



# **EPA Public Meeting**

## **Proposed Cleanup Plan Vulcan Louisville/Fansteel Site**

**May 29, 2008**

**6:30 PM-8:30 PM**

**North Chicago City Hall**



# Vulcan Louisville/Fansteel Site

- **Former Fansteel Property**
  - Approximately 8 Acres
  - Buildings have been demolished
  - Current owner – City of North Chicago
  - North Chicago & EPA – Settlement Agreement
- **Vacant Lot**
  - Approximately 6.4 Acres
  - Bisected by Pettibone Creek



# Vulcan Louisville/Fansteel Cleanup

## **Site History**

- 1910-1990 - Vulcan/Louisville Smelting Company (VLS) operated at the Site
- 1942 - Federal government purchased a portion of the VLS property
- 1942-1947 - Leased it to Tantalum Defense Corporation (TDC), a Fansteel subsidiary
  - TDC supplied the government with various materials during World War II
- 1947 - Fansteel bought back the property from the government
- 1954 – 1990 - The Fansteel Metals Division and VR/Wesson Division operated at the Site
  - Produced specialty metals and conducted powder metallurgy operations



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## **Site History- Vacant Lot**

- 1936 – VLS transferred Vacant lot property to Chicago North Shore & Milwaukee Railroad Company
- 1954 – Sold to an individual – developed as a parking lot
  - 1988, Chicago's HAZMAT Team responded to Fire
  - Owner later transferred to an Illinois Land Trust
  - Investigations Found Lead, VOCs/SVOCs/PCBs in soil
  - VOCs in Groundwater
  - EE/CA by EPA contractor in 1997 recommended Removal Action
  - In 1998 EPA removed 45,000 cubic yards of soil/sediment
- 2000 – Vacant Lot acquired by Brems Realty, L.L.C
  - Brems Realty leased the property to EMCO Chemical Distributors
  - Prospective Purchase Agreement between EPA & EMCO



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## **Assessments and Investigations**

- Site Investigations
- Engineering Evaluation and Cost Analysis (EE/CA)

## **Contaminants of Concern**

- Trichloroethylene (TCE)
- Tetra (Per)chloroethylene (PERC)
- Lead
- Polychlorinated biphenyls (PCBs)



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## **Engineering Evaluation/Cost Analysis**

- TCE in Groundwater at Vacant Lot appeared to be caused by a source area on the Fansteel property
- EPA issues an Order (9/21/2000) for EE/CA
- EE/CA field work completed in 6/11/2001
- Final EE/CA approved by USEPA Oct 12, 2005
  - 37 Geoprobe Locations, 24 at Fansteel Site, 13 at Vacant lot
  - 10 Geoprobe boring samples for lab analysis
  - 9 Existing monitoring wells sampled
  - 36 Groundwater samples from Geoprobe locations
  - 5 Monitoring wells for aquifer characterization



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## **Areas of Concern**

1. Former Hazardous Waste Management Unit (HWMU) area
2. Eastern edge of Former Chemical Building A
3. Former Drum Storage area
4. Former PCB Transformer area
5. Former Aboveground Storage Tank (AST) area
6. Vacant Lot trichloroethylene (TCE) area



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## Soil Contaminants by Area

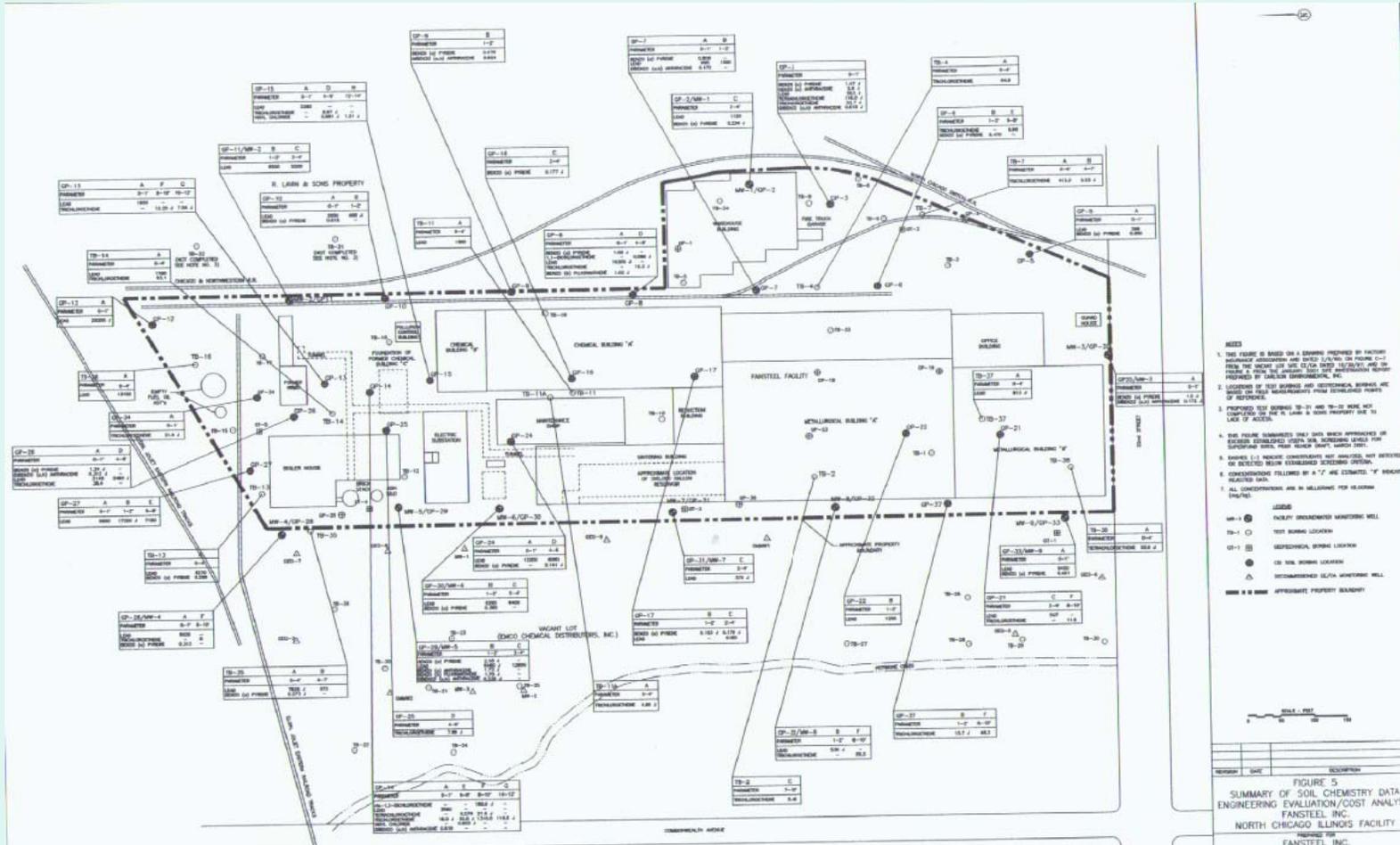
Area	COC	Range
Former HWMU area	TCE	1-1,000 mg/Kg
Eastern edge of Former Chemical Building A	TCE	1 – 40 mg/Kg
Former Drum Storage area	TCE	1 – 413 mg/Kg
Former PCB Transformer area	PCBs	<1 – 9,500 mg/Kg
Former AST area	Lead	3,100 – 28,200 mg/Kg
Vacant Lot TCE area	TCE	7.2 – 1,100 mg/Kg
	PERC	0.38 – 150 mg/Kg





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## Soil Chemical Data - Fansteel







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## **Human Health Risk Assessment**

- Evaluated whether a current and/or reasonable future exposure threat exists to industrial/construction workers and trespassers
- The evaluation identified the following complete exposure pathways and receptors:
  - Inhalation of indoor vapors and outdoor vapors from groundwater and soil
  - Incidental ingestion and dermal contact from surface soils for an outdoor worker and construction worker
  - Incidental ingestion, dermal contact, and inhalation of outdoor vapors and particulates from surface soils for an on-site trespasser
  - Inhalation of outdoor vapors from groundwater and subsurface soils for an on-site trespasser



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## Risks and Remedial Goals

<b>Area of Concern</b>	<b>Exposure Risk</b>	<b>Goal</b>
Former HWMU area	Vapor and Direct Contact	58 mg/Kg TCE in soil
Eastern edge of Former Chemical Building A	Direct Contact	Remove direct contact from TCE in soil – Top 2 feet of soil
Former Drum Storage area	Direct Contact	58 mg/Kg TCE in soil
Former PCB Transformer area	Direct Contact	1 mg/Kg PCBs in soil
Former AST area	Direct Contact	Institutional controls - physical barrier (asphalt, etc)
Vacant Lot TCE area	Direct Contact	58 mg/Kg TCE in soil 12 mg/Kg PERC in soil



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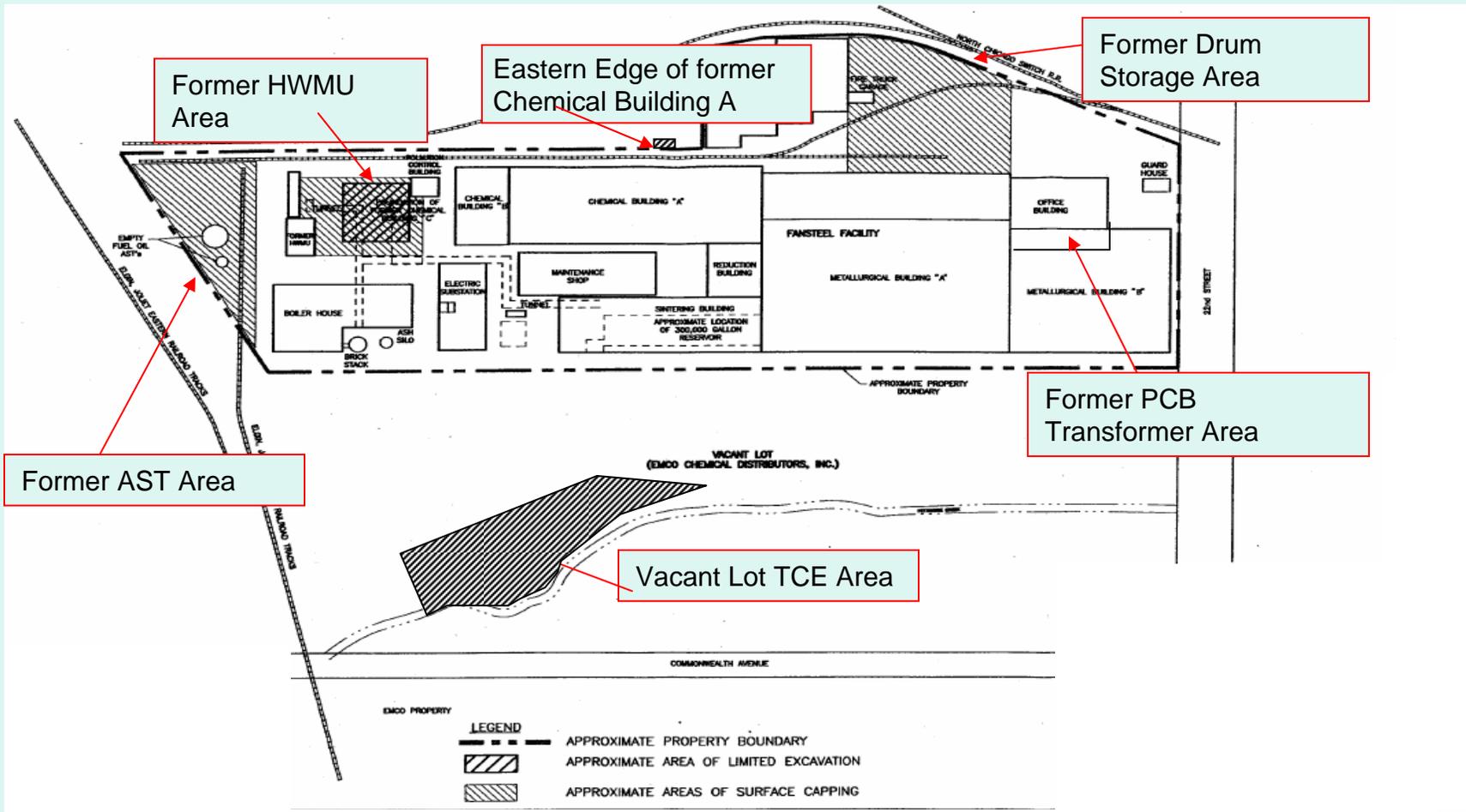
## Remedial Areas

Area	Potential Remedy	Excavation Dimensions
Former HWMU area	Soil excavation and off-site disposal - 5,600 tons, and Institutional Controls (ICs)	75X50X15 feet
Eastern edge of Former Chemical Building A	Soil excavation and off-site disposal - 3 tons	5X5X2 feet
Former Drum Storage area	Soil excavation and off-site disposal – 2 tons, Plus ICs	5X5X2 feet
Former PCB Transformer area	Soil excavation and off-site disposal – 80 tons	60X10X2 feet
Former AST area	Institutional controls	None - physical barrier (asphalt, etc)
Vacant Lot TCE area	Soil Excavation and off-site disposal – 9,000 tons	75X400X8 feet



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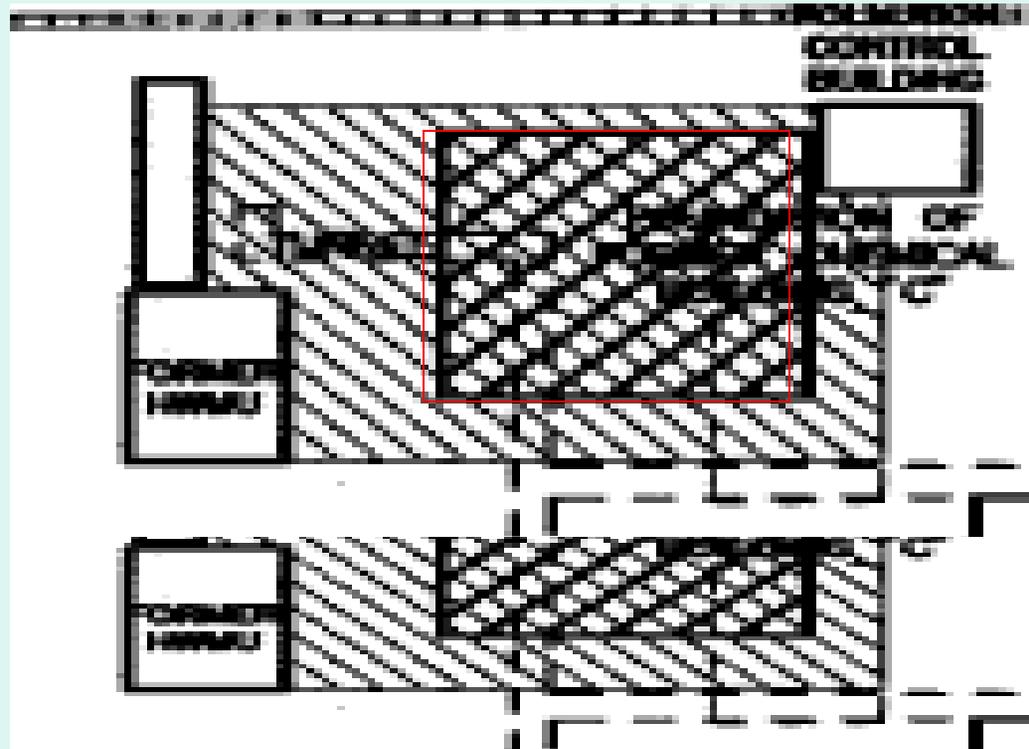
## Areas of Concern





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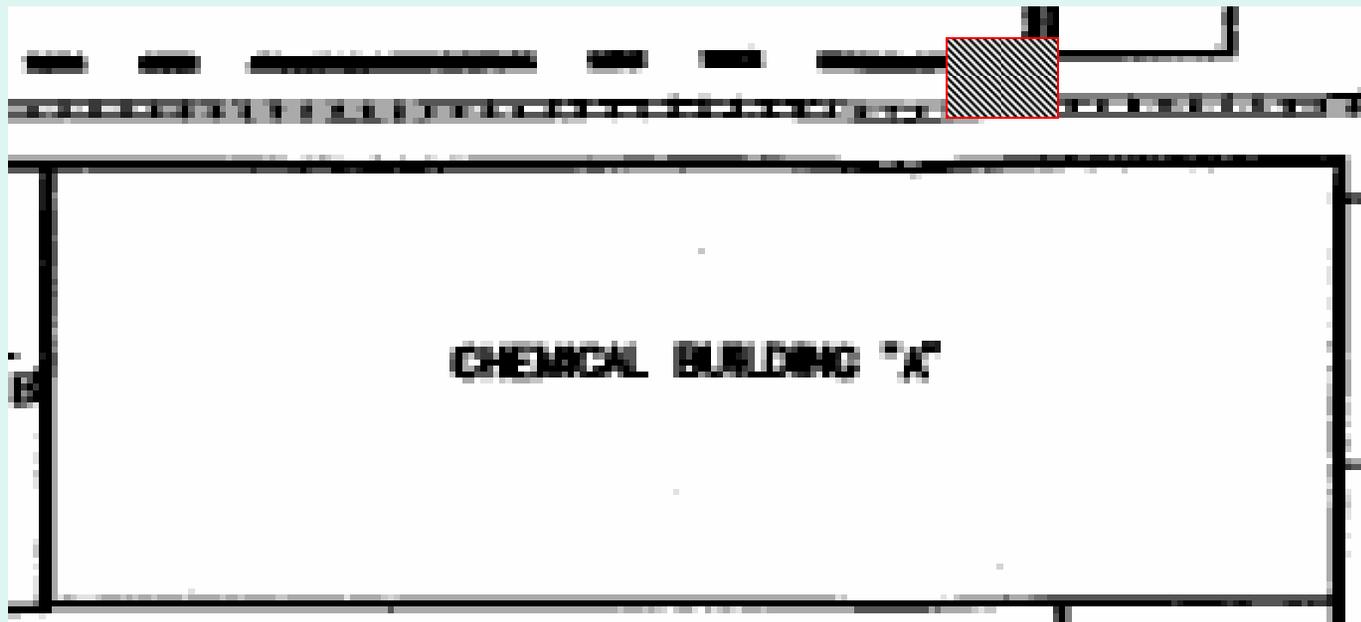
## Former HWMU Area





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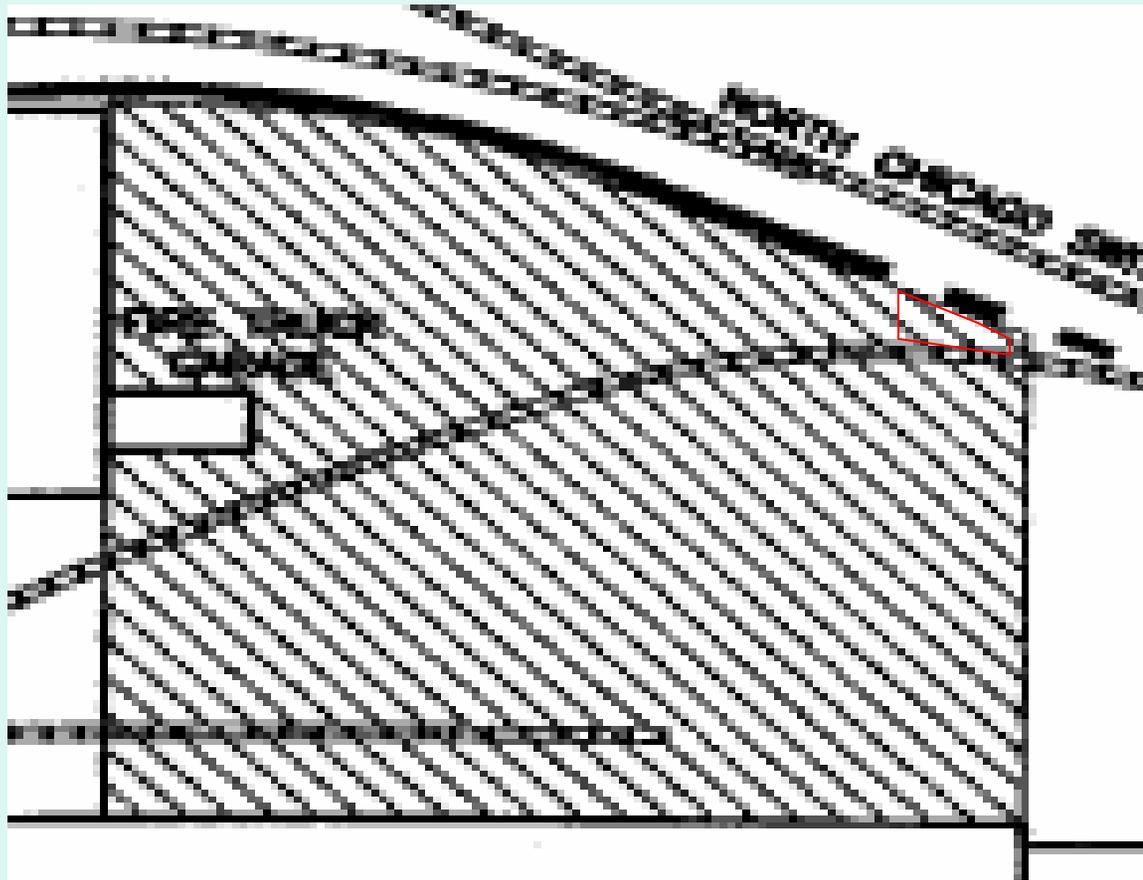
Eastern Edge of Former Chemical  
Building A





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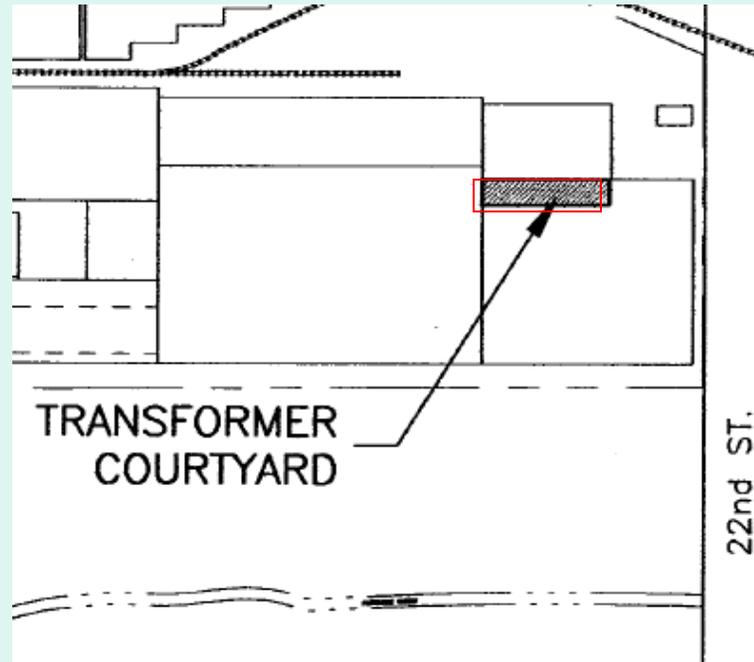
## Former Drum Storage Area





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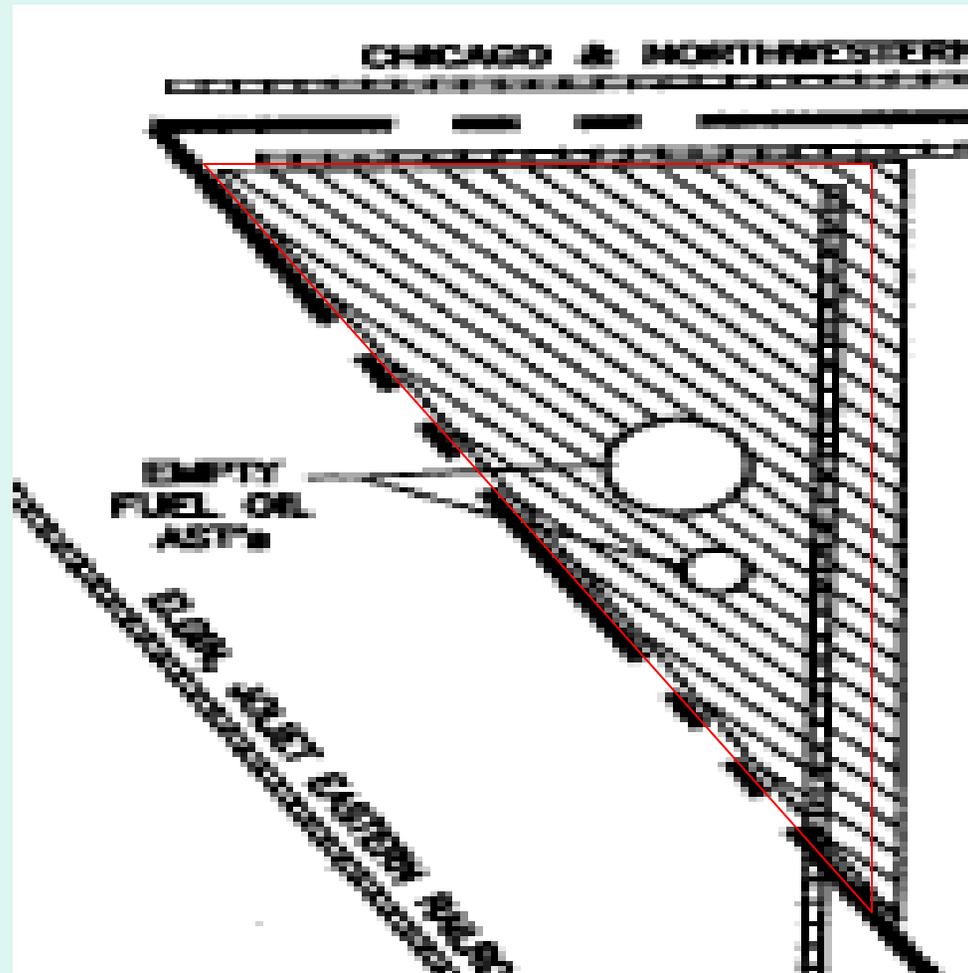
## Former PCB Transformer Area





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## Former AST Area





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## Vacant Lot AOC



TNT & Associates, Inc.  
Engineering and Science

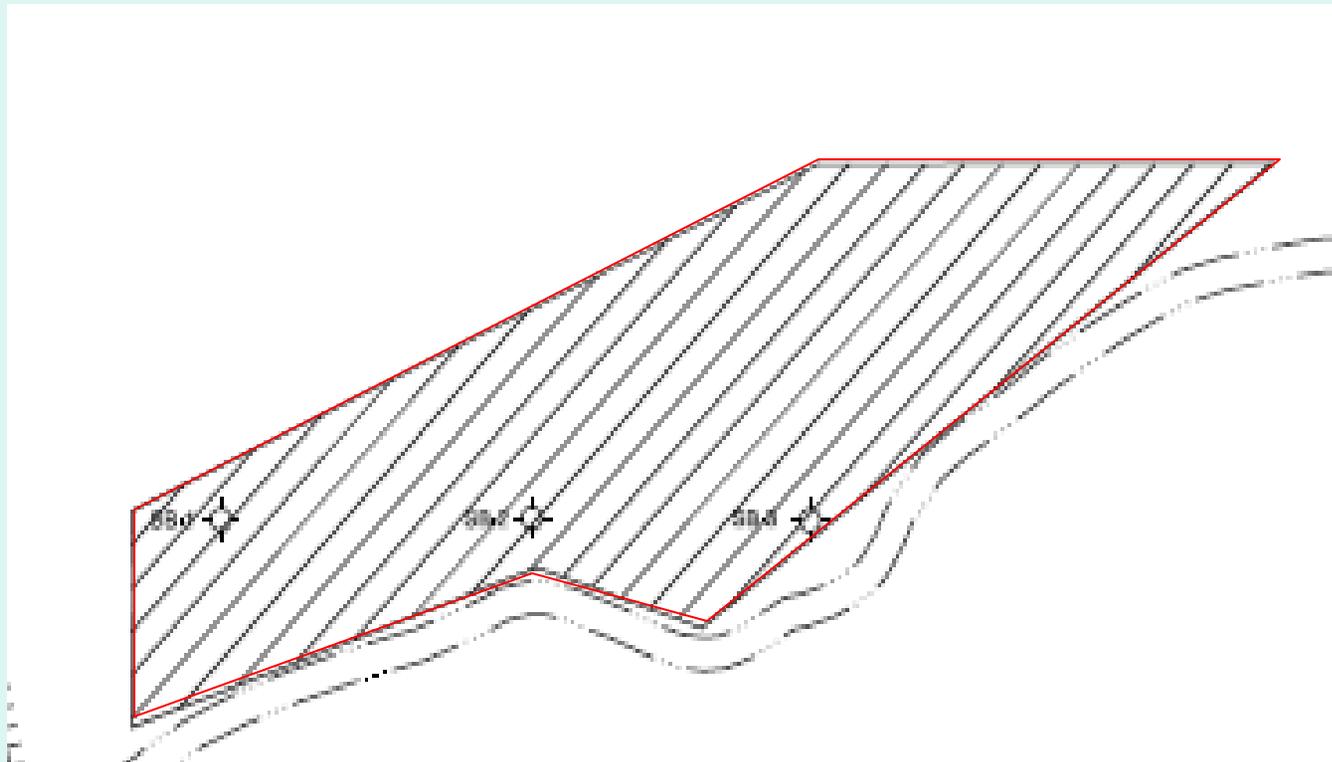
FIGURE 4  
ESTIMATED AREA OF SOIL CONTAMINATION MAP

VACANT LOT SITE  
NORTH CHICAGO, ILLINOIS  
TDD NO. S05-0302-017



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## TCE Soil AOC on Vacant Lot





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## Evaluating the Options

- EPA considered four cleanup options and evaluated them against three criteria:
- Effectiveness - ability to meet the objectives
- Implementability - technical/administrative feasibility
- Cost – Estimated capital, operation, maintenance cost as well as present worth costs



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## Cleanup options

### ***Alternative 1 : No action***

- A “No-action” option is a basis for comparison with other cleanup options.
- Since no action would be taken, this option would not address the potential for human and animal contact with the contamination
- Cost: \$0



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## Cleanup options

### ***Alternative 2 – Excavation and Disposal of Contaminated Soil***

- Excavating a majority of the contaminated soil and hauling it away
- Institutional and engineering controls for any future redevelopment
- Semi-annual ground-water sampling
- Semi-annual groundwater sampling to monitor contamination at levels of concern from reaching the creek
- This alternative can be completed within a short period of time
- Most effective because it removes major contamination
- Cost: \$2.5 million



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## Cleanup options

### ***Alternative 3 – Surface Capping with Bioremediation:***

- TCE-contaminated soil in the hot-spot area remediated on-site using a process called “bioremediation”
  - This process uses microorganisms to digest contaminants and break them down into non-hazardous components
- Other contaminated areas on the site would be capped
- Institutional and engineering controls for any future redevelopment
- Takes several years to implement
- Is less effective than excavation alternative
  - because it allows contaminated groundwater to flow off-site for several years until all of the soil is remediated
- Cost: \$1.2 million



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## Cleanup options

### ***Alternative 4 – Surface Capping with Permeable Reactive Barrier:***

- A cover, or cap, over the TCE-contaminated hot-spot soil and treating the groundwater that passes through the soil
- A “permeable reactive barrier” constructed down-gradient of the site will capture the ground-water plume and filter/treat it
- Takes several years to implement and will only treat groundwater contaminated with TCE
- Less effective than excavation alternative
  - because the contaminated soil remains on-site for several years until it is completely washed with groundwater
- Cost: \$2.4 million



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## **EPA Recommended Alternative**

- **Alternative 2 – *Excavation and disposal of contaminated soil***
  - Represents the best combination of effectiveness, implementability and cost
  - Effectiveness - Addresses both soil and groundwater contamination
  - Implementability - Removing and disposing a majority of highly contaminated soil is easily implementable and will achieve cleanup objectives quickly
  - Cost- This alternative is comparable in cost to Alternative 4 and has the shortest remedial action timeframe



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## **Public Comment**

- EPA encourages public to comment. Your Input is Important
- EPA will accept comments from May 22 through June 20, 2008
- After the review of public comments, EPA could alter it's proposed plan or choose a new one

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Questions?