DEPARTMENT OF THE ARMY
US ARMY DEFENSE AMMUNITION CENTER
1 C TREE ROAD
MCALESTER, OK 74501-9053

00369

REPLY TO ATTENTION OF

SIOAC-ESL

MEMORANDUM FOR Chairman, Department of Defense Explosives Safety Board, ATTN: DDESB-KO, 2461 Eisenhower Avenue, Alexandria, VA 22331-0600

SUBJECT: Safety Submission for the Removal of Ordnance and Explosives (OE) from the Open Burning Grounds, Seneca Army Depot Activity (SEDA), New York

1. Please make page for page changes to the subject submission using the six enclosed change pages. We've highlighted new or changed text by putting vertical bars in margins. These changes address your concerns as we discussed them with you and Mr. Kevin Healy of the Huntsville Center on 25 September 1998. Here's a summary of the changes:

a. Any OE found will be blown individually to allay any concerns you have about possible interaction effects.

b. Nonessential personnel will remain at least 400 feet from the sifter during sifter operation, based on the MK II grenade, which is a (04)1.1 item. The sifter will be located at five different locations within the 30 acres covered by this submission. The new map (enclosed) shows these locations, along with a 400 foot arc around each.

c. The barricade around the sifter has been eliminated. Only the remote operator and the earth moving machinery operator are essential to the sifter while it is in operation. Protection for them is as follows:

(1) Remote operator: For blast protection, the remote operator will be located at K24 minimum. For fragment protection, he will work within a protective shelter as shown on one of the enclosed change pages. The shelter is designed to defeat primary fragments from the MK II grenade, the most probable munition for this project.

(2) Earth moving machinery operator. For blast protection, this operator will be within K24 intermittently, so as we agreed on 25 September, he will wear hearing protection. For fragment protection, shields capable of defeating MK II fragments will be used on the equipment.

2. Point of contact (POC) is Cliff Doyle, SIOAC-ESL, DSN 956-8741.

Clifford H. Doyle

Clifford H. Doyle
Safety Manager, Ordnance Explosives
Environment Division

Encl as

PTR- I typed the memo and faxed it to DDESB- then mailed it

perforators, det cord and electric detonators are all that will be used. These are considered Class 1.3 and 1.4B explosives.

Explosives will be stored in the SEDA OB/OD area double igloo type, earthen-covered magazine. The existing magazine is constructed to DDESB and Army standards and is complete with the required lightning protection. Each of the two magazines is designed for a maximum NEW of 450 pounds. At no time will the contractor be storing more than 100 pounds NEW in either magazine. Perforators and det cord will be stored in one magazine and the electric detonators in the other. As for security, access into the SEDA ammunition area is, itself, extremely restricted. The OB Grounds is remotely located within the ammunition area. Additionally, the contractor will establish and enforce strict area and site access at the OB site proper. Access into a work site exclusion zone will be limited to contractor personnel specifically authorized to work on site and Corps of Engineers safety personnel. All other personnel will be restricted from entering the exclusion zone or be escorted by contractor or Corps safety personnel.

Disposal operations will be carried out daily. Items which can be moved will be individually disposed at the OD Grounds which is adjacent to the OB site. Items which can not be moved will be blown-in-place, individually.

QA/QC requirements are presented in the Work Plan (see Appendix C, Excerpt 1). Pass/fail criteria are specifically discussed in Sections 8.7.2 through 8.7.4 in the excerpt.

Scrap that is collected from this action will be handled as discussed in Sections 2.7.1 and 8.7.5 of the Work Plan (see Appendix C, Excerpt 2).

7.0 **ALTERNATE TECHNIQUES. NA.**

8.0 QUANTITY-DISTANCES.

The appropriate Quantity-Distances are shown on the site map enclosed in Appendix A of this submission. For ease of review, the distances are repeated here. The rationale for the MPM and citation for the calculation method are presented in Section 3.0 of this submission. In general, team separation distances will be determined by the greater of 200 feet or the K50 (0.9 psi overpressure distance. The separation distance for all unrelated personnel for an accidental detonation from an OE area will be determined by the greater of 200 feet, the K50 distance or the maximum fragment throw distance. The separation distance for all personnel (related and unrelated) for intentional detonations will be determined by the maximum of 200 feet, the K328 distance or the maximum fragment throw distance. Applying the above principles, the following distances apply:

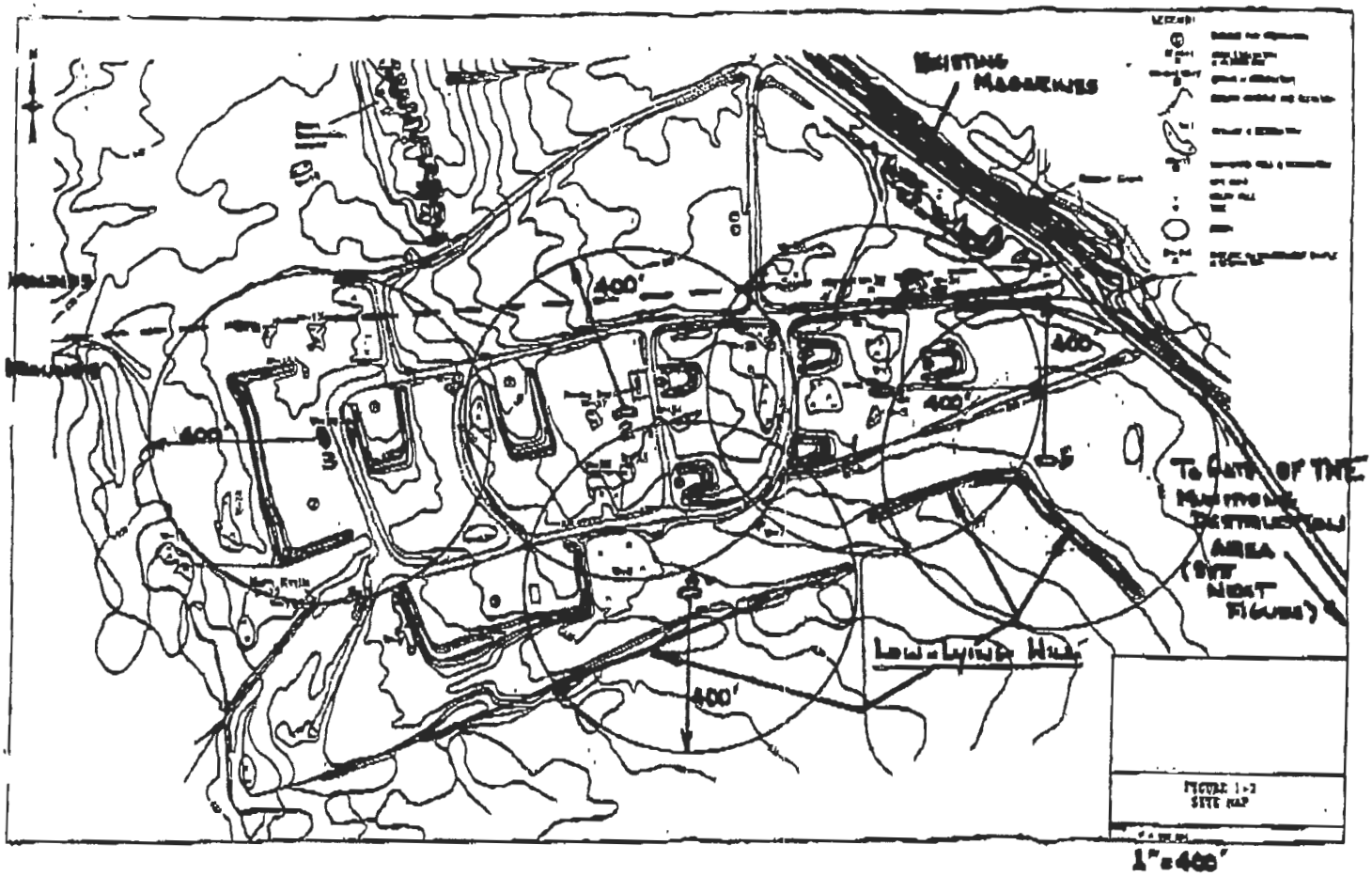
OE Areas: Minimum of 850 feet (this is the maximum fragment range for the Mk II HE Grenade calculated by the DDESB approved method).

Magazines: Minimum of 500 feet (Front) and 250 feet (Rear and Sides), IAW Table 9-1 of DoD 6055.9-STD. The back and sides of the existing magazines face the removal site. Therefore, 250 feet will govern for the vast majority of the proposed removal. Note that these distances are for 1.1 explosives; therefore, they exceed the distance requirements for the 1.3 and 1.4 demolition materials to be stored in these magazines.

Intentional Detonations: Minimum of 850 feet (via approved calculation).

Sifting Operations: During operation, no non-essential personnel will be allowed within a 400 foot radius of the sifter. (the MK II Grenade is a (04)1.1 item). Reference should be made to Site Map No. 4 in Appendix A.

9.0 OFF-SITE DISPOSAL. NA.



- MPM = MK II HAND GRENADE
- (04) 1.1 item
- No nonessential personnel within 400' during sifter operation

Note to DDESB - this map, Site Map 4, is a new map to be added to the submission. Please add it.

Thanks.

Cliff Doyle
TCES

~ Site Map 4 ~

- Sifter Locations and Q-D Arcs (5 Locations)

absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including EODT, contractor, and subcontractor personnel involved in sifting operations shall be familiar with the potential safety and health hazards associated with this operation. As such, all effected personnel shall also be familiar with the control techniques to be used to reduce or eliminate these hazards.

5.1 SAFETY HAZARDS

The safety and health hazards that may be associated with the operations of mechanical sifting machines on an ordnance and explosives (OE) site are listed below. For each of the hazards listed, at least one hazard control measure is listed in paragraph 5.2 for the reduction of the operational hazard. At no time will mechanical sifting operations be conducted on site without the use and implementation of the appropriate controls measures.

1. Unexploded ordnance (UXO), possibly resulting in heat, fire, fragmentation, and over pressurization hazards;
2. Noise;
3. Dust;
4. Stored energy;
5. Pinch points; and
6. Engine exhaust.

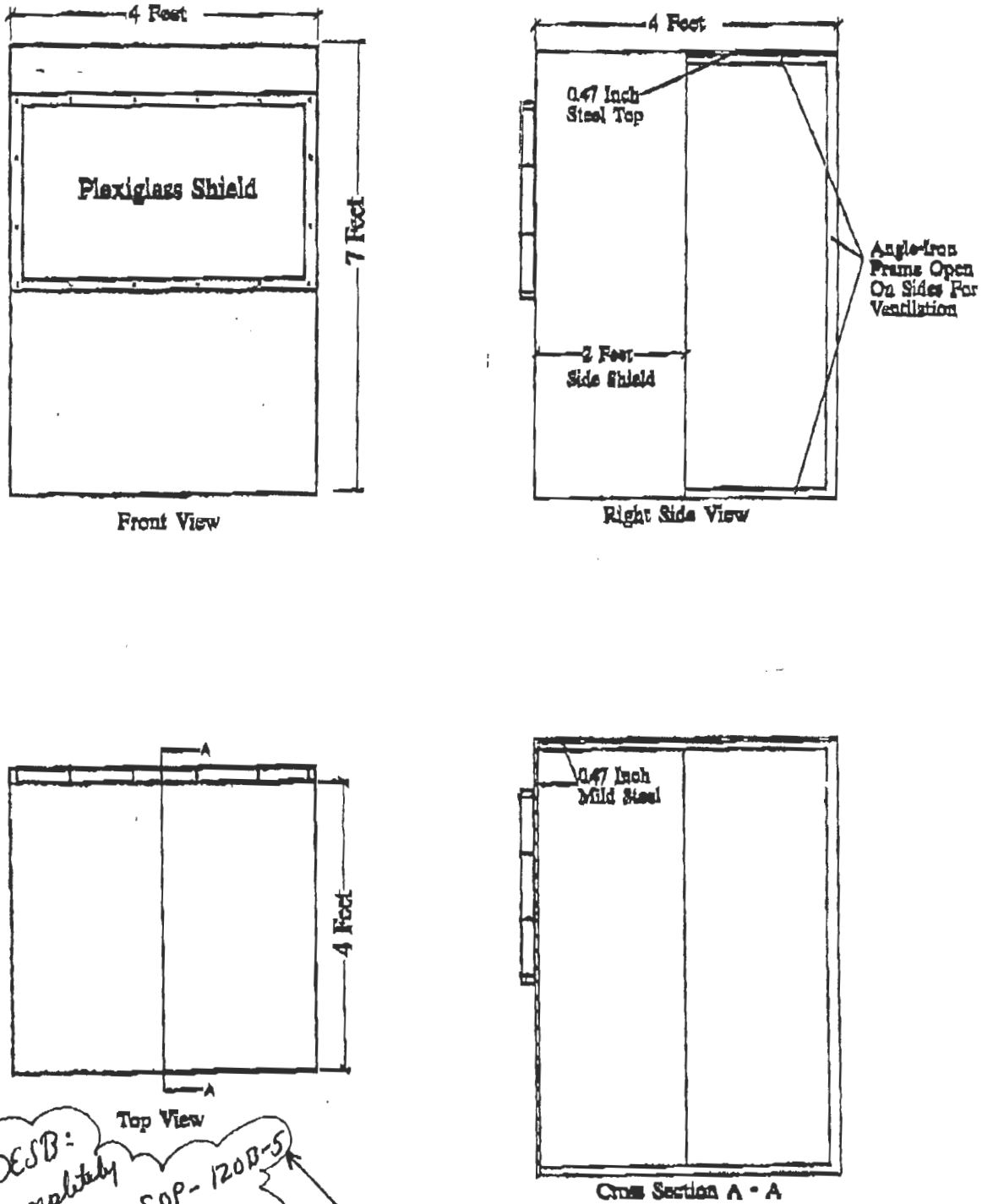
5.2 OPERATIONAL CONTROL MEASURES

For the safety hazards listed in paragraph 5.1, the operational control measures presented below shall be used to the greatest extent feasible, to protect site personnel from the hazards associated and identified with mechanical sifting operations. The degree and type of hazard, as outlined in the site Work Plan (WP) and Site Safety and Health Plan (SSHP) will determine the extent of control to be used, however, all of the safety measures listed below will be implemented.

1. Daily tailgate safety meetings will be conducted, and noted in the Safety Log, as to the safety and health concerns pertaining to that days use of sifting equipment.

2. Sifting equipment and support vehicles shall be equipped with fire extinguishers.
3. The shaker assembly will not require barricading. Of the two personnel (the sifter operator and the front-end loader operator) essential to the sifting operation, the sifter operator will be protected by a steel enclosure consisting of at least 0.47 inches of mild steel. This enclosure will provide protection on three sides, the top, and will contain a plexiglass window of 2.37 inches, as specified by Dr. Crull, Structures Branch, Engineering Directorate, US Army Engineering and Support Center, Huntsville (USAESCH). Figure 120B-1 provides a graphic example of the enclosure. The loader operation will be protected by plexiglass shielding of the appropriate thickness.
4. The location of the sifter operator's enclosure will be outside the k24 distance arc of 17.53 feet (DOD 6055.9-STD). To fill the sifter hopper, the loader operator will be passing temporarily into and out of the k24 distance arc, and as such will be required to wear hearing protection at all times. This will be in addition to the plexiglass shielding that will be installed on all excavation and loading equipment.
5. The operators of any EMM being used to load the sifter hopper will be protected from fragmentation through the use of at least 2.5 inch plexiglass mounted on the front and rear of the operators cab. If determined necessary by the SSHO, shielding may be required on the side doors as well.
6. Oversize debris separated from the soil by the sifter screens shall be viewed by the remote operator in an attempt to identify any OE items that may filter out of the soil. Additionally, the remote operator will watch for any materials that may become lodged/jammed in the sifter. Oversize materials from the sifter will be periodically inspected by UXO-personnel, with all inspections taking place only after the sifter unit has been shut down. Segregation of the oversize materials will be performed according to the following:
   a. The debris is identified as non-OE scrap that will be disposed of as scrap.
   b. The debris is identified as OE-related scrap or inert OE and must be verified as being free of OE hazards prior to scrap disposal.
   c. The debris is identified as UXO that is unfuzed and safe to move, in which case the item will be removed from the area and destroyed at the existing OD area.
   d. The debris is identified as hazardous UXO that should not be moved, where upon, the SUXOS will immediately notify the USAESCH SREP who will direct EODT as to the next course of action to be taken. If needed, SREP may request military EOD support.
7. When maintenance or servicing is to be performed on the sifter or conveyor system, all sources of immediate power or stored energy shall be controlled (refer to lockout/tagout SOP).
8. Sifting operations shall be restricted to daylight hours, and once operations begin, only UXO-qualified personnel may enter the safety zone around the sifter operation.

Figure 120B-1 Blast Shielding for Remote Sifter Operator



Note to DDESB: this page completely replaces page SOP-120B-5 in the submission C Doyle TCES

SOP-120B-5

Explosive Safety Submission

Ordnance And Explosives Removal
at the
Open Burning Grounds,
Seneca Army Depot Activity,
Romulus, New York

July 1998

Prepared by

US ARMY CORPS OF ENGINEERS

Engineering and Support Center, Huntsville

CONTENTS

INTRODUCTION

This Explosive Safety Submission is for the removal of Ordnance and Explosives (OE) from the Open Burning Grounds, Seneca Army Depot Activity (SEDA), New York. It outlines the safety aspects of the plan for cleanup of Unexploded Ordnance (UXO) and OE on property that is owned by the Department Of Defense (DoD).

SEDA is a US Army facility located in Seneca County, New York. SEDA occupies approximately 10,600 acres (Appendix A, Figure 1). It is bounded on the west by State Route 96A and on the east by State Route 96. The cities of Geneva and Rochester are located to the northwest (14 and 50 miles, respectively); Syracuse is 53 miles to the northeast and Ithaca is 31 miles to the south. The surrounding area is generally used for farming.

SEDA was included on the Federal Facilities National Priorities List on 13 July 1989. Consequently, all work to be performed under this contract will be performed according to Comprehensive Environmental Response Compensation and Liability Act (CERCLA) guidance and the "Federal Facility Agreement under CERCLA Section 120 in the matter of Seneca Army Depot, Romulus, New York,".

SEDA was included on the 1995 Base Realignment and Closure List and is due to be closed. The Seneca County Industrial Development Agency (IDA) has prepared a reuse report entitled "Seneca Army Depot Reuse Plan and Implementation Strategy". The majority of the installation will be used for housing developments, industrial development, institutional and conservation/recreation uses upon transfer. The current OB Grounds site will fall within the area designated for "Conservation/Recreation".

The intended uses which fall within the definition of "Conservation/Recreation" are: wildlife habitation, wildlife viewing, hiking/walking and picnicking. Although there is currently no plan for establishing camping facilities, the IDA does not wish to restrict such a possibility in the future. Therefore, this ESS is based upon the assumption that the clearance depth to be used will be based upon the Public Access scenario (e.g. surface recreation).

1.0 REASON FOR OE.

Open detonation/open burning operations have been conducted for more than forty years in the munitions destruction area (90 acres) in the northwest portion of the installation. The OB Grounds occupies an area of approximately 30 acres within the southern portion of this site (Appendix A). The Open Burning Grounds is the sole subject of this Explosives Safety Submission. The OD Grounds will be remediated separately.

The burning pads were used from the early 1960's till the late 1980's. During this time, items burned included explosive trash from an old washout plant and fuzes containing lead compounds. Operations were conducted by preparing combustible beds of pallets and wooden boxes and placing ammunition or components to be destroyed on the beds. A trail of propellant was placed on the ground and an electric squib was activated by an operator from a distance.

Originally open burning was conducted directly on the clay ground surface. Due to the seasonally wet nature of the local soils, the individual burn pads were subsequently built up with shale to provide a drier environment in which to perform the munitions burning. The berms around the burn pads were formed by bulldozing the surrounding soils, including those soils which contained residues of the burning process. The base material of the pads is composed of crushed shale which was quarried from a nearby area on

SEDA and placed over the till to provide a solid base with good drainage. The burning of munitions was performed at nine burning pads labeled A through H and J. Of the nine burn pads, five are small (A,B,C,D and E; each approximately 70' x 100'). Two are of intermediate size (F and H; each approximately 120' x 210') and two are rather large (G and J; each approximately 200' x 460').

Pads A and J were the first to be abandoned. Pads I and J were only used for trash and rubbish while Pads B, C, D, E, F, G and H were used for explosives and propellants. The practice of open burning was discontinued in 1987. Currently, burning of munitions is done with an open air, steel enclosure located immediately west of Burning Pad D.

2.0 MAPS.

Maps detailing the location and extent of the area of concern and presenting the relevant Public Withdrawal Distances, Q-D Distances, etc., are presented in Appendix A to this submission.

3.0 AMOUNT AND TYPE OF OE.

A list of items that were demilled at the Munitions Destruction Area is included in Appendix B. Examples of items burned at the OB Grounds include various pyrotechnic items and fuzes. The HE items shown on the list (grenades, both hand and rifle), were only detonated at the OD Grounds, so no items of a high explosive nature are to be expected at the OB Grounds (personal communication with Mr. Jim Jones, former supervisor of munitions destruction operations at Seneca; 15 and 19 May 1998).

Two Most Probable Munitions (MPM) were chosen for this site. One was chosen for determination of the required Public Withdrawal Distance. This is the MK II Hand Grenade. Although not expected at the OB Grounds, it was decided that using the smallest of the high explosive items detonated at the OD area would be conservative without being ridiculous.

The Public Withdrawal Distance (PWD) for this MPM is 842 feet, which was computed using HNC-ED-CS-S-98-1 (approved by DDESB on 6 April 1998) by Dr. Michelle Crull, USAESC, Huntsville, Engineering Division, Structures Branch, 4-10-98. However, 850 feet will be used for this site. If an OE item having a greater fragment distance is found, its withdrawal distances will be determined in accordance with the procedures defined in 98-01. Until the appropriate distances are determined by 98-01, the default distances in DoD 6055.9-STD (Chapter 5, Paragraph E.4.a) will be used.

The second MPM was chosen for the purpose of determining the effectiveness of geophysical investigation equipment with respect to a pyrotechnic item that is smaller than a Mk II Grenade and which, while not an HE item, might still pose a threat to individual's safety if encountered. This item is the M17, M19, M21 or M51 series Illuminating Ground Parachute Signal.

4.0 START DATE.

Work is anticipated to start in August 1998 beginning with survey work and progressing to intrusive work. Intrusive work should begin by 31 August.

5.0 FROST LINE DEPTH.

The design frost depth for this site is 40 inches.

6.0 CLEARANCE TECHNIQUES.

This section presents information concerning the techniques to be used during the removal of OE at this site.

General Progression. OE remediation at the SEDA OB Grounds will take place in the following phases:

1. Phase I. The thirty acre site, minus the existing berms and pads and the low-lying hill, will be surface cleared of all OE and scrap. This surface clearance will be a visual clearance with instrument assistance, as required.

2. Phase II. A Geophysical Test Grid will be performed to verify that the detection equipment can detect the Most Probable Munitions to the required depths. These are two feet for the Mk II Grenade and one foot for the Illuminating Signal. Subsequently, the thirty acre site, minus the existing berms, pads and the low-lying hill, will be geophysically mapped. Following the mapping effort, all anomalies to a depth of two feet will be investigated and removed. Anomalies that are deeper will be chased and removed as well.

3. Phase III. The pad berms and the low-lying hill area will be excavated/moved and sifted to remove all OE and scrap. A standard operating procedure for the sifting operations is included in Appendix D of this ESS. The sifted soils will then be stockpiled for remediation as part of a follow-on Hazardous/Toxic and Radiological Waste (HTRW) remediation project. The principle purpose of this HTRW remediation is to remove lead and other heavy metal contamination from the soil.

4. Phase IV. The areas underneath the pad berms and the low-lying hill, as well as the pads themselves, will be excavated, sifted and cleared of all OE and scrap to a depth of three feet. This effort will be performed in multiple lifts. Excavation, sifting and OE identification will be performed for the top 1 foot of depth. Additionally, the same will be done for the 1-2 and 2-3 foot depth horizons. Records of what OE occurred and at what depth will be kept for later use in characterizing the subsurface contamination.

5. Phase V. Areas between the pads which have been determined, during the previous Remedial Investigation, to contain lead-contaminated soils, will be excavated to the depths required (minimum of three feet) and sifted for OE. This excavation will be performed in multiple lifts: the first lift will be to a depth of 1 foot. Each lift excavated thereafter will be one foot in thickness until the bottom limit of the lead-contaminated soils has been reached. Records of what OE occurred and at what depth will

be kept for later use in characterizing the subsurface contamination.

6. Phase VI. All of the sampling data gathered from the mapping/anomaly investigation data and the sifting data collected in Phases 2,4 and 5, above, will be compiled to draw conclusions on the existence or non-existence of OE contamination below the one, two and three foot depths at this site. This data will be derived from investigations over roughly 10 acres of the overall 30 acre site. If this amount of data is not judged to be statistically significant, SiteStats will be used to determine the additional acreage to be excavated and sifted (to a depth of three feet) in order that a statistically valid determination might be possible.

7. Phase VII. Based upon the data collected throughout the removal effort, a conclusion will be drawn regarding the existence of OE-contamination below the one, two and three foot depths at this site:

a. If OE-contamination does not exist below the one foot depth horizon, request your approval to release this site for unrestricted use from an explosives safety standpoint (even though the end use is currently planned to be restricted to surface recreation). This request is based upon the following:

(1) the one foot clearance over the majority of the site is expected to show that OE is located at less than one foot of depth. For example, if OE is only found in the top six inches, it is reasonable to assume a one foot removal is adequate;

(2) the soil sifting to depths of three feet (or more) in selected areas of the site is expected to show that no OE is present at a depth greater than one foot;

(3) if conducted, the statistical sampling of areas deeper than one foot is expected to show that no OE is present at a depth greater than one foot.

(4) the fact that 1 foot of clean soil cover will be added during the Hazardous/Toxic remediation to follow. The purpose of the one foot thickness of fill is to

protect ecological receptors from the residual heavy metals contamination that will remain at this site following all remediation efforts;

At such a point, it will be concluded that no additional OE clearance will be required over the remainder of the site. This conclusion will be presented in the Final Report for this project, which is (by DDESB Guidance) to be distributed for information to all who were responsible for reviewing and approving this ESS.

b. If OE-contamination does exist below the one foot depth, a recommendation that this site (all 30 acres) be fully remediated (by a combination of sifting to a depth of two feet and removal (using geophysical mapping/intrusive investigation of anomalies) in the 2-3 foot soil depth horizon) in order to meet the required four foot "Public Access" default depth will be made. This recommendation will have been based upon the following:

(1) Following clearance of the entire 30 acres to a depth of three feet, the addition of 1 foot of fill (as part of the Haz/Tox remediation effort) will attain the required four foot "Public Access" default depth.

8. Phase VIII. Following conclusion of the OE remediation, as described above, the Final Report detailing the actual outcome of this project will be provided for information to those who have reviewed and approved this ESS.

9. Phase IX. After the OE removal stage of this site's overall remediation is complete, the haz/tox remediation will be initiated (addition of one foot of soil cover, et al).

Discussion of Project-Specific Procedures.

Surveying will be completed by contractor survey teams. As such, UXO escort will be automatic during survey operations. Survey activities will consist of the location of site grids for clearance/sampling activities.

For surface clearance, each grid will be walked and visually checked for the presence of ordnance. Instrument assistance may be used as required. For subsurface clearance, each grid will be divided into 5 foot transects or lanes. Operators will walk each lane with the chosen geophysical instrument. The chosen instrument will be capable of detecting the Most Probable Munitions to the proposed depths. All anomalies will be marked with pin flags for retrieval by another team. Anomalies will be dug to a depth of two feet to determine the identity thereof. If anomalies are found to exist below the two foot clearance depth, they will be pursued.

A Standard Operating Procedure for sifting operations is included in Appendix D of this ESS. All soil excavation and movement (to the sifter and away from the sifter) will be performed by a local excavation contractor with UXO supervision. All sifting and separation activities will be performed by UXO-qualified personnel. During all OE operations, earthmoving equipment operators and the sifter equipment operators will be protected by Lexan or plexiglass shields. Shield thicknesses have been calculated to be a minimum of 3.78 inches (Lexan) or 2.37 inches (plexiglass) (by Dr. Crull, Structures Branch, USAESC, Huntsville, using THOR equations for fragment penetration from TM 5-1300) using the Q-D MPM, the Mk II Grenade.

With respect to OE destruction, of specific concern are the location of explosives storage facilities and detonation operations with respect to facilities and people and any effects thereon. Explosives for destruction operations will be provided by the contractor. It is anticipated that

perforators, det cord and electric detonators are all that will be used. These are considered Class 1.3 and 1.4B explosives.

Explosives will be stored in the SEDA OB/OD area double igloo type, earthen-covered magazine. The existing magazine is constructed to DDESB and Army standards and is complete with the required lightning protection. Each of the two magazines is designed for a maximum NEW of 450 pounds. At no time will the contractor be storing more than 100 pounds NEW in either magazine. Perforators and det cord will be stored in one magazine and the electric detonators in the other. As for security, access into the SEDA ammunition area is, itself, extremely restricted. The OB Grounds is remotely located within the ammunition area. Additionally, the contractor will establish and enforce strict area and site access at the OB site proper. Access into a work site exclusion zone will be limited to contractor personnel specifically authorized to work on site and Corps of Engineers safety personnel. All other personnel will be restricted from entering the exclusion zone or be escorted by contractor or Corps safety personnel.

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Intentional Detonations: Minimum of 850 feet (via approved calculation).

Sifting Operations: During operation, no non-essential personnel will be allowed within a 400 foot radius of the sifter. (the MK II Grenade is a (04)1.1 item. Reference should be made to Site Map No. 4 in Appendix A.

9.0 OFF-SITE DISPOSAL. NA.

10.0 TECHNICAL SUPPORT.

No Chemical Warfare Materials (CWM) are suspected at this site. The contractor will positively identify all OE uncovered before items are removed or destroyed. If a suspect CWM is encountered, the Site Safety Officer will stop all operations on site and notify the on site CEHNC representative. The CEHNC Safety Specialist will notify the appropriate Explosive Ordnance Disposal (EOD) Detachment (725th Ordnance Company (EOD) out of Fort Drum) and/or Technical Escort Unit.

11.0 LAND USE RESTRICTIONS.

There will be no reuse restrictions required following this action. The site will be transferred (sometime during the closure process) for use as discussed in the INTRODUCTION, above.

12.0 PUBLIC INVOLVEMENT.

This removal is being performed under the CERCLA umbrella since Seneca is a BRAC federal facility on the National Priorities List. Consequently, the required public involvement process is already in place (BCT, RAB, general public involvement) with the SEDA PAO taking the lead.

13.0 AFTER ACTION REPORT.

Following the OE Removal Project at the Open Burning Grounds, a copy of the Final Removal Report will be provided, to all who reviewed this ESS, for review and approval.

14.0 AMENDMENTS AND CORRECTIONS.

An amendment or correction discussing any changes in the procedures to be used or the conditions encountered during this removal will be provided for review and approval as warranted in the guidance.

15.0 REFERENCES

General

a. AR 385-64, Ammunition and Explosives Safety Standards, dtd 22 May 1987

b. AR 385-64 (Draft), US Army Explosives Safety Program

c. Department of Defense Explosives Safety Board, Interim Guidance on Land Clearance Planning and Removal Depth for Ammunition and Explosives. 1993.

d. DDESB, Guidance for Clearance Plans, 27 January 1998.

e. Interim Final, "Guidance for Conducting Remedial Investigations/Feasibility Studies Under CERCLA", U.S. EPA, Office of Solid Waste and Emergency Response, October 1988.

f. "U.S. Corps of Engineers Safety and Health Requirements Manual," U.S. Army Engineering Manual No. EM-385-1-1, April 1981.

g. "Safety Concepts and Basic Considerations for Unexploded Ordnance (UXO) Operations", U. S. Army Engineering and Support Center, Huntsville, Revised 16 February 1996.

Specific

h. "Federal Facility Agreement under CERCLA Section 120 in the matter of Seneca Army Depot, Romulus, New York," Docket No. II-CERCLA-FFA-00202, USEPA, U.S. Department of the Army, and the New York State Department of Environmental Conservation, November 1990.

i. "Work Plan Architectural-Engineering Services For Performing A Remedial Investigation/Feasibility Study (RI/FS) At The Open Burning (OB) Grounds, Seneca Army Depot, Romulus, New York," Chas. T. Main, Inc., 1991.

j. "Preliminary Site Characterization Report at the Open Burning (OB) Grounds," Chas. T. Main, Inc., 1992.

k. Final, "Remedial Investigation Report at the Open Burning (OB) Grounds", Parsons Engineering Science, Inc., September 1994.

l. Final, "Feasibility Study at the Open Burning (OB) Grounds", Parsons Engineering Science, Inc., June 1996.

m. Draft-Final, "Superfund Proposed Plan, the Open Burning (OB) Grounds at the Seneca Army Depot Activity (SEDA), Romulus, New York.", Parsons Engineering Science, Inc., January 1997.

n. Preliminary-Draft, "Record of Decision, Former Open Burning (OB) Grounds Site, Seneca Army Depot Activity, Romulus, New York.", Parsons Engineering Science, Inc., March 1997.

APPENDIX A

MAPS

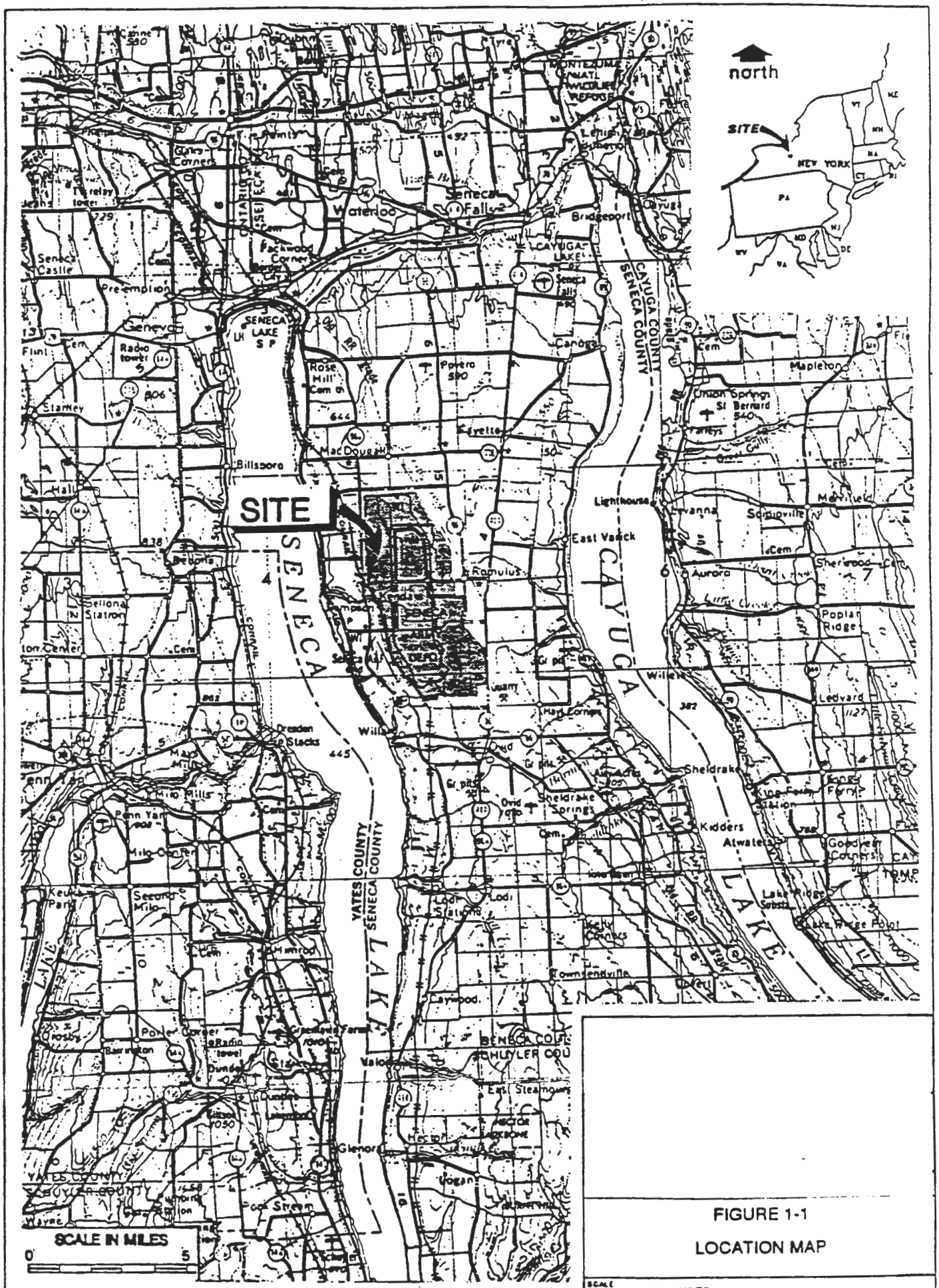


FIGURE 1-1

LOCATION MAP

SCALE

1" = 4 MILES

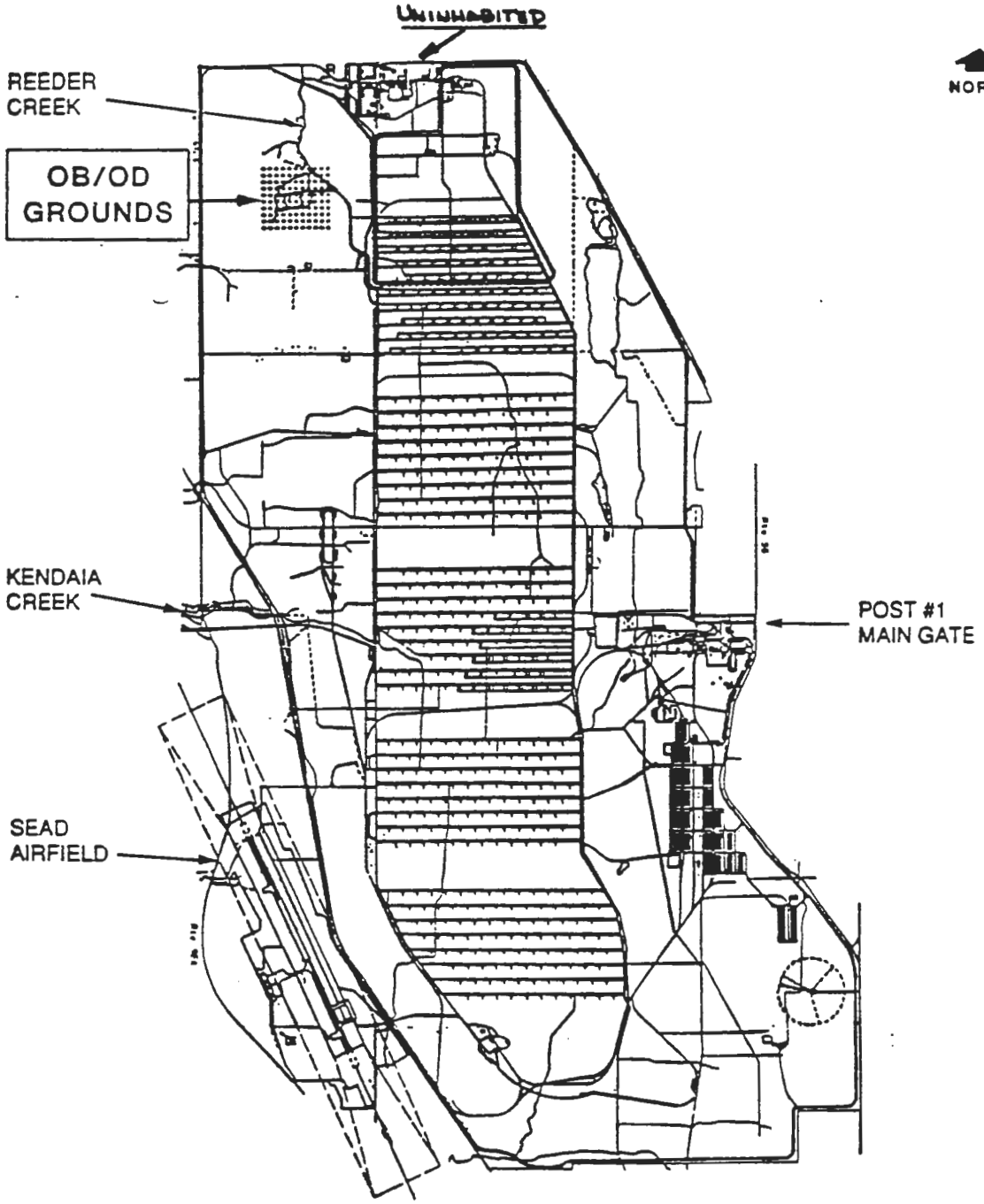
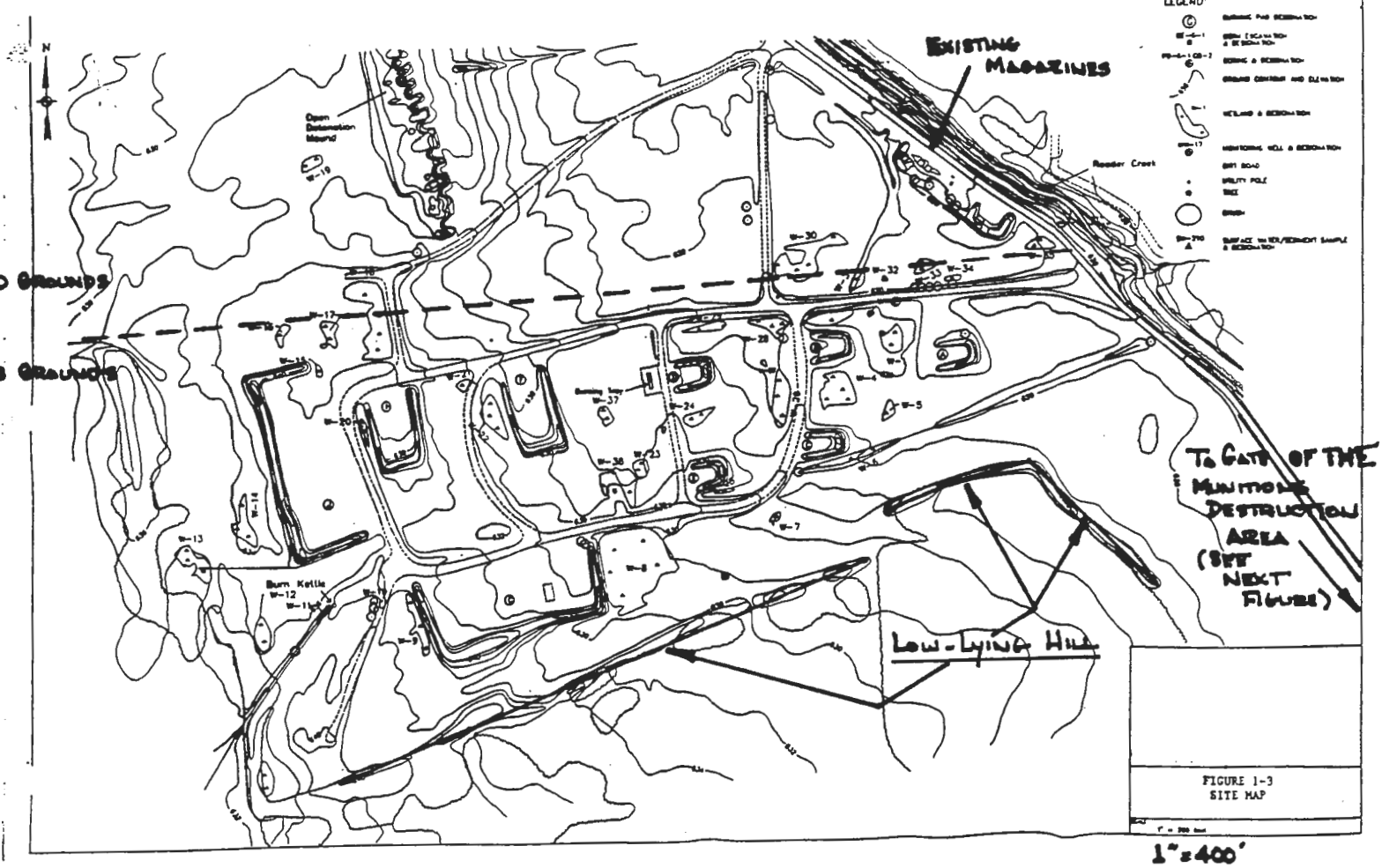


FIGURE 1-2

SENECA army DEPOT MAP

SCALE 1" = 5000' (APPROXIMATE)

SOURCE: Seneca Army Depot



MPM = MK II HAND GRENADE

PMD = 842' ⟹ 850'

SITE MAP 1
GENERAL SITE LAYOUT

WEST BOUNDARY FENCE

STRAIGHT LINE DISTANCE EQUALS 1880'±.

GATE TO MUNITIONS DESTRUCTION AREA

(CLOSEST POSSIBLE PRESENCE OF THE "PUBLIC" i.e. NON-UXO QUALIFIED, NON-UXO ESCORTED CONTRACTOR, DEPOT, SECURITY PERSONNEL)

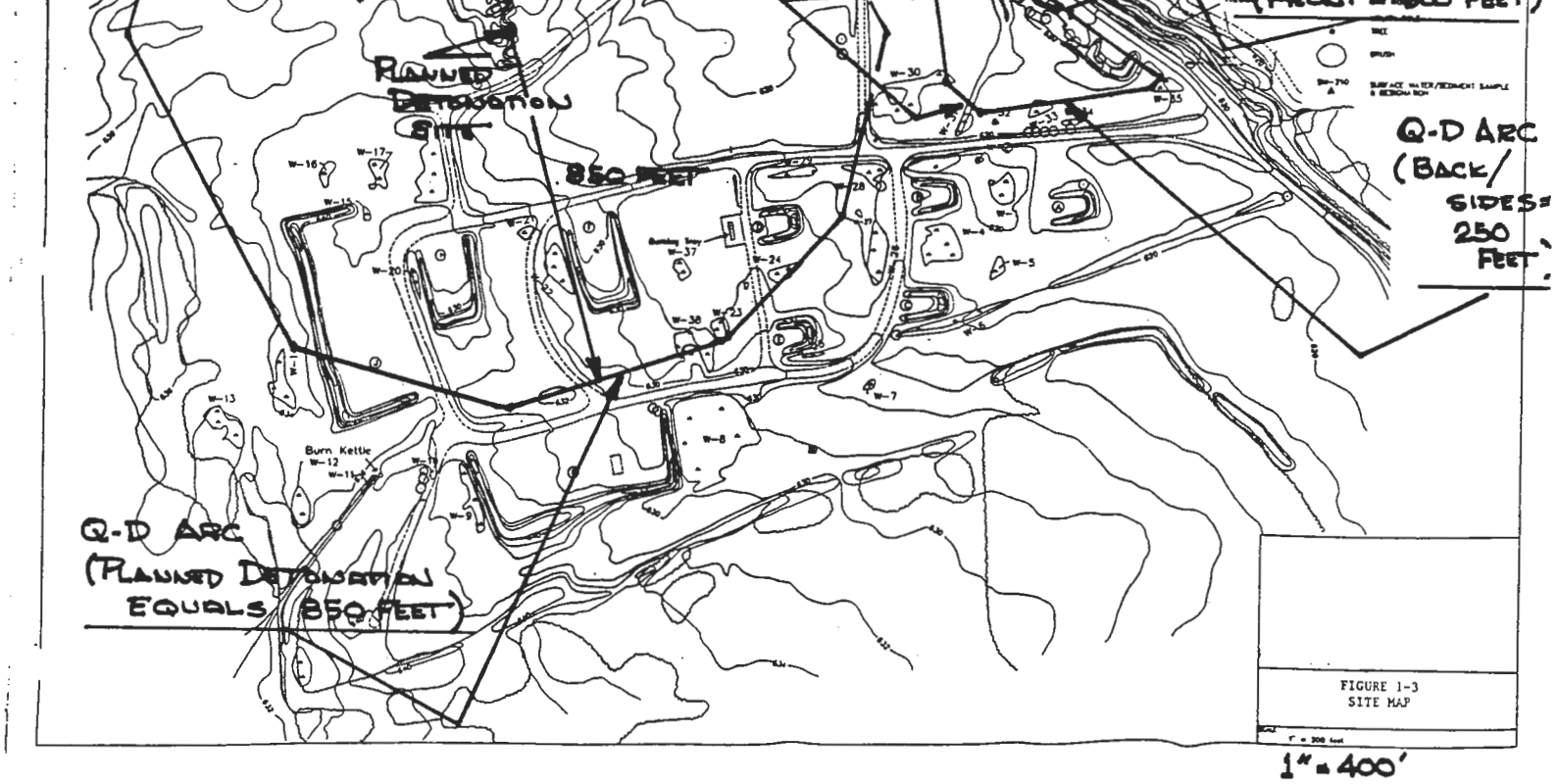
AMMUNITION AREA FENCE

EAST BOUNDARY FENCE

MPM = MK II HAND GRENADE
PWD = 842' → 850'

SITE MAP 2

DISTANCES TO THE NEAREST POSSIBLE PRESENCE OF THE GENERAL PUBLIC



NOTE: REFER TO SITE MAP 2 TO SEE RELATIONSHIP OF DISTANCES SHOWN HERE TO OVERALL OB GROUNDS SITE AND THE NEAREST POSSIBLE PRESENCE OF THE GENERAL PUBLIC.

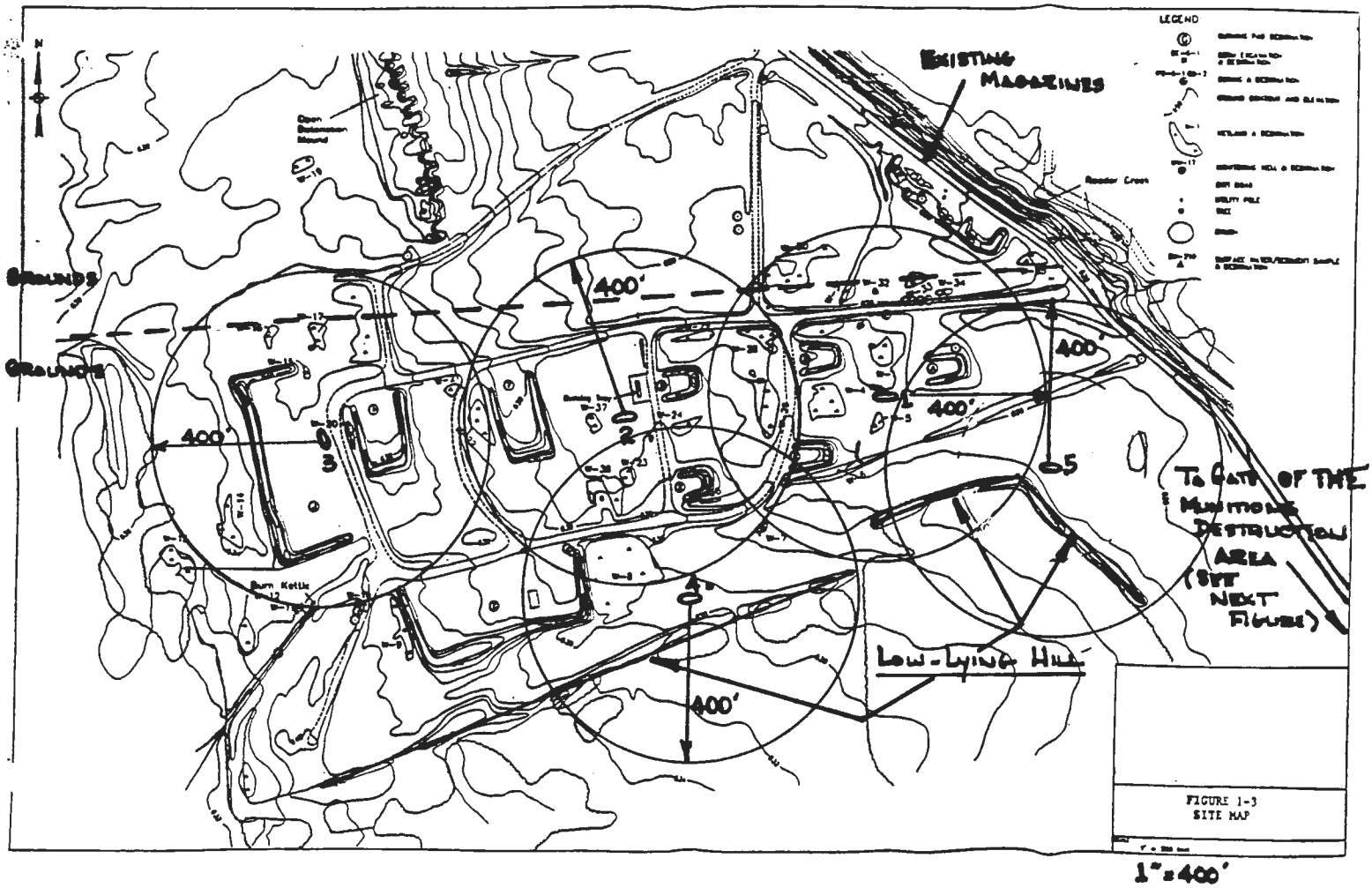
NOTE: Q-D ARCS FOR ALL OE AREAS ARE NOT SHOWN FOR OBVIOUS REASONS. AS ONE CAN GRASP FROM REFERENCE TO SITE MAP 2, THE SHORTEST DISTANCES TO THE NEAREST POSSIBLE PRESENCE OF THE GENERAL PUBLIC ARE:

1880' ± TO THE ENTRANCE TO THE MUNITIONS DESTRUCTION AREA FROM THE EXTREME SE PORTION OF THE SITE (A EXTREME SE TIP OF THE LOW-LYING HILL)

2000' ± TO THE WEST BOUNDARY FENCE

2000' ± TO THE PATROL ROAD SOUTH OF THE SITE

4000' ± TO THE PATROL ROAD NORTH OF THE SITE



MPM = MK II HAND GRENADE
MK II GRENADE IS AN (04)1.1 ITEM.
THEREFORE Q-D DISTANCE AROUND SIFTER LOCATIONS IS 400 FEET.

SITE MAP 4
SIFTER LOCATIONS AND Q-D ARCS (5 LOCATIONS)

APPENDIX B

List of Items Demilled
at the SEDA Munitions Destruction Area

ATTACHMENT 2

List of Demilled Items

73-1-228	Burster, M14
73-1-197	Burster, M19
73-1-202	Burster, M21
3-1-215	Burster, M23
3-2-21	Burster, M24
797832	Burster, M35
73-1-264	Burster, M37
75-1-258	Burster, M40 Series
73-1-226	Burster, M41
73-1-230	Burster, M47
8886484	Burster, M48
8861032	Burster, M71
8434390	Cap, Catapult, Firing
H22-47-18	Cap, Blasting Electric
H22-47-14	Cap, Blasting Electric

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
A18-60-255	Cap, Blasting, Electric, Commercial #6
H22-47-05	Cap, Blasting, Electric, #8
Spec. AXS 1234	Cap, Blasting, Electric, #8, 1st, 2nd, 3rd and 4th Delay
8830972	Cap, Blasting, Electric, J2, PETN Type 2 and M6
8830948	Cap, Blasting, Nonelectric J1, PETN, RDX Type 1 and M7
MIL-C-4546	Cap, Blasting, Nonelectric #6 and 8
MIL-C-20496	Cap, Blasting, Nonelectric Tetryl Type A
A96713	Cartridge, Activating Device
D 491836 (Navy)	Cartridge, Activating Device, MK 17, Mod 0
00051-1	Cartridge, Powder Actuated
41155	Cartridge, Aircraft, Fire Extinguisher
98796 (Navy)	Cartridge, Bomb, Ejection, MK1, Mod 2 and 3
008	Cartridge, Bomb, Ejection, MK2, Mod 0
-31-1	Cartridge, Bomb, Ejection, M3
.1-2 (Air Force)	Cartridge, Bomb, Ejection, ARD 863-1
A97155	Cartridge, Cutting Blade
826478	Cartridge, Delay, XM232
: 3001	Cartridge, Delay - HI - Shear Corp.
00-33 (Air Force)	Cartridge, Engine Starter, MXU41A and

IL-C-27658	Cartridge, Engine Starter, MXU 129A
0022246	Cartridge, Explosive
026-001	Cartridge, Igniter, Turbojet Engine Type 2
9831	Cartridge, Ignition, M2
92287	Cartridge, Ignition, M2A2
-19-78	Cartridge, Ignition M5A1
5-19-71	Cartridge, Ignition, M6
5-19-79	Cartridge, Ignition, M8
5-19-82	Cartridge, Ignition, M66
283661 (Navy)	Cartridge, Impulse, MK2, Mod 1.
013-40 (Navy)	Cartridge, Impulse, MK24, Mod 0.
518426 (NAVAIR)	Cartridge, Impulse, MK131MOD 0
5-1-227	Cartridge, Impulse, M2SA1
5-1-280	Cartridge, Impulse, M29A2
5-1-288	Cartridge, Impulse, M50
5-1-290	Cartridge, Impulse, M51A1
X1-95-1-11	Cartridge, Impulse, M56
594084	Cartridge, Impulse, M57
595295	Cartridge, Impulse, M67
23079	Cartridge, Impulse, MK104, Mod 0
0521610	Cartridge, Impulse, M141
0521960	Cartridge, Impulse, M150

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
FE 51831	Cartridge, Impulse, M151
1283660	Cartridge, Impulse, ARD 446-1 :
9311660	Cartridge, Impulse, M796
95-1-15	Cartridge, Initiator, M38
95-1-22	Cartridge, Initiator, M46
8593274	Cartridge, Initiator, M70
8594157	Cartridge, Initiator, M73
9465	Cartridge, Initiator, M91
8593312	Cartridge, Initiator, M93
58D46856 (Air Force)	Cartridge, Kit, Bomb
61D14986 (Air Force)	Cartridge, Kit, Parachute
6RS2C3268	Cartridge, Line Throwing Device
8434364	Cartridge, Mine Safety Appliance
78-0-114	Cartridge, Photo Flash, M112 Series
78-0-132	Cartridge, Photo Flash, M121 Series
78-0-134	Cartridge, Photo Flash, M123 Series
78-0-137	Cartridge, Photo Flash, M124 Series
Commercial Cartridge, Powder Actuated Tool, Cal .22 and Cal .30	
P82257AK	Cartridge, Release Cargo, Parachute, 1.0 sec delay
8258662	Cartridge, Release Cargo, Parachute, 2.0 sec delay
Commercial Cartridge, Set, Escape System-4, MK2	
5-1-17	Cartridge, Thruster, M42
F7365	Cartridge, Thruster, M43
FF7367	Cartridge, Thruster, M44
596708	Cartridge, Thruster, M94
D20674	Cartridge, Thruster, M119
8797470	Cartridge, Thruster, T238
82-0-158	Charge Assembly, Demolition, M37
9216416	Charge Assembly, Demolition, M183
83-0-93	Charge, Demolition Block, M2 and M3
P84025	Charge, Demolition Block, M5
82-13-9	Charge, Demolition Block, M5A1
117476	Charge, Demolition Block, M112
117651	Charge, Demolition Block, M118
87971113	Charge, Demolition Block, 1/4-lb TNT
82-13-24	Charge, Demolition Block, /2-lb and 1-lb TNT
MIL-E20308	Charge, Demolition Block, 1-lb Nitro-Starch
P84857	Charge, Demolition Chain, M1
D4306-5-1	Charge, Demolition Linear, Component of Demo Kit, M2
D5234-6	Charge, Demolition Linear, Component of Demo Kit, M2A1 and M6
82-13-23	Charge, Demolition Linear, Component Expl. Kit, Earth Rod
D3803	Charge, Demolition, Shaped, M2A1
83-0-120	Charge, Demolition, Shaped, M2A3
1025	Charge, Demolition, Shaped, M3
2843	Charge, Demolition, Shaped, 10-lb
3837975	Charge, Demolition, Shaped, 40-lb

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
82-15-26	Charge, Practice, M8 Mine
71-9-237	Charge, Propelling, Earth Rod, M12
D4014-1	Cord, Detonating - Fuse, Primacord PETN
6837262	Coupling Base, Firing Device
82-0-126	Cutter, Powder Actuated, Cable M1
82-0-159	Cutter, Powder Actuated, Line M2, M2A1, M21 and M22 Series
None	Demolition Equipment Set, Expl Initiating, Electric and Non-Electric
82-0-84	Demolition Kit, Bangalor Torpedo, M1A1 No. 1, 2, 5 and 7
8796266	Demolition Kit, Projected Charge, M1 Series
D4306-1 thru 6	Demolition Kit, Projected Charge, M2
D5234-1 thru 12	Demolition Kit, Projected Charge, M2A1 and M3
274935 (Navy)	Destructor, Explosive, MK2 Mod 0
82-0-209	Destructor, Explosive, Universal, M10
85555	Destructor, Explosive, M19
10-3137	Destructor, Explosive Type 131
73-9-104	Detonator Kit, Concussion, M1
73-9-110	Detonator, Percussion, M1A2
7909	Detonator, Percussion, M2A1
-D-45413	Dynamite, Military, M1
546	Expendable Firing Package
[illegible]	Explosive Kit, Earth Rod, Set No. 1
8AH5989	Explosive Kit, Parachute
9981-1	Fastener Unit, Powder Actuated Tool
246784	Firing Device, Delay, M1
797612	Firing Device, Pull Type, M1
3961-1-2	Firing Device, Release, M1
5-9-70	Firing Device, Pressure Type, M1A1
5-9-100	Firing Device Pull Type, M2
537267	Firing Device, Pull Release, M3
296865	Firing Device, Demolition, Multipurpose M5
147437	Firecracker, M80
34390	Firing Mechanism Assembly
4790 (Navy)	Flare, AC, Parachute, MK6, Mod 6
4663 (Navy)	Flare, AC, AN-MK8 Mod 2
-0-07	Flare, AC, Parachute, M8A1
-0-11	Flare, AC, Parachute, M9A1
-0-29	Flare, AC, Parachute, M26 Series
-0-45	Flare, Surface, Trip, M49
11623	Flare, Countermeasure, M206

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
8836957	Flare, Surface, Trip, M49 Series
78-0-44	Flare, Tow Target, M50
78-0-93	Flare, Surface, Airport M76
78-0-95	Flare, AC, Towed, M77, M78 and M79
78-0-153	Flare, AC, Parachute, M138 and M139
78-0-94	Fuses, Red, 20 minute, M72
2506736 (Navy)	Fuze, Auxiliary Detonating, MK396 Mod 0
2512190 (Navy)	Fuze, Auxiliary Detonating, MK935 Mod 1
73-2-168	Fuze, Base Detonating, M42 Series
73-2-178	Fuze, Base Detonating, M66 Series
73-2-181	Fuze, Base Detonating, M68 Series
73-2-239	Fuze, Base Detonating, M91 Series
73-9-17	Fuze, Base, Bullet Impact M1
82-1-31	Fuze, Hand Grenade, M6 Series
82-1-46	Fuze, Hand Grenade, M10 Series
13-10-22	Fuze, Hand Grenade, M201 Series
7548570	Fuze, Hand Grenade, M204, M205 and M206 Series
8822131	Fuze, Hand Grenade, M213
10963447	Fuze, Hand Grenade M217
9235210	Fuze, Hand Grenade, Practicce, M228
399141 (Navy)	Fuze, MK 177 Mod 0
73-7-29	Fuze, Mechanical Time, M43 Series
73-7-71	Fuze, Mechanical Time, M61 Series
D 165255	Fuze, Mechanical Time, MK 61 Mod 1
-7-97	Fuze, Mechanical Time, M67 Series
-7-97	Fuze, Mechanical Time, 208 MK3 (British)
-7-110	Fuze, Mechanical Time, 214 MK1 (British)
052291	Fuze, Mechanical Time, M585
73-7-135	Fuze, Mechanical Time & Superquick M500 Series
73-7-136	Fuze, Mechanical Time & Superquick, M501 Series
73-7-98	Fuze, Mechanical Time & Superquick, M502 Series
3596001	Fuze, Mechanical Time & Superquick, M548 Series
10534286	Fuze, Mechanical Time & Superquick, M564
Series	
73-9-13	Fuze, Mine, Combination, M6 and M7 Series
73-9-56	Fuze, Mine, Combination, M10A1
73-9-26	Fuze, Mine, AT, Practice, M12
73-9-55	Fuze, Mine, AT, M603
73-9-86	Fuze, Mine, AT, M604
73-2-111	Fuze, Point Detonating, M8
73-2-112	Fuze, Point Detonating, M9
73-2-140	Fuze, Point Detonating, M48 Series
73-2-145	Fuze, Point Detonating, M51 Series
73-1-161	Fuze, Point Detonating, M52 Series
73-2-137	Fuze, Point Detonating, M57 Series

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
73-2-214	Fuze, Point Detonating, M78 Series
73-2-251	Fuze, Point Detonating, M21 Series
73-1-195	Fuze, Point Detonating, M62 Series
73-2-374	Fuze, Point Detonating, TZ54 Series
73-2-320	Fuze, Point Detonating, M503 Series
73-2-359	Fuze, Point Detonating, M508 Series
73-2-393	Fuze, Point Detonating, MS19 Series
9311100	Safety and Arming Device, Guided Missile XM143
11711435	Fuze, Electronic Time, M587
11711268	Fuze, Electronic Time, M724
12510000	Fuze, Electronic Time, M762
12550850	Fuze, Electronic Time, M767
7226650	Fuze, PIBD, XM579
8797514	Fuze, Point Detonating, M524E1 NOTE: This SDP does not apply to the basic model Fuze, M524
8800197	Fuze, Point Detonating, MS25 Series
73-2-393	Fuze, Point Detonating, M526 Series
73-1-195	Fuze, Point Detonating, M527 Series
73-2-141	Fuze, Point Detonating, MS35 Series
8863535	Fuze, Point Detonating, MS57 Series
8880696	Fuze, Point Detonating, M572
7258605	Fuze, Point Detonating, M739
5332	Fuze, Point Detonating, M739A1
2-236	Fuze, Point Initiating, M90 Series
9735	Fuze, Point Initiating, Base Detonating, M509 Series
79523	Fuze, Proximity, MS04 Series
3510367	Fuze, Proximity, M513 Series
7524S	Fuze, Proximity, MS14 Series
75368	Fuze, Proximity, MS15 Series
542852	Fuze, Proximity, MS17 Series
1976900	Fuze, Proximity, MS32 Series
1716451	Fuze, Proximity, M732
4523 (Navy)	Fuze, Rocket, Nose, MK137 Series
3783 (Navy)	Fuze, Rocket, Nose, AN-MK149 Series
3844 (Navy)	Fuze, Rocket, Nose, MK154 Series
3845 (Navy)	Fuze, Rocket, Nose, MK155 Series
993581	Fuze, Rocket, Nose, M414 Series
93745	Fuze, Rocket, Point Detonating, M423 and M4237 Series
-3-166	Fuze, Time M84

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
73-3-154	Fuze, Time Superquick, M54
73-3-155	Fuze, Time Superquick, M55
563141	Fuze, MT, MK25 Mod 5 (1390-N257)
253190	Fuze, MT, MK31-4 (1390-N247)
2428426	Fuze, MT, MK342 Mod 0 (1390-N250)
10520791	Fuze, Mechanical Time, M562
10520688	Fuze, Mechanical Time, M563
8594044	Fuze, Mechanical Time, Superquick, M520 Series
9236500	Fuze, Mechanical Time, Superquick, M577
9352381	Fuze, Mechanical Time, Superquick, M577A1
9236701	Fuze, Mechanical Time, Superquick, M582
9352382	Fuze, Mechanical Time, Superquick, M582A1
053001-1	Generator, Gas Pressure, Prop. Actuated
82-0-143	Grenade, Hand, Fragmentation, MK2 Series
75-14-546 PRESSED FIBER BODY, NOT CRITICAL	Grenade, Hand, Offensive, MK3 Series
82-0-1 INERT	Grenade, Hand, Practice, M2182-0-190
82-0-190	Grenade, Hand, Fragmentation, M26 Series
82-0-191 INERT, MAYBE SMALL SEPARATE BLACK POWDER CHARGE	Grenade, Hand, Practice, M30
13-7-4	Grenade, Hand and Rifle: Smoke, WP, M34
82-0-109 NOT CRITICAL	Grenade, Rifle, Smoke, WP, M19 Series
82-0-117 NOT CRITICAL	Grenade, Rifle, Smoke, M22 Series
82-0-139 NOT CRITICAL	Grenade, Rifle, Smoke, Streamer, M23
82-2-204 NOT CRITICAL	Grenade, Rifle, Illuminating, M27 Series
82-0-195	Grenade, Rifle, HEAT, M31
6-9-62	Igniter, Blasting Fuse, M1 & M2
78-0-127	Igniter, Ram Jet Engine, M113
838168	Igniter, Ram Jet Engine, M114
78-2-590	Igniter, Ram Jet Engine, M132
78-2-592	Igniter, Ram Jet Engine, M133
78-0-155	Igniter, Ram Jet Engine, M134 & M135
8886428	Igniter, Rocket, M20A1
81-1-454	Ignition Cylinder, Portable, Portable Flame Thrower: M1 (MIL-I-11525) NSN 1375-00-219-8583-M680)
75-14-652	Mine, AP, NM, M14
P85738	Mine, AP, Practice, NM, M17
73-9-25	Primer, Igniter, M10 Series Mine Fuze
74-2-63	Primer, Percussion, M1B1A2
34760-1	Primer, Percussion, Cap, MCC, Improved No. 2 or 3
74-2-21	Primer, Percussion, Electric MK2A4
36392 (Navy)	Primer, Percussion, Electric MK13
37780 (Navy)	Primer, Percussion, Electric MK 13 Mod 1
37780 (Navy)	Primer, Percussion, Electric MK 13 Mod 2
9132 (Navy)	Primer, Percussion, Electric MK 14 Mod 1
28952 (Navy)	Primer, Percussion, MK22 Mod 0 for 40MM Ammunition
38589 (Navy)	Primer, Percussion, MK22 Mod 1 for 40MM Ammunition

SHAPED CHARGE (ANTI-TANK)

OD Ground only

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
339130	Primer, Percussion, M28 and M31 Series
-2-49	Primer, Percussion, M32
4-2-50	Primer, Percussion, M33
4-2-51	Primer, Percussion, M34
4-2-63	Primer, Percussion, M38 (MK22), M40, M47, M60, M64 and M69 Series
339472	Primer, Percussion, M49 Series
-2-86	Primer, Percussion, M57 Series
797087	Primer, Percussion, M58 Series
4-2-68	Primer, Percussion, M62 Series
35557	Primer, Percussion, M70 Series
-2-87	Primer, Percussion, M71 Series
361197	Primer, Percussion, M82 Series
363394	Primer, Percussion, XM92 Series
-8-5	Primer, Electric and Percussion, MK15, Mod 1
59166 (Navy)	Primer, Electric, MK34, Mod 0
53471 (Navy)	Primer, Electric, MK39 Mod 0
648520	Primer, Percussion, Electric, M67
339499	Primer, Electric M80 Series
62308 (Navy)	Primer, Electric, MK 35 Mod 1
77568 (Navy)	Primer, Electric, MK 40 for 6"/47
53478 (Navy)	Primer, Percussion, MK 41 Mod 0
86277 (Navy)	Primer, Electric, MK 42 Mod 0
06281 (Navy)	Primer, Electric, MK 42 Mod 2
37 (Navy)	Primer, Electric, MK 45 Mod 0
26 (Navy)	Primer, Electric, MK 48 Mod 1 for 5"/38
382 (Navy)	Primer, Electric MK 15 Mod 3
50 (Navy)	Primer, Percussion, MK 10 Mod 9
5774 (Navy)	Primer, Percussion, Electric, MK 20 Mod 0
41770 (Navy)	Primer, Electric, MK 48 Mod 1
50628 (Navy)	Primer, Electric MK 42 Mod 3
12368 (Navy)	Primer, Electric MK 49 Mod 1
9213 (Navy)	Primer, MK 101, Mod 3
44637 (Navy)	Primer, Electric, MK 153 Mod 0
44756 (Navy)	Primer, Electric, MK 46 Mod 1
5-1	Release, Firing Pin, M1 Series
1-282	Remover, Aircraft Canopy, M1 Series
42725	Rocket, Practice, 35MM, Sub-caliber, M73
760 (Navy)	Signal, Smoke, Marine, AN-MK1, Mod 1
-82	Signal, Illum, Marine, Two-Star-Red, AN M75
-37	Signal, Illum, Grd, Parachute, M17, M19 M21 and M51 Series
-38	Signal, Illum, Grd Cluster, M18, M20, M22 and M52 Series
-33	Signal, Illum, AC, Double Star, AN-M37, M38, M39, M40, M41 and M42 Series
-34	Signal, Illum, AC, Tracers AN-M53, M54 M55, M56, M57 and M58 Series
920	Signal, Illum, Grd, Green Star Cluster, M125 Series

APPENDIX A Cont'd

DRAWING NUMBER or MIL-SPEC	ITEM
8797968	Signal, Illum, Parachute, M126 and M127 Series
8797996	Signal, Ground, Smk, M128 and M129 Series
8838071	Signal, Illum, Grd, Parachute, M131 Series
78-0-96	Simulator, Proj Air Burst, M74A1
78-0-115	Simulator, Gun Flash, M110
7549246	Simulator, Proj Ground Burst, M115 Series
8835109	Simulator, Hand Grenade, M116 Series
78-0-120	Simulator, Booby Trap, Flash, M117
78-0-122	Simulator, Booby Trap, Illum, M118
78-0-124	Simulator, Booby Trap, Whistling, M119
9322059	Simulator, Flash, Artillery, M21
11745290	Simulator, Launching, Antitank Guided Missile and Rocket, M22
71-13-3	Simulator, Projectile Airburst: Charge Smoke Puff White *
82-5-146	Squib, Electric, M1 Series
75-17-11	Tracer, M5 Series
8849014	Tracer, XM10 Series
9220866	Fuze, PD, XM716
9220867	Fuze, PD, XM717
9220850	Fuze, PD, XM719
1310347	Fuze, Proximity, M516 Series
727728(S)	Fuze, Proximity, FMU-110/B
727272(S)	Fuze, Proximity, FMU-113

APPENDIX C

Excerpts from Work Plan: Scrap Handling

2.6.14 Quality Control Inspections

EODT will utilize QC procedures for controlling and measuring quality of all work performed during site activities. All QC activities will be performed and documented IAW applicable professional and technical standards, USACE requirements, and project goals and objectives. All site activities will be monitored and documented for precision, accuracy and completeness IAW Chapter 8 of this WP.

2.7 PROJECT CLOSE-OUT

During this phase, EODT will remove its operational capability from the area and will reallocate its personnel and equipment to other projects. The SUXOS will closely monitor operational performance throughout the execution of this task order. When a clear projection can be made of the actual completion date, the SUXOS will, with the approval of the CEHNC PM, initiate actions to demobilize personnel and equipment. Demobilization and close-out activities will be performed by EODT's SUXOS, SSHO, and UXO Specialist.

2.7.1 Scrap Turn In

Upon completion of the project, all inert, stockpiled ordnance and ORS greater than one square inch in size will be turned in to a local scrap dealer. The procedures outlined in DoD 4160.21.M will be followed and the shipment certified as being free of explosive hazards. A DD Form 1348-1 will be utilized as the Turn-In Documentation, and will include the statement "I certify that the property listed hereon has been inspected by me, and to the best of my knowledge and belief, contains no item of a dangerous nature." The DD Form 1348-1 will be signed by the SUXOS and all turn-in documentation included in the Removal Report.

2.7.2 Break Down Site

This paragraph and Chapter 7 of this WP will be followed in the break down of the site. All temporary facilities will be removed and the site returned, as nearly as feasible, to its original condition. All holes and excavations will be filled in, graded and re-seeded with indigenous grasses.

2.7.3 Removal of the Workforce

EODT will demobilize site personnel as activities are completed and a workforce reduction is warranted. The decision to reduce personnel will be based on operational requirements and will be submitted to CEHNC for review and approval.

2.7.4 Close Out Accounts

Following the completion of operations, EODT's SUXOS will take action to close all accounts with local vendors and suppliers. Final billing for these accounts will be forwarded to the EODT Knoxville office for payment. In the event that CEHNC has other activities scheduled at the SEDA,

8.7.3 Scheduled Audits

Depending upon the nature and duration of the project, audits may be conducted periodically by the EODT QCM. This audit will include a surface and subsurface check of an additional 10% of the work completed. The EODT QCM, assisted by the QCS, will proceed on a pre-determined pattern starting on the opposite side from the QCS's check, which will provide a total combined QC audit of approximately 20%. As with the QCS's check, if the site fails, it is scheduled for re-work. In addition, an inspection of all logs and a check of contractor and subcontractor personnel will be conducted to ensure that they are complying with the WP.

8.7.4 Pass/Fail Criteria

The pass/fail criteria for the final clearance of a site is set by the CEHNC. This criteria specifies that a grid will be failed if one UXO item is found during a QC or QA audit conducted by either EODT or CEHNC personnel. If this occurs, the entire grid will be failed and must be re-surveyed and cleared. Upon completion of the grid re-work, an additional QC or QA audit will be conducted again by the responsible parties. Any failure will be reported to the CEHNC CO/COR, EODT QCM, PM and SUXOS.

8.7.5 Ordnance Related Scrap Inspections

When ORS is located on site, it is inspected by at least two UXO technicians prior to being removed from the grid. Whenever ORS is to be placed in the roll on/off container, the QCS and SSHO will conduct a third and fourth inspection for the presence of explosive components or residues. In the event that any are discovered, the item will be removed and destroyed and the incident will be recorded and thoroughly discussed at the next daily tailgate safety meeting. The incident will be reviewed by the SUXOS and QCS and a recommended course of action presented to the PM, i.e., reprimand or dismissal of the two previous inspectors.

8.8 NON-CONFORMANCE/CORRECTIVE ACTION

Any non-conformance to contractual requirements will be documented and reported. Non-conformance includes:

- Delivery of items or services by EODT that do not meet the contractual requirements;
- Errors made in following work instructions or improper work instructions;
- Unforeseeable or unplanned circumstances that result in items or services that do not meet quality/contractual/technical requirements;
- Technical modifications to the project by individuals that do not have the responsibility and authority; and
- Errors in craftsmanship and trade skills.

APPENDIX D

Soil Sifting Standard Operating Procedure

STANDARD OPERATING PROCEDURE 120-B
UXO/OEW OPERATIONS - MECHANICAL SIFTING

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to outline the minimum safety and health requirements and procedures applicable to the conduct of material separation operations involving the use of mechanical sifting equipment.

2.0 SCOPE

This SOP applies to all site personnel, to include EODT, contractor, and subcontractor personnel, and operations involving the separation of material through the use of mechanical sifting equipment. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- OSHA Construction Industry Standard 29 CFR Part 1926, Subpart O;
- OSHA General Industry Standard 29 CFR Part 1910, Subparts N and O; and
- USACE EM 385-1-1, Sections 16 A and B and Section 17 A.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the EODT resources needed to implement this SOP, and shall ensure that this SOP is incorporated in the plans, procedures and training for sites where mechanical sifting is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for sifting operations, and that relevant sections of this SOP are discussed in the tailgate safety briefings. Information related to the daily implementation of the SOP is to be is documented in the Site Operational Log maintained by the SUXOS.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for ensuring the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the

absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including EODT, contractor, and subcontractor personnel involved in sifting operations shall be familiar with the potential safety and health hazards associated with this operation. As such, all effected personnel shall also be familiar with the control techniques to be used to reduce or eliminate these hazards.

5.1 SAFETY HAZARDS

The safety and health hazards that may be associated with the operations of mechanical sifting machines on an ordnance and explosives (OE) site are listed below. For each of the hazards listed, at least one hazard control measure is listed in paragraph 5.2 for the reduction of the operational hazard. At no time will mechanical sifting operations be conducted on site without the use and implementation of the appropriate controls measures.

1. Unexploded ordnance (UXO), possibly resulting in heat, fire, fragmentation, and over pressurization hazards;
2. Noise;
3. Dust;
4. Stored energy;
5. Pinch points; and
6. Engine exhaust.

5.2 OPERATIONAL CONTROL MEASURES

For the safety hazards listed in paragraph 5.1, the operational control measures presented below shall be used to the greatest extent feasible, to protect site personnel from the hazards associated and identified with mechanical sifting operations. The degree and type of hazard, as outlined in the site Work Plan (WP) and Site Safety and Health Plan (SSHP) will determine the extent of control to be used, however, all of the safety measures listed below will be implemented.

1. Daily tailgate safety meetings will be conducted, and noted in the Safety Log, as to the safety and health concerns pertaining to that days use of sifting equipment.

2. Sifting equipment and support vehicles shall be equipped with fire extinguishers.
3. The shaker assembly will not require barricading. Of the two personnel (the sifter operator and the front-end loader operator) essential to the sifting operation, the sifter operator will be protected by a steel enclosure consisting of at least 0.47 inches of mild steel. This enclosure will provide protection on three sides, the top, and will contain a plexiglass window of 2.37 inches, as specified by Dr. Crull, Structures Branch, Engineering Directorate, US Army Engineering and Support Center, Huntsville (USAESCH). Figure 120B-1 provides a graphic example of the enclosure. The loader operation will be protected by plexiglass shielding of the appropriate thickness.
4. The location of the sifter operator's enclosure will be outside the k24 distance arc of 17.53 feet (DOD 6055.9-STD). To fill the sifter hopper, the loader operator will be passing temporarily into and out of the k24 distance arc, and as such will be required to wear hearing protection at all times. This will be in addition to the plexiglass shielding that will be installed on all excavation and loading equipment.
5. The operators of any EMM being used to load the sifter hopper will be protected from fragmentation through the use of at least 2.5 inch plexiglass mounted on the front and rear of the operators cab. If determined necessary by the SSHO, shielding may be required on the side doors as well.
6. Oversize debris separated from the soil by the sifter screens shall be viewed by the remote operator in an attempt to identify any OE items that may filter out of the soil. Additionally, the remote operator will watch for any materials that may become lodged/jammed in the sifter. Oversize materials from the sifter will be periodically inspected by UXO-personnel, with all inspections taking place only after the sifter unit has been shut down. Segregation of the oversize materials will be performed according to the following:
   a The debris is identified as non-OE scrap that will be disposed of as scrap.
   b. The debris is identified as OE-related scrap or inert OE and must be verified as being free of OE hazards prior to scrap disposal.
   c. The debris is identified as UXO that is unfuzed and safe to move, in which case the item will be removed from the area and destroyed at the existing OD area.
   d. The debris is identified as hazardous UXO that should not be moved, where upon, the SUXOS will immediately notify the USAESCH SREP who will direct EODT as to the next course of action to be taken. If needed, SREP may request military EOD support.
7. When maintenance or servicing is to be performed on the sifter or conveyor system, all sources of immediate power or stored energy shall be controlled (refer to lockout/tagout SOP).
8. Sifting operations shall be restricted to daylight hours, and once operations begin, only UXO-qualified personnel may enter the safety zone around the sifter operation.

9. All site personnel shall be informed of the location of the "Kill Switch" for each piece of sifting related equipment on site, as well as the procedures for summoning emergency support.

5.2 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following safety measures and personal protective equipment (PPE) shall be used in preventing or reducing exposures associated with sifting operations. These requirements will be implemented unless superseded by site specific requirements stated in the SSHP.

1. Hard hats, steel-toe safety boots and protective gloves shall be worn when ever maintenance, adjustment or clearing of the sifter is being performed.
2. Safety glasses shall be worn around sifting equipment unless full face respirators are required; and
3. Any of the PPE that will be worn when investigating OE items in the sifter will be secured to the wearer to ensure that it does not fall off and strike suspect UXO items;
4. Hearing protection shall be worn when sifting equipment is in operation unless the SSHO has measured and determined the noise levels to be less than 85 decibels on the "A" scale over an 8-hour time-weighted average.

6.0 AUDIT CRITERIA

The following items related to sifting operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefings; and
4. The Daily Safety Inspection Checklist

7.0 ATTACHMENTS

No attachments associated with this SOP.

Figure 120B-1 Blast Shielding for Remote Sifter Operator