



**US Army Corps
of Engineers®**
New York District

**Former Raritan Arsenal; Edison, New Jersey
Formerly Used Defense Site (FUDS)**

**Public Information Meeting
13 January 2014
Centre Place at Edison Club House
1 Stanley Swiderski Avenue • Edison, New Jersey**

Meeting Summary

Introduction

The meeting started at 7:20 PM. Attendance: 14 Centre Place residents and two local officials. Sandra Piettro, U.S. Army Corps of Engineers project manager, welcomed everyone and gave a brief overview of the former Raritan Arsenal, where the Army Corps has been conducting investigations and cleanup actions for more than 20 years. Before Centre Place was built, it was completely remediated. Additional work is now being done on the Middlesex County College property next door to Centre Place. Ms. Piettro introduced Mark Callaghan, the project manager from CH2M HILL (the Army Corps' contractor).

Presentation

Mark Callaghan asked if attendees had received notice of the previous meeting in October (yes). He then went through the presentation explaining the three phases of the remedial investigation, the results of Phase 1, and the plans for Phase 2 starting later this month. The key point to emphasize is that the Army Corps is very committed to keeping the public informed about what is going on, which is why they hold public meetings, distribute flyers, mail letters, and so on. The following is a brief summary of the presentation. (See **Attachment 1** for a copy of the slides that were presented.)

Investigation Area 18D is adjacent to Centre Place at Edison. In 2005 and 2006, while Centre Place was under construction, the Army Corps removed hundreds of practice or inert bombs (not filled with explosives). In 2012, the college was using ground-penetrating radar for a utilities survey and found some unexplained anomalies (metallic objects) beneath their parking lot next to Centre Place. Because munitions had been found nearby in 2005, the college asked the Army Corps to investigate.

Mark described the work that was conducted in Phase 1 (Nov – Dec 2013): surface clearance, digital geophysical mapping (DGM), and data analysis. The DGM in Area 18D was conducted on December 18th and a total of 432 anomalies were mapped in a 1-acre portion of the college parking lot. A total of 205 anomalies were randomly selected for further investigation.

In Phase 2, in multiple locations throughout the former arsenal, unexploded ordnance (UXO) technicians will use metal detectors to find and flag those 205 anomalies, dig them up, and dispose of them. These anomalies could be anything: trash, pipes, fence posts, construction debris, or they could be munitions.

Exclusion zones will be established to keep non-essential personnel away while anomalies are being dug up. Although any munitions under the parking lot would probably be inert, like those that were removed in 2005-2006, we have to assume they could be dangerous until we know for sure. The size of the safety buffer (exclusion zone) is based on the distance that fragments from the largest potential munition might travel if that munition exploded accidentally.

To minimize disruption to the public, USACE first plans to use advanced electromagnetic equipment called TEMTADS to determine what shape the metallic items are. There is now a library of TEMTADS data that analysts can compare and know whether or not items are munitions and if so, what kind. Anything that can be identified as not a munition item doesn't need to be dug up.

If the data are inconclusive (many items are jumbled together or there is other interference), then we will have to dig that up. If so, we will communicate with individual residents who live within the exclusion zone and will need to leave their homes for several hours. By using TEMTADS, at least we know we are not asking people to leave while we dig up a hubcap.

Jay Elliott (Edison Township Health Department) added that if anyone needs to be relocated for a few hours, they can go to the Senior Center while they are out of their homes; if transportation is needed, it can be provided.

Questions from Community Members and Answers Provided

Q: How much notice will we get?

A: Tonight is the notice for doing the TEMTADS survey. The intrusive work will not start after that.

Ginny Farris (CH2M HILL) explained that, if any residents will need to be relocated while munitions are being dug up, they will get a personal notification in advance telling them the date and time of day, followed by a notice on their door the day before work starts. On the morning before work starts, contractor personnel will knock on doors to make sure the homes are empty. Another notice will be posted on doors to let people know when the work is complete.

Q: Who says that an item is inert?

A: We have senior Unexploded Ordnance (UXO) specialists with 20 or more years of experience as military explosive ordnance disposal technicians, who know munitions very well. They will make that determination.

Q: How deep would munitions be?

A: We're not sure yet, but the munitions removed in 2005-2006 were 20 to 25 feet below the ground surface.

Q: What part of Centre Place is affected?

A: The location was pointed out on a map, in reference to the club house, where the public meeting was held. We will provide notes of this meeting to Robert Rommel, the Centre Place property manager, who can help identify which building numbers are shown on the slide.

Q: How accurate and fast is the TEMTADS machine? How soon will it be done?

A: TEMTADS is very quick, a day or two. The initial analysis is available within minutes. After the TEMTADS work is done, the data will be reviewed by senior munitions technicians to confirm.

Q: If some items are munitions, will you have to dig up the rest?

A: No. We will look at some of the individual anomalies, measure 287 feet around that location, and see if any homes will have to be evacuated when we dig. We will let the community know, either way.

Q: Why not look at all the anomalies?

A: With random sampling, if we find no munitions at all, then we can be 95% sure that munitions are not present without looking at every single piece of metal.

Q: If you find something, would you go back and analyze the others to be sure they are not munitions?

A: If we do find any munitions, then the sampling approach can no longer provide 95% confidence about the other munitions. In that case, we might have to examine other anomalies that were not selected for investigation.

Q: How soon will you start?

A: In next few days, we will start spray painting the locations of the selected anomalies on the parking lot. Around the 20th-26th of January, TEMTADS will start. To schedule the intrusive work after that, we will need to coordinate with the college to have the least impact on their operations.

Mark went over the general schedule for Phase 2 investigation (Jan-Feb 2014), which will follow Phase 3 sampling. He stressed that the Army Corps is committed to both safety and communicating with the public every, so everyone knows what is happening and when. For more information residents can contact Sandra Piettro or visit the project website (see Attachment 2)

Jay Elliott added that this is a very transparent process; phone calls and emails are answered. Sandra Piettro is at Raritan Arsenal (also close to the investigation area) more often than at her home office. The township has been very satisfied with how Army Corps has kept them informed. For example, when a Raritan Center company found a munition when constructing a parking lot, the Army Corps responded and kept the Township informed. Because of the history of the arsenal, any construction project on the former Raritan Arsenal is reviewed by the Army Corps and a UXO expert is on hand whenever a shovel goes into the ground, if the area hasn't been dug up before.

Q: What was found recently?

A: That munition also was inert.

Q: How were the munitions at Centre Place found?

A: During construction, the developers found something. They called the Army Corps, who came right away and reallocated resources to remove everything in the construction area.

Q: Is there a danger of chemicals in the soil or water?

A: Inert munitions have very little or no explosives, so there is not much that can leach into soil or groundwater. During Phase 3, the contractor will take soil samples if any degraded munitions were found. Also, the groundwater under the arsenal is not used for drinking water.

Jay Elliott added there was extensive soil sampling done at Centre Place because the state requires that soil at child care facilities be tested to be sure it's safe. Some houses with basements have a fan in the basement to ensure that the natural radon in the soil doesn't build up inside homes. That is now standard in new construction because of the geology in the Edison area. At Centre Place, fan systems were required to be added because there was a prior industrial use of the site and also because some of the fill dirt had been brought in from the former Ford Motor Company property and it wasn't clean soil. The construction project was held up for several years during these precautions. The developer was also required to put down several feet of clean soil on top of that fill, to make sure residents can't come into contact with contamination in the fill dirt.

As there were no more questions, the meeting was adjourned at 8:25 PM.

Attachment 1 – Public Meeting Presentation for Centre Place Residents

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**US Army Corps
of Engineers®**

Former Raritan Arsenal Remedial Investigation – Phase 2



Presentation for Public Information Meeting – Centre Place at Edison – January 13, 2014

Formerly Used Defense Sites Program (FUDS)

Former Raritan Arsenal

Edison, New Jersey

Contract # W912DY-09-D-0060, Task Order 003

Update on the Munitions Remedial Investigation



This presentation provides information about Phase 2 of the work near Centre Place at Edison

**We
Are
Committed
To
Keeping
The
Public
Informed**

Focus of the Remedial Investigation (RI)



- Since 1989, numerous investigations and removal actions have been completed at the former Raritan Arsenal.
- This investigation focuses on 12 specific areas of the former Arsenal to:
 - Characterize *nature* (what is it) and *extent* (where is it) of munitions and explosives of concern (MEC), munitions constituents (MC), and other hazardous and toxic wastes that are specifically related to a known Department of Defense release.
 - Perform human health and ecological risk evaluations, as well as complete a MEC hazard assessment.
 - Collect sufficient data to define remedial alternatives in the Feasibility Study that will follow.



A Phased Approach

Phase 1

- Locate buried metallic objects that might be munitions

Phase 2

- Dig up and identify metallic objects
 - *Are they unrelated objects (pipe, rebar, fence posts) or munitions?*

Phase 3

- Sample soil for munitions compounds where munitions were found

November 2013

January 2014

June 2014



Specific Areas of Focus

Area ID	Name of Area	Acreage
Area 1	Former Demolition Area	0.57
Areas 6, 6A, 6B	Former Burning Ground and Impoundment Area	130
Area 10	Former Wastewater Treatment and Magazine Area	140
Area 11	Former Dredged Material and Explosives Area	11
Area 12	Former Dredged Material and Explosive Detonation Area	82
Area 13	Submerged Dock Area	23
Area 16	Former Magazine Area	277
Area 18D	Trench of Shell Casings	31
Areas 9 and 19	Former Magazine Areas	294
DSA	Dredge Spoils Area	645



Investigation Area near Centre Place at Edison

Area ID	Name of Area
Area 1	Former Demolition Area
Areas 6, 6A, 6B	Former Burning Ground and Impoundment Area
Area 10	Former Wastewater Treatment and Magazine Area
Area 11	Former Dredged Material and Explosives Area
Area 12	Former Dredged Material and Explosive Detonation Area
Area 13	Submerged Dock Area
Area 16	Former Magazine Area
Area 18D	Area to be Investigated
Areas 9 and 19	Former Magazine Areas
DSA	Dredge Spoils Area



Investigation Area near Centre Place at Edison



Property is owned/used by:

- *Middlesex County/ Middlesex Community College*
- *General Services Administration (GSA)/U.S. Environmental Protection Agency (EPA)*



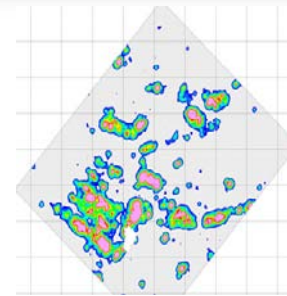
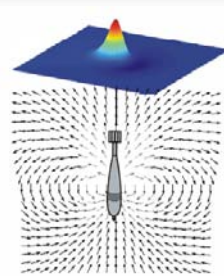
History of Area 18D

- Used heavily during operation of the former Arsenal
- Two removal actions during construction of Centre Place at Edison:
 - In October-November 2005, a total of 1,623 practice or inert bombs were removed from Area 18D. Several bombs were left in place, 25-30 feet below the ground.
 - In March 2006, 476 empty or inert bombs were removed from 20-25 feet below the ground.
- In 2012, the college found unknown anomalies under their parking lot, while conducting a utility survey using ground-penetrating radar. This is the area that will be intrusively investigated.

*World War I Practice Bomb (MK 1, 25-lbs):
The casing was thin and it was suitable for
practice only. They were stored empty. A
spotting charge would have been added
shortly before the bomb was used.*



Phase 1 Work is Complete (Nov – Dec 2013)



■ Surface preparation

- Vegetation was cut and cleared to allow for surface clearance.
- Teams walked over the area and picked up metallic objects on the surface.

■ Digital Geophysical Mapping (DGM)

- Electromagnetic induction (EMI) instruments were used to electronically record and create a digital map the locations of subsurface “anomalies” (metallic objects).
- *Anomalies may be any metallic objects, not necessarily munitions, for example pipes and fence posts*

■ Data Analysis

- Skilled geophysicists and munitions experts evaluated the data collected in Phase 1
- Selected subsurface anomalies that might be munitions for further investigation



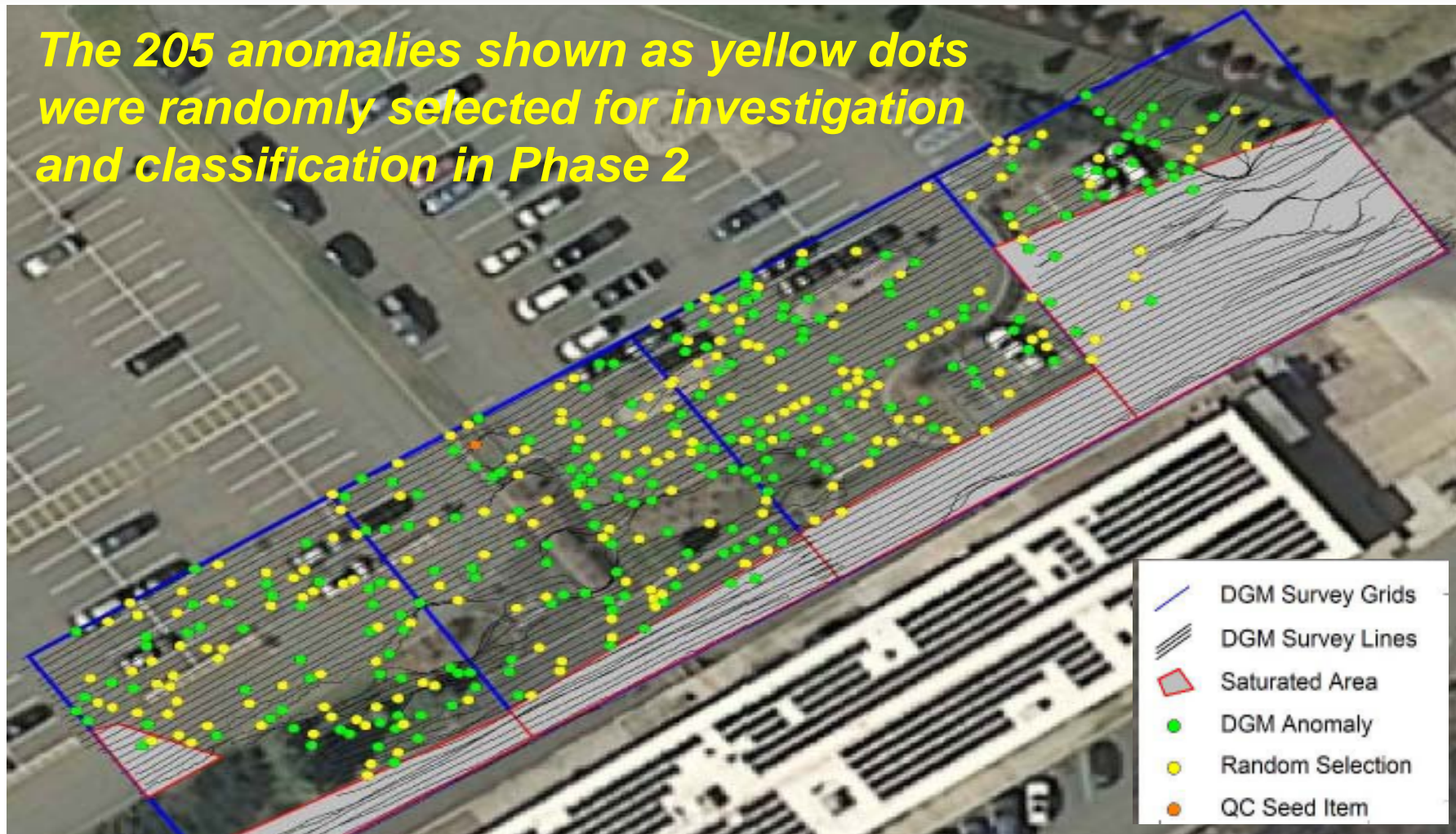
Phase 1 Results – Area 18D (College Property)

- The DGM survey in Area 18D was conducted on December 18th, 2013, along 1-meter wide transects.
- A total of 432 anomalies (unknown metallic objects) were detected beneath the parking lot.
- A total of 205 anomalies were randomly selected for further investigation and classification.



Phase 2 – Area 18 D (College) Anomalies for Investigation.

The 205 anomalies shown as yellow dots were randomly selected for investigation and classification in Phase 2



Phase 2 – Intrusive Investigation (Jan – March 2014)



- Phase 2 is scheduled to start in January 2014. Unexploded ordnance technicians will:
 - Re-locate the mapped anomalies using surveying equipment.
 - Carefully excavate anomalies using a combination of hand tools (*shovels, trowels*) and heavy equipment (*tracked excavators, backhoes*).
 - Identify the anomalies and determine whether they are munitions or unrelated metal objects such as pipes, fence posts, marine debris, etc.
 - Inspect munitions and determine whether they can be moved safely:
 - If an item is deemed safe to move, it will be moved to a remote location where it will be destroyed.
 - If it is not safe to move, engineering controls such as sandbags or soil will be used to conduct a safe controlled detonation.
 - Nearby residents may hear a muffled explosion.



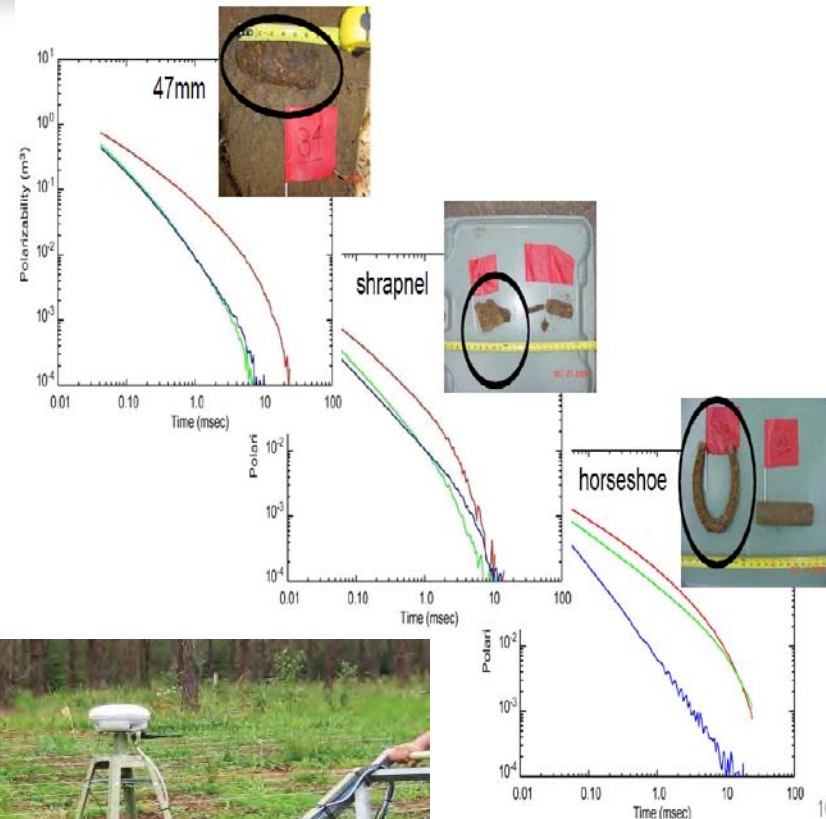
Exclusion Zones

- For safety reasons, **exclusion zones** are established to keep “non-essential personnel” out of the areas where active digging and handling of munitions is being conducted.
 - Mostly in unpopulated areas
 - May also include temporary road closures, interruptions of river traffic, and any homes that are adjacent to digging areas
- To date, Phase 1 work has been non-intrusive and thus has not required any residential evacuation or road closures
- Every attempt will be made to minimize the duration of impacts on community members during Phase 2.



TEMTADS: Minimizing disruption to the public

- An advanced detection system called TEMTADS will be used to help determine if these anomalies are munitions or unrelated metallic objects.
 - TEMTADS is not intrusive, so the exclusion zone is not active during that work.
- This will *minimize the number of anomalies* that need to be dug up for identification and thereby *minimize the disruption* to the public.



Exclusion Zones- Area 18D

- The **HFD** or Hazardous Fragmentation Distance (purple line) is based on the type of munitions expected at a site: **287 feet for Area 18D.**
- This represents a **maximum exclusion zone** calculated from the boundary of **Area 18D.**
- During the investigation, active exclusion zones will be established around the specific anomalies being investigated at a given time.
- Thus, the active exclusion zone on any given day may include only a portion of the area shown.



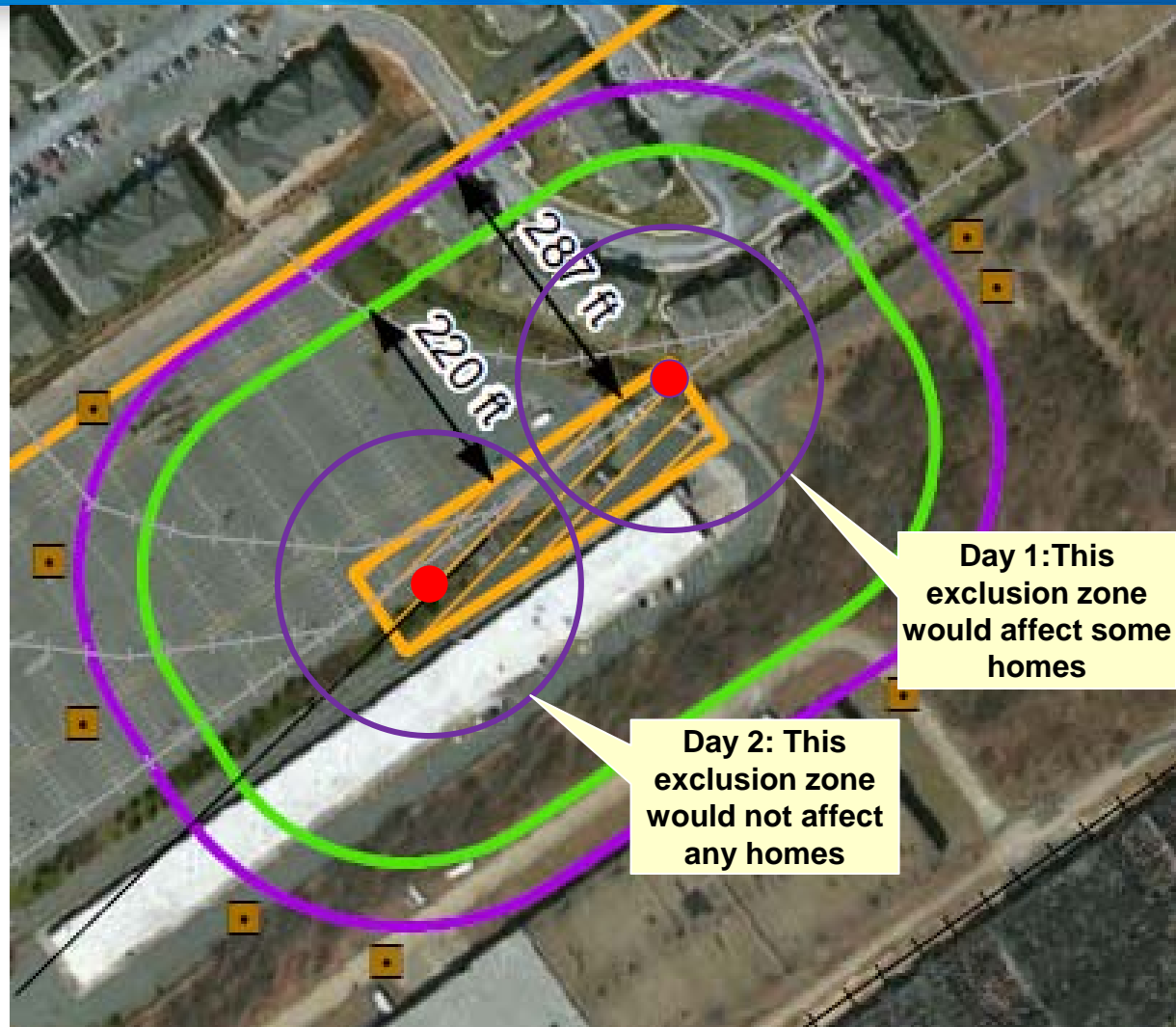
- Area 18D Boundary
- Area 18D Munitions Response Operations
- ESQD - 220 ft
- HFD - 287 ft
- Entry Control Point



Exclusion zones would be limited in size

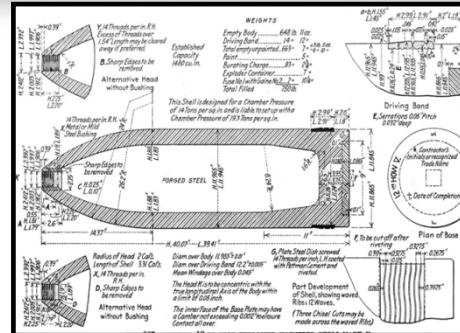
- Only the anomalies that TEMTADS data show as possible munitions will be dug up. Exclusion zones will center on those and only be active for a brief period.

(NOTE: for illustration only, not based on actual data.)



Phase 3 – Sampling & Analysis (June – July 2014)

- Phase 3 will begin after identifying and classifying any munitions that are recovered during Phase 2.
- Munitions experts and scientists will identify the types of compounds (*specific metals and explosives*) that make up those recovered munitions.
- Environmental samples will be collected and analyzed for those specific compounds, to ensure that they have not been released into the environment.



Schedule

Phase	Task	Duration
Phase 1	Vegetation Reduction, Surface Clearance, and Digital Geophysical Mapping (DGM)	November – December 2013
Phase 2	Reacquisition of Anomalies, TEMTADS, and Intrusive Investigation.	January – February 2014
Phase 3	Environmental Sampling & Analysis	June – July 2014



Safety and Coordination

- The US Army Corps of Engineers is committed to
 - Investigating these areas with the utmost concern for the safety of the public.
 - Keeping the general public, property owners, local government, and other interested parties informed about what is happening, and when it will be happening.



Questions

- If you have questions that were not answered tonight, please contact:

Ms. Sandra L. Piettro, Project Manager

Phone – 917-790-8487

Email – Sandra.L.Piettro@usace.army.mil



- For more information about investigations at Raritan Arsenal, see the project website:

www.nan.usace.army.mil/Raritan



- To sign up for future mailings and public meetings:
 - Make sure you signed the sign-in sheet tonight
 - Send an email to Sandra.L.Piettro@usace.army.mil
 - Sign up for Edison Township's e-mail/cell phone alerts at www.edisonnj.org



Thanks for your participation!

