

# VISTA PARK

COMPARISON OF OWNER'S FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) APPROVED VOLUNTARY CLEANUP ORDER (VCO) APPROACH AND CORPS OF ENGINEER'S (COE) APPROACH TO CLEARANCE OF THE VISTA PARK PROPERTY.

The state-approved process will clean nearly four times the amount of land and at greater depths than the Army Corps of Engineers proposes. Additionally, the state-approved plan removes all known and documented risks, some of which the Corps' plan disregards entirely.



Figure 1 - Extent of Clearance Voluntary Cleanup Order vs CoE

Table 1 - Comparison of Approaches

Task	Owner	CoE
Time Domain Electro-Magnetic (TDEM) Geophysical Mapping - shallow search to several feet; size dependent. Color-coded maps of subsurface metal produced. Detection depth limited by technology that imparts energy into the ground and detects decay of magnetic field in conductive objects.	Entire property of 1576 acres	413 acres (~26%), excluding wetlands or roads
Intrusive Clearance Shallow - reacquisition and excavation of targets detected by EM61 survey.	1576 acres to depth of detection (~4-5 feet size dependent)	413 acres to groundwater or 4 foot whichever shallower
Intrusive Quality Control (QC) Hole Checks - recheck of proportion of excavated locations to ensure they are clear.	Yes	Yes
TDEM QC Acceptance Sampling - EM61 resurvey of statistically significant proportion of search grids and excavation of all anomalies detected in order to prove quality of clearance.	Yes	No
Shallow Munitions Constituents (MC) Chemical Sampling & Remediation - collecting and analyzing samples of soil, surface water, ground water and sediment and comparing to FDEP Cleanup Target Levels - Residential. Action will be taken to resolve any nonconformances in accordance with FDEP criteria.	Committed to addressing surface soil, surface water, groundwater and sediment to FDEP criteria for all contaminants	Plan to address surface soil only with levels of Copper exceeding 150mg/kg
Magnetometer Geophysical Mapping - deep search to ~15 feet (size dependent) which passively detects changes in the earth's magnetic field due to the presence of ferrous objects (bombs). Produces color coded maps of subsurface ferrous objects. Not as depth limited as EM61 technology. Rough rule of thumb is that EM61 and magnetometer will detect a 75mm projectile at 3 feet equally. EM61 has better performance shallower, magnetometer better performance deeper.	Yes	No
Intrusive Clearance Deep - reacquisition and excavation of targets detected by magnetometer survey.	Yes	No
Intrusive QC Hole Checks - recheck of proportion of excavated locations to ensure they are clear.	Yes	No
Magnetometer QC Acceptance Sampling - Magnetometer resurvey of statistically significant proportion of search grids and excavation of all anomalies detected in order to prove quality of clearance.	Yes	No
Deep Munitions Constituent Chemical Sampling - collecting and analyzing samples of soil, surface water, ground water and sediment and comparing to FDEP Cleanup Target Levels - Residential. Action will be taken to resolve any nonconformances in accordance with FDEP criteria.	Committed to comprehensive FDEP approved methodology by Voluntary Cleanup Order	No
Completion Reporting - Documentation of entire process.	Yes	Yes

(CoE) in their 2015 Decision Document – Demonstration Range South (incomplete, missing Tables and Figures in publicly available versions).

The Owner's approach effectively removes the risk from Unexploded Ordnance (UXO) and Munitions Constituents while the CoE approach only removes some of the shallow hazards, but still leaves the property in an unsafe condition.

- The CoE approach (see the blue shaded area in Figure 1) only addresses up to 413 acres excluding the southern half of the property; wetlands; existing roads; parking areas; under structures and within ponds. The Owner's VCO approach addresses the entire property of 1,576 acres.
- The CoE documentation clearly shows that the wetlands were impacted by UXO but elects no action in these areas preferring to have these fenced off or protected with signage warning of an explosive hazard. The boundary of the wetlands is not just the generally inundated cypress wetlands but also includes areas of meadow that contain particular vegetation associated with wetlands and are therefore classified as wetlands, although they are often dry and accessible places for children to play. Children are not always inhibited by fences and signs, and are attracted to wooded areas. Unmitigated munitions in these areas create a dangerous situation. These presumably would not be addressed in the CoE approach even though they are readily accessible. The Owner's FDEP approved Voluntary Cleanup Order (VCO) approach addresses all parts of the property including wetlands and will result in the removal of all detectable munitions.
- The CoE recommends a clearance depth to the water table or 4 feet whichever is shallower. The water table is much shallower than 4 feet for much of the year and at times is near or on surface. With the CoE proposed approach, it can only be definitively stated that the property will be surface cleared with a possibility of surface to 4 feet clearance. The Owner's VCO approach undertakes a clearance "to depth" which means that any items detected will be removed regardless of depth or the current water table elevation. The CoE does not elect to utilize instruments that look deep. The Owner's VCO approach does an initial shallow search with the same instruments the CoE would use but then also does a subsequent deep search with magnetometers designed to detect bombs at depth.
- The CoE approach has declared that there is no risk of UXO in the southern part of the property even though their own documentation shows bomb impact craters in historical aerial photos (1947) and their field investigation (2008/2009) recovered Munitions Debris from expended military munitions. The CoE contractor field records only document these items as "Munitions Debris Non Specific" and "Munitions Debris Frag". The identification of Munitions Debris fragmentation strongly indicates that high explosives munitions were utilized in this part of the property as the fragmentation is usually the result of high explosive detonation. It is probable that malfunctioned unexploded munitions items are also present in the vicinity. The Probable Bomb Impact Analysis carried out by the St Louis District of the CoE in 2007 identified target #6 Airstrip Target as being in the southern part of the property. The finding of no risk is onrtrary to the documented evidence.

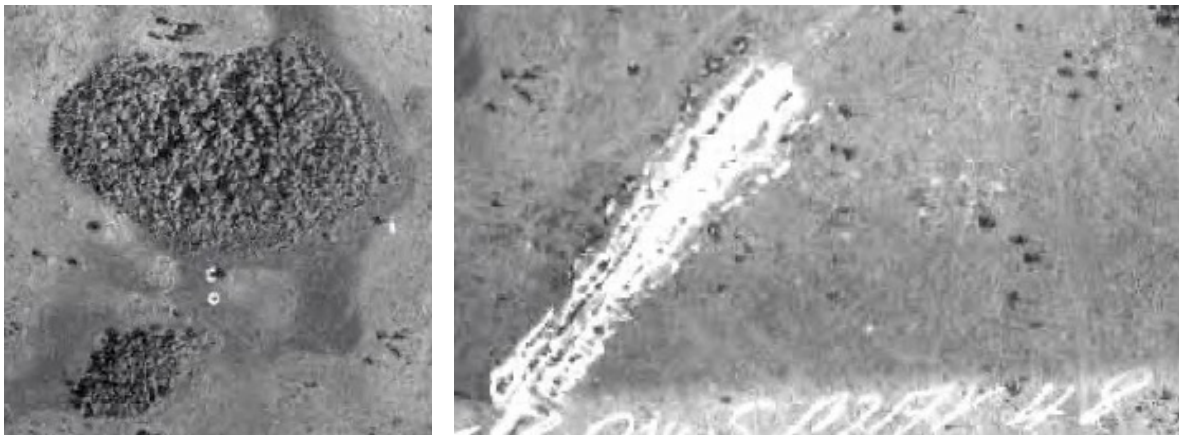


Figure 2 - Bomb craters in the southern part of the property from 1947 aerial

- The CoE Remedial Investigation of the southern part of the property recommended for No Further Action based their decision on investigating approximately 6 acres of the 817 acres (less than 0.75% of the area) in linear transects.
- The CoE contractor searched only five 50' x 50' grids (0.28 acre total or only 0.034% of the 817 acres) in the southern part of the property recommended for No Further Action. Three of the five grids had "Munitions Debris – Frag" or "Munitions Debris - Non Specific" in them. This level of discovery should raise suspicions that unexploded munitions are likely to be present in these areas and should have resulted in a greater sampling effort to verify or deny the presence of MEC in the area.
- There is no question that high explosive general-purpose bombs were utilized on this property. This conclusion comes from detailed documentation in the CoE Archives Search Report, from contemporary photos of bombs impacting on the property and from the presence of a series of 20-foot wide high explosive bomb craters less than 500 feet from the boundary of the CoE nominated search area. Figure 2 above clearly shows bomb impact craters in the southern part of the property that are not addressed. The Owner's VCO approach addresses the potential for the presence of bombs in all parts of the property; the CoE approach does not.
- The CoE Decision Document acknowledges that dangerous munitions are known to be present on the property including Bomb, 4-lb, Fragmentation, M83 which "may have anti-disturbance fuzing, making it very sensitive and potentially lethal when it detonates." Notwithstanding this, the CoE still recommend shallow search that can only be relied on to clear the surface (surface to 4 feet depending on depth of water). The CoE then recommend that "explosive safety support by a party other than USACE [CoE] will be recommended during subsequent excavation work". This means that the CoE is recommending that the developer excavate or grade an area that has been confirmed to have high explosive munitions with sensitive anti-disturbance fuzing that may have had only a surface search and have developer-funded UXO personnel standing by the excavation. Disturbing a sensitive munition and potentially causing it to unintentionally detonate during construction is an exceptionally dangerous procedure that risks UXO technicians and construction workers. This is not an acceptable practice
- The CoE Decision Document describes that they will address Munitions Constituents in surface soil only with levels of Copper above 150mg/kg. The Owner's VCO will address Munitions Constituents in surface soil, surface water, sediment and groundwater to FDEP criteria for all Munitions Constituents. The CoE remedial investigation found Chromium and Copper at elevated levels at several places post detonation but did not definitively identify where it originated from. The Jet Perforators used by the CoE contractor as donor explosive to detonate the unexploded ordnance commonly have stainless steel casings (an alloy of Iron and at least 10.5% Chromium) and a copper shaped charge liner on the inside of the Jet Perforator. This is highly likely to be the source of the Chromium and Copper detected. The CoE Contractor also found elevated levels of Barium in several soil samples but did not identify a source. The CoE Remedial Investigation Report on page 5-20 states that "the AN-M50 4-lb incendiary bomb does not contain barium, chromium, or copper as constituents; therefore, it is unlikely that the concentrations of these metals correlate to the munition found." In fact, the filler in the AN-M50 series of incendiary bombs is 69% Barium Nitrate. The CoE contractor incorrectly identified the filler as Thermite (aluminum and iron powder) when in fact the filler is Thermate (TH3) consisting of 29% Thermite, 69% Barium Nitrate and small amounts of Sulfur and PBAN. If the donor explosive and UXO munitions constituents were correctly identified, it is unlikely that the extent of soil needing to be removed is as great as the CoE suspects when the actual source is taken into account and an alternative used. The Owner has committed to addressing any Munitions Constituents above FDEP criteria through the signed Voluntary Cleanup Order.