ENVIRONMENTAL SITE ASSESSMENTS

(And Why They're So Important)

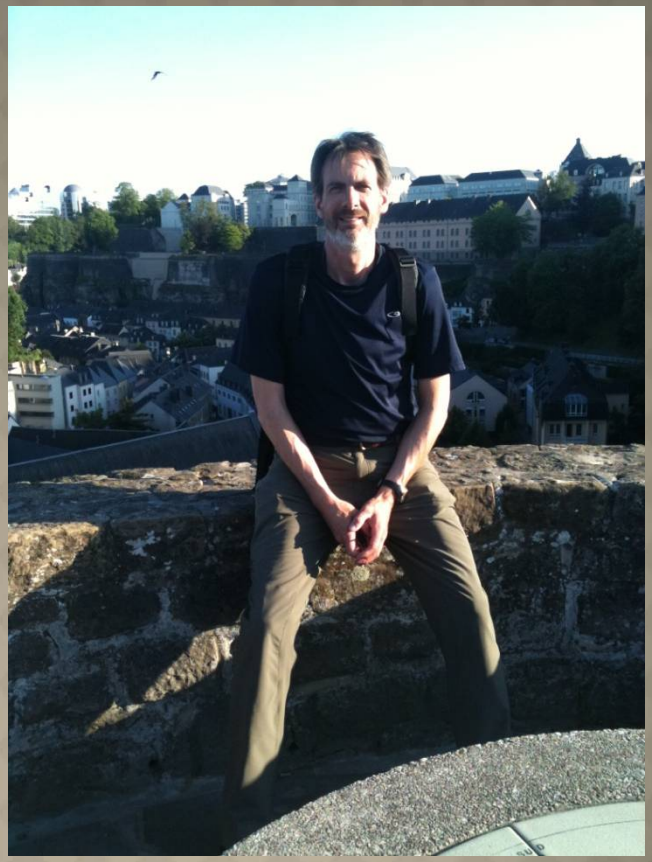
SLR

global environmental solutions

Your Presenters:

Christina Bentz
Associate Geologist - SLR

John Carnahan
Brownfield Coordinator - DEC



Topics Covered:

Type of Site Assessments

Planning for a Site Assessment

Getting the Most out of Your Site Assessment

Case Studies and Examples

Answering your Questions about Site Assessments

Types of Site Assessments:

Phase I Environmental Site Assessment

Property Assessment and Cleanup Plan

Phase II and Other Types of Assessments

Phase I Site Assessments:

Conducted in accordance with American Society for Testing and Material's' Standard Practice E 1527-05

Conducted primarily for property acquisitions

Required for Brownfield funding

Heavily reliant on records search, site reconnaissance, and interviews; typically non-invasive

Identifies Recognized Environmental Conditions (RECs) or Historical Recognized Environmental Conditions (HRECs)

Phase I Site Assessments Continued:

Definition of REC According to ASTM 1527-05:

"…the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicated an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis conditions* that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies…"

Phase I Site Assessments Continued:

Definition of HREC According to ASTM 1527-05:

"…an environmental condition, which in the past would have been considered a *REC*, but which may or may not be considered a *REC* currently. The final decision rests with the *environmental professional* and will be influenced by the current impact of the *HREC* on the *Site*. If a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency, this condition shall be considered an *HREC*…"

Property Assessment and Cleanup Plans:

Developed by the DEC Brownfield Program

Combines elements of a Phase I with planning for reuse

> ***Developed site-specifically to help answer any necessary questions that can facilitate continued property use or reuse***

Includes site visit, interviews, and looking at community resources; <u>generally</u> non-intrusive

Property Assessment and Cleanup Plans Continued:

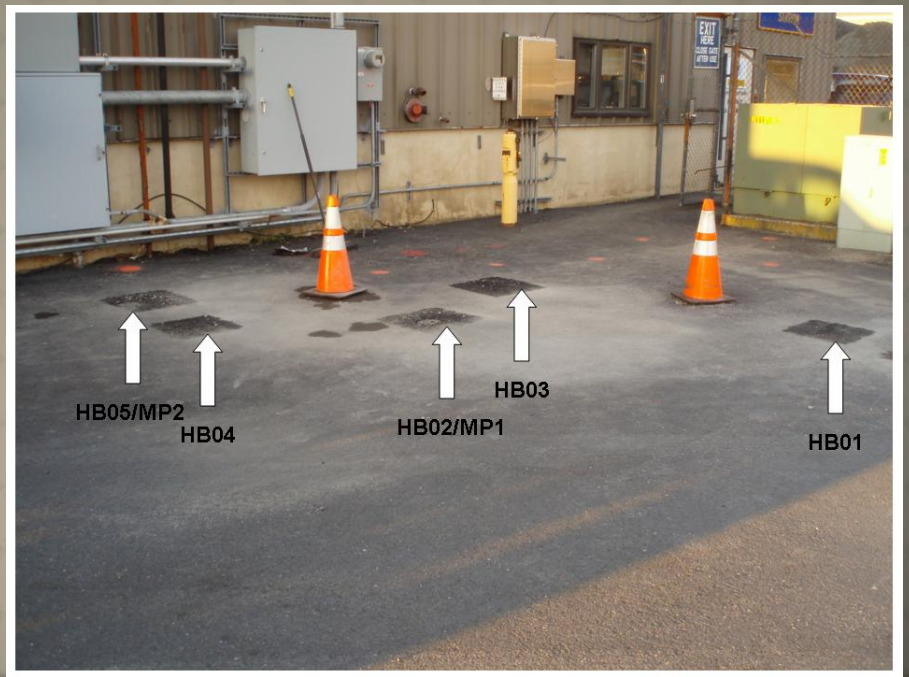
Prepared report includes summation of remedial options with general cost estimate based on only limited information

Can be used to help obtain funding or plan for future work

Site Assessments:

DEC regulations use the term 'Site Characterization' to classify what is meant by 'Site Assessment' for the most part.

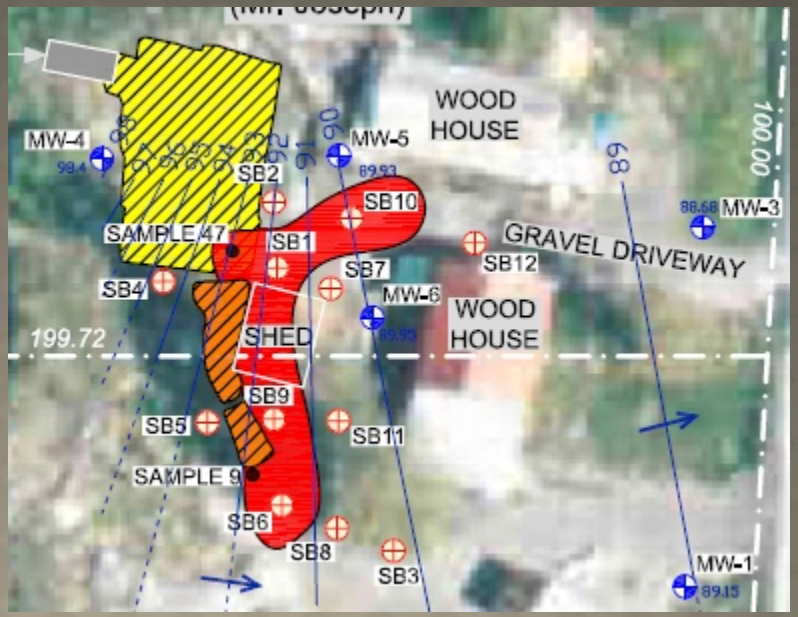
A 'Site Assessment' is specific in regulation to follow-up at a site where a release of petroleum is determined to NOT have occurred. It is addressed in 18AAC78.



Site Assessments Continued:

Intrusive in nature

Includes the collection and analysis of samples



Used most often to determine the nature and extent of contamination

Can be combined with cleanup (i.e., investigation & cleanup done concurrently)

Planning for a Site Assessment:

Understanding Site History

Identifying Contaminants of Potential Concern

Determining Potential Sampling Media

Identifying Type of Equipment & Investigation Methods

Logistics & Communication

Understanding Site History:

Knowing what the facility was used for and when helps plan for an assessment.

Identifying Potential Contaminants of Concern:

Potential Contaminants of Concern include:

- ***Gasoline Range Organics (GRO)***
- ***Diesel Range Organics (DRO)***
- ***Residual Range Organics (RRO)***
- ***Benzene, Toluene, Ethylbenzene, & Xylenes (BTEX Compounds)***

Identifying Potential Contaminants of Concern:

Potential Contaminants of Concern include:

- ***Metals (such as arsenic, lead, and chromium)***
- ***Polychlorinated Biphenols (PCBs)***
- ***Chlorinated Solvents (TCE, PCE)***
- ***Other Volatile Organic Compounds***
- ***Semivolative Organic Compounds (includes PAHs)***

Identifying Potential Contaminants of Concern:

Determining Potential Sampling Media:

Potential Sampling Media –

- ***Surface Soil***
- ***Subsurface Soil***
- ***Groundwater***
- ***Surface Water***
- ***Sediment***
- ***Air***

Types of Equipment & Investigation Methods:

Sampling Media – Subsurface Soil

Advancing soil borings using hand-operated tools

Types of Equipment & Investigation Methods:

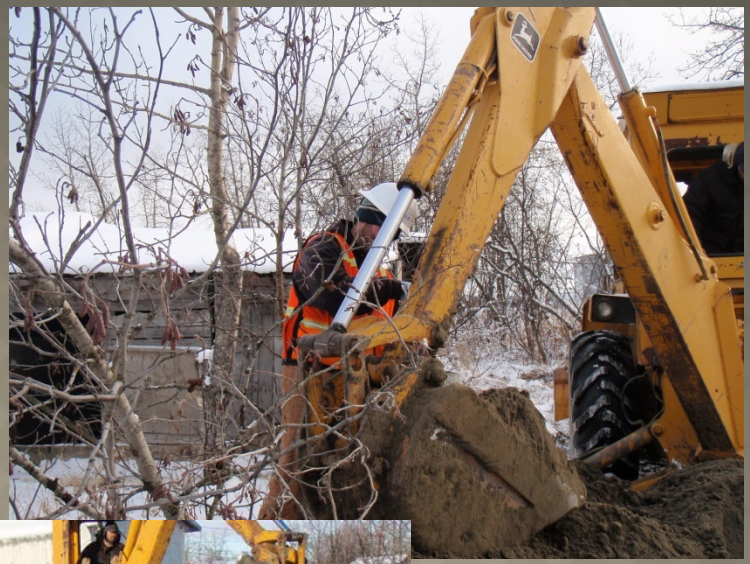
Sampling Media – Subsurface Soil

Advancing soil borings using a portable track-mounted drill rig

Types of Equipment & Investigation Methods:

Sampling Media – Subsurface Soil

Advancing test pits using heavy equipment



Types of Equipment & Investigation Methods:

Sampling Media – Groundwater

Logistics & Communications:

Extremely Important – Can result in success or failure of Site Assessment

Consultants Rely on Local Expertise Regarding Logistics

- ***Best Airline to Fly?***
- ***What Transportation is Available Locally?***
- ***Where do we Stay?***
- ***Is There Access to a Freezer?***
- ***What Equipment is Available Locally?***

The more we know before we go, the better equipped we will be.

Getting the Most out of Your Site Assessment:

Plan Ahead

Identify the Questions You Want to Answer

Pick an Appropriate Brownfield Site

Plan Ahead:

Gather information about your site that will help your funding source and consultant be prepared

- ***Past site history – what was the site used for; how long?***
- ***Take pictures of areas or issues of concern***
- ***Compile a list of hazardous substances stored or present at the site and in what quantities***
- ***Identify potential sampling media***
- ***Identify potential contaminants of concern***
- ***Is the site prone to flooding?***
- ***Identify areas of limited access or utilities***
- ***What is located adjacent to your site***

Plan Ahead:

Gather information about your community

- ***Key community contacts***
- ***Airlines, lodging, and local transportation options***
- ***Equipment available and costs***
- ***Who in the community can operate heavy equipment and have they completed any HAZWOPER training***
- ***Is there a time of year that is better for work to be conducted***

Identify the Questions You Want Answered:

There are many questions that may be posed by any site, such as:

1. *Is there contamination at this site that could pose a significant risk to the community, either now or in the future?*
2. *What is the nature and extent of any contamination present?*
3. *Does the presence of contamination preclude current or future use of this site in any capacity?*
4. *How best do we approach developing a cleanup strategy?*
5. *Is there any cost-effective measures that can be readily implemented now, to reduce the risk of any exposure, if there is a concern?*
6. *What is the total cost to clean up this site?*
7. *What is it that the responsible party will be required to do?*

Picking an Appropriate Brownfield Site:

Depends on what your goals are

If applying for Brownfield funding, you should have a clear beneficial reuse goal or objective in mind

If you want to proceed with the site through cleanup, recommend a non-active facility

Case Study – Multisite Investigation – Akiak:

Three sites in Akiak

- *PACP for Old Generator Building*
- *Delineate Nature & Extent of Contamination at Old Elementary School & Old High School Tank Farms*

Conducted Pre-Investigation Site Visit

Old School Tank Farms – Still Active Facilities

Limit Access & Utilities (Logistics)

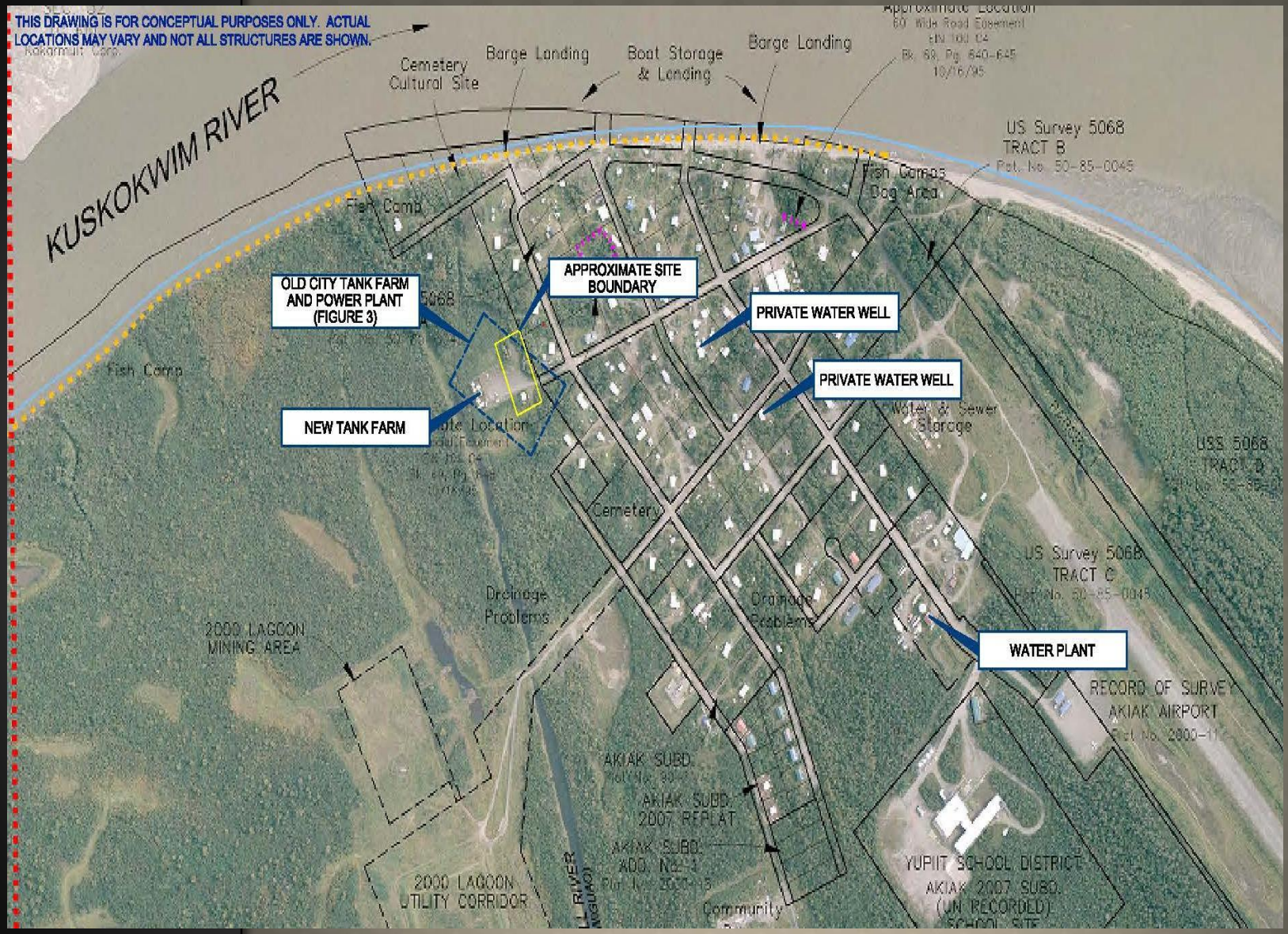
Investigation Area in Close Proximity to Afterschool Hangout

Duration – 1 Overnight Pre-Investigation Site Visit & 5 Day Site Investigation

Akiak


KUSKOKWIM
Tidal Flats
Tidal Flats
Tidal Flat
SITE LOCATION
Akiak
Landing Strip
Tidal Flat
Tidal Flat
Tidal Flats
Slough
Native
ALASKA
NORTH SLOPE
BROOKS RANGE
SEWARD PENINSULA
Anchorage

Akiak


THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
KUSKOKWIM RIVER
Cemetery Cultural Site
Barge Landing
Boat Storage & Landing
Barge Landing
US Survey 5068 TRACT B
Fish Camps
Dog Area
Fish Camp
OLD CITY TANK FARM AND POWER PLANT (FIGURE 3)
APPROXIMATE SITE BOUNDARY
PRIVATE WATER WELL
PRIVATE WATER WELL
NEW TANK FARM
Water & Sewer Storage
Cemetery
Drainage Problems
2000 LAGOON MINING AREA
WATER PLANT
RECORD OF SURVEY AKIAK AIRPORT
AKIAK SUBD.
AKIAK SUBD. 2007 REPLAT
AKIAK SUBD. ADD. No. 1
2000 LAGOON UTILITY CORRIDOR
YUPIIT SCHOOL DISTRICT
AKIAK 2007 SUBD. (UN RECORDED)
Community

Akiak

Akiak

Case Study – Northway Airport:

Complex Site History – Airport Facility Dating Back to World War II

Onsite Lodge & Housing Facilities

Active Airport

Utilized a Portable Track-Mounted Drill Rig &Onsite Gas Chromatograph

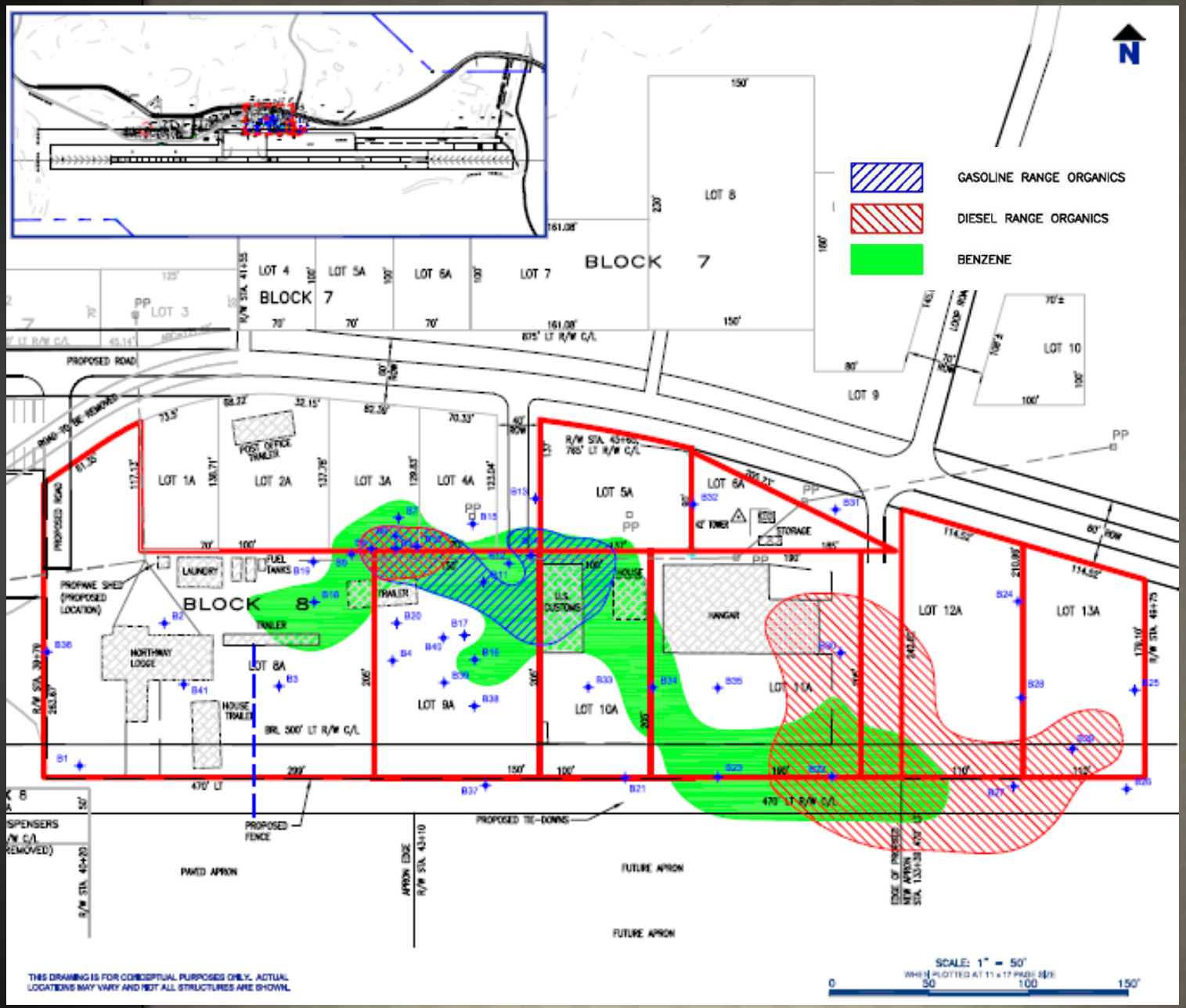
Challenged by Limited Communication & Unseasonably Warm Temperatures

Duration – 7 Day Investigation

Northway Airport

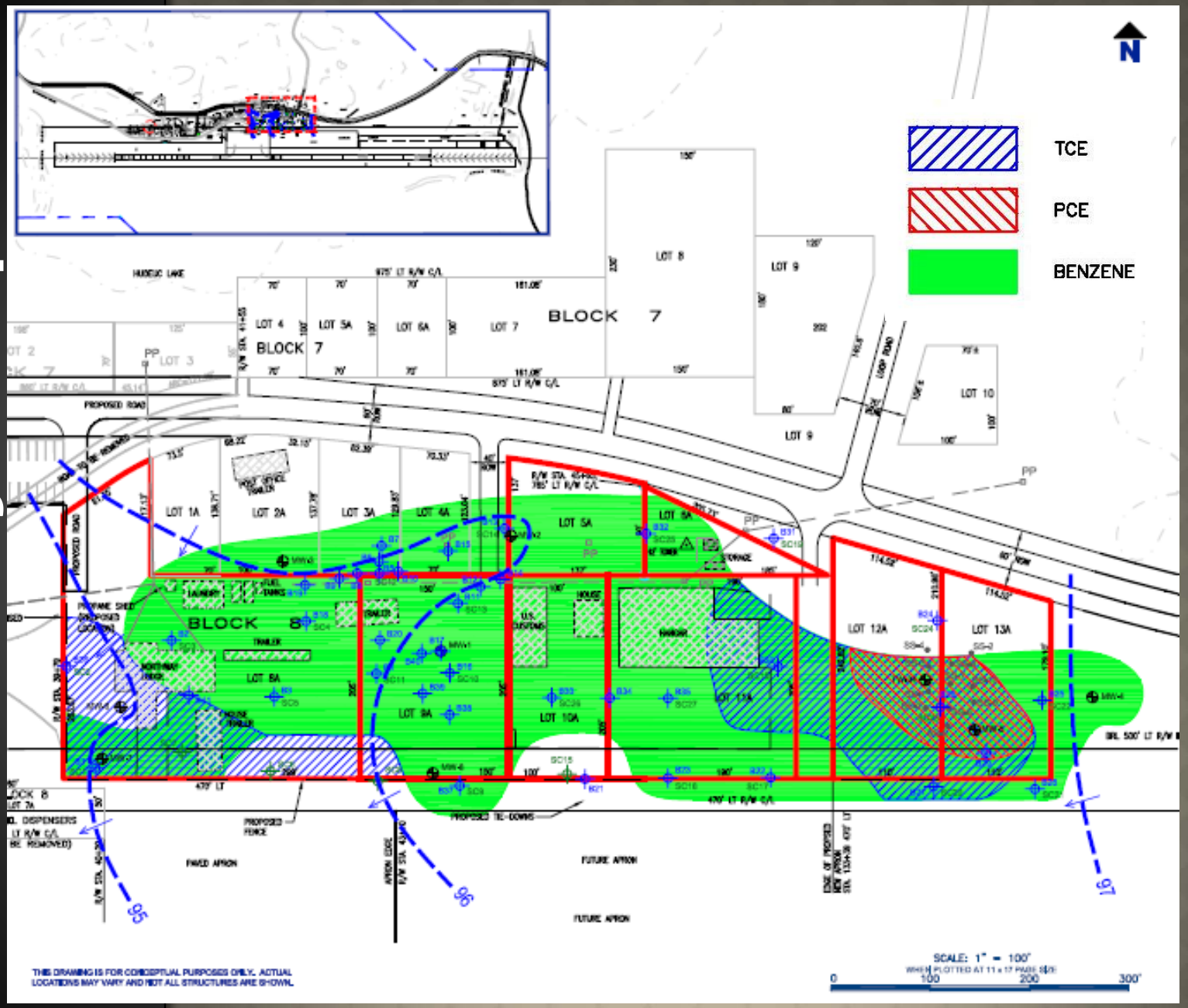
Northway Airport

Northway Airport



Approximate Area of Soil with Contamination above Method Two

Northway Airport



Approximate Groundwater Plume