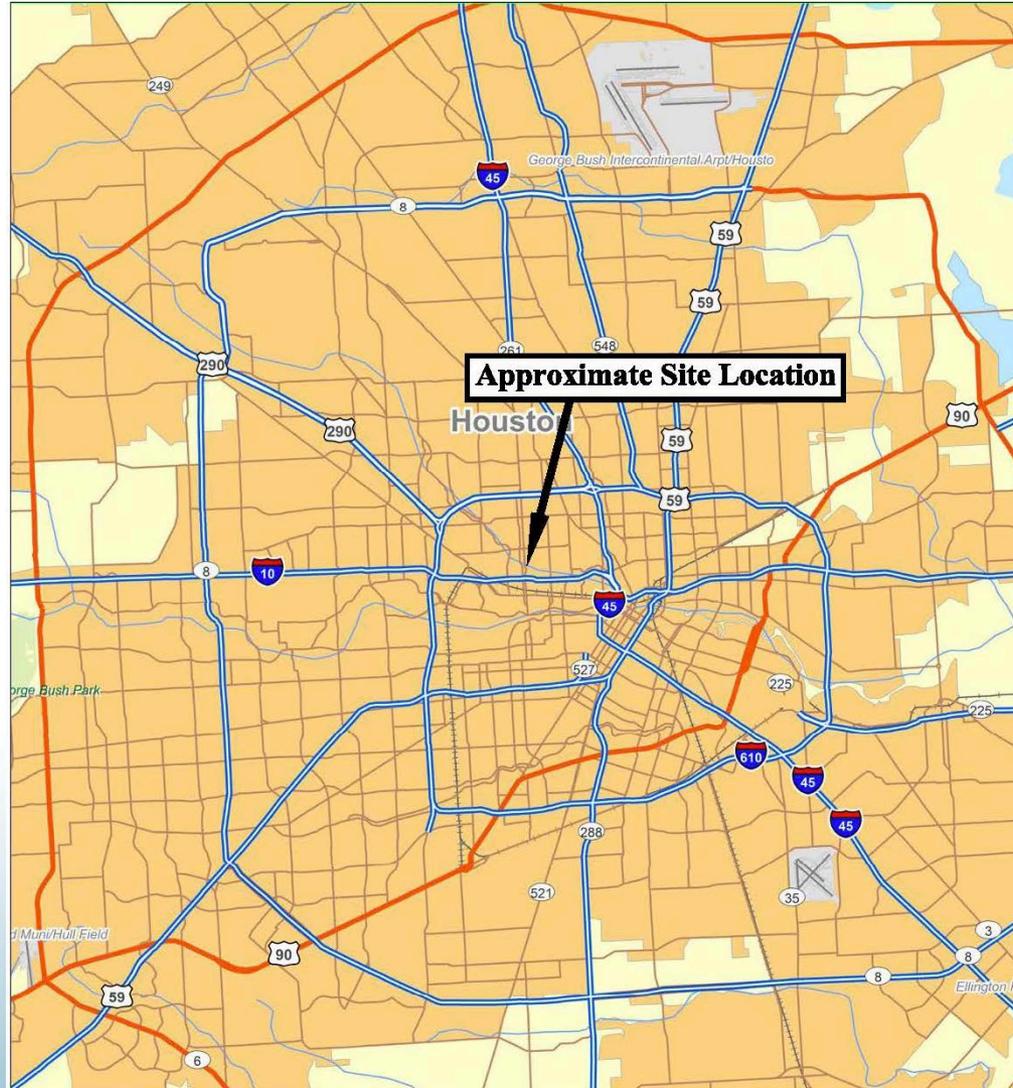
ESE Partners

19416 Park Row, Suite 120

Houston, Texas 77084

281-501-6100 [www.esepartners.com](http://www.esepartners.com)

# Site Location





# The Site Today

- Vacant / Undeveloped
- Approximately 9.3 Acres



# Site's Contamination

- Groundwater impacted by metals
  - Antimony
  - Arsenic
  - Barium
  - Cadmium
  - Chromium
  - Lead
- Soil impacted by metals

# Site Before

- Contamination suspected to be related to incinerator ash placed in former oxbow to White Oak Bayou in 1950s
- Excavated material from re-channelization appears to have been placed on top of incinerator ash



# Applicant's Responsibility

- Groundwater contaminant concentrations are protective of non-ingestion exposure pathway
- No direct exposure issues in soil
- No vapor exposure issues in soil or groundwater
- Precautionary monitoring of surface water
  - to ensure no contaminant impacts to White Oak Bayou



# Investigation & Clean Up Activities

- Site admitted to TCEQ's Corrective Action Program in March 2013
- Site investigation since 2011
  - 10 permanent groundwater monitor wells
  - 17 temporary groundwater monitor wells
  - 10 soil borings
- MSD Application submitted to City of Houston in April 2013
- Continued monitoring of White Oak Bayou to ensure no potential impacts to surface water from identified contaminants



# Non-Ingestion Contact

- All soil and groundwater contaminants are below non-ingestion exposure pathway levels (soil-air-vapor inhalation and groundwater-air-vapor inhalation)
- The MSD for the Site will be placed in the City of Houston's utility database
  - Utility workers will be notified when working on Site property
  - Can use appropriate PPE when working on buried utility lines at Site

# Soil

- No soil impacts above direct exposure pathway
- Site is unoccupied and is heavily vegetated
- Incinerator ash (suspected source of contaminant) is located at depths of 10 to 15 feet below ground surface

# Vapors

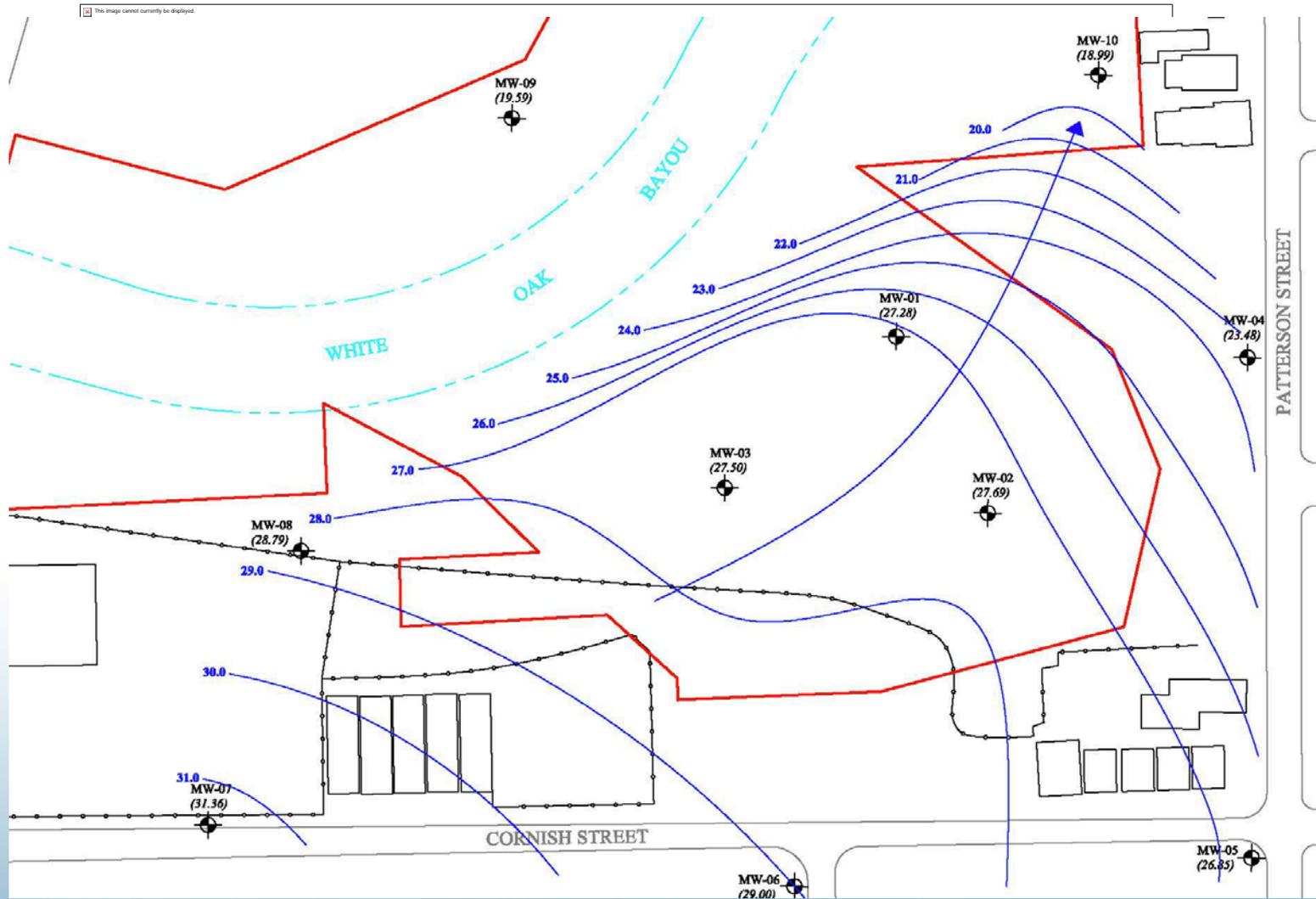
- Contaminant impacts in soils ***do not*** exceed established TCEQ concentration levels for protection of human health through vapor inhalation
- Contaminant impacts in groundwater ***do not*** exceed established TCEQ concentration levels for protection of human health through vapor inhalation

# Surface Water

- Contamination in soil is located between 10 and 15 feet below ground surface – storm water run off is not exposed to contaminated material
- Surface water bodies in the immediate vicinity (White Oak Bayou) are sampled and tested on a quarterly basis to ensure contaminated groundwater is not impacting the bayou

# Subsurface Map

Site Groundwater Gradient Map  
– February, 2013



# Groundwater Plume

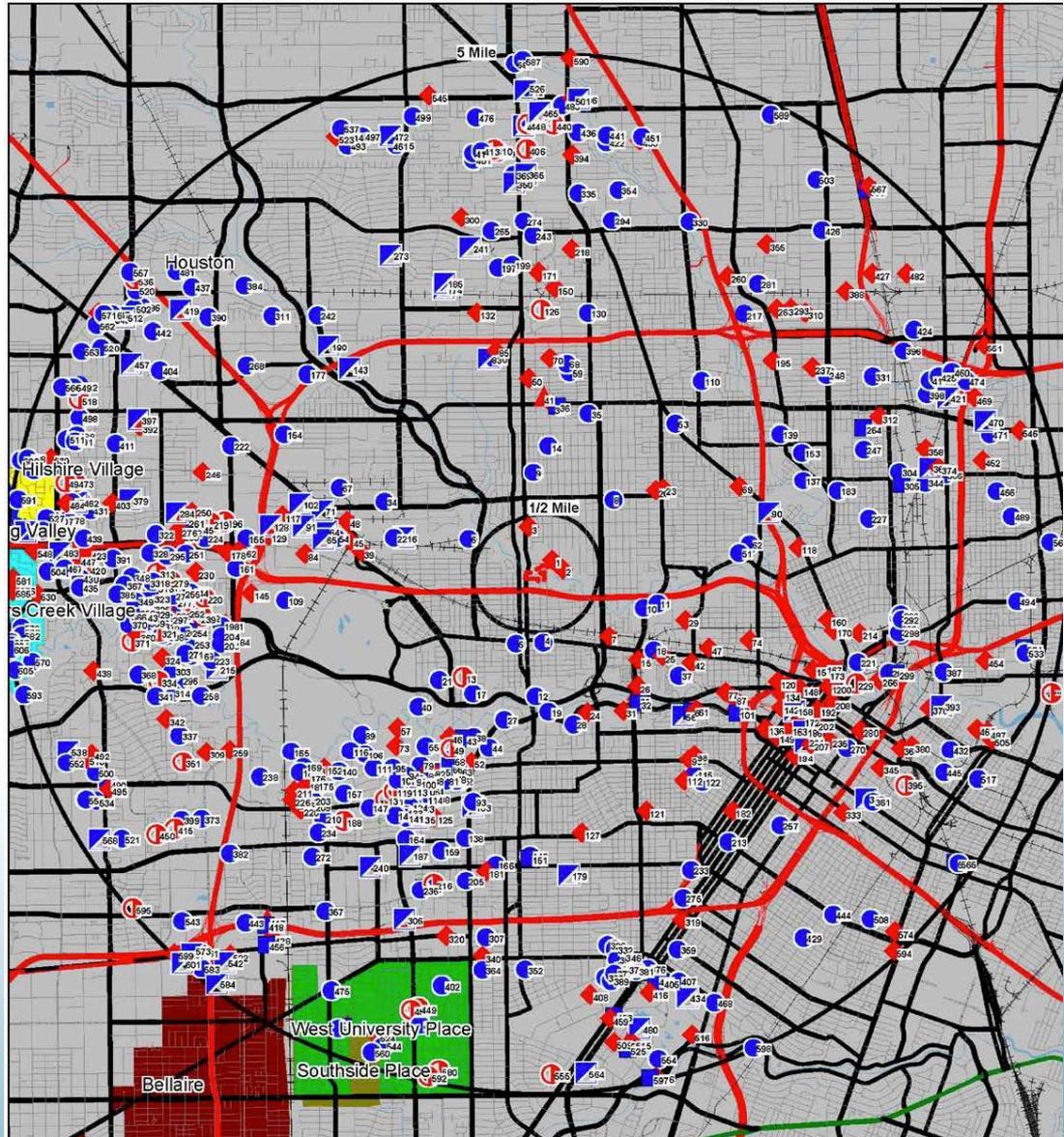
- Groundwater contaminant plume fully delineated, vertically and horizontally
  - Four quarters of groundwater data from perimeter monitor wells demonstrates that the plume is delineated
  - No evidence of contaminants in soil underlying shallow (impacted) aquifer
- Four consecutive quarters of groundwater data collected from the source area shows contaminant plume is stable
  - Groundwater contaminant concentrations in apparent source area wells (MW-1, MW-2 and MW-3) demonstrated to be stable



# Groundwater Plume- 5 Mile Radius

**Legend**

- Target Property (TP)
- TCEQ
- HGSD
- TWDB
- SSDRD
- NWIS
- WUD



# Groundwater Plume- 1/2 Mile Radius

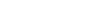
## Legend

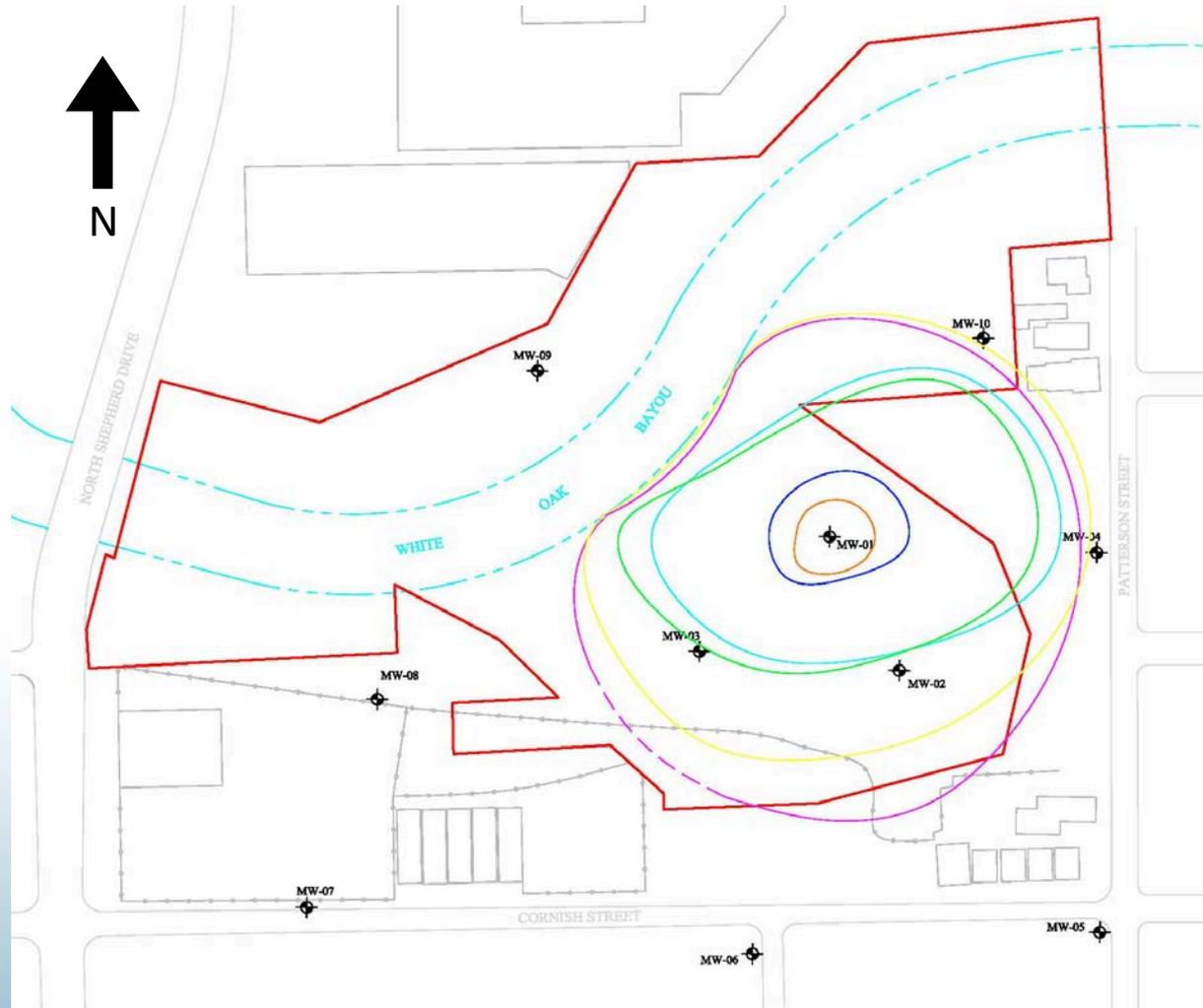
-  Target Property (TP)
-  TCEQ
-  HGSD
-  TWDB
-  SSDRD
-  NWIS
-  WUD



# Site Map

## Legend

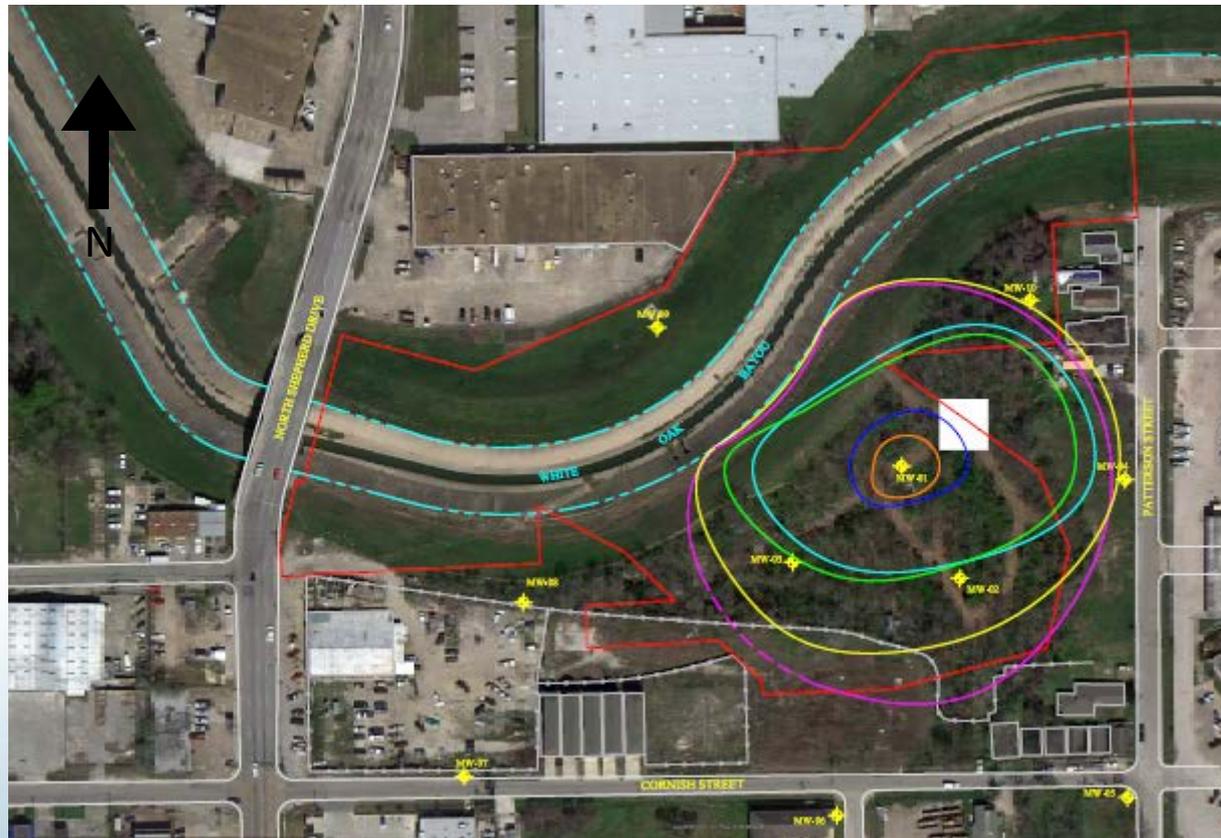
-  Designated property boundary
-  Arsenic GW PCLE Zone
-  Antimony GW PCLE Zone
-  Barium GW PCLE Zone
-  Chromium GW PCLE Zone
-  Cadmium GWE PCLE Zone
-  Lead GW PCLE Zone
-  Permanent groundwater monitor well



# Aerial Photographs

## Legend

-  Designated property boundary
-  Arsenic GW PCLE Zone
-  Antimony GW PCLE Zone
-  Barium GW PCLE Zone
-  Chromium GW PCLE Zone
-  Cadmium GWE PCLE Zone
-  Lead GW PCLE Zone
-  Permanent groundwater monitor well



# Summary

- The Site along White Oak Bayou (between Shepherd Drive and Patterson Street) is an approximate 9.3-acre vacant, undeveloped and heavily vegetated property
- Contaminant concentrations in soil and groundwater are protective of non-ingestion exposure pathways
- Individual contaminant concentrations in groundwater are stable and the majority are decreasing
- Monitoring of White Oak Bayou to ensure no potential impacts to surface water from identified contaminants