



**Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310**

**FINAL
EXPLOSIVES SAFETY SUBMISSION
Revision 2
March 9, 2007**

**INSTALLATION RESTORATION SITE 1
FORMAL NAVAL AIR STATION ALAMEDA
ALAMEDA POINT, ALAMEDA, CALIFORNIA**

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Program Management Office West
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**CONTRACT NO. N62473-06-D-2201
CTO No. 0015**

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DCN: ECSD-RACIV-07-0327



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A handwritten signature in black ink, appearing to read 'Abram S. Eloskof', written over a horizontal line.

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ALAMEDA POINT
SSIC NO. 5090.3

FINAL
EXPLOSIVES SAFETY SUBMISSION

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ABBREVIATIONS AND ACRONYMS

C/D	class/division
CQC	Contractor Quality Control
DDESB	Department of Defense Explosives Safety Board
DGPS	Differential Global Positioning System
DoD	Department of Defense
DON	Department of the Navy
ECM	earth-covered magazine
EMM	earth-moving machinery
EOD	Explosive Ordnance Disposal
ERA	Emergency Removal Action
ESS	Explosives Safety Submission
ESQD	explosive safety quantity distance
EZ	exclusion zone
HE	high-explosive
HFD	hazardous fragmentation distance
IBD	inhabited building distance
IL	interline
IR	Installation Restoration
MEC	munitions and explosives of concern
MGFD	munition with the greatest fragmentation distance
mm	millimeter
MPPEH	material potentially presenting an explosive hazard
MRS	Munitions Response Site
MSD	minimum separation distance
NAS	Naval Air Station
NEW	net explosive weight
NOSSA	Naval Ordnance Safety and Security Activity
PjM	Project Manager
PTR	public transportation route
QA	quality assurance
QC	quality control
Q/D	quantity/distance

ABBREVIATIONS AND ACRONYMS

(Continued)

RAB	Restoration Advisory Board
RAO	removal action objective
RCT	Radiological Control Technician
RPM	Remedial Project Manager
SOP	standard operating procedure
SSPORTS	Supervisor of Shipbuilding, Conversion and Repair, Portsmouth
SUXOS	Senior UXO Supervisor
TCRA	time-critical removal action
TP	target practice
TSD	Team Separation Distance
TtEC	Tetra Tech EC, Inc.
UXO	unexploded ordnance

1.0 PROJECT SUMMARY

This Explosives Safety Submission (ESS) is being submitted to support the time-critical removal action (TCRA) of munitions and explosives of concern (MEC) including material potentially presenting an explosive hazard (MPPEH) from Installation Restoration (IR) Site 1 on the former Naval Air Station (NAS) Alameda, Alameda Point, Alameda, California. While the TCRA involves the removal of discrete radiological sources from IR Sites 1, 2, and 32 at the former NAS Alameda, this ESS only addresses munitions response activities that will be conducted at the Munitions Response Site (MRS) located on IR Site 1. The format and informational content of this ESS is compliant with the requirements of Naval Ordnance Safety and Security Activity (NOSSA) Instruction 8020.15.

The removal of MEC/MPPEH from the IR Site 1 MRS will be completed in conjunction with a radiological survey and will include a geophysical survey to identify locations of suspected debris pits and a disposal trench, followed by the excavation of the pits/trench and the removal of the entire former Firing-range Berm located within the former small arms range at IR Site 1. The Department of the Navy (DON), Base Realignment and Closure Program Management Office West directs these actions in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act and the National Oil and Hazardous Substances Pollution Contingency Plan. Tetra Tech EC, Inc. (TtEC), as the general contractor, is responsible for conducting this work under contract number N62473-06-D-2201. The DON has initiated the planned TCRA to substantially eliminate, prevent, or abate any potential hazards associated with MPPEH and radiological items.

A vicinity map that illustrates the location of Alameda Point, IR Site 1 and its planned usage can be found in Figure 1-1.

1.1 SITE DESCRIPTION

IR Site 1 is relatively remote from occupied buildings and public traffic routes, and access to the site is prevented by a fence line that segregates the western runway and tarmac areas of the former air station from the populated portions of the base to the east. This fence is shown in Figure 1-2.

The site is an area of approximately 78 acres located on the western coastline of Alameda Point, in Alameda, California. The site is rectangular in shape and is bordered on the west by San Francisco Bay and on the north by Oakland Inner Harbor. The former NAS Alameda borders the site on the east and south. IR Site 1 was used as the main disposal area for the former NAS Alameda from approximately 1943 through March 1956. A map showing various aspects of IR Site 1 and the explosive safety quantity distance (ESQD) and exclusion zone (EZ) arcs can be found in Figures 1-1 through 1-4.

The firing range area is located on the coastline in the middle of IR Site 1 and was formerly used for pistol, rifle, and shotgun practice. The southern portion (approximately 70 feet) of the small arms range was designated as the shotgun range, and the center of the range (approximately 80 feet) was designated as the pistol range. The northern section of the small arms range (approximately 45 feet) was designated as a disposal area, and is the general location of debris pits known to contain 20 millimeter (mm) projectiles. The former Firing-range Berm runs along the coastline on the western side of the range.

IR Site 1 is currently not in use, although Alameda law enforcement agencies sometimes use the adjacent runways for high-speed driving maneuver training.

1.2 REASONS FOR SUSPECTED MEC/MPPEH

A radiological survey of IR Site 1 in 1998 resulted in the discovery of 335 live, 20mm high-explosive (HE) projectiles, two small arms rounds, 12,259 – 20mm target practice (TP) projectiles, 1,689 .50 caliber armor-piercing projectiles, and 359 assorted brass casings. The HE-filled projectiles were detonated as a part of an Emergency Removal Action (ERA) completed by Unexploded Ordnance (UXO) technicians from Supervisor of Shipbuilding, Conversion and Repair, Portsmouth (SSPORTS) Environmental Detachment.

A 2001 surface removal action at 5 locations within IR Site 1 resulted in the discovery of 1,079 – 20mm TP projectiles and an empty 40mm grenade casing. Most of these objects were found in large groups in the vicinity of the former pistol range, but some were found in individual units. During activities conducted on IR Site 1 in the years subsequent to the removal action, an additional accumulation of approximately 300 – 20mm projectiles were encountered that appeared to have migrated to the ground surface from debris pits after rain events or heavy surf.

1.3 CONCLUSIONS FROM PREVIOUS STUDIES

The UXO Emergency Removal Action Summary Report for IR Site 1 concluded that *“another apparent ordnance ‘burial site’ was discovered during the surface sweep but it was not excavated since its boundaries could not be accurately defined, and since it was possible to clear ordnance from the surface with some confidence that radiation survey personnel would not disturb additional items. The site is located on the north side of the small arms range at the toe of the backstop berm.”* (SSPORTS, 1998). This report is consistent with the location of the 20mm projectiles that have been found in the years since this removal action.

1.4 SUSPECTED TYPE AND AMOUNT OF MEC AND MPPEH CONTAMINATION

Based on the history of the MRS, including facts obtained from the summary reports of previous actions on the site, both HE-filled and TP 20mm projectiles are likely to be present on site. The expected amount is unknown, and will be determined by the size and contents of the debris pits, the disposal trench, and the former Firing-range Berm.

1.5 PLANNED FUTURE USE OF THE PROPERTY

The TCRA activities will all occur on Alameda Point, which is DON property. IR Site 1 is proposed to be conveyed to the City of Alameda for recreational use. The site will likely be used as a golf course and regional park trail.

1.6 REMEDIATION GOALS

The debris pit(s) and the disposal trench will be excavated in their entirety; that is, debris and material found in those areas will be excavated until native soil that meets removal action objectives (RAOs) as defined in the Action Memorandum (TtEC, 2007) or groundwater is reached. The former Firing-range Berm will also be removed in its entirety. The soil in it will be excavated to ground surface, or when native soil is reached if debris is still present at that elevation. The assessment/removal depth of the debris pits, disposal trench, and the former Firing-range Berm will be the depth where native soil is reached that meets RAOs as defined in the Action Memorandum (TtEC, 2007) or groundwater is encountered, which could be as deep as 8 feet, based on the history of the site.

1.7 TYPE OF MUNITIONS RESPONSE ACTION

The TCRA is being performed in accordance with the Action Memorandum (TtEC, 2007) that addresses MPPEH and radiological point source removal.

2.0 MAPS

A description of each map required by NOSSA is provided below.

2.1 ALAMEDA POINT VICINITY MAP

Figure 1-1 shows the location of Alameda Point relative to the state of California and the locations of IR Site 1 where activities will take place.

2.2 ALAMEDA POINT MUNITIONS RESPONSE SITE MAP

Figure 1-2 better illustrates the location of IR Site 1, and includes the distances to the nearest inhabited building/public traffic route and the Quantity/Distance (Q/D) arc for the magazine planned for use in this project.

2.3 Q/D ARC AND EXCLUSION ZONES

Figures 1-3 and 1-4 show the established Q/D and EZ arcs for the MRS site at IR Site 1, the MPPEH storage and processing magazines, the lay-down pad, and the temporary storage point.

2.4 IR SITE 1 EXCLUSION ZONES

Figure 1-4 illustrates the MRS in relation to IR Site 1 and the EZ associated with it.

2.5 MAGAZINE COMPOUND

Figure 2-1 shows the magazine compound and the distances and EZ/QD arcs associated with them.

2.6 SCREEN PLANT CONFIGURATION

Figure 2-2 is a drawing of the proposed screen plant configuration.

3.0 AMOUNT AND TYPE OF MEC

No live MEC has been found on IR Site 1 since the ERA was performed in 1998, despite over 13,000 inert projectiles having been recovered on different occasions since then. The fact that live projectiles may be encountered cannot be ruled out; therefore, adequate protective precautions will be used in the course of this project to protect project workers and the environment.

3.1 MUNITION WITH THE GREATEST FRAGMENTATION DISTANCE

Based on the results of past characterizations and removal actions, for the purpose of this project, the MEC/MPPEH item selected as the munition with the greatest fragmentation distance (MGFD) is the 20mm HE-filled projectile (M56A4), with a contingency MGFD based on a 40mm M406 grenade.

3.2 ENCOUNTERING MEC OTHER THAN SELECTED MGFD

If MEC is encountered, it will fall into one of three categories:

- MEC item fragment distance less than MGFD
- MEC item fragment distance greater than primary MGFD, but less than contingency MGFD
- MEC item fragment distance greater than primary and all contingency MGFDs

The procedures for each of these situations are found in Section 6.5.1.

4.0 START DATE

Start dates for the activities planned at IR Site 1 are provided as follows:

<u>Activity</u>	<u>Start Date</u>
Mowing/Vegetation removal	February 12, 2007
Surface Sweep	February 20, 2007
Geophysical Survey	February 26, 2007
MPPEH Excavation	March 5, 2007
Radiological Point Source Removal	March 5, 2007
Project end	June 30, 2007

5.0 FROST LINE

There is no frost line in Alameda, California.

6.0 RESPONSE TECHNIQUES

The planned approach for the upcoming MPPEH and radiological source removal is straightforward and uses conventional methodology and technology to achieve the project remediation goals, which is the removal of MPPEH to the best extent possible and radiological sources on the site. Steps to accomplish this include:

- A pre-vegetation cutting surface search of the area(s) around the former Firing-range Berm
- A UXO technician-escorted vegetation cutting of the former Firing-range Berm, disposal trench area, and all areas where radiological point source removal is planned
- A geophysical survey of the former Firing-range Berm, and the area north of the small arms range bordered by San Francisco Bay to the west, the road to the east, and the fence line to the north
- The delineation of boundaries for debris pits and the disposal trench based on the results of the geophysical survey
- The 100 percent mechanized removal of debris and material from the debris pits and disposal trench

- The separation of MEC and MPPEH from the other debris
- The mechanized excavation/removal of the former Firing-range Berm

6.1 CERTIFICATION/VERIFICATION

All MPPEH is considered hazardous and must be managed as class/division (C/D) 1.1 until it is inspected, certified, and verified as safe. At that point it is no longer MPPEH and after demilitarization may be released from Department of Defense (DoD) control.

6.2 VEGETATION CUTTING

A surface search of the MRS will be performed by UXO technicians to determine the limits of surface MEC/MPPEH on site and those boundaries will be marked with surveyor's tape or another suitable method. (UXO avoidance techniques will be used if an intrusive marking method is used.) This portion of IR Site 1 is on the coastline and the vegetation is stunted so the search should be easily accomplished. Because a surface search of IR Site 1 was completed in 2004, mechanized vegetation cutting machinery (brush hog, tractor with cutting deck, etc.) will be used to mow areas outside the perimeter of the MRS. When that has been accomplished, UXO technicians will perform a surface sweep of the MRS and remove all MEC/MPPEH items from the ground surface. They will then escort laborers with portable, powered string trimmers (e.g., weed-whacker) to cut the vegetation on the parts of the MRS that require it (sides and top of berm, area under tree, etc.).

6.3 GEOPHYSICAL SURVEY

Following the surface sweeps and the vegetation cutting, a geophysical survey will be conducted to identify the location and boundaries of the debris pits (both on and off the berm) and the disposal trench. A UXO technician will escort the geophysicist(s) during the survey when near the area suspected to contain the debris pits.

The location of the disposal trench is unknown, but is believed to lie in a location west of the road that traverses the site and north of the small arms range. The geophysical survey will use these boundaries for the initial data collection (road/coastline, small arms range/fence line). If the location of the trench cannot be determined after processing and interpreting the data, the search area will be expanded eastward after consulting with the project geophysicists and DON representatives.

Where accessible, the entire former Firing-range Berm will be surveyed. The steep incline of the western slope may prevent surveying activities on that part of the berm. The geophysical map produced from the trench-location survey and from the berm survey should reveal all potential debris pits where MEC/MPPEH may be concentrated.

Survey control will be established and used to provide precise positional data. To delineate the debris pit(s) and disposal trench boundaries, the geophysical data collection will use a Geonics EM61 time-domain electromagnetic instrument or a Geonics EM-31 MKII ground conductivity meter, or a combination of the two. Both will be supported by the Allegro CX field data logger and a Leica Differential Global Positioning System (DGPS) to provide precise location coordinates, if required, and debris pit/trench boundaries. The systems are certified under the DON's Hazards of Electromagnetic Radiation to Ordnance program.

The geophysical and DGPS data will be concatenated, processed, and a geophysical map will be generated that identifies debris pit/trench boundaries and the position, depth, and estimated size of significant subsurface anomalies. The map and a DGPS receiver will be used to delineate the perimeters of pits/trenches and/or mark any anomalies of interest.

Anomaly discrimination and reacquisition activities are not planned for this project, and due to the nature of the intended geophysical survey, TtEC does not intend to perform a geophysical prove-out to demonstrate the detection capabilities of the geophysical system. The debris pits and disposal trench are expected to contain significant amounts of metal at relatively shallow depths, and the proposed instrumentation should be able to easily detect these anomalous areas. TtEC will perform daily instrument calibration and/or functionality checks to ensure that the instrumentation is operating properly and is within specifications. The geophysical instrument(s) will be run over a known target at the beginning of each file to ensure proper operation.

6.4 MEC/MPPEH REMOVAL

Operators of mechanized equipment will be provided blast overpressure protection of K24 and fragment protection. Q/D and fragment protection materials are discussed in Section 7. EZs applicable to equipment operators, UXO and Radiological Control Technician (RCT) personnel are also found in Section 7.

The excavation of the debris pit(s) and the disposal trench will cease when native soil that meets RAOs as defined in the Action Memorandum (TtEC, 2007) or groundwater is reached, and a hand-held magnetometer (i.e., Vallon, White, etc.) indicates that metallic debris is no longer present in the excavation. The soil in the former Firing-range Berm will also be removed with armored earth-moving machinery (EMM).

6.4.1 Removal Action Methodology

Three distinct areas are planned for excavation within IR Site 1: the disposal trench where radiological sources reportedly have been buried, debris pits where HE and TP 20mm projectiles are known to exist, and the former Firing-range Berm, a part of which is suspected to also contain MEC/MPPEH items. MEC/MPPEH items are not anticipated to be found in the radiological

disposal trench. The potential presence of MEC/MPPEH in the disposal pits and former Firing-range Berm will require slightly different processes to protect UXO and RCT personnel.

The first step in the MEC/MPPEH and radiological source removal process is the manual survey of the top 6 inches of soil with hand-held radiological instruments and magnetometers. RCTs will conduct the radiological survey and UXO technicians may assist them with magnetometers (for metal sources), if required. For the areas known and suspected to contain MEC/MPPEH items, a barricade will be installed for UXO and RCT personnel to take shelter behind when the actual excavation of the soil is taking place. The procedures are described below.

6.4.2 Disposal Trench

Prior to the start of excavation, the approximate boundaries of the disposal trench will be delineated and marked with tape, paint, lath, etc. (If an intrusive marking method is used, a UXO technician will perform anomaly avoidance procedures before the markers are installed.) The excavation will begin at a boundary of the trench and proceed inward. The top 6 inches of soil in the excavation area will be surveyed for radiological items, and if any are found, they will be hand excavated and placed in a storage container. When the survey of the first layer is complete, EMM will remove the top 6 inches of soil in the excavation area (this may be accomplished by scraping, excavating, etc.) and place it in a dump truck. When the truck is full, the excavated soil will be transported to a lay-down area that will be installed at a location that exceeds the minimum separation distance for explosives safety, spread in a 6-inch layer, and surveyed a second time for radiological sources. When the entire layer of soil has been surveyed twice for radiological sources, the soil will be removed from the lay-down pad and transported to the stockpile area.

A radiological survey of the next 6 inches of soil in the excavation will then be accomplished; and when complete, EMM will remove the next 6 inches of soil, transport it to the lay-down pad, spread it in another 6-inch layer, and it will be surveyed for radiological anomalies again. This process will be repeated until the trench is completely excavated and native soil that meets RAOs as defined in the Action Memorandum (TtEC, 2007) or groundwater is reached.

If MEC/MPPEH is encountered in the disposal trench, the Senior Unexploded Ordnance Supervisor (SUXOS) will direct that the excavation cease, establish an appropriate EZ as described in Section 6.5 and notify the Project Manager (PjM).

6.4.3 Debris Pits

The process for excavating the burial pits will be nearly identical to that used for the disposal trench, with the addition of a barricade that provides fragment protection for RCT personnel and UXO technicians when the soil is excavated (see Section 7). The process will proceed as follows:

- The boundaries of the pit(s) will be marked and the entire area inside the pit perimeter will be surveyed for radiological sources that will be hand excavated and placed in a container if found. (UXO technicians will use anomaly avoidance techniques during each intrusive dig for marking or hand excavation).
- UXO and RCT personnel will then take shelter behind a barrier located outside the swing radius of the EMM being used for the excavation. The construction of the barrier is discussed in Section 7.
- The equipment operator will remove the top 6 inches of soil within the boundary markers and place it in a dump truck.
- The UXO technician(s) will then return to the excavation and check it to see if MEC/MPPEH was unearthed. If the excavation is clear, the RCT(s) will return, survey the next 6 inches of soil, and all will relocate behind the barricade while the next 6 inches of soil is removed.
- If a radiological source is detected, a UXO technician will survey the location with a metal detector. If metal is detected, the RCT will relocate behind the barricade while the UXO technician hand excavates the anomaly using appropriate procedures (i.e., digging behind the anomaly and gaining access from the side). If the anomaly is not MEC/MPPEH, the RCT will return to the excavation and remove the radiological source. If there is extensive metallic contamination in the excavation to the point that the magnetometer is saturated, the UXO technician and RCT will take station behind the barrier and the EMM operator will remove 6 inches of soil in the location of radiological source and layer it next to the excavation. The RCT will survey the layered soil and debris to locate the radiological source.

This process will be repeated until the burial pit is completely exhumed and the magnetometer indicates that nothing metallic lies beneath the floor of the pit.

6.4.4 Former Firing-range Berm

Only the northern portion of the backstop berm is suspected to contain buried MEC/MPPEH items, and the geophysical survey of the berm should show their precise locations. The area containing buried debris will be marked on the ground surface (lath, stakes, caution tape, etc.), and this area will be excavated last. (Anomaly avoidance procedures will be used if an intrusive marking method is used.)

The excavation of the berm will be conducted in a manner similar to the trench and pit excavation. The vegetation on the berm will be cut as near to the ground as possible. Beginning at the southern end of the berm, RCT personnel will survey the top 6 inches of soil on the top of the berm for radiological sources and hand excavate them if found. EMM will remove the top 6 inches of the berm and place it in a dump truck. The next 6 inches of soil will be surveyed, and that layer of soil removed. This process will be repeated until the southern portion of the berm is removed.

On the portion of the berm suspected to contain buried debris, the procedures used for the disposal pit excavation will be used.

All of the soil will be transported to the lay-down pad, layered, and surveyed again for radiological sources. After the survey on the lay-down pad, the soil will be transported to the screening plant stockpile. This process will be repeated until the berm has been removed.

Recovered MPPEH items will be placed in a container at a temporary collection point awaiting transportation to the magazine. The collection point will be located on the paved area adjacent to the target line near the northern toe of the former Firing-range Berm. The MPPEH items will be stored in wooden boxes (or other suitable containers). Near the end of each work day, the accumulated items will be counted, photographed, entered into the UXO acquisition log, and stored in the magazine until the certification/verification process is completed. These activities will take place in the MPPEH processing area.

6.5 SOIL SCREENING

The soil and debris from the debris pits and the former Firing-range Berm will be processed through a screening plant. The screening plant is anticipated to be a Trommel equipped with a 6-inch grizzly and a rotating drum (approximately 6 feet in diameter and 25 feet long) fitted with ¾-inch screens. (A Trommel screening plant with 2 screen drums may be used if one can be located.) The ¾-inch screen size will prevent 20mm projectiles from passing through it. The excavated soil/debris will be processed as follows:

- Loaders will place the soil atop the feed hopper grizzly. All soil clumps and objects larger than 6 inches will drop off the back of the grizzly, while soil and debris smaller than 6 inches in size will drop into the feed hopper, where it will be transported, via a conveyor, to the Trommel.
- Soil and debris larger than ¾-inch will be transported out of one end of the Trommel drum. As shown in Figure 2-2, a conveyor will be placed there, which will move the material to a stockpile. A UXO technician will monitor the oversized materials on the conveyor for MPPEH items.
- Soil and objects smaller than ¾ inches (the “fines”) will pass through the Trommel screen and be carried by conveyor to another stockpile.

The UXO technician(s) monitoring the oversized materials from the Trommel as they travel down the conveyor will be stationed on an observation platform equipped with Lexan or plexi-glass shields and a “kill switch” to halt the screen plant if MEC/MPPEH items are observed. A quality control (QC) check of both the >6-inch and >¾-inch stockpiles will be performed and is discussed in Section 6.6. Figure 2-2 provides a drawing of the planned screening plant configuration.

A loader may be used to return soil clumps and other debris that do not break down in the Trommel to the feed hopper for reprocessing. Items that do not break down after several passes through the screen plant will be inspected with radiological instruments and metal detectors to determine if MEC/MPPEH or radiological items might be present inside the clumps. Those clumps that test positive for metal and/or radiation will be disassembled with armored EMM by cutting them into small segments with EMM buckets or crushing them with the tracks and/or buckets.

6.5.1 MEC and MPPEH

EZs will be established prior to operations in areas where an MGFDF has been identified and are discussed in Section 7.

MEC Procedures

If UXO technicians encounter a MEC item, excluding those classified as MPPEH during any step of the removal and screening process, they will direct that work be stopped and will notify the SUXOS. The SUXOS will then confirm the item's identity and if the EZ must be expanded, will consult with NOSSA N54, and then direct that the EZ be adjusted accordingly. The SUXOS will also make required notifications (PjM, RPM, Resident Officer in Charge of Construction, Caretaker Site Manager, Alameda Police, etc.), and one of the Bay Area Explosive Ordnance Disposal (EOD) Detachments (U.S. Air Force at Travis, U.S. Army at Moffett) will be requested to respond. The contact information for the EOD Detachments is found in standard operating procedure (SOP)-1, which is maintained in the project field office. . While waiting for the EOD response, the SUXOS will supervise the preparation of the site for their arrival by placing barricades on the road at the EZ boundaries, photographing the MEC item, recording pertinent information, etc. When EOD personnel arrive, the project UXO technicians will provide assistance as necessary.

Encountering MEC with a Greater Fragment Distance than the MGFDF or Contingency MGFDF

If, while executing a munitions response, a MEC item is encountered with a greater fragmentation distance than the selected MGFDF or a greater fragmentation distance than the contingency MGFDF, the SUXOS will direct the cessation of removal operations and contact the PjM and UXO coordinator. The PjM will notify the DON Remedial Project Manager (RPM) and direct the UXO coordinator to liaise with NOSSA N5 to request permission to proceed after an EZ appropriate to the MEC item found is put in place, and to submit an amended ESS.

Encountering MEC with Approved Contingency MGFDFs

If a MEC item with a greater fragmentation distance than the selected MGFDF is encountered, the arcs and distances for the contingency MGFDF will be installed and the PjM will: (1) select a new

MGFD with a fragmentation distance greater than the MEC encountered from the list of contingency MGFDs in the ESS; (2) implement the increased protection required by the new MGFD; and (3) notify NOSSA N54 of the change in MGFD. If the newly encountered MEC has a MGFD less than the contingency MGFD, the PjM may submit a revised ESS to NOSSA N54. NOSSA shall provide the PjM with EZs specific to the new MGFD following guidance found in Department of Defense Explosives Safety board (DDESB) Technical Paper 16 *Methodologies for Calculating Primary Fragment Characteristics* (DDESB, 2003). The change in the MGFD will be documented in the After Action Report.

MEC Processing, Storage and Demilitarization.

The MPPEH Processing and Storage Location (Magazine M354) will be used for the certification and verification process, where each item will receive a dual inspection and receive an explosive safety designation of 5X and safe. Following the inspections, the required documentation will be completed and the items stored in a drum or other suitable container. 5X material will not be commingled with items that have not undergone the certification/verification process. These activities are planned to take place inside Magazine M354.

When the removal action is complete, and all recovered 20mm TP projectiles will be demilitarized by cutting them into pieces. This will be accomplished inside Magazine M353 with a hydraulically operated re-enforcing bar cutter that can cut up to 10 projectiles at once. The cutter will be placed inside the magazine and a metal sheet will be installed between the cutter and the magazine door. The cutter will be remotely operated outside the magazine, behind the magazine wall. Each projectile will be cut into two or three pieces. This procedure is valid for 20mm projectiles only.

6.6 QUALITY ASSURANCE/QUALITY CONTROL

This section provides an overview of significant QC information as it applies to the ESS. Specific and detailed components of the quality assurance (QA)/QC program have been finalized in the Site-specific Contractor Quality Control (CQC) Plan. The information presented below has been approved for contractor MPPEH work at the site under the TCRA.

Contractor Organization

QC is conducted using a three-phase control process that consists of preparatory, initial, and follow-up inspections. These are performed to ensure that processes are in control and opportunities for improving processes are captured and implemented. The three-phase QC program is based on the three phases of contractor QC procedures. Each significant activity identified as a definable feature of work at the site undergoes the three-phase control process.

QC inspectors who have stop-work authority and are organizationally independent from the processes are assigned to conduct QC inspections. The project is supported by a Program QC Manager who will visit the site on a regular basis.

The contractor PjM, Site Superintendent, and SUXOS are all committed to ensuring that the QC process is maintained. This level of commitment is implicit in the job description and the individual qualifications for the position.

Quality Assurance/Quality Control Processes

Each component of site work has a built-in QC function to ensure that safe work practices are followed, the provisions of the established plans are adhered to, and collected data is accurate and defensible. Detailed QA/QC procedures are outlined in the CQC Plan and in SOP-1, MPPEH Removal for the phases of the project.

Lot Acceptance and Rejection Criteria

Three debris streams will emerge from the Trommel, specifically:

- Objects larger than 6 inches that will accumulate below the grizzly
- Objects larger than $\frac{3}{4}$ inches that will leave the Trommel at the end opposite the feed hopper
- Objects smaller than $\frac{3}{4}$ inches (fines) that will leave the Trommel via a conveyor emerging from the side of the Trommel

The fines should not contain MEC/MPPEH items because of the size of the Trommel screens. The other debris streams (“overs”) may contain MEC/MPPEH items of 20mm projectile size and larger. The conveyor carrying the smaller overs stream ($>\frac{3}{4}$ inch) will be monitored by UXO technicians for MEC/MPPEH items. The $>\frac{3}{4}$ inch overs will agglomerate in a stockpile at the end of a conveyor, and the overs stream >6 inches will be form a stockpile at the base of the grizzly.

Both of the overs piles will be sampled for MEC items. Front-end loaders with 2-cubic-yard buckets and dump trucks with 20-cubic-yard boxes (10 buckets per truck) will be used to move the overs stockpiles. The unit of production for this sampling plan will be the bucket, and a number of these will make up a lot. A lot size of 40 buckets (4 dump trucks) is recommended for this project. This will provide a more economical level of rework if a sample fails inspection and the entire lot has to be re-screened.

When the overs stockpiles grow to approximately 20 cubic yards, they will be loaded into dump trucks, transported to the lay-down pad, and deposited there in separate stockpiles (>6 inches and $>\frac{3}{4}$ inches). When four dump truck loads have been added to each of the piles, they will be sampled for MEC/MPPEH. An armored front-end loader will remove 2 buckets (4 cubic yards, 10 percent of the accumulated soil and debris) from random locations in each stockpile and

spread it in a 6-inch layer on the lay-down pad. QC inspectors will complete a QC lot inspection of the sample for radiological sources and MEC/MPPEH. If neither are found, the lot is accepted and the entire stockpile may be relocated from the lay-down pad to “clean” stockpiles. If a MEC/MPPEH item is found, the lot is rejected and the entire stockpile must be re-processed through the Trommel. If a radiological source is found, the lot is also rejected, and the entire stockpile must be placed in a 6-inch layer on the lay-down pad, manually surveyed with radiological instruments, and sampled again.

Instrument Functionality Tests

All-metal detectors will be used on this project. A test plot with both ferrous and non-ferrous items will be installed and will be used to ensure that the instruments are capable of detecting all the surrogate MEC/MPPEH items upon initial receipt of the instruments, and daily, before work activities commence. The results of every functionality test will be recorded in the project QC log.

Demilitarization Inspection

A count of the projectiles will be maintained as they are demilitarized and the UXO QC person will inspect 10 percent of the demilitarized projectiles in each lot. The lot size will be selected based on the cutter used, and will either be numerical (i.e., 500, 1000) or time-driven (i.e., 1 hour, 3 hours, etc.). If a projectile is found in a lot that is not demilitarized, or demilitarized incorrectly, the lot is rejected and will require a 100 percent inspection by the UXO QC.

7.0 QUANTITY/DISTANCE

ESQD arcs and EZs will be established for this project and are explained in the sections that follow. The application of contingency MGFs are addressed in Sections 3.2 and 6.5.1.

7.1 MPPEH PROCESSING AREAS

Two barricaded undefined earth-covered magazines (ECMs) M353 and M354 are located in the magazine compound situated between IR Sites 1 and 2, and both magazines are currently empty. Previous authorization for use of Magazine M354 for the storage of UXO was granted by the Naval Ordnance Center in a letter (8020, Ser N7112/720) to the SSPORTS on November 6, 1998, (see copy of the letter in Attachment 1) for the storage of 15,000 pounds NEW for C/D 1.1 explosives.

Magazine M354

It is requested that ECM M354 be site approved as a processing facility to manually inspect/certify and store 100 pounds net explosive weight (NEW) of C/D 1.1 and inert materials based

on the following ESQD arcs: interline (IL) K18 distance for front of 84 feet, sides of 74 feet, and rear of 56 feet; public transportation route (PTR) distances for side and rear of 150 feet and front of 300 feet; and inhabited building distance (IBD) for side and rear of 250 feet and front of 500 feet. ESQD is met since M353 is separated from M354 by 522 feet, and meets K18 IL separation with no PTR or IBD encumbrances. The Naval Facilities Engineering Command site approval request forms are provided in Attachment 2.

Magazine M353

It is requested that ECM M353 be site approved as a processing facility to remotely cut up to ten 20mm projectiles at a time using a rebar cutter. The MEC for this operation is based on ten 20mm M456A4 projectiles (0.03 pounds NEW of C/D 1.1 material per item) or 0.3 pounds NEW C/D 1.1 material based on the following ESQD arcs: IL K24 distances of 17 feet; PTR distance of 120 feet based on 60 percent of the hazardous fragment distance (HFD); and IBD of 200 feet based on the HFD. The following engineering designs, based on the fragmentation data review forms provided in Attachment 3, will further mitigate the hazards associated with primary fragments due to an unintentional detonation during the cutting operation:

- The rebar cutter will be located inside ECM M353 with a 0.25-inch by 6-foot by 4-foot sheet of mild steel plate placed 2 feet from the cutter, between the cutter and the ECM door. The ECM and steel plate will contain the primary fragments.

ESQD is met since M353 is separated from M354 by 522 feet and meets K24 IL separation, and there are no PTR or IBD encumbrances. The remote controlled operating station will be located at least 17 feet from the magazine door. To facilitate an efficient operation, a total of 1,000 – 20mm projectiles or NEW of 30 pounds C/D 1.1 may be staged on the walkway between M353 and M354 provided the staging area is at least 17 feet from the entrance to M353. The site approval request is provided in Attachment 2.

Screening Plant

It is requested that a remote-controlled mechanized earth-screening facility, to be located within the footprint of the Munitions Response Site (MRS), be site approved for MEC based on one 20mm M456A4 projectile or 0.03 pounds NEW of C/D 1.1 material based on the following ESQD arcs: IL K24 distances of 8 feet; PTR distance of 120 feet based on 60 percent of the HFD; and IBD of 200 feet based on the HFD. Operators will be located at least 8 feet from the screen plant and be provided with 2.25 inches of Lexan or 1.25 inches plexiglass for protection from hazardous fragments per Attachment 3. ESQD is met since the screening plant is separated from the nearest potential explosion site by 222 feet and meets K24 IL separation, and there are no PTR or IBD encumbrances.

Temporary Collection Point

It is requested that a temporary storage/collection point, to be located within the footprint of the MRS, be site approved for MEC based on an accumulation of 1,000 – 20mm M456A4 projectiles or a NEW of 30 pounds of C/D 1.1 material based on the following ESQD arcs: IL K18 distances of 56 feet; PTR distance of 120 feet based on 60 percent of the HFD; and IBD of 200 feet based on the HFD.

7.2 MUNITIONS RESPONSE SITE (MRS)

The northern toe area of the former Firing-range Berm, the temporary collection point and the screen plant location is considered the MRS for this project and is shown in Figures 1-4 and 2-2. If needed (i.e., MEC or MPPEH is discovered), EZs will be established for the disposal trench site. Removal and screening actions will involve both manual and mechanized operations, and the EZs are based on the following MGFs:

**TABLE 7-1
MUNITION BLAST AND FRAGMENT DISTANCES**

Munitions with Greatest Fragment Distance (MGFD)				Maximum Detonation		
Item	Net Explosive Weight (NEW) (pounds)	Hazardous Fragment Distance (HFD) (feet)	Maximum Fragment Distance (MFD)(feet)	K328 (feet)	K40 (feet)	K24 (feet)
40mm M406	0.071*	200*	345*	136	17	10
20mm M456A4	0.03*	200*	558*	102	13	8

Notes:

* Values from Technical Paper 16 (DDESB Website 1/31/07).

- 1) Unintentional detonation EZ for Team Separation Distance (TSD) for manual operations is K40 of the MGF. Use 13 feet for a 20mm and 17 feet for a 40mm projectile.
- 2) Unintentional detonation EZ for TSD for mechanized operations is the greater of HFD or K24 of the MGF. Use 200 feet for a 20mm or a 40mm projectile.
- 3) Unintentional detonation EZ for public and non-essential personnel for manual operations is the greater of K40 or HFD of the MGF. Use 200 feet for a 20mm or a 40mm projectile.
- 4) Unintentional detonation EZ for public and non-essential personnel for mechanized operations is identical to the intentional detonation EZ for public and all personnel of the MGF. Use 558 feet for a 20mm or a 40mm projectile.
- 5) Intentional detonation EZ for public and all personnel is the greater of K328 or MFD of the MGF. Use 558 feet for a 20mm or a 40mm projectile.
- 6) Mechanized equipment operators will be provided both blast overpressure protection separation distance based on K24 and shielding from hazardous fragments. Use 8 feet for a 20mm projectile and 10 feet for a 40mm projectile separation for blast overpressure, ensuring the operator in the cab is at least 8 feet or 10 feet from the point of excavation, or truck tailgate. Use 1.25 inches concrete, 0.25 inch mild steel, 2.25 inches Lexan or 1.25 inches plexiglass for fragment protection for 20mm or 40mm projectiles per Attachment 3.

7.3 PROTECTIVE AND ACCESS CONTROLS

The contractor will provide separation distance and shielding as required, establish EZs based on the process(es) being conducted, and ensure that related personnel, unrelated personnel, and the public are prohibited from entering those EZs. The north-south access gates and eastern fence line of IR Site 1 are all located beyond the EZ perimeter. These gates will remain locked while investigation/excavation work is being performed and a gated fence separates the main air station from the runway and tarmac areas. This gate also remains locked except for entering and exiting the tarmac areas. The EZs do not encumber a navigation channel; however, patrol boats will be deployed to prevent recreational boaters from entering the EZs if required.

8.0 OFF-SITE DISPOSAL

Military EOD personnel will respond for all MEC items encountered and either detonate them on site or transport them to their bases for later treatment. Recovered TP projectiles will be demilitarized by cutting them in half with a remotely operated cutter. Following that operation, the metal fragments will be placed in drums, sealed, and disposed of in an approved landfill. The forms and records used to document the certification/verification process, the demilitarization, and the chain of custody through to the disposal facility will be retained in the project files for no less than 3 years.

The excavated soil and debris from the former Firing-range Berm and debris pits will be processed through a screening plant to remove MPPEH items and then disposed of off-site.

9.0 ENVIRONMENTAL CONSIDERATIONS

The planned work activities on IR Site 1 will not adversely affect wildlife or plant species native to the sites. Critical habitat will not be removed or damaged. A brief description of wildlife and wetlands is provided below for each of the sites.

9.1 WILDLIFE AND PLANT SPECIES

The runway tarmac, located approximately ½ mile southeast of IR Site 1, provides an important nesting habitat for sensitive species such as the California least tern (*Sterna antillarum browni*). This area falls outside the boundaries established for IR Site 1, and will not be impacted by the any of the work planned for this project.

Grasses are the dominant vegetation for IR Site 1 and feral rabbits, black-tailed jackrabbits, Canada geese, and European starlings are the dominant animal species on these sites. No listed or sensitive species are identified as inhabiting the area within the boundaries of the sites.

Wildlife species that are federally listed as endangered or threatened could potentially occur on any of the sites, based on their presence at similar areas in Alameda County. These species include the winter-run chinook salmon, tidewater goby, California brown pelican, California clapper rail, western snowy plover, California least tern, American peregrine falcon, Steller sea lion, and salt marsh harvest mouse. None of these species are known to currently inhabit the site, and they should not be affected by planned activities. The open water area adjacent to IR Site 2 is a wintering area for migratory birds and provides a resting and feeding habitat for waterfowl during the winter. The work planned for IR Site 1 should not affect any of the migratory waterfowl or water birds found offshore.

9.2 WETLANDS PROTECTION

Seasonal wetlands exist on IR Site 1 but they are all located east of the road that crosses the site, where no work will occur. The Project Biologist will inspect the site prior to beginning vegetation clearance activities to ensure that this status has not changed. Personnel assigned to the project will be directed to remain outside the area east of the road.

9.3 WILDLIFE PROTECTION

Wildlife species most susceptible to project activities include shorebirds and small mammals. These species may be adversely affected by the mowing of existing vegetation to a 4-inch height. To minimize impacts to these species, no cutting will occur during the peak of the nesting season (April 1 – August 31). This project is planned to commence in February 2007, long after the 2006 nesting season has ended, and well before the 2007 season has begun.

To prevent direct impacts to any special-status species, an environmental survey will be conducted by a qualified wildlife biologist not more than 48 hours prior to the start of field activities to confirm that federally listed species are not residing within the limits of the project activity areas.

9.4 PLANT COMMUNITY PROTECTION

None of the plant species found within IR Site 1 are state or federally listed. Some vegetation will be mowed to a maximum height of 4 inches to facilitate the surface sweep, geophysical and radiological surveys, investigations, excavations, and other planned activities.

10.0 TECHNICAL SUPPORT

Two military EOD Detachments in the San Francisco Bay area are responsible for responding to off-base situations involving military munitions. They are the 77th Ordnance Company on the former NAS Moffett Field (650-603-8301) and the 60th Civil Engineering Squadron on Travis Air Force Base (707-424-2040). Both of these units have responded to other Bay Area project sites in the past and both have been contacted and made aware of the work that will take place on the Alameda Site.

MPPEH operations will be conducted by UXO technicians on TtEC's staff. All assigned UXO technicians surpass the minimum qualification standards identified in the DDESB Technical Paper 18 (DDESB, 2004) for personnel performing UXO-related operations (with the exception of DoD EOD personnel). Both the Project and the Site Geophysicists exceed the qualifications required in the U.S. Army Data Item Description OT-025 (U.S. Army Corps of Engineers, 1999).

There are no security forces on the former NAS Alameda. The Alameda Police Department is the primary law enforcement agency for the area and the Alameda Fire Station provides fire support. Both can be reached by calling 9-1-1.

High-security locks will be used to secure both of the magazines that will be used for this project, and the fenced compound the magazines are in will also be kept locked. A fence stretching from the Oakland inner harbor to the Alameda seaplane lagoon restricts access to the former air station and all of the gates along its length remain locked.

11.0 LAND USE RESTRICTIONS

There are no land use restrictions or other institutional controls placed on any of the property within IR Site 1.

12.0 PUBLIC INVOLVEMENT

Activities pertaining to community relations will be conducted to inform the public about the ongoing activities and to encourage involvement in the review of relevant documents and discussions regarding the proposed removal action.

12.1 PUBLIC INFORMATION

The ESS and other documentation associated with these activities will be contained in the administrative records for IR Site 1. The Administrative Record for Alameda Point is located at the Base Realignment and Closure Program Management Office West, 1455 Frazee Road, Suite 900, San Diego, California 92108-4310.

12.2 PUBLIC PARTICIPATION

The DON established a Restoration Advisory Board (RAB) for this base to encourage local participation in the hazardous waste cleanup program at former NAS Alameda. This board is a citizen-based committee representing local community interests. All meetings are advertised locally in an effort to encourage public attendance and participation. RAB meeting agendas, minutes, and presentation materials are included in the administrative record for public review. Attendance at the RAB meetings fluctuates as does their interest in the many projects in progress simultaneously on Alameda Point. There was public interest in the explosives safety aspects of the ERA and TCRA that occurred in 1998 and 2002, but interest has waned since then, the topic is seldom discussed, and has not appeared on a RAB agenda for the past several months.

13.0 REFERENCES

Department of the Army. 2006. Letter correspondence. Subject: Safety Alert 01-06, 20mm Minimum Separation Distance (MSD) Change. November 28.

Department of Defense Explosive Safety Board (DDESB). 2003. *Methodologies for Calculating Primary Fragment Characteristics*. Technical Paper No. 16, Revision 1. Alexandria, Va. December 1, <http://www.ddesb.pentagon.mil/techpapers.html> (accessed 1/31/07).

———. 2004. *Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel*. Technical Paper No. 18. Alexandria, Va.

Naval Ordnance Safety and Security Activity (NOSSA). 2004. *Military Munitions Response Program Oversight*. Indian Head, Md. March 8.

Naval Sea Systems Command (NAVSEA). 2006. *Ammunition and Explosives Ashore; Safety Regulations for Handling, Storing, Production, Renovation and Shipping*. NAVSEA OP 5, Volume 1, Seventh Revision, Change 5. HQ NAVSEA, Washington Navy Yard, Washington, D.C. June 1.

Supervisor of Shipbuilding, Conversion and Repair, Portsmouth (SSPORTS). 1998. *Unexploded Ordnance Removal Action, Installation Restoration Site 1, Alameda Point – Alameda, California, Summary Report*. Vallejo, California.

Tetra Tech EC, Inc. (TtEC). 2007. *Final Action Memorandum, Installation Restoration Sites 1, 2, and 32, Alameda Point, Alameda, California*. January 31.

U.S. Army Corps of Engineers. 1999. Data Item Description OT-025. August 25.

FIGURES

DRAWING NO:
07032711.DWG

DCN: ECSD-RACIV-07-0327
CTO: #0015

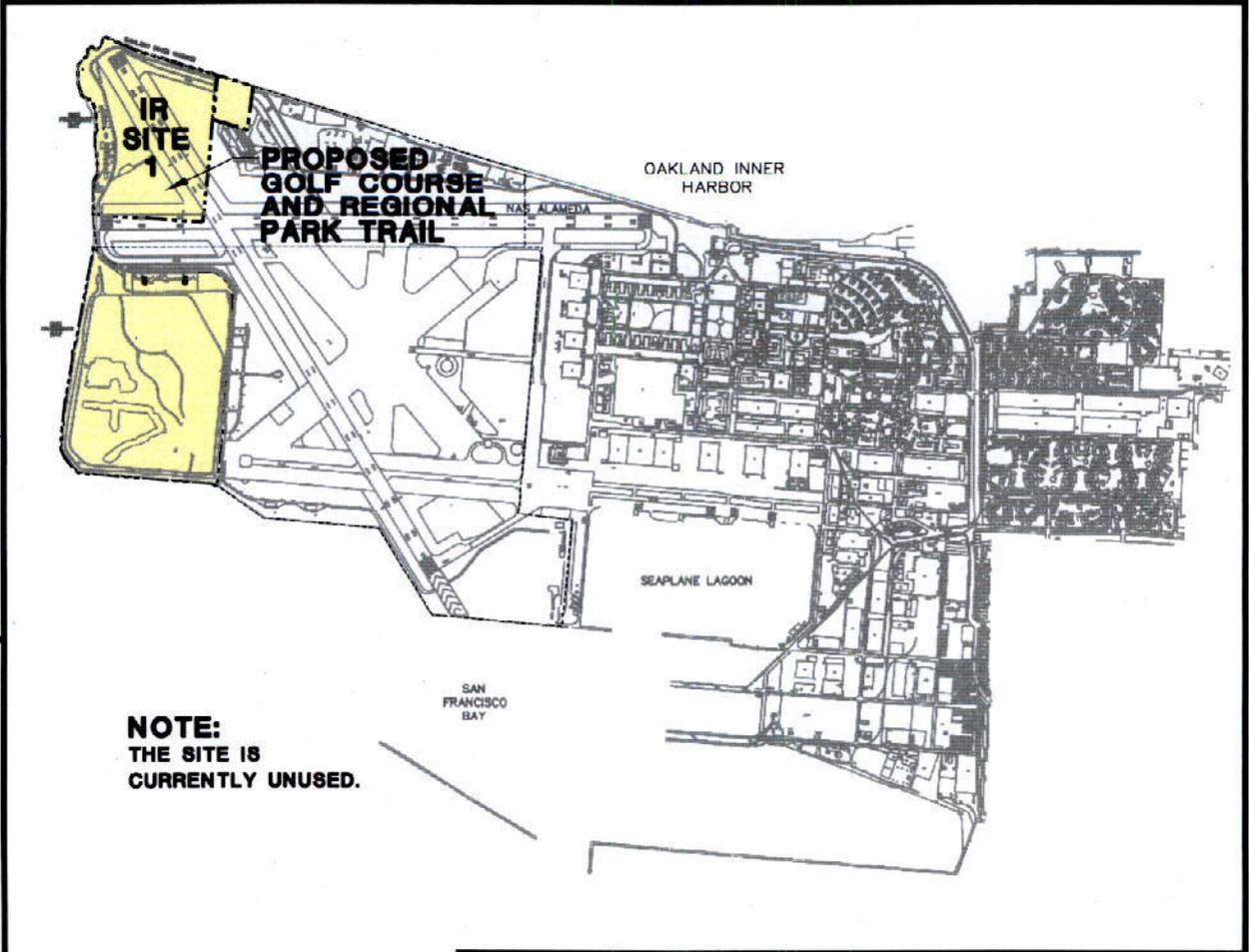
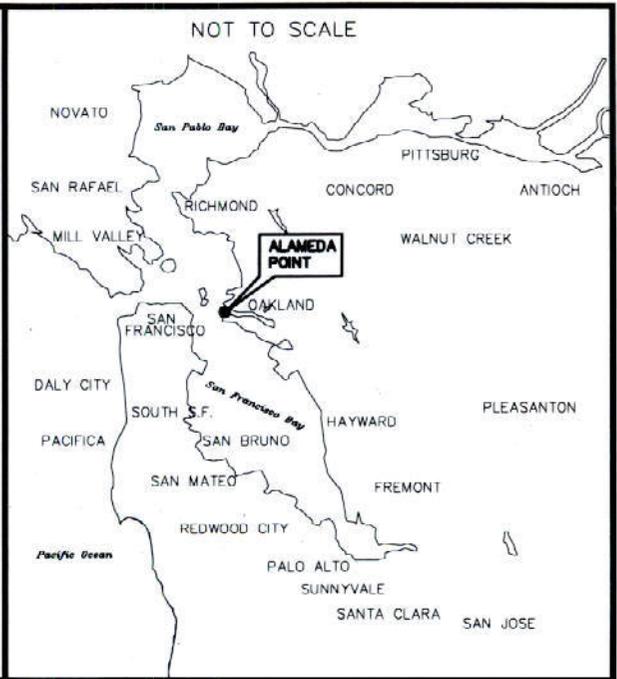
APPROVED BY: AE

CHECKED BY: LH

DRAWN BY: MD

DATE: 03/02/07
REVISION: 1

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PLOT/UPDATE: JAN 15 2007 16:57:13



NOTE:
THE SITE IS
CURRENTLY UNUSED.



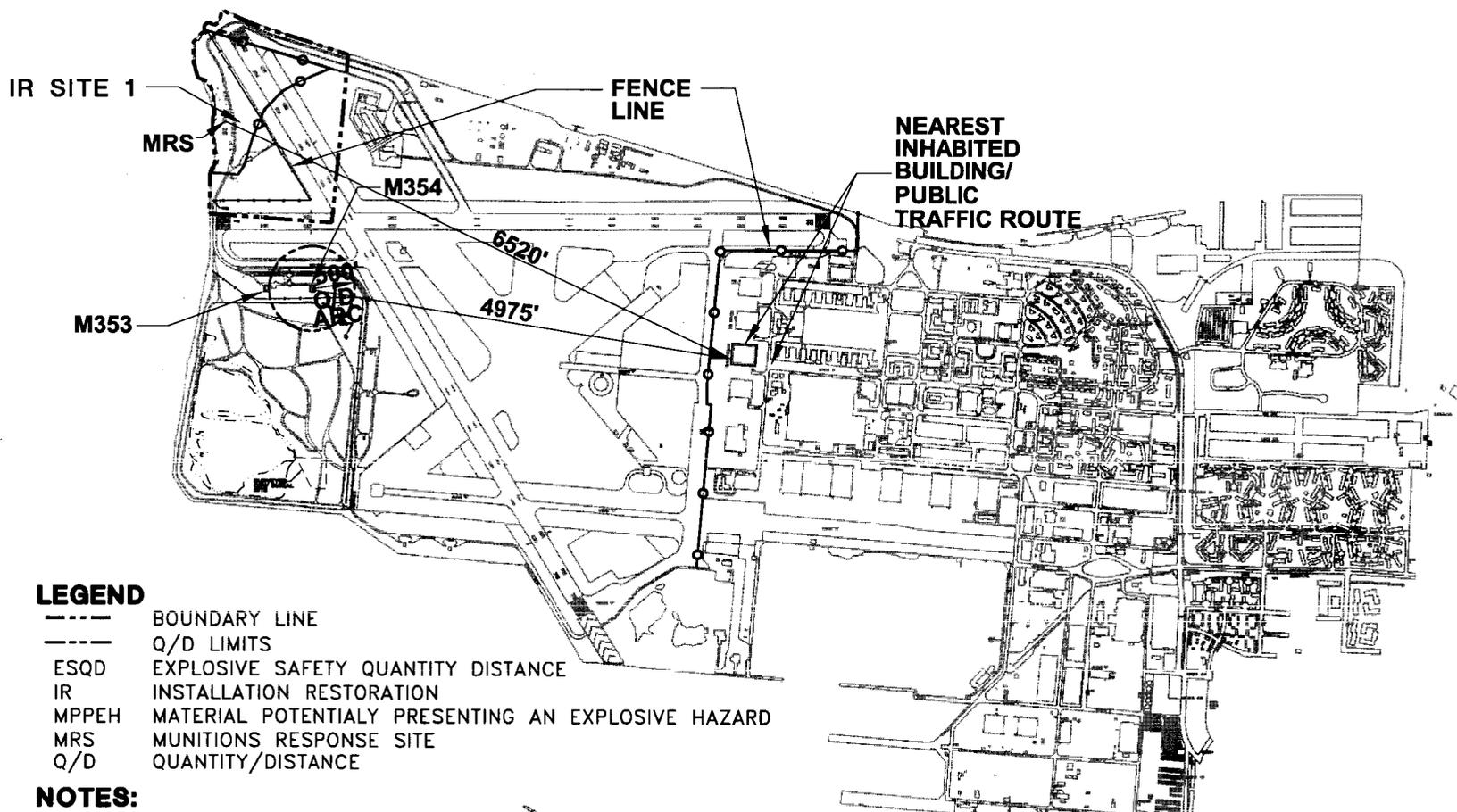
Figure 1-1
ALAMEDA POINT VICINITY MAP

IR SITE 32 AND THE SHORELINES OF IR SITES 1 AND 2
ALAMEDA POINT - ALAMEDA, CA



TETRA TECH EC, INC.

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DATE: 03/02/07	REV: REVISION 1	CTO: #0015	07032712.DWG	



LEGEND

- BOUNDARY LINE
- Q/D LIMITS
- ESQD EXPLOSIVE SAFETY QUANTITY DISTANCE
- IR INSTALLATION RESTORATION
- MPPEH MATERIAL POTENTIALY PRESENTING AN EXPLOSIVE HAZARD
- MRS MUNITIONS RESPONSE SITE
- Q/D QUANTITY/DISTANCE

NOTES:

1. MAGAZINE M354 USED FOR MPPEH STORAGE.
2. MAGAZINE M353 USED FOR MPPEH PROCESSING.
3. MAGAZINE M354 ESQD SHOWN.

Figure 1-2
ALAMEDA POINT MUNITIONS RESPONSE SITE

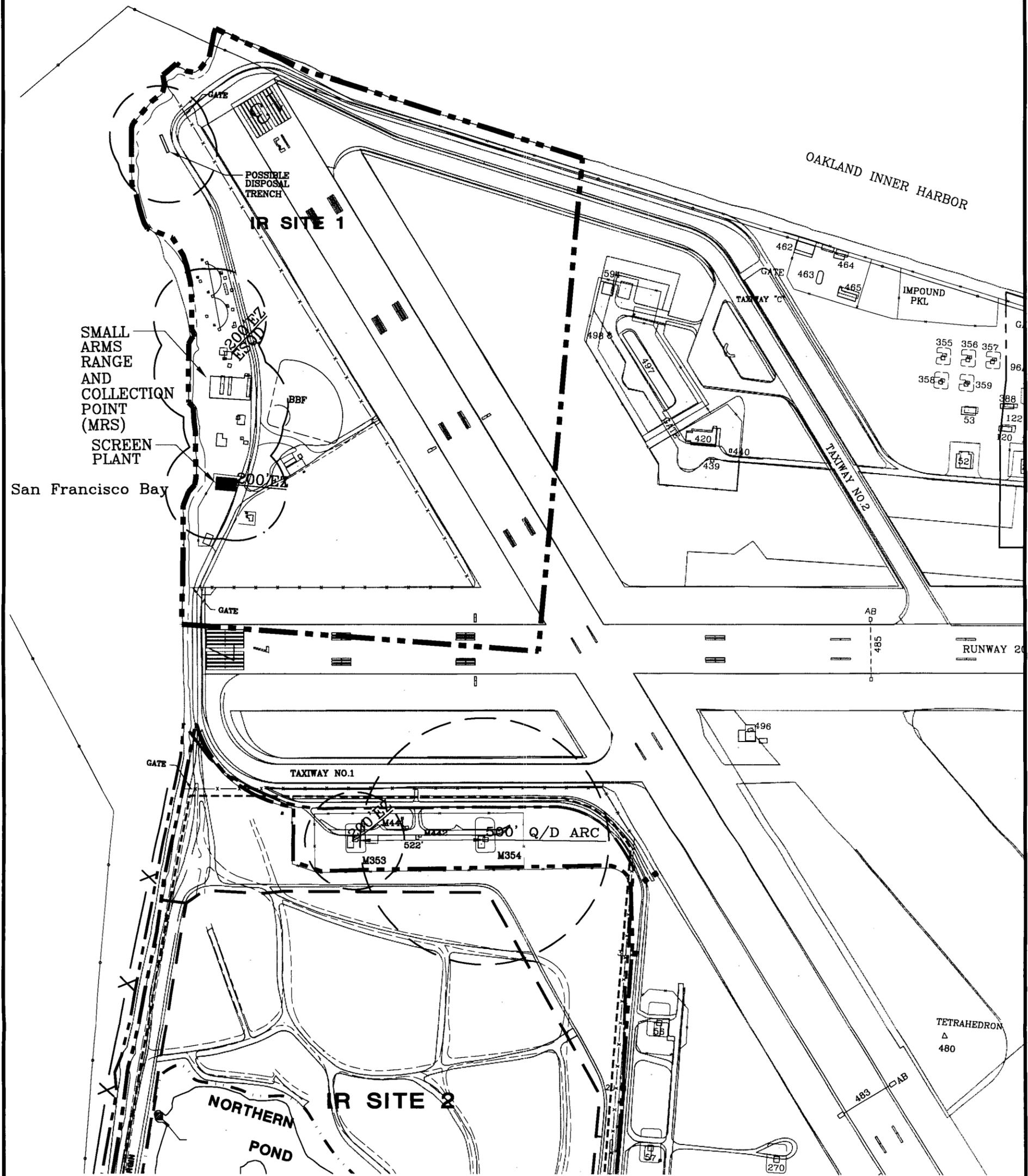
IR SITE 32 AND THE SHORELINES OF IR SITES 1 AND 2
 ALAMEDA POINT - ALAMEDA, CA



TETRA TECH INC.

NOT TO SCALE

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DATE: 03/02/07	REV: REVISION 1		CTO: #0015	07032713.DWG



LEGEND

- SITE BOUNDARY
- x-x-x-x-x- FENCELINE
- Q/D ARC
- EZ EXCLUSION ZONE
- MRS MUNITIONS RESPONSE SITE
- Q/D QUANTITY/DISTANCE

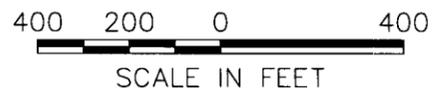


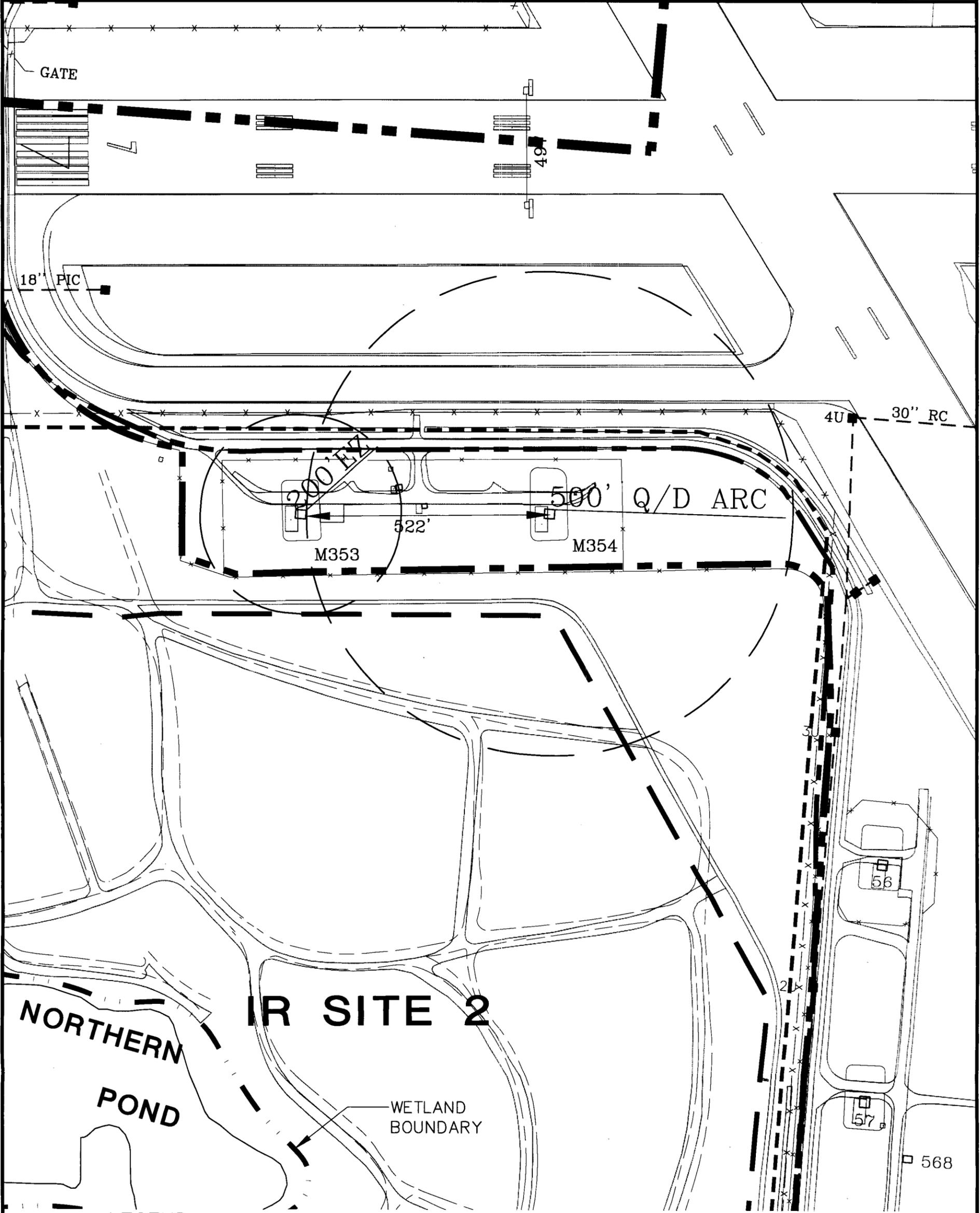
Figure 1-3
QUANTITY/DISTANCE ARCS

IR SITE 32 AND THE SHORELINES OF IR SITES 1 AND 2
 ALAMEDA POINT - ALAMEDA, CA

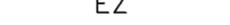


TETRA TECH EC INC

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DATE: 03/02/07	REV: REVISION 1		CTO: #0015	0703272-1NEW.DWG



LEGEND

-  SITE BOUNDARY
-  FENCELINE
-  Q/D ARC
-  EZ
-  EXCLUSION ZONE
-  Q/D
-  QUANTITY/DISTANCE

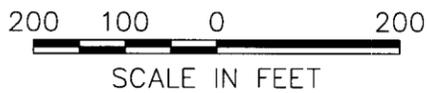


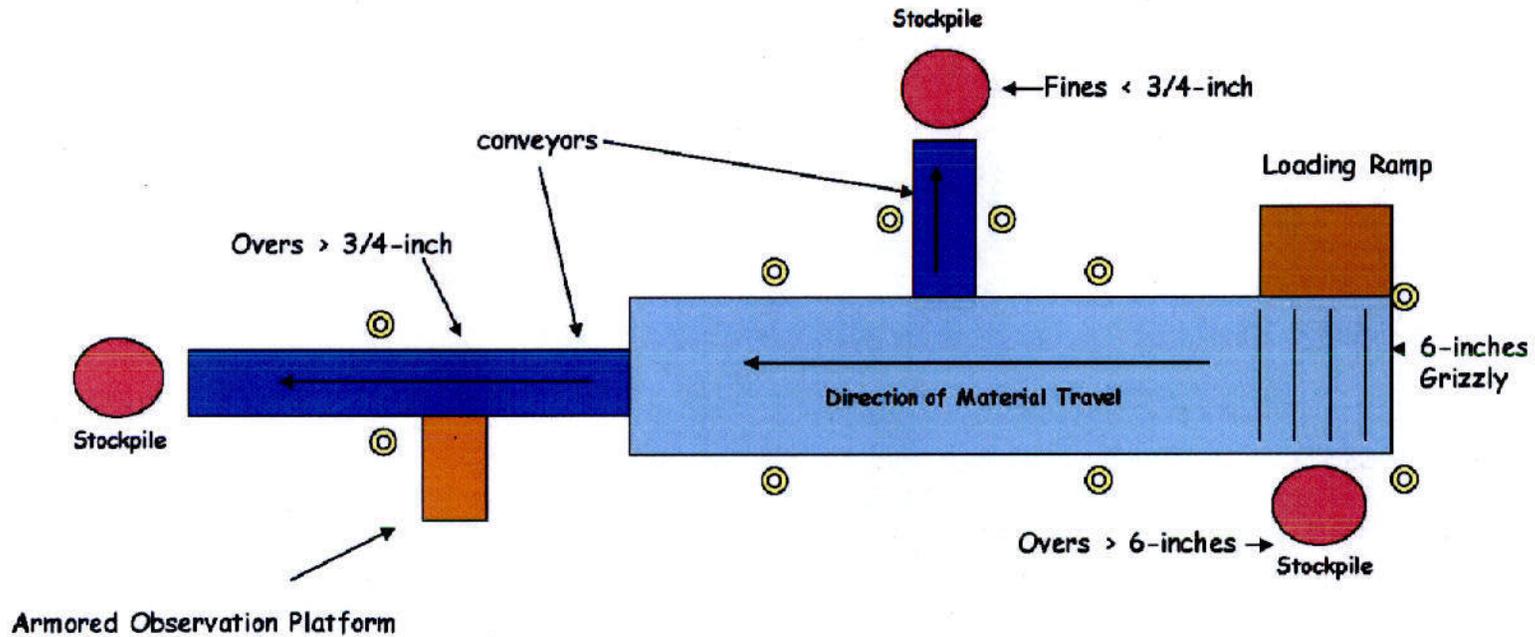
Figure 2-1
MAGAZINE COMPOUND

IR SITE 32 AND THE SHORELINES OF IR SITES 1 AND 2
 ALAMEDA POINT - ALAMEDA, CA



TETRA TECH EC. INC

DRAWN BY: MD	CHECKED BY: LH	APPROVED BY: AE	DCN: ECSD-RACIV-07-0327	DRAWING NO:
DATE: 03/02/07	REV: REVISION 1	CTO: #0015	0703272-2NEW.DWG	



⊙ = Kill Switches

NOT TO SCALE

Figure 2-2
 PROPOSED SCREEN PLANT CONFIGURATION

IR SITE 32 AND THE SHORELINES OF IR SITES 1 AND 2
 ALAMEDA POINT - ALAMEDA, CA



TETRA TECH EC, INC.

ATTACHMENT 1
CORRESPONDENCE



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
HUNTSVILLE CENTER, CORPS OF ENGINEERS
P.O. BOX 1600
HUNTSVILLE, ALABAMA 35807-4301

November 28, 2006

Safety Division for Ordnance
and Explosives Directorate

SUBJECT: Safety Alert 01-06, 20mm Minimum Separation Distance (MSD) Change

Dear Sir/Madam:

This Safety Alert applies to government and contractor personnel working on U.S. Army Engineering and Support Center, Huntsville, Military Munitions Response sites.

It has come to our attention that an error has occurred with the MSD calculations concerning the M56A4 20mm HE projectiles. The newly calculated MSD for this projectile is now 558 feet. The previous distance of 318 feet should not be used and changes to applicable documents should be requested as soon as possible.

Comments or questions about this Safety Alert can be directed to Mr. Greg Parsons, Safety Division, Ordnance and Explosives Directorate at 256-895-1598.

Sincerely,

Wayne H. Galloway
Chief, Safety Division for
Ordnance and Explosives Directorate



DEPARTMENT OF THE NAVY
NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY
FARRAGUT HALL BLDG D-323
23 STRAUSS AVENUE
INDIAN HEAD MD 20640-5555

8020
Ser N54-TD/7149
13 Mar 07

FIRST ENDORSEMENT on BRAC PMO WEST ltr 5090 Ser BPMOW.AB/0333
of 7 Feb 07

From: Commanding Officer, Naval Ordnance Safety and Security
Activity
To: Chairman, Department of Defense Explosives Safety Board
(DDESB-PE)
Subj: EXPLOSIVES SAFETY SUBMISSION AND SITE APPROVAL REQUEST,
RESTORATION SITE 1, FORMER NAVAL AIR STATION ALAMEDA,
ALAMEDA POINT, CALIFORNIA, DATED FEBRUARY 7, 2007
[T-070]
Ref: (a) NAVSEA OP 5, Volume 1, Seventh Revision
(b) NOSSAINST 8020.15A

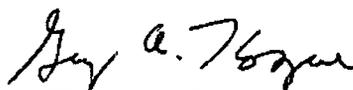
1. Readdressed and forwarded for continuing review.
2. This project, the Explosives Safety Submission and Site Approval Request (ESS/SAR) for Munitions Response Site (MRS) Installation Restoration (IR) Site 1, at the former Naval Air Station (NAS), Alameda, California, has been reviewed with respect to, and meets, the criteria of references (a) and (b).
3. The following pertain to this MRS project.
 - a. The munition with the greatest fragment distance (MGFD) is a 20mm M456A4 projectile with a contingency MGFD for a 40mm M406 projectile. Enclosure (1), Sections 3.2 and 6.5.1, address the process governing the implementation of the MGFD and contingency MGFD.
 - b. Manual and mechanized removal of munitions and explosives of concern (MEC) and material potentially presenting an explosives hazard (MPPEH) within the MRS includes a screening plant and on-site collection point. Request that the Exclusion Zones (EZs), Team Separation Distances (TSDs), and engineering-designed shielding proposed to be established/provided, based on the data and calculations shown in enclosure (1), Section 7, for the specific operations conducted, be approved.

Subj: EXPLOSIVES SAFETY SUBMISSION AND SITE APPROVAL REQUEST,
RESTORATION SITE 1, FORMER NAVAL AIR STATION ALAMEDA,
ALAMEDA POINT, CALIFORNIA, DATED FEBRUARY 7, 2007
[T-070]

c. Storage and manual inspection of MEC/MPPEH in Earth-Covered Magazine (ECM) 354 and remote-controlled processing of 20mm projectiles in ECM 353, both external to the MRS. Request that the net explosives weights (NEWs), explosives safety quantity distance (ESQD) arcs, and engineering-designed shielding proposed to be established/provided, based on the data and calculations shown in enclosure (1), Section 7, for the specific operations conducted, be approved.

4. Explosives Safety Site and Explosives Safety Submission approvals are requested for the proposed MRS actions at IR Site 1, at the former NAS Alameda, California.

5. The Naval Ordnance Safety and Security Activity (NOSSA) point-of-contact for questions relating to the explosives safety aspects of this project is Mr. Tony Dunay, NOSSA/N545, at DSN: 354-6055; Commercial: (301) 744-6055; or E-mail: anthony.dunay@navy.mil; and for questions relating to the environmental aspects of this project is Mr. Doug Murray, NOSSA/N539 at DSN: 354-5630; Commercial: (301) 744-5660; or E-mail: douglas.murray1@navy.mil.


GARY A. HOGUE
By direction

Copy to:
CNO (N45C)
BRAC PMO West (BPMOW.AB/A. Baughman)
NOSSA (N539)
NOSSA ESSOPAC (N5P)



DEPARTMENT OF THE NAVY
NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY
FARRAGUT HALL BLDG D-323
23 STRAUSS AVENUE
INDIAN HEAD MD 20640-5555

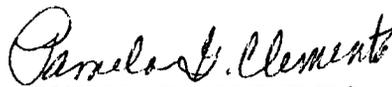
8020
Ser N539/418
15 Mar 07

From: Commanding Officer, Naval Ordnance Safety and Security Activity
To: Director, Base Realignment and Closure Program Management Office West
Subj: EXPLOSIVES SAFETY SUBMISSION (ESS) INTERIM APPROVAL FOR INSTALLATION RESTORATION SITE 1, FORMER NAVAL AIR STATION ALAMEDA, ALAMEDA POINT, CALIFORNIA
Ref: (a) BRAC PMO West ltr 5090 BPMOW.AB/0333 of 7 Feb 07 w/encl
(b) NOSSAINST 8020.15A, Explosives Safety Review, Oversight, and Verification of Munitions Responses, of 2 Feb 07
(c) NAVSEA OP 5, Revision 7
(d) NOSSA ltr 8020 Ser N54-TD/7149 of 13 Mar 07
(e) DoD 6055.9-STD

1. The Naval Ordnance Safety and Security Activity (NOSSA) reviewed the subject Explosives Safety Submission (ESS) and Site Approval Request transmitted as reference (a) in accordance with references (b) and (c). NOSSA then requested with reference (d) that the Department of Defense Explosives Safety Board (DDESB) review the documents against reference (e) and concur with it.

2. NOSSA recognizes the need to begin the proposed work as soon as possible. Therefore, and in accordance with the provisions of references (c) and (e), NOSSA authorizes you to proceed with the munitions response actions as described in reference (a), accepting that the DDESB approval process may impose different or additional requirements.

3. The NOSSA point of contact for this interim ESS approval is Mr. Douglas Murray, who can be contacted at DSN 354-4450 or commercial (301)-744-4450.


PAMELA G. CLEMENTS
By direction

Copy to: (See next page)

Subj: EXPLOSIVES SAFETY SUBMISSION (ESS) INTERIM APPROVAL FOR
INSTALLATION RESTORATION SITE 1, FORMER NAVAL AIR STATION
ALAMEDA, ALAMEDA POINT, CALIFORNIA

Copy to:
CNO (N411; N45C)
NOSSA ESSOPAC (N5P)

ATTACHMENT 2
SITE APPROVAL REQUEST

**REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)
PART II DIVISION A – EXPLOSIVES SAFETY
INSTRUCTIONS IN NAVFACINST 11010.45**

1. NEW/Class/Division/ESQD arcs of Project:

Request Site Approval for:

- 1 Barricaded undefined Earth Covered Magazine (M354) @ 100 pounds C/D 1.1/MPPEH storage/IBD 4975 feet (actual), IBD 500 feet front, 250 feet side and rear (required)/ PTR 4975 feet (actual), 300 feet front, 150 feet side and rear (required). IM 46 feet in front (required), no magazines in front or back (actual), 522 feet side (actual), 32 feet (required). IL 522 feet (actual), 84 feet (required).
- 1 Barricaded undefined Earth Covered Magazine (M353) @ < 0.3 pounds C/D 1.1/MPPEH processing and demilitarization/ IBD 5497 feet (actual), IBD 200 feet (required)/PTR 5497 feet (actual), 120 feet (required). IL 522 feet (actual), 17 feet (required).
- 1 remote controlled mechanized earth screening facility be site approved for MEC based on one 20mm M456A4 projectile or 0.03 pounds NEW of C/D 1.1 material based on the following ESQD arcs: IL K24 distances of 8 feet; PTR distance of 120 feet based on 60 percent of hazardous fragment distance (HFD); and IBD of 200 feet based on the HFD.
- 1 manual earth surveying area (lay-down pad) be site approved for MEC based on an accumulation of 20mm M456A4 projectiles equivalent to 10 pounds of NEW of C/D 1.1 material based on the following ESQD arcs: IL K24 distances of 52 feet; PTR distance of 120 feet based on 60% of hazardous fragment distance (HFD); and IBD of 200 feet based on the HFD.
- 1 temporary storage/collection point be site approved for MEC based on an accumulation of 1000 20mm M456A4 projectiles (0.03 pounds NEW each) equivalent to 30 pounds of NEW of C/D 1.1 material based on the following ESQD arcs: IL K18 distances of 56 feet; PTR distance of 120 feet based on 60% of hazardous fragment distance (HFD); and IBD of 200 feet based on the HFD.

2. CNO Waivers and Exemptions:

N/A

3. Personnel: (numbers)

Four contractor personnel will be exposed during storage of MPPEH

Four contractor personnel will be exposed during MPPEH processing and demilitarization

	Proposed	Existing
Military:		
Civilian:	4	
Other:		
Total:	4	

4. Facility Number/Type

Personnel

NEW

Class/Division

Distance*

Actual/Required

The nearest inhabited building is over 4000 feet away

N/A

N/A

N/A

4000+ ft/320 ft

5. Siting Rationale:

It is anticipated that MEC/MPPEH in the form of 20 mm projectiles (HE and TP) will be encountered during the TCRA that will take place on the former Naval Air Station Alameda. The site's description and history, reasons for suspected MEC/MPPEH and suspected type and amount of MEC/MPPEH contamination are found in Section 1 of the ESS. The MGF and contingency MGF are discussed in Section 3 of the ESS as are the procedures to be followed in the event a MEC item with a greater fragment distance than the contingency MGF is encountered. Section 6 contains the various procedures and processes that will be employed during the course of this project, and quality control. Quantity/Distances that are applied to Magazine M354 and the various ES/PES that will be used during the TCRA. Environmental concerns, off-site disposal, technical support, land use restrictions and public involvement are found in the remainder of the ESS.

See additional sheet for continuation.

*Distance from project. Specify IB, (Inhabited Building); IL, (Intraline); IM, (Intermagazine); PTR, (Public Transportation Route); B (Barricade); UB (Unbarricade)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl. E-Mail Address

9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address

7. Telephone
()
DSN

8. Date:

10. Telephone
()
DSN

11. Date:

ATTACHMENT 3
FRAGMENTATION DATA REVIEW FORMS

FRAGMENTATION DATA REVIEW FORM

Category:	HE Rounds	DODIC:	A890
Munition:	20 mm M56A4	Date Record Created:	7/30/2004
Primary Database Category:	projectile	Last Date Record Updated:	11/9/2006
Secondary Database Category:	20 mm	Individual Last Updated Record:	Crull
Tertiary Database Category:	H761 (RDX)	Date Record Retired:	

Munition Information and Fragmentation Characteristics	
Explosive Type:	H-761 (RDX)
Explosive Weight (lb):	0.02640
Diameter (in):	0.7874
Max Fragment Weight (lb):	0.002681
Critical Fragment Velocity (fps):	4941

Theoretical Calculated Fragment Range	
Range to No More Than 1 Hazardous Fragment/600 Square FeetA (ft):	200
Vertical Range of Maximum Weight Fragment (ft):	447
Horizontal Range of Maximum Weight Fragment (ft):	558

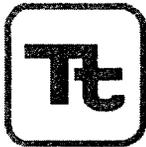
Overpressure Distances	
Inhabited Building Distance (12 psi), K40 Distance:	13
Inhabited Building Distance (09 psi), K50 Distance:	16
Intentional MSD (0065 psi), K328 Distance:	107

Minimum Thickness to Prevent Perforation	
4000 psi Concrete (Prevent Spall):	1.09
Mild Steel:	0.21
Hard Steel:	0.17
Aluminum:	0.47
LEXAN:	2.16
Plexi-glass:	1.13
Bullet Resist Glass:	0.83

Required Sandbag Thickness	
Max Fragment Weight (lb)SB:	0.002681
Critical Fragment Velocity (fps)SB:	4941
Kinetic Energy 106 (lb-ft ² /s ²)SB:	0.0327
Required Wall Roof Sandbag Thickness (in)SB:	12
Expected Maximum Sandbag Throw Distance (ft)SB:	25
Minimum Separation Distance (ft)SB:	200

Water Containment System and Minimum Separation Distance:	
Max Fragment Weight (lb)W:	0.002681
Critical Fragment Velocity (fps)W:	4941
Kinetic Energy 106 (lb-ft ² /s ²)W:	0.0327
Water Containment System:	5 gal carboys/ inflatable pool
Minimum Separation Distance (ft)W:	200/200

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TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N62473-06-D-2201 (RAC IV)

Document Control No. 07-0327.R2

File Code: 5.0

TO: Contracting Officer
Naval Facilities Engineering Command SW
Ms. Beatrice Appling, AQE.BA
Building 127, Room 108
1220 Pacific Highway
San Diego, CA 92132-5190

DATE: 05/29/07

CTO: 0015

LOCATION: Alameda, CA

FROM: [Signature]
A. N. Bolt, Program Manager

DESCRIPTION: Final Explosives Safety Submission, Revision 2, March 9, 2007.
IR Site 1

TYPE: [] Contract/Deliverable [x] CTO Deliverable [] Notification
[] Other

VERSION: Final REVISION #: 2
(e.g. Draft, Draft Final, Final, etc.)

ADMIN RECORD: Yes [x] No [] Category [] Confidential []
(PM to Identify)

SCHEDULED DELIVERY DATE: 03/09/07 ACTUAL DELIVERY DATE: 05/29/07

NUMBER OF COPIES SUBMITTED: O/8C/8E Copy of SAP to N. Ancog []

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NOSSA (N53) 2C/2E

Basic Contract Files (AQE)

1C

Date/Time Received