



# Range 17 - Trap and Skeet Range Soil Remediation

Presented by  
EA Engineering, Science, and Technology, Inc., PBC  
Michael Hertz

15 January 2014



# Project Team and Stakeholders



- **U.S. Army (Army) – Office of the Assistant Chief of Staff for Installation Management, Base Realignment and Closure (BRAC) Division**
  - Markus Craig (Program Manager)
- **U.S. Army Corps of Engineers (USACE) - Baltimore District**
  - Andrea Graham (Project Manager)
  - Vernon Griffin (Safety and Health Specialist Technical Reviewer)
  - Paul Greene (Ordnance and Explosives Safety Specialist)
- **Army – Fort George G. Meade (FGGM)**
  - Steve Cardon ( Legacy BRAC Environmental Coordinator)
- **U.S. Environmental Protection Agency (EPA) – Region 3**
  - John Burchette



# Project Team and Stakeholders (continued)



- **Maryland Department of the Environment (MDE)**
  - Dr. Elisabeth Green
- **U.S. Fish and Wildlife Service (FWS)**
  - Brad Knudsen
- **EA Engineering, Science, and Technology, Inc., PBC (EA)  
(Contractor)**
  - Brenda Herman (EA Program Manager)
  - Dave Mercadante (EA Project Manager)
  - Mike Hertz (EA Senior Scientist)
- **Ft Meade Restoration Advisory Board (RAB)**



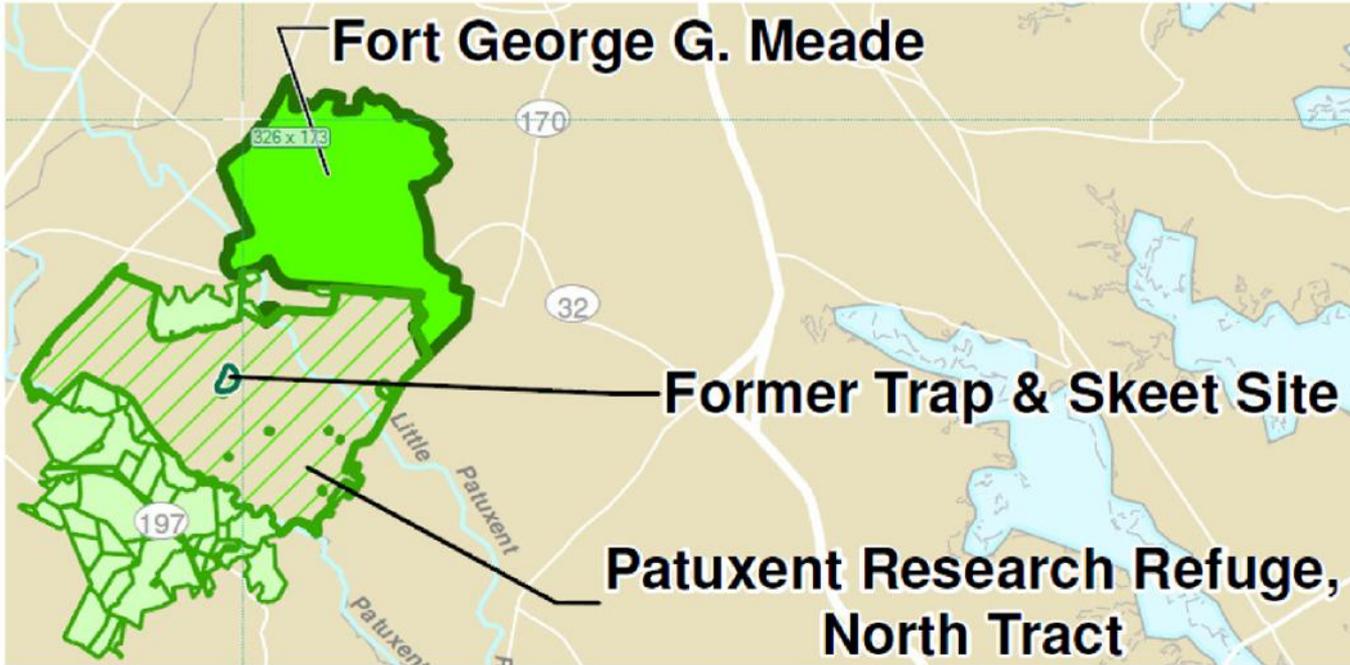
# Contract Scope



- Contract for remediation of soil at Trap and Skeet Range 17 (T&S Range 17) awarded to EA on September 30, 2014.
- EA to achieve approved response complete (RC) for the Soil Operable Unit (OU) at T&S Range 17 by September 30, 2017.



# Site Location





# Site Background and History



- **Background**

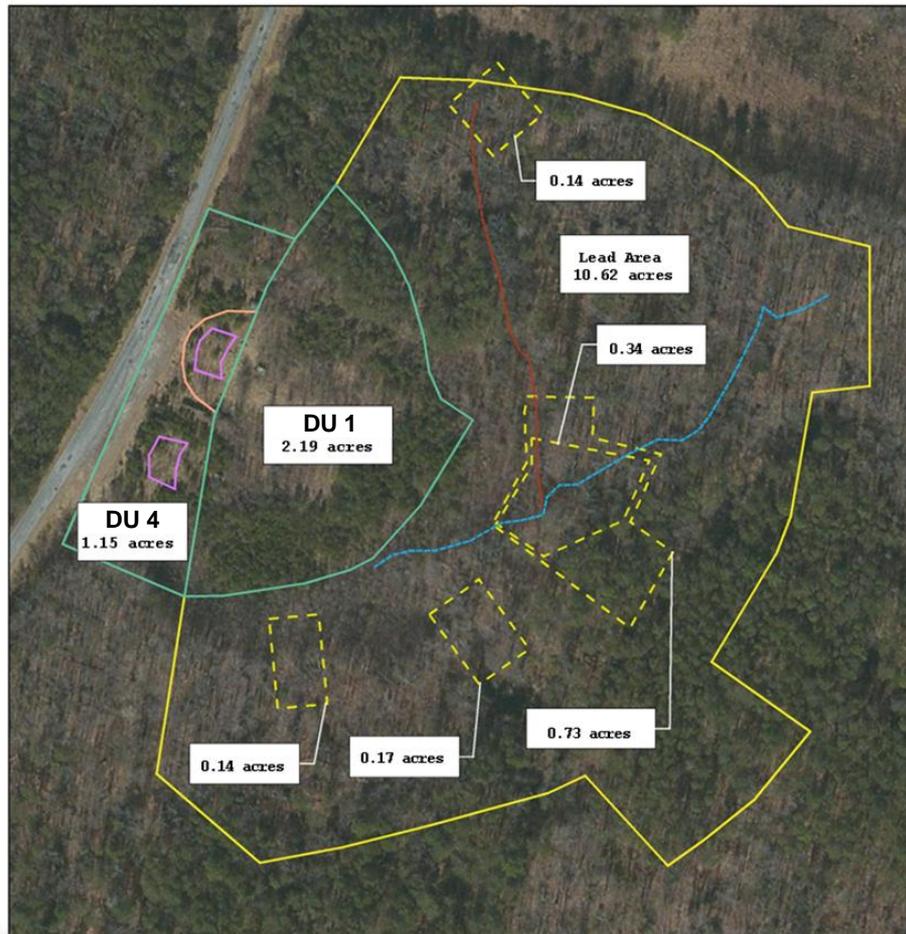
- As part of BRAC, approximately 8,100-acres was transferred from FGGM to Department of the Interior (DOI) in the early 1990s.
- FWS manages property as part of the Patuxent Research Refuge – North Tract (PRR-NT).
- Former T&S Range 17 occupies approximately 20 acres in the PRR-NT.

- **Site History**

- PRR-NT was originally used as a US Army practice and training range, potential for presence of munitions and explosives of concern (MEC).
- T&S Range 17 opened in the mid-1970s and, after the property transfer in 1991, was operated by FWS one or two nights a week until its closure in 1999.
- Contained one trap range (with high and low houses) and one skeet range.
- Former activities have resulted in surface and subsurface soil contamination by lead shot, metals (lead, arsenic, and antimony) and target clay pigeon fragments containing polycyclic aromatic hydrocarbons (PAHs).



# Site Layout

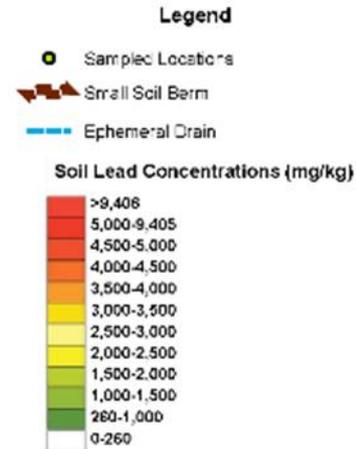
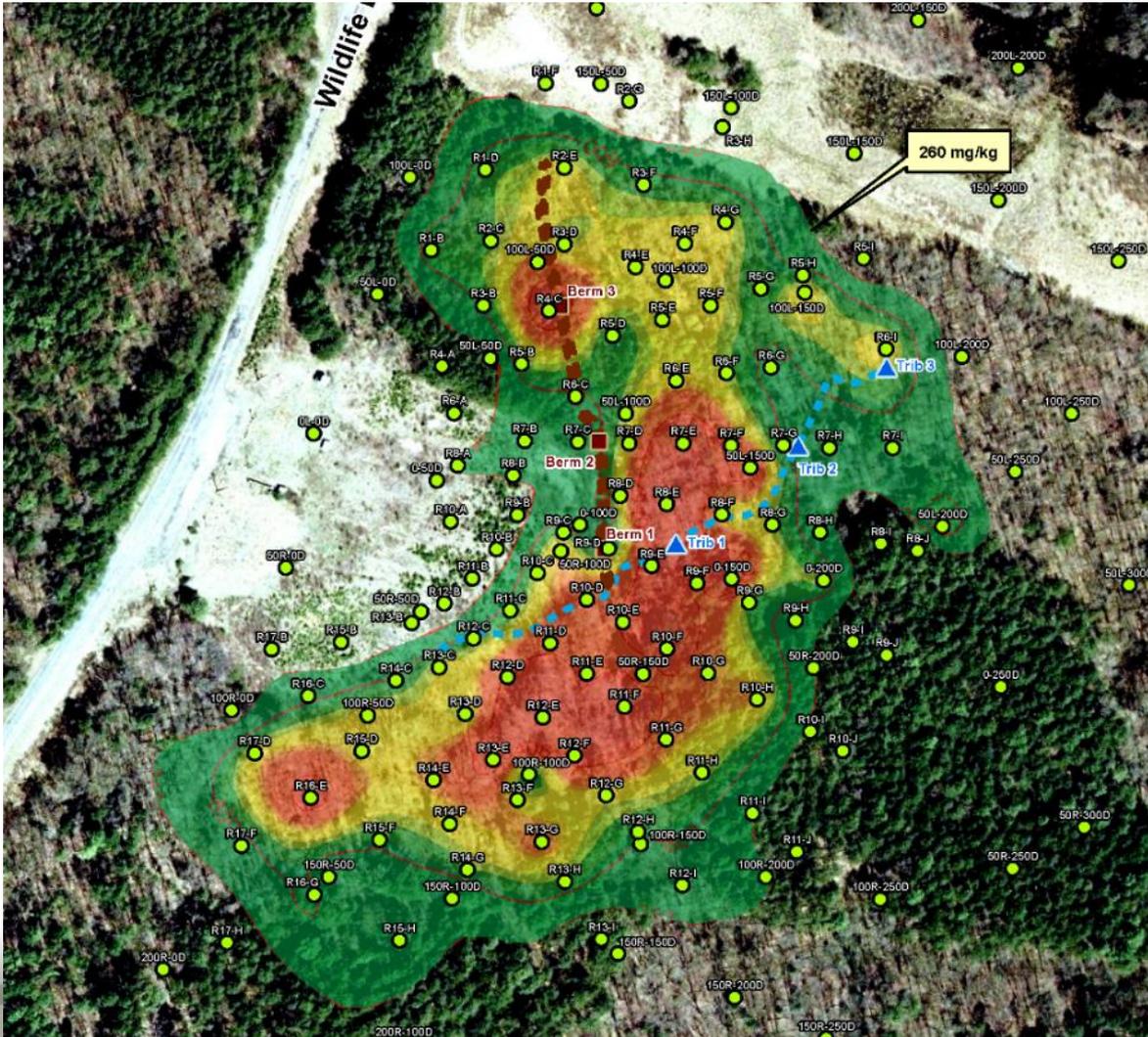


## Legend

- PAH Contamination
- Lead Contamination to 6'
- Lead Contamination from 6-12'
- Skeet Station
- Trap Station
- Berm
- Ephemeral Drain

DU Decision Unit  
Data/Map Source: URS  
2014

# Soil Lead Concentrations 0- to 3-inch Interval Results (mg/kg)

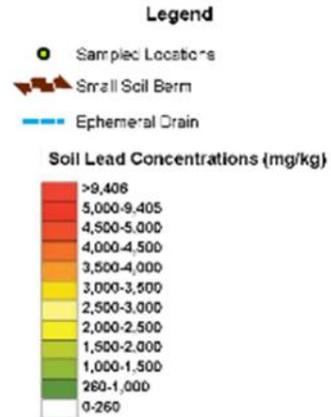


Data/Map Source: URS  
2014





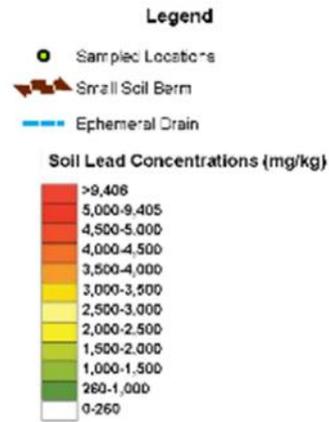
# Soil Lead Concentrations 3- to 6-inch Interval Results (mg/kg)



Data/Map Source: URS  
2014



# Soil Lead Concentrations 6- to 9-inch Interval Results (mg/kg)



Data/Map Source: URS 2014





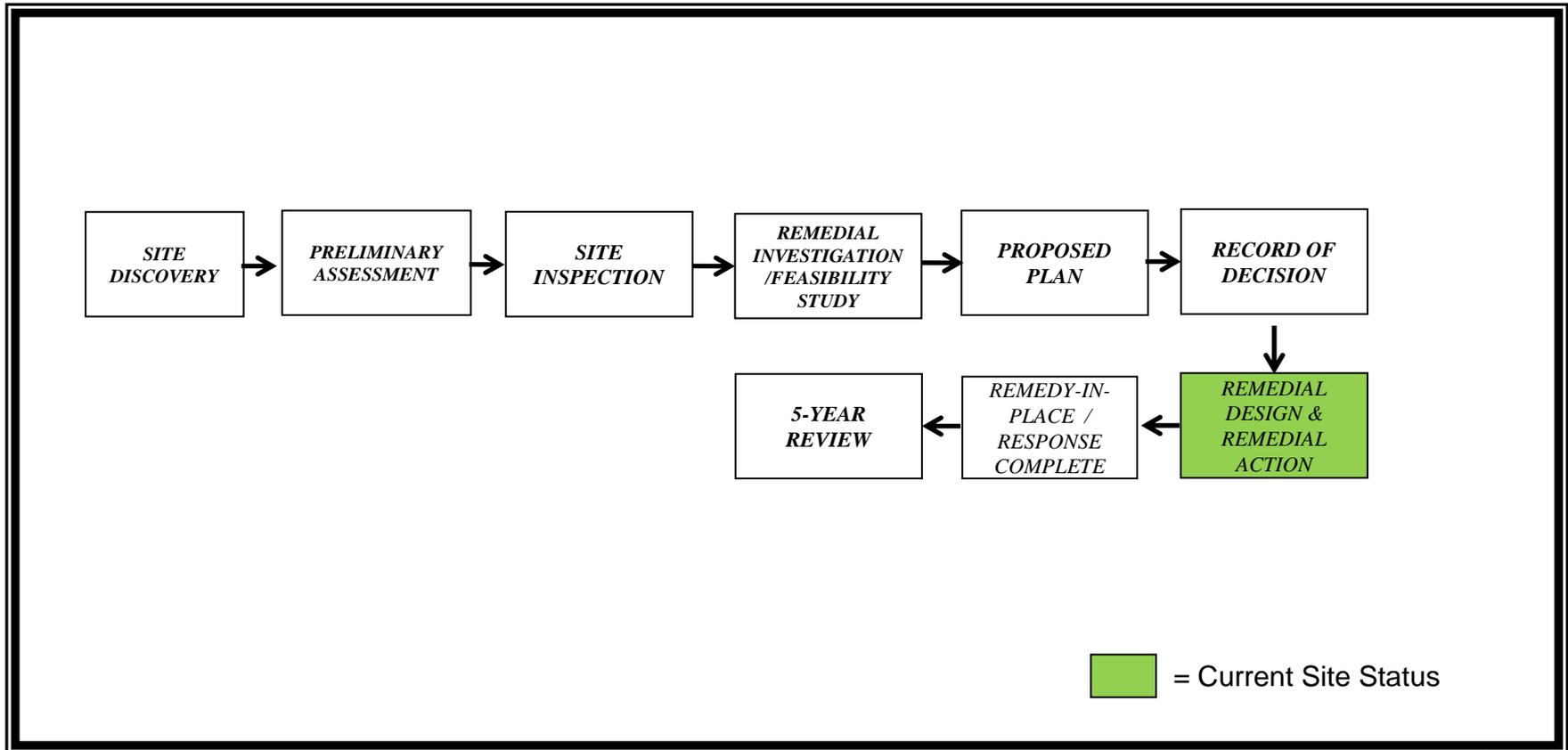
# Site Status



- **Final RI/FS issued June 2014**
  - Included the Baseline Human Health and Ecological Risk Assessments for the site.
  - Established preliminary remedial goals for site contaminants.
  - Presented and compared remedial action technologies and combined technologies into remedial action alternative.
  - Estimated that:
    - Approximately 9,960 cubic yards of soil with lead concentrations exceeding 260 ppm, and
    - Approximately 6,619 cubic yards PAH impacted soil to a depth of 12-inches below ground surface (bgs).
  - Presented Excavation and Off-site Treatment and Disposal and Land Use Controls (LUCs) as the preferred alternative.
- **Final ROD issued September 2014**
  - Documented the remedial goal for protection of human health and the environment from lead in soil as 260 parts per million (ppm).
    - No soil preliminary remediation goals were derived for arsenic, antimony, and lead shot because these are co-located with the lead contamination.
  - Determined that an unacceptable cancer risk under hypothetical future land use scenario (future resident and industrial worker) from exposure to PAHs in surface soils within the DU1 and DU4 boundaries.
  - Documented Excavation and Off-site Treatment and Disposal and LUCs as the selected remedial alternative for the Soil OU.



# Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Process





# Remedial Action Objectives (RAO)



- Control exposure of human and ecological receptors to Site soil contaminated above 260 ppm lead, so as to prevent risks that exceed acceptable levels,
- Reduce the soil contaminant concentrations to levels that do not pose unacceptable risks to human and ecological receptors, and
- Prevent potential future offsite contaminant migration along the drainage channel.



# Selected Remedial Alternative



- Excavation and Offsite Treatment and Disposal with LUCs
  - Remove unexploded ordnance (UXO) and munitions of explosive concern (MEC) from excavation areas;
  - Excavate soil with lead concentrations exceeding the lead preliminary remediation goal (PRG) of 260 ppm;
  - Sample and analyze lead-contaminated excavated soil for hazardous waste characteristics;
  - Excavate PAH-impacted soil from DUs1 and 4 to a depth of 12-inches bgs;
  - Transport excavated soil to appropriate off-site treatment and disposal facility(ies);
  - Place clean fill in excavated areas and re-vegetate the disturbed area(s); and
  - Establish LUCs
    - **Prohibit any excavation or** other disturbance of surface or subsurface soils without appropriate explosive ordnance disposal support and written approval of the FGGM BRAC Environmental Management Office; and
    - Prohibit residential development of the T&S Range 17 without further evaluation of residential exposure risks.



# Project Scope



## • Phase 1: Work Plans

- Remedial Action Work Plan (RAWP) - Underway/In progress
- Explosives Safety Submission (ESS) - Underway/In progress
- Accident Prevention Plan (APP)/Site Safety and Health Plan (SSHP) - - Underway/In progress
- Erosion and Sediment (E&S) Control Plan - Underway/In progress
- Forest Stand Delineation (FSD) - Completed
- Forest Stand Delineation Report - - Underway/In progress



# Project Scope



- **Phase 2: Site Preparation and UXO Investigation/Removal**
  - Site/Boundary Survey
  - Install E&S controls
  - Light Undergrowth Clearing
  - MEC clearance to 18 -inches
  - Forest Conservation Plan (FCP)
  - Tree clearance and mulching (as required)



# Project Scope



- **Phase 3: Excavation and Offsite Disposal**
  - Onsite structure demolition
  - Excavation of impacted soil and RAO Confirmation Sampling
  - Excavated soil through screener to confirm MEC removal prior to offsite shipment
  - Off-site soil stabilization and non-hazardous disposal
  - Site restoration – backfill, regrading, seeding, tree planting
- **Phase 4: Removal Action Closure Report (RACR)**
  - Removal Action Closure Report
  - Achieve approved Response Complete



# Work Completed to Date



- Draft ESS Submitted for USACE/Army Review
- Draft Work Plan approved by USACE/Army and submitted for EPA/MDE/FWS review
- APP/SSHP Submitted for USACE/Army Review
- Internal Draft FSD Submitted for USACE/Army Review
- Draft E&S Control Plan submitted for MDE Review



# Proposed Schedule



- Final APP/SSHP – January 2015
- Final RAWP – March 2015
- Final E&S Plans – March 2015
- Final ESS – April 2015
- Site Preparation and MEC Clearance – April 2015
- Final FSD/FCP – May 2015
- Tree Clearing – July – August 2015
- Excavation and Off-site Disposal – August – December 2015
- Site Restoration – April – May 2016
- RACR – June 2016



# Points of Contact



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