



# Columbia Smelting & Refining Works Site

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## KEY MESSAGES

- EPA received the last round of results for the 2014-2015 investigation of lead smelter contamination at the fields; lead levels lower than those on Ball Fields 5-8
- Under EPA oversight, NYC Parks plans to conduct a removal action (cleanup) at Red Hook Ball Fields 5, 6, 7, 8 *and* 9 to protect public health from lead smelter contamination in the long term
  - Ball Fields 5-8 will stay closed until removal action is complete
  - Ball Field 9 will stay open until Ball Fields 5-8 reopen
- The entire project will take several years to complete
- EPA and NYC Parks will begin planning the cleanup for Ball Fields 5-9 in the near future, and will keep you updated
- NYC Parks will address remaining fields in the park separately; additional sampling and remedial measures planned, but only limited closures around Soccer Field 1 planned





# OVERVIEW

- Site history & background
- Overview of EPA investigation & results
  - Three soil sampling events:
    - October 2014
    - March 2015
    - April 2015
- Cleanup plans
- Cleanup process & next steps
- Q&A





## SITE HISTORY

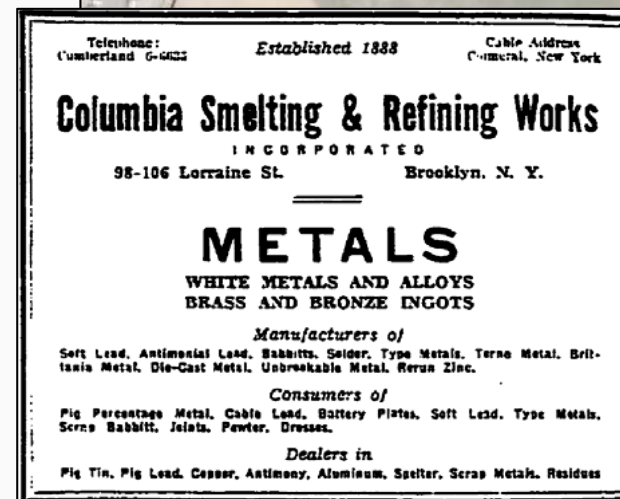
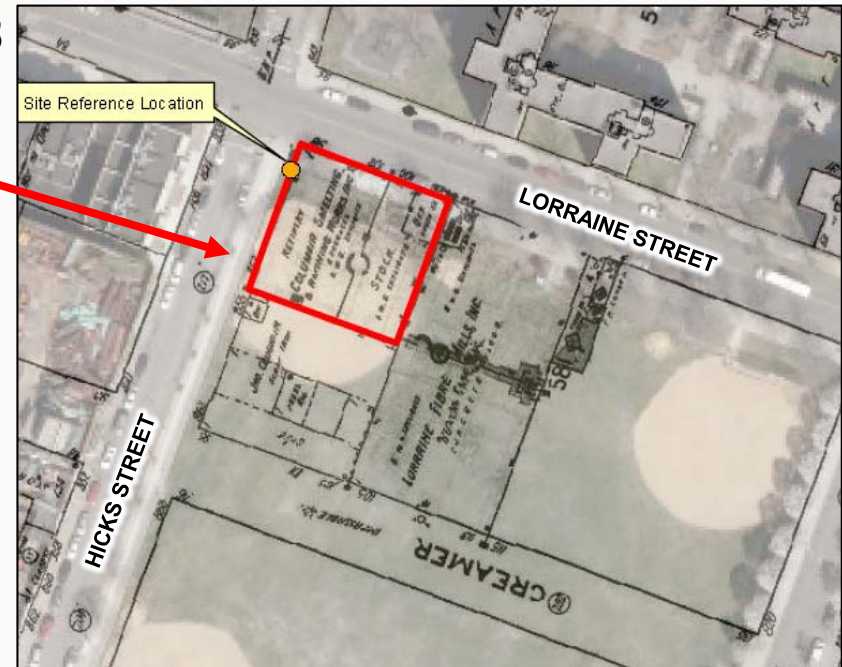
### Late 1920s-late 1930s: secondary smelter

- 1929-1939: Smelting companies, including Columbia Smelting & Refining Works
- 1939-1940: Building demolished, block vacant
- 1940s: Baseball diamonds built

### On-site operations

- Smelting = refining of scrap or used lead materials into metallic lead of a higher purity
  - Lead plates from batteries
  - Lead pipes and cables
  - Metal sheets containing lead
- Various metals utilized & manufactured:
  - white metals and alloys, brass and bronze ingots, other metals including several containing high lead concentrations

1938



1931



## SECONDARY SMELTING & LEAD EXPOSURE

### 1920s - late 1930s: Secondary smelting on-site

- Releases lead into surrounding environment
  - Lead dust and fumes released during smelting process; carried by wind
  - Lead contaminated waste may be left over after smelting process



Typical secondary smelter. (Source: USA Today)



Source: <http://nhv.us/sites/default/files/imagecache/article/Child-dirty-hands.jpg>

### Lead Exposure

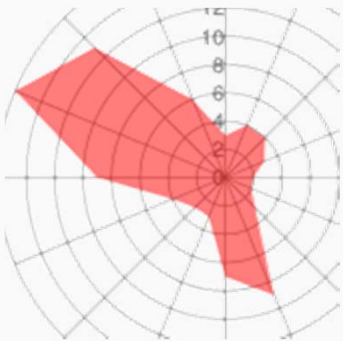
- Once lead is in the soil, it stays there
- Exposure occurs from:
  - Touching lead-contaminated soil, then accidentally ingesting it
  - Kids putting dirty toys in their mouths
  - Inhalation of lead dust
- Children are more sensitive to the health effects, which include neurological symptoms
- NYC Health available to answer questions



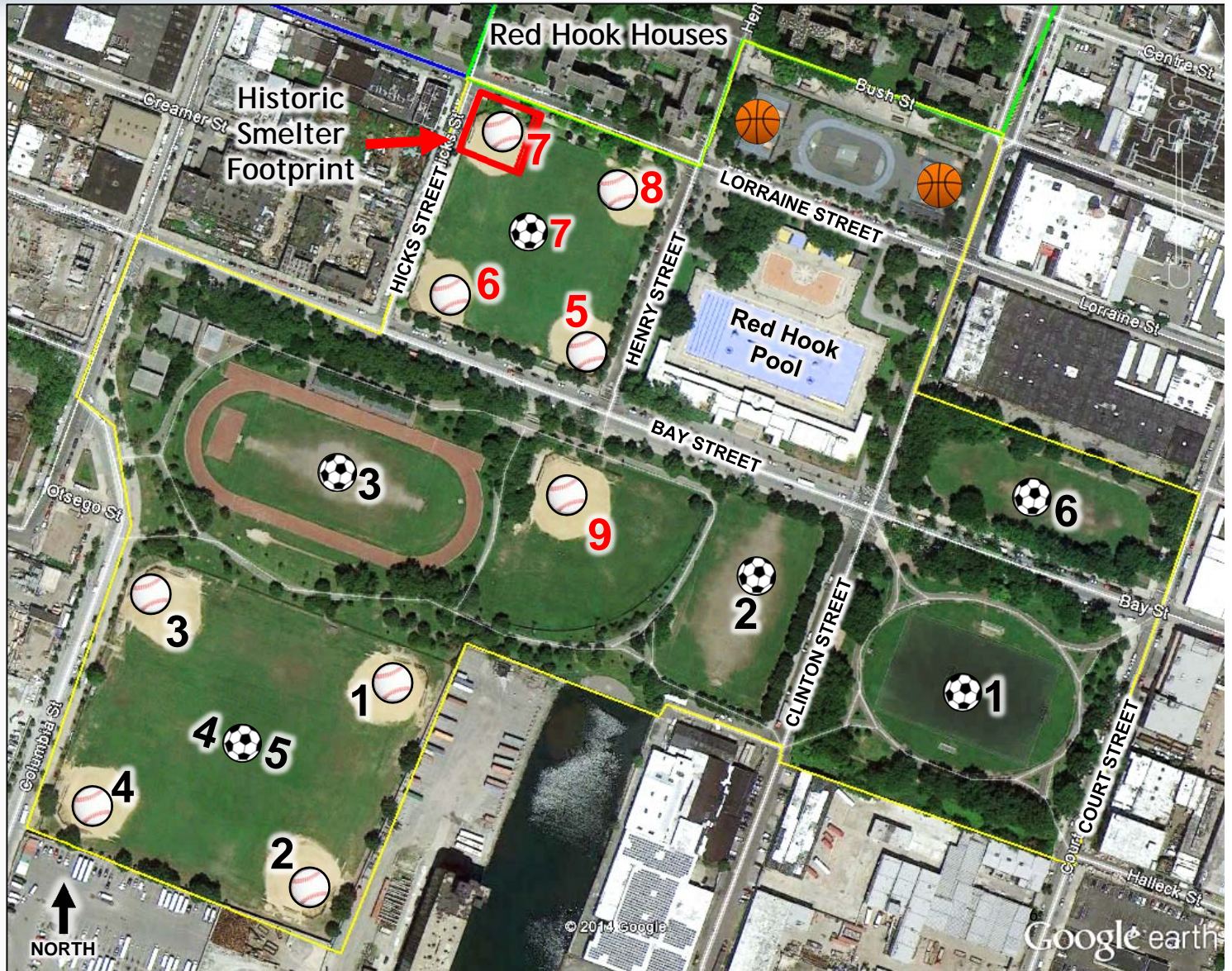
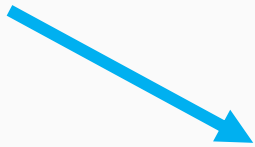
# RED HOOK PARK with field numbers



Wind Rose:



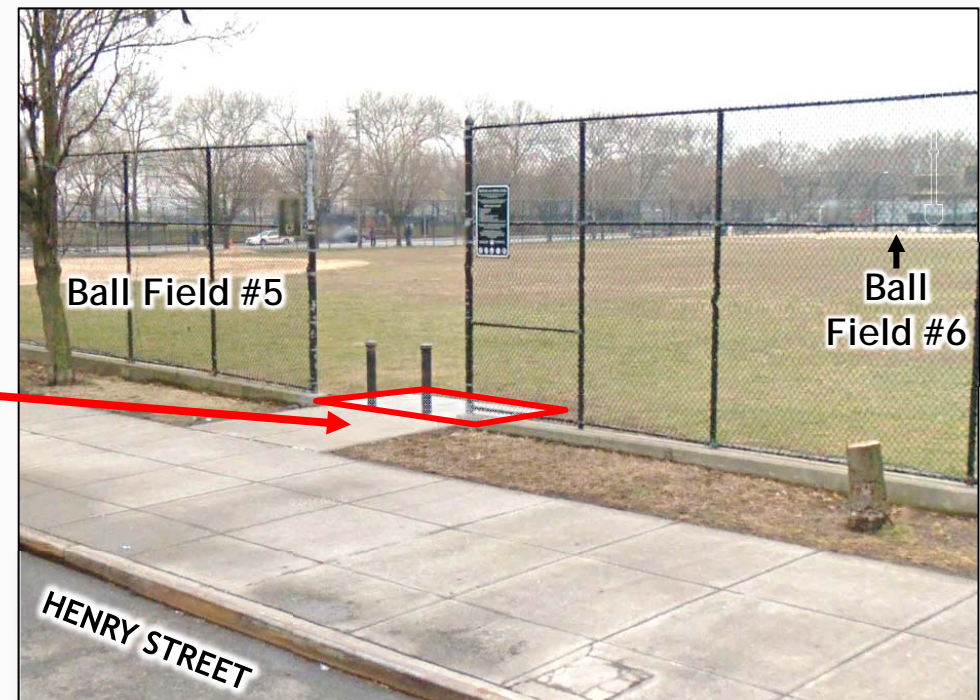
Predominant  
Wind Direction:





## 2012 ACTIONS: NYC PARKS & HEALTH DEPARTMENTS

- February 2012:
  - NYC Parks and NYC Health tested soil for lead (7 samples)
  - Elevated lead levels detected
- Remedial Actions (Feb./Mar. 2012):
  - 1" of clean clay added to all infields
  - Excavated & paved over Henry Street entrance, where there were high lead levels
  - Wood chips added to bare soil areas
  - Fields closed for 4-6 weeks for hydroseeding and grass growth
- Grass cover and clay infill reduced exposure to lead in the soil





## HOW DID EPA GET INVOLVED?

- January 2014
  - NYSDEC had been reviewing part of a nationwide portfolio of potential historic smelter sites
  - Referred Columbia Smelting & Refining Works Site to EPA along with 39 other sites throughout New York state
  - *Independent from NYC Parks' 2012 investigation*
- Winter through Summer 2014
  - EPA reviewed site history, all background information, previous sampling results
  - EPA decided to sample this site along with other former smelter locations
- October 2014
  - First round of EPA soil sampling



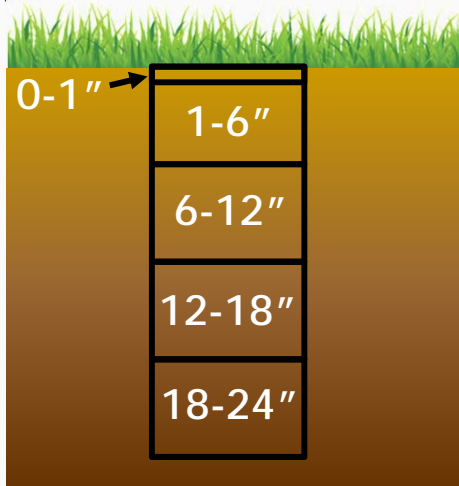




# EPA SOIL SAMPLING PROCESS



5 depth intervals  
per location:





# EPA SOIL SAMPLING PROCESS

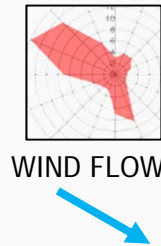




# OCTOBER 2014 EPA SOIL SAMPLING

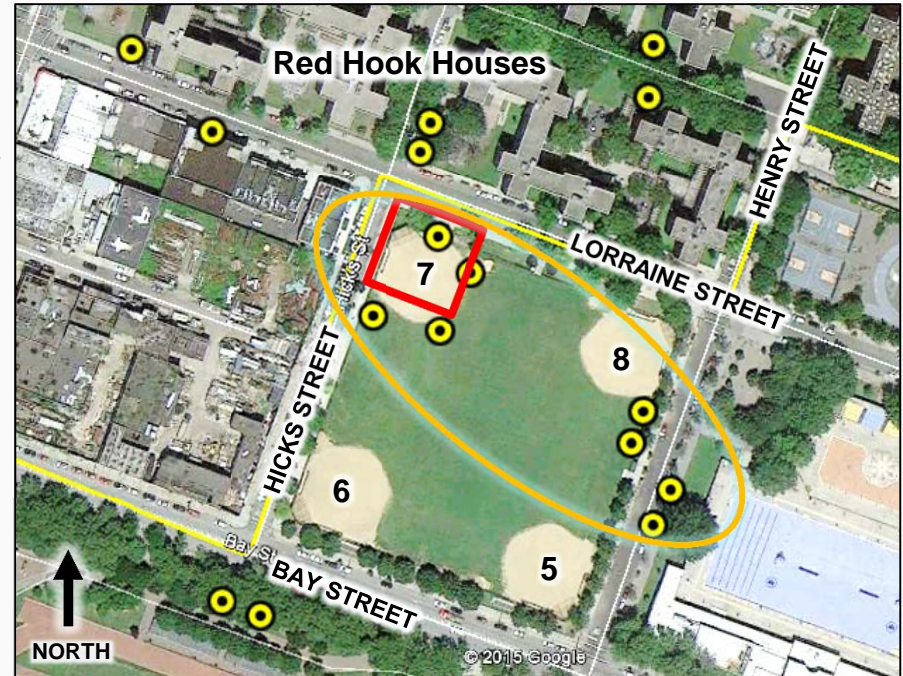
## LOCATIONS (16)

- Included Red Hook East Houses
- 82 samples (5 depths per location)



## RESULTS

- Elevated lead at Ball Fields 7+8 related to Columbia; Parks conducted maintenance
  - Ratios of certain metals (antimony, tin, zinc, iron, copper) are characteristic of smelter emissions
- Lead found at Red Hook East Houses and Bay Street picnic area - *unrelated* to Columbia
  - Not an imminent health concern
  - No further EPA investigation
  - Results provided to property owners
- EPA determined that removal action (cleanup) is required in the long term
- Additional sampling needed to determine extent of release on ball fields & downwind





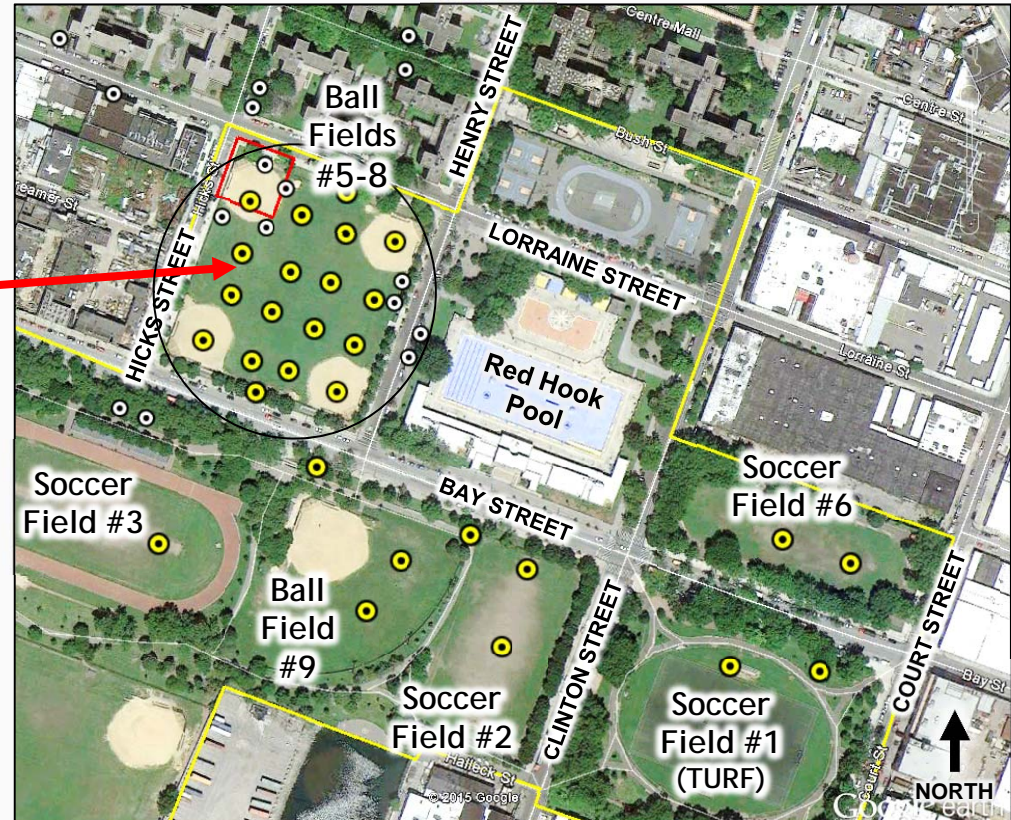
# MARCH 2015 EPA SOIL SAMPLING

## LOCATIONS (29)

- To better define extent of Columbia impact
- 153 samples (5 depths per location)

## RESULTS

- Lead found at Ball Fields 5-8 at levels much higher than expected
  - 400 parts per million (ppm) = EPA & NYSDEC standard
  - 1,200 ppm = immediate action
  - Averages on Ball Fields 5-8:
    - 1,580 ppm in top inch
    - 2,240 - 3,795 ppm in subsurface
- Closure of Ball Fields #5-8 announced April/May 2015; fencing & signs added
- Lead at Soccer Field 3 in subsurface unrelated to smelter
- Lead found at lower levels in downwind fields; unclear if smelter-related
  - More comprehensive sampling needed to delineate extent of Columbia impact

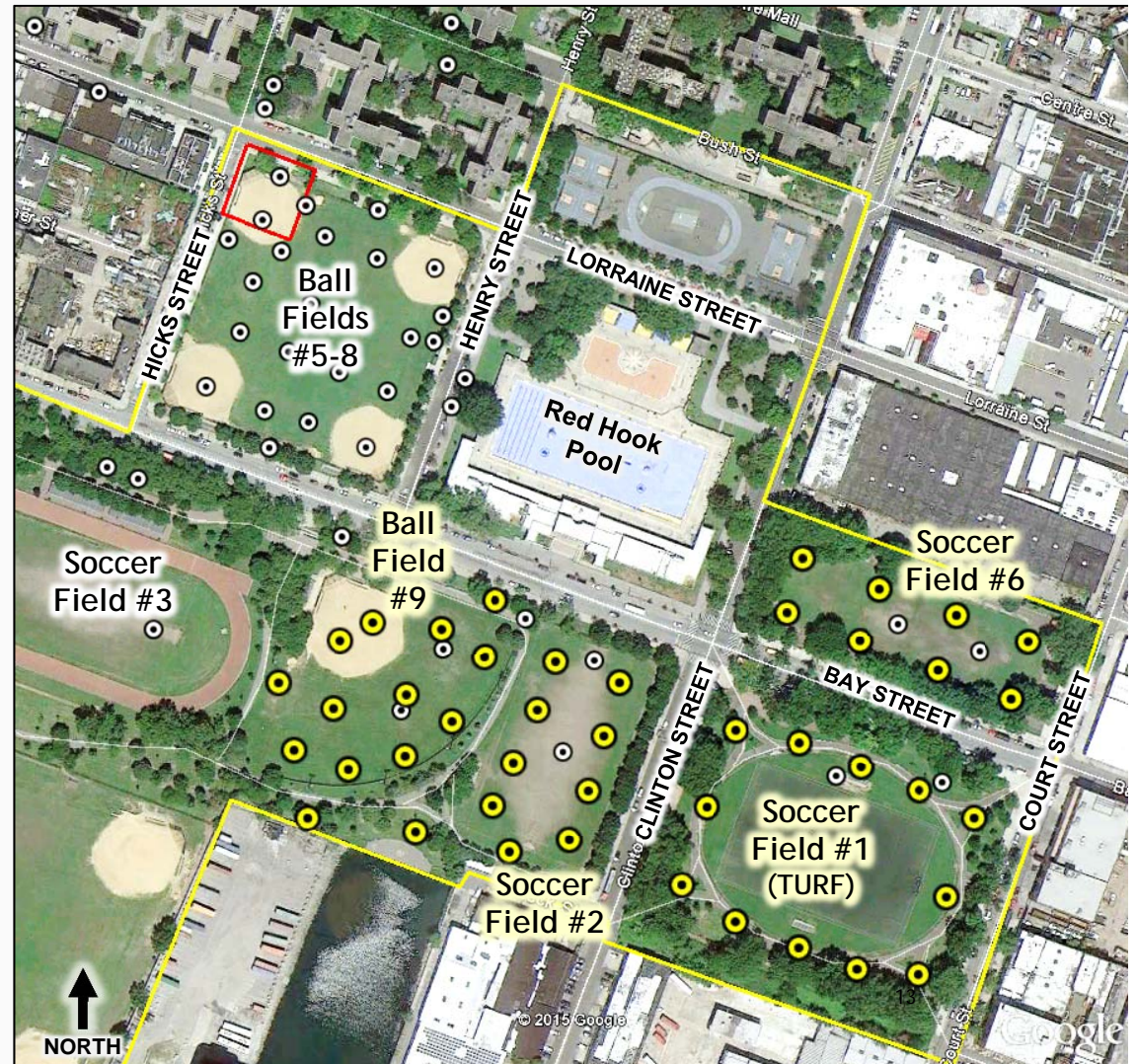




# APRIL 2015 EPA SOIL SAMPLING

## LOCATIONS (43)

- Refined March 2015 data set at downwind fields
  - Ball Field 9
  - Soccer Fields 1, 2 and 6
- Completed delineation of areas downwind of Columbia facility with potential to be impacted
- 225 samples (5 depths per location)
- April 20-29, 2015



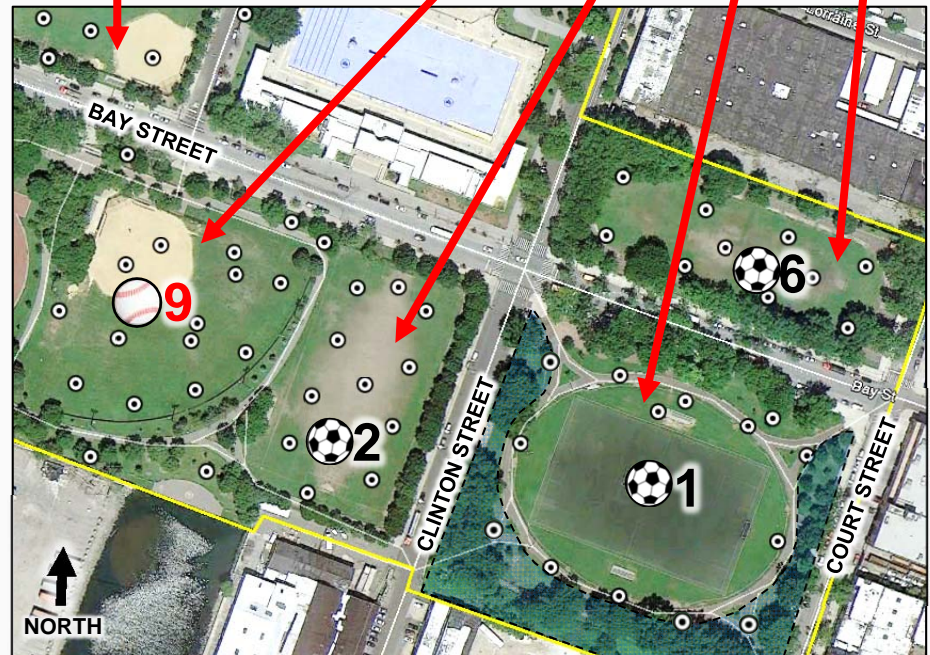


# APRIL 2015 EPA SOIL SAMPLING RESULTS

- Overall, much lower lead levels than those on Ball Fields #5-8
- Several other metals found at elevated levels, but all besides cadmium are beneath 6"
- Some elevated cadmium levels at surface surrounding portions of Soccer Field 1
  - NYC Parks added permeable barrier, mulch and fencing to eliminate exposure
  - NYC Health available to answer questions
- Currently, lead & other contaminants not an immediate health threat - either covered/restricted, or beneath 6"
- **EPA recommendations: Remediation of these four fields in the long term + sampling of remaining fields in short term**

Average Lead Levels per Area (parts per million)

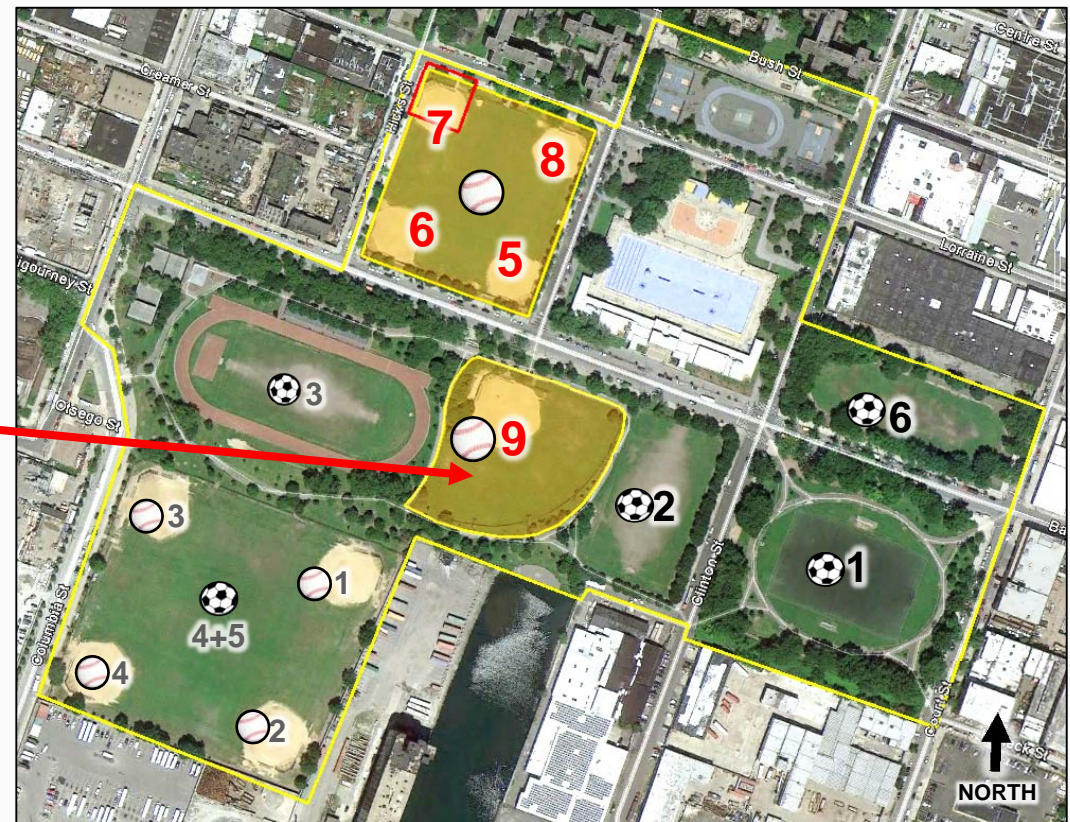
DEPTH		BALL FIELDS 5-8	SURROUNDING BALL FIELD 9	BALL FIELD 9	SOCCER FIELD 2	SOCCER FIELD 1	SOCCER FIELD 6
SURFACE ↓ 2' DEEP	0-1"	1,580	264	140	285	474	254
	1-6"	2,240	354	179	508	587	367
	6-12"	2,590	756	698	618	496	535
	12-18"	2,847	1,184	1,209	875	389	387
	18-24"	3,795	1,430	1,222	1,431	781	467





## APRIL 2015 ANALYSIS OF SOIL SAMPLING RESULTS

- Lead and other contaminants found at Soccer Fields 1, 2, 6 unrelated to Columbia; likely due to historic fill
  - EPA recommended sampling of remaining areas of park - NYC Parks/Health to sample in 2015
  - *Not part of EPA removal action*
- Lead found at Ball Field 9 *is related* to the historic Columbia facility
  - **Eligible for EPA removal action**
- EPA & NYC Parks are planning for NYC Parks to conduct **cleanup of Ball Fields 5, 6, 7, 8 and 9** under EPA oversight



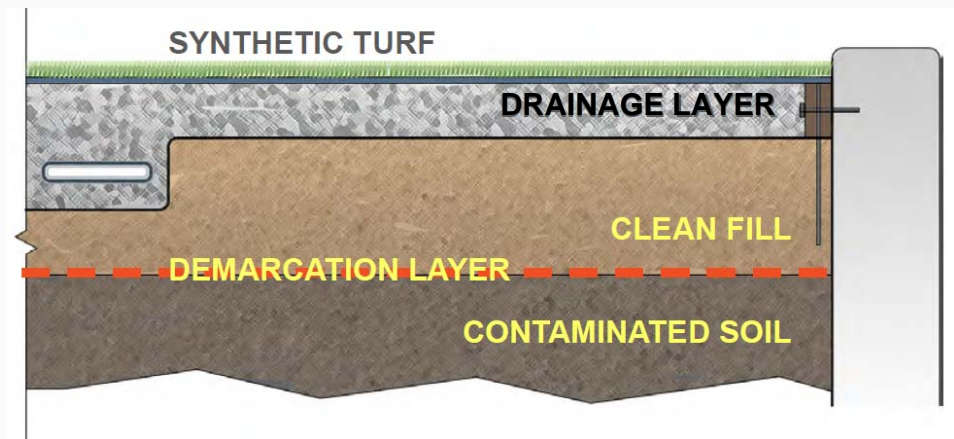


## CLEANUP PROPOSAL: BALL FIELDS 5-9

- All aspects of cleanup will meet EPA, NYSDEC, NYSDOH, NYC Health & NYC Parks regulations
- Requires significant engineering effort

### PROPOSED APPROACH

- Demarcation Layer
  - Plastic membrane placed over soil to provide physical and visual barrier
- 12" Clean Soil or Fill (*Minimum*)
  - Required by EPA and NYSDEC over areas impacted by smelter; imported material will be tested
- Natural or Synthetic Turf
  - Natural turf over 12" clean soil & demarcation layer
  - Synthetic turf and drainage layers provide greater barrier (up to 24") between contaminated soil and surface
- Replace existing/install new park features
  - Remove and replace all ball field features (curbs, fencing, drinking fountains, benches, lighting, etc.)
  - New access ramps and stairs to meet higher elevation of fields







## CLEANUP *PROCESS*: BALL FIELDS 5-9

### STAGGERING OF CLEANUP TO MINIMIZE DISRUPTION

- Ball Fields 5-8 will be cleaned up first
- Ball Field 9 will stay open from now until Ball Fields 5-8 reopen, and then will be closed for cleanup

### OVERALL CLEANUP PROCESS

- EPA to approve work to be conducted by NYC Parks; design to be initiated by NYC Parks in Fall 2015
- NYC Parks to complete design/engineering documents, construction drawings, public safety plans
- EPA to *review and approve* design documents
- NYC Parks to procure construction contractor; EPA to approve
- Construction of Ball Fields 5-8 to be completed in 2018
- Construction of Ball Field 9 to be completed after Ball Fields 5-8 open
- Final inspections by engineers & EPA, and submittal of long-term management plan to NYSDEC
- Long-term oversight of remedy by NYSDEC





# COMMUNITY INVOLVEMENT

## EPA COMMUNITY INVOLVEMENT PLAN

- Public document for the community that discusses:
  - Site history and background
  - Community issues and concerns
  - Community involvement action plan - methods for communicating with EPA
- Incorporates community concerns captured during EPA's interviews with community members
- Comments on Community Involvement Plan welcome:
  - Natalie Loney, EPA Community Involvement Coordinator: [Loney.Natalie@epa.gov](mailto:Loney.Natalie@epa.gov), 212-367-3639
  - Margaret Gregor, EPA On-Scene Coordinator: [Gregor.Margaret@epa.gov](mailto:Gregor.Margaret@epa.gov), 732-321-4424



## COMMUNITY UPDATES

- Public meetings, periodic fact sheets, Mailing List
- Website updates: <https://www3.epa.gov/region02/superfund/removal/columbia/>

## INFORMATION REPOSITORY

- Red Hook Library, 7 Wolcott Street (at Dwight Street), Red Hook (718-935-0203)
- Will contain technical record supporting cleanup decision/remedy selection (Administrative Record) and other documents (i.e., Community Involvement Plan)



## KEY POINTS

- NYC Parks currently planning to conduct the removal action at Ball Fields 5, 6, 7, 8 and 9 under formal EPA oversight
  - Ball Fields 5-8 will remain closed until cleanup is completed
  - Ball Field 9 will stay open until Ball Fields 5-8 reopen
- NYC Parks will address Soccer Fields 1, 2 and 6, and will be sampling Soccer Fields 3, 4 and 5 and Ball Fields 1, 2, 3 and 4
- EPA and NYC Parks are working together to protect public health
- Updates will be provided as the investigation and planning for the cleanup progresses



QUESTIONS?