INSTALLATION RESTORATION PROGRAM

NAVAL SUPPORT FACILITY-
INDIAN HEAD
3838 STRAUSS AVENUE
INDIAN HEAD, MARYLAND
20640-5133

RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES

Date of Meeting: April 24, 2014, 6:00 pm

RAB Member Attendees:

Mr. Joseph Rail (N) *
Mr. Nathan Delong (N)
Mr. Curtis Detore (S)
Mr. Nicholas Carros (N) *
Ms. Allison Cantu (N)
Mr. Elmer Biles (C)

Additional Attendees:

CAPT Peter Nette (N)
CDR Christopher Zayatz (N)
Mr. Jeffrey Bossart (N)
Mr. William Potter (N)
Mr. Daniel Bragunier (N)
Ms. Tara Carlson (C)
Mr. Jim Long (C)
Mr. Ken Hastings (C)
Ms. Bonnie Bick (C)

RAB Members Not in Attendees:

Mr. Mark Williams (L)
Mr. Fred Pinkney (F)
Mr. John Burchette (F)
Ms. Karen Wiggen (L)

* Co-chair

C= Community
F= Federal Official
K= Contractor
L= Local Official
N= Navy Official
R= Newspaper Reporter
S= State Official

Topics Discussed:

1. Arrival/Welcome

Mr. Joseph Rail of the Naval Facilities Engineering Command, Washington (NAVFAC Washington) began the meeting by conducting introductions and welcoming everyone to the Indian Head Senior Center. Copies of RAB Fact Sheets were offered to anyone in attendance. It was mentioned that the Fact Sheets explain the background, purpose, and responsibilities of the RAB. Mr. Rail then presented the meeting agenda, which is included in Attachment A.

2. RAB Presentations

Presentations and updates of numerous sites were given by Mr. Rail, Mr. Nick Carros, and Mr. Nate Delong of NAVFAC Washington. Additionally, Mr. Seth Berry, Natural Resources Specialist from NSF-IH, was a guest speaker at the meeting and provided an overview of recent shoreline stabilization work along the Potomac River. Mr. Carros presented Remedial Investigation sampling results for UXO 9-Single Base Propellant Grains Spill Area followed by a notification of intrusive anomaly excavation work at munitions site UXO 11-The Valley. Mr. Delong discussed the recently completed debris removal work from Site 36-Closed Landfill. Next, Mr. Rail presented a monitoring update and approach for characterization of additional contamination at Site 17-Disposed Metal Parts Along Shoreline. He additionally discussed the components of a Remedial Design for Site 38-Rum Point Landfill. To conclude the presentations, Mr. Carros discussed Site Screening Process results for Site 69-Building 1018 and AOC 31-Building 259 along with Remedial Investigation results for Site 67-Hog Out Facility. Copies of all presentations are included in Attachment D.

3. Comments, Questions and Answers

Numerous comments were made and questions asked during the meeting. These comments, questions and answers are provided in Attachment B. Additional correspondence concerning the Installation Restoration Program (IRP) or the Munitions Response Program (MRP) at the facility can be directed to:

Public Affairs Officer
Naval Support Facility South Potomac
Attn: Public Affairs Officer, Code 00P
6509 Sampson Rd.
Dahlgren, VA 22448-5108
PHONE: (540) 284-0129
FAX: (540) 653-4269
Email: jeron.hayes@navy.mil

4. Meeting Adjourn

Mr. Rail presented the tentative agenda for the next RAB meeting, which is scheduled for October 23, 2014. A copy of the draft agenda is included in Attachment C. Mr. Rail then concluded the meeting at 8:00 pm and thanked everyone in attendance.

NAVAL SUPPORT FACILITY INDIAN HEAD
INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB) MEETING AGENDA

April 24, 2014

6:00 - 6:05 pm	**ARRIVAL/WELCOME** Mr. Joseph Rail Naval Facilities Engineering Command, Washington (NAVFACWASH) Remedial Project Manager
6:05 – 6:15 pm	**NSF-IH SHORELINE PROJECT UPDATE** Mr. Seth Berry
6:15 – 6:30 pm	**UXO 9-SINGLE BASE PROPELLANT GRAINS SPILL AREA RI SAMPLING RESULTS** Mr. Nick Carros
6:30 – 6:45 pm	**UXO 11-THE VALLEY NOTIFICATION & FIELDWORK UPDATE** Mr. Nick Carros
6:45 – 7:00 pm	**SITE 36-CLOSED LANDFILL DEBRIS REMOVAL UPDATE** Mr. Nate Delong
7:00 – 7:15 pm	**SITE 17-DISPOSED METAL PARTS ALONG SHORELINE MONITORING UPDATE & ADDITIONAL CHARACTERIZATION** Mr. Joseph Rail
7:15 – 7:30 pm	**SITE 38-RUM POINT LANDFILL REMEDIAL DESIGN** Mr. Joseph Rail
7:30 – 7:45 pm	**SITE 69-BUILDING 1018 & AOC 31-BUILDING 259 SSP SAMPLING RESULTS** Mr. Nick Carros
7:45 – 8:00 pm	**SITE 67-HOG OUT FACILITY REMEDIAL INVESTIGATION** Mr. Nick Carros
8:00 pm	**ADJOURN**

Attachment A

INSTALLATION RESTORATION PROGRAM

NAVAL SUPPORT FACILITY-
INDIAN HEAD
3838 STRAUSS AVENUE
INDIAN HEAD, MARYLAND
20640-5133

RESTORATION ADVISORY BOARD (RAB) MEETING
COMMENTS, QUESTIONS AND ANSWERS
April 24, 2014

Arrival/Welcome

No questions were asked nor comments made during this topic.

Shoreline Project Update

Question: Did you have any dialogue with the county or state regulatory agencies regarding the preservation of the shoreline? Did they help prioritize the repair? What was their involvement/input?

Answer: The regulatory agencies were not involved in prioritizing the areas as this was specific to the mission/function of the installation. Prioritization of areas was first completed during the development of the Shoreline Management Plan, which was used as a guiding tool for implementing the project. State and Federal regulatory agencies (not County) were engaged very early in the permitting stage of the project to ensure their goals/requirements were reflected in the design of the project. Numerous meetings/phone conferences were conducted with MDE, MDNR, NMFS, MD CAC and USACE to minimize impacts to existing resources (i.e. anadramous fish spawning areas, SAV beds, RT&E species, bald eagle nesting areas, riparian habitat) while still protecting critical infrastructure. At the same time, the goals to improve water quality and enhance aquatic/terrestrial wildlife habitat were incorporated into the design.

Question: What was the cost of the stabilization?

Answer: The project cost $20 million and protected $54 million of infrastructure.

Attachment B

Question: Was the stabilization done only on the Potomac River side of the base and not the Mattawoman Creek? Is there any publicly available information regarding the decision to not stabilize along the Mattawoman Creek? Why didn't NOAA and DNR want stabilization on the Mattawoman?

Answer: The majority of the work occurred on the Potomac River with a small percentage completed at the mouth of the Mattawoman Creek. This is due to several reasons. Less areas of critical infrastructure exists along the Mattawoman Creek which resulted in a lower priority when assessing sites. Also, during permitting discussions with regulatory agencies (mainly NMFS), they did not agree with trading existing SAV beds for intertidal wetland habitat that would have been created behind the sill structures. As a result, the sills constructed within the Mattawoman Creek were pulled landward to reduce/eliminate impacts to SAV. There were also several important spawning areas (mainly around Marsh Island) that MDNR did not want impacted by shoreline work.

Question: Is there background information available with additional detail on the scope and cost of this project?

Answer: Yes, a stat sheet is available which includes details of scope and quantities of materials.

Question: Living shorelines don't protect SAV?

Answer: Correct, it destroys it in the short term to save it in the long run.

Question: Where would Phases 4-6 work be located?

Answer: Primarily north of the Dashiell Marina to the boundary with the town of Indian Head. There would also be several areas along the Potomac River at Stump Neck.

Question: Can you determine the amount of erosion that has historically occurred since 1890?

Answer: Yes, about 1.5 feet/year or 290 feet total.

Question: How did you get all the volunteers on base?

Attachment B

Answer: Volunteer participation was coordinated by the National Aquarium in Baltimore. All volunteers were vetted to gain base access just as all other base visitors.

Question: Did you plant trees with protectors around the base? Is the “tree cage” cost prohibitive? I have heard they work well.

Answer: Yes, bark protectors were installed to deter deer rub/browse. Each planting effort a new design of bark protector was installed in an attempt to avoid issues learned from the previous design. The final two planting efforts resulted in the best product which was a plastic sleeve held together with three ties. The tree cage was not used due to installation time rather than being cost prohibitive.

UXO 9 RI Sampling Results

Question: Is the site able to be visited by the public?

Answer: No, UXO 9 is located within the restricted area of the installation and access is limited to approved personnel only for operational and security purposes. We can share photos of the site and answer questions, but non-credentialed personnel would be unable to access the area.

Question: Why is cobalt in groundwater unacceptable for residents and not for workers?

Answer: Exposure to residents is more conservative because they could potentially be exposed to a constituent 24 hours per day while a worker would typically only be exposed for 8 hours per day.

Question: In regards to the discussion on UXO 19, was the same approach used on Stump Neck?

Answer: Yes, a similar approach is used for all sites undergoing a Remedial Investigation (i.e. site-related contaminants are sampled for and nature and extent are evaluated.)

Question: What is multi-incremental sampling? Does using this method miss an area of high concentration? Can areas

of high concentration be brought to a lower average due to areas of low concentrations?

Answer: Mulit-incremental sampling is a method that pools several individual increments (samples) from within a decision unit or site. It does not miss an area of high concentration and is intended to provide a more reliable estimate of the average concentration.

Question: Barium: Since it isn't site related, is it common in groundwater? Is it found in samples in off-base wells? Is there a greater barium issue in the area or is it just in groundwater specifically on-base?

Answer: Barium has shown up in the background study for Indian Head which may indicate that it is common in groundwater. Its presence off-base is unknown. It is believed that barium concentrations at the site are consistent with background levels and not an issue.

Question: Are the background samples taken from locations on-base? Are there parts of the base that don't have an industrial history or haven't been impacted to get true background samples?

Answer: Background samples were taken on the base and in areas that were believed to not have any impact from prior Navy activities.

UXO 11 Notification and Fieldwork Update

Question: What are the characteristics of a monitoring well?

Answer: Typically, monitoring wells are installed with a 4" casing and 2" PVC riser pipe. The depth of the wells depends on the depth to the water table. For UXO 11, depths were assumed to be approximately 20 feet bgs.

Question: In reference to slide 10, what does anomaly mean?

Answer: An anomaly is a buried object that yielded a positive response during a digital geophysical mapping (DGM) survey. It could be scrap metal, cultural debris, or a munitions item.

Question: How long was the range used?

Attachment B

Answer: UXO 11 was used from approximately 1891 to 1921.

Question: IS GPR feasible? Why wasn't it valid for the site?

Answer: DGM with intrusive anomaly excavation was deemed to be a more cost-effective and feasible approach for this site and to achieve the goals of the RI.

Question: Is it a people-intensive project?

Answer: The DGM survey and intrusive investigation at UXO 11 will require a moderate number of personnel. There will likely be three UXO Technicians, a Senior UXO Safety Officer, and Senior UXO Supervisor.

Question: Is this where the old dock was located?

Answer: No, this site is in the area of Dashiell Marina on the Potomac River.

Question: Regarding the aerial view of the site- Does this show what the metal detector showed? How many yellow dots were there?

Answer: Yes, the map shows DGM survey results and 369 anomalies (shown as yellow dots) are planned to be intrusively investigated.

Question: When can you determine that you are done with the site?

Answer: Results of the intrusive investigation will be evaluated to determine future action at the site. It's possible that there will always be land use controls on the site.

Question: Do you have a list of the 369 items you found?

Answer: Once the 369 items are intrusively investigated, they will be properly categorized and diposed of.

Site 36 Debris Removal Update

Question: Where would the creek have been before the landfill? Did the debris rechannelize the creek? There used to be water flowing through the site?

Attachment B

Answer: Creek flow hasn’t stopped, it’s just been altered since there was minimal flow in this area and it was marsh land.

Question: What was the history of the landfill? How long was it used?

Answer: The landfill was reportedly used to dispose of inert metal casings, mines, bombs, and torpedoes from 1972 to 1974.

Question: What does MPPEH stand for?

Answer: MPPEH stands for Material Potentially Presenting an Explosive Hazard.

Question: Did you spray paint the bomb fuse parts orange or are they orange?

Answer: They were spray painted orange by UXO technicians during the field effort so they could later be recovered during surface sweeps.

Question: Did you find anything interesting and non-explosive?

Answer: Yes, an inert sea mine and 500-lb old style bomb were found and safely demilitarized.

Question: What are rocket venturis?

Answer: Venturis are the back piece of a rocket that functions as an engine nozzle.

Question: What about the annual debris that comes down the Potmac? Will the “trash” be cleaned up?

Answer: This site is located on the Chicamuxen Creek and is sheltered from debris on the Potomac; therefore trash cleanup will not be an issue.

Site 17 Monitoring Update & Additional Characterization

Question: Why were we surprised about TCE concentations in the north plume?

Answer: TCE concentrations in the north plume were a surprise because they increased from the baseline sampling

event to the post-injection events.

Question: What is the sampling planned in the future? How long for MNA?

Answer: Groundwater sampling is planned to be biannually for 3 years, annually for the following 5 years, and once every 5 years for the remaining years until site remediation goals are met.

Question: How much contamination is being washed into the creek or what impacts are there to the creek?

Answer: Previous sampling and investigations have shown the contamination plume to be confined to the land portion of the site with minimal impacts to the creek.

Question: Does the Navy ever go back and do spot check sampling to prevent future surprises like the north plume TCE concentrations?

Answer: Yes, every site with contaminants left in place undergoes a Five Year Review and most have long-term monitoring which would identify new issues at the site.

Question: Have the levels gone up recently? Could it be due to a monitoring-related issue?

Answer: Levels of TCE have increased in the north area of the site. The cause of this is under investigation, but would not be related to monitoring of the site.

Site 38 Remedial Design

Question: What is the source of the manganese? Is it coming from upgradient? If so, does that mean we would have a new site?

Answer: The source of manganese is unknown at this time and appears to be coming from an upgradient area. Future monitoring will provide more data to determine if a new site is present or the manganese is naturally-occuring.

Question: Civil War activity occurred on Rum Point, have we found artifacts?

Answer: No, artifacts have not been found at Site 38 to date.

Question: How much does the one munitions item raise the project cost?

Answer: Since a munitions item was found, a remedial action at this site will require approval of an Explosive Safety Submission and screening of all materials going off site. This potentially raises the project cost by upwards of $500K.

Question: If we suspect managenese isn't from the site, are we investigating the source or waiting until a Five Year Review?

Answer: Given that manganese is naturally-occuring, is consistently seen in high concentrations in MD, and no apparent Navy source is present in this area, long-term monitoring will commence and manganese will be evaluated at the next Five Year Review.

Site 69 and AOC 31 Sampling Results

Question: What is ecological risk?

Answer: Ecological risk is the evaluation of how likely it is that plants and animals may be impacted by the exposure to environmental contaminants.

Question: Is this part of the greater Mattawoman Creek mercury issue?

Answer: No, Site 69 and AOC 31 are independent of the Mattawoman Creek mercury issue.

Site 67 Remedial Investigation

Question: What is hog out?

Answer: This is a facility that cleaned or "hogged out" solid propellant containing ammonium perchlorate from various devices.

Question: Where is the property line with the town in relation

to the site?

Answer: Site 67 is in the vicinity of Site 28 in the northeast corner of the installation and is approximately 1,750 feet (0.3 tenths of a mile) from the property line.

Question: How deep are the wells? Are they deep or shallow? Do we have detection to determine if contamination is leaking into the Mattawoman Creek?

Answer: The water table at Site 67 is very shallow; therefore, wells are only 6 to 10 feet deep. An additional round of sampling is planned to determine nature and extent of contamination and evaluate any impacts to the Mattawoman Creek.

Question: What are the health hazards of perchlorate? There isn't a hard standard cleanup/goal for perchlorate?

Answer: At high concentrations, perchlorate can affect the thyroid gland. Currently, there is uncertainty in establishing a hard standard cleanup goal and EPA has only issued a preliminary recommended cleanup goal.

General Questions

Question: What is the half life of Thorium?

Answer: Thorium 232 (from Site 1) has a half-life of 14 billion years.

Question: What is the current budget for FY14?

Answer: The FY14 budget for NSFIH was $3.3 mil for IR sites and $37K for MRP sites.

Attachment B

NAVAL SUPPORT FACILITY INDIAN HEAD
INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB) DRAFT MEETING AGENDA

October 23, 2014

6:00 - 6:15 pm	**ARRIVAL/WELCOME** Mr. Joseph Rail Naval Facilities Engineering Command, Washington (NAVFACWASH) Remedial Project Manager
6:15 – 6:30 pm	**UXO 4-BASIC IED AREA, UXO 5-ADVANCED IED AREA, UXO 12-TORPEDO BURIAL SITE, & UXO 21-TEST AREA 1 STUMP NECK MRP REMEDIAL INVESTIGATION UPDATES** Mr. Joseph Rail
6:30 – 6:45 pm	**UXO 20-SAFETY THERMAL TREATMENT POINT RI UPDATE** Mr. Joseph Rail
6:45 – 7:00 pm	**SWMU 14-PHOTOGRAPHIC LAB SEPTIC TANK SYSTEM PILOT STUDY UPDATE** Ms. Allison Cantu
7:00 – 7:15 pm	**SITE 42-OLSEN ROAD LANDFILL WELL INSTALLATION & SAMPLING UPDATE** Mr. Nick Carros
7:15 – 7:30 pm	**SITE 57-BUILDING 292 TCE CONTAMINATION FIELDWORK UPDATE** Mr. Joseph Rail
7:30 – 7:45 pm	**SITE 66-TURKEY RUN DISPOSAL AREA BERA RESULTS** Ms. Allison Cantu
7:45 – 8:00 pm	**LONG TERM MONITORING UPDATES FOR VARIOUS SITES** Mr. Nick Carros
8:00 pm	**ADJOURN**

Attachment C

Attachment D- RAB Presentations

Naval Support Facility Indian Head Shoreline Stabilization

Seth Berry
Natural Resources Program Manager
Naval Support Facility Indian Head
(301) 744-2273
seth.m.berry@navy.mil

Naval Support Facility Indian Head Shoreline Stabilization

Pre-existing Shoreline Conditions

- **Average historical rate of erosion of –1.5 ft/year.**
- **Shoreline erosion exacerbated by:**
  1. **Wave activity**
  2. **3 – 5 mile fetch**
  3. **Ground water seepage**
  4. **Soil characteristics**

Naval Support Facility Indian Head Shoreline Stabilization

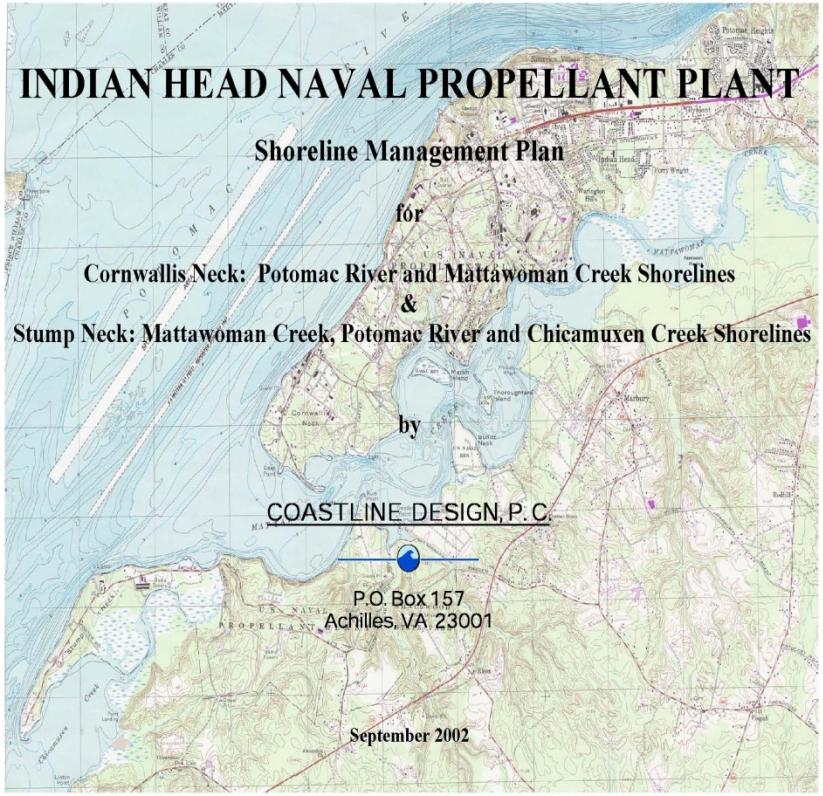
Previous Methods of Shoreline Stabilization

- **Gabion baskets were installed at the Strauss Avenue Thermal Treatment Point and along the shoreline below Riverview Village in the mid 1990s to control erosion**
- **Installation of gabion baskets hardens the shoreline and does not provide the opportunity to enhance wildlife habitat**
- **Structural integrity of the design often is compromised by upland slumping, causing the gabion baskets to shift**

Naval Support Facility Indian Head Shoreline Stabilization

Shoreline Management Plan

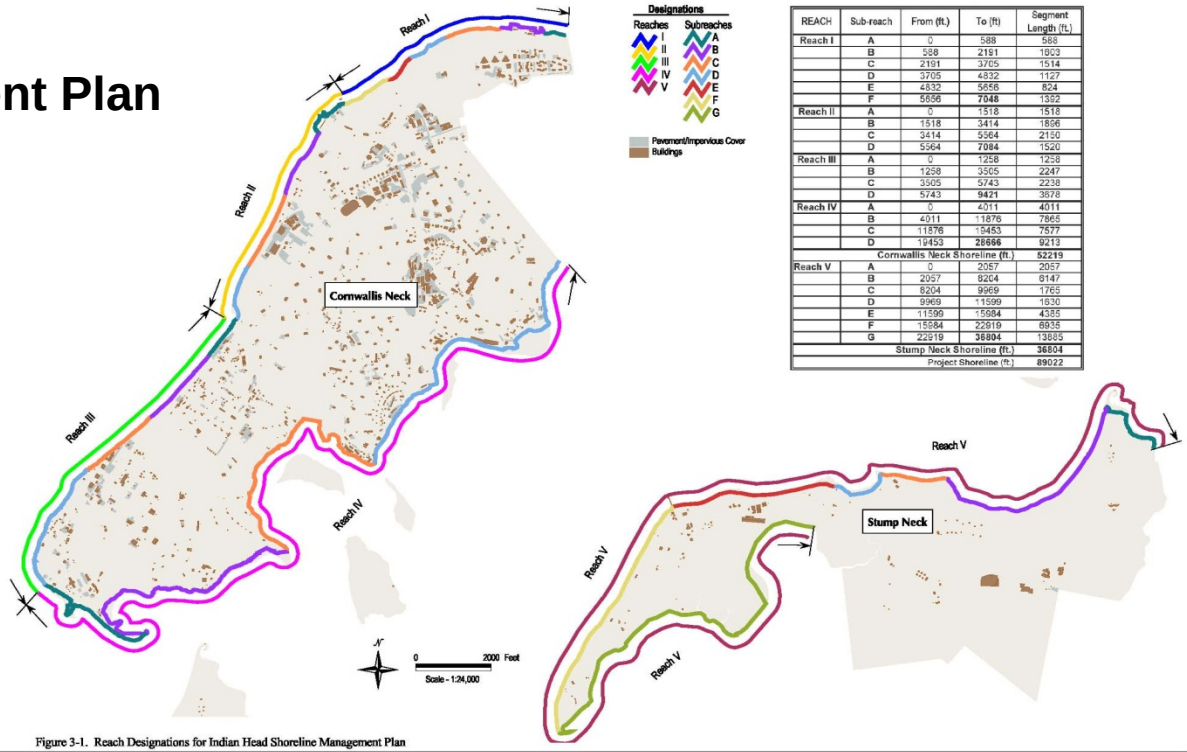
- **Developed in 2002 to assess erosion of approximately 38,000 linear feet**
- **Priority of repair based on:**
  1. **Historical rate of erosion**
  2. **Soil and Geologic Characteristics**
  3. **Current state of shoreline**
  4. **Threatened infrastructure and impact to Mission operation**
  5. **Potential to enhance wildlife habitat/improve water quality**



Naval Support Facility Indian Head Shoreline Stabilization

Shoreline Management Plan

- **Plan provides baseline for design of project**
- **Consists of Reaches I-V, with each Reach further divided into Subreaches**



Indian Head Naval Propellant Plant
Cornwallis Neck - Stump Neck

REACH	Sub-reach	From (ft.)	To (ft)	Segment Length (ft.)
Reach I	A	0	588	588
	B	588	2191	1603
	C	2191	3705	1514
	D	3705	4832	1127
	E	4832	5656	824
	F	5656	7048	1392
Reach II	A	0	1518	1518
	B	1518	3414	1896
	C	3414	5564	2150
	D	5564	7084	1520
Reach III	A	0	1258	1258
	B	1258	3505	2247
	C	3505	5743	2238
	D	5743	9421	3678
Reach IV	A	0	4011	4011
	B	4011	11876	7865
	C	11876	19453	7577
	D	19453	28666	9213
Cornwallis Neck Shoreline (ft.)				52219
Reach V	A	0	2057	2057
	B	2057	8204	6147
	C	8204	9969	1765
	D	9969	11599	1630
	E	11599	15984	4385
	F	15984	22919	6935
	G	22919	36804	13885
Stump Neck Shoreline (ft.)				36804
Project Shoreline (ft.)				89022

Figure 3-1. Reach Designations for Indian Head Shoreline Management Plan

A-3

Naval Support Facility Indian Head Shoreline Stabilization

Facility Plant Replacement Value (PRV)

PRV without utilities/roadways

Phase 0: $3,057,465

Phase 1: $10,376,224

Phase 2: $36,724,760

Phase 3: $3,930,030

Total: $54,088,479

Naval Support Facility Indian Head Shoreline Stabilization

Project Objectives

- **Protect infrastructure ($54M) from continued shoreline encroachment**
- **Improve water quality (reduce sedimentation)**
- **Enhance terrestrial and aquatic wildlife habitats**
- **Minimize impacts to biological life cycles**
- **Implement and design living shoreline**
- **Ensure regulatory involvement and foster community awareness**
- **Develop and foster organizational and agency partnerships**
- **Promote and communicate project awareness**

Naval Support Facility Indian Head Shoreline Stabilization

Total Funding

Phases 0-3: $20M

Project Completion

Phase 0 - Completed Nov 2008

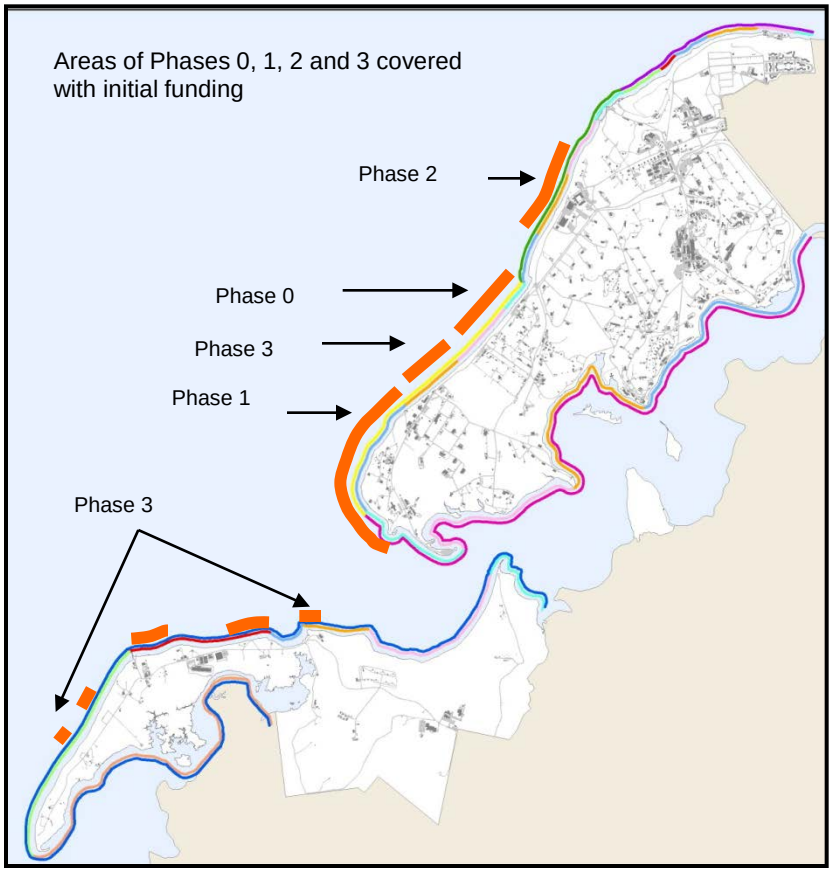
Phase 1 - Completed Oct 2010

Phase 2 - Completed April 2012

Phase 3 - Completed April 2012

Future Phases

Phases 4-6 – Funding Request Submitted for FY17



Naval Support Facility Indian Head Shoreline Stabilization

Project Summary – Shoreline Protection

- **17,100 lineal feet of shoreline protected**
- **This includes:**
  - **14,170 lineal ft of sills**
  - **2,160 lineal ft of breakwaters**
  - **610 lineal ft of revetment**
  - **1,230 lineal ft of cobble beach**
  - **1,260 lineal ft of high bank reconstruction**

Naval Support Facility Indian Head Shoreline Stabilization

Project Summary – Habitat Creation

- **Created 18 acres of intertidal wetland, shrub/scrub and riparian floodplain habitats**
- **Areas created with sand fill behind shoreline structures**
- **89,000 trees, shrubs and wetland plugs planted in all Phases**
- **Post construction surveys have shown increases in SAV habitat, predator/prey fish interactions and biomass**

Naval Support Facility Indian Head Shoreline Stabilization

Project Summary – Volunteers

- **National Aquarium in Baltimore coordinated volunteer planting efforts**
  - **Phase 0 volunteers: 111; volunteer hrs: 1,293**
  - **Phase 1 volunteers: 143; volunteer hrs: 1,880**
  - **Phases 2-3 volunteers: 316; volunteer hrs: 2,528**

Naval Support Facility Indian Head Shoreline Stabilization

Participating Organizations and Agencies

1. **US Navy**
2. **USDA Southern Maryland RC&D**
3. **Charles Soil Conservation District**
4. **Charles County Master Gardeners**
5. **The National Aquarium in Baltimore**
6. **EcoSystem Solutions, Inc.**
7. **Maryland Conservation Corp**
8. **AmeriCorps**

UXO 9 Single Base Propellant Grains Spill Area

Remedial Investigation Sampling Results

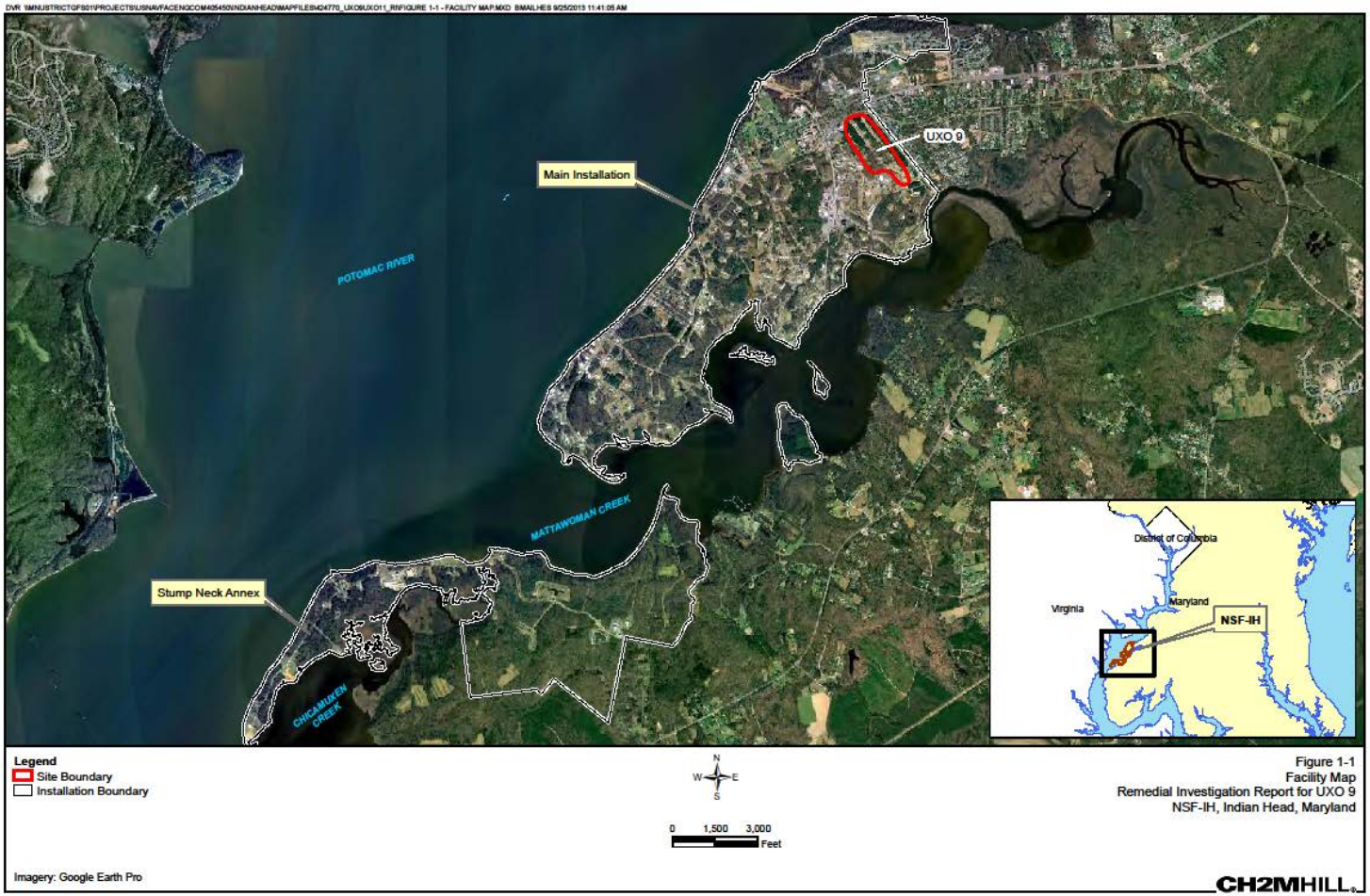
Naval Support Facility Indian Head, Maryland
Indian Head Installation Restoration Advisory Board

24 April 2014

Goal and Outcome

- Presentation/Discussion Goal(s)
  - Review of background
  - Provide results from the RI
- Fiscal Year Goal
  - Complete RI for UXO 9

Site Information



Site Background

- 52-acre land site
- Consists of an area where propellant grains were spilled during transportation of the propellant by rail
- Transportation of grains started between 1927 and 1942 and ended in the late 1980s
- Facility operations may have resulted in MEC and MC being released into the environment

Site Pictures

Former Railroad

Propellant Grains

Previous Investigations

- PA, 2005
  - Observed propellant grains on the ground surface outside Building 188
  - Recommended an SI for MEC (Munitions & Explosives of Concern) and an RI for MC (Munitions Constituents)
- SI, 2010
  - Performed aerial photographic analysis
  - Conducted MEC inventory at 2 of 3 former railroad tracks and 12 former dry houses (Buildings 174, 175, 176, 177, 181, 182, 183, 188, 204, 206, 207, and 210)
  - Spatial distribution of propellant grains around the buildings indicated that propellant grains are widely distributed throughout building entranceways, walkways, loading docks, crawl spaces, and down spouts.
  - Recommended a NTCRA (non-time critical removal action) for the propellant grains to remove the propellant grains from around the buildings and the tracks.
  - Recommended an RI for MC to investigate soil and groundwater

Remedial Investigation - Chemical

- Objectives:
  - Define the nature and extent of TCL (target compound list) VOCs and SVOCs, TAL (Target analyte list) metals, TCL pesticides and PCBs (Polychlorinated biphenyls), and explosives contamination in the surface soil, subsurface soil, and shallow groundwater
  - Evaluate whether contaminant concentrations attributable to releases from the site present unacceptable risk to human health or the environment and, therefore, whether the site warrants action to mitigate or control the unacceptable risk
- Activities – Completed in 2013
  - Collected discrete surface soil samples, discrete subsurface soil samples, permanent monitoring well groundwater samples, in situ groundwater samples, and MIS (sampling, multi-incremental) surface soil sample
  - All samples except MIS were analyzed for TCL VOCs, TCL SVOCs, TAL metals (total and dissolved for water; total for soil), TCL pesticides, TCL PCBs, explosives, pentaerythritol tetranitrate (PETN), nitroglycerine (NG), nitrocellulose (NC), nitroguanidine, and perchlorate
  - Soil samples were also analyzed for pH and TOC; subset was analyzed for grain size
  - MIS samples were analyzed for TAL metals & explosives (to include PETN, NG, NC, nitroguanidine, and perchlorate)

Data Evaluation

- Two-step data evaluation approach
  - Step 1 - Compare maximum concentrations against appropriate risk-based screening levels
  - Step 2 - Compare maximum concentrations against relevant installation-specific background concentrations
- Human Health Risk Assessment
  - Step 1 - Compare maximum concentrations with EPA Region III risk-based concentrations
  - Step 2 - Compare compounds exceeding Step 1 criteria against background concentrations
- Screening Ecological Risk Assessment
  - Step 1 - Compare maximum concentrations with ecological risk-based screening values
  - Step 2 - Compare compounds exceeding Step 1 criteria against background concentrations

HHRA - Step 2 Screening Results

- No unacceptable risks or hazards in soil and groundwater for:
  - Current Receptors (maintenance worker, adult trespasser/visitor, adolescent trespasser/visitor, adult recreational user, and adolescent recreational user)
  - Future receptors under industrial use of the site (industrial worker, adult trespasser/visitor, adolescent trespasser/visitor, adult recreational user, adolescent recreational user, and construction worker)
- Potentially unacceptable risks and/or hazards for future hypothetical residents exposed to:
  - Operational Area combined surface and subsurface soil from: arsenic, chromium (based on the assumption all chromium is Cr(VI)), and carcinogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene)
  - Non-Operational Area surface soil from: arsenic and chromium (based on the assumption that all chromium is Cr(VI))
  - Groundwater from: cobalt
- Based on current site conditions, there are no potential unacceptable risks associated with a vapor intrusion pathway from groundwater for current or future industrial buildings or future residences

SERA - Step 2 Screening Results

- Surface Soil
  - Operational Area
    - Potential risks mostly from arsenic, lead, and zinc, although chromium and mercury also pose potentially unacceptable risks
  - Non-Operational Area
    - Potential risks from arsenic
- Subsurface Soil
  - Potential risks from arsenic and zinc
- Groundwater
  - Potential risk from barium, but concentrations are consistent with background concentrations; therefore, it is not related to releases of barium at the site
- Additionally, all potential COCs will be evaluated against the conceptual site model

Remedial Investigation – Propellant Grains

- Objective
  - To assess the spatial distribution of propellant grains through visual inspection along the western railroad track and around the buildings along the track
- Activities – Completed in 2013
  - Conducted visual inspection of a portion of the former railroad tracks and 5 former dry houses
  - Visual inspection of the track covered the width of the track (between the two rails) plus an additional 5 feet on the outside of the rails
  - Visual inspection of each building included an area within a 15-foot perimeter of the building and associated structures, such as walkways, loading docks, and crawlspaces
  - Propellant grains were marked with a pin flag, surveyed with a GPS, and photographed

UXO 9 Single Base Propellant Grains Spill Area

Questions?

UXO 11 – The Valley

Remedial Investigation
Phase 2

Naval Support Facility Indian Head, Maryland
Indian Head Installation Restoration Advisory Board

24 April 2014

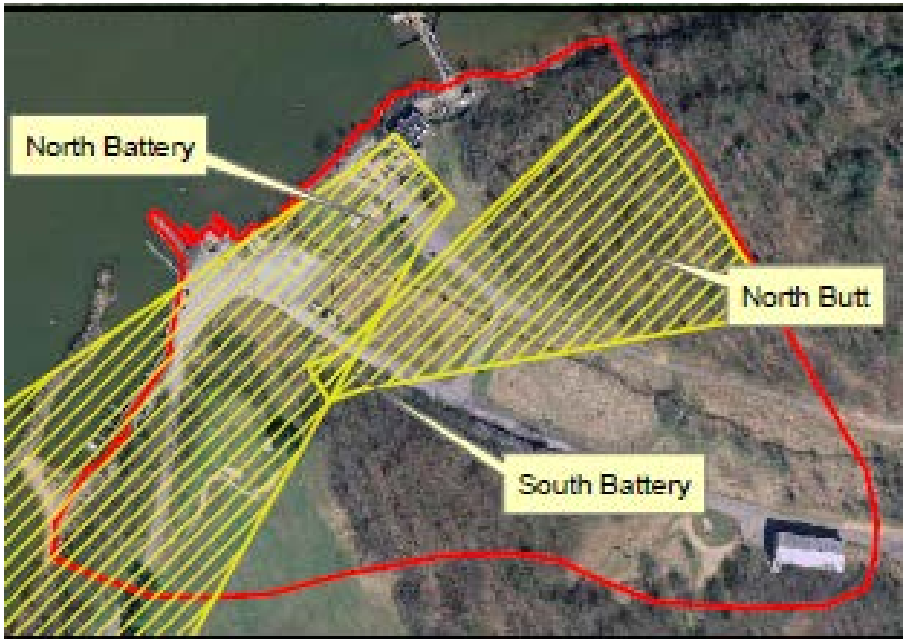
Goal and Outcome

- Presentation/Discussion Goal(s)
  - Quick review of the site location & history
  - Quick review of previous investigations
  - Discussion of the planned phase 2 investigation
- Fiscal Year Goal
  - Complete RI for UXO 11.

Site Location

Site Background

- 21-acre land site
- Used for developing and testing numerous ordnance items from 1891 to 1921
- Used for jet propulsion research from 1940 through 1944
- Part of UXO 11 has been redeveloped as the Dashiell Marina and is used for recreational boat access



Current Site Conditions

Previous Investigations

- **IAS, 1983**
  - Site investigated as Site 29
  - Site moved to the MR program
- **PA, 2005**
  - No munitions, MC, or evidence of munitions were observed
  - Noted that munitions and related debris may be present
  - Recommended an SI for MEC and MC

Previous Investigations (Cont.)

- **SI, 2010**
  - Investigation covered approximately 7.5 acres, including 5 areas (Areas A through E)
    - Area A: West Hillside
    - Area B: North Butt Hillside
    - Area C: Hill Slope
    - Area D: Other
    - Area E: Bomb-Proof Area (contained within Area A)

Previous Investigations (Cont.)

- **SI, 2010** (continued)
  - Performed aerial photographic analysis
  - Vegetation clearing and DGM survey of Areas A through D
  - Collected surface soil samples, subsurface soil samples, and in situ groundwater samples
  - Samples were analyzed for TAL metals (including mercury and cyanide), explosives (including nitroguanidine, NC, and NG), and perchlorate
  - Results:
    - Visual evidence of munition debris
    - Explosive constituents were detected in all media; RSL exceedances were sporadic
    - Metals were prevalent in all media; however, most of them are less than their RSLs and background concentrations, if the RSLs are exceeded
  - Recommended an RI for MEC and MC in soil and groundwater

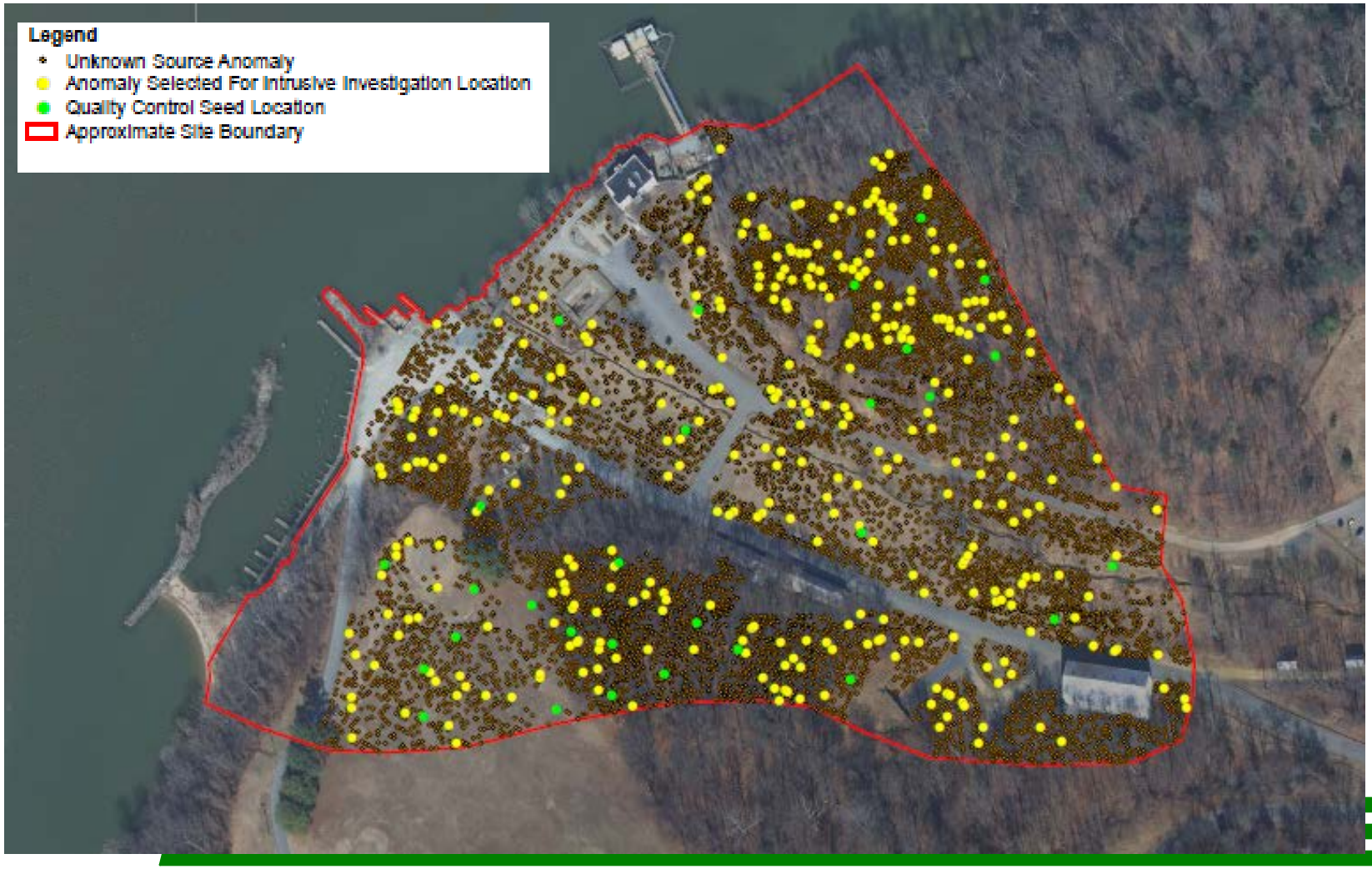
Remedial Investigation – Chemical

- **Objectives**
  - Define the nature and extent of TAL metals and explosives contamination in the surface soil, subsurface soil, surface water, sediment, and shallow groundwater
  - Evaluate whether contaminant concentrations attributable to releases from the site present unacceptable risk to human health or the environment and, therefore, whether the site warrants action to mitigate or control the unacceptable risk
- **Activities – Completed in 2013**
  - Installed and sampled 8 permanent monitoring wells
  - Collected discrete surface soil samples, discrete subsurface soil samples, surface water samples, and sediment samples
  - All samples were analyzed for TAL metals (total for soil and sediment; total and dissolved for surface water and groundwater), explosives, PETN, NG, NC, nitroguanidine, and perchlorate
  - Soil was also analyzed for pH, TOC, and grain size
  - Sediment was also analyzed for grain size

Remedial Investigation – MEC

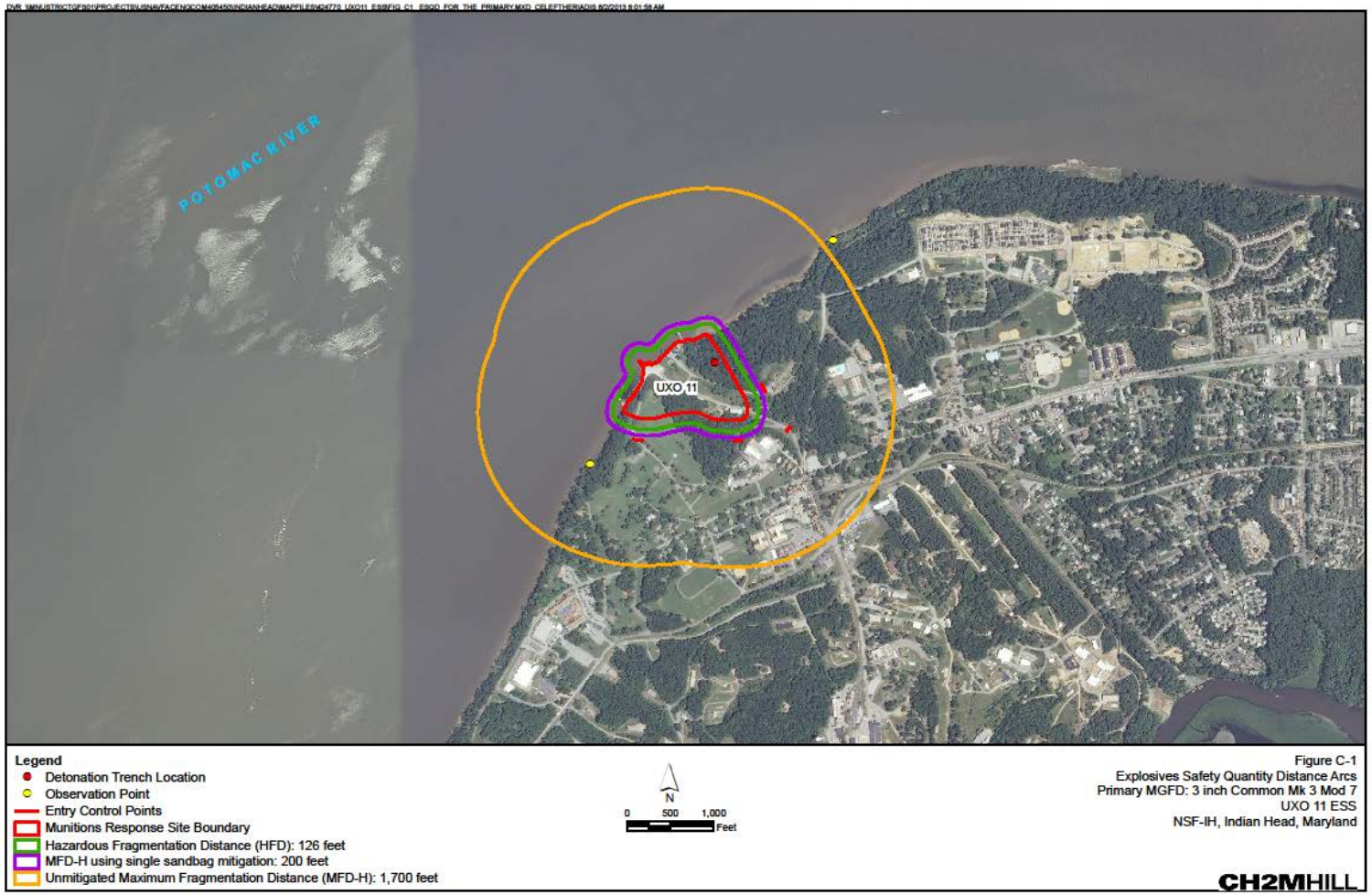
- Conducted in 2 phases
  - Phase 1 – Completed in 2013
    - Objective: Determine the presence or absence of ferrous anomalies in the subsurface (over 14 acres)
    - Vegetation and surface debris clearing
    - DGM survey
  - Phase 2 – Will be done in May 2014
    - Objective: Characterize the sources of the DGM anomalies
    - Excavate anomalies to obtain 95%confidence in the distribution of the different types of sources of anomalies (i.e, MEC, non-MEC)

Anomalies Selected for Intrusive Investigation

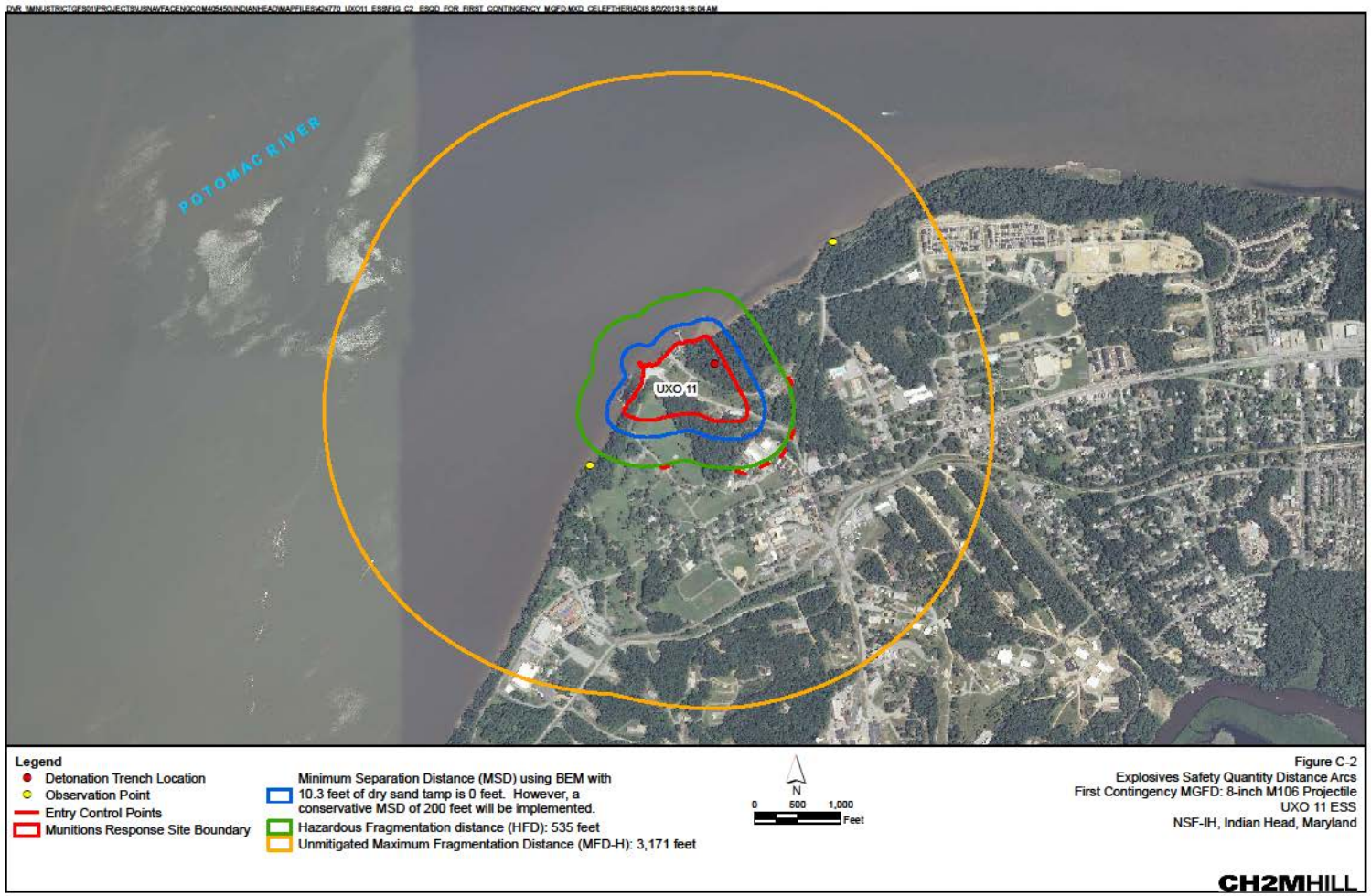


Intentional Render Safe Operations

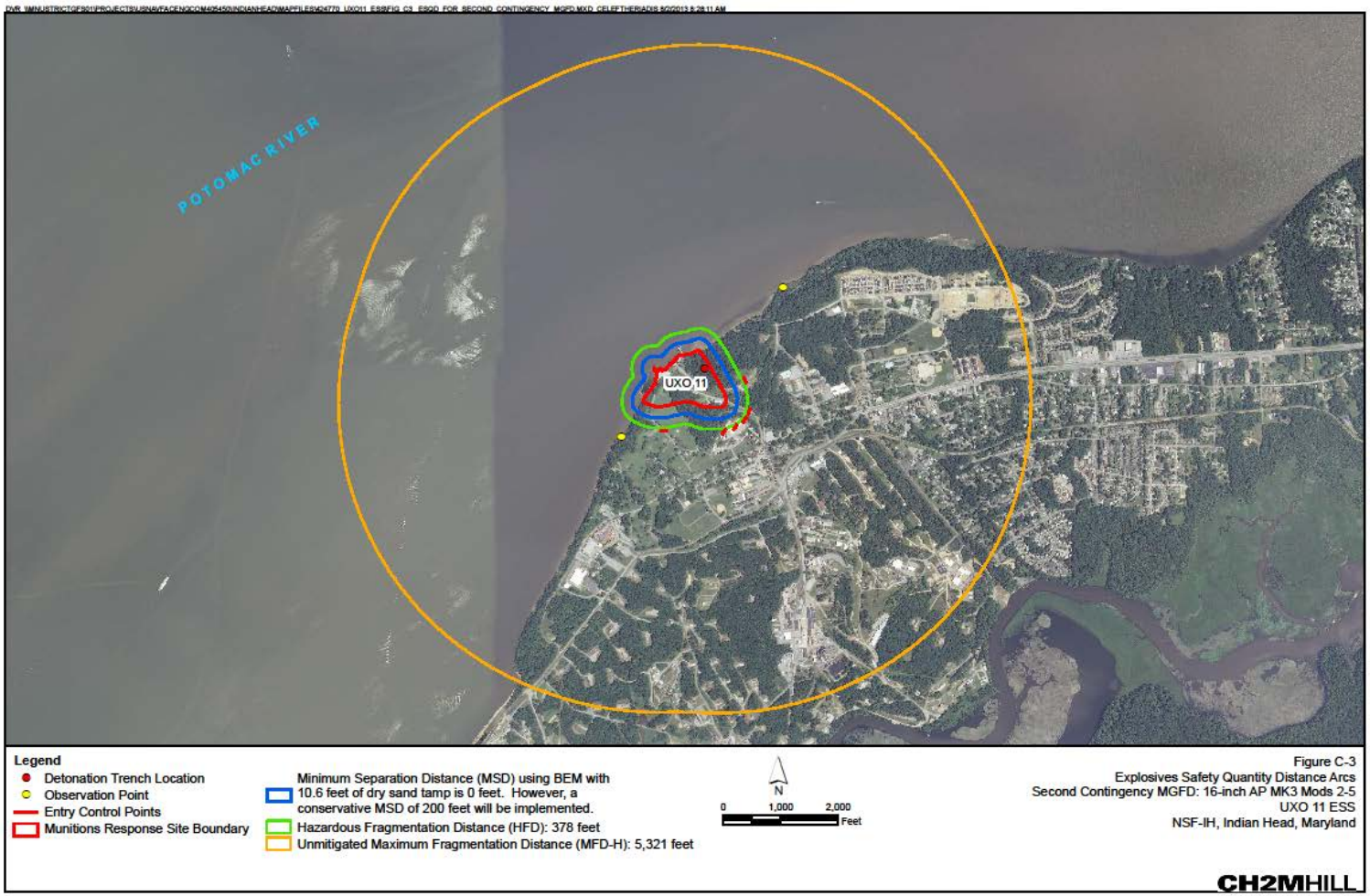
Primary Explosive Safety Distances



Contingency 1 Explosive Safety Distances



Contingency 2 Explosive Safety Distances



UXO 11 – The Valley

Questions?

NAVAL SUPPORT FACILITY INDIAN HEAD

Site 36 Debris Removal Update

Nathan Delong
NAVFAC Washington

April 24, 2014

Site 36 Debris Removal Update

Site 36 Debris Removal Update

- *Site 36 – Closed Landfill*
  - *Background*
    - *Operated as a landfill from 1972 to 1974*
    - *Filled area believed to be formerly Chickamuxen Creek*
  - *Selected Remedy (ROD signed in 2011)*
    - *Implement Land Use Controls*
    - *Maintain existing soil and vegetative cover*
    - *Perform LTM for groundwater and sediment pore water*
    - *Remove and recycle large pieces of metal debris along the shoreline*
    - *Conduct Five-Year Reviews*
  - *Removal of metal debris completed April 2014*

Site 36 Debris Removal Update

Site 36 Debris Removal Update

Site 36 Photographs

Site 36 Debris Removal Update

- *Mobilization*
  - *Pre-Construction Meeting on February 18, 2014*
- *Stabilized Construction Entrance*
- *Clearing*
- *Surface Debris Removal*
  - *ESS (approved January 17, 2014)*
  - *Cleared 100’ x 100’grids*
  - *Visual clearance aided by hand-held magnetic anomaly detection equipment*
  - *Partially buried debris hand dug until verified safe*

Site 36 Debris Removal Update

- *Surface Debris Removal (continued)*
  - *Debris separated into categories*
    - *Non-UXO*
    - *MPPEH*
    - *MEC*
  - *Non-hazardous MPPEH demilitarized and re-classified as MDAS*
- *Disposal*
  - *Non-UXO (sent off-site for recycling)*
  - *MDAS (sent to metal reclamation/recycling facility for smelting*
- *Site Restoration/De-Mobilization*
  - *Off-site March 31, 2014*

Site 36 Debris Removal Update

Site 36 Debris Removal Update

Site 36 Debris Removal Photos

Site 36 Debris Removal Update

Site 36 Debris Removal Update

Site 36 Debris Removal Update

Site 36 Debris Removal Update

Site 36 Debris Removal Update

- *46,504 lbs of metal recycled at Cambridge Iron and Metal*
- *10,900 lbs. of MDAS to Montgomery Scrap*
- *One Construction Debris roll off*
- *Types of MDAS items found*
  - *Various sea mines*
  - *Rocket venturis*
  - *General purpose bomb casings*
  - *Torpedoes and bomb fuse parts*
- *Final walk through scheduled for end of April 2014*

Site 36 Debris Removal Update

Questions?

NAVAL SUPPORT FACILITY INDIAN HEAD

Site 17- Disposed Metal Parts Along Shoreline Monitoring Update

Joseph Rail

NAVFAC Washington

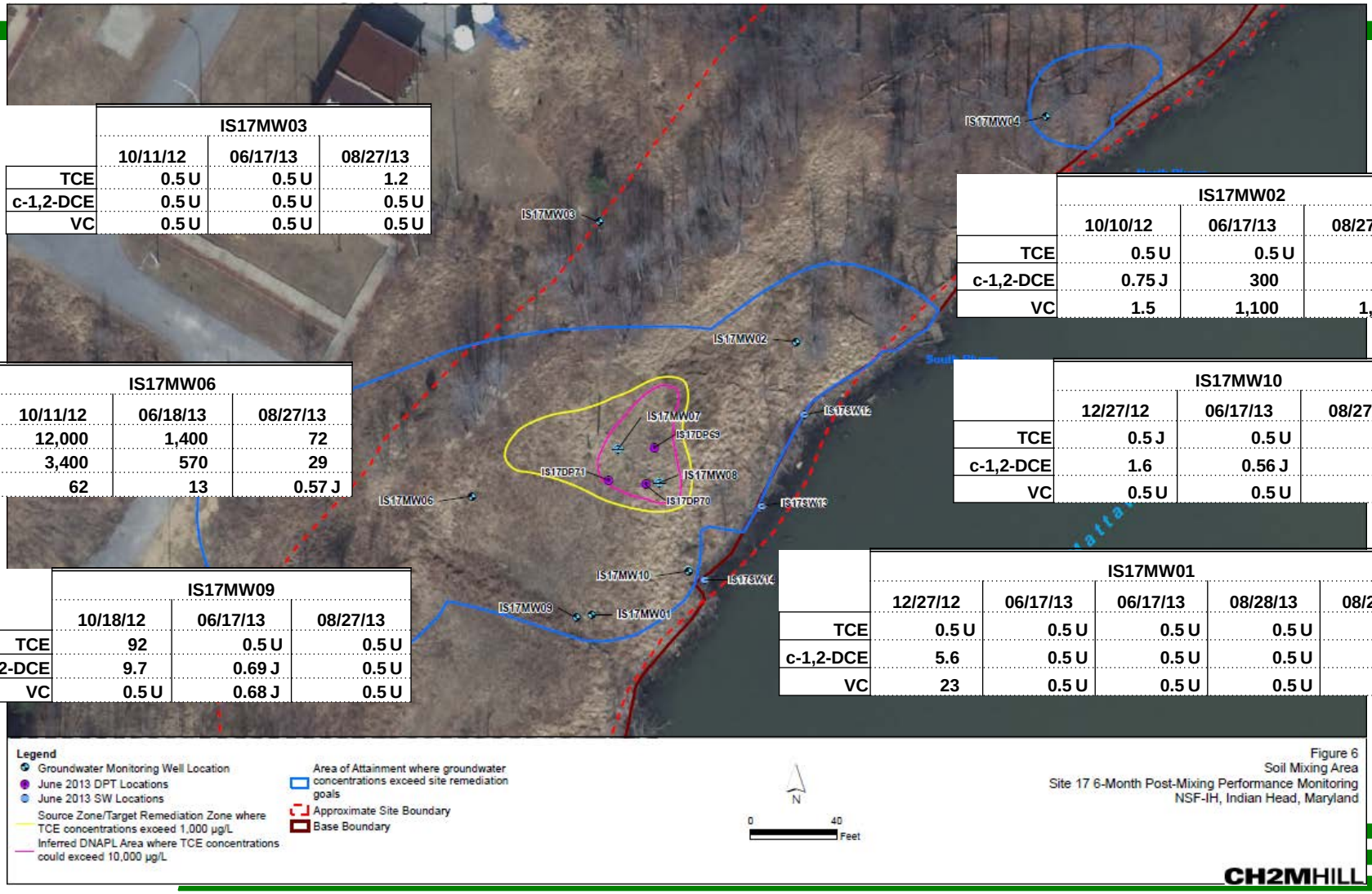
April 24, 2014

Site 17 Location

Site 17 Recent History

- ***Record of Decision signed in 2010 with a remedy of ISCR (in situ chemical reduction) in source area, MNA (monitored natural attenuation), and ICs (institutional controls) for south plume, and MNA and ICs for north plume***
- ***SRGs (site remediation goals) for VOCs in shallow groundwater were:***
  - ***TCE- 5 ug/L***
  - ***DCE- 150 ug/L***
  - ***VC- 2 ug/L***
- ***Remedial Action completed in December 2012***
  - ***Removal of MEC (munitions and explosives of concern) from site***
  - ***Utilized ISCR to treat solvents in groundwater***
  - ***Conducted a soil mixing event using zero-valent iron in source area***
  - ***Implemented ICs, MNA, and long-term monitoring***
  - ***Baseline monitoring and post soil-mixing monitoring events completed at 6, 9, and 12-months***

Site 17- Source Area GW Concentrations



	IS17MW03		
	10/11/12	06/17/13	08/27/13
TCE	0.5 U	0.5 U	1.2
c-1,2-DCE	0.5 U	0.5 U	0.5 U
VC	0.5 U	0.5 U	0.5 U

	IS17MW02		
	10/10/12	06/17/13	08/27/13
TCE	0.5 U	0.5 U	0.5 U
c-1,2-DCE	0.75 J	300	760
VC	1.5	1,100	1,400

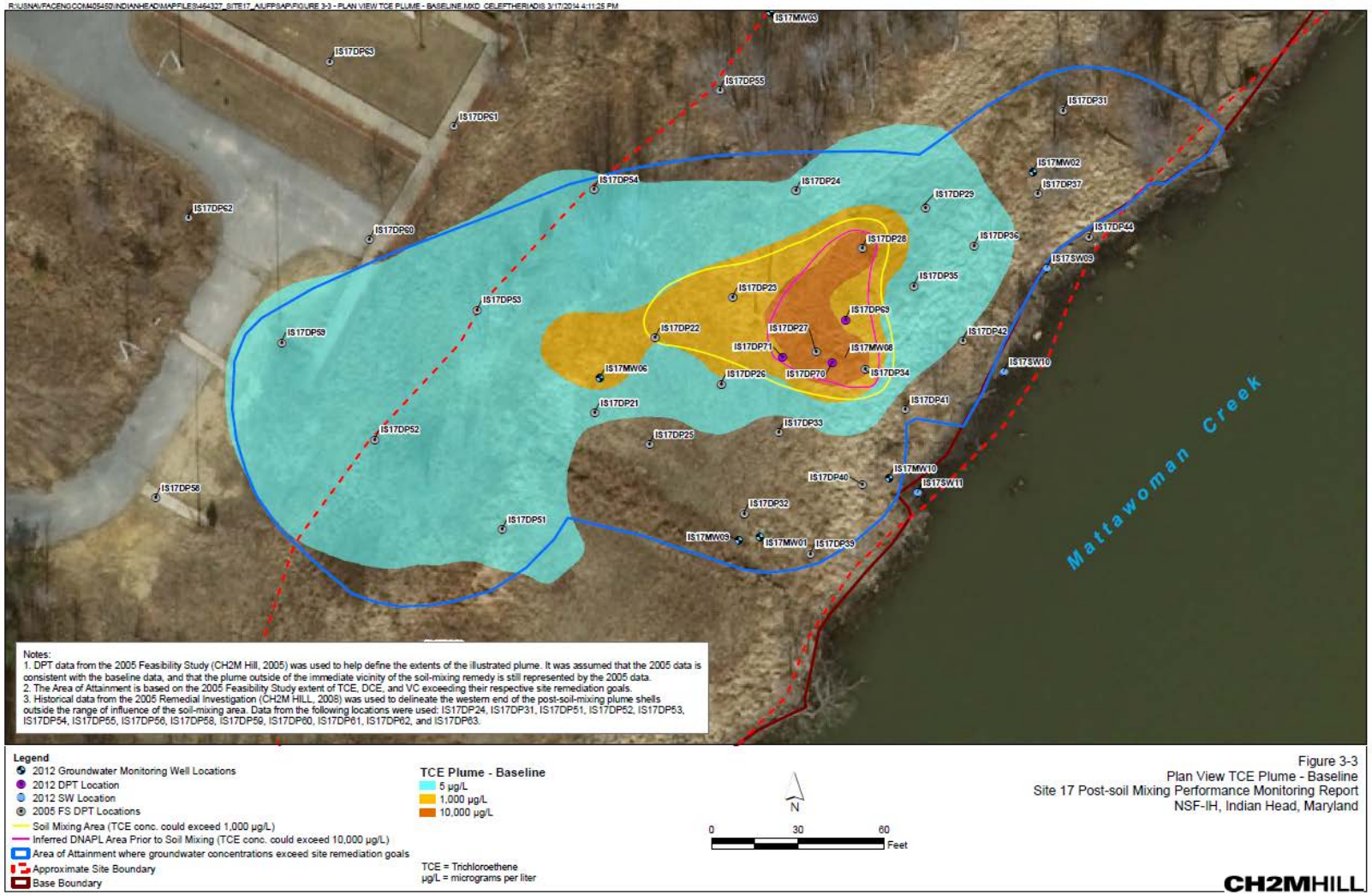
	IS17MW06		
	10/11/12	06/18/13	08/27/13
TCE	12,000	1,400	72
c-1,2-DCE	3,400	570	29
VC	62	13	0.57 J

	IS17MW10		
	12/27/12	06/17/13	08/27/13
TCE	0.5 J	0.5 U	0.5 U
c-1,2-DCE	1.6	0.56 J	0.5 U
VC	0.5 U	0.5 U	0.5 U

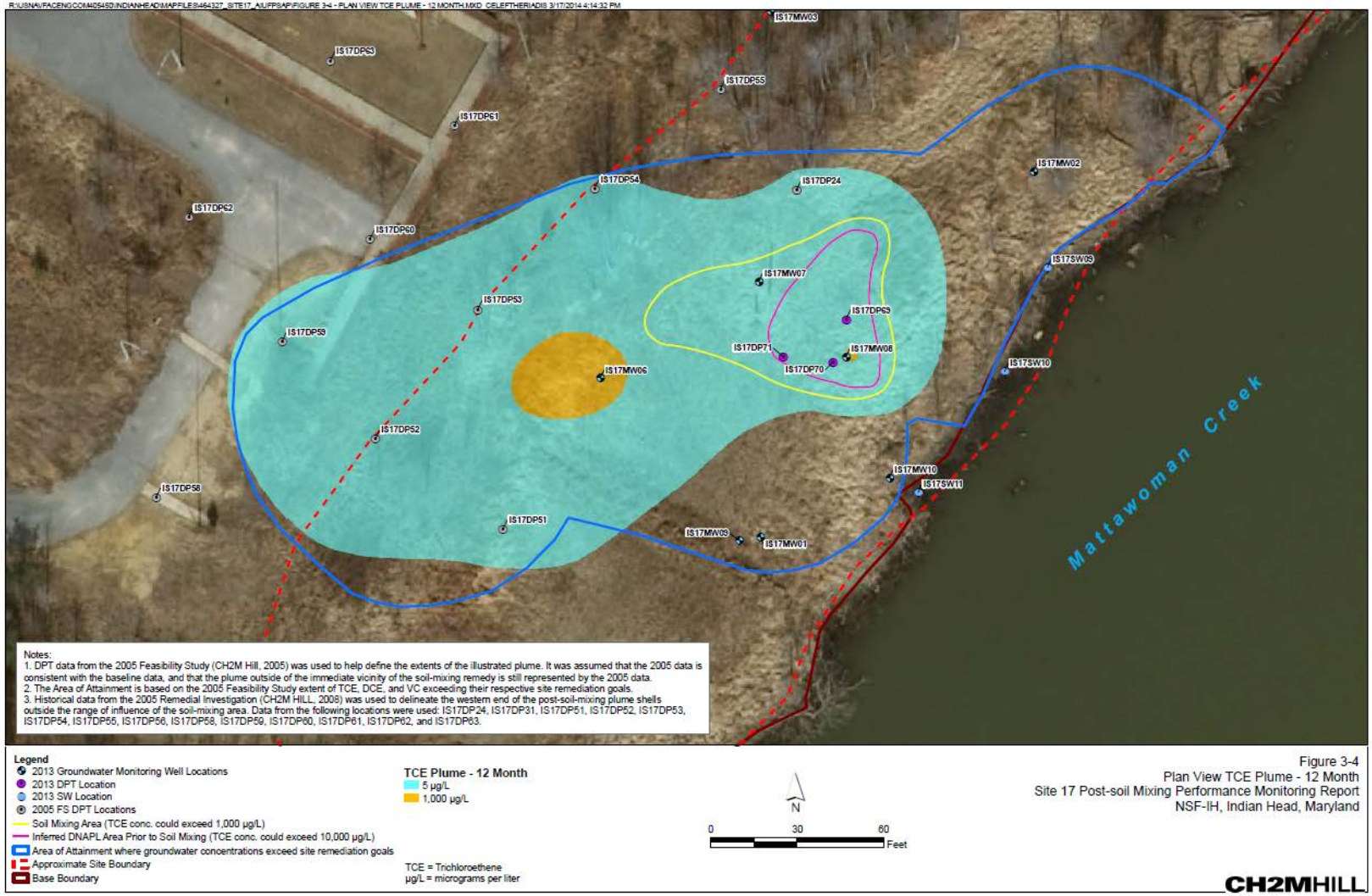
	IS17MW09		
	10/18/12	06/17/13	08/27/13
TCE	92	0.5 U	0.5 U
c-1,2-DCE	9.7	0.69 J	0.5 U
VC	0.5 U	0.68 J	0.5 U

	IS17MW01				
	12/27/12	06/17/13	06/17/13	08/28/13	08/28/13
TCE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
c-1,2-DCE	5.6	0.5 U	0.5 U	0.5 U	0.5 U
VC	23	0.5 U	0.5 U	0.5 U	0.5 U

Site 17- TCE Plume (Baseline)



Site 17- TCE Plume (12-month)



Site 17- North Plume

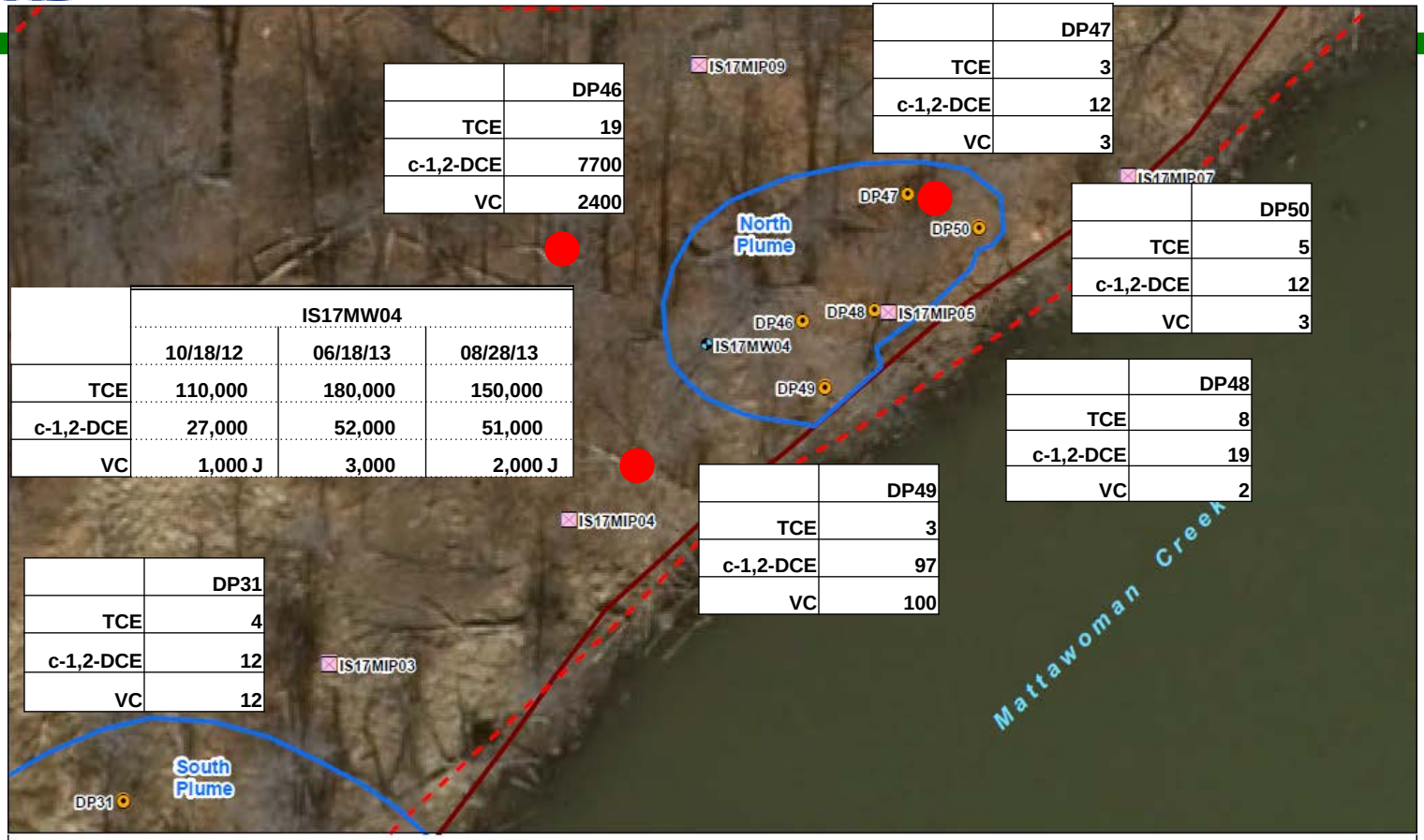


Figure 1
Location of MIP, DPT Borings, and Monitoring Wells - North Plume
Site 17
NSF-IH, Indian Head, Maryland

CH2MHILL

Site 17- Future Work

- ***Field investigation in north plume to delineate extent of VOCs (TCE, DCE, and VC) in groundwater***
- ***Install up to five new wells in north plume***
- ***Collect groundwater samples from approximately 14 wells (6 in north plume and 8 in south plume) and analyze for TCE, DCE, and VC***
- ***Evaluate if MNA is an appropriate remedy for north plume***
- ***Continue long-term monitoring of shallow groundwater until site remediation goals are met***

Questions?

NAVAL SUPPORT FACILITY INDIAN HEAD

Site 38- Rum Point Landfill Remedial Design

Joseph Rail

NAVFAC Washington

April 24, 2014

Site 38 Location

Site 38 History

- ***Site Screening Process Report completed in 2008***
- ***Test trenching completed in 2012***
- ***Final Feasibility Study completed in 2013***
- ***Final Proposed Plan completed in 2013 which chose Alternative 3- Landfill Removal, Monitoring, and Land Use Controls as the preferred remedy***
- ***Record of Decision (ROD) to be signed in 2014***

Site 38- Remedy

- ***Remedial action objectives include:***
  - ***Close the landfill in a manner that protects human health and the environment in accordance with Maryland solid waste management regulations***
  - ***Prevent unacceptable risks to human receptors from exposure to manganese in groundwater***
  - ***Return groundwater to beneficial use to the extent practicable***

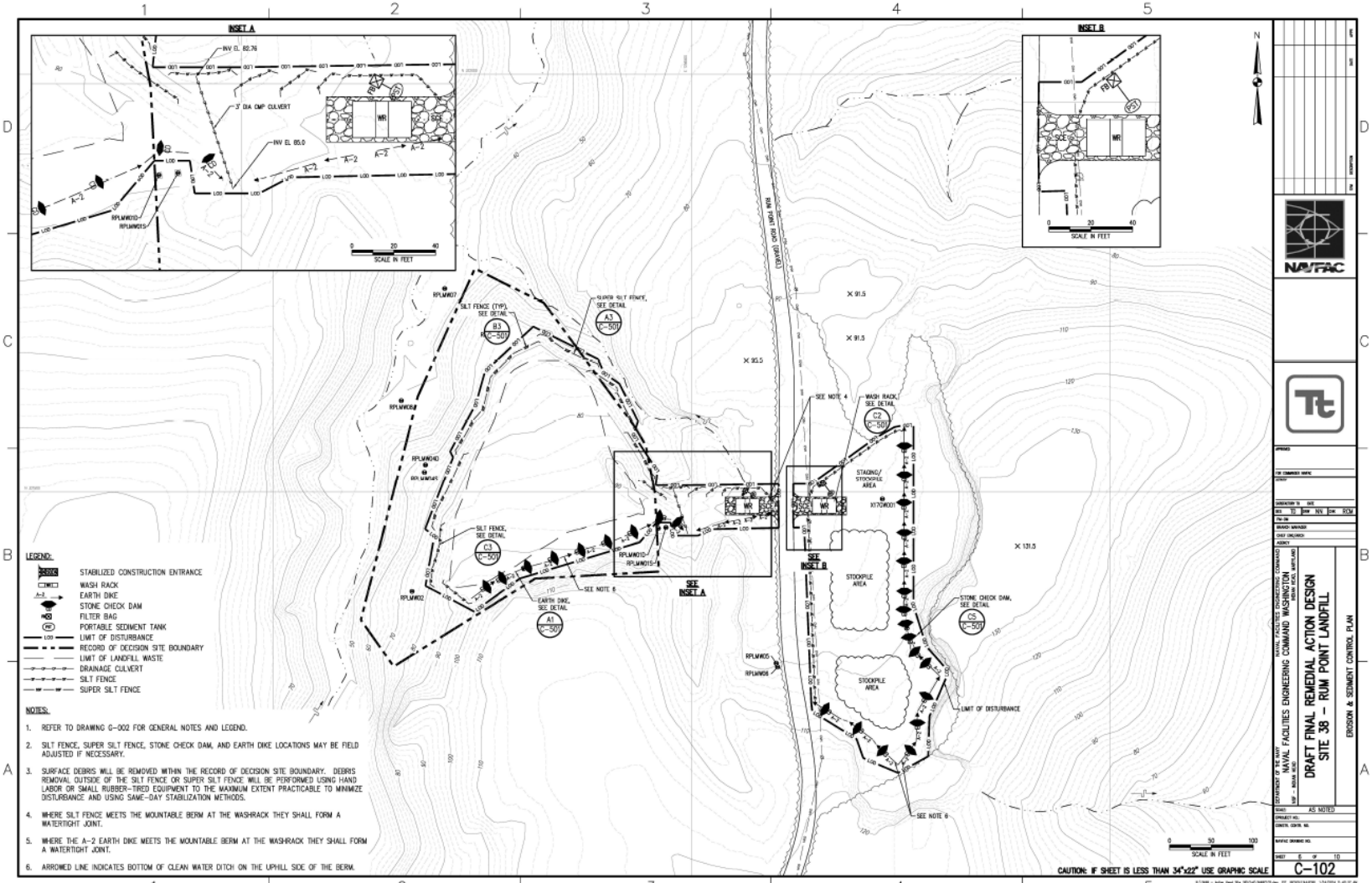
- ***Components of the remedy include:***
  - ***Excavation and off-site disposal of debris and landfill waste***
  - ***Sampling to confirm that residual contamination has been removed***
  - ***Land use controls to prevent use of shallow groundwater***
  - ***Long-term monitoring of groundwater***
  - ***Five-Year Reviews until site conditions allow for unlimited use and unrestricted exposure***

Site 38- Remedial Design

Remedial Design Parameters

- ***Limit of landfill waste covers approximately 36,200 square feet***
- ***Depth of fill ranges from 1 to 7 feet***
- ***Area to be excavated and re-graded will be 1.08 acres***
- ***Estimated landfill volume is 4,630 cubic yards***
- ***Landfill will be excavated until native soil is reached and waste is no longer encountered***
- ***Soil, waste, debris, and vegetative material will be characterized, transported, and disposed of at an off-site permitted landfill***
- ***Excavated areas will be covered with 4” of topsoil, seeded, and mulched***

Site 38- Remedial Design



Site 38- Future Work

- ***$2.4 mil RA contract awarded in March 2014***
- ***Signature of final ROD is pending and expected in Spring 2014***
- ***Remedial action contractor will submit an Explosive Safety Submission, Work Plan, and Sampling Plan for approval/review***
- ***Fieldwork will begin once all work plans and permits have been approved/finalized***
- ***Monitoring of groundwater will commence upon completion of remedial action***

Questions?

Site 69 – Building 1018 and AOC 31 – Building 259

Site Screening Process (SSP) Risk Screening Results

Naval Support Facility Indian Head, Maryland
Indian Head Installation Restoration Advisory Board

24 April 2014

Goal and Outcome

- Presentation/Discussion Goal
  - Present preliminary results of risk evaluations performed for SSP Investigations.
- Fiscal Year Goal
  - Complete SSP.

Site Locations

Site 69


Perchlorate release(s)
PROPELLANT CIRCLE
PROPELLANT CIRCLE
POLARIS WAY
N
Town Gut Creek

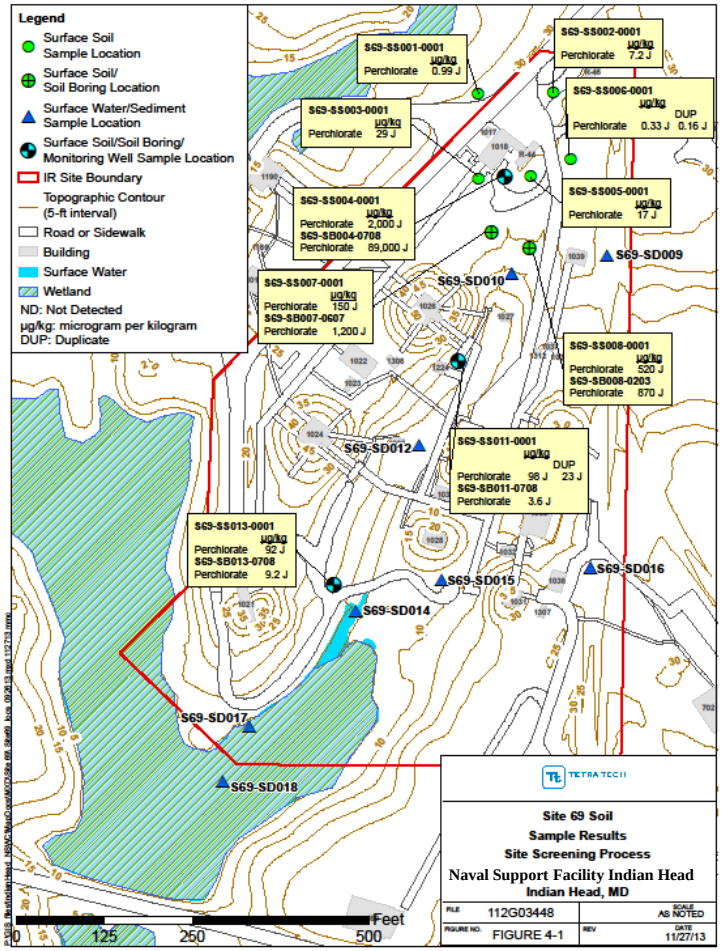
Site 69 Background & History

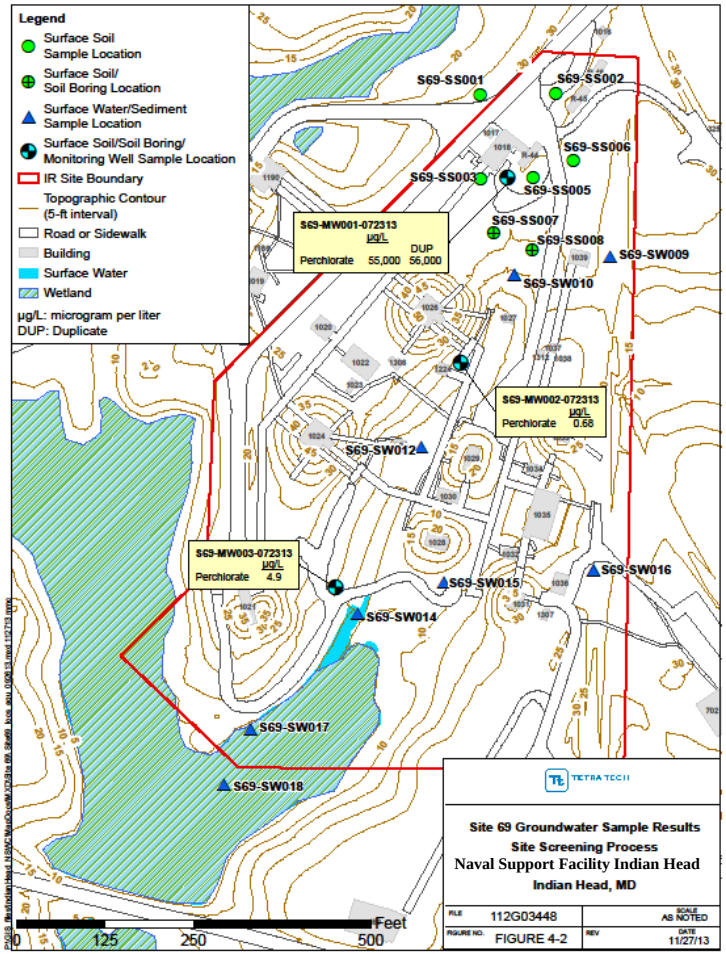
- **Location**: Former Building 1018 and vicinity
- **Contamination**: Perchlorate (unknown amount)
- **From**: Oxidizer house and oxidizer process building (perchlorate grinding facility). Grinding ammonium & potassium perchlorate into powder form, and rinse water from the interior was historically released into the soil surrounding the building. Handling around loading docks and lift.
- **When**: Bldg 1018 built in 1960.
- **Current Use**: Bldg 1018 demolished. Other buildings and features in area remain active.

Site 69
SSP & Risk Eval Results

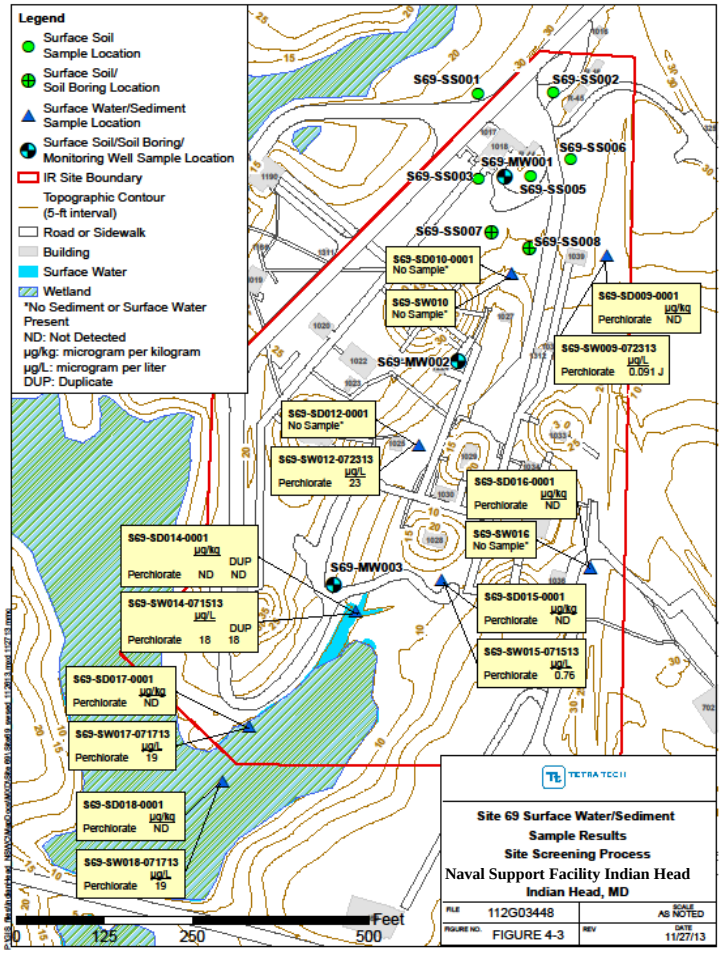
- Soil, sediment, surface water, and groundwater were the media sampled and analyzed for Perchlorate.
- Perchlorate found at elevated concentrations throughout the source area and all site media.
- Risk Evaluations in the SSP:
  - Risk-Ratio human health risk evaluation.
  - Screening ecological risk assessment.

Site 69 – Soil & Groundwater Sampling Results





Site 69 – Surface Water & Sediment Sampling Results



Site 69 - Risk Results

- **Human Health Risk** - Ratio Calculations for Perchlorate

Media	Hazard Index	
	Residential	Industrial
Subsurface Soil	2	0.1
Groundwater	5,091	NA
Surface Water	0.2	NA
Total	5,093	0.1

NA – Not Applicable; Perchlorate does not have cancer tox values.

- **Ecological Risk** - No unacceptable eco risk from perchlorate in surface soil, sediment, and sw based on screening ERA.

AOC 31 - Bldg 259

AOC – Bldg 259
Background & History

- **Location**: Former Building 259, former trench, and drainage vicinity
- **Contamination**: Metals and explosives
- **From**: Detonator production outside of building. Lead azide was produced outside the building and cooled by water that ran through a trench.
- **When**: Bldg 259 was an inert storehouse constructed in 1917. Detonator production timeframe during WW I.
- **Current Use**: Both the building and trench have been demolished.

AOC 31
SSP & Risk Eval Results

- Sediment, surface water, and groundwater were not present at site. Soil sampled and analyzed for Perchlorate, Explosives, Lead, and Mercury.
- Perchlorate and explosives nondetect/low in soil.
- Lead at one location near the building. Likely from paint chip considering the parent and duplicate sample concentrations.
- Mercury concentrations are elevated in subsurface and surface soil.
- Risk Evaluations in the SSP:
  - Risk-Ratio human health risk evaluation.
  - Screening ecological risk assessment.

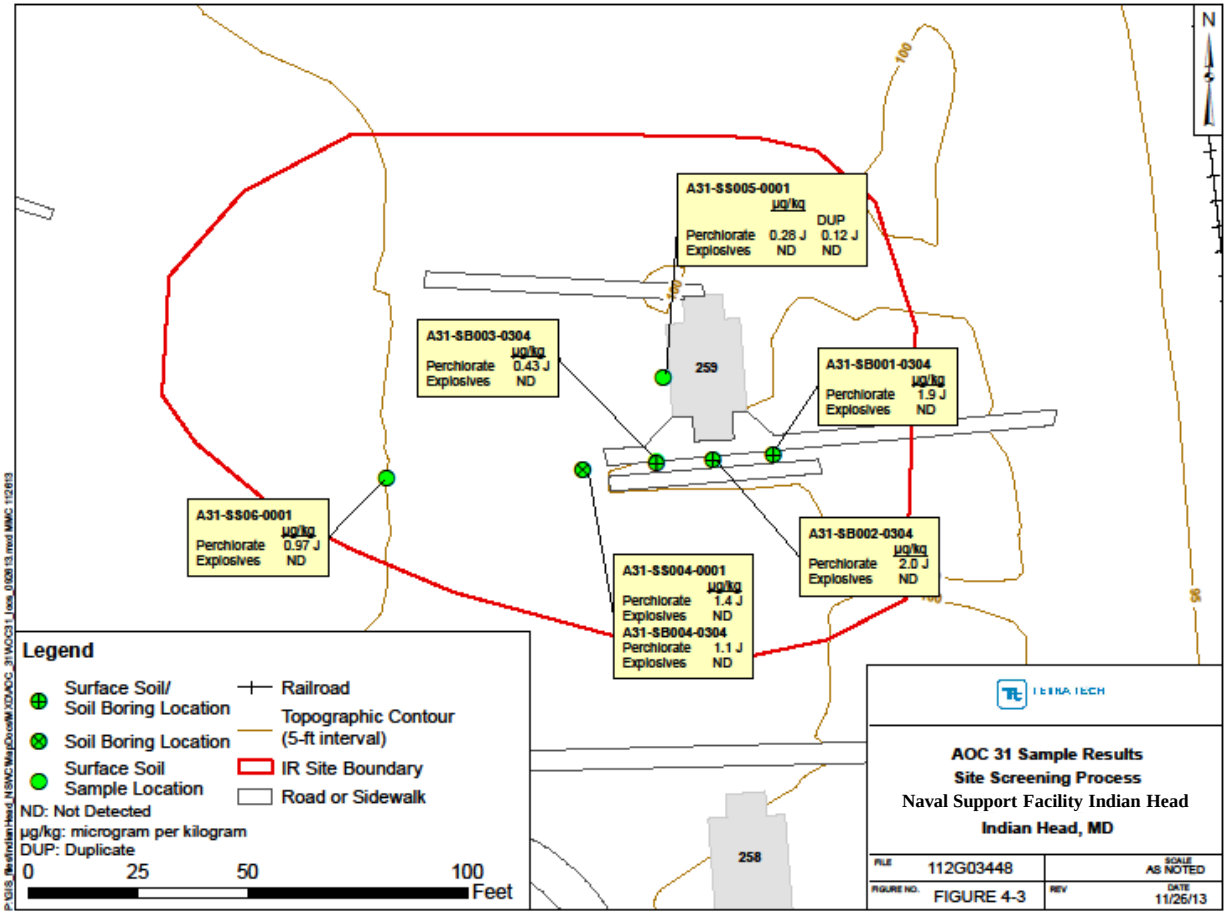
AOC 31 - Risk Results

- **Human Health Risk**-Ratio Calculations (risk driver is mercury).

Media	Hazard Index	
	Residential	Industrial
Surface Soil	3	0.7
Subsurface Soil	0.4	0.1

- **Ecological Risk –** Potentially unacceptable risks from mercury-impacted soil based on screening ERA.

AOC 31 – Soil Samples



SSP Path Forward

- Complete human health and ecological risk evaluations/assessments, provide conclusions and recommendations, and submit SSP Report.
- **Site 69 - address perchlorate in groundwater via RI/FS.**
- **AOC 31 – If necessary, address mercury in soil** via removal action (EE/CA).
  - The Navy, EPA, & MDE are considering using mercury soil cleanup values used at Lab Area (soil mercury concentrations at AOC 31 are below the eco cleanup level used at the Lab Area.)
  - To be evaluated further and presented in SSP Report.

Site 69 – Building 1018 and AOC 31 – Building 259

Questions?

Site 67 – Hog-Out Facility

Remedial Investigation

Naval Support Facility Indian Head, Maryland
Indian Head Installation Restoration Advisory Board

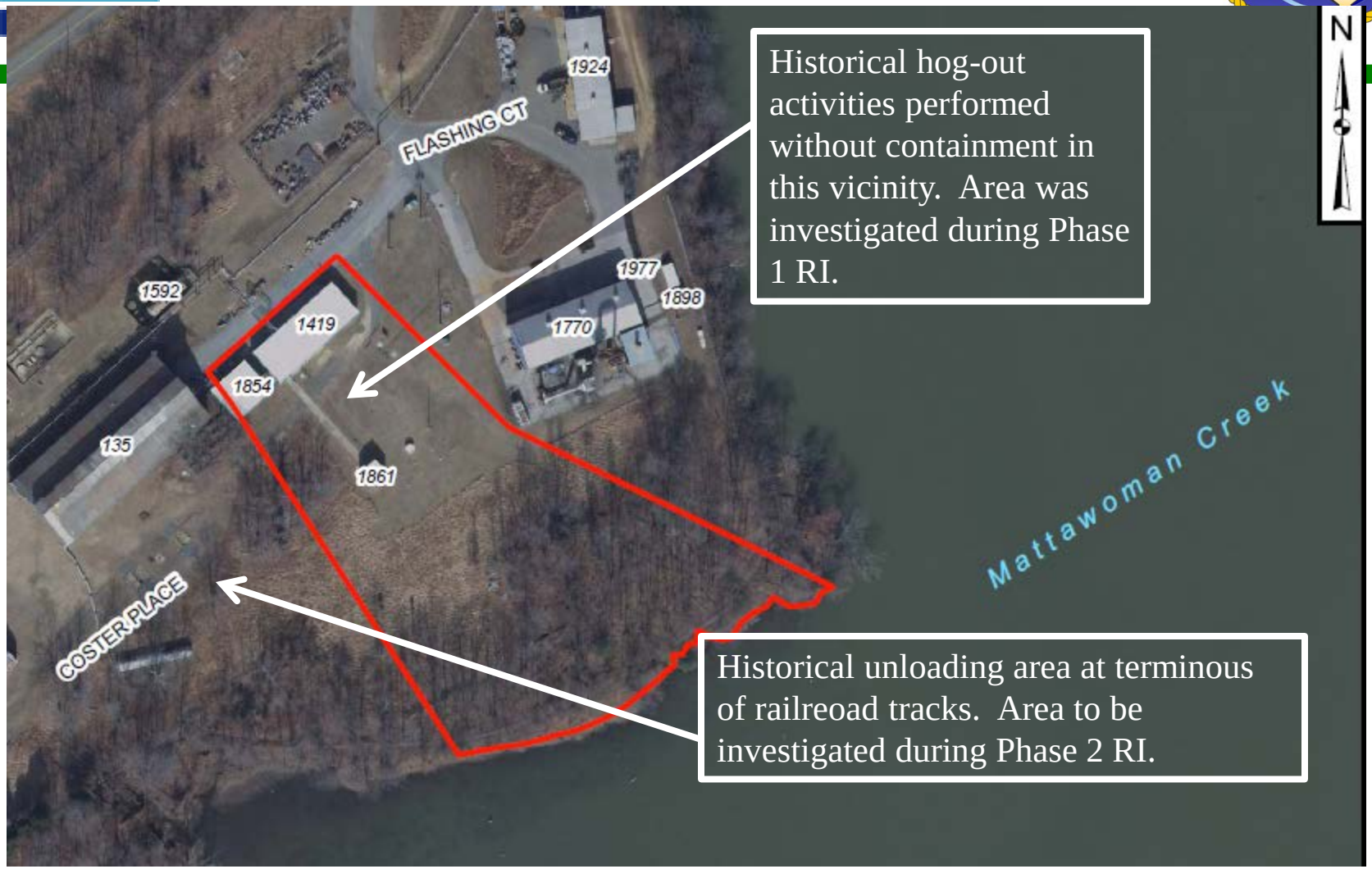
24 April 2014

Goal and Outcome

- Presentation/Discussion Goal(s)
  - Quick review of current CSM & Sampling results
  - Changes to Conceptual Site Model (CSM).
  - Phase 2 Remedial Investigation (RI) sampling approach
- Fiscal Year Goal
  - Complete RI for Site 67.

Site Information

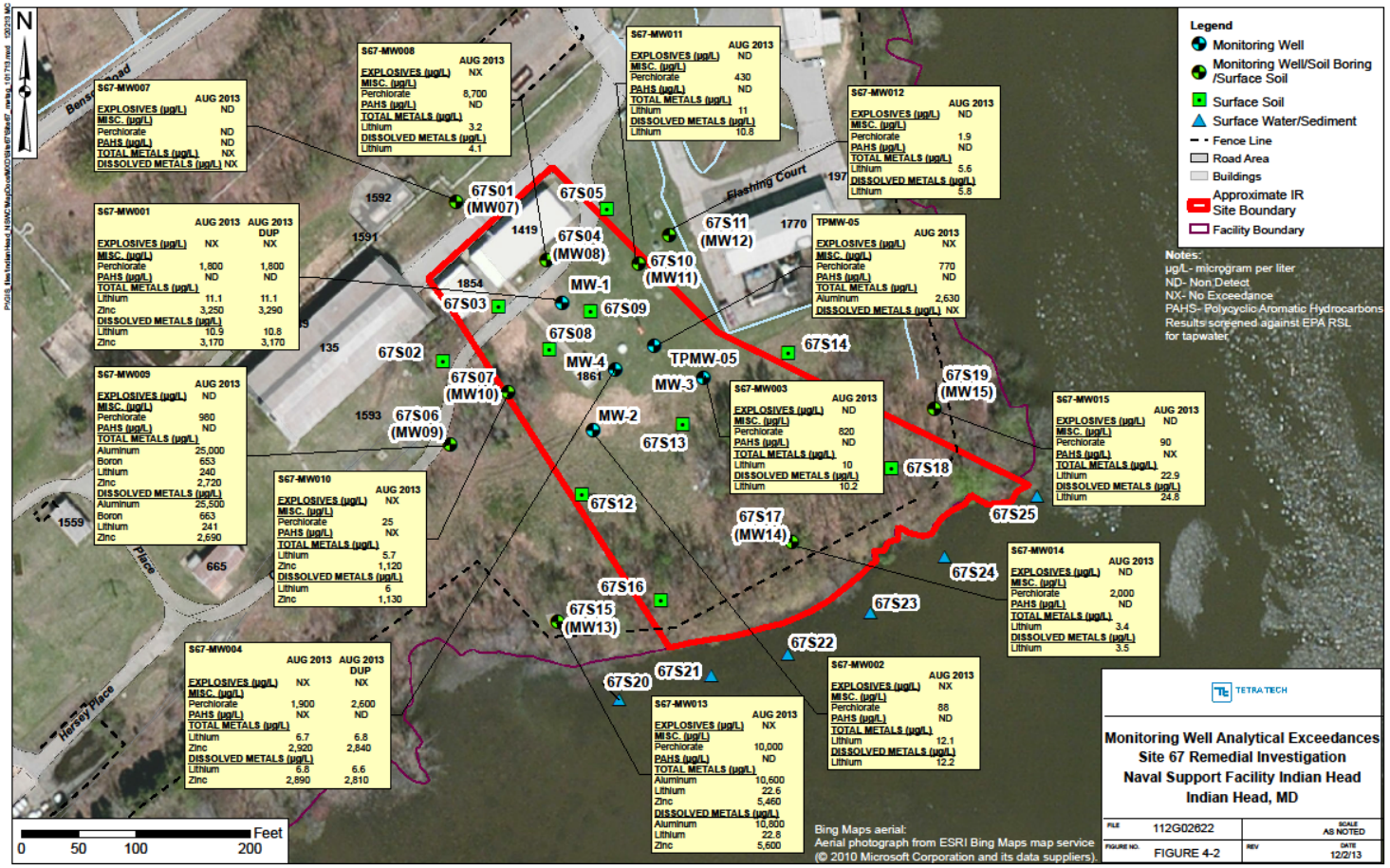
Site Information



Site Background & History

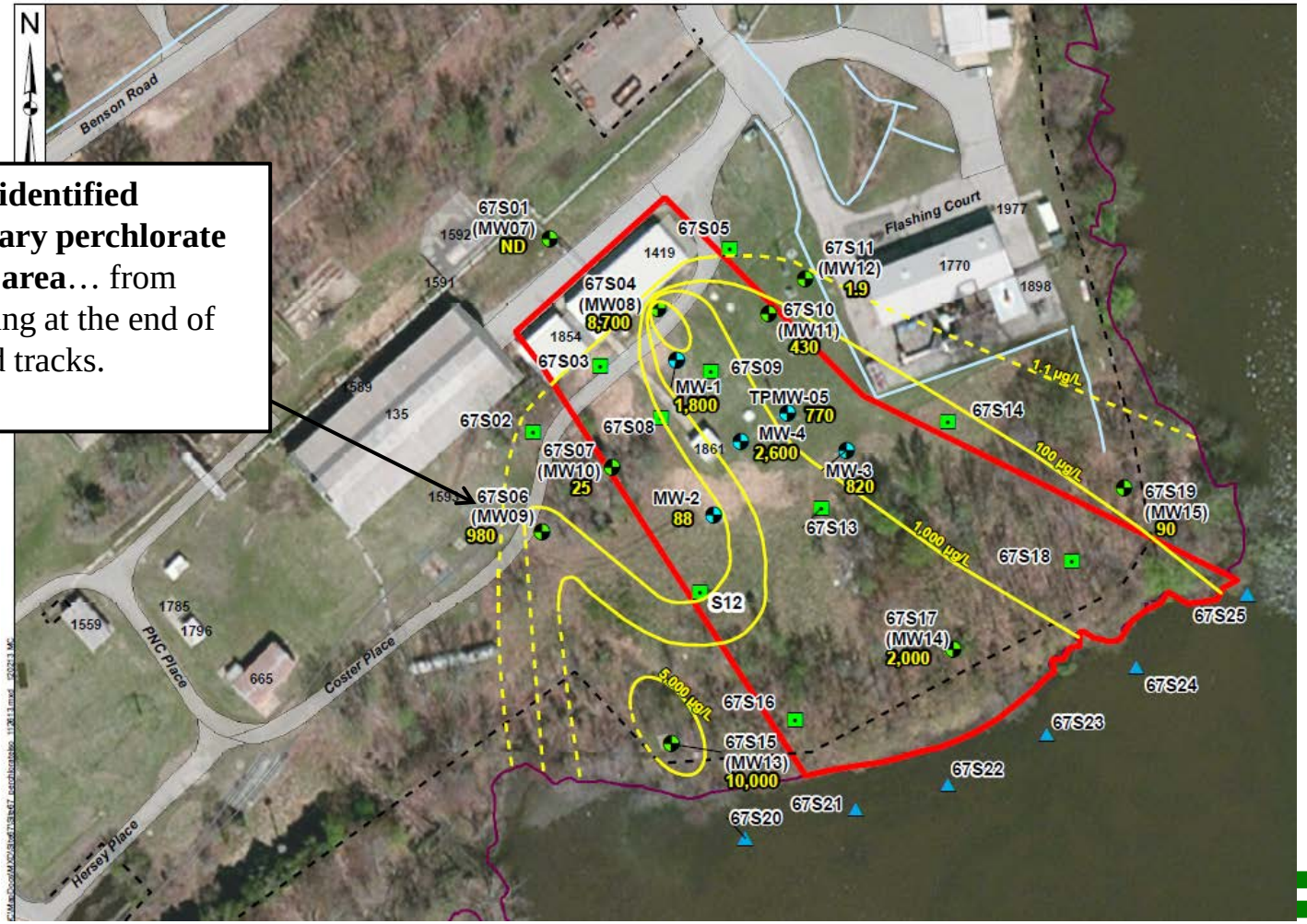
- **Location**: Building 1419.
- **Contamination**: Perchlorate and other compounds contained in various rocket motors.
- **From**: Cleaning out solid propellant from various rockets and ejection seat motors that have exceeded their useful life span. Additionally, unloading the various rocket motors at end of railroad tracks west of the site (for hog-out process at Building 1419).
- **When**: 1960s to mid-1990s.
- **Current Use**: Active. Propellant cleanout-derived waste is now containerized and disposed appropriately.

Site 67 Phase 1 Results

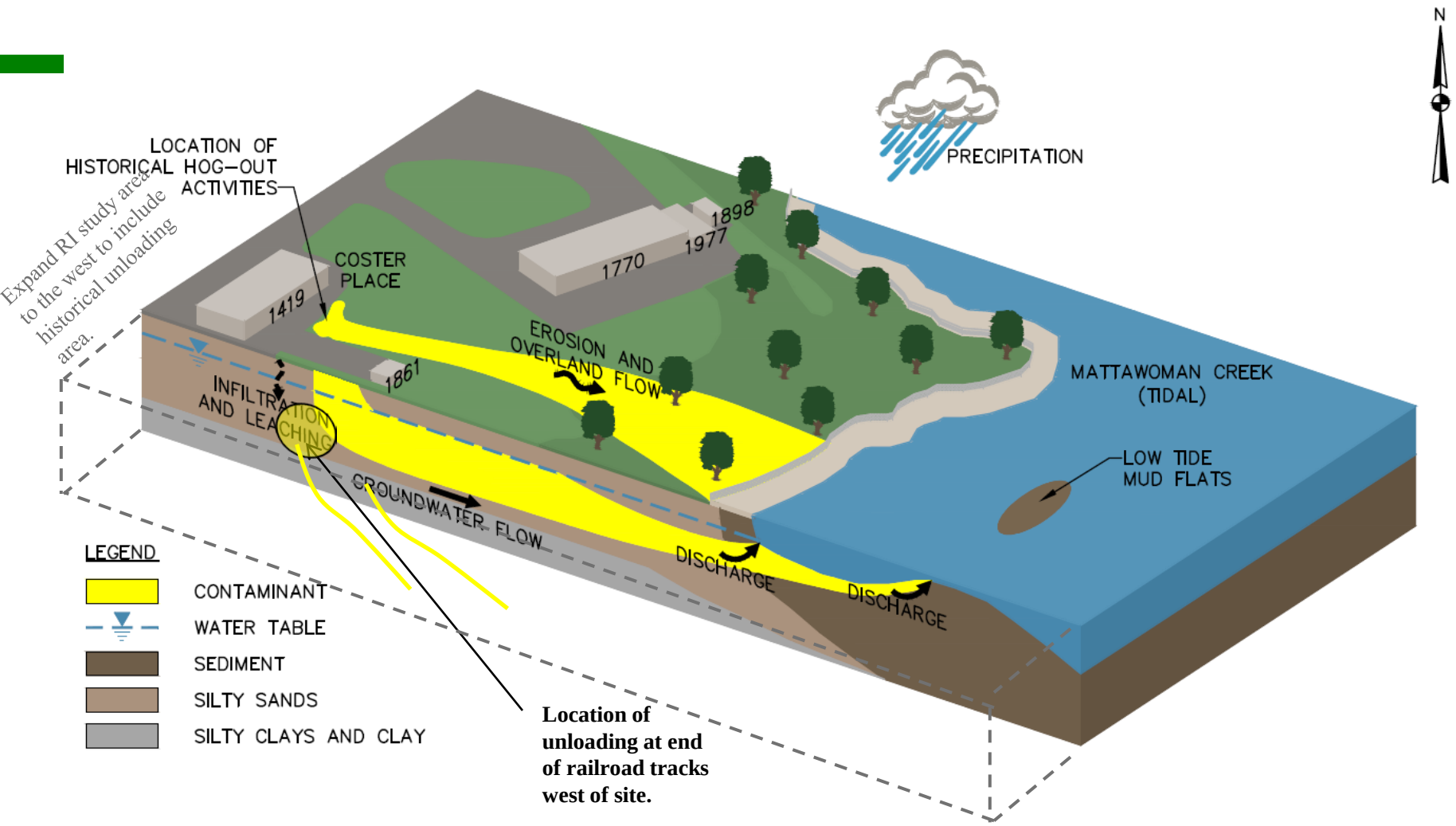


Site 67 Perchlorate Isoconcentrations (August 2013)

Newly identified secondary perchlorate source area… from unloading at the end of railroad tracks.



Site 67 CSM


LOCATION OF HISTORICAL HOG–OUT ACTIVITIES
Expand RI study area to the west to include historical unloading area.
COSTER PLACE
1419
1770
1977
1898
1861
PRECIPITATION
N
EROSION AND OVERLAND FLOW
INFILTRATION AND LEACHING
GROUNDWATER FLOW
DISCHARGE
DISCHARGE
MATTAWOMAN CREEK (TIDAL)
LOW TIDE MUD FLATS
LEGEND
CONTAMINANT
WATER TABLE
SEDIMENT
SILTY SANDS
SILTY CLAYS AND CLAY
Location of unloading at end of railroad tracks west of site.

Phase 2 RI Sampling Approach

- Expand RI study area to encompass additional perchlorate source area and bound perchlorate plume on west side.
- Sample same media and same analytes as Phase 1
- Triad approach: Direct Push groundwater sampling with quick turn around on sample results followed by monitoring well installation and sampling.

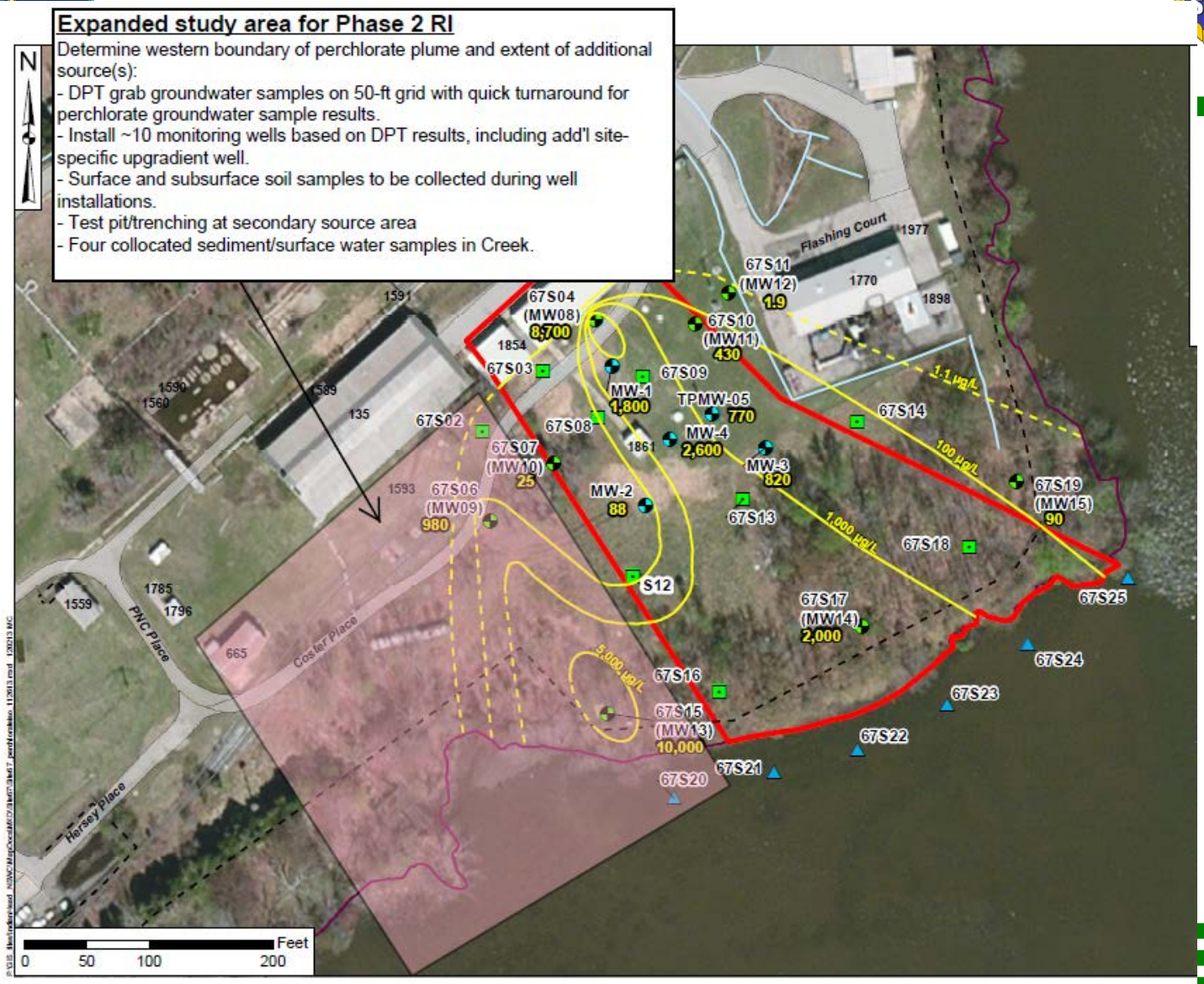
Phase 2 RI Sample Locations

Expanded study area for Phase 2 RI

Determine western boundary of perchlorate plume and extent of additional source(s):

- DPT grab groundwater samples on ~50-ft grid with quick turnaround for perchlorate groundwater sample results.
- Install ~10 monitoring wells based on DPT results, including add'l site-specific upgradient well.
- Surface and subsurface soil samples to be collected during well installations.
- Test pit/trenching at secondary source area
- Four collocated sediment/surface water samples in Creek.

Phase 2 RI Expanded Area



RI Path Forward

- SAP Addendum.
- Phase 2 RI Fieldwork RI Report.

Site 67 – Hog-Out Facility

Questions?