Rolling Knolls Landfill Superfund Site

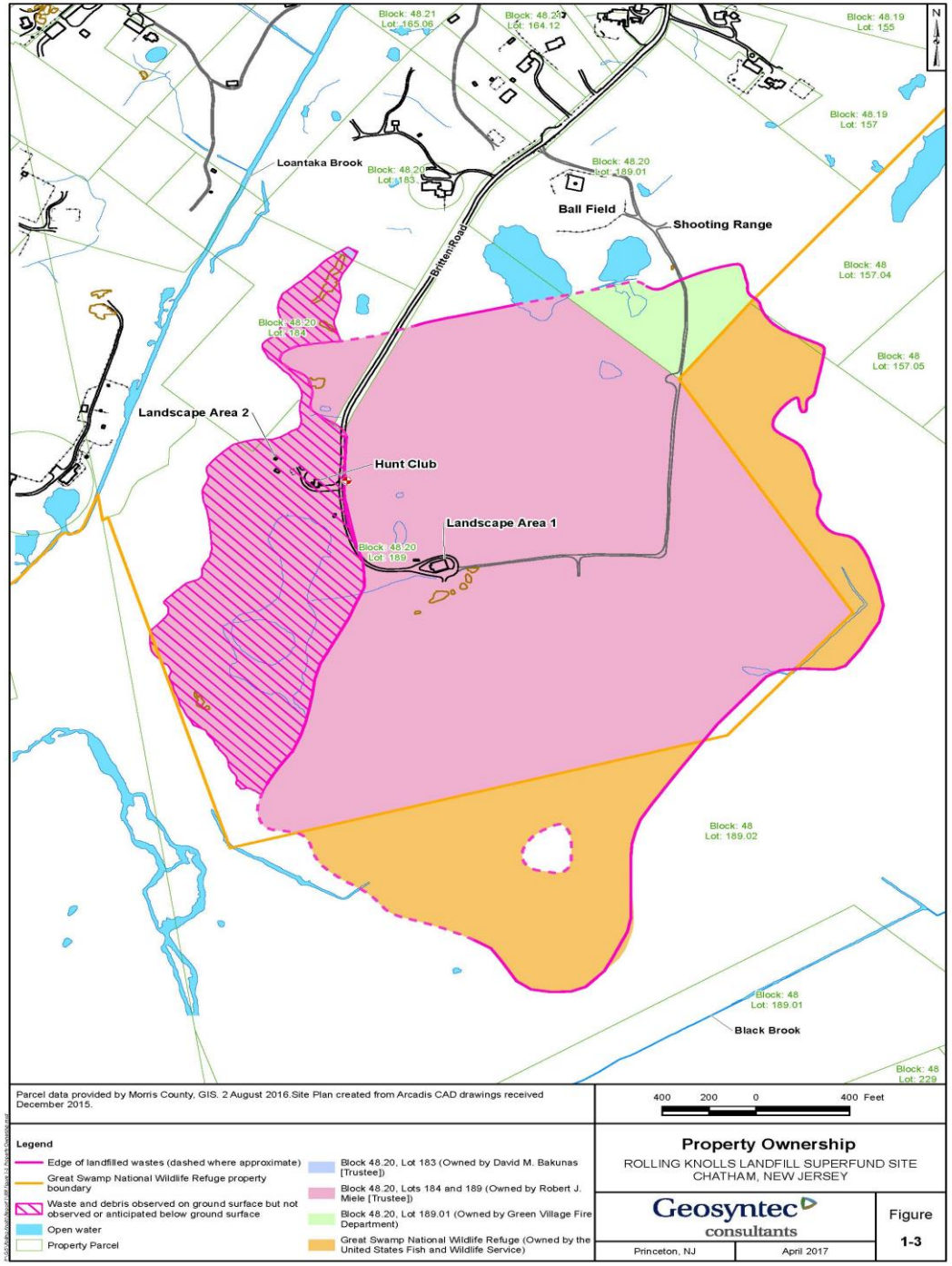
Site Overview with a Focus on the Draft Feasibility Study

Community Advisory Group Meeting

April 15, 2021

Site Description

- Approximately 170 acres – used primarily as an unlined landfill from 1930's to 1968
- Waste at site includes household garbage, construction and demolition debris, industrial waste, septic waste and scrap metal up to 18 feet deep.
- Site has mixed ownership
  - Majority of the landfill is owned by a private family trust (Miele Trust)
  - Approximately 35 acres owned by the Department of Interior (DOI), this portion is a part of the Great Swamp National Wildlife Refuge
  - Northeastern portion of site owned by the Green Village Fire Department
- Three private Potentially Responsible Parties have been identified, plus DOI



SUPERFUND PROCESS

Review of Remedial Investigation

- Expectations of the Remedial Investigation Process
  - Determine if sufficient data exists to characterize site contamination
    - 40 CFR 300.430 (d)(1): “The purpose of the RI is to collect data necessary to adequately characterize the site for the purposes of developing and evaluating effective remedial alternatives.”
  - Provide the technical basis for alternatives development, Feasibility Study and Remedy Selection/Record of Decision (ROD)
- Primary Goals of the Remedial Investigation
  - Define the nature and extent of contamination in site media
  - Report and evaluate data collected during the investigation
  - Use findings to develop human health and ecological risk assessments
  - Develop and refine the Conceptual Site Model
  - Identify data gaps

Remedial Investigation Field Work

- Field work conducted from 2007 to 2015
- Determine physical characteristics of site
- Characterize nature and extent of contamination for all media
  - Soil
  - Groundwater
  - Sediment
  - Surface water
  - Vapor intrusion
  - Biota/Ecological

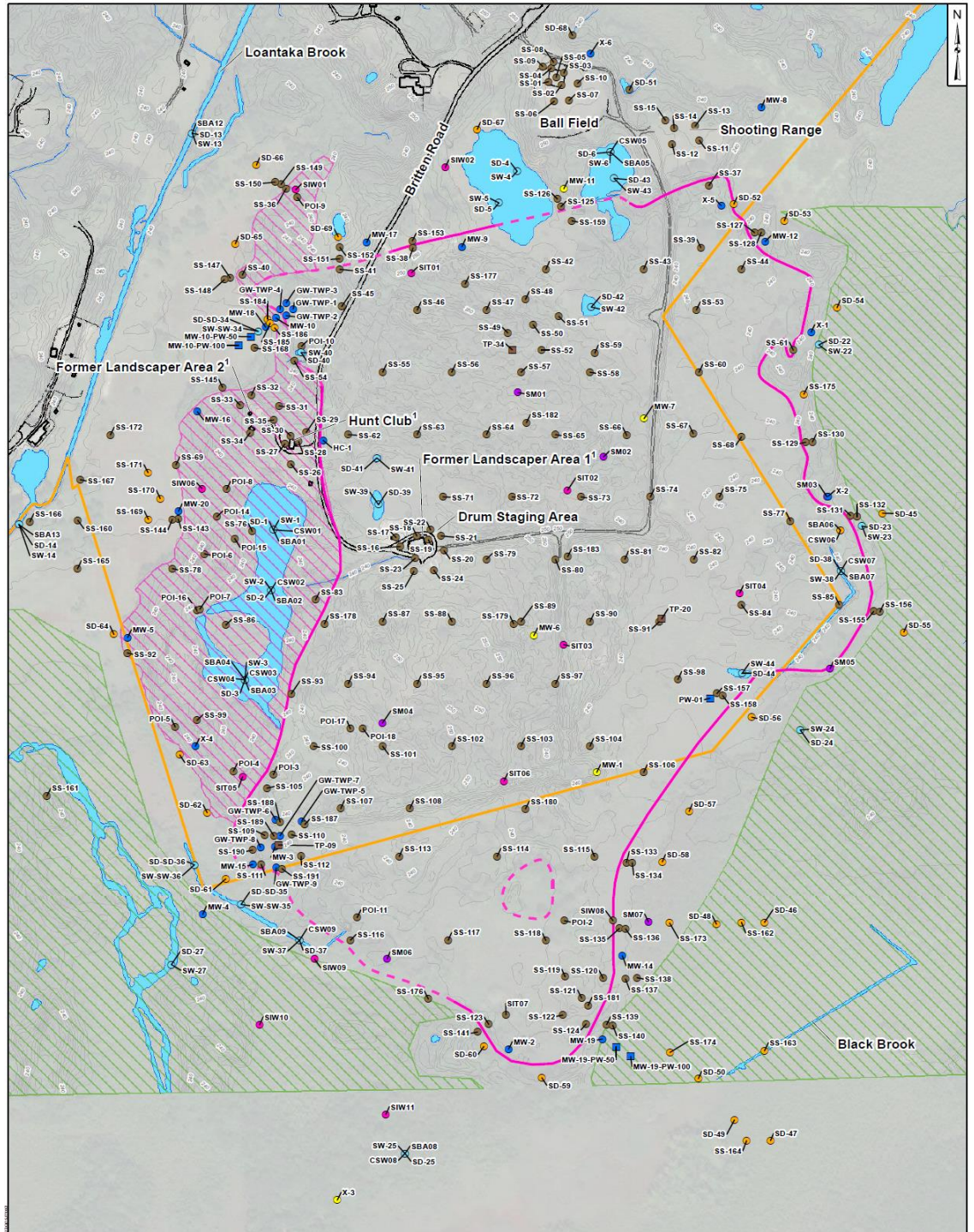
Physical Characteristics of the Site

- Elevations range from 227 to 250 feet above sea level
- Soil, organic matter, sand, clay and silt are found to about 25 feet below the surface, and are underlain by a thick clay layer
- Groundwater is found at about 2.5 below the ground surface on average and flows radially away from the site.
- 3 ponds, ranging in size from one to four acres, and vernal pools (seasonal depression wetlands)
- Loantaka and Black Brooks run adjacent to the landfilled areas
- Approximately 110 acres of landfilled area is non-wetland
- Primarily wetlands & flood hazard zones on the remainder of the landfilled area, as well as on adjacent areas
- Habitat for six species on state and federal threatened and endangered species lists identified, only one found on the site

Sampling to Determine Nature and Extent of Contamination

- Test Pits – 57 pits dug to investigate the composition of the subsurface
  - 37 found waste/debris, 3 found potential industrial waste
- Points of Interest – 18 were identified based on visual observation
  - Drum removal conducted at POI-1, near center of landfill
- Soil – 150 locations on landfilled area, 35 from other portions of the site, and 22 from background locations on the Wildlife Refuge
- Groundwater – more than 34 permanent and temporary monitoring wells sampled
- Soil gas collected at one location beneath Hunt Club
- Surface Water samples collected from 47 locations both up and downstream of the site
- Sediment samples collected from 47 locations on up and downstream of the site
- Biota/Ecological tissue sampling, toxicity testing, habitat assessments and food chain exposure modeling

Overview of Sampling Locations

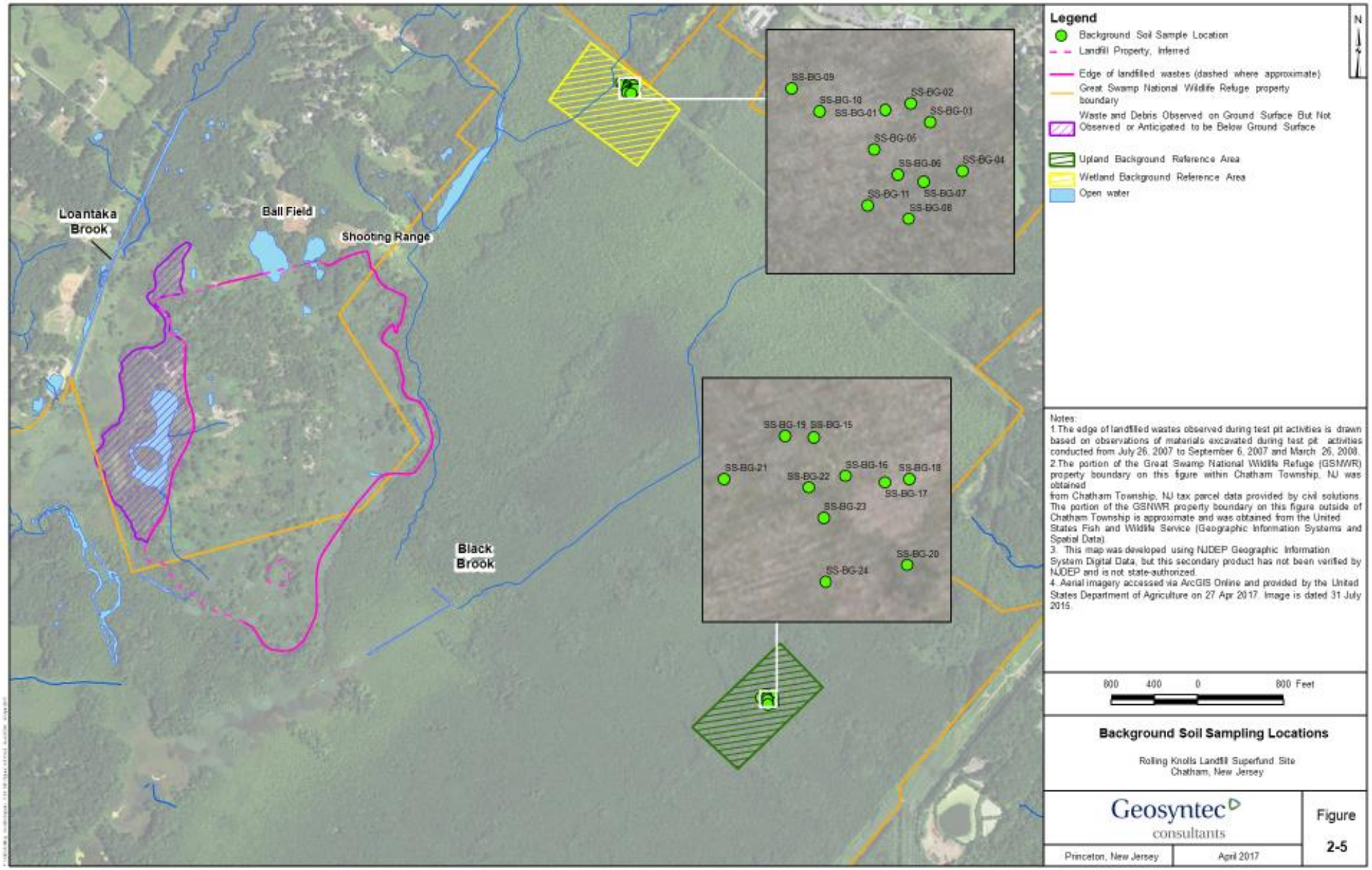


Legend

- Groundwater Sample Location
- Groundwater and Soil Sample Location
- Sediment Sample Location
- Soil Sample Location
- Soil and Tissue Sample Location
- Surface Water Sample Location
- Test Pit Sample Location
- Tissue Sample Location
- Porewater Sample Location

- Edge of landfilled wastes (dashed where approximate)
- Great Swamp National Wildlife Refuge property boundary
- Areas where surface water flow does not exhibit typical bed and bank morphology
- Waste and debris observed on ground surface but not observed or anticipated below ground surface
- Open water

Background Sampling Locations



Predominant Soil Contaminants

Constituent	Number of Surface Soil Samples Analyzed	Number of Results Above Residential SRS	Percentage of Results Above Residential SRS	Number of Results Above Non-Residential SRS	Percentage of Results Above Non-Residential SRS
Benzo(a)pyrene (PAH)	187	41	22	14	7
Benzo(b) Fluoranthene (PAH)	187	5	3	2	1
Dibenz(a,h) Anthracene (PAH)	187	8	4	2	1
Chlordane (cis) (pesticide)	187	13	7	1	1
Chlordane (trans) (pesticide)	184	11	6	1	1
Dieldrin (pesticide)	186	35	19	2	1
Total PCBs	188	91	48	67	36
Arsenic	188	25	13	25	13
Lead	188	82	44	67	36

Primary Goals of Risk Assessments

- Determine risks posed by the site to human health under current and reasonably anticipated future land uses
- Determine if there are unacceptable risks to ecological receptors exposed to contaminants at the site
- Determine if there is a basis to take action under CERCLA

Baseline Human Health Risk Assessment Conclusions

For the reasonably anticipated future use of passive recreation:

- Cancer Risks posed by the site contamination do not exceed the acceptable risk range
- Noncancer Health Hazards slightly exceed the target value of 1:
  - Adolescent trespasser/limited recreational user - HI = 3
  - Adult trespasser/limited recreational user - HI = 2
  - Primarily driven by PCBs
- Lead concentrations are at levels that require remedial action

Baseline Ecological Risk Assessment Conclusions

- Site Chemicals of Potential Ecological Concern (COPECs) do not pose ecological concern for most receptors
  - COPEC concentrations generally higher in the terrestrial portion than in the wetland
  - No significant differences in biota tissue COPEC concentrations between terrestrial and wetland
  - Some Lines of Evidence (LOEs) showed risk to benthic invertebrates, herbivorous mammals, insectivorous mammals, piscivorous mammals, but other LOEs indicated no risk
  - Some COPECs in Black Brook and Loantaka Brook are higher upgradient of the site than downgradient
- Potential risk was noted for worm-eating (vermivorous) birds/mammals (shrew and robin)
  - Risk drivers are PCBs and metals
  - Addressing risk to worm-eating birds/mammals should address any risk to other receptors

Primary Goals of a Feasibility Study

- Review the Remedial Investigation Report and Risk Assessment(s) to summarize and refine:
  - The media and areas of a site that pose an unacceptable risk and/or exceed appropriate standards
  - The Contaminants of Concern at a site
- Determine Remedial Action Objectives that focus on reducing unacceptable risk and Preliminary Remediation Goals based on acceptable levels of risk and exposure
- Develop remedial alternatives that will achieve the Remedial Action Objectives and achieve Preliminary Remediation Goals for a site
- Conduct a formal evaluation and comparison of remedial alternatives to form the basis for EPA to propose its preferred remedial alternative for a site to the public, for review and comment

Remedial Action Objectives

The draft Remedial Action Objectives for the site are:

- Prevent or minimize current and potential future unacceptable risks to current and potential future human and ecological receptors through direct contact with or ingestion of contaminated soil/sediment.
- Control or remove source areas to prevent or minimize impacts to groundwater.
  - Any viable remedial alternative must work towards achieving these goals.
  - Groundwater will be addressed by a separate decision process.

Contaminants of Concern

- Risk drivers for both human and ecological receptors are Polychlorinated Biphenyls (PCBs) and metals (e.g., lead and arsenic).
- Additional contaminants are present at concentrations above relevant site-specific criteria.

Contaminant of Concern	Preliminary Remediation Goal (mg/kg)
VOCs	
Chloroform	10
SVOCs	
Acetophenone	13
Bis(2-ethylhexyl)phthalate	670
Benzo(a)pyrene	9
PCBs	
Total PCBs	5
Metals	
Antimony	830
Arsenic	19
Lead	2,700
Vanadium	2,100

Five Soil/Sediment Remedial Alternatives Evaluated

Alternative 1: No Action (must be evaluated as part of the Superfund process)

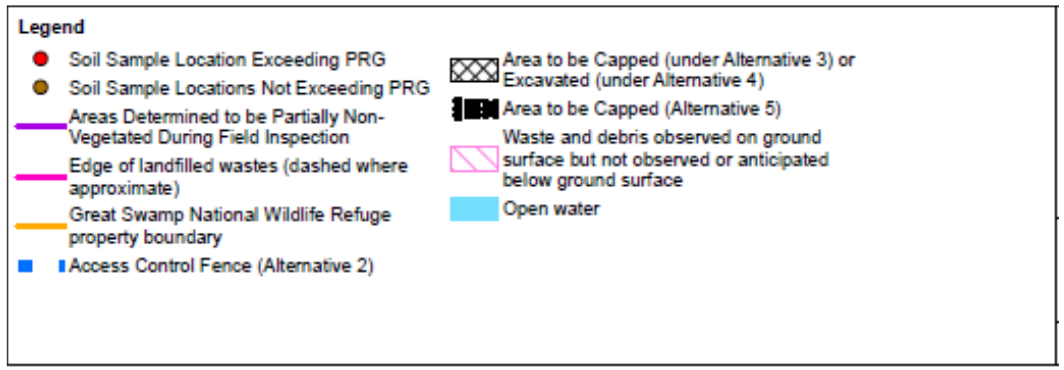
Alternative 2: Engineering and Institutional Controls (such as fencing, signage and land use restrictions)

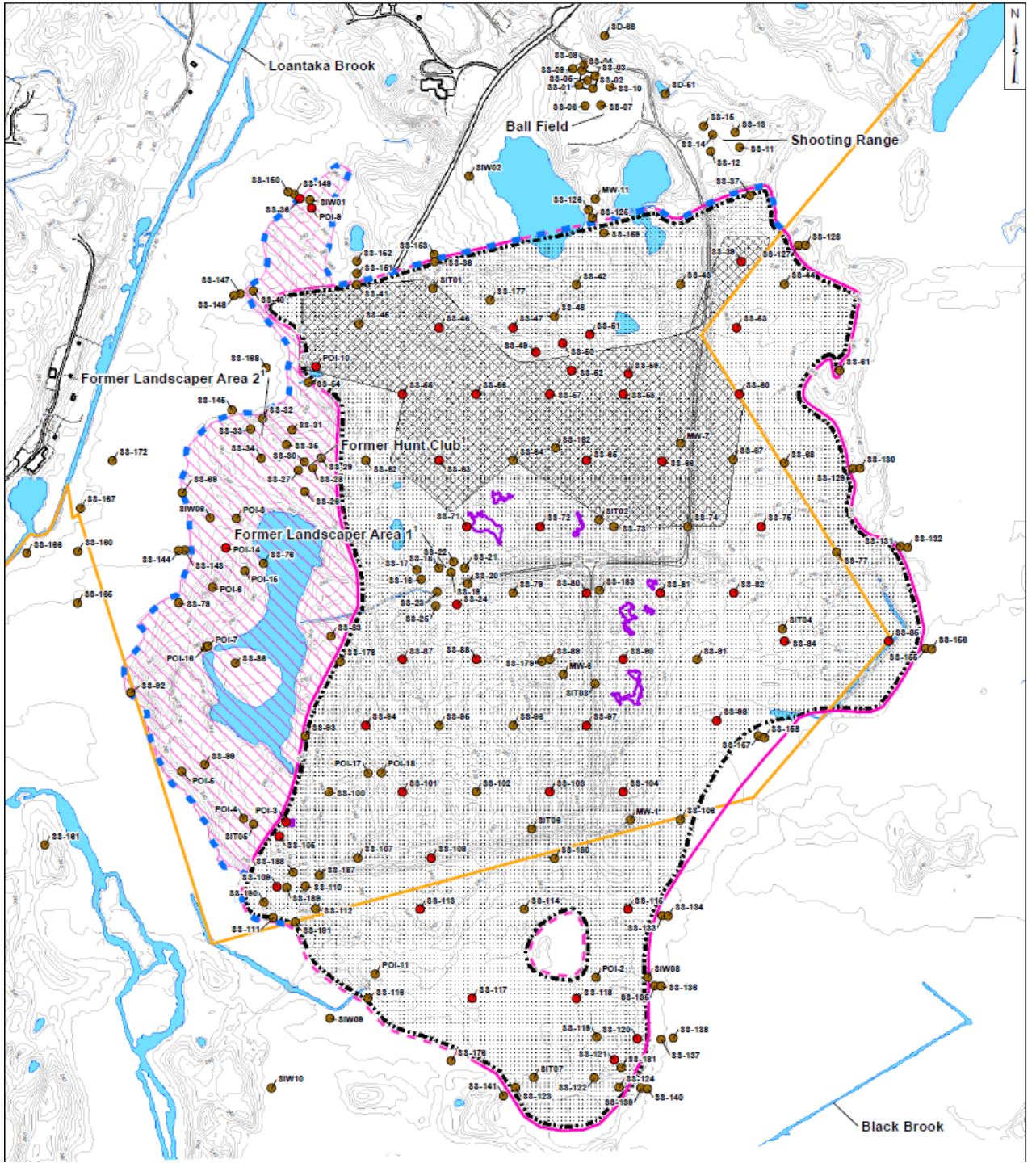
Alternative 3: Capping of Selected Area to reduce the overall risk posed by the site; capping and/or excavation of additional areas that exceed the PRGs in soil to further reduce risk and/or to prevent impacts to groundwater; and Engineering and Institutional Controls;

Alternative 4: Excavation and Off-Site Disposal of Selected Area to Reduce Overall Risk; capping and/or excavation of additional areas that exceed the PRGs in soil to further reduce risk and/or to prevent impacts to groundwater; and Engineering and Institutional Controls; and,

Alternative 5: Capping of the approximately 140-acre landfilled area; capping and/or excavation of additional areas that exceed the PRGs to further reduce risk and/or to prevent impacts to groundwater; and Engineering and Institutional Controls.

Summary of Alternatives





The Nine Evaluation Criteria

Threshold Criteria

- Overall Protection of Human Health and the Environment
- Compliance with Applicable or Relevant and Appropriate Standards

Balancing Criteria

- Long-Term Effectiveness and Permanence
- Reduction of Toxicity, Mobility and Volume through Treatment
- Short-Term Effectiveness
- Implementability
- Cost

Modifying Criteria

- Community Acceptance
- State Acceptance

Current Status/Next Steps

- December 2016 – Baseline Ecological Risk Assessment Approved
- January 2018 – Remedial Investigation Report approved
- July 2018 – Revised Baseline Human Health Risk Assessment Approved
- March 2021 – Revised draft Feasibility Study Report submitted by group of private potentially responsible parties; under review by EPA, NJDEP and FWS (as a trustee)
- Next Steps
  - EPA to provide consolidated comments on draft Feasibility Study Report
  - EPA prepares Proposed Plan for remedial action and finalizes the Administrative Record
  - Release Proposed Plan for public comment
  - At close of comment period, develop Responsiveness Summary addressing all comments received
  - Late spring/early summer 2021 (tentative) – release of Proposed Plan and start of public comment

Post-Record of Decision

- Negotiate legal agreements with Potentially Responsible Parties to conduct the Remedial Design and Remedial Action
- Conduct Robust Pre-Design Investigation
  - To refine the extent of the site to be addressed
  - To determine design details and engineering approaches
- Design Selected Remedy for Soil/Sediment
- Conduct Remedial Action for Soil/Sediment
- Conduct post-Remedial Action sampling
  - To ensure effectiveness of remedy
  - To help inform selection of a remedy for groundwater
- Conduct RI/FS process for groundwater and select a remedy for groundwater
- Conduct Five Year Reviews on an ongoing basis
  - Modifications and additional actions can be taken on an as-needed basis

Questions?