UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
BOSTON, MA 02109

Date: See signature stamp below

Robert Simeone
Department of the Army
Base Realignment and Closure Division
U.S. Army Garrison Fort Devens
30 Quebec Street, Unit 100
Devens, MA 01434-4479

Re: *Draft Fifth Five-Year Review Report for Former Sudbury Training Annex for AOC A7, Sudbury, Massachusetts*

Dear Mr. Simeone:

This office is in receipt of the U.S. Army's Fifth Five-Year Review Report for the Former Sudbury Training Annex for AOC A7, dated September 2021. Upon review of this report, EPA concurs with the findings that all CERCLA remedies selected for the Site have been implemented and are currently protective of human health and the environment.

Fence repair at AOC A7 is identified in the Five-Year Review as a necessary follow up action to maintain long-term protectiveness at the Site. Fence repair will be completed by the Army by November 30, 2021. Additionally, the Army will be conducting a supplemental site investigation for per- and polyfluoroalkyl substances (PFAS) at AOC A9 and P13. EPA looks forward to continuing our collaborative efforts with the Army and the Massachusetts Department of Environmental Protection to complete work associated with the Five-Year Review recommendation and the PFAS investigation, so that the remedies at the Former Sudbury Training Annex remain protective.

For purposes of future planning, the sixth Five-Year Review for Former Sudbury Training Annex should be completed no later than September 25, 2026.

Sincerely,

KAREN MCGUIRE Digitally signed by KAREN MCGUIRE
Date: 2021.09.24 08:05:58 -04'00'

Karen McGuire, Director, Enforcement and Compliance Assurance Division for
Bryan Olson, Director, Superfund and Emergency Management Division

cc: Anni Loughlin/EPA
Cayleigh Eckhardt/EPA
Robert Lim/EPA
Dave Chaffin/MassDEP
Tom Eagle/USFWS

SEMS Doc ID 100018992

Final
FIFTH FIVE-YEAR REVIEW REPORT (2016-2021)

for
Former Sudbury Training Annex for AOC A7
Sudbury, Massachusetts

Contract No.: W912WJ-18-C-0011

Prepared for:

Army Base Realignment and Closure Division

U. S. Army Garrison Fort Devens

U.S. Army Corps of Engineers

New England District

Concord, Massachusetts

SEPTEMBER 2021

FIFTH FIVE-YEAR REVIEW REPORT (2016-2021)
for
Former Sudbury Training Annex for AOC A7
Sudbury, Massachusetts

Contract No.: W912WJ-15-C-0011

Prepared for

Former Fort Devens Army Installation

Devens, Massachusetts

Prepared by

KOMAN Government Solutions, LLC/Trinity

293 Boston Post Road, Suite 100

Marlborough, MA 01752

SEPTEMBER 2021

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Date: 2021.09.17 10:40:09 -04'00'

Richard C. Ramsdell
Chief, BRAC Branch
Army Environmental Division (DAIN-ISE)
HQDA/Office Deputy Chief of Staff, G-9

Date

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TABLES

FIGURES

Appendices

ABBREVIATIONS AND ACRONYMS

AFFF	aqueous film forming foam
AOC	area of contamination
ALM	adult lead methodology
ARAR	Applicable or Relevant and Appropriate Requirements
Army	U.S. Army
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COD	chemical oxygen demand
COPC	contaminant of potential concern
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DoD	Department of Defense
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FFA	Federal Facility Agreement
Fort Devens	former Fort Devens Army Installation
FYR	five-year review
HA	health advisory
IEUBK	Integrated Exposure Uptake Biokinetic Model
LTMMP	Long-Term Monitoring and Maintenance Plan
LUC	land-use control
µg/L	micrograms per liter
MassDEP	Massachusetts Department of Environmental Protection
MCL	maximum contaminant level
MFA	Former Massachusetts Firefighting Academy
NCP	National Oil and Hazardous Substances Contingency Plan
ng/L	nanograms per liter
NPL	National Priorities List
O&M	operations and maintenance
OU	operable unit
PA	preliminary assessment
PCE	Tetrachloroethene
PFAS	Per- and Polyfluoroalkyl Substances
PFDA	Perfluorodecanoic acid
PFHpA	Perfluoroheptanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
ppm	parts per million
RAO	remedial action objectives

ABBREVIATIONS AND ACRONYMS

RCRA	Resource Conservation and Recovery Act
RfC	reference concentration
RI	remedial investigation
ROD	Record of Decision
SA	study area
SC	source control
SI	Site Investigation
SL	screening level
SVOC	semi-volatile organic compound
TBC	To Be Considered
ppt	parts per trillion
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Services
VISL	vapor intrusion screening level
VOC	volatile organic compound

EXECUTIVE SUMMARY

This fifth Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Five-Year Review (FYR) was conducted by the U.S. Army Corps of Engineers (USACE) – New England District (NAE), for the remedial actions for the former Sudbury Training Annex Area of Contamination (AOC) A7 and covers the time period between September 27, 2016 to September 2021. This review, which was completed in accordance with the U.S. Environmental Protection Agency (EPA) Comprehensive Five-Year Review Guidance (USEPA, 2001) and with applicable portions of EPA Region 1 FY2021 Supplemental Template (USEPA Region I, 2021) was performed from January to September 2021. This is the fifth comprehensive FYR performed for the former Sudbury Training Annex covering the time period from September 27, 2016 to September 2021. The previous Five-Year Review was completed in September 2016. The purpose of a FYR is to evaluate the implementation and performance of a remedy to determine if the remedy is or will be, protective of human health and the environment. In addition, FYR reports identify issues, if any, found during the review, and provide recommendations to address them.

The former Sudbury Training Annex occupies approximately 2,300 acres in the Middlesex County, Massachusetts. The former Sudbury Training Annex was deleted from the National Priorities List (NPL) in January 2002. The US Fish and Wildlife Service (USFWS), the US Air Force (USAF), the Federal Emergency Management Agency (FEMA), the Massachusetts Department of Conservation and Recreation, and the Massachusetts Department of Fire Services currently control the land.

This review addresses only the AOC A7 source area since the rest of former Sudbury Annex had no further action decision documents after sites were assessed in preliminary assessments and/or site investigations and no further actions per records of decision (ROD) after removal actions. Also, the AOC A9 source area was cleaned up to levels that are protective of human health and the environment as a result of the remedial action. At the time of the ROD, USFWS requested the majority of the land, including AOC A9, become part of a wildlife refuge. The AOC A7 source area is the only site where contaminants remain in place and where conditions do not allow for unlimited use and unrestricted exposure, and is subject to a FYR. The ROD for the AOC A7 source area included land use controls to limit future site use and to restrict site access. The land use restrictions specified in the Memorandum of Agreement with USFWS when the property was transferred included a prohibition on surface application of water at AOC A7 and prohibition of extraction, consumption, exposure, or utilization of groundwater underlying AOC A7. The groundwater at AOC A7 was addressed via a management of migration operable unit (OU) ROD for groundwater at AOC A7 and A9 (OHM, 1997), which specified no further action including no land use controls.

This FYR focuses on the Source Control (SC) remedy for the former Sudbury Training Annex at AOC A7, where waste remains in place. The remedy consisted of the following components:

- Excavation and offsite disposal of laboratory waste at AOC A7;
- Excavation of contaminated soil at AOC A9 and consolidation of this soil under a Resource Conservation and Recovery Act (RCRA) cap at AOC A7;
- Environmental monitoring and operation and maintenance at AOC A7; and
- Land use controls (LUCs) at AOC A7.

The 1995 SC ROD included the following remedial action objectives (RAO) for AOC A7:

- Eliminate potential risk to human health and the environment associated with exposure to contaminated wastes;

- Minimize off-site migration of contaminants; and
- Limit infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation and groundwater degradation.

During the FYR period, AOC A7, was subject to operation and maintenance inspections of the landfill cap, landfill gas vent monitoring, groundwater sampling and analysis, and water level monitoring. LUCs in place at the former Sudbury Training Annex ensure protectiveness of the remedy from adjacent landowners and involved entities. The LUCs required by the 1995 SC ROD are detailed in Clause C8 of the Memorandum of Agreement (MOA) between the U.S. Army (Army) and the current property owners, the USFWS dated 28 September 2000 (Appendix F). The LUCs protect the AOC A7 landfill from tampering, described as surface application of water, the use of groundwater, disturbing the parcel by earthworks that would negatively affect any response actions or jeopardize the remedy, activities that might impede the function of the containment design, or any unauthorized work that might be done without the consent of EPA and the Army on the landfill cap itself.

The land use at AOC A7 has not changed from the wildlife refuge use evaluated prior to the ROD and is not expected to change. For this fifth five-year review, an Issue at AOC A7 is damage to the perimeter fence. It is recommended that the perimeter fence be repaired.

The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired. It is recommended that the long-term monitoring and maintenance plan (LTMMP) be revised to eliminate analysis of pesticides, cyanide, and chemical oxygen demand as concentrations have decreased and remained low or nondetect. It is also recommended that the sampling frequency be decreased to once every five years one year prior to the next FYR as concentrations have decreased to low concentrations or are nondetect. The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and if after completing this assessment it is deemed appropriate, transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance. Monitoring is required so long as there is CERCLA waste remaining on-site.

In 2016, USFWS installed a bedrock water supply well at AOC A9. While there were no groundwater restrictions at AOC A9, the Army agreed as part of the outcome to the 2016 FYR to sample groundwater , to confirm historic volatile organic carbon (VOC) compounds detected at AOC A9 as well as to evaluate emerging contaminants. Various activities were conducted by numerous entities at AOC A9 POL Burn Area. At the former fire training area portion of AOC A9, the Massachusetts Fire Fighting Academy conducted fire training exercises. Investigation of the overburden groundwater at AOC A9 indicated historic VOC concentrations (sampled in June 2018) have further attenuated to concentrations below applicable federal and state standards. Per- and polyfluoroalkyl substances (PFAS) were not detected in the USFWS well (sampled in August 2016) but were detected in the overburden groundwater (sampled in June 2018). A decision document has not yet been prepared for PFAS as a Comprehensive Environmental Response, Compensation and Liability Act (CERALCA) site inspection is being conducted at AOC A9 and AOC P13, which includes sampling a combination of groundwater, soil, surface water and sediment. Currently, the USFWS water supply well at AOC A9 is not in use. A summary of the PFAS investigation work at the former Sudbury Training Annex is presented in Section 12.

The FYR Report Summary Form is included as Table 1.

Table 1
Five Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Former Fort Devens Sudbury Training Annex		
EPA ID: MAD980520670		
Region: 1	**State:** MA	**City/County:** Sudbury/Middlesex

SITE STATUS	
NPL Status: Deleted	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: Other Federal Agency **If "Other Federal Agency" was selected above, enter Agency name:** U.S. Army Base Realignment and Closure (BRAC) Environmental Office, Devens, MA
Author name (Federal or State Project Manager): Robert J. Simeone
Author affiliation: BRAC Environmental Coordinator
Review period: September 27, 2016 - September 26, 2021
Date of site inspection: January 6, 2021
Type of review: Statutory
Review number: 5
Triggering action date: 09/26/2016
Due date *(five years after triggering action date)*: 09/26/2021

Issues and Recommendations Identified in the Five Year Review:

OU(s):	**Issue Category: Operations and Maintenance**			
	Issue: The perimeter fence needs to be repaired			
	Recommendation: Repair the perimeter fence.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA	11/30/2021

Protectiveness Statement(s)		
Former Sudbury Annex OU1	*Protectiveness Determination: Short-term Protective*	*Addendum Due Date (if applicable): N/A*
The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired, to ensure long-term protectiveness.		

1.0 INTRODUCTION

KOMAN Government Solutions, LLC has prepared this comprehensive five-year review (FYR) of the remedial actions for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site at the former Fort Devens Army Installation (Fort Devens) Sudbury Training Annex. This is the fifth comprehensive FYR that has been performed for one area of contamination (AOC) at the former Sudbury Training Annex. Specifically, this FYR addresses the AOC A7 source area, where waste remains in place and thus, is subject to a FYR. No further action was needed to address the groundwater at AOC A7, and therefore it will not be addressed in this FYR.

This fifth five-year review report covers the period from September 27, 2016 to September 2021.This report has been prepared in accordance with the CERCLA § 121, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 Code of Federal Regulations (CFR) § 300.430(f)(4)(ii) and U.S. Environmental Protection (EPA) and Department of Defense (DoD) guidance documents.

Section 121(c) of CERCLA and Section 300.430(f)(4)(ii) of the NCP require that periodic (at least once every five years) reviews be conducted for sites where hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure following the completion of all remedial actions for the site. As stated in the NCP, statutory FYRs are required no less than every five years after the initiation of the remedial action. The triggering action for this statutory review is the submittal date of September 26, 2016 for the previous FYR.

1.1 Purpose of the Review

This report documents the methods, findings, and conclusions of the CERCLA FYR conducted by the U.S. Army Corps of Engineers (USACE) on behalf of Base Realignment and Closure (BRAC), at the former Sudbury Training Annex, Sudbury, Massachusetts. The purpose of the FYR is to evaluate the implementation and performance of a remedy to determine if the remedy is or will be protective of human health and the environment. In addition, FYR reports identify issues, if any, found during the review, and identify recommendations to address them.

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2.0 SITE CHRONOLOGY

The site chronology presented in Table 2 includes the dates of major events including the completion of remedial actions, construction completions, and previous FYRs.

Table 2
Chronology of Events, Sudbury Training Annex

Event	Date
USACE Site Assessment – designated AOCs A1-A11	1980
USAEHA Hydrogeological and Subsurface Investigation of AOCs A1-A11	1983
NUS conducted Preliminary Assessment (PA)/Site Investigation (SI)	PA (1985), SI (1987)
Dames & Moore completed RI for AOCs A1-A11 and potential contamination sources in the vicinity of the Capehart Family Housing Area, Puffer Pond, and associated streams	1986
Site listed on National Priorities List (NPL)	February 21, 1990
Expanded RI – Dames & Moore	1990
Federal Facility Agreement signed	November 1991
Feasibility Study completed	May 1995
ROD – Source Control Operable Unit (OU) for AOC A7 (OU1) and AOC A9 (OU2)	August 1995
Fort Devens closed	March 31, 1996
The Devens Reserve Forces Training Area Established	April 1, 1996
Landfill cap construction start date	July 31, 1996
Monitoring Well Installation	1992-1996
ROD – Management of Migration OU's for AOC A4, AOC A7 and AOC A9	September 1997
Long term groundwater monitoring, cap and institutional control inspections	October 1997 to present
Long Term Monitoring & Maintenance Plan	April 1998
MOA for transfer of property from U.S. Army to U.S. Fish and Wildlife Service	September 28, 2000
First Five-Year Statutory Review	September 2001
Former Sudbury Training Annex withdrawn from NPL	November 30, 2001, effective date January 29, 2002
Transfer Agreement between U.S. Army and U.S. Air Force for a portion of the Fort Devens (former Sudbury Training Annex)	June 3, 2002 (USAF signed June 5, 2002)
Decommissioning of Wells OHM-A7-13 and OHM-A7-07	June 2002
Letter of Transfer for a portion (five FEMA parcels) of the Fort Devens to the Federal Emergency Management Agency	March 31, 2003
Modification to Memorandum of Agreement between U.S. Army and FEMA for the transfer of real property at former Sudbury Training Annex	FEMA signature dated July 29, 2003
Second Five Year Review	September 2006
Long-term monitoring and maintenance plan updated	March 2009
Third Five Year Review	September 2011
Well JO-A07-M62 found to be permanently damaged	October 2012
Well point SUDWP-A07-01 installed to replace JO-A07-M62	November 2013
Long-term monitoring and maintenance plan updated	February 2015
Fourth Five Year Review	September 2016
Monitoring well SUDA7-19-01 installed to replace SUDWP-A07-01	September 2019
Long-term monitoring and maintenance plan updated	July 2020
Fifth Five Year Review	September 2021

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3.0 BACKGROUND

The former Sudbury Training Annex comprises a total of 73 study areas (SA) and AOCs that have been identified since the 1980s (Weston, 2001). The Sudbury Training Annex became part of Fort Devens, now the Devens Reserve Forces Training Area, in 1982. In 1995 the Sudbury Training Annex was placed on the Base Realignment and Closure (BRAC) list.

The former Sudbury Training Annex was deleted from the NPL in January 2002. Ongoing operations and maintenance (O&M) of the landfill cap and groundwater monitoring occurs annually.

3.1 Physical Characteristics

AOC A7 is a 10-acre site that lies between Patrol Road and the Assabet River along the northern installation boundary (Figure 1). Access to the landfill is gained from Patrol Road or Track Road via locked gates. The roads to the landfill are deteriorating. The northern edge of the site is less than 100 feet from the Assabet River at its closest point. The landfill is located on the northern lower slope and a toe of a hill that slopes downward to the Assabet River. Average elevation is 200 feet with rounded and forested hills extending approximately 100 feet above the surrounding lowland (Figure 2). The lowland at the former Sudbury Training Annex is poorly drained with abundant wetlands and small streams throughout. The regional topography is glacially derived and characterized by level to slightly undulating lowlands with oval-shaped hills (glacial drumlins). Surficial deposits include a relatively thin and intermittent glacial till layer separating the glacial outwash sediment overburden from the bedrock outcropping at higher elevations throughout the area. Overburden soils in the wetland areas consist of finer grained silt and clay sized particles with abundant organic debris. A number of kettle ponds are on or nearby the former Sudbury Training Annex, including Puffer Pond, White Pond, and Lake Boon.

3.2 Land and Resource Use

The U.S. Army purchased the property from numerous landowners and farmers in 1942 to establish the Maynard Ammunition Depot. During World War II, the installation was used as a holding area for ammunition awaiting shipment overseas. After the war, the installation soon acquired its title as the Sudbury Annex. The facility was generally used for troop training, product and equipment testing, munitions/explosives testing and disposal, and disposal of various wastes from the Natick Laboratory, an Army research and development center. In 1982, the Sudbury Annex became a part of Fort Devens, later established as the Devens Reserve Forces Training Area in 1996. In 2000, the Army transferred 2,230 acres to the U.S. Fish and Wildlife Service (USFWS). This transfer of ownership was completed under the Defense Base Closure and Realignment Act of 1990, for its "particular value in carrying out the national migratory bird management program" (USACE, 2011).

With the acquired land, the USFWS established the Assabet River National Wildlife Refuge. The refuge encompasses a large wetland complex, several smaller wetlands and vernal pools, and large forested areas. These areas serve as important feeding and breeding areas for migratory birds and other wildlife. The refuge is open to the public for many wildlife-dependent recreational uses, such as wildlife observation, environmental education, running, hunting, and fishing (Figure 3).

AOC A7 is within a portion of the refuge that the USFWS has designated as an area that is closed to the public. The closed area is shown in Figure 3. In 2003, the USFWS removed military buildings and non-military buildings in the remaining USFWS property. Barbed wire and other safety hazards were also removed. In 2005, the refuge opened up a series of designated walking trails. In a further effort to open the area up to the public, a visitor center was opened on October 17, 2010. Numerous educational programs

are conducted in the refuge, including tours of the former Army bunkers, which the USFWS did not remove (USACE, 2011).

The refuge is also open to hunting, in accordance with Massachusetts state laws and refuge specific regulations. Permitted species are white-tailed deer, ruffed grouse, gray squirrel, rabbit, woodcock, and spring turkey. In regard to hunting, there are currently no stocking or management practices. The only dogs allowed on the refuge are hunting dogs. Fishing is authorized in accordance with state law.

In 2003, approximately 72 acres of the former Sudbury Training Annex were transferred to the Federal Emergency Management Agency (FEMA). FEMA formerly had a permit to occupy a parcel of the former Sudbury Training Annex since 1980. The transferred land included five non-contiguous small parcels. FEMA currently uses the land for its operations and training missions, including use of a Mobile Emergency Response Support center.

About four acres of the former Sudbury Training Annex were also transferred to the U.S. Air Force (USAF) in 2002. Activities are limited to the operation of a radar/weather station and associated buildings. The Massachusetts Department of Recreation owns land adjacent to the refuge, designated as the Sudbury Town Forest. The land has been subject to logging activities. In 2007, 50 acres of this land was transferred to the Department of Fire Services, utilized to build an overflow parking area near their buildings. Other areas surrounding the former Sudbury Training Annex include mostly residential land with some commercial development north and northeast of the site.

3.3 History of Contamination

AOC A7, known as the Old Gravel Pit Landfill, was used as a laboratory dump, burning ground, and general dump between the late 1950s and 1970s. Unauthorized surface dumping by the public also reportedly occurred until the 1970s when access was restricted. Dumped debris included drums and other chemical containers, glassware, and general refuse (tents, cloth, trash, etc.).

3.4 Initial Response

In February 1990, the site was officially listed on the NPL. The Federal Facility Agreement (FFA) between EPA and the Army, signed on November 15, 1991, states the Army, as the lead agency, is responsible for carrying out all work required in accordance with the requirements of CERCLA under EPA oversight. Investigations were followed up with removal of contaminated soil and underground storage tanks within the former Sudbury Training Annex. To prevent trespassers from physical harm or from coming in contact with contaminated areas, the Army fenced off several sites and buildings. The former Sudbury Training Annex was officially deleted from the NPL in 2002 (USACE, 2011).

3.5 Basis for Taking Action

The 1994 remedial investigation (RI) (OHM, 1994) showed results for current and potential future use risk scenarios. Maximum risks via the current use soil ingestion scenario were a hazard index of 0.9 and a cancer risk of $3x10^{-05}$ (OHM, 1995). Maximum risks via the potential future use scenario (residential soil and sediment ingestion and groundwater use) were a hazard index of 1 and a cancer risk of $5x10^{-04}$ (OHM, 1995). Contaminants listed in Table 3 were identified in the RI for AOC A7 (OHM, 1994).

Table 3

Contaminants Initially Identified at AOC A7

Soil	Groundwater	Surface Water	Sediment
Pesticides	**Pesticides**	**Metals**	**Semivolatile Organic Compounds (SVOC)**
4,4'-DDT (DDD and DDE)	4,4'-DDT (DDD and DDE)	Iron	N-nitroso-n-propylamine
Dieldrin			
Endosulfan			
Alpha chlordane	Alpha chlordane		N,N-bis(2-hydroxyethyl)dodecamid
Heptachlor	Dieldrin		
Heptachlor epoxide	Gamma-BHC (lindane)		**Volatile Organic Compound (VOC)**
Beta-benzenehexachloride	Endrin aldehyde		Acetone
Beta-endosulfan	Heptachlor epoxide		Methyl chloride
Herbicides	Beta-endosulfan		**Metals**
Silvex	Alpha-hexachlorocyclohexane		Iron
DCPA			Aluminum
Polychlorinated biphenyls	Gamma-hexachlorocyclohexane		
Aroclors 1242, 1248, 1254, 1260			
Explosives	**Semivolatile Organic Compounds (SVOC)**		
cyclotrimethylenetrinitramine (RDX)	Naphthalene		
PAHs	**Volatile Organic Compound (VOC)**		
Anthracene	Chlorobenzene		
Benzo(a)anthracene	Chloroform		
Naphthalene	Tetrachloroethene		
Phenanthrene	Acetone		
Pyrene	Methylene chloride		
2-methylnaphthalene	1,1,1-tetrachloroethane		
1,5-dimethylnaphthalene	1,1-dichloroethene		
Semivolatile Organic Compounds (SVOC)	Trichloroethene		
Bi(2-ethylhexyl)phthalate			
Hexadecanoic (palmitic) acid	**Metals**		
Octodecanoic (stearic) acid	Lead		
Volatile Organic Compound (VOC)	**Explosives**		
Acetone	3-nitrotoluene		
1,1,1-trichloroethane	1,3,5-trinitrobenzene		

Soil	**Groundwater**	**Surface Water**	**Sediment**
1,1,2-trichloroethane	2,4,6-trinitrotoluene		
1,2-dichloroethane			
Chloroform			
Ethylbenzene			
Tetrachloroethene			
Chlorobenzene			
Toluene			
Xylene			
Methylbenzene			
Nonane			
Octane			
1,2,3,4-tetramethylbenzene			
1-ethyl-2-methylbenzene			
1,3,5-trimethylbenzene			
Metals			
Mercury			
Lead			
Arsenic			
Thallium			
Copper			
Zinc			

4.0 REMEDIAL ACTIONS

This section discusses the remedial action objectives (RAO) and the selection and implementation of the remedial actions for AOC A7 (Figure 4), where waste remains in place.

4.1 Remedial Action Objectives

No cleanup concentration requirements are stipulated in the 1995 source control (SC) ROD.

The 1995 SC ROD states that for AOC A7, the RAOs are:

- Eliminate potential risk to human health and the environment associated with exposure to contaminated wastes;
- Minimize off-site migration of contaminants, and;
- Limit infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation and ground water degradation.

The 1995 SC ROD states that for AOC A9, the RAO is:

- Reduce potential risk to human health associated with exposure to contaminated soil.

With respect to cleanup levels for AOC A7, the 1995 ROD notes:

> *To meet the RAOs identified in Section VII, the Army proposes to conduct an action intended to provide SC and stabilize existing site conditions. For the laboratory waste at AOC A7, no specific cleanup levels were developed since the waste will be excavated and transported off site for treatment and disposal.*

4.2 Remedy Selection

The selected remedy addresses SC at AOCs A7 and A9 by eliminating or reducing the risks posed by the presence of the landfill at AOC A7 and the contaminated soils at AOC A9 (OHM, 1995). The major components of the selected remedy for AOCs A7 and A9 include:

- Excavation and off-site treatment and disposal of laboratory waste at AOC A7;
- Excavation of contaminated soil from AOC A9 and consolidation at AOC A7;
- Consolidation of contaminated soil and solid waste at AOC A7 to within the limits of the landfill cap;
- Construction of a Resource Conservation and Recovery Act (RCRA) Subtitle C landfill cap at AOC A7;
- Environmental monitoring and O&M at AOC A7; and
- Land Use Controls (LUC) at AOC A7 to limit future site use and to restrict site access.

4.3 Remedy Implementation

The landfill cap was completed in the fall of 1996, and was designed to provide a barrier to infiltration and direct precipitation runoff away from landfill material. The cap consists of the following geosynthetic layers (described from top of waste to top of finished cap):

- 12 inches of subgrade fill
- A geocomposite gas collection layer
- A geosynthetic clay liner
- A 40-mil linear low density polyethylene geomembrane
- A geocomposite drainage layer
- 15 inches of drainage sand
- 15 inches of filter sand; and,
- 6 inches of vegetative support soil (topsoil)

The Final Operations and Maintenance Plan for the Landfill AOC A7 (Roy F. Weston, 1997a) detailed the groundwater monitoring program. The current groundwater monitoring program is detailed in the 2020 long-term monitoring and maintenance plan (LTMMP) (KGS, 2020c). The LUCs associated with the 1995 SC ROD were identified in the Environmental Condition of Property and in the Memorandum of Agreement (MOA) (Appendix F), detailing the agreements between the Army and USFWS regarding transferal of the former Sudbury Training Annex land.

4.3.1 Systems Operations/Operation and Maintenance (O&M)

The 1997 Operations and Maintenance Plan (Roy F. Weston, 1997a) entails operational measures to ensure that the remedy continues to be effective at the AOC A7 landfill and surrounding area. Inspections of the landfill are conducted annually and documented in annual inspection reports that are included in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021). The annual landfill inspection activities consist of checking the integrity and functionality of the following items:

- Landfill cap
- Gas vents
- Drainage system
- Access road
- Perimeter fence

4.3.1.1 Drainage System Maintenance

As part of LTMMP activities, the functionality of the drainage system is monitored annually. The system functions in conjunction with the landfill cap to facilitate the drainage of surface water and infiltrated water off the cap. In February 2018, moss growth was removed from the exposed geotextile and toe drain (KGS, 2019b). The cap drainage system has been found to be in good condition and the drainage channels are free of sediment and debris aside from minor unwanted vegetative growth in the riprap areas.

4.3.1.2 Landfill Cover Maintenance

There has been no evidence of poor conditions affecting the cover surface. No new depressions have been noted with the exception of a groundhog burrow observed in 2018 by Gas Vent #2 which was backfilled in 2019. Vegetative growth has been monitored. Sapling growth on the landfill cap was cut flush to the ground in February 2018 (KGS, 2019b). Ripped sections of geotextile observed on the northeast slope during landfill inspection conducted in November 2016 (KGS, 2017b) were later determined to be excess

fabric (KGS, 2018b). The excess fabric was removed in February 2018 (KGS, 2018b). Small rodent burrows were filled in on the landfill cap in 2020 (Seres-Arcadis JV, 2021).

4.3.1.3 Landfill Gas Collection System Maintenance

The above ground portion of the landfill-gas collection system is inspected annually as part of landfill monitoring activities. The landfill gas vents have been observed to be in good condition. All vent pipes are intact and functioning. Bird screens and hose clamps were replaced in February 2018 (KGS, 2018b).

4.3.1.4 Perimeter Fence Maintenance

The fence line is inspected annually as part of the landfill monitoring activities. Clearing of debris from the fence line and repair of the fence and gates is conducted. Trees leaning against the fence were removed in April 2017 and the fence was repaired in August 2017 (KGS, 2018b). In February 2018, trees leaning against the south, western, and eastern fence lines were removed, and a third chain was added to the northern access gate (KGS, 2019b). In 2019, security chains were added to the northern gate in July, fallen trees and branches were removed from the fence in November, and gates along the northern fence line were repaired in December (KGS, 2020d). In October 2020, some fallen trees and branches were removed from the fence line (Seres-Arcadis JV, 2021).

4.3.1.5 Long-Term Landfill Gas Monitoring

Landfill gas monitoring was conducted annually until 2017. Monitoring was conducted in 2020 to support the fifth FYR and will be conducted every five years to support future FYRs. The 2016, 2017, and 2020 annual reports (KGS, 2017b, 2018b) (Seres-Arcadis, 2021) include results of landfill gas monitoring events.

4.3.2 Long-Term Groundwater Monitoring

The ROD required development of a long-term groundwater monitoring plan to evaluate remedy performance and assess future environmental effects. The ROD called for semiannual groundwater monitoring for a minimum of 30 years. Revisions to the sampling program have been made over time as concentrations have decreased with time. Currently, wells are sampled annually and biennially (KGS, 2020c).

Revisions to the monitoring program during this FYR period were formalized in the *Summary of Changes to the LTMMP for Area of Contamination A7 Former Sudbury Training Annex, Sudbury, Massachusetts* (KGS, 2018a) and the *Final Long-Term Monitoring and Maintenance Plan (LTMMP) Area of Contamination (AOC) A7* (KGS 2020a). Changes to the LTMMP during this FYR period include the removal of metals analysis beginning with the fall 2016 LTM program (Sovereign/HGL, 2015; KGS, 2016a). The sampling frequency at OHM-A7-08, SUD-A07-065, and SUD-A07-14 was revised from annually to biennially (Sovereign/HGL, 2015; KGS, 2017b). These wells were sampled in 2016, 2018, and 2020. Samples are collected annually at downgradient monitoring well SUDWP-A07-01 and SUD-A7-19-01, which replaced SUDWP-A07-01 (decommissioned in 2019).

Annually, groundwater elevations are measured at 12 monitoring wells, one wellpoint, and two staff gauge locations. Monitoring wells were sampled for VOCs, pesticides, chemical oxygen demand (COD) and cyanide and water quality parameters.

4.3.3 Land Use Controls

The 1995 SC ROD required implementation of LUCs to limit future use of AOC A7. The AOC A7 LUCs are detailed in Clause C8 of the MOA for the transfer of property between the Army and USFWS

(Appendix F). The LUCs indicate USFWS and its successors and assigns shall not disturb the landfill liner or any components of the containment system or function of the monitoring system. The LUCs prohibit:

- Surface application of water that could affect the effectiveness of the containment system.
- Extraction, consumption, exposure, or utilization of groundwater underlying AOC A7.
- Any disturbance of the surface or subsurface of that portion of land within the boundaries of AOC A7 in any manner (construction, filling, drilling, excavation, or change in topography) that might interfere with the response action within AOC A7.
- Any disturbance of the surface or subsurface of that portion of land within the boundaries of AOC A7 in any manner (construction, filling, drilling, excavation, or change in topography) that might interfere with the protectiveness of the remedy.
- Any activity within AOC A7 that will result in disturbance of the mobilization and/or transport of any hazardous substance.
- If the USFWS or any of its successors proposes any activity that may disturb and components of the remedy, they shall not undertake such activity unless they first obtain written approval from the Army and EPA.
- USFWS also agrees that it and it successors or assigns shall include in any deed the restrictive covenant detailed in Subsection C.8.

The LUCs were designed to preserve the effectiveness of the landfill cap and associated monitoring systems which in turn achieves the following RAOs:

- Eliminate potential risk to human health and the environment associated with exposure to contaminated wastes;
- Minimize off-site migration of contaminants, and;
- Limit infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation and ground water degradation.

The LUCs also prevent exposure to groundwater at AOC A7.

The LUCs are monitored in accordance with the Land-Use control Implementation and Monitoring Plan (KGS, 2020c). Existing land use and site conditions are assessed during an annual physical on-site inspection and during annual interviews with site representatives. The results are included in annual reports. The results of the inspections for the last five years are included in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021).

Preservation of the effectiveness of the landfill cap is necessary to achieve the RAOs. Activities identified in the Land-Use Control Implementation and Monitoring Plan are effective in assessing potential disturbance of the landfill cap.

5.0 PROGRESS SINCE LAST FIVE-YEAR REVIEW

This section of the fifth FYR discusses the protectiveness statement from the previous FYR and issues and recommendations and actions taken since the previous FYR.

5.1 Protectiveness Statement, Recommendations, and Actions from 2016 Five Year Review

The protectiveness statement identified in the fourth FYR is listed below in Table 4:

Table 4
Protectiveness Determinations Statement from the 2016 FYR

Sudbury Annex	Protectiveness Determination	Protectiveness Statement
AOC A7	Short-Term Protective	**Protectiveness Statement:** The remedy at OU1 currently protects human health and the environment because the landfill is capped and the groundwater is not being used as a drinking water supply at any of the AOCs. However, in order for the remedy to be protective in the long term, the following actions need to be taken: 1. Implement temporary ICs to ensure the WSW at AOC A9 is not used until a groundwater investigation is completed. 2. Remove Hornet nests in gas vents prior to next sampling round in 2016 and report data in accordance with the LTMMP. 3. The well SUDWP-A7-01will be redeveloped prior to sampling. At that time it should be determined if a new well should be installed at a deeper depth or sampling should occur during times of a higher water table. A technical memo will be submitted with Army's recommendation. 4. Prepare and implement a sampling and analysis plan and implement groundwater sampling for emerging contaminants, including perchlorate, 1,4 dioxane and PFAS at AOC A7 and A9 to determine if these contaminants are currently impacting groundwater at AOC7 and A9. 5. Prepare and implement a PA work plan to determine if PFAS had been used, stored, or disposed of at any other areas of the site in addition to AOC7 and A9. 6. Prepare and implement a work plan to evaluate groundwater at AOC A9 and determine if historical impacts above the maximum contaminant levels (MCL) are present

		and if overburden groundwater could affect the USFWS water supply well currently or in the future. If the groundwater exhibits unacceptable risk revise existing ICs to ensure that additional water supply wells are not installed in the future

Issues and recommendation from the previous FYR and actions taken are listed in Table 5 and discussed in Section 5.2.

Table 5
Actions Taken Since the Last Five-Year Review

Issues from Previous Review	**Recommendations/ Follow-up Actions** (from the 2016 FYR Protectiveness Statement, Table 4)	**Party Responsible**	**Milestone Date**	**Action Taken and Outcome**	**Date of Action**
1. A water supply well was installed by USFWS at AOC A9, an area that previously had contamination. The institutional controls should prevent these actions from occurring in the future if the groundwater is determined to pose an unacceptable risk. The institutional controls for groundwater should be evaluated and modified if necessary.	1. Implement temporary ICs to ensure the WSW at AOC A9 is not used until a groundwater investigation is completed.	Army	March 2017	Temporary ICs were determined not to be necessary because results from sampling of the well indicated it was not impacted by target VOCs and given no prior LUCs restricting groundwater the Army cannot impose ICs restrictions on a legally permitted well. The results of the groundwater investigation at AOC A9 indicated that the historical VOC concentrations have attenuated and are currently below federal and state thresholds at AOC A9. LUCs are not needed to prevent exposure to VOCs (KGS, 2019a) (Appendix G). A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process.	Not applicable.

Issues from Previous Review	**Recommendations/ Follow-up Actions** (from the 2016 FYR Protectiveness Statement, Table 4)	**Party Responsible**	**Milestone Date**	**Action Taken and Outcome**	**Date of Action**
2. Hornet nests are blocking gas vents so they cannot be sampled. The gas vents need to be cleaned and the sampled in accordance with the LTMMP.	2. Remove Hornet nests in gas vents prior to next sampling round in 2016 and report data in accordance with the LTMMP.	Army	March 2017	The hornet nests were not present during sampling of landfill gas vents in 2017 (KGS, 2018b) and 2020 (Seres-Arcadis VJ, 2021).	Not applicable.
3. Well SUDWP-A7-0l contained insufficient water to conduct sampling in 2015. The monitoring plan should be evaluated to determine if this well should be replaced.	3. The well SUDWP-A7-01will be redeveloped prior to sampling in 2016. At that time it should be determined if a new well should be installed at a deeper depth or sampling should occur during times of a higher water table. A technical memo will be submitted with Army's recommendation.	Army	March 2017	Samples were successfully collected from SUDWP-A7-01 in fall 2016 (KGS, 2017b), fall 2017 (KGS, 2018b), spring 2018, and fall 2018 (KGS, 2019b). SUDWP-A7-01 was decommissioned and a new well (SUDA7-19-01) was installed as a replacement well in September 2019 (KGS, 2020d).	Multiple

Issues from Previous Review	**Recommendations/ Follow-up Actions** (from the 2016 FYR Protectiveness Statement, Table 4)	**Party Responsible**	**Milestone Date**	**Action Taken and Outcome**	**Date of Action**
4. The emerging contaminants, Per- and Polyfluoroalkyl Substances (PFAS), Perchlorate, and 1,4-dioxane may have been disposed of at AOC A7 and AOC A9.	4. Prepare and implement a sampling and analysis plan and implement groundwater sampling for emerging contaminants, including perchlorate, 1,4 dioxane and PFAS at AOC A7 and A9 to determine if these contaminants are currently impacting groundwater at AOC A7 and A9.	Army	September 2017	Groundwater samples were collected from AOCs A7 and A9 and analyzed for PFAS, 1,4-dioxane, and perchlorate during the former Sudbury Training Annex PFAS Preliminary Assessment (KGS, 2017a). The results are discussed in Section 5.2.	September 2016
5. In addition, PFAS may have been used at other areas of the site. Impacts from these contaminants must be evaluated to determine if additional actions are warranted.	5. Prepare and implement a PA work plan to determine if PFAS had been used, stored, or disposed of at any other areas of the site in addition to AOC7 and A9.	Army	September 2017	A Preliminary Assessment for PFAS at the former Sudbury Training Annex was conducted and finalized in October 2017 (KGS, 2017a). The results are discussed in Section 5.2.	October 2017

Issues from Previous Review	**Recommendations/ Follow-up Actions** (from the 2016 FYR Protectiveness Statement, Table 4)	**Party Responsible**	**Milestone Date**	**Action Taken and Outcome**	**Date of Action**
6. Contaminants in groundwater at AOC A9 were above MCLs at the time of the 1997 OU2 Management of Migration ROD. The current concentrations of contaminants in groundwater are not known. A water supply well was installed by USFWS at AOC 9 and it is unknown if this well is being impacted by current conditions or could be impacted in the future if used. The current extent of contamination should be characterized and current and future impacts to this water supply well should be evaluated to determine if the well should be utilized.	6. Prepare and implement a work plan to evaluate groundwater at AOC A9 and determine if historical impacts above the MCLs are present and if overburden groundwater could affect the USFWS water supply well currently or in the future. If the groundwater exhibits unacceptable risk revise existing ICs to ensure that additional water supply wells are not installed in the future.	Army	September 2017	USACE wrote the work plan in 2018 (USACE, 2018). The field work was conducted in June and July 2018. The results were recorded in a technical memorandum that was finalized in September 2019 (KGS, 2019a). ICs were determined not to be necessary because the results indicated that the historical VOC concentrations have attenuated and are currently below federal and state thresholds at AOC A9. A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process.	June 2018, June-July 2018, September 2019.

5.2 Results of Implemented Actions from the 2016 Five Year Review

The following section describes the issues from the 2016 FYR and findings.

Issue 1.

In June 2016, the USFWS installed a bedrock water supply well at AOC A9 to support a new facility at the Assabet River National Wildlife Refuge. The well is 400 feet deep and is cased-off from the glacial overburden. The lithology described during drilling includes approximately 50 feet of medium brown sands over 350 feet of granitic bedrock. A six-inch steel casing was installed from the ground surface to 68 feet below grade and the annular seal involved bentonite grout, indicating it extended 18 feet into the granite, providing a good seal. The drilling identifies that a water-bearing zone was encountered from 350 to 351 feet below grade which yields 30 gpm. The low yield suggested little yield was encountered in the overlying crystalline granite (KGS, 2019a).

The AOC A9 groundwater was addressed in the management of migration ROD for AOCs A7 and A9. No action was the selected remedy for the groundwater at AOC A9 because the potential for domestic use of groundwater at AOC A9 was eliminated when the land was transferred to USFW. The current and anticipated future land use is recreational. Although there was no land use control restrictions at AOC A9, a groundwater investigation was completed to confirm the results of the historical VOC assessment and if overburden groundwater could affect the USFWS water supply well currently or in the future. Groundwater samples were collected and submitted for VOC analysis from four temporary well locations, selected based on areas where maximum concentrations of VOCs were observed in the past (KGS, 2019a). Groundwater samples at three locations, A9-18-01, A9-18-03, and A9-18-08 (Figure 6), were collected at the water table. Groundwater samples at location A9-18-06 were collected in 10-foot intervals from the water table to drilling refusal. The VOCs detected in the samples are presented in Table 14. Low-level/trace concentrations of tetrachloroethene (PCE) and 1,1,1-TCA were detected in the groundwater sample collected from location A9-18-01, which is located immediately downgradient of the historic petroleum, oil, lubricants burn area and the soil removal area. Targeted VOCs were nondetect in the samples collected from two downgradient sample locations A9-18-03 and A9-18-06 and in the sample collected from location A9-18-08 located within the former xylene plume (Figure 6). These results indicate that the historical VOC concentrations have attenuated and are currently below federal and state thresholds at AOC A9. The existing USFWS water supply well is a deep bedrock well that is cased from the ground surface to 18 feet into the granite. Target VOCs have not been detected in samples collected from the USFWS well in two sampling events [March 2016 (Appendix G) and August 2016 (Table 13)]. AOC A9 is located within the Assabet River National Wildlife Refuge and future residential use of the property is excluded. Therefore, LUCs for groundwater are not warranted for the AOC A9 property with respect to VOCs.

A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process.

Issue 2.

Hornets nests in gas vents previous had prevented gas monitoring. The hornet nests were not present during sampling of landfill gas vents in 2017 (KGS, 2018a) and 2020 (Seres-Arcadis JV, 2021) when gas monitoring was conducted.

Issue 3.

It was recommended that well SUDWP-A7-01 should be redeveloped prior to sampling in 2016 since the well is periodically dry. Samples were successfully collected from SUDWP-A7-01 in fall 2016 (KGS,

2017b), fall 2017 (KGS, 2018b), spring 2018 (KGS, 2019b), and fall 2018 (KGS, 2019b). SUDWP-A7-01 was decommissioned and a new well (SUDA7-19-01) was installed as a replacement well in September 2019 (KGS, 2020d). These actions allowed for annual sampling of the downgradient monitoring well.

Issues 4 and 5.

Emerging contaminants (i.e., perchlorate, 1,4-dioxane, and PFAS) in groundwater were assessed at AOC A7 and A9 to determine if these contaminants are currently impacting groundwater at AOC A7 and A9. In 2016, samples were collected from two monitoring wells at AOC A7 (OHM-A7-08 and OHM-A7-09) (KGS, 2017a). The samples collected from AOC A7 were analyzed for perchlorate, 1,4-dioxane and PFAS. The results are presented in Tables 12 and 13. There were no detections of perchlorate in the samples (Table 13). 1,4-dioxane was only detected in the duplicate sample at OHM-A7-09 at a concentration of 0.086J micrograms per liter (µg/L) (Table 13). EPA has not established an MCL for 1,4-dioxane. EPA risk assessments indicate that the drinking water concentration representing a 10^{-6} cancer risk level for 1,4-dioxane is 0.46 µg/L (USEPA, 2021). The Massachusetts Office of Research and Standards Guidelines (ORSG) in drinking water for 1,4-dioxane is 0.3 µg/L. PFAS compounds were detected at concentrations below the EPA health advisory (HA) in groundwater at AOC A7 at well OHM-A7-08, and were not detected at downgradient well OHM-A7-09. The EPA HA for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) is 70 nanograms per liter (ng/L) [parts per trillion (ppt)] individually or combined. PFOS and PFOA were detected at a concentration of 27J ng/L and 27 ng/L (Table 12), respectively, at well OHM-A7-08, which is located within the landfill (Figure 4). The concentrations at OHM-A7-08 were greater than the Massachusetts Maximum Contaminant Level of the individual or summed concentration of six PFAS compounds (PFOA, PFOS, perfluorodecanoic acid [PFDA], perfluorononanoic acid [PFNA], perfluoroheptanoic acid [PFHpA], and perfluorohexanesulfonic acid [PFHxS])) of 20 ng/L. The groundwater at AOC A7 is not used for drinking water now or in the foreseeable future and is classified as GW-3 where the concentrations are based on the potential environmental effects resulting from contaminated groundwater discharging to surface water. The concentrations at AOC A7 do not exceed the Massachusetts GW-3 (PFOA = 40,000 µg/L, PFOS = 500 µg/L, PFDA = 40,000 µg/L, PFNA = 40,000 µg/L, PFHpA = 40,000 µg/L, PFHxS = 500 µg/L).

Samples were also collected from the USFWS water supply well at AOC A9 and were analyzed for perchlorate, 1,4-dioxane, and PFAS. The results are presented in Tables 12 and 13. There were no detections of perchlorate, 1,4-dioxane, or PFAS in the samples from the water supply well at AOC A9. The samples from the USFWS water supply well were also analyzed for VOCs, semivolatile organic compounds (SVOC), diesel range organics, and metals. The results are presented in Tables 12 and 13. The results indicated perchlorate, 1,4-dioxane, and PFAS are not present in groundwater at those location at concentrations greater than applicable criteria. A preliminary assessment (PA) and site inspection (SI) for PFAS were conducted at former Sudbury Training Annex. PFAS was detected at AOC A7 and A9. The PFAS investigations are ongoing. An update on the status of the investigation is provided at the end of this document.

Issue 6.

As discussed above, refer to Issue 1.

6.0 FIVE YEAR REVIEW PROCESS

6.1 Administrative Components of the Five-Year Review Process

The former Sudbury Training Annex FYR was led by BRAC and supported by Robert Lim of the U.S. EPA, Remedial Project Manager for the Site, David Chaffin of the MassDEP and Robert Simeone, the BRAC Environmental Coordinator. Katherine Thomas of KOMAN Government Solutions, LLC assisted in the review as the representative for the lead agency.

The review, which began on 1/4/2021, consisted of the following components:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

6.2 Community Notification and Involvement

Activities to involve the community in the FYR process included a notice published in the local and regional newspapers (Appendix B). Notices were place in the "Sudbury Town Crier" on 1/14/2021, the "Hudson Sun" on 1/14/2021, the "Beacon Villager" on 1/14/021, the "Stow Independent" on 1/13/2021, stating that the review is being conducted and inviting the public to submit any comments to the Base Realignment and Closure Division of the U.S. Army Garrison, Fort Devens. The results of the review and the report will be made available at the Site information repository located at The Devens Repository, Department of the Army, Base Realignment and Closure Division, U.S. Army Garrison Fort Devens, 30 Quebec Street, Unit 100, Devens, MA 01434-4479.

6.3 Document Review

This FYR for the former Sudbury Training Annex consisted of a review of relevant documents including previous FYRs, LTMMPs, RI reports, the feasibility study, the 1997 SC ROD, the Memorandum of Agreement (MOA) between the Army and the USFWS (Appendix F), annual landfill inspections reports, annual LUC site inspections and interviews, and annual monitoring data. Documents reviewed are presented in Appendix A.

6.4 Data Review

Data reviewed for this FYR included data presented in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021). The following data summaries, observations, and analysis were prepared for the FYR period:

- A summary of groundwater quality results from 2016 through 2020 of long-term monitoring data at AOC A7; Tables 6 through 11;
- Results of additional groundwater testing recommended in the 2016 FYR; Tables 12 through 14;
- Landfill Gas monitoring Data; Tables 15 through 18;
- Landfill Inspection documentation (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021).

Highlights associated with groundwater data at former Sudbury Training Annex over the reporting period (e.g., 2016-2020) are summarized below.

6.4.1 Groundwater and Surface Water Elevations

As part of the optimization of the monitoring plan, the collection of water level data was reduced to an annual frequency (HGL, 2009). It is well established through historical review that A7 groundwater flows toward the Assabet River.

The most recent (October 28, 2020) groundwater contours are depicted on Figure 5. Groundwater level monitoring data for the review period support the historically established north/northwest groundwater flow direction at the site.

6.4.2 Groundwater Analysis

Long-Term Monitoring

Samples were collected during the LTM sampling events and submitted to Eurofins Test America in Savannah, Georgia for analysis. Eurofins Test America in Savannah is compliant with the *Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3* (DoD, 2019) and holds current National Environmental Laboratory Accreditation Program accreditation for all applicable analytical methods. Samples were analyzed for volatile organic compounds (VOCs) by method SW846/8260B, organochlorine pesticides by method SW846/8081B, chemical oxygen demand (COD) by method E410.4 and total cyanide by method SW846/9012B.

Analytical results from the LTM sampling events were evaluated for data acceptability in accordance with the USEPA Region 1 data validation guidelines (USEPA New England, 2013) and the *Quality Assurance Project Plan (QAPP) for the Annual Long-Term Monitoring (LTM) Program* (KGS, 2016b). The method requirements from the *DoD QSM* (current version in place at the time of the sampling event) and the USEPA SW-846 QC guidance (USEPA, 2014c) were also used as supplemental information. All data were reviewed in the former Fort Devens Environmental database using the ADR.net (Automated Data Review) software along with a chemist review of the ADR results. The laboratory's analytical data packages were reviewed to assess adherence to acceptable laboratory practices. Data review reports were loaded into the former Fort Devens database library and were included as appendices in Annual Reports.

Based on the data review of annual LTM sampling events; LTM data included in this FYR are acceptable for its intended use with the noted qualifications.

2016

- The results for COD in samples OHM-A7-08, SUD-A07-065 (downgradient well), and A7-DUP1 were qualified as non-detect (20 U mg/L) based on method blank contamination. No other qualifications were needed.

2017

- Data from the 2017 LTM sampling event was acceptable as reported; no qualifications were needed.

2018

- Review of the pesticide results for OHM-A7-08 from November 2018 suggested an issue with the reported results, because the reported pesticide results for the initial sample (OHM-A7-08_FAL18) and field duplicate (FD) (A7-DUP01_FAL18) were not comparable and were inconsistent with historical results. This location was re-sampled for pesticides in February 2019. The re-sampled results for OHM-A7-08_FAL18R and A7-DUP01_FAL18R showed good correlation and were consistent with historical results. Therefore, the pesticide results from the November 2018

sampling event reported in Table 9 were rejected (coded "R"). The February 2019 pesticide results were reported in Table 10.

- The non-detect results for the pesticide compounds from sample SUD-A07-014 were qualified as estimated (coded "UJ") due to surrogate percent recovery outliers.

2019

- Data from the 2019 LTM sampling event was acceptable as reported; no qualifications were needed.

2020

- Data from the 2020 LTM sampling event was acceptable as reported; no qualifications were needed.
- Cyanide was detected in the Sudbury well samples collected during the 2020 LTM sampling event at concentrations ranging from 87 to 2,800 µg/L. After review and evaluation of the data, these concentrations were discovered to be significantly above the observed historical maximum concentrations. Eurofins was contacted to determine if any data quality issues were observed. Eurofins indicated that some recurring anomalies were observed post-sample analysis with a batch of digestion tubes. The cyanide results are not representative of groundwater quality. The wells were resampled for cyanide in March 2021; these results were consistent with historical results and ranged from nondetect to 5.00J µg/L.

The target compounds were reviewed for the 2016 through 2020 data. Results are tabulated in Tables 6 through 11. At the downgradient monitoring well sampled annually (SUDWP-A07-01 and then SUDA7-19-01, the replacement well), the 2016-2020 results were nondetect for the target VOCs and pesticides, which is similar to previous results of very low detections to nondetect.

In the other three monitoring wells sampled biennially, pesticide and VOC concentrations have decreased. Overall, during this FYR period concentrations of VOCs continued to decrease or remained steady at the three monitoring wells sampled biennially. At SUD-A07-065, PCE concentrations decreased from 9.3 µg/L (2016) to 6.90 µg/L (2020), remained steady at OHM-A7-08 (2.60 µg/L, 2016 and 2020), and were nondetect at SUD-A07-014. Trichloroethene concentrations also decreased at SUD-A07-065 from 3.9 µg/L (2016) to 2.80 µg/L (2020) and remained nondetect at OHM-A7-08 and SUD-A07-014. 1,1,2,2-TCA concentrations decreased at SUD-A07-065 from 1.30 µg/L (2016) to 0.630J µg/L (2020) and remained nondetect at OHM-A7-08 and SUD-A07-014.

Cyanide concentrations in groundwater were monitored in accordance with the LTMMPs. As discussed above, cyanide was detected at 2.90J µg/L (OHM-A7-08, 2016) and 7.6J µg/L (SUDWP-A07-01, Spring 2018), but all other samples in 2016 through 2019 were nondetect. Cyanide was detected in all of the wells in 2020 at concentrations ranging from 87 µg/L to 2,800 µg/L. Based on the historical results of non-detects and low concentrations (below 11 µg/L) at the same wells, the 2020 results are anomalous. The wells were resampled for cyanide in March 2021 and discussed above are consistent with historical results.

Appendix C contains data from 1996 to 2020 for select compounds. Decreasing concentrations to non-detect or very low concentrations over time is evident.

Emerging Contaminants

Per the previous FYR, groundwater samples were collected from AOC A7 in 2016 to determine if perchlorate, 1,4-dioxane, and PFAS are currently impacting groundwater. Samples were collected from two monitoring wells at AOC A7 (OHM-A7-08 and OHM-A7-09). The PFAS samples were submitted to

Eurofins Test America in West Sacramento, CA and were analyzed for PFAS by method 537 modified. The perchlorate and 1,4-dioxane samples were submitted to Eurofins Test America in Burlington, VT and analyzed for perchlorate by method SW846/6850 and 1,4-dioxane by method 522. Eurofins Test America in West Sacramento, CA and Burlington, VT are compliant with the *Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, version 5.3* (DoD, 2019) and hold current National Environmental Laboratory Accreditation Program accreditation for all applicable analytical methods. All analytical results from this supplemental sampling event were evaluated for data acceptability in accordance with the USEPA Region 1 data validation guidelines (USEPA New England, 2013) and the *Quality Assurance Project Plan (QAPP) for the Annual Long-Term Monitoring (LTM) Program* (KGS, 2016b). The method requirements from the *DoD QSM* (current version in place at the time of the sampling event) and the USEPA SW-846 QC guidance (USEPA, 2014c) were also used as supplemental information. Based on the data review of the 2016 supplemental sampling event; the reported data included in this FYR are acceptable for its intended use.

The results are presented in Tables 12 and 13. PFAS compounds were detected at concentrations below the EPA HA (PFOA and PFOS, individually or combined, of 70 ng/L) in groundwater at well OHM-A7-08, and were not detected at downgradient well OHM-A7-09. PFOS and PFOA were detected at a concentration of 27J ng/L and 27 ng/L (Table 12), respectively, at well OHM-A7-08, which is located within the landfill (Figure 4).

There were no detections of perchlorate in any of the samples (Table 13). 1,4-dioxane was only detected in the duplicate sample at OHM-A7-09 at 0.086J µg/L (Table 13). EPA has not established an MCL for 1,4-dioxane. EPA risk assessments indicate that the drinking water concentration representing a 10^{-6} cancer risk level for 1,4-dioxane is 0.46 µg/L (USEPA, 2021).

6.4.3 Landfill Gas Monitoring Data

A passive gas venting system was installed to facilitate the ventilation of any methane generated from the degrading waste material beneath the landfill cover system. The passive system consists of four 6-inch diameter gas vents. Landfill gas monitoring was performed in November 2016, 2017 and 2020. Landfill gas vent data can be found in Tables 15 through 18. Minimal levels of methane and VOCs have been detected during some monitoring events. Carbon dioxide levels have historically remained low, and were relatively consistent from 2016 to 2020, ranging from as high as 6.2 percent CO2 at GV-3 in 2017 to as low as 1.5 percent at GV-1 in 2020. Lower Explosive Limit levels have also consistently remained at zero. There are no site-specific decision limits for the landfill gases.

6.5 Interviews

As part of the FYR review process, interviews were conducted and summaries of each interview are provided in Appendix B. Those interviewed included the following:

- Penny Reddy, USACE
- Robert Lim, EPA
- Tom Eagle, USFWS.

In general, comments related to the site were positive and supportive. Mr. Eagle of the USFWS indicated that the recent discovery and concern of PFAS has had some impacts on the USFWS ability to utilize the site for their management purposes. He also indicated that USFWS does not know of any correlation from PFAS found on the property and impacts to the surrounding community. He indicated that cleanup or a filtration system for the water supply well may be required to eliminate the threats from PFAS. Mr. Eagle also indicate the USFWS is planning to hold a call with MassDEP and EPA to discuss the use of the USFWS bedrock well.

Mr. Robert Lim of EPA indicated action needs to be taken after the PFAS investigation is completed.

Ms. Penny Reddy indicated LUCs are in place at AOC A7 and working as planned and the land use remains the same.

6.6 Five-Year Review Site Inspection

The FYR site inspection was conducted on January 6, 2021 by KGS, EPA, and USACE. The inspection was documented using the site inspection form from the EPA Five Year Review Guidance (USEPA, 2001). The site inspection is presented in Appendix D along with supporting photographs.

The purpose of the inspection was to assess the protectiveness of the remedy. Features of the landfill that were inspected included the cover system, drainage system, gas vent system, access road, monitoring wells and piezometers. Observations were made regarding the vegetative cover, vegetative types, erosion, settlement and general conditions. There is a small section where the geotextile is exposed. Minor vegetation was observed in rip rap on the edge of the landfill cap. One monitoring well lid needs minor maintenance to close properly. A downed tree needs to be removed from the access road. The overall condition of the landfill was satisfactory. The perimeter fence surrounding the AOC A7 was also inspected. A portion of the fence was damaged by a fallen tree.

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7.0 TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Question A Summary

No. In accordance with the 1995 SC ROD, laboratory waste at AOC A7 was excavated and disposed off-site, contaminated soil was excavated from AOC A9 and consolidated at AOC A7, a RCRA Subtitle C landfill cap was constructed at AOC A7, environmental monitoring and O&M have been conducted regularly at AOC A7, and LUCs were established in the MOA with USFWS and are checked annually. The LUCs prohibit access to the site, any use of groundwater as drinking water, and any undesired use of the land at AOC A7; however, due to damage to the perimeter fence, the remedy is not considered to be functioning as intended.

Remedial Action Performance

The remedy consists of removal actions and creation of a consolidated landfill with LUCs as well as landfill cover inspections, LUCs inspections, and groundwater monitoring. Based on the annual landfill inspections, the annual LUCs inspections, and annual groundwater monitoring results (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021), the remedial actions are functioning as intended and response actions are operating as designed. The landfill cap is in good condition and is mowed and maintained. The LUC as functioning as intended, preventing disturbance of the landfill cap and use or groundwater. Annual reporting, including evaluations of groundwater analytical results and groundwater elevations, indicate that the cap system is functioning as designed.

System Operations/O&M

O&M for AOC A7 is being performed in accordance with the 2015 LTMMP (Sovereign and HGL, 2015), the *Final Long-Term Monitoring and Maintenance Plan (LTMMP) Area of Contamination (AOC) A7* (KGS 2020a), and the O&M Plan (Roy F. Weston, 1997a). Cap monitoring has consisted of documenting the cap condition via field notes and photographic record. Maintenance has consisted primarily of mowing and removal of trees that may compromise the fence line.

Implementation of Institutional Controls and Other Measures

The LUCs required by the 1995 SC ROD are detailed in Clause C8 of the MOA between the Army and the USFWS. The MOA was reviewed and indicates that the AOC A7 landfill site is protected by Clause C8 from tampering, described as surface application of water, the use of groundwater, disturbing the parcel by earthworks that would negatively affect any response actions or jeopardize the remedy, activities that might impede the function of the containment design, or any unauthorized work that might be done without the consent of EPA and the Army on the landfill cap itself. There are provisions in the MOA allowing for the Army to conduct remedial actions at the former Sudbury Training Annex. A map of the Assabet River National Wildlife Refuge, owned by USFWS, was reviewed as part of this FYR and AOC A7 is within the boundaries of the refuge.

LUCs are in place; however, due to damage in the perimeter fence which was discovered during the January 2021 site inspection, the LUCs, as a whole, are not functioning properly. Review of the annual LUC inspection checklists and interviews contained in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021) was conducted. The annual interviews of USFWS personnel indicate USFWS is aware of the LUCs and that no actions have occurred at the site that violate the LUCs. The annual LUC inspections and interviews and the FYR site inspection indicate land use at the AOC A7 has not changed from the presumed future wildlife refuge use evaluated prior to the ROD and is not expected to change.

QUESTION B: Are exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy still valid?

Question B Summary

No. There have been changes in regulations, toxicity values, exposure concentration calculations, exposure factor calculations, and new contaminants have been identified since the 1995 ROD was issued. The changes in regulations, toxicity values, exposure concentration calculations, exposure factor parameters, do not affect the protectiveness of the remedy as described below. The new contaminant 1,4-dioxane was detected at concentrations well below EPA's carcinogenic risk range and therefore does not affect the protectiveness of the remedy. The new class of contaminants, PFAS, was detected and is discussed in Section 12.

Changes in Standards and TBCs

A review of applicable or relevant and appropriate requirements (ARAR) was performed to determine the impact on the remedy due to any changes in standards that were identified as ARARs in the 1995 SC ROD, newly promulgated standards for chemicals of potential concern, and To Be Considered (TBCs) that may affect the protectiveness of the remedy.

Location-and action-specific ARARs listed in 1995 SC ROD have been met since the remedial construction work has been completed. For the excavation of laboratory waste at AOC A7, no specific cleanup levels were developed. There are no chemical-specific ARARs identified in the 1995 SC ROD.

Changes in Toxicity and Other Contaminant Characteristics

EPA has published updated policies or toxicity information addressing trans-1,2-dichloroethene, polycyclic aromatic hydrocarbons, and lead in soil cleanups. As there were no chemical-specific ARARs, evaluation of the updated policies or toxicity information are not applicable.

Changes in Risk Assessment Methods

There have been changes to EPA's risk assessment methodologies since the 1995 SC ROD and 2016 FYR. The change in developing groundwater exposure point concentrations (EPA, 2014a) in general, could result in slightly lower risk or higher screening levels, which would not affect the current protectiveness of the remedy

Changes in Exposure Pathways

Since the previous FYR, there have been no changes in current or expected land use, or human health or ecological receptors, or exposure pathways that could affect the protectiveness of the remedy. There have been no changes to the exposure pathways evaluated in the 1995 SC ROD. There have been changes to EPA-recommended exposure parameters (EPA, 2014a), but these changes in general would result in a slight decrease of the risk estimates for most chemicals and therefore do not affect the protectiveness of the remedy.

In February 2018, EPA launched an online Vapor Intrusion Screening Level (VISL) calculator which can be used to obtain risk-based screening level concentrations for groundwater, sub-slab soil gas, and indoor air. The 1995 ROD did not identify vapor intrusion as an exposure pathway of concern at AOC A7. There are no structures at AOC A7 or adjacent to the site. The land is currently owned by USFW and access to the area is restricted. The surrounding area is used for recreational purposes. There is not a complete vapor intrusion pathway and the land use is anticipated to remain recreational.

Expected Progress Towards Meeting RAOs

The RAOs have been met via the remedial action of excavation and capping. The excavation and offsite disposal of laboratory wastes from AOC A7 and capping at AOC A7 eliminated exposure to contaminated wastes, minimize off-site migration of contaminants, and limit infiltration of precipitation, thereby minimizing leachate generation and groundwater degradation.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that would call into question the protectiveness of the remedy. No weather-related events or natural disaster impacts have affected the protectiveness of the remedy during this review period.

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8.0 ISSUES

For this fifth five-year review, an issue at AOC A7 is damage to the perimeter fence.

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9.0 RECOMMENDATIONS AND FOLLOW UP ACTIONS

Based on the Issue identified in the previous section, the Recommendation and its targeted completion date is the following: repair perimeter fence, November 30, 2021.

Other Findings

An analysis of monitoring data at AOC A7 over the five-year review period showed reduction of contaminant concentrations to low concentrations or nondetect. Therefore, the Army recommends an update to LTMMP that includes elimination of analysis for pesticides, cyanide and COD, and a decrease in sampling frequency to once every five years for VOCs.

The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and if after completing this assessment it is deemed appropriate, transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance. In conjunction with USFWS, the Long-Term Monitoring Plan will be updated to indicate inspection of the USFWS Well and sampling of the USFWS well to ensure protectiveness on an annual basis.

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10.0 PROTECTIVENESS STATEMENT

The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired, to ensure long-term protectiveness.

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11.0 NEXT REVIEW

The next FYR report is projected to be completed by September 2026.

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12.0 FORMER SUDBURY TRAINING ANNEX PFAS

EPA identified PFAS as an "emerging contaminant of concern", and in January 2009 established provisional HAs for PFOS and PFOA. In 2016, EPA issued a HA for the sum of PFOS and PFOA at 70 ng/L when applied to drinking water.

12.1 Background Information

Aqueous film-forming foam (AFFF) may have been used at burn pits and areas related to firefighting at former Sudbury Training Annex during its operation and likely contained formulations of PFAS. AFFF is considered the primary potential source of PFAS at the former Sudbury Training Annex.

12.2 Investigations

In May 2017, the Army completed a PA evaluating the historical use of PFAS compounds at the former Sudbury Training Annex (KGS, 2017a). It identified two potential source areas (AOC A9 and AOC P13, Figure 7) for a site investigation. AOC A9 was historically used for firefighting training by the Former Massachusetts Firefighting Academy (MFA), and fireproof clothing testing and control burning of discarded materials by the Army. AOC P13 was used for firefighting training by the MFA for various firefighting training activities including car fire training.

In June 2018, the Army began a site inspection intended to determine whether PFOS or PFOA are present in environmental media at the AOCs A9 and P13, to evaluate potential risks to receptors at those sites, and to determine whether further action is warranted.

General conclusions from the SI report included:

- PFAS was detected in groundwater at AOCs A9 and P13 and in soil at AOC A9.
    - Maximum concentration in soil at AOC A9 was PFOS = 360 (estimated) micrograms per kilogram, PFOA 7.1 micrograms per kilogram.
    - Maximum concentration in groundwater at AOC A9 PFOS = 11,000 ng/L, PFOA = 1,500 ng/L.
    - Maximum concentration in groundwater at AOC P13 PFOS = 130 ng/L, PFOA = 100 ng/L.
- There are no complete drinking water, surface water, soil, or sediment exposure pathways that may pose an unacceptable risk to human health, based on a comparison of detected concentrations of PFOS, PFOA, and perfluorobutanesulfonic to conservative EPA screening levels.

A draft Supplemental SI Work Plan (KGS, 2020a) includes sampling a combination of groundwater, soil, surface water and sediment at AOCs A9 and P13 to:

- delineate the extent of PFAS in groundwater and soil;
- determine the presence or absence of PFAS in surface water and sediment;
- confirm and refine the conceptual site model, and
- update the risk evaluation.

Upon completion of the supplemental investigations, a Supplemental SI Report will be submitted to incorporate the results, update the risk evaluation, and refine the conceptual site model.

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TABLES

Table 6
Groundwater Analytical Results Fall 2016
Former Sudbury Training Annex, Sudbury, Massachusetts

Method/Analyte	Historical Maximum	Units	OHM-A7-08	Q	A7-DUP1 (OHM-A7-08 DUP)	Q	SUD-A07-014	Q	SUD-A07-065	Q	SUDWP-A07-01	Q	TRIP BLANK	Q
			10/21/2016		10/21/2016		12/8/2016		10/21/2016		12/8/2016			
Volatile Organic Compounds (SW8260B)														
cis -1,2-Dichloroethene	19	µg/L	**1.10**		**1.30**		1.00	U	**2.10**		1.00	U	1.00	U
trans -1,2-Dichloroethene	6.0	µg/L	1.00	U	1.00	U	1.00	U	**0.53**	J	1.00	U	1.00	U
1,1,2,2-Tetrachloroethane	31	µg/L	1.00	U	1.00	U	1.00	U	**1.30**		1.00	U	1.00	U
Tetrachloroethene	140	µg/L	**2.60**		**2.70**		1.00	U	**9.3**		1.00	U	1.00	U
Trichloroethene	40	µg/L	1.00	U	1.00	U	1.00	U	**3.9**		1.00	U	1.00	U
Pesticides (SW8081B)														
4,4'-DDD	0.48	µg/L	**0.023**	**J**	**0.023**	**J**	0.0096	U	0.0096	U	0.0096	U	NA	
4,4'-DDE	0.10	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
4,4'-DDT	0.36	µg/L	**0.011**	**J**	**0.010**	**J**	0.017	U	0.017	U	0.017	U	NA	
Aldrin	0.058	µg/L	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	NA	
alpha-BHC	0.042	µg/L	**0.0045**	**J**	**0.0043**	**J**	0.0096	U	0.0096	U	0.0096	U	NA	
beta-BHC	0.058	µg/L	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	NA	
Chlordane (technical)		µg/L	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U		
delta-BHC	0.31	µg/L	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	NA	
Dieldrin	0.12	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Endosulfan I	0.058	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Endosulfan II	0.12	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Endosulfan sulfate	0.12	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Endrin	0.12	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Endrin aldehyde	0.12	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Endrin ketone	0.05	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
gamma-BHC (Lindane)	17.0	µg/L	**0.11**		**0.14**		0.0096	U	**0.14**		0.0096	U	NA	
Heptachlor	0.058	µg/L	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	NA	
Heptachlor epoxide	0.058	µg/L	0.0096	U	0.0097	U	0.0096	U	0.0096	U	0.0096	U	NA	
Methoxychlor	0.058	µg/L	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U	NA	
Toxaphene	1.2	µg/L	0.77	U	0.78	U	0.76	U	0.77	U	0.77	U	NA	
Cyanide (SW9012B)														
Cyanide, Total	11	µg/L	**2.90**	**J**	2.50	U	2.50	U	2.50	U	2.50	U	NA	
Chemical Oxygen Demand (E410.4)														
COD	190	mg/L	20	U	20	U	**10**	**J**	20	U	**8.2**	**J**	NA	
Field Parameters														
Temperature	NS	° C	16.42		NA		9.76		11.76		9.73		NA	
pH	NS	Std units	1.16		NA		5.93		6.62		6.03		NA	
Specific Conductance	NS	µS/cm	138		NA		194		113		363		NA	
ORP	NS	mV	105.4		NA		132.7		66.6		90.7		NA	
Dissolved Oxygen	NS	mg/L	0.26		NA		3.66		2.90		2.37		NA	
Turbidity	NS	NTU	17.40		NA		8.50		7.19		8.69		NA	

Notes:
NA = Not analyzed
NS = no standard
µg/L = microgram per liter
mg/L = milligram per liter
Bold = Detections
Q = qualifer
U = Non-detect (ND)
ND results are reported at the Limit of Detection (LOD)
J = estimated value
FD = field duplicate
Temp/°C = Temperature/degrees Celsius
pH/SU = standard units
mS/cm = millisiemens per centimeter
ORP/mV = Oxidation Reduction Potential/millivolt
NTU = Nephelometric Turbidity Unit

Table 7
Groundwater Analytical Results Fall 2017
Former Sudbury Training Annex, Sudbury, Massachusetts

Method/Analyte	Historical Maximum	Units	SUDWP-A07-01	Q	SUD-DUP01 (SUDWP-A07-01)	Q	TRIP BLANK	Q
			12/4/2017		12/4/2017			
Volatile Organic Compounds (SW8260B)								
cis -1,2-Dichloroethene	19	µg/L	1.0	U	1.0	U	1.0	U
trans -1,2-Dichloroethene	6.0	µg/L	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	31	µg/L	1.0	U	1.0	U	1.0	U
Tetrachloroethene	140	µg/L	1.0	U	1.0	U	1.0	U
Trichloroethene	40	µg/L	1.0	U	1.0	U	1.0	U
Pesticides (SW8081B)								
4,4'-DDD	0.48	µg/L	0.012	U	0.010	U	NA	
4,4'-DDE	0.10	µg/L	0.012	U	0.010	U	NA	
4,4'-DDT	0.36	µg/L	0.021	U	0.018	U	NA	
Aldrin	0.058	µg/L	0.021	U	0.018	U	NA	
alpha-BHC	0.042	µg/L	0.012	U	0.010	U	NA	
beta-BHC	0.058	µg/L	0.021	U	0.018	U	NA	
Chlordane (technical)	--	µg/L	0.36	U	0.30	U	NA	
delta-BHC	0.31	µg/L	0.021	U	0.018	U	NA	
Dieldrin	0.12	µg/L	0.012	U	0.010	U	NA	
Endosulfan I	0.058	µg/L	0.012	U	0.010	U	NA	
Endosulfan II	0.12	µg/L	0.012	U	0.010	U	NA	
Endosulfan sulfate	0.12	µg/L	0.012	U	0.010	U	NA	
Endrin	0.12	µg/L	0.012	U	0.010	U	NA	
Endrin aldehyde	0.12	µg/L	0.012	U	0.010	U	NA	
Endrin ketone	0.05	µg/L	0.012	U	0.010	U	NA	
gamma-BHC (Lindane)	17.0	µg/L	0.012	U	0.010	U	NA	
Heptachlor	0.058	µg/L	0.021	U	0.018	U	NA	
Heptachlor epoxide	0.058	µg/L	0.012	U	0.010	U	NA	
Methoxychlor	0.058	µg/L	0.021	U	0.018	U	NA	
Toxaphene	1.2	µg/L	0.95	U	0.80	U	NA	
Cyanide (SW9012B)								
Cyanide, Total	11	µg/L	5.0	U	5.0	U	NA	
Chemical Oxygen Demand (E410.4)								
COD	190	mg/L	10	U	10	U	NA	
Field Parameters								
Temperature	NS	° C	10.57		NA		NA	
pH	NS	SU	6.17		NA		NA	
Specific Conductance	NS	mS/cm	71		NA		NA	
ORP	NS	mV	+115		NA		NA	
Dissolved Oxygen	NS	mg/L	4.17		NA		NA	
Turbidity	NS	NTU	3.80		NA		NA	

Notes:
NA = Not analyzed
NS = no standard
µg/L = microgram per liter
mg/L = milligram per liter
Bold = Detections
Q = qualifer
U = Non-detect (ND)
J = estimated value
FD = field duplicate
Temp/°C = Temperature/degrees Celsius
pH/SU = standard units
mS/cm = millisiemens per centimeter
ORP/mV = Oxidation Reduction Potential/millivolt
NTU = Nephelometric Turbidity Unit

Table 8
Groundwater Analytical Results Spring 2018
Former Sudbury Training Annex, Sudbury, Massachusetts

Method/Analyte	Historical Maximum	Units	SUDWP-A07-01	Q	TRIP BLANK	Q
			4/10/2018		4/10/2018	
Volatile Organic Compounds (SW8260B)						
cis -1,2-Dichloroethene	19	µg/L	1.0	U	1.0	U
trans -1,2-Dichloroethene	6.0	µg/L	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	31	µg/L	1.0	U	1.0	U
Tetrachloroethene	140	µg/L	1.0	U	1.0	U
Trichloroethene	40	µg/L	1.0	U	1.0	U
Pesticides (SW8081B)						
4,4'-DDD	0.48	µg/L	0.0096	U	NA	
4,4'-DDE	0.10	µg/L	0.0096	U	NA	
4,4'-DDT	0.36	µg/L	0.017	U	NA	
Aldrin	0.058	µg/L	0.017	U	NA	
alpha-BHC	0.042	µg/L	0.0096	U	NA	
beta-BHC	0.058	µg/L	0.017	U	NA	
Chlordane (technical)	--	µg/L	0.29	U	NA	
delta-BHC	0.31	µg/L	0.017	U	NA	
Dieldrin	0.12	µg/L	0.0096	U	NA	
Endosulfan I	0.058	µg/L	0.0096	U	NA	
Endosulfan II	0.12	µg/L	0.0096	U	NA	
Endosulfan sulfate	0.12	µg/L	0.0096	U	NA	
Endrin	0.12	µg/L	0.0096	U	NA	
Endrin aldehyde	0.12	µg/L	0.0096	U	NA	
Endrin ketone	0.05	µg/L	0.0096	U	NA	
gamma-BHC (Lindane)	17.0	µg/L	0.0096	U	NA	
Heptachlor	0.058	µg/L	0.017	U	NA	
Heptachlor epoxide	0.058	µg/L	0.0096	U	NA	
Methoxychlor	0.058	µg/L	0.017	U	NA	
Toxaphene	1.2	µg/L	0.77	U	NA	
Cyanide (SW9012B)						
Cyanide, Total	11	µg/L	**7.6**	**J**	NA	
Chemical Oxygen Demand (E410.4)						
COD	190	mg/L	**16**	**J**	NA	
Field Parameters						
Temperature	NS	° C	4.78		NA	
pH	NS	SU	5.50		NA	
Specific Conductance	NS	µS/cm	66		NA	
ORP	NS	mV	124.7		NA	
Dissolved Oxygen	NS	mg/L	5.48		NA	
Turbidity	NS	NTU	4.67		NA	

Notes:
NA = Not analyzed
NS = no standard
µg/L = microgram per liter
mg/L = milligram per liter
Bold = Detections
Q = qualifer
U = Non-detect (ND)
J = estimated value
Temp/°C = Temperature/degrees Celsius
pH/SU = standard units
mS/cm = millisiemens per centimeter
ORP/mV = Oxidation Reduction Potential/millivolt
NTU = Nephelometric Turbidity Unit

Table 9
Groundwater Analytical Results Fall 2018
Former Sudbury Training Annex, Sudbury, Massachusetts

Method/Analyte	Historical Maximum	Units	OHM-A7-08	Q	OHM-A7-08 (FD)	Q	OHM-A7-08R	Q	OHM-A7-08 (FD)	Q	SUD-A07-014	Q	SUD-A07-065	Q	SUDWP-A07-01	Q	TRIP BLANK	Q
			11/27/2018		11/27/2018		2/5/2019		2/5/2019		11/27/2018		11/27/2018		11/27/2018		11/27/2018	
Volatile Organic Compounds (SW8260B)																		
cis -1,2-Dichloroethene	19	µg/L	**2.0**		**2.1**		NA		NA		1.0	U	1.0	U	1.0	U	1.0	U
trans -1,2-Dichloroethene	6.0	µg/L	1.0	U	1.0	U	NA		NA		1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	31	µg/L	1.0	U	1.0	U	NA		NA		1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	140	µg/L	**3.3**		**3.3**		NA		NA		1.0	U	**3.1**		1.0	U	1.0	U
Trichloroethene	40	µg/L	1.0	U	1.0	U	NA		NA		1.0	U	1.0	U	1.0	U	1.0	U
Pesticides (SW8081B)																		
4,4'-DDD	0.48	µg/L	--	R	--	R	0.0049	U	0.0049	U	**0.045**	**J**	0.0098	U	0.0098	U	NA	
4,4'-DDE	0.10	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.00980	UJ	0.0098	U	0.0098	U	NA	
4,4'-DDT	0.36	µg/L	--	R	--	R	0.0088	U	0.0088	U	**0.10**	**J**	0.018	U	0.0180	U	NA	
Aldrin	0.058	µg/L	--	R	--	R	0.0088	U	0.0088	U	0.0180	UJ	0.018	U	0.0180	U	NA	
alpha-BHC	0.042	µg/L	--	R	--	R	**0.0091**	**J**	**0.0058**	**J**	0.0098	UJ	0.0098	U	0.0098	U	NA	
beta-BHC	0.058	µg/L	--	R	--	R	0.0088	U	0.0088	U	0.018	UJ	0.018	U	0.018	U	NA	
Chlordane (technical)	--	µg/L	--	R	--	R	0.15	U	0.15	U	0.29	UJ	0.29	U	0.29	U	NA	
delta-BHC	0.31	µg/L	--	R	--	R	0.0088	U	0.0088	U	0.02	UJ	0.018	U	0.018	U	NA	
Dieldrin	0.12	µg/L	--	R	--	R	**0.015**	**J**	**0.010**	**J**	0.0098	UJ	0.0098	U	0.0098	U	NA	
Endosulfan I	0.058	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	UJ	0.0098	U	0.0098	U	NA	
Endosulfan II	0.12	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	UJ	0.0098	U	0.0098	U	NA	
Endosulfan sulfate	0.12	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	UJ	0.0098	U	0.0098	U	NA	
Endrin	0.12	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	UJ	0.0098	U	0.0098	U	NA	
Endrin aldehyde	0.12	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	UJ	0.0098	U	0.0098	U	NA	
Endrin ketone	0.05	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	UJ	0.0098	U	0.0098	U	NA	
gamma-BHC (Lindane)	17.0	µg/L	--	R	--	R	**0.011**	**J**	**0.0078**	**J**	0.0098	UJ	**0.034**	**J**	0.0098	U	NA	
Heptachlor	0.058	µg/L	--	R	--	R	0.0088	U	0.0088	U	0.018	U	0.018	U	0.018	U	NA	
Heptachlor epoxide	0.058	µg/L	--	R	--	R	0.0049	U	0.0049	U	0.0098	U	0.0098	U	0.0098	U	NA	
Methoxychlor	0.058	µg/L	--	R	--	R	0.0088	U	0.0088	U	0.018	U	0.018	U	0.018	U	NA	
Toxaphene	1.2	µg/L	--	R	--	R	0.39	U	0.39	U	0.78	U	0.78	U	0.78	U	NA	
Cyanide (SW9012B)																		
Cyanide, Total	11	µg/L	5.00	U	5.00	U	NA		NA		5.00	U	5.00	U	5.00	U	NA	
Chemical Oxygen Demand (E410.4)																		
COD	190	mg/L	17.0	J	16	J	NA		NA		9.1	J	7.7	J	9.7	J	NA	
Field Parameters																		
Temperature	NS	° C	10.46		NA		11.38		NA		10.10		8.90		6.81		NA	
pH	NS	SU	5.56		NA		4.72		NA		5.80		5.20		5.01		NA	
Specific Conductance	NS	µS/cm	190		NA		106		NA		89		82		78		NA	
Dissolved Oxygen	NS	mg/L	3.11		NA		3.40		NA		9.56		1.62		3.88		NA	
ORP	NS	mV	103.2		NA		212.2		NA		113.5		142.1		154.6		NA	
Turbidity	NS	NTU	13.70		NA		20.10		NA		1.96		2.98		3.72		NA	

Notes:
NA = Not analyzed
NS = no standard
µg/L = microgram per liter
mg/L = milligram per liter
Bold = Detections

Q = qualifer
U = Non-detect (ND)
ND results are reported at the Limit of Detection (LOD)
J = estimated value
FD = field duplicate

Temp/°C = Temperature/degrees Celsius
pH/SU = standard units
mS/cm = millisiemens per centimeter
ORP/mV = Oxidation Reduction Potential/millivolt
NTU = Nephelometric Turbidity Unit

Table 10
Groundwater Analytical Results Fall 2019
Former Sudbury Training Annex, Sudbury, Massachusetts

Method/Analyte	Historical Maximum	Units	SUDA7-19-01_FAL19	Q	A7-DUP-1 (FD of SUDA7-19-01_FAL19)	Q	TRIP BLANK	Q
			11/15/2019		11/15/2019		11/15/2019	
Volatile Organic Compounds (SW8260B)								
cis -1,2-Dichloroethene	19	µg/L	1.0	U	1.0	U	1.0	U
trans -1,2-Dichloroethene	6.0	µg/L	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	31	µg/L	1.0	U	1.0	U	1.0	U
Tetrachloroethene	140	µg/L	1.0	U	1.0	U	1.0	U
Trichloroethene	40	µg/L	1.0	U	1.0	U	1.0	U
Pesticides (SW8081B)								
4,4'-DDD	0.48	µg/L	0.0055	U	0.0052	U	NA	
4,4'-DDE	0.10	µg/L	0.0055	U	0.0052	U	NA	
4,4'-DDT	0.36	µg/L	0.0098	U	0.0093	U	NA	
Aldrin	0.058	µg/L	0.0098	U	0.0093	U	NA	
alpha-BHC	0.042	µg/L	0.0055	U	0.0052	U	NA	
beta-BHC	0.058	µg/L	0.0098	U	0.0093	U	NA	
Chlordane (technical)	--	µg/L	0.16	U	0.16	U	NA	
delta-BHC	0.31	µg/L	0.0098	U	0.0093	U	NA	
Dieldrin	0.12	µg/L	0.0055	U	0.0052	U	NA	
Endosulfan I	0.058	µg/L	0.0055	U	0.0052	U	NA	
Endosulfan II	0.12	µg/L	0.0055	U	0.0052	U	NA	
Endosulfan sulfate	0.12	µg/L	0.0055	U	0.0052	U	NA	
Endrin	0.12	µg/L	0.0055	U	0.0052	U	NA	
Endrin aldehyde	0.12	µg/L	0.0055	U	0.0052	U	NA	
Endrin ketone	0.05	µg/L	0.0055	U	0.0052	U	NA	
gamma-BHC (Lindane)	17.0	µg/L	0.0055	U	0.0052	U	NA	
Heptachlor	0.058	µg/L	0.0098	U	0.0093	U	NA	
Heptachlor epoxide	0.058	µg/L	0.0055	U	0.0052	U	NA	
Methoxychlor	0.058	µg/L	0.0098	U	0.0093	U	NA	
Toxaphene	1.2	µg/L	0.44	U	0.41	U	NA	
Cyanide (SW9012B)								
Cyanide, Total	11	µg/L	5.00	U	5.00	U	NA	
Chemical Oxygen Demand (E410.4)								
COD	190	mg/L	20	U	20	U	NA	
Field Parameters								
Temperature	NS	° C	11.99		NA		NA	
pH	NS	SU	6.81		NA		NA	
Specific Conductance	NS	µS/cm	66		NA		NA	
ORP	NS	mV	4.2		NA		NA	
Dissolved Oxygen	NS	mg/L	1.63		NA		NA	
Turbidity	NS	NTU	4.09		NA		NA	

Notes:

NA = Not analyzed
NS = no standard
µg/L = microgram per liter
mg/L = milligram per liter
Bold = Detections

Q = qualifer
U = Non-detect (ND)
ND results are reported at the Limit of Detection (LOI
J = estimated value
FD = field duplicate

Temp/°C = Temperature/degrees Celsius
pH/SU = standard units
mS/cm = millisiemens per centimeter
ORP/mV = Oxidation Reduction Potential/millivolt
NTU = Nephelometric Turbidity Unit

Table 11
Groundwater Analytical Results Fall 2020 - Spring 2021
Former Sudbury Training Annex, Sudbury, Massachusetts

Method/Analyte	Historical Maximum	Units	OHM-A7-08	Q	SUD-A07-014	Q	SUD-A07-014	Q	SUD-A07-065	Q	SUDA7-19-01	Q	SUD-DUP-01-FAL20 (SUDA7-19-01)	Q
			10/28/2020		10/28/2020		11/2/2020		10/28/2020		10/28/2020		10/28/2020	
Volatile Organic Compounds (SW8260B)														
cis -1,2-Dichloroethene	19	µg/L	1.80		1.00	U	--		**1.40**		1.00	U	1.00	U
trans -1,2-Dichloroethene	6.0	µg/L	1.00	U	1.00	U	--		1.00	U	1.00	U	1.00	U
1,1,2,2-Tetrachloroethane	31	µg/L	1.00	U	1.00	U	--		**0.630**	**J**	1.00	U	1.00	U
Tetrachloroethene	140	µg/L	**2.60**		1.00	U	--		**6.90**		1.00	U	1.00	U
Trichloroethene	40	µg/L	1.00	U	1.00	U	--		**2.80**		1.00	U	1.00	U
Pesticides (SW8081B)														
4,4'-DDD	0.48	µg/L	**0.0280**		--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
4,4'-DDE	0.10	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
4,4'-DDT	0.36	µg/L	**0.0190**	**J**	--		0.00860	U	0.0250	U	0.0240	U	0.0240	U
Aldrin	0.058	µg/L	0.0240	U	--		0.00860	U	0.0250	U	0.0240	U	0.0240	U
alpha-BHC	0.042	µg/L	**0.0100**	**J**	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
beta-BHC	0.058	µg/L	0.0240	U	--		0.00860	U	0.0250	U	0.0240	U	0.0240	U
Chlordane (technical)	--	µg/L	0.0240	U	--		0.140	U	0.0250	U	0.0240	U	0.0240	U
delta-BHC	0.31	µg/L	0.0240	U	--		0.00860	U	0.0250	U	0.0240	U	0.0240	U
Dieldrin	0.12	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
Endosulfan I	0.058	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
Endosulfan II	0.12	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
Endosulfan sulfate	0.12	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
Endrin	0.12	µg/L	0.0240	U	--		**0.00480**		0.0250	U	0.0240	U	0.0240	U
Endrin aldehyde	0.12	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
Endrin ketone	0.05	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
gamma-BHC (Lindane)	17.0	µg/L	**0.180**		--		0.00480	U	**0.100**		0.0240	U	0.0240	U
Heptachlor	0.058	µg/L	0.0240	U	--		0.00860	U	0.0250	U	0.0240	U	0.0240	U
Heptachlor epoxide	0.058	µg/L	0.0240	U	--		0.00480	U	0.0250	U	0.0240	U	0.0240	U
Methoxychlor	0.058	µg/L	0.0240	U	--		0.00860	U	0.0250	U	0.0240	U	0.0240	U
Toxaphene	1.2	µg/L	2.40	U	--		0.380	U	2.50	U	2.40	U	2.40	U
Cyanide (SW9012B)														
Cyanide (Fall 2020)	11	µg/L	**100**	**R**	**2800**	**R**	--		**87**	**R**	**220**	**R**	**180**	**R**
Cyanide (Spring 2021)	11	µg/L	5.00*	U	**4.50**	**J**	--		5.00	U	**5.00**	**J**	--	
Chemical Oxygen Demand (E410.4)														
COD	190	mg/L	25.0	U	20.0	U	--		20.0	U	20.0	U	20.0	U
Field Parameters														
Temperature	NS	° C	10.80		NA		10.2		12.1		12.6		12.6	
pH	NS	Std units	6.50		NA		5.58		5.94		5.02		5.02	
Specific Conductance	NS	mS/cm	0.141		NA		0.101		0.082		0.198		0.198	
ORP	NS	mV	143		NA		136		312		327		327	
Dissolved Oxygen	NS	mg/L	0.390		NA		2.79		1.16		5.09		5.09	
Turbidity	NS	NTU	10.3		NA		74.5		17.9		7.39		7.39	

Notes:
NA = Not analyzed
NS = no standard
µg/L = microgram per liter
mg/L = milligram per liter
Bold = Detections
Q = qualifer
U = Non-detect (ND)
ND results are reported at the Limit of Detection (LOD)
J = estimated value
R = rejected
Temp/°C = Temperature/degrees Celsius
pH/SU = standard units
mS/cm = millisiemens per centimeter
ORP/mV = Oxidation Reduction Potential/millivolt
NTU = Nephelometric Turbidity Unit
Cynaide (Spring 2021) samples were collected on March 10, 2021.

Table 12
PFAS Sampling Results - August 2016
Former Fort Devens Sudbury Training Annex, Sudbury, Massachusetts

	AOC A9 A9WSW		DUPLICATE 01 (A9WSW)		FIELD BLANK 02		AOC A7 OHM-A7-09		DUPLICATE 02 (OHM-A7-09)		FIELD BLANK 03		AOC A7 OHM-A7-08		FIELD BLANK 01	
	8/11/2016		8/11/2016		8/11/2016		8/12/2016		8/12/2016		8/12/2016		8/11/2016		8/11/2016	
Target Compounds	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**	**Result (µg/L)**	**Q**
Perfluorobutanesulfonic acid (PFBS)	0.100	U	0.100	U	0.099	U	0.100	U	0.100	U	0.100	U	0.100	U	0.099	UJ
Perfluoroheptanoic acid (PFHpA)	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	**0.0055**	**J**	0.011	UJ
Perfluorohexanesulfonic acid (PFHxA)	0.033	U	0.033	U	0.032	U	0.034	U	0.033	U	0.033	U	0.033	U	0.032	UJ
Perfluorononanoic acid (PFNA)	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.022	UJ
Perfluorooctane sulfonic acid (PFOS)	0.044	U	0.044	U	0.043	U	0.045	U	0.044	U	0.044	U	**0.027**	**J**	0.043	UJ
Perfluorooctanoic acid (PFOA)	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U	**0.027**		0.022	UJ

Bolded results indicate detections.
µg/L = microgram per liter
Q = Qualifier
U = not detected at the cited concentration
J = Estimated Result
UJ = Estimated non-detect
The EPA lifetime drinking was health advisory for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) is 70 nanograms per liter individually or combined.

Table 13
Select Sampling Results - August 2016
Former Fort Devens Sudbury Training Annex, Sudbury, Massachusetts

Locations:	A9WSW		A9WSW		OHM-A7-08		OHM-A7-09		OHM-A7-09 (FD)	
Field Sample ID:	A9WSW		DUPLICATE 01		OHM A708		OHM A709		DUPLICATE 02	
Sample Date:	08/11/2016		08/11/2016		08/11/2016		08/12/2016		08/12/2016	
	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
OTHER										
Diesel Range Organics (C10-C28) (8015C DRO) (mg/L)	**0.075**	**J**	**0.070**	**J**	-		-		-	
1,4-Dioxane (522) (µg/L)	0.10	U	0.10	U	0.10	U	0.10	U	**0.086**	**J**
6010C METALS (µg/L)										
Aluminum	70	U	**30**	**J**	-		-		-	
Antimony	15	U	15	U	-		-		-	
Arsenic	15	U	15	U	-		-		-	
Barium	**4.8**	**J**	**4.8**	**J**	-		-		-	
Beryllium	0.30	U	0.30	U	-		-		-	
Cadmium	3.0	U	3.0	U	-		-		-	
Calcium	**6100**		**6000**	**J**	-		-		-	
Chromium	4.0	U	4.0	U	-		-		-	
Cobalt	**2.0**	**J**	**1.9**	**J**	-		-		-	
Copper	**3.1**	**J**	**3.3**	**J**	-		-		-	
Iron	**1800**	**J**	**1100**	**J**	-		-		-	
Lead	10	U	10	U	-		-		-	
Magnesium	**1700**		**1700**		-		-		-	
Manganese	**30**		**28**		-		-		-	
Nickel	**5.4**	**J**	**5.3**	**J**	-		-		-	
Potassium	**1900**		**1900**		-		-		-	
Selenium	20	U	20	U	-		-		-	
Silver	1.5	U	1.5	U	-		-		-	
Sodium	**4300**		**4200**		-		-		-	
Thallium	15	U	15	U	-		-		-	
Vanadium	3.0	U	3.0	U	-		-		-	
Zinc	**76**		**77**		-		-		-	
7470A- Mercury (µg/L)										
Mercury	0.20	U	0.20	U	-		-		-	
6850 (µg/L)										
Perchlorate	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Volatile Organic Compounds 8260B										
Acetone	10	U	10	U	-		-		-	
Benzene	1.0	U	1.0	U	-		-		-	
Bromobenzene	1.0	U	1.0	U	-		-		-	
Bromoform	1.0	U	1.0	U	-		-		-	
Bromomethane	5.0	U	5.0	U	-		-		-	
2-Butanone (MEK)	10	U	10	U						
Carbon disulfide	2.0	U	2.0	U	-		-		-	
Carbon tetrachloride	0.50	U	0.50	U	-		-		-	
Chlorobenzene	0.50	U	0.50	U	-		-		-	
Chlorobromomethane	1.0	U	1.0	U	-		-		-	
Chlorodibromomethane	0.50	U	0.50	U	-		-		-	
Chloroethane	5.0	U	5.0	U	-		-		-	
Chloroform	1.0	U	1.0	U	-		-		-	

Table 13
Select Sampling Results - August 2016
Former Fort Devens Sudbury Training Annex, Sudbury, Massachusetts

Locations:	A9WSW		A9WSW		OHM-A7-08		OHM-A7-09		OHM-A7-09 (FD)	
Field Sample ID:	A9WSW		DUPLICATE 01		OHM A708		OHM A709		DUPLICATE 02	
Sample Date:	08/11/2016		08/11/2016		08/11/2016		08/12/2016		08/12/2016	
	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	1.0	U	1.0	U	-		-		-	
2-Chlorotoluene	0.50	U	0.50	U	-		-		-	
4-Chlorotoluene	1.0	U	1.0	U	-		-		-	
cis-1,2-Dichloroethene	1.0	U	1.0	U	-		-		-	
cis-1,3-Dichloropropene	1.0	U	1.0	U	-		-		-	
1,2-Dibromo-3-Chloropropane	2.0	U	2.0	U	-		-		-	
Dibromomethane	1.0	U	1.0	U	-		-		-	
1,2-Dichlorobenzene	1.0	U	1.0	U	-		-		-	
1,3-Dichlorobenzene	1.0	U	1.0	U	-		-		-	
1,4-Dichlorobenzene	1.0	U	1.0	U	-		-		-	
Dichlorobromomethane	1.0	U	1.0	U	-		-		-	
Dichlorodifluoromethane	1.0	U	1.0	U	-		-		-	
1,1-Dichloroethane	1.0	U	1.0	U	-		-		-	
1,2-Dichloroethane	1.0	U	1.0	U	-		-		-	
1,1-Dichloroethene	1.0	U	1.0	U	-		-		-	
1,2-Dichloroethene, Total	1.0	U	1.0	U	-		-		-	
1,2-Dichloropropane	1.0	U	1.0	U	-		-		-	
1,3-Dichloropropane	1.0	U	1.0	U	-		-		-	
2,2-Dichloropropane	1.0	U	1.0	U	-		-		-	
1,1-Dichloropropene	1.0	U	1.0	U	-		-		-	
Ethylbenzene	0.50	U	0.50	U	-		-		-	
Ethylene Dibromide	1.0	U	1.0	U	-		-		-	
Hexachlorobutadiene	5.0	U	5.0	U	-		-		-	
2-Hexanone	5.0	U	5.0	U	-		-		-	
Isopropylbenzene	1.0	U	1.0	U	-		-		-	
4-Isopropyltoluene	1.0	U	1.0	U	-		-		-	
Methylene Chloride	5.0	U	5.0	U	-		-		-	
4-Methyl-2-pentanone (MIBK)	5.0	U	5.0	U	-		-		-	
Methyl tert-butyl ether	0.50	U	0.50	U	-		-		-	
m-Xylene & p-Xylene	1.0	U	1.0	U	-		-		-	
Naphthalene	5.0	U	5.0	U	-		-		-	
n-Butylbenzene	1.0	U	1.0	U	-		-		-	
N-Propylbenzene	1.0	U	1.0	U	-		-		-	
o-Xylene	0.50	U	0.50	U	-		-		-	
sec-Butylbenzene	1.0	U	1.0	U	-		-		-	
Styrene	0.50	U	0.50	U	-		-		-	
tert-Butylbenzene	1.0	U	1.0	U	-		-		-	
1,1,1,2-Tetrachloroethane	1.0	U	1.0	U	-		-		-	
1,1,2,2-Tetrachloroethane	1.0	U	1.0	U	-		-		-	
Tetrachloroethene	1.0	U	1.0	U	-		-		-	
Toluene	1.0	U	1.0	U	-		-		-	
trans-1,2-Dichloroethene	1.0	U	1.0	U	-		-		-	
trans-1,3-Dichloropropene	1.0	U	1.0	U	-		-		-	
1,2,3-Trichlorobenzene	5.0	U	5.0	U	-		-		-	

Table 13
Select Sampling Results - August 2016
Former Fort Devens Sudbury Training Annex, Sudbury, Massachusetts

Locations:	A9WSW		A9WSW		OHM-A7-08		OHM-A7-09		OHM-A7-09 (FD)	
Field Sample ID:	A9WSW		DUPLICATE 01		OHM A708		OHM A709		DUPLICATE 02	
Sample Date:	08/11/2016		08/11/2016		08/11/2016		08/12/2016		08/12/2016	
	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,2,4-Trichlorobenzene	5.0	U	5.0	U	-		-		-	
1,1,1-Trichloroethane	1.0	U	1.0	U	-		-		-	
1,1,2-Trichloroethane	0.50	U	0.50	U	-		-		-	
Trichloroethene	1.0	U	1.0	U	-		-		-	
Trichlorofluoromethane	1.0	U	1.0	U	-		-		-	
1,2,3-Trichloropropane	1.0	U	1.0	U	-		-		-	
1,2,4-Trimethylbenzene	1.0	U	1.0	U	-		-		-	
1,3,5-Trimethylbenzene	0.50	U	0.50	U	-		-		-	
Vinyl acetate	2.0	U	2.0	U	-		-		-	
Vinyl chloride	1.0	U	1.0	U	-		-		-	
Xylenes, Total	0.50	U	0.50	U	-		-		-	
SVOCs 8270D (µg/L)										
Acenaphthene	2.0	U	1.9	U	-		-		-	
Acenaphthylene	2.0	U	1.9	U	-		-		-	
Acetophenone	2.0	U	1.9	U	-		-		-	
Anthracene	2.0	U	1.9	U	-		-		-	
Atrazine	2.0	U	1.9	U	-		-		-	
Benzaldehyde	2.0	U	1.9	U	-		-		-	
Benzo[a]anthracene	0.98	U	0.97	U	-		-		-	
Benzo[a]pyrene	2.0	U	1.9	U	-		-		-	
Benzo[b]fluoranthene	4.9	U	1.9	U	-		-		-	
Benzo[g,h,i]perylene	2.0	U	1.9	U	-		-		-	
Benzo[k]fluoranthene	2.0	U	1.9	U	-		-		-	
1,1'-Biphenyl	2.0	U	1.9	U	-		-		-	
Bis(2-chloroethoxy)methane	2.0	U	1.9	U	-		-		-	
Bis(2-chloroethyl)ether	2.0	U	1.9	U	-		-		-	
bis (2-chloroisopropyl) ether	2.0	U	1.9	U	-		-		-	
Bis(2-ethylhexyl) phthalate	4.9	U	4.8	U	-		-		-	
4-Bromophenyl phenyl ether	2.0	U	1.9	U	-		-		-	
Butyl benzyl phthalate	2.0	U	1.9	U	-		-		-	
Caprolactam	**9.0**	**J**	**15**	**J**	-		-		-	
Carbazole	2.0	U	1.9	U	-		-		-	
4-Chloroaniline	4.9	U	4.8	U	-		-		-	
4-Chloro-3-methylphenol	2.0	U	1.9	U	-		-		-	
2-Chloronaphthalene	2.0	U	1.9	U	-		-		-	
2-Chlorophenol	2.0	U	1.9	U	-		-		-	
4-Chlorophenyl phenyl ether	2.0	U	1.9	U	-		-		-	
Chrysene	0.98	U	0.97	U	-		-		-	
Dibenz(a,h)anthracene	2.0	U	1.9	U	-		-		-	
Dibenzofuran	2.0	U	1.9	U	-		-		-	
3,3'-Dichlorobenzidine	49	U	48	U	-		-		-	
2,4-Dichlorophenol	2.0	U	1.9	U	-		-		-	
Diethyl phthalate	2.0	U	1.9	U	-		-		-	

Table 13
Select Sampling Results - August 2016
Former Fort Devens Sudbury Training Annex, Sudbury, Massachusetts

Locations:	A9WSW		A9WSW		OHM-A7-08		OHM-A7-09		OHM-A7-09 (FD)	
Field Sample ID:	A9WSW		DUPLICATE 01		OHM A708		OHM A709		DUPLICATE 02	
Sample Date:	08/11/2016		08/11/2016		08/11/2016		08/12/2016		08/12/2016	
	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4-Dimethylphenol	9.8	U	9.7	U	-		-		-	
Dimethyl phthalate	2.0	U	1.9	U	-		-		-	
Di-n-butyl phthalate	2.0	U	1.9	U	-		-		-	
4,6-Dinitro-2-methylphenol	20	U	19	U	-		-		-	
2,4-Dinitrophenol	20	U	19	U	-		-		-	
2,4-Dinitrotoluene	2.0	U	1.9	U	-		-		-	
2,6-Dinitrotoluene	2.0	U	1.9	U	-		-		-	
Di-n-octyl phthalate	4.9	U	4.8	U	-		-		-	
Fluoranthene	2.0	U	1.9	U	-		-		-	
Fluorene	2.0	U	1.9	U	-		-		-	
Hexachlorobenzene	2.0	U	1.9	U	-		-		-	
Hexachlorobutadiene	2.0	U	1.9	U	-		-		-	
Hexachlorocyclopentadiene	9.8	U	9.7	U	-		-		-	
Hexachloroethane	2.0	U	1.9	U	-		-		-	
Indeno[1,2,3-cd]pyrene	2.0	U	1.9	U	-		-		-	
Isophorone	2.0	U	1.9	U	-		-		-	
2-Methylnaphthalene	2.0	U	1.9	U	-		-		-	
2-Methylphenol	2.0	U	1.9	U	-		-		-	
3 & 4 Methylphenol	4.9	U	4.8	U	-		-		-	
Naphthalene	2.0	U	1.9	U	-		-		-	
2-Nitroaniline	4.9	U	4.8	U	-		-		-	
3-Nitroaniline	9.8	U	9.7	U	-		-		-	
4-Nitroaniline	9.8	U	9.7	U	-		-		-	
Nitrobenzene	2.0	U	1.9	U	-		-		-	
2-Nitrophenol	2.0	U	1.9	U	-		-		-	
4-Nitrophenol	3.9	U	3.9	U	-		-		-	
N-Nitrosodi-n-propylamine	2.0	U	1.9	U	-		-		-	
N-Nitrosodiphenylamine	2.0	U	1.9	U	-		-		-	
Pentachlorophenol	3.9	U	3.9	U	-		-		-	
Phenanthrene	2.0	U	1.9	U	-		-		-	
Phenol	2.0	U	1.9	U	-		-		-	
Pyrene	2.0	U	1.9	U	-		-		-	
2,4,5-Trichlorophenol	2.0	U	1.9	U	-		-		-	
2,4,6-Trichlorophenol	2.0	U	1.9	U	-		-		-	

- = Not analyzed
J = estimated
U = not detected at the cited concentration
Q = qualifer
Bolded results indicate detections.

mg/L = milligrams per liter
µg/L = micrograms per liter

Table 14
VOC Detections in Groundwater at AOC A9
Former Sudbury Training Annex, Sudbury, Massachusetts

Field Sample ID			A9-18-01-GW-18-20	A9-18-03-GW-20-25	A9-18-06-GW-25-27	A9-18-06-GW-35-37	A9-DUP-1 (A9-18-06-GW-35-37)	A9-18-06-GW-45-47	A9-18-06-GW-55-57	A9-18-06-GW-64-66	A9-18-08-GW-26-28	TB2_062718	Trip Blank
Sample Depth (ft bgs)			18-20	20-25	25-27	35-37	35-37	45-47	55-57	64-66	26-28	NA	NA
Date Sampled			6/25/2018	6/25/2018	6/27/2018	6/27/2018	6/27/2018	6/27/2018	7/3/2018	7/3/2018	6/26/2018	6/27/2018	7/3/2018
Analyte	**GW-1**	**MCL**											
1,1,1-Trichloroethane	200	200	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	--	--	10 U	10 U	10 U	10 U	10 U	10 U	50 U	**8.7 J**	10 U	10 U	10 U
Tetrachloroethene	5	5	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1,000	1,000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	**0.64 J**

The units for all of the results is micrograms per liter.
Bolded results indicates detection.
U = not detected at the cited concentration (Limit of Detection).
J = estimated result
GW-1 = Massachusetts GW-1 Standards
MCL = Maximum Contaminant Levels

Table 15
Landfill Gas Monitoring A7-1
Former Sudbury Training Annex, Sudbury, Massachusetts

Parameter	Ranges from April 1998 to May 2006	Nov 14, 2006	June 26, 2007	Oct 23, 2007	Jun 23, 2008	Jun 10, 2009	Nov 3, 2010	Nov 2, 2011	Dec 4, 2012	Nov 21, 2013	Nov 18, 2014	Nov 9, 2015	Nov 9, 2016	Nov 15, 2017	Oct. 28, 2020
Volatile Organic Compound (ppm)	0-3.3 (June 2005)	0	0	0	0	0	0	0	0	NS	NS	NS	NS	0.2	3.2
Oxygen (%)	18.18 (April 2002) - 20.9 (Oct 1999)	12.4	20.4	19.5	21.9	20.9	16.7	20.6	19.5	NS	NS	NS	NS	15.8/16.3*	18.2/18.6*
Lower Explosive Limit (%)	All readings = 0	0	0	0	0	0	0	0	0	NS	NS	NS	NS	0	0
Carbon Dioxide (%)	0-0.7 (April 2002 and May 2006)	6.4	6.4	0.6	0	0	3.0	1.1	2.1	NS	NS	NS	NS	3.1	1.5
Methane (%)	All readings = 0	0	0	0	0	0	0	0	0	NS	NS	NS	NS	0	0
Atmospheric Pressure (Inches Hg)	29.35 (April 2000) - 30.2 (Oct 1998 and June 2005)	29.4	30.1	29.9	29.66	29.8	30.2	30.07	29.9	30.16	29.47	30.43	UKN	29.89	29.73

Notes:
NR - No reading
NS - Not sampled; Hornets' nest
UKN = Unknown
* = Oxygen was measured using two separate instruments (MultiRAE+/Landtec GEM 2000).

Table 16
Landfill Gas Monitoring A7-2
Former Sudbury Training Annex, Sudbury, Massachusetts

Parameter	Ranges from April 1998 to May 2006	Nov 14, 2006	June 26, 2007	Oct 23, 2007	Jun 23, 2008	Jun 10, 2009	Nov 3, 2010	Nov 2, 2011	Dec 4, 2012	Nov 21, 2013	Nov 18, 2014	Nov 9, 2015	Nov 9, 2016	Nov 15, 2017	Oct. 28, 2020
Volatile Organic Compound (ppm)	0-7.6 (June 2005)	0	0	0	0	0	0	0	0	NS	NS	0.5	0	0.2	1.0
Oxygen (%)	19.0 (May 2006) - 21.2 (Oct 2002)	9.2	NR	16.0	21.6	20.9	12.7	19.0	19.0	NS	NS	17.2	R	13.3/6.7*	12.8/12.2
Lower Explosive Limit (%)	All readings = 0	0	0	0	0	0	0	0	0	NS	NS	0.002	0.003	0	0
Carbon Dioxide (%)	0-1.3 (May 2006)	8.1	NR	3.0	0.1	0	4.6	1.9	2.4	NS	NS	2.0	R	4.9	5.6
Methane (%)	All readings = 0	0	0	0	0	0	0	0	0	NS	NS	0.1	0.1	0	0
Atmospheric Pressure (Inches Hg)	29.35 (April 2000) - 30.2 (Oct 1998 and June 2005)	29.4	30.1	29.9	29.66	29.8	30.2	30.07	29.9	30.16	29.47	30.43	UKN	29.89	29.73

Notes:
NR - No reading
NS - Not sampled; Hornets' nest
UKN = Unknown
R = Carbon dioxide ranged from 4.1-5.0% and oxygen ranged from 13.2 to 15.4% across vents GV-2, GV-3, GV-4.
* = Oxygen was measured using two separate instruments (MultiRAE+/Landtec GEM 2000).

Table 17
Landfill Gas Monitoring A7-3
Former Sudbury Training Annex, Sudbury, Massachusetts

Parameter	Ranges from April 1998 to May 2006	Nov 14, 2006	June 26, 2007	Oct 23, 2007	Jun 23, 2008	Jun 10, 2009	Nov 3, 2010	Nov 2, 2011	Dec 4, 2012	Nov 21, 2013	Nov 18, 2014	Nov 9, 2015	Nov 9, 2016	Nov 15, 2017	Oct. 28, 2020
Volatile Organic Compound (ppm)	0-2.5 (June 2005)	0	0	0	0	0.3	0	0	0	0	0	1.0	0.0	0.1	0.7
Oxygen (%)	19.7 (Oct 2001 and Apr 2002) - 20.9 (Apr 1998, May 2001 and April 2004)	9.9	20.6	18.5	21.9	20.8	13.6	18.9	18.0	18.8	18.8	17.5	R	12.3/6.0*	9.7/11.4
Lower Explosive Limit (%)	All readings = 0	0	0	0	0	0	0	0	0	0	0	0.002	0.003	0	0
Carbon Dioxide (%)	0-0.4 (April 2004)	7.9	7.9	1.4	0	0	5.1	3.0	4.0	2.1	2.1	2.9	R	6.2	5.5
Methane (%)	All readings = 0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0	0
Atmospheric Pressure (Inches Hg)	29.35 (April 2000) - 30.2 (Oct 1998 and June 2005)	29.4	30.1	29.9	29.66	29.8	30.2	30.07	29.9	30.16	29.47	30.43	UKN	29.89	29.73

Notes:
NR - No reading
UKN = Unknown
R = Carbon dioxide ranged from 4.1-5.0% and oxygen ranged from 13.2 to 15.4% across vents GV-2, GV-3, GV-4.
* = Oxygen was measured using two separate instruments (MultiRAE+/Landtec GEM 2000).

Table 18
Landfill Gas Monitoring A7-4
Former Sudbury Training Annex, Sudbury, Massachusetts

Parameter	Ranges from April 1998 to May 2006	Nov 14, 2006	June 26, 2007	Oct 23, 2007	Jun 23, 2008	Jun 10, 2009	Nov 3, 2010	Nov 2, 2011	Dec 4, 2012	Nov 21, 2013	Nov 18, 2014	Nov 9, 2015	Nov 9, 2016	Nov 15, 2017	Oct. 28, 2020
Volatile Organic Compound (ppm)	0-1.9 (June and Sept 2005)	0	0	0	0	0.1	0	0	0	NS	0	0.5	0	0.1	0.1
Oxygen (%)	19.2 (April 2002) - 20.9 (Oct 1999 and Apr 2003)	12.9	20.4	20.1	22.0	20.9	15.9	20.4	17.7	NS	20.0	19.6	R	17.5/16.9*	18.6/18.8*
Lower Explosive Limit (%)	All readings = 0	0	0	0	0	0	0	0	0	NS	0	0.002	0.003	0	0
Carbon Dioxide (%)	0-0.2 (April 2002)	6.5	6.5	0.4	0	0	3.7	1.7	3.2	NS	0	1.4	R	3.0	1.9
Methane (%)	All readings = 0	0	0	0	0	0	0	0	0	NS	0	0.1	0.2	0	0
Atmospheric Pressure (Inches Hg)	29.35 (April 2000) - 30.2 (Oct 1998 and June 2005)	29.4	30.1	29.9	29.66	29.8	30.2	30.07	29.9	30.16	29.47	30.43	UKN	29.89	29.73

Notes:
NR - No reading
NS - Not sampled; Hornets' nest
UKN = Unknown
R = Carbon dioxide ranged from 4.1-5.0% and oxygen ranged from 13.2 to 15.4% across vents GV-2, GV-3, GV-4.
* = Oxygen was measured using two separate instruments (MultiRAE+/Landtec GEM 2000).

FIGURES

Figure 1
Former Sudbury Training Annex

References: HGL. LTMMP 2012.
Aerial Sources: 2019, MassGIS USGS Orthoimagery

Legend
- Area of Contamination Perimeter
- Major Road
- Former Sudbury Training Annex

2021 Five Year Review
Former Sudbury Training Annex

Former Fort Devens Army Installation
Sudbury Training Annex, Sudbury, MA

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 1,000 2,000
Feet

Date: 04/09/2021

Figure 1

File: PFAS2021_SudburyFYR_F1-AnnexSM.mxd

Figure 2
Former Sudbury Training Annex
USGS Topographic Map

References: HGL. LTMMP 2012.
Sources: Copyright:© 2013 National Geographic Society, i-cubed

Legend
- Area of Contamination (AOC)
- Former Sudbury Training Annex

2021 Five Year Review
Former Sudbury Training Annex

Former Fort Devens Army Installation
Sudbury Training Annex, Sudbury, MA

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 1,000 2,000
Feet

Date:
04/09/2021

Figure
2

File: PFAS2021_SudburyFYR_F2-AnnexSLM.mxd

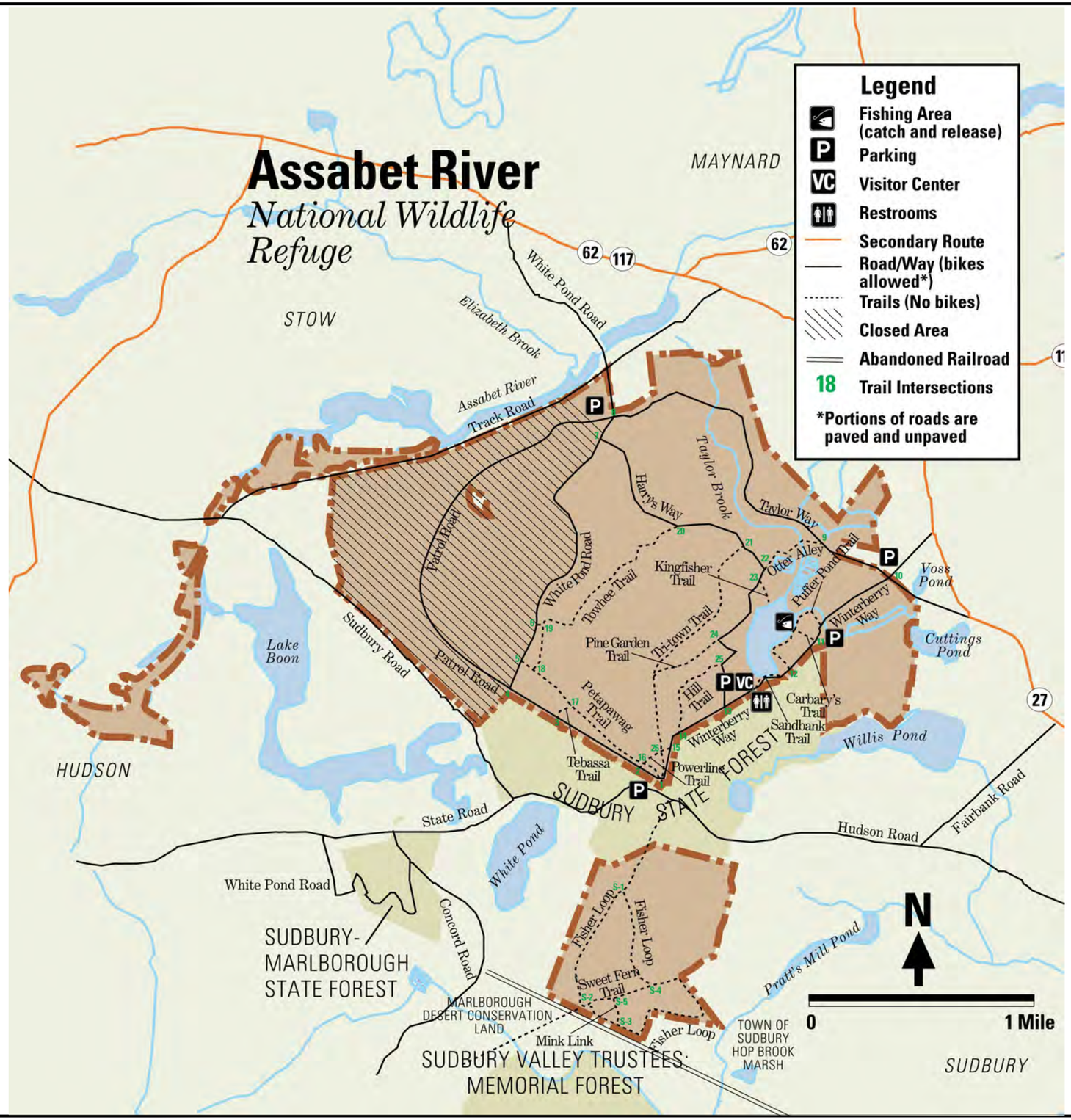

Figure 3
Assabet River
National Wildlife Refuge

2021 Five Year Review
Former Sudbury Training Annex

Former Fort Devens Army Installation
Sudbury Training Annex, Sudbury, MA

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

SCALE: AS NOTED

Date: 04/09/2021

Figure 3

File: PFAS2021_SudburyFYR.dwg

Figure 4
Site Layout
Area of Contamination A7

Legend

- LTM Sample Well
- LTM Well - Gauge Only
- Staff Gauge
- Monitoring Well - Abandoned
- Gas Vent
- OHM-A7-08 Well/Gauge/Vent Identification
- Topographic Contour (ft amsl) (contour interval = 4ft)
- Fence
- Stump Pile Area
- Toe Drain
- AOC A7 Boundary

Notes:
LTM = long term monitoring

References:
HGL. LTMMP 2012.

Aerial Sources: 2019, MassGIS USGS Orthoimagery

2021 Five Year Review
Former Sudbury Training Annex

Former Fort Devens Army Installation
Sudbury Training Annex, Sudbury, MA

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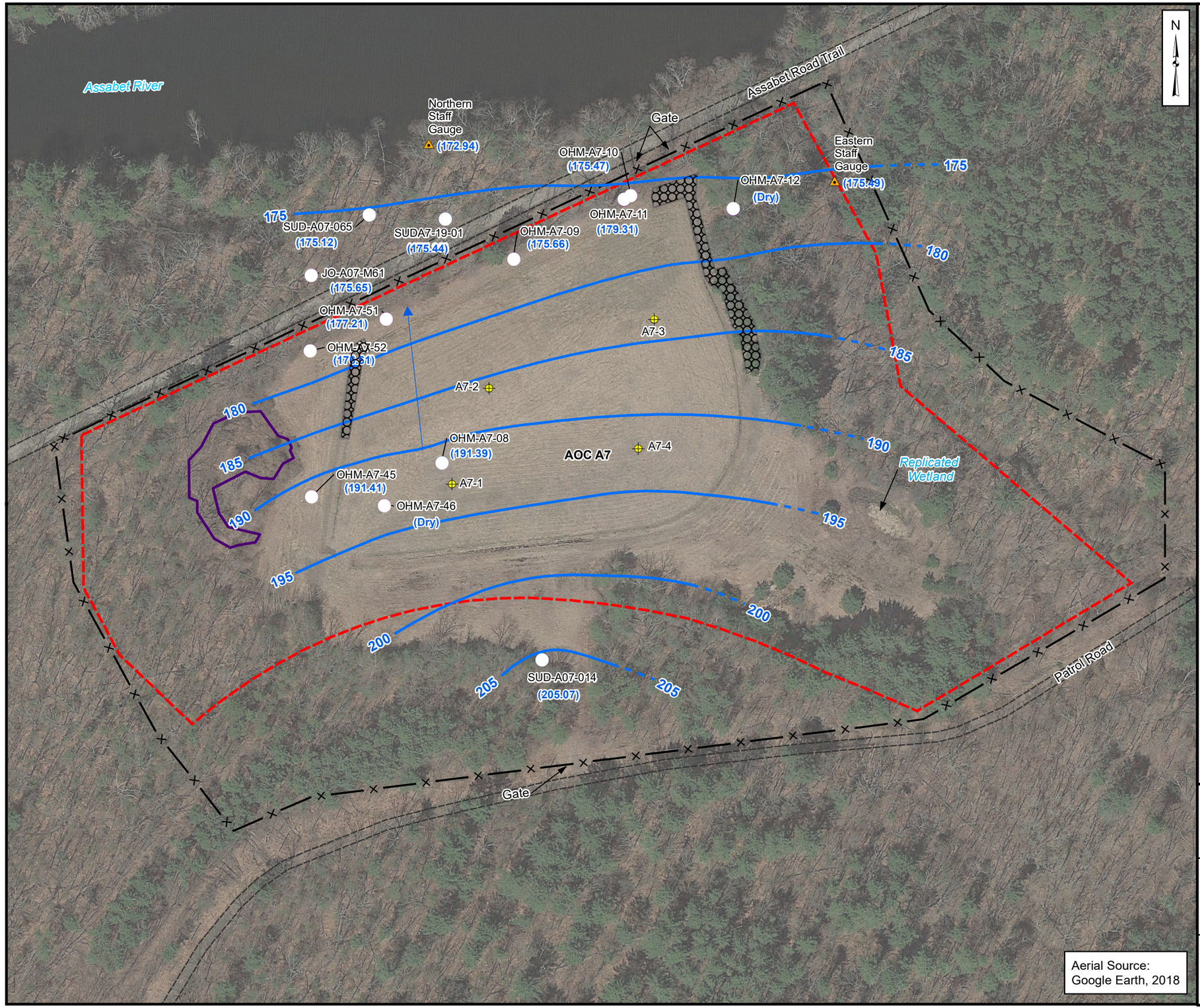
0 60 120
Feet

Date: 04/13/2021

Figure 4

Document Path: X:\HS_Environmental\FortDevens_Mass\PFAS2021_SudburyFYR_F4-AOCA7.mxd



Legend

- Area of Contamination (AOC)
- Stump Pile Area
- Rip Rap
- LTM Sampling Well
- LTM Well - Gauge Only
- Staff Gauge
- Gas Vent
- Road
- Estimated Groundwater Flow
- Groundwater Contour (feet NAVD88)
- Inferred Groundwater Contour (feet NAVD88)
- Fence

Notes:
NAVD88 = North American Vertical Datum of 1988
LTM = long-term monitoring
SUDWP-A7-01 decomissioned and replaced by SUD-A7-19-01
JO-A07-M62 damaged and replaced by SUDWP-A07-01

0 100 200
Feet

Water Table Elevation
Sudbury Annex - AOC A7
Fall 2020

SERES Engineering & Services, LLC
ARCADIS a joint venture

Figure
5

File: Figure 4 - A7_GWC.mxd

ASSABET RIVER

OHM-BW-5

OHM-A9-53

OHM-A9-58

DM9A

OHM-A9-18

A9-18-08

A9-18-08			
Depth (ft-bgs)	Date	Analyte	Result (ug/L)
26-28	6/26/2018	ND all VOCs	ND

OHM-A9-57

OHM-A9-54

Abandoned UST Area and Metal Shed

DM8

OHM-A9-17

A9-18-06

OHM-A9-56

A9-18-06			
Depth (ft-bgs)	Date	Analyte	Result (ug/L)
25-27	6/27/2018	ND all VOCs	ND
35-37	6/27/2018	ND all VOCs	ND
35-37 (DUP-1)	6/27/2018	ND all VOCs	ND
45-47	6/27/2018	ND all VOCs	ND
55-57	7/3/2018	ND all VOCs	ND
64-66	7/3/2018	Acetone	**8.7 J**

JO-A9-B60

OHM-A9-48

Fire Proof Clothing Test Area

A9-18-03

A9-18-03			
Depth (ft-bgs)	Date	Analyte	Result (ug/L)
20-22	6/25/2018	ND all VOCs	ND

OHM-A9-47

DM10

OHM-A9-16

T402

T401

A9-18-01

OHM-A9-55

A9-18-01			
Depth (ft-bgs)	Date	Analyte	Result (ug/L)
18-20	6/25/2018	1,1,1-Trichloroethane	**1.6**
18-20	6/25/2018	Tetrachloroethene	**1.2**

OHM-A9-49

PATROL ROAD

OHM-A9-14

177 187 196 206 216 183 184 185 186 188 189 190 191 192 193 194 195

Legend

- Temporary Well Location
- Abandoned Monitoring Well Location
- Historic Soil Boring Location (1996)
- Existing USFWS Well
- Ground Surface Contour (MassGIS)
- Upper Aquifer Potentiometric Surface Contour June 5, 1996
- Former Fence Line
- Approximate Area of Soil Removal (1987-1988)
- Area of Inferred Chlorinated VOC Plume (1995)
- Area of Inferred Xylenes Plume (1995)
- Historical Feature
- Former Sudbury Training Annex

Notes:
VOC = volatile organic compound
ug/L = microgram per liter
J = estimated result
U = non-detect
gw = groundwater

References: Final Technical Memorandum Remedial (Data-Gap) Investigation Area of Contamination A9 (ABB Environmental Services, Inc., August 1997)

Aerial Sources: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

AOC A9 Investigation to Support LUCs
VOC Sample Results

2021 Five Year Review
Former Sudbury Training Annex

KOMAN Government Solutions, LLC
293 Boston Post Road W, Marlborough, MA 01752

0 50 100
Feet

Date: 04/09/2021

Figure 6

KGS TRINITY

File: PFAS2021_SudburyFYR_F6-A9VOCResults.mxd

Figure 7
PFAS Site Inspections

References: HGL. LTMMP 2012.
Aerial Sources: 2019, MassGIS USGS Orthoimagery

Legend

- Area of Contamination Perimeter
- Major Road
- Former Sudbury Training Annex

2021 Five Year Review
Former Sudbury Training Annex

Former Fort Devens Army Installation
Sudbury Training Annex, Sudbury, MA

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 1,000 2,000
Feet

Date: 04/09/2021

Figure 7

File: PFAS2021_SudburyFYR_F7-PFASSiteInv.mxd

APPENDIX A – REFERENCE MATERIALS

REFERENCES

Dames & Moore, 1990. *Further Remedial Investigation Report*, U.S. Army Sudbury Annex, Middlesex County, Massachusetts. November.

Dames & Moore, 1986. *Remedial Investigation of Sudbury Annex*, U.S. Army Sudbury Annex, Middlesex County, Massachusetts. November.

Department of Defense, 2019. *Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3.*

Department of Defense Environmental Data Quality Workshop, 2010. DoD *Quality Systems Manual for Environmental Laboratories, Version 4.2.* October.

Interstate Technology Regulatory Council (ITRC), 2006. *Evaluation Optimizing or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on Site-Specific Data Evaluations*, September.

HGL, 2009. *Long Term Monitoring and Maintenance Plan*, Fort Devens Sudbury Training Annex, Sudbury, Massachusetts. March.

H&S Environmental, 2016. *2015 Annual Report, Long-Term Monitoring and Maintenance, Area of Contamination A7, Former Sudbury Training Annex, Sudbury, Massachusetts*. February.

Interstate Technology & Regulatory Council (ITRC), 2006. *Evaluating, Optimizing or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on Site Specific Data Evaluations*.

KOMAN Government Solutions, LLC (KGS), 2020a. *Draft Supplemental Site Inspection Work Plan for Per- and Polyfluoroalkyl Substances (PFAS).* Former Sudbury Training Annex, Sudbury, Massachusetts. December.

KGS, 2020b. *Final Site Inspection Report for Per- and Polyfluoroalkyl Substances (PFAS).* Former Sudbury Training Annex, Sudbury, Massachusetts. August.

KGS, 2020c. *Final Long-Term Monitoring and Maintenance Plan (LTMMP) Area of Contamination (AOC) A7.* Former Sudbury Training Annex, Sudbury, Massachusetts. July.

KGS, 2020d. *Final 2019 Annual Report Long-Term Monitoring and Maintenance Area of Contamination A7*. Former Sudbury Training Annex, Sudbury, Massachusetts. October.

KGS, 2019a. *VOC Investigation to Support Land Use Controls Area of Contamination A9 POL Burn Area.* Former Sudbury Training Annex, Sudbury, Massachusetts. September.

KGS, 2019b. *Final 2018 Annual Report Long-Term Monitoring and Maintenance Area of Contamination A7*. Former Sudbury Training Annex, Sudbury, Massachusetts. November.

KGS, 2018a. *Summary of Changes to the LTMMP for Area of Contamination A7 Former Sudbury Training Annex, Sudbury, Massachusetts*. October.

KGS, 2018b. *Final 2017 Annual Report Long-Term Monitoring and Maintenance Area of Contamination A7*. Former Sudbury Training Annex, Sudbury, Massachusetts. August.

KGS, 2017a. *Final Preliminary Assessment for Evaluation of Per- and Polyfluoroalkyl Substances.* Former Sudbury Training Annex, Sudbury, Massachusetts. May.

KGS, 2017b. *2016 Annual Report Long-Term Monitoring and Maintenance Area of Contamination A7*. Former Sudbury Training Annex, Sudbury, Massachusetts. May.

KGS, 2016a. *Five Year Review Report for Former Sudbury Training Annex*, Sudbury, Massachusetts. September.

KGS, 2016b. *Quality Assurance Project Plan (QAPP) for the Annual Long-Term Monitoring (LTM) Program.*

O.H. Materials Remediation Services Corp. (OHM), 1997. *Record of Decision – Area of Contamination A4 and Areas of Contamination A7 and A9 Management of Migration Operable Units*, Fort Devens Sudbury Training Annex, Sudbury, Massachusetts. September.

OHM, 1995. *Record of Decision - Source Control Operable Unit, AOC A7, the Old Gravel Pit Landfill, AOC A9, the POL Burn Area*, Fort Devens Sudbury Training Annex, Sudbury, Massachusetts. September.

OHM, 1994. *Final Site/Remedial Investigation Report*, Fort Devens Sudbury Training Annex, Sudbury, Massachusetts. January.

OHM, 1992. *Final Master Environmental Plan*, Fort Devens Sudbury Training Annex, Sudbury, Massachusetts. January.

Roy F. Weston, Inc. (Weston), 1997a. *Final Operations and Maintenance Plan for the landfill at AOC A7*. February.

Roy F. Weston, Inc. (Weston), 1997b. *Source Control Remediation – Study Area A7, with Removal Actions at Study areas A1, A2, A9, P2, P16, P23, P28, P39, and P41*. September.

Roy F. Weston, Inc. (Weston), 2001. *First Five-Year Review Report for Sudbury Training Annex, Sudbury, Massachusetts*. September.

Seres-Arcadis JV, 2021. *Draft 2020 Annual Report Long-Term Monitoring and Maintenance Area of Contamination A7*. Former Sudbury Training Annex, Sudbury, Massachusetts. February.

Sovereign and HGL, 2015. *Long-Term Monitoring and Maintenance Plan, Former Sudbury Training Annex, Former Fort Devens Army Installation, Devens, MA*. February.

Sovereign and HGL, 2015. *2014 Annual Report, Long-Term Monitoring and Maintenance, Area of Contamination A7, Former Sudbury Training Annex, Former Fort Devens Army Installation, Devens, MA*. June.

Sovereign and HGL, 2014. *2013 Annual Report, Long-Term Monitoring and Maintenance, Area of Contamination A7, Former Sudbury Training Annex, Former Fort Devens Army Installation, Devens, MA*. June.

Sovereign and HGL, 2013. *2012 Annual Report, Long-Term Monitoring and Maintenance, Area of Contamination A7, Former Sudbury Training Annex, Former Fort Devens Army Installation, Devens, MA*. June.

Sovereign and HGL, 2012. *Generic Quality Assurance Project Plan, Annual Long-Term Monitoring Program, Former Fort Devens Army Installation, Devens, Massachusetts, Sudbury Annex, Sudbury, Massachusetts*. July.

Sovereign and HGL, 2012. *2011 Annual Report, Long-Term Monitoring and Maintenance, Area of Contamination A7, Former Sudbury Training Annex, Former Fort Devens Army Installation, Devens, MA*. June.

Sovereign and HGL, 2011. *Long-Term Monitoring and Maintenance Plan, Former Sudbury Training Annex, Sudbury, Massachusetts*. March.

Stone & Webster Environmental Technology & Services, 1996. *Final Basis of Design/Design Analysis. Source control Remedial Design – Study Areas A7 and A9 with Removal Actions at Study Areas A1, A2, P2, P16, P23, P39, and P41*. July.

U.S. Army Corps of Engineers (USACE). 2018. *AOC A9 VOC Investigation to Support Land Use Controls, Former Sudbury Training Annex.* June 4.

USACE, 2011. *Final Third Five-Year Review Report for Former Sudbury Training Annex, Sudbury, Massachusetts.* September.

USACE, 2007. *Protectiveness Assessment for AOC P31/P58, Former Sudbury Training Annex, Stow, Massachusetts, Concord, Massachusetts*. April.

USACE, 2006. *Second Five-Year Review Report for Former Army Sudbury Training Annex Sites, Sudbury, Massachusetts, Concord, Massachusetts*. September.

USACE, 1998. *Long Term Monitoring & Maintenance Plan for the Landfill at Area of Concern A7, Fort Devens Sudbury Training Annex, Sudbury, Massachusetts*. April.

US Army Toxic and Hazardous Materials Agency, 1980. *Installation Assessment of US Army Natick Research and Development Command (NARADCOM).* May.

U.S. Environmental Protection Agency (USEPA). 2021. Regional Screening Levels. May.

USEPA, 2019. *Interim Recommendations to Address Groundwater Contaminated with Perfluorooctanoic Acid and Pefluorooctanesulfonate*. OSWER DIRECTIVE 9283.1-47, December 19.

USEPA, 2017a. Transmittal of Update to the Adult Lead Methodology's Default Baseline Blood Lead Concentration and Geometric Standard Deviation Parameters. OLEM Directive 9285.6-56. May.

USEPA, 2017b. *Technical Fact Sheet – 1,4-Dioxane.* EPA 505-F-17-011. November.

USEPA, 2016a. *Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)*. USEPA 822-R-16-004. May.

USEPA, 2016b. *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)*. USEPA 822-R-16-005. May.

USEPA, 2016c. Memorandum: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA.

USEPA, 2014a. Determining Groundwater Exposure Point Concentrations. OSWER Directive 9283.1-42. February.

USEPA, 2014b. *Provisional Peer-Reviewed Toxicity Values for Perfluorobutane Sulfonate (CASRN 375-73-5) and Related Compound Potassium Perfluorobutane Sulfonate 9CASRN 29420-49-3).* EPA/690/R-14-012F. July.

USEPA, 2014c. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Fifth Edition, Update V.* Office of Solid Waste and Emergency Response. July. (https://www.epa.gov/hw-sw846/chapter-one-sw-846-compendium-project-quality-assurance-and-quality-control).

USEPA, 2001. *Comprehensive Five-Year Review Guidance.* EPA 540-R-01-007. June.

USEPA New England, 2013. *USEPA New England, EPA – New England Environmental Data Review Program Guidance.* April.

USEPA Region 1, 2021. FY2021 Supplemental Template. February.

APPENDIX B – COMMUNITY INVOLVEMENT AND SITE INTERVIEWS

Legal Notices

26 MILL STREET
LEGAL NOTICE
NOTICE OF MORTGAGEE'S SALE OF REAL ESTATE

By virtue and in execution of the Power of Sale contained in a certain mortgage given by **James MacGillivary** to Mortgage Electronic Registration Systems, Inc. as nominee for Bank of America, N.A. dated September 25, 2015, recorded at the Middlesex County (Southern District) Registry of Deeds in Book 66198, Page 460; said mortgage was then assigned to Bank of America, N.A. by virtue of an assignment dated July 28, 2016, and recorded in Book 67740, Page 60; and further assigned to Specialized Loan Servicing, LLC by virtue of an assignment dated April 21, 2017, and recorded in Book 69188, Page 334; and further assigned to U.S. Bank Trust, N.A., as Trustee for LSF10 Master Participation Trust by virtue of an assignment dated February 11, 2019, and recorded in Book 72227, Page 507; of which mortgage the undersigned is the present holder for breach of conditions of said mortgage and for the purpose of foreclosing the same will be sold at PUBLIC AUCTION at 10:00 AM on **February 8, 2021**, on the mortgaged premises. This property has the address of 26 Mill Street, Maynard, MA 01754. The entire mortgaged premises, all and singular, the premises as described in said mortgage:

The following described property: The land with the buildings thereon situated on the Southerly side of Main Street, the Easterly side of Mill Street, in Maynard, Middlesex County, Massachusetts, bounded and described as follows; Beginning at a stone bound set in the ground on the Southerly side of said Main Street, at land now or formerly of John Kudzeimer et ux, thence running in a Southeasterly direction Fifty -Four (54) feet, to another bound set in the ground; Thence turning and running is a still more southeasterly direction, still on land now or formerly of John Kudzelmer et ux, Fifty-One and 25/100 (51.25) feet to a stone bound at land now or formerly of Waldron; Thence turning and running Westerly on said Waldron's land, Seventy-Six and 85/100 (76.85) feet, to said Mill Street; Thence turning and running Northerly Forty-Eight and 18/100 (48.18) feet, and Northeasterly, Forty-Seven and 4/10 (47.4) feet on said Mill Street to said Main Street; Thence turning and running Easterly on said Main Street, forty-one and 18/100 (41.18) feet, to the point of beginning. Being the same parcel conveyed to James Macgillivary from John Herbet Gardner and Cherylann Gardner, by virtue of a deed dated 8/ 23/ 2001, recorded 8/27/ 2001, in deed book 33526, page 280, county of Middlesex, state of Massachusetts. Assessor's Parcel No: 18-48

Subject to and with the benefit of easements, reservation, restrictions, and taking of record, if any, insofar as the same are now in force and applicable. In the event of any typographical error set forth herein in the legal description of the premises, the description as set forth and contained in the mortgage shall control by reference. Together with all the improvements now or hereafter erected on the property and all easements, rights, appurtenances, rents, royalties, mineral, oil and gas rights and profits, water rights and stock and all fixtures now or hereafter a part of the property. All replacements and additions shall also be covered by this sale.

Terms of Sale: Said premises will be sold subject to any and all unpaid taxes and assessments, tax sales, tax titles and other municipal liens and water or sewer liens and State or County transfer fees, if any there are, and TEN THOUSAND DOLLARS ($10,000.00) in cashier's or certified check will be required to be paid by the purchaser at the time and place of the sale as a deposit and the balance in cashier's or certified check will be due in thirty (30) days, at the offices of Doonan, Graves & Longoria, LLC ("DG&L"), time being of the essence. The Mortgagee reserves the right to postpone the sale to a later date by public proclamation at the time and date appointed for the sale and to further postpone at any adjourned sale-date by public proclamation at the time and date appointed for the adjourned sale date. The premises is to be sold subject to and with the benefit of all easements, restrictions, leases, tenancies, and rights of possession, building and zoning laws, encumbrances, condominium liens, if any and all other claim in the nature of liens, if any there be.

In the event that the successful bidder at the foreclosure sale shall default in purchasing the within described property according to the terms of this Notice of Sale and/or the terms of the Memorandum of Sale executed at the time of foreclosure, the Mortgagee reserves the right to sell the property by foreclosure deed to the second highest bidder, providing that said second highest bidder shall deposit with the Mortgagee's attorneys, the amount of the required deposit as set forth herein. If the second highest bidder declines to purchase the within described property, the Mortgagee reserves the right to purchase the within described property at the amount bid by the second highest bidder. The foreclosure deed and the consideration paid by the successful bidder shall be held in escrow by DG&L, (hereinafter called the "Escrow Agent") until the deed shall be released from escrow to the successful bidder at the same time as the consideration is released to the Mortgagee, whereupon all obligations of the Escrow Agent shall be deemed to have been properly fulfilled and the Escrow Agent shall be discharged. Other terms, if any, to be announced at the sale.

Dated: December 28, 2020 U.S. Bank Trust, N.A., as Trustee for LSF10 Master Participation Trust
By its Attorney DOONAN, GRAVES & LONGORIA, LLC, 100 Cummings Center, Suite 225D, Beverly, MA 01915 (978) 921-2670 www.dgandl.com 56118 (MACGILLIVARY)

AD# 13933752
Beacon Villager 1/14, 1/21, 1/28/21

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FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX
LEGAL NOTICE
PUBLIC NOTICE FOR FIVE-YEAR REVIEW
FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX
SUDBURY, MASSACHUSETTS

The U.S. Army Base Realignment and Closure Division (BRAC) is announcing the start of the fifth Five-Year Review (FYR) of remedial cleanup actions taken at the former Fort Devens Sudbury Training Annex Superfund Site, located in the towns of Hudson, Stow, Maynard, and Sudbury, Massachusetts. The purpose of the Five-Year Review is to evaluate whether the cleanup methods put in place at the site are working as designed and continue to remain protective of human health and the environment, as required by Superfund law. The FYR will also contain a brief summary on the status of the ongoing per- and polyfluoroalkyl substances (PFAS) investigation at the former Fort Devens Sudbury Training Annex. It is anticipated that this Five-Year Review will be completed in September 2021. The Army invites the local community to take part in the review process by participating in a community interview. The purpose of community interviews is to determine the appropriate level of community involvement at the site and to ensure that the public is properly informed on site status and activities.

BACKGROUND: Camp Devens was established in 1917 as a temporary training area for soldiers during World War I. In 1932, the site was named Fort Devens and made a permanent installation with the primary mission of commanding, training, and providing logistical support for non-divisional troop units. The land in the former Fort Devens Sudbury Training Annex was purchased by the U.S. Army in 1942 and was used as a training location for troops and a storage area for ammunitions. The Annex remained active until its placement on the BRAC list in 1995. Pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Sudbury annex was placed on the National Priorities List (NPL) in 1990 because of environmental contamination associated with historic underground storage tanks, ammunition demolition areas, fire training areas, and disposal of various laboratory waste. Since its placement on the NPL, remedial activities were completed at contaminated sites, and long-term remedial activities undertaken where necessary to ensure protectiveness. The Annex was deleted from the NPL in 2002. Continuing activities include operation, maintenance, and monitoring at a landfill site (Area of Concern A7) and evaluation of land use controls. In 2005, ownership of most of the site transferred to the U.S. Fish and Wildlife Services as the Assabet River National Wildlife Refuge. As required under regulations, a review must be conducted every five years to ensure human health and the environment is protected. More detailed information on this site can be found on the U.S. Environmental Protection Agency (EPA) web page at: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0100685.

To request an interview, or to submit comments and question regarding the Five-Year Review process or site clean-up, please contact:

Department of the Army
Base Realignment and Closure Division
U.S. Army Garrison Fort Devens
30 Quebec Street, Unit 100
Devens, MA 01434-4479
Office: 978-615-6090
Email: robert.j.simeone.civ@mail.mil

AD#13935304
Beacon Villager 1/14/21

Docket No. MI20E0061PP
LEGAL NOTICE
COMMONWEALTH OF MASSACHUSETTS
THE TRIAL COURT
PROBATE AND FAMILY COURT DEPARTMENT

Middlesex, ss.
Docket No. MI20E0061PP

TO: Elaine M. Owens of Lancaster in the County of Worcester, Susan Doucette of Maynard in the County of Middlesex, and to all other persons interested.

A petition has been presented to said Court by Cheryll A. White of Waltham, in the County of Middlesex, and Kenneth P. White of Fairfax, in the State of Virginia, representing that they hold as tenants in common a 50% undivided part or share of certain land lying in Maynard, in the County of Middlesex, and briefly described as follows:

The land in Maynard, with the buildings thereon, bounded and described as follows:

NORTHWESTERLY by Little Road, seventy-five (75) feet;

NORTHERLY by the curved intersection of Little Road and Maybury Road, forty and 49/100 (40.49) feet;

NORTHEASTERLY by Maybury Road, one hundred twenty-five and 58/100 (125.58) feet;

SOUTHERLY by land of owners unknown, as shown on plan hereinafter mentioned, one hundred (100) feet; and

SOUTHWESTERLY by Lot 8, as shown on said plan, one hundred fifty and 58/100 (150.58) feet.

Containing 14,869 square feet of land according to said plan, and being shown as Lot 9 on a plan of "Sub-division of Land in Maynard, Mass. owned by Jean O'Brien," dated January 21, 1954, by MacCarthy Engineering Service, Inc., recorded with Middlesex South District Deeds in Book 8271, at the end as Plan No. 945 of 1954.

The above-described premises are conveyed subject to and with the benefit of the right to use the streets and ways as shown on said plan for all purposes for which streets and ways are commonly used in the Town of Maynard, together with others entitled thereto.

Setting forth that the petitioners desire that all said land may be ordered to be sold **at private sale or public auction, for not less than Three Hundred Eighty Thousand ($380,000.00) Dollars,** and praying that partition may be made of all the land aforesaid according to law, and to that end, that a commissioner be appointed to make such partition and be ordered to make sale and conveyance of all, or any portion of said land which the Court finds cannot be advantageously divided, either at private sale or public auction, and be ordered to distribute and pay over the net proceeds thereof in such manner as to make the partition just and equal.

If you desire to object thereto you or your attorney should file a written appearance and answer in said Court at Woburn before ten o'clock on the 2nd day of February **2021,** the return date of this citation.

Witness, Honorable Maureen H. Monks, Esquire, First Justice of said Court, this **twenty-first day of December, 2020.**

Tara E. DeCristofaro
Register of Probate Court

AD#13933560
Beacon Villager 1/7, 1/14, 1/21/21

FY22 Budget
Legal Notice (revised)
Public Hearing

Minuteman Regional Vocational Technical School District

Tuesday January 26, 2021

6:30 PM

Remote Participation Meeting Via ZOOM Webinar at:

https://zoom.us/j/95187307108?pwd=UEJGMFkvUU9FckRUZTBTOHkwaCtBUT09

Webinar ID: 951 8730 7108

Passcode: 985232

There will be a public hearing on the FY22 Budget for Minuteman Regional Vocational Technical School District covering the period of July 1, 2021 – June 30, 2022. The hearing will be held at a meeting of the School Committee at 6:30 PM on Tuesday, January 26, 2021 via a ZOOM webinar at:

https://zoom.us/j/95187307108?pwd=UEJGMFkvUU9FckRUZTBTOHkwaCtBUT09

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Webinar ID: 951 8730 7108
International numbers available: https://zoom.us/u/aphsSK7pt

A copy of the proposed budget will be available for viewing by the public in the Minuteman Regional Vocational Technical School District Superintendent's District Office, 758 Marrett Road, Lexington, Massachusetts, between 8:00 AM and 4:00 PM beginning Friday January 22nd and online at www.minuteman.org.

Minuteman Regional Vocational Technical School District

Robert J. Gerardi, Jr.

Minuteman Director of Finance

AD#13935242
Beacon Villager 1/14/21

SILVERMAN ESTATE
LEGAL NOTICE
Commonwealth of Massachusetts
The Trial Court
Probate and Family Court
Middlesex Division
208 Cambridge Street
Cambridge, MA 02141
(617) 768-5800

Docket No. MI20P5453EA

INFORMAL PROBATE PUBLICATION NOTICE

Estate of: John Michael Silverman

Date of Death: 08/29/2020

To all persons interested in the above-captioned estate, by Petition of Petitioner **Ehry J. Anderson of Maynard MA** a Will has been admitted to informal probate.

Ehry J. Anderson of Maynard MA has been informally appointed as the Personal Representative of the estate to serve without surety on the bond.

The estate is being administered under informal procedure by the Personal Representative under the Massachusetts Uniform Probate Code without supervision by the Court. Inventory and accounts are not required to be filed with the Court, but interested parties are entitled to notice regarding the administration from the Personal Representative and can petition the Court in any matter relating to the estate, including distribution of assets and expenses of administration. Interested parties are entitled to petition the Court to institute formal proceedings and to obtain orders terminating or restricting the powers of Personal Representatives appointed under informal procedure. A copy of the Petition and Will, if any, can be obtained from the Petitioner.

AD# 13934624
Beacon Villager 1/14/21

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MAYNARD POLICE LOG

The following are excerpts from the Maynard police log from Monday, Dec. 28, to Sunday, Jan. 10. The log is public record and available for review. All persons are presumed innocent unless found guilty in a court of law.

Monday, Dec. 28

1:46 a.m.: A speeding truck was reported possibly heading toward Stow on Route 117. The area search was negative.
9:04 a.m.: Broken windows were reported on two vehicles on Lincoln Street. The owner reported nothing was taken.
12:42 p.m.: Low-hanging wires were reported on River Street.
2:26 p.m.: A walk-in reported a harassing message.

Tuesday, Dec. 29

9:05 a.m.: Low-hanging wires were reported on Louise Street. An officer reported the wires were not in the roadway or causing a hazard.
9:17 a.m.: Branches on wires were reported on Maple Street.
10:24 a.m.: A caller reported low-hanging wires on Old Mill Road were preventing the trash from being picked up in the neighborhood. Eversource was notified.
1:01 p.m.: A walk-in reported two people shooting a bow and arrow toward the street on Main Street. Police located and advised the individual in question.
9:36 p.m.: A Glendale Street resident reported a neighbor threatened him with a knife after the resident asked the neighbor to turn down his music. Police reported the incident was part of an ongoing neighbor dispute and that the neighbor had been cooking dinner when he opened the door holding a knife.

Wednesday, Dec. 30

9:46 a.m.: A store manager at CVS on Main Street reported a man refusing to leave the store.
10:11 a.m.: A downed wire was reported near a trail on Paul Road. Verizon was notified.
11:40 a.m.: Low-hanging wires were reported at Old Mill Road and Waltham Street.
7:50 p.m.: A Douglas Avenue resident reported her snow blower was moved from her shed.

Thursday, Dec. 31

1:15 p.m.: A school custodian on Tiger Drive reported it appeared individuals had gained access to the roof. No signs of forced entry or vandalism were reported.

MAYNARD ARRESTS

• Elmer E. Thibodeau, 39, 979 Essex St., Bangor, Maine, arrested Dec. 28 with two warrants and also charged with operating a vehicle with license suspended.
• Jose Matias Sorto, 39, 7 Duke St., Lynn, arrested Jan. 10, charged with a second offense of operating a vehicle under the influence of liquor, negligent operation of a vehicle, unlicensed operation of a vehicle and possession of an open container of alcohol in a vehicle.

Friday, Jan. 1

1:06 a.m.: A caller on Waltham Street reported youths left behind a bag that contained alcohol.
1:58 p.m.: A broken window was reported on Euclid Avenue.
10:26 p.m.: Icy road conditions were reported on Main Street.
10:43 p.m.: A caller reported receiving 20 calls from his soon-to-be ex-wife and her new boyfriend. The caller stated he believed the two were intoxicated and that the calls were vulgar in nature. An

See POLICE, A6

STOW POLICE LOG

The following are excerpts from the Stow police log from Tuesday, Jan. 5, to Saturday, Jan. . The log is public record and available for review. All persons are presumed innocent unless found guilty in a court of law.

Tuesday, Jan. 5

8:37 a.m.: Unemployment fraud was reported.
9:33 a.m.: Police reported receiving a rabies exposure form to the station.

Wednesday, Jan. 6

1:21 p.m.: A dead bat was reported on Old Bolton Road.

Thursday, Jan. 7

8:15 a.m.: A Maura Drive resident reported an unknown truck in her driveway. Police reported the driver was a construction worker at the wrong house.
3:28 p.m.: A caller on Sudbury Road reported a vehicle sped through his daughter's bus stop. The caller stated this was the fifth time it had happened this school year.
4:37 p.m.: Harassing phone calls were reported at Supercuts on Great Road.

Friday, Jan. 8

4:32 p.m.: An Elliot Drive resident reported a black cat in her yard.
7:19 p.m.: A past road rage incident was reported on Windmill Hill Road.

Saturday, Jan. 9

1:03 p.m.: A large piece of glass was reported in the roadway on Great Road.

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Plus, with government incentives like the 22% federal tax credit, SMART program, and net metering; most of our customers see break-even on their energy production within the first 8 years of solar ownership. Unlike a solar lease (often called a power purchase agreement), **you will have 100% ownership over the solar panels**, and as such be able to collect all the savings and incentives for yourself.

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*Calculated using an average electric bill of $279 per month and MA SMART incentives

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Legal Notices

FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX
LEGAL NOTICE
PUBLIC NOTICE FOR FIVE-YEAR REVIEW FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX SUDBURY, MASSACHUSETTS

The U.S. Army Base Realignment and Closure Division (BRAC) is announcing the start of the fifth Five-Year Review (FYR) of remedial cleanup actions taken at the former Fort Devens Sudbury Training Annex Superfund Site, located in the towns of Hudson, Stow, Maynard, and Sudbury, Massachusetts. The purpose of the Five-Year Review is to evaluate whether the cleanup methods put in place at the site are working as designed and continue to remain protective of human health and the environment, as required by Superfund law. The FYR will also contain a brief summary on the status of the ongoing per- and polyfluoroalkyl substances (PFAS) investigation at the former Fort Devens Sudbury Training Annex. It is anticipated that this Five-Year Review will be completed in September 2021. The Army invites the local community to take part in the review process by participating in a community interview. The purpose of community interviews is to determine the appropriate level of community involvement at the site and to ensure that the public is properly informed on site status and activities.

BACKGROUND: Camp Devens was established in 1917 as a temporary training area for soldiers during World War I. In 1932, the site was named Fort Devens and made a permanent installation with the primary mission of commanding, training, and providing logistical support for non-divisional troop units. The land in the former Fort Devens Sudbury Training Annex was purchased by the U.S. Army in 1942 and was used as a training location for troops and a storage area for ammunitions. The Annex remained active until its placement on the BRAC list in 1995. Pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Sudbury annex was placed on the National Priorities List (NPL) in 1990 because of environmental contamination associated with historic underground storage tanks, ammunition demolition areas, fire training areas, and disposal of various laboratory waste. Since its placement on the NPL, remedial activities were completed at contaminated sites, and long-term remedial activities undertaken where necessary to ensure protectiveness. The Annex was deleted from the NPL in 2002. Continuing activities include operation, maintenance, and monitoring at a landfill site (Area of Concern A7) and evaluation of land use controls. In 2005, ownership of most of the site transferred to the U.S. Fish and Wildlife Services as the Assabet River National Wildlife Refuge. As required under regulations, a review must be conducted every five years to ensure human health and the environment is protected. More detailed information on this site can be found on the U.S. Environmental Protection Agency (EPA) web page at: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0100685.

To request an interview, or to submit comments and question regarding the Five-Year Review process or site clean-up, please contact:

Department of the Army
Base Realignment and Closure Division
U.S. Army Garrison Fort Devens
30 Quebec Street, Unit 100
Devens, MA 01434-4479
Office: 978-615-6090
Email: robert.j.simeone.civ@mail.mil

AD#13931786
Hudson Sun 1/14/21

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26 Wilkens Way
LEGAL NOTICE
City of Marlborough
Conservation Commission
Request for Determination of Applicability

Notice of Public Hearing

Notice is hereby given that the Marlborough Conservation Commission will hold a public meeting on Thursday, January 21, 2021 at 7:00 PM virtually either by phone or website.

Public Participation will be via Virtual Means Only - Pursuant to Governor Baker's March 2020 Orders imposing strict limitation on the number of people that may gather in one place, this meeting of the Marlborough Conservation Commission will be conducted via remote participation. To access the City web site go to: https://www.marlborough-ma.gov/ once there please scroll down to Calendar, choose January 21, 2021, click on Conservation Commission agenda and then click on the link for the meeting. Also, there will be a phone number to call in to participate if you do not have web access. Please also call the Conservation Commission office at 50-460-3768 with any questions. Public comments can also be provided by e-mail to pryder@marlborough-ma.gov up to noon the day of the meeting.

Applicant: Devin Mulhern proposes to add a seasonal sunroom onto an existing deck at 26 Wilkens Way. Work is near wetlands. A Request for Determination of Applicability was filed under provisions of the Massachusetts Wetlands Protection Act, G.L. c. 131, §40.

Plans and other information will be available by calling the Conservation Commission office at 508-460-3768. All interested persons are invited to the public hearing. Applicant or representative will be present virtually as well.

Edward Clancy
Chairman
Conservation Commission

AD#13935519
Marlborough Enterprise 1/14/21

Amendments
Legal Notice

The Hudson Board of Selectmen will hold a public hearing on Monday, January 25, 2021 at 7:00 PM at their virtual meeting to amend the Town of Hudson's Charter to change the name of the Board of Selectmen to Select Board and to remove the Executive Assistant residency requirement from the Town of Hudson Charter.

ARTICLE 1
To see if the Town will vote, pursuant to M.G.L. c. 43B, § 10 entitled ***Amendments to Charter Previously Adopted or Revised under this Chapter; Procedure,*** to amend the Town's Home Rule Charter enacted in May 1978 by striking therefrom in Article 4, Section 4-1, Subsection (b) which specifies in reference to the Executive Assistant that "he need not be a resident of the Town or of the Commonwealth at the time of the application, but must establish residence within the Town within nine (9) months following his appointment", and insert in place thereof the following, "he or she need not be a resident of the Town", or take any action relative thereto.

ARTICLE 2
To see if the Town will vote, pursuant to M.G.L. c. 43B, § 10 entitled ***Amendments to Charter Previously Adopted or Revised under this Chapter; Procedure,*** and to amend the Town's Home Rule Charter enacted in May 1978, by striking therefrom the Chapter provisions the word "Selectmen" and the words "Board of Selectmen" from Articles 1 through 6 thereof, and inserting in place thereof the word "Select Board", or take any action relative thereto.

AD#13934742
Hudson Sun 1/14/21

Contractor's Yard & Landscape Contractor's Yard
LEGAL NOTICE
Public Notice of Site Plan Submission

A proposed site plan has been submitted for the following project and is available for public inspections during regular business hours 9:00 am – 5:00 pm at the Conservation Office, Marlborough City Hall, Basement Level, 140 Main Street, Marlborough, MA 01752 Tel. 508-460-3768.

Date of Meeting: 01/19/2021

Project Name and Type or Use: Contractor's Yard & Landscape Contractor's Yard

Project Street Address: 721 & 729 Farm Road

Applicant's Name: Gina DiMatteo and Richard DiMatteo

The City will accept public comments in written form until 14 days from the date of this publication. This notice is published in accordance with the City Code, Chapter 270-2 Site Plan Review and Approval.

AD#13935530
Marlborough Enterprise 1/14/21

840,000 Gallons Tank Removal Project
LEGAL NOTICE
Hudson Light and Power Department
840,000 Gallons Tank Removal Project

This project covers the furnishing of all supervision, labor and equipment necessary to complete the 840,000 Gallons Tank Removal. A mandatory pre-bid meeting will be held at 2:00pm on Jan 26th, 2021 at Stowe Ct, Hudson MA 01749. Vendors must attend this meeting to qualify to submit a final bid package to the Department. Bid opening will take place at 49 Forest Ave., Hudson MA 01749 on February 12th, 2021 at 2:00 pm.

AD#13935364
Hudson Sun 1/14/21

So you got the COVID vaccine. What now?

By Karen Dandurant
news@seacoastonline.com

PORTSMOUTH, N.H. – Two COVID-19 vaccines are being distributed. But how close are we to so-called "normal" life? When you receive the vaccine, can you safely start living a little less locked down?

We asked local health experts to explain what to expect.

How careful do you have to be after receiving the COVID vaccine?

Wearing a mask, practicing social distancing, the use of hand sanitizer and other good hand hygiene practices must continue, according to health care experts. It is not a free hall pass.

Dr. Ben Locwin, who lives on the Seacoast and is an international COVID-19 adviser, said people need to follow the science.

"Science works whether or not you believe in it," said Locwin. "Wearing masks and doing all the other stuff you have been told during this pandemic is what not only helps to prevent the spread, but also prevents the need for things like lockdowns. It is what will help get our schools back open for our kids."

How long will it take for society to return to normal?

Locwin said he thinks it will take all of 2021 and maybe even beyond to vaccinate enough people to reach herd immunity.

"It's a slow uptake, the vaccines are fantastically effective, but even at the high efficacy rate we've seen in the clinic, about 1 in 20 people will have what's called a 'primary vaccine failure,' and may still be susceptible to COVID-19. Measles and flu vaccines similarly have a small percentage of people within whom they don't function," Locwin said.

Both the Pfizer-BioNTech and Moderna vaccines, the first two approved in the United States, had efficacy rates of about 95% in trials and both were approved to be administered in two doses.

The vaccine is a great start, but it will be a long time before enough people are vaccinated to make a marked impact, said Dr. Staci Hermann, chief pharmacist at Dartmouth-Hitchcock Medical Center.

If I haven't seen my grandparents since March, and they have been vaccinated, once I am vaccinated, too, can I safely visit them?

"Yes!" Locwin said. "In that scenario, you and they are as safe as you'll ever get from COVID-19 from an infectious disease perspective. Provided you and they have received both doses of the available vaccines, the effectiveness is very high. Aside from entirely avoiding contact, vaccination is the best means to prevent coronavirus infections, and is the only method by which we'll get society out of this seemingly-endless churn of lockdowns and protections."

That being said, even after being fully vaccinated, people should continue to take public health precautions, including wearing a face covering and maintaining physical distance, according to public health officials in both New Hampshire and Maine.

In other words, dinner parties are not recommended.

Early signs suggest fully vaccinated people are unlikely to transmit the virus to others, but public health officials don't have enough information yet to say for certain whether vaccinated people can or cannot spread the virus, Maine Center for Disease Control and Prevention Director Dr. Nirav Shah said Monday.

Can I transmit COVID-19 to other people after I'm vaccinated?

"Only immunity in the vaccinated individual has been studied, so we can't definitively say that the immunized person cannot somehow still transmit the virus to others," said Dr. Evangeline Thibodeau, an infectious disease doctor at York Hospital.

Nurse practitioner Leslie Gurrisi gives the vaccine to the first Exeter Hospital employee to receive it, Mary Van Liew, a nurse on 4 East on Wednesday afternoon. [DEB CRAM/SEACOASTONLINE AND FOSTERS.COM]

Melissa Voisine, registered nurse and Portsmouth Regional Hospital's director of emergency services is the first to receive a COVID-19 vaccine at PRH at 7:30 a.m. Wednesday, Dec. 16, 2020. [COURTESY/PORTSMOUTH REGIONAL HOSPITAL]

Do I really need two doses?

Hermann said while there is talk of possibly not needing two full doses of the current vaccines, the data is not yet there to support it. She advises sticking with the FDA studies' recommendation of two full doses.

"The philosophy behind the second, booster shot is to provoke as powerful and durable a response as possible," said Locwin. "With the first shot, the body begins to learn what it is facing. When the booster is introduced, the body says 'I have seen this before,' and the response becomes much more specific, and the length of time before the immunity begins to wane becomes longer, because the body remembers."

Building enough antibodies takes time, Locwin said, adding with the first shot it takes a couple of weeks to build up immunity.

"Then you wait a month for the second shot, and you are still susceptible," said Locwin. "Maybe to a lesser degree, but until the full immunity is there, you can still get it. The people who fall in that one in 20 do not know their vaccine failed, and they can still get and transmit the virus. This is not the time to let our guard down."

Are people who are given the vaccine provided with instructions? What do they say?

"Yes," Locwin said. "Generally it's guidance to expect injection-site soreness for a day or two, and they are given a vaccination card which details the type of vaccine given (at the moment, Pfizer/BioNTech or Moderna), the date of administration, and the location of the administering clinic. They are also given an EUA (Emergency Use Authorization) fact sheet with encouragement to report any side effects for active safety monitoring. There are also recommendations and instructions given to use "v-safe" (v-safe After Vaccination Health Checker), which is a smartphone app that allows the patient to submit side effects to the CDC; It also reminds the patient of the timing for their second dose."

Locwin said he recommends once people have received their first dose of COVID-19 vaccine, "they continue to be very vigilant with their personal behaviors, because protection isn't complete and sufficient until after the second dose has been received."

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- And so much more

Residents are remarking on how thankful they are to be living among so many friends during this challenging time. Monthly rates for most units, including daily three gourmet meals, are between $2,500 and $3,800.

Don't go it alone this winter

We are continually upgrading our apartments to provide you with the most comfortable home in your retirement. With no waiting list and a long winter on the horizon, there has never been a better time to take advantage of Marlborough's finest independent and assisted living experience. ***Now offering memory care!***

New Horizons at Marlborough

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OBITUARIES

Kathy Olohan, 78

STOW—Carmelita Catherine ("Kathy") Olohan nee Ryan, age 78, passed away in her home in Stow, Massachusetts on Saturday, December 19, 2020, surrounded by her loving family. She was born on January 3, 1942 to Thomas Patrick and Helen (Clouse) Ryan in Somerset, Ohio. Kathy, known as Kate in her youth, grew up on her family's cattle farm. She loved riding her horses bareback on the farm as a girl and treasured the lifelong friendships she formed with the brothers and priests of the Dominican Order at the novitiate at nearby St. Joseph's Priory. Kathy graduated with a BA from Ohio Dominican University and then obtained a Masters in English from Indiana University. After graduation, she taught in the Indianapolis public school system and had a great impact on her students, some of whom she corresponded with up until her death. She married William A. Olohan (Bill) of Dublin, Ireland in June, 1965 and together they had ten children. She loved Bill dearly and was devoted to him throughout his many years of illness until his death in 2001.

Kathy left the classroom and dedicated herself to raising her nine children. (Her son, Michael, was born prematurely and died just two days after he was born. Michael's birth and death had a profound impact on the entire Olohan family.) The family moved to Stow in 1975, and in 1981, she bought the Stow Villager where she was the writer, editor and publisher. Her editorials were known for their strong positions, well-crafted arguments, and influence in town.

She was an early leader in the pro-life movement in Massachusetts, and volunteered for many years at Birthright, a pregnancy counselling center. For a number of years, she would invite pregnant women who had nowhere to live to come live in her home until their babies were born and they were able to stabilize their situation. This eventually led to the establishment of Spring House in Berlin Massachusetts, a home for women in crisis pregnancies, in 1993. Kathy was the DIrector of Spring House until 2000, and helped numerous women find shelter, educational and work opportunities, love, and support when the world turned them away.

In addition to her work at Spring House, Kathy was also very active in teaching religious education at her parish, and was the Director of CCD at Christ the King Church in Hudson for many years. Following the death of her husband BIll, Kathy returned to teaching, and she taught French and religion at Lowell Catholic before retiring due to the onset of leukemia (CLL).

She spent the remaining years of her life devoted to her children and sixty-four (64) grandchildren. She never missed a birthday of any of her children or grandchildren, andwould often mark birthdays with a beautiful poem. An accomplished pianist, she always enjoyed playing piano with her family. Family get-togethers were never complete without music and singing.

A lifelong devout Catholic, Kathy was a daily communicant and attended Mass at St. Benedict Abbey in Still River, MA. She was a Third Order Dominican and was active in the work of the local chapter. She will be buried wearing the habit of the Third Order.

Kathy was a strong yet unassuming woman whose focus was on other people, never herself. She actively corresponded not only with her family but with countless friends and even strangers from all walks of life. The motto she chose for her family and which is on her tombstone, Veritatis in Caritate–to live the truth in love – exemplified her life. She is revered and deeply loved by all her family who miss her terribly.

Kathy is survived by five sons: William Olohan and wife Michelle of Southlake, Texas, Thomas Olohan and wife Jane of Warrenton, Virginia, Daniel Olohan and wife Mary Kate of Walpole Massachusetts, John Olohan and wife Molly of Weymouth, Massachusetts, Ryan Olohan and wife Anne of Montville, New Jersey; three daughters: Catherine Kelly and husband William of Potomac, Maryland, Sheila Beirne and husband Gerard of Stow, Massachusetts, Margaret Sweatman and husband Thomas of Rockville, Maryland; and son-in-law Dave Flanders. She is survived by sixty three (63) grandchildren; her brother, Tim Ryan of Somerset, Ohio, and her sister, Sister Maria of the Eucharist (Polly Ryan) of Miami, Florida. Kathy was predeceased by her husband, William Olohan, son Michael Olohan, daughter Maria Flanders, granddaughter Sheila Catherine Beirne, and sisters Peggy and Constance Ryan.

A Mass of Christian Burial was celebrated on January 5, 2021 at Saint John the Guardian of Our Lady Parish, Clinton with burial following in St. Bridget's Cemetery, Great Road, Maynard.

In lieu of flowers, donations in Kathy's memory may be made to St. Benedict Abbey, 252 Still River Road, Still River, MA 01467, or to Dominican Friars, Dominican Foundation, 141 East 65th Street, New York, NY 10065-6699.

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Felix J., "Phil" Pittorino, 81

owner of Wedgewood Pines Country Club

Felix J., "Phil" Pittorino, 81,owner of Wedgewood Pines Country Club in Stow, died after a short illness on December 29, 2020 at Emerson Hospital.

An Acton resident, Phil was born in Newton, Mass. to Josephine (Cappadona) and Joseph Pittorino. He graduated from Waltham High School class of 1958. He is survived by his loving wife Sandra (Sablone) Pittorino and was the devoted father to Stacey Pittorino Page of Acton; and Joe Pittorino and his wife Jonida of Stow; the beloved grandfather of Cameron, Jordan, Avery, McKenzie, Julia, Rachel, Felix, Luke, and Bella; dear brother of Nancy Silva of Acton, Gerald Pittorino and his wife Dorothy of Waltham, Linda Pittorino of Groton and the late Joseph Pittorino of Littleton. He is also survived by many cousins, nieces and nephews and their families.

Phil had a smile that would light up the room, especially when his grandkids were around. If you asked his grandkids what word they would use to describe "Grampie" there are many: Cameron-fearless, Jordan-humorous, Avery-loving, Kenzie-hard working, Julie-happy, Rachel-dependable, Felix-persevering, Luke-ice cream.

Following in the family tradition, Phil joined the land development business with his two brothers, later expanding into three successful companies. Phil's passion for land development led him to many extraordinary ventures including developing property throughout New England and the acquisition of everything from castles to golf courses. Ultimately he transitioned out of contracting into a full time venture in the golf course industry.

With a relentless work ethic, and through tireless hours, Phil developed Wedgewood Pines Country Club from the forest it was to what Wedgewood is today-a family business with a family membership. His greatest joys in life were his children, grandchildren and wife along with the Wedgewood employees and members who he also considered family. When nobody thought it could be done, Phil bought it, built it and developed it into one of the best golf courses in Massachusetts.

He will live forever in our hearts.

Visiting hours were held Jan. 5 at the Acton Funeral Home, Acton, with the funeral Mass in St. Elizabeth of Hungary Church in Acton. Burial followed in Woodlawn Cemetery, Acton Center. Memorial gifts to Phil's favorite charity, The Wounded Warrior Project, PO Box 758516, Topeka, Kansas 66675-8516, also online at woundedwarriorproject.org will be greatly appreciated. Memorial page actonfuneralhome.com

PUBLIC NOTICE FOR FIVE-YEAR REVIEW FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX SUDBURY, MASSACHUSETTS

The U.S. Army Base Realignment and Closure Division (BRAC) is announcing the start of the fifth Five-Year Review (FYR) of remedial cleanup actions taken at the former Fort Devens Sudbury Training Annex Superfund Site, located in the towns of Hudson, Stow, Maynard, and Sudbury, Massachusetts. The purpose of the Five-Year Review is to evaluate whether the cleanup methods put in place at the site are working as designed and continue to remain protective of human health and the environment, as required by Superfund law. The FYR will also contain a brief summary on the status of the ongoing per- and polyfluoroalkyl substances (PFAS) investigation at the former Fort Devens Sudbury Training Annex. It is anticipated that this Five-Year Review will be completed in September 2021. The Army invites the local community to take part in the review process by participating in a community interview. The purpose of community interviews is to determine the appropriate level of community involvement at the site and to ensure that the public is properly informed on site status and activities.

BACKGROUND: Camp Devens was established in 1917 as a temporary training area for soldiers during World War I. In 1932, the site was named Fort Devens and made a permanent installation with the primary mission of commanding, training, and providing logistical support for non-divisional troop units. The land in the former Fort Devens Sudbury Training Annex was purchased by the U.S. Army in 1942 and was used as a training location for troops and a storage area for ammunitions. The Annex remained active until its placement on the BRAC list in 1995. Pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Sudbury annex was placed on the National Priorities List (NPL) in 1990 because of environmental contamination associated with historic underground storage tanks, ammunition demolition areas, fire training areas, and disposal of various laboratory waste. Since its placement on the NPL, remedial activities were completed at contaminated sites, and long-term remedial activities undertaken where necessary to ensure protectiveness. The Annex was deleted from the NPL in 2002. Continuing activities include operation, maintenance, and monitoring at a landfill site (Area of Concern A7) and evaluation of land use controls. In 2005, ownership of most of the site transferred to the U.S. Fish and Wildlife Services as the Assabet River National Wildlife Refuge. As required under regulations, a review must be conducted every five years to ensure human health and the environment is protected. More detailed information on this site can be found on the U.S. Environmental Protection Agency (EPA) web page at: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0100685.

To request an interview, or to submit comments and question regarding the Five-Year Review process or site clean-up, please contact:
Department of the Army
Base Realignment and Closure Division
U.S. Army Garrison Fort Devens
30 Quebec Street, Unit 100
Devens, MA 01434-4479
Office: 978-615-6090
Email: robert.j.simeone.civ@mail.mil

Legal Notices

FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX
LEGAL NOTICE
PUBLIC NOTICE FOR FIVE-YEAR REVIEW
FORMER FORT DEVENS SUPERFUND SITE – SUDBURY TRAINING ANNEX
SUDBURY, MASSACHUSETTS

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Department of the Army
Base Realignment and Closure Division
U.S. Army Garrison Fort Devens
30 Quebec Street, Unit 100
Devens, MA 01434-4479
Office: 978-615-6090
Email: robert.j.simeone.civ@mail.mil

AD#13932339
Sudbury TC 1/14/21

ITB/ DUTTON ROAD BRIDGE REPLACEMENT
LEGAL NOTICE
TOWN OF SUDBURY
DEPARTMENT OF PUBLIC WORKS
INVITATION TO BID

The Town of Sudbury, Massachusetts, represented by the Town Manager, the awarding authority, invites sealed bids from Contractors prequalified by the Massachusetts Department of Transportation for:

1. **DUTTON ROAD BRIDGE REPLACEMENT**
CONTRACT 2021-DRB-1
BID DEPOSIT: 5% OF TOTAL BID
BID OPENING: Wednesday, February 3, 2021 at 11:00 AM
in accordance with drawings, specifications and conditions for said project.

In accordance with M.G.L. c.30, Section 39M, the Town of Sudbury seeks sealed bids for the 2021 Dutton Road Bridge Replacement Project. Bid documents may be obtained online at www.biddocsonline.com (may be viewed electronically and hardcopy requested). Please review the instructions in the bid documents on how to register as an electronic bidder.

The work consists of replacement of the existing twin pipe culverts with a new bridge structure conveying Dutton Road over Hop Brook. A new bridge structure will be constructed, along with roadway reconstruction, sidewalk replacement, water main replacement, and gas main replacement. Bids shall be on a unit price basis, with additive alternate bid items as indicated in the Bid Form.

THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED.

Each bid shall be accompanied by a deposit in the form of treasurers' check, certified check, bid bond, or cashier's check issued by a responsible bank or trust company, payable to the Town of Sudbury.

An optional Pre-Bid Conference will be held virtually on Tuesday, January 19, 2021 at 1PM to review the project. Email eohanian@tighebond.com for invitation to Pre-Bid Conference.

Electronic bids for the ***Dutton Road Bridge Replacement*** project, Contract No. 2021-DRB-1, shall be submitted to BidDocs ONLINE Inc. until Wednesday, February 3, 2021 at 11AM EST, at which time they will be publicly opened online.

The Town of Sudbury acting through the Town Manager, reserves the right to waive any informalities, reject any or all bids, or to accept any total bid or unit price which he deems to be in the best interest of the Town of Sudbury.

Town of Sudbury, Massachusetts
By its Town Manager
Henry L. Hayes, Jr.

AD#13934882
Sudbury TC 1/14/21

Annual Meeting
LEGAL NOTICE
Sudbury Water District Annual Meeting

The deadline for filing Petition Articles for the Sudbury Water District Annual Meeting is Wednesday, February 17, 2021 at 4:00 pm.

The Water District Annual Meeting is scheduled for May 18, 2021.

AD#13935285
Sudbury TC 1/14/21

ANNUAL TOWN MEETING
LEGAL NOTICE
PUBLIC HEARING
SUDBURY PLANNING BOARD
FOR THE MAY 3, 2021 ANNUAL TOWN MEETING

In accordance with the provisions of MGL Chapter 40A, Section 5, the Sudbury Planning Board will hold a public hearing on **January 27, 2021 at 7:30 PM** in the Lower Town Hall, 322 Concord Road, Sudbury, Massachusetts, or as a virtual meeting, concerning the following subjects on the Warrant for the May 3, 2021 Annual Town Meeting:

1. Amend the Zoning Bylaw by modifying Section 2324, or inserting a new section, regarding requirements for Storage Trailers/Containers by Special Permit.

2. Amend the Zoning Bylaw by modifying Section 4300. Wireless Services Overlay District, including possibly expanding the Wireless Services Overlay District.

3. Amend the Zoning Bylaw by modifying Section 3200. Signs and Advertising Devices.

4. Amend the Zoning Bylaw by inserting a section regarding requirements for fences.

5. Amend the Zoning Bylaw by modifying Section 2110 regarding references to Zoning Overlay Districts.

A copy of the full text and maps of the proposed amendments can be viewed in the Planning and Community Development Department and Town Clerk's Office during normal business hours.

All those wishing to be heard on these matters should appear at the time and place designated above, or send written comments prior to the hearing to the Sudbury Planning Board at 278 Old Sudbury Road, Sudbury, MA 01776.

Stephen R. Garvin, Chair
Sudbury Planning Board

AD#13931610
Sudbury TC 1/7, 1/14/21

LAMKIN ESTATE
LEGAL NOTICE
Commonwealth of Massachusetts
The Trial Court
Probate and Family Court

Middlesex Division

Docket No. MI20P5688EA

INFORMAL PROBATE PUBLICATION NOTICE

Estate of: Joan Roberta Lamkin

Also Known As: Joan R. Lamkin

Date of Death: October 17, 2020

To all persons interested in the above captioned estate, by Petition of Petitioner **Robert B. Lamkin of Sudbury MA** a will has been admitted to informal probate.

Robert B. Lamkin of Sudbury MA has been informally appointed as the Personal Representative of the estate to serve without surety on the bond.

The estate is being administered under informal procedure by the Personal Representative under the Massachusetts Uniform Probate Code without supervision by the Court. Inventory and accounts are not required to be filed with the Court, but interested parties are entitled to notice regarding the administration from the Personal Representative and can petition the Court in any matter relating to the estate, including distribution of assets and expenses of administration. Interested parties are entitled to petition the Court to institute formal proceedings and to obtain orders terminating or restricting the powers of Personal Representatives appointed under informal procedure. A copy of the Petition and Will, if any, can be obtained from the Petitioner.

AD#13935066
Sudbury TC 1/14/21

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281 Willis Road
LEGAL NOTICE
NOTICE OF PUBLIC HEARING
The Sudbury Zoning Board of Appeals will hold a Public Hearing on Monday, February 1, 2021 at 7:00 PM
Lower Town Hall,
322 Concord Road, Sudbury, MA or as a Virtual Meeting

On the following applications:

1. Public Hearing, Case 21-02 – Paula L. Wright, Applicant and Owner, seeks a Special Permit under the provisions of MGL Chapter 40A, Section 9, and Sections 2340 and 6200 of the Town of Sudbury Zoning Bylaw to operate a home business at **281 Willis Road**, Assessor's Map D07-0007, Single Residence A-1 Zoning District.

The applications are on file in the Town Clerk's Office and the Planning and Community Development Department.

Petitioners must be present or send an authorized representative.

ZONING BOARD OF APPEALS
By: John Riordan, Chair

AD#13935279
Sudbury TC 1/14, 1/21/21

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245 Dutton Road, Sudbury
LEGAL NOTICE
NOTICE OF PUBLIC HEARING
SUDBURY CONSERVATION COMMISSION

The Sudbury Conservation Commission will hold a public hearing to review the Notice of Intent filing under the Wetlands Protection Act and Wetlands Bylaw for pruning and removal of hazard trees within the Buffer Zone and Riverfront Area at 245 Dutton Road, Sudbury MA, Donna Shibley/General Federation of Women's Club of Massachusetts, applicant. The hearing will be held virtually on Monday, January 25, 2021, at 6:45pm, via Zoom. Please see the Conservation Commission web page for further information.

https://sudbury.ma.us/conservation-commission/meeting/conservation-commission-meeting-monday-january-25-2021/

SUDBURY CONSERVATION COMMISSION
January 4, 2021

AD#13934468
Sudbury TC 1/14/21

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Sudbury: 'Select Board' name change is now offi cial

Zane Razzaq
The MetroWest Daily News
USA TODAY NETWORK

SUDBURY — What was the Board of Selectmen is now officially the Select Board.

During a Special Town Meeting last January, voters overwhelmingly backed a move to drop gender-specific language and change the name of the town's top elected board. The move, which is part of a growing movement, was part of an effort to be more inclusive.

The petition to make the Sudbury Town Charter gender-neutral was guided through the state Legislature by state Rep. Carmine Gentile, D-Sudbury.

State Sens. Mike Barrett, D-Lexington, and Jamie Eldridge, D-Acton, provided support. It was enacted by the state House and Senate, and then signed by Gov. Charlie Baker on Dec. 29.

More than 90 other Massachusetts towns have made the change in recent years, including Hopkinton and Lexington.

LSRHS announces new contract

The Lincoln-Sudbury Regional School Committee and the Lincoln-Sudbury Teachers' Association are pleased to announce they have agreed on a new contract.

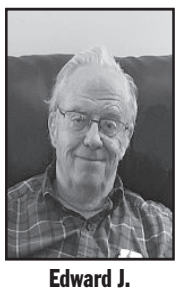
The key features of the new contract are a one-year duration with no cost of living adjustment. The teachers' association approached the school committee with the idea of a one year, no COLA agreement in recognition of the financial uncertainty and educational challenges caused by the COVID-19 pandemic.

The school committee is grateful to the teachers' association for its collaboration, creativity and commitment to our students. A copy of the contract can be found on the Lincoln-Sudbury website at https://bit.ly/2LEjJqv.

OBITUARIES

Obituaries appearing in this section are paid for and written by families, often through the services of a funeral director.

Edward J. Gottmann



Edward J. Gottmann

SUDBURY – Edward J. Gottmann, 80, of SudburY, passed away peacefully in the surroundings of his home on Friday, January 8, 2021, with his wife, daughter, and son in-law at his side.

He was born in Queens, NY, to Henry and Emily Gottmann on March 5th, 1940. After finishing high school, he briefly joined William Esty before entering the United States Army. He was stationed in California for several years before returning to New York where he met the love of his life, Mary. They were married in 1967 and resided in Merrick, NY, with their daughter Elizabeth until 1977. He then moved, with his family, to Sudbury to open the Boston office of Katz Communications. He retired from Katz in 1988 after 20 plus years of service as a radio advertising vice president.

Soon after, he threw himself into community service for the town of Sudbury. He began driving for Meals on Wheels and F.I.S.H and later founded the Sudbury Community Food Pantry. He then turned his efforts to the Sudbury Senior Center, where he was the Volunteer Coordinator for nearly 20 years. During this time, he spearheaded many initiatives such as Fix-it, Friendly Visitors, Medical Equipment Loan Closet, Lockbox, Sand Bucket and Lawn Clean-Up. Whenever someone in town needed something to be done, he always found a way to make it happen. He touched many people with his kindness and made the world a better place.

Ed is preceded in death by his parents and dear sister, Rita Long and her husband James. He is survived by his devoted wife of 53 years, Mary (Karl) Gottmann; his loving daughter Elizabeth Gottmann-Hanrahan, her husband Craig, and two beautiful grandchildren, Emma and Ava, of Billerica, MA; his beloved brother Henry Gottmann and wife Kathleen of Ramsey, NJ; and his many wonderful nieces and nephews and their families.

In light of the current pandemic, and our care and concern for family and friends, services are private. Condolences and messages for his family may be made on-line at: Duckett-Waterman.com. A celebration of life will be planned for a later date, when it is safe to gather in larger numbers.

In lieu of flowers, donations to Ed's most cherished concerns are appreciated: Sudbury Community Food Pantry at PO Box 751, Sudbury, MA, 01776, or to the Friends of the Sudbury Senior Citizens, in care of the Sudbury Senior Center, 40 Fairbanks Road, Sudbury, MA, 01776.

Kathleen Keller Klein

Kathleen Keller Klein

SUDBURY – Kathleen Keller Klein, July 6, 1928–January 3, 2021 of Sudbury, also known to her family as Kitsy and by friends as Kathy, slipped away peacefully on a calm snowy night.

She was born in Boston on July 6, 1928 to Kathleen and Harrison Keller and grew up in Wellesley. Her father was a violinist and New England Conservatory teacher, director, and Board President. Her mother was from Salt Lake City and grew up riding horses and stagecoaches. Her upbring was filled with music, "the arts," and wonderful story telling.

She graduated from Wellesley High School and attended the Museum of Fine Arts School. Kitsy was a watercolor artist, a poet, and a free spirit who found humor in most things. She always saw the silver lining. Her unwavering joyful nature touched those who knew her. She married her long time friend, Joseph Klein, an experimental physicist whom she met while working as a secretary in the engineering department of Raytheon. They lived in Sudbury MA and enjoyed retirement together. Joe died in 2003.

Kitsy leaves her two neices Betsy Alden of Dover MA and Katherine Alden of Spring Mills PA, and a nephew , Peter Alden of Dover MA,. A private burial will be held at Wadsworth Cemetery in Sudbury.

How to Submit an Obituary to the Weekly Newspapers

To contact our obituary department, please e-mail

obits@wickedlocal.com

or

call **781-433-6905**

or

Fax **781-433-6965**

Obituaries for the weekly newspapers are taken at the Randolph office Monday through Friday.

Please Call for Deadline Details

TWIF announces new diverse programming fund

The Wayside Inn Foundation recently announced "Sudbury's Patriots of Color and the World of the American Revolution," will feature Benjamin Remillard, a Ph.D. candidate at the University of New Hampshire, at 7 p.m. Jan. 26 via Zoom.

This is the first program made possible by its new Fund for Diverse Programming initiative.

Remillard will discuss his most recent research as it relates to the Battles of Lexington and Concord on April 19, 1775, the enlistment of men of color representing Sudbury following those battles and the lives of veterans of color during and after the American Revolution.

"We feel incredibly fortunate," said Sally Hild, TWIF nonprofit director. "In the fall, a generous donor offered to seed this fund in concert with a unique matching challenge in order to attract additional donations. We are now able to invite speakers and scholars, like Ben, to The Wayside Inn to help us unearth the history of people of color at our site and from our community and to tell their stories. This is the first of many programs to come."

The challenge goal was met and surpassed through a Giving Tuesday social media campaign in December in which an anonymous donor matched every donation, regardless of size, with a $50 donation.

"This increased the impact of smaller donations and helped us bring in a new demographic of supporters," said Katina Fontes, TWIF Trustee and Development Committee co-chair. "With this formula even a $10 donation was worth $60. A $25 donation was worth $75."

The fund is restricted to activities that enable TWIF to develop and support programming that specifically addresses the historical roots and cultural contributions of Black, Indigenous and People of Color.

"This is part of a larger effort to expand our programming and widen our base of support," Fontes said. "Our traditional donor base is comprised of individuals with a long history and strong connection with The Wayside Inn, and for this we are very thankful, but in the long-term, we wish to grow our audience even farther. To do this we need to engage with the whole of our community in creative ways and expand our mission-related programming. This fund provides both a way to pay for these initiatives and offer a way for future donors inclined toward supporting this type of programming to give in a directed manner."

Remillard has taught history at several universities throughout New England, including Regis College, Mass-Bay Community College and the University of New Hampshire. His current research focuses on Revolutionary War veterans of color and their experiences as a generational cohort. He has also published and presented papers on various aspects of early American history, including indigenous memorialization efforts on Boston Harbor's Deer Island and in Mystic, Connecticut. At the TWIF program, he will specifically discuss the experience of veterans of color in Sudbury and Massachusetts during and after the war, and the importance of memorials for building and sustaining collective memory.

To register, visit https://conta.cc/3nIK6cp. The program fee is $10 per Zoom link, or $5 for TWIF members. For more information about the program, donating to the Fund for Diverse Programming or about membership with TWIF, email TWIF@wayside.org.

Goodnow Library to host art event

The Friends of the Goodnow Library will host its Parisian Cafes and Impressionist Painting art program with Jane Oneail, of Culturally Curious, at 3 p.m. Jan. 24 via Zoom.

The program will explore images by Monet, Renoir and Degas how the hub of activity in Parisian cafes inspired these artists.

Oneail is the founder and president of Culturally Curious. She has a master's degree in art history from Boston University and a Master of Education from the Harvard University's Graduate School of Education.

She is a New Hampshire native and has worked at the League of New Hampshire Craftsmen and the Currier Museum of Art. Oneail has taught art history at the college level for more than a decade.

To register, please go to the Goodnow Library website and sign up on the Calendar page. A few days before the program, a Zoom invitation will be sent. The sender will be "Assabet Interactive Support of the Goodnow Library."

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NATIONAL DEBT RELIEF

Regulatory Questionnaire

FIVE YEAR REVIEW SITE SURVEY	
Former Sudbury Annex	
Name:	Robert Lim
Title:	Project Manager
Organization:	US Environmental Protection Agency (USEPA)
Address:	One Congress Street, Boston, MA 02114
E-Mail:	Lim.Robert@epa.gov
Telephone:	(617) 918-1392

Responses copied from email response received January 21, 2021.

Authorities from State/local government agencies or federal facilities

What is your overall impression of the project?

Sudbury is a mature project with a landfill site under O&M and the remainder of the property under the USFWS management. With the discovery of PFAS, a remedial decision needs to be made after its investigation is completed.

Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

In my time as RPM, I have only visited the site for inspection of the landfill as part of the five year review.

Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

None

Do you feel well informed about the site's activities and progress?

Yes

Have any breaches of the Land Use Controls (LUCs) occurred, complaints been filed, or unusual activities been noted at the site (e.g., citizens are consuming fish at a contaminated sediment site)? If so, how were they addressed?

No

Are LUCs being enforced? What is the enforcement plan in the event of an LUC breach?

Army is responsible for enforcing LUCs. In a breach, Army must make the corrective measures.

Are there any new developments, either constructed or planned, in the area of which the entity is aware?

Not to my knowledge

Has land use changed or is it anticipated to change (e.g., buildings, either constructed or planned, exist in the area)?

It depends on USFWS plans for AOC A9.

Does the entity have an LUC tracking system or other applicable database (e.g., GIS maps) to keep information about LUCs?

Don't know.

How has the LUC process been working and are there any suggestions for improvement?

Not sure, but how much does USFWS communicate with the Army about its plans for the property? If little, then schedule periodic meetings.

Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

None

General Public Questionnaire

FIVE YEAR REVIEW SITE SURVEY	
Former Sudbury Annex	
Name:	Tom Eagle
Title:	Deputy Project leader
Organization:	Eastern Massachusetts NWR Complex; Assabet River National Wildlife Refuge
Address:	USFW 73 Weir Road, Sudbury, MA 01776
E-Mail:	Tom_eagle@fws.gov
Telephone:	(978) 579-4027

Responses received via email on January 21, 2021.

What is your overall impression of the environmental cleanup work at the Former Sudbury Annex?

Overall the ACOE and their contractors do a great job of monitoring the current contamination and the recent discovery and concerns of PFAS has had some impacts on our ability to utilize the site for our management purposes.

What effects has environmental cleanup work at the Annex had on the surrounding community?

There have been recent concerns of PFAS and it has been discovered on the refuge from monitoring work. There has not been any specific environmental cleanup work for PFAS and we do not know of any correlation from PFAS found on the refuge and impacts to surrounding community. We are aware that local water departments are having to install PFAS filtration systems.

Are you aware of any community concerns regarding the site and cleanup conducted at the Annex?

Not aware of community concerns.

Are you familiar with the various processes that Army is utilizing to clean up the environmental sites?

We are not aware of any effort to clean up the site, however we feel that a much more comprehensive cleanup (or filtration system) may be required to eliminate the threats from PFAS as well as the other AOC sites.

Do you feel comfortable in the process that Devens is utilizing to clean up the environmental sites?

As far as we know there are no clean-up efforts.

Do you feel informed about the cleanup activities and progress?

I feel we are well informed of the monitoring efforts that take place at all AOC.

Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?

None

Do you have any other comments, suggestions or recommendations regarding the environmental cleanup work conducted at the Annex?

We are planning to hold a call with MA DEP and EPA to discuss the use of our bedrock well. We have exhausted all other potential means of getting water to our facilities. We and the ACOE (KGS) feel that this well can safely be used for non-potable purposes as is but we are willing to install a PFAS filtration system if needed.

Regulatory Questionnaire

FIVE YEAR REVIEW SITE SURVEY	
AOC A7 at Former Sudbury Annex	
Name:	Penelope Reddy
Title:	Engineering Technical Lead
Organization:	US Army Corps of Engineers-New England
Address:	696 Virginia Road, Concord, MA 01742
E-Mail:	Penelope.w.reddy@usace.army.mil
Telephone:	(978) 318-8160

Responses received via email on January 14, 2021.

Authorities from State/local government agencies or federal facilities

What is your overall impression of the project?

The landfill has been maintained and annual monitoring and inspections have been completed.

Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please give purpose and results.

Annual sampling along with landfill mowing and inspections are conducted routinely in the fall. Maintenance is completed as necessary.

Have there been any complaints, violations, or other incidents related to the site requiring a response by your office? If so, please give details of the events and results of the responses.

None.

Do you feel well informed about the site's activities and progress?

Yes.

Have any breaches of the Land Use Controls (LUCs) occurred, complaints been filed, or unusual activities been noted at the site (e.g., citizens are consuming fish at a contaminated sediment site)? If so, how were they addressed?

None at the site.

Are LUCs being enforced? What is the enforcement plan in the event of an LUC breach?

LUCs are reported in annual report and discussed with landowner. In the event of a breech, the entities would discuss the breach and the issue.

Are there any new developments, either constructed or planned, in the area of which the entity is aware?

I am not aware of any planned developments. During the FYR inspection, landfill remains vacant with a fence surrounding it.

Has land use changed or is it anticipated to change (e.g., buildings, either constructed or planned, exist in the area)?

No. The land use remains the same.

Does the entity have an LUC tracking system or other applicable database (e.g., GIS maps) to keep information about LUCs?

No the entity does not have a tracking system. Information on land use controls is reported annually in the annual reports.

How has the LUC process been working and are there any suggestions for improvement?

No. I do not have any suggestions for improvement.

Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

I do not have any recommendations, suggestions or comments regarding site management and operation.

APPENDIX C – SUMMARY OF HISTORICAL GROUNDWATER TARGET COMPOUNDS AT AOC A7, 1996-2020

Appendix C
Summary of Historical Groundwater Target Compounds at AOC A7, 1996 - 2020
Former Sudbury Training Annex, Sudbury, Massachusetts

Well Number	Jul 1996	Oct 1996	Apr 1997	Oct 1997	Apr 1998	Oct 1998	Apr 1999	Oct 1999	Apr 2000	Oct 2000	May 2001	Oct 2001	Apr 2002	Oct 2002	Apr 2003	Oct 2003	Apr 2004	Oct 2004	Jun 2005	Sep 2005	Nov 2006	Oct 2007	Oct 2008
1,1,2,2-Tetrachloroethane																							
OHM-A7-51[1]	66	85	34	29	11	9.0	6.5	19	7.7	4.9	1.0	6.0	1.0	6.1	4.8	2.4	2.7	4.4	2.0	1.4	1.9	2.4	2.0
JO-A07-M63/SUD-A07-065[2]	13	21	24	26	20	31	23	22	12	20	12	14	20	13	5.1	3.8	4.8	1.8	2.0	4.1	3.6	4.2	3.6
Tetrachloroethene																							
OHM-A7-08	12	27	120	120	92	130	94	92	43	71	40	59	14	33	24	23 J	21	13	8.7	25.4	16.4 J	6.2 J	8.1
JO-A07-M63/SUD-A07-065[2]	14	14	28	21	28	32	30	24	17	25	40	16	23	14	1.9	3.0	2.9	0.62	1.5	11.6	8.9	11.9	13
Trichloroethene																							
JO-A07-M63/SUD-A07-065[2]	10	15	24	25	1.0	36	36	30	21	37	17	29	40	33	5.9	11	17	9.3	3.8	25.4	7.1	9.3	4.6
gamma-BHC (Lindane)																							
OHM-A7-08	0.538	2.8	17	0.052	16	13	12	6.7	9.6	5.1 J	7.0	4.3	1.4	2.6	2.6	2.0	1.4	0.82 J	1.1	1.84	1.91	0.58	0.52 J
JO-A07-M63/SUD-A07-065[2]	NS	NS	NS	0.31	ND	0.38	0.32	0.33	0.066	ND	0.25	0.31	0.25	0.24	0.12	0.041 J	ND	0.10	0.059	0.17	0.18	0.34	0.22
JO-A07-M62/SUDWP-A07-01[3]/SUDA7-19-01[4]	NS	ND	ND	ND	ND	ND	ND	ND	ND	0.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD																							
OHM-A7-08	NS	NS	NS	0.35	5.0	5.6	0.30	5.0	0.28	2.0	0.10	0.25	0.13	2.0	0.21	0.40	0.29	0.11	0.21	0.12	0.10	0.16	0.040

Notes:
All results and standards are in micrograms per liter (µg/L).

[1] Well OHM-A7-51 was removed from the long-term monitoring program in 2015.

[2] Well SUD-A07-M65 was installed in 2006 to replace well JO-A07-M63, which was decommissioned in 2013.

[3] Well SUDWP-A07-01 was installed in 2013 as a replacement for damaged well JO-A07-M62.

[4] Well SUDA7-19-01 was installed in 2019 to replace well SUDWP-A07-1, which was decommissioned.

Acronyms and Abbreviations:
J = estimated concentration
ND = not detected
NS = not sampled

Appendix C
Summary of Historical Groundwater Target Compounds at AOC A7, 1996 - 2020
Former Sudbury Training Annex, Sudbury, Massachusetts

Well Number	Nov 2009	Jun 2011	Oct 2011	Oct 2012	Nov 2013	Oct 2014	Oct 2015	Oct 2016	Dec 2017	Apr 2018	Nov 2018	Nov 2019	Oct 2020
1,1,2,2-Tetrachloroethane													
OHM-A7-51[(1)]	0.94	1.2	0.58	1.77	1.22	ND	NS	NS	NS	NS	NS	NS	NS
JO-A07-M63/SUD-A07-065[(2)]	2.3	3.3	2.1	3.14	2.34	ND	1.8	1.3	NS	NS	ND	NS	0.630 J
Tetrachloroethene													
OHM-A7-08	11	5.6	6.2	8.18	7.46	ND	4.2	2.7	NS	NS	3.3	NS	2.6
JO-A07-M63/SUD-A07-065[(2)]	12	15	9.9	13.2	14	14.8	12.5	9.3	NS	NS	3.1	NS	6.9
Trichloroethene													
JO-A07-M63/SUD-A07-065[(2)]	4.4	4.7	1.3	6.77	8.35	6.7	6.9	3.9	NS	NS	ND	NS	2.8
gamma-BHC (Lindane)													
OHM-A7-08	0.522	0.332	0.45	0.529	0.366	0.33	0.18	0.11	NS	NS	0.011 J	NS	0.18
JO-A07-M63/SUD-A07-065[(2)]	0.097	0.077	0.079	0.243	0.241	0.22	0.17	0.14	NS	NS	0.034 J	NS	0.10
JO-A07-M62/SUDWP-A07-01[(3)]/SUDA7-19-01[(4)]	ND	ND	ND	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
4,4'-DDD													
OHM-A7-08	0.050	0.053	0.043	0.049	0.045	0.042	0.037	0.023	NS	NS	ND	NS	0.028

Notes:
All results and standards are in micrograms per liter (µg/L).

[(1)] Well OHM-A7-51 was removed from the long-term monitoring program in 2015.

[(2)] Well SUD-A07-M65 was installed in 2006 to replace well JO-A07-M63, which was decommissioned in 2013.

[(3)] Well SUDWP-A07-01 was installed in 2013 as a replacement for damaged well JO-A07-M62.

[(4)] Well SUDA7-19-01 was installed in 2019 to replace well SUDWP-A07-1, which was decommissioned.

Acronyms and Abbreviations:
J = estimated concentration
ND = not detected
NS = not sampled

APPENDIX D – FIVE-YEAR REVIEW SITE INSPECTION

January 6th, 2021 @ 0900 am

Five-Year Review Site Inspection Checklist

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

A

I. SITE INFORMATION

Site name: AOC A7 Former Sudbury Training Annex	**Date of inspection:** 01/06/21
Location and Region: MA - Region 1	**EPA ID:** MAD980520670
Agency, office, or company leading the five-year review: Koman Government Solutions	**Weather/temperature:** 31°F, Cold / Partial clouds

Remedy Includes (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☒ Other Ground Water Monitoring, Gas Monitoring

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply) NA

1. **O&M site manager** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3 **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

4 **Other interviews** (optional) ☐ Report attached. NA

No documents onsite, but are Readily available

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply) N/A

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Other permits_____ — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

7. **Groundwater Monitoring Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks_____

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☐ N/A

    Remarks_____

IV. O&M COSTS N/A

1. **O&M Organization**
   - ☐ State in-house
   - ☐ Contractor for State
   - ☐ PRP in-house
   - ☐ Contractor for PRP
   - ☐ Federal Facility in-house
   - ☐ Contractor for Federal Facility
   - ☐ Other_____

2. **O&M Cost Records**
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate_____ ☐ Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ ☐ Breakdown attached
   Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☒ Location shown on site map ☒ Gates secured ☐ N/A
   Remarks A crushed section of fence was observed: 42.4181087, -71.4789961 (Google Maps)

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☒ N/A
   Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Visual Inspection, Phone Interviews.

Frequency Annual / Gas monitoring every 5 years

Responsible party/agency O&M Contractor or USACE Personel

Contact _____

Name	Title	Date	Phone no.

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A

Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A

Violations have been reported ☐ Yes ☐ No ☒ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks _____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks _____

2. **Land use changes on site** ☒ N/A

Remarks _____

3. **Land use changes off site** ☒ N/A

Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☒ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks Down tree on access Road, Able to Drive around. Tree should be removed.

B. Other Site Conditions

Remarks Overall, site appears to be in good condition. Observed a well casing (OHM-A7-45) that could not fully close, and unable to lock. The casing GAP is open enough to allow entrance/Hornet occupation.

Observed exposed Geo textile by the South east edge of the Landfill.

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☒ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches ☐ Applicable ☒ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☒ N/A or okay
Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☒ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☒ N/A or okay
Remarks_____

C. Letdown Channels ☐ Applicable ☒ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☒ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☒ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☒ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks Observed exposed Geotextile, located on the southeast edge of the landfill

4. **Undercutting** ☐ Location shown on site map ☒ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☒ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☒ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☒ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☒ Passive
☐ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
NA ☒ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☒ Needs Maintenance ☐ N/A
Remarks Casing of OHM-A7-45 needs minor maintenance to properly close

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☒ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☒ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☒ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks Very minor vegitation observed in Rip RAP. This is managed by Periodic removal

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☒ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks_____

C. Treatment System ☐ Applicable ☒ N/A

1. **Treatment Train** (Check components that apply)
   - ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   - ☐ Air stripping ☐ Carbon adsorbers
   - ☐ Filters _____
   - ☐ Additive (*e.g.*, chelation agent, flocculent) _____
   - ☐ Others _____
   - ☐ Good condition ☐ Needs Maintenance
   - ☐ Sampling ports properly marked and functional
   - ☐ Sampling/maintenance log displayed and up to date
   - ☐ Equipment properly identified
   - ☐ Quantity of groundwater treated annually _____
   - ☐ Quantity of surface water treated annually _____

   Remarks _____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   - ☐ N/A ☐ Good condition ☐ Needs Maintenance

   Remarks _____

3. **Tanks, Vaults, Storage Vessels**
   - ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

   Remarks _____

4. **Discharge Structure and Appurtenances**
   - ☐ N/A ☐ Good condition ☐ Needs Maintenance

   Remarks _____

5. **Treatment Building(s)**
   - ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   - ☐ Chemicals and equipment properly stored

   Remarks _____

6. **Monitoring Wells** (pump and treatment remedy)
   - ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   - ☐ All required wells located ☐ Needs Maintenance ☐ N/A

   Remarks _____

D. Monitoring Data

1. Monitoring Data
   - ☒ Is routinely submitted on time ☐ Is of acceptable quality

2. Monitoring data suggests:
   - ☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
[ ] All required wells located ☒ Needs Maintenance ☐ N/A
Remarks OHM-A7-45 Well casing needs maintenance to properly close.

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy NA

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M NA

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C. Early Indicators of Potential Remedy Problems NA

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization NA

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Summary of observations:

- A large tree crushed a portion of the Perimeter fence 42.4181057, -71,4789961 (google maps)
- Fencing along the northeast edge (Focused in the stream) has a hard lean to it.
- Exposed Geotextile observed along the southeastern edge of the Landfill CAP.

01/6/21 5YR Site Inspection, Sudbury MA AOC A7, USACE KGS – Melissa Miller

(3) OHM-A7-45 Well casing cannot fully close

(2) Fence is leaning into the stream at the Eastern Staff Gauge

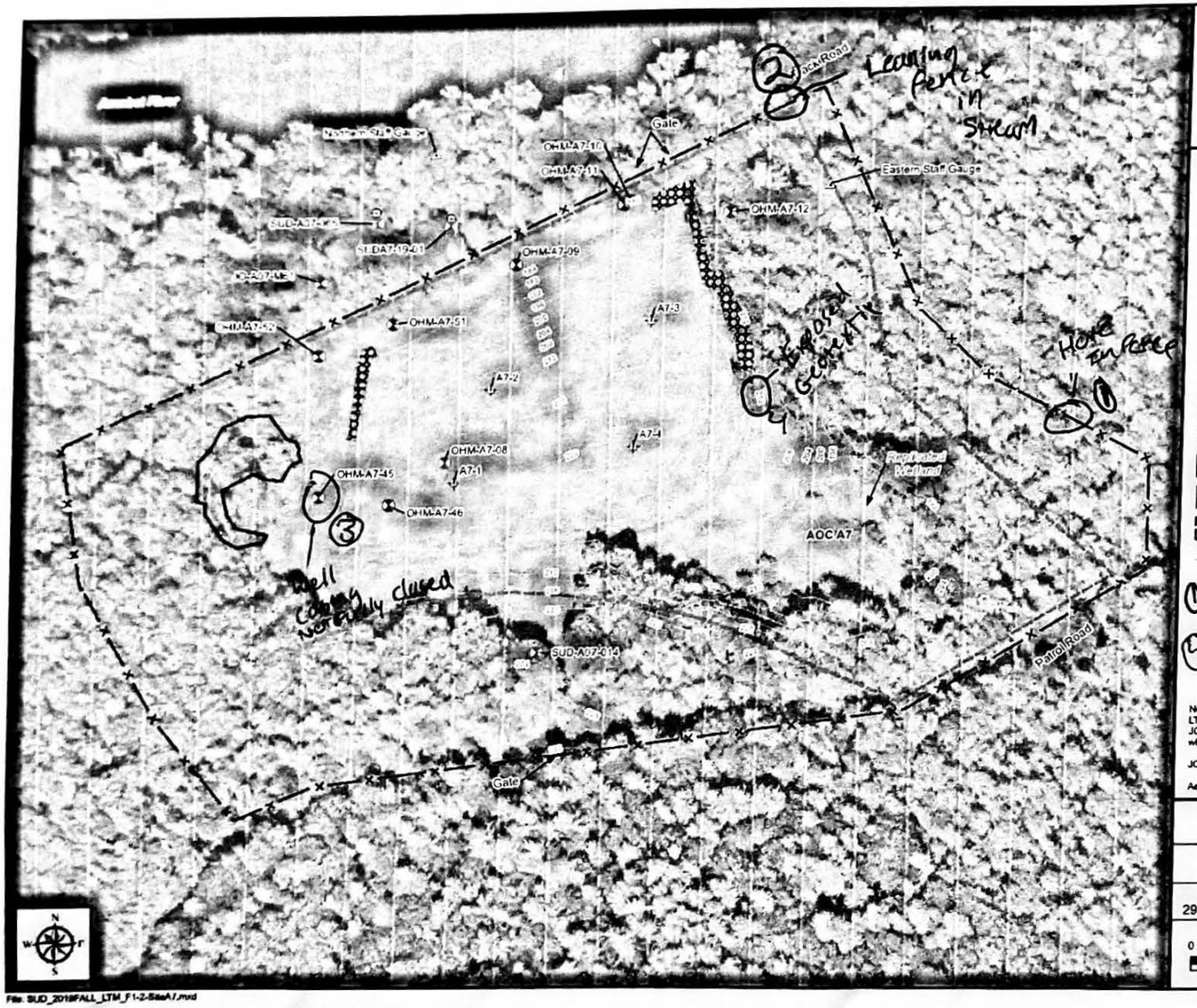

Figure 1-2
Site Layout
AOC A7

Legend

- LTM Sample Well
- LTM Well - Gauge Only
- Staff Gauge
- Monitoring Well - Damaged
- Monitoring Well - Abandoned
- Gas Vent
- OHM-A7-08 Well/Gauge/Vent Identification
- Fence
- Stump Pile Area
- Rip Rap
- Area of Contamination (AOC)
- Topographic Contour (ft AMSL)

(1) 42.4181057, -71.4789961

(4) exposed Geotextile

Notes:
LTM – long term monitoring
JO-A07-M62 damaged and was replaced by SUDWP-A07-01, which was replaced by SUDA7-19-01 (2019)

JO-A07-M61 could not be located (2019)

Aerial Sources: Esri, DigitalGlobe, GeoEye, Incubed, USDA FSA, USGS, AEX,

2019 Annual Report
Former Sudbury Training Annex (AOC A7)

Former Fort Devens Army Installation
Sudbury Training Annex, Sudbury, Massachusetts

KOMAN Government Solutions, LLC
293 Boston Post Road West, Suite 100, Marlborough, MA 01752

0 60 120 Feet | Date: 03/30/2020 | Figure 1-2 | KGS

File: SUD_2019FALL_LTM_F1-2-SiteA7.mxd

SITE ~~CONTROL~~ LOG MM

Date / Day / Time: January 6th, 2021, Wed,

Project Name: Sudbury Annex 5yR Rewew site visit

Project Location: Sudbury MA

Time		Name	Organization
In	Out		
0800	1030	Melissa Miller	KGS
0825	1030	Penny Reddy	USACE
0855	1030	Brent Smith	USACE
0845	1030	Robert Lim	EPA
KGS MM off site		@ 1035	

APPENDIX E – ARARs

FORT DEVENS SUDBURY TRAINING ANNEX - AOC A7
ARARs FOR EXCAVATION AND OFF-SITE TREATMENT AND DISPOSAL OF LABORATORY WASTE AND CONTAINMENT BY RCRA SUBTITLE C LANDFILL CAP

Requirement	*Status*	*Requirement Synopsis*	*Action To Be Taken To Attain ARAR*
		ACTION-SPECIFIC	
Laboratory Waste - Federal			
RCRA - Identification and Listing of Hazardous Waste (40 CFR 261)	Relevant and Appropriate	Establishes definitions for solid and hazardous wastes. Sets forth criteria used to identify hazardous waste and to list particular wastes. Identifies characteristics of a hazardous waste and contains a particular list of hazardous wastes.	Laboratory waste includes soil and debris contaminated by liquid containers. The waste is assumed to be classified as F002 spent solvents.
RCRA - Land Disposal Restrictions (40 CFR 268)	Relevant and Appropriate	Identifies hazardous wastes that are restricted from land disposal and defines exemptions. Subpart D contains treatment standards for RCRA-listed wastes.	Removal of laboratory waste and associated contaminated soils triggers LDRs. Since the wastes have been classified as F002 spent halogenated solvents, the wastes will be transported off site for treatment and disposal in accordance with the requirements of the LDRs.
Off-Site Rule (40 CFR §300.440)	Applicable	Requires that hazardous substances, pollutants, or contaminants transferred off site for treatment, storage, or disposal during a CERCLA response action be transferred to a facility operating in compliance with §3004 and §3005 of RCRA and other federal laws and all applicable state requirements.	Laboratory waste material will be transported to a TSDF that is in compliance.
Laboratory Waste - State			
HWR - Requirements for Generators (310 CMR 30.4000-30.416)	Relevant and Appropriate	Requirements for generators, including accumulation of waste prior to off-site disposal.	Generator requirements will be complied with during excavation and removal of laboratory waste materials.
HWR - Use and Management of Containers (310 CMR 30.680)	Relevant and Appropriate	Requirements for use and management of containers.	Packing of laboratory waste materials will adhere to these requirements.
Soil - Federal			
RCRA Subtitle C, Subpart B - General Facility Standards (40 CFR 264.10 - 264.18)	Relevant and Appropriate	General requirements regarding waste analysis, security, training, inspections, and location for any facility that treats, stores, or disposes of hazardous wastes (a TSDF).	Requirements regarding security, training, and inspections will be met.

Requirement	*Status*	*Requirement Synopsis*	*Action To Be Taken To Attain ARAR*
RCRA Subtitle C, Subpart B - Construction Quality Assurance Program (40 CFR 264.19)	Relevant and Appropriate	For all surface impoundments, waste piles, and landfill units, this regulation requires that a construction quality assurance (CQA) program be developed and implemented. A written CQA plan must identify the steps that will be used to monitor and document the quality of materials and their installation.	A CQA program will be developed and implemented for the construction of the landfill cap at Area A7.
RCRA Subtitle C, Subpart C - Preparedness and Preparation (40 CFR 264.30 - 264.37)	Relevant and Appropriate	Requirements applicable to the design, operation, equipment, and communications associated with a TSDF, and to arrangements with local response departments.	Since these regulations are primarily intended for facilities with indoor operations and a landfill cap is being constructed at Area A7, only requirements regarding communications equipment will apply during construction activities.
RCRA Subtitle C, Subpart D - Contingency Plan and Emergency Procedures (40 CFR 264.50 - 264.56)	Relevant and Appropriate	Outlines general requirements for contingency and emergency planning procedures for TSDF operations.	During all remedial action, a contingency plan with emergency procedures will be developed.
RCRA - Subpart N, Landfill Closure and Post-Closure Care (40 CFR 264.310)	Relevant and Appropriate	Final cover at a landfill requires the cover to be designed and constructed to meet certain performance standards. Cover to provide long-term minimization of infiltration. Settling and subsidence must be accommodated. Post-closure use of property must be restricted as necessary to prevent damage to cover. Runoff and runon must be prevented. Protect and maintain surveyed benchmarks. References §264.117 - 264.120 for maintenance and monitoring requirements.	Cap design will meet performance standards. Runoff and runon prevention measures will be taken. Surveyed benchmarks will be protected.
RCRA Subtitle C, Subpart G - Closure and Post-closure (40 CFR 264.117 - 264.120)	Relevant and Appropriate	Details general requirements for closure and post-closure of hazardous waste facilities, including installation of a ground water monitoring program and beginning a period of 30 years of post closure care. §264.119 requires the placement of deed restrictions.	Because Area A7 is being closed as a landfill, parts of this requirement concerning long-term monitoring and maintenance of the site are relevant and appropriate. Sets a minimum of 30-year post-closure care period. Deed restrictions will be placed restricting the future uses of the site. A post-closure plan will be prepared. The plan will identify monitoring and maintenance activities, and their frequency.
RCRA Subtitle C, Subpart F - Releases from Solid Waste Management Units (40 CFR 264.90 - 264.101)	Relevant and Appropriate	Specifies compliance points and ground water monitoring requirements for TSDFs during active-care and closure-care periods. Corrective action program must be developed if monitoring shows exceedences in limits.	Ground water monitoring will be conducted following the construction of the cap. Corrective action may be taken if monitoring warrants action.
RCRA Proposed Amendments for Landfill Closure (52 FR 8712)	To Be Considered	Provides an option for the application of alternative closure and post-closure requirements based on a consideration of site-specific conditions, including exposure pathways of concern.	Cap and post-closure monitoring will be designed taking into account exposure pathways of concern.

Requirement	*Status*	*Requirement Synopsis*	*Action To Be Taken To Attain ARAR*
RCRA - Land Disposal Restrictions (LDRs) (40 CFR 268)	Applicable	Land disposal of a RCRA hazardous waste is restricted without specified treatment. It must be determined that the waste meets the definition of one of the specified restricted wastes and the remedial action must constitute "placement" for the land disposal restrictions to be considered applicable. For each hazardous waste, the LDRs specify that the waste must be treated either by a treatment technology or to a concentration level prior to disposal in a RCRA Subtitle C-permitted facility.	If soil at Areas A7 and A9 fail TCLP testing, soil must be treated before the final disposal. Soils that fail TCLP testing could not be consolidated under the landfill cap at Area A7.
USEPA Guidance: Design and Construction of RCRA/CERCLA Final Covers (EPA/625/4-91/025)	To Be Considered	USEPA guidance that provides technical guidance on the design and construction of RCRA/CERCLA final covers.	Guidance will be considered in the design and construction of the landfill cap at Area A7.
USEPA Guidance: Quality Assurance and Quality Control for Waste Containment Facilities (EPA/600/R-93/182)	To Be Considered	USEPA guidance that provides technical guidance on quality assurance and quality control measures for containment facilities.	A construction quality assurance program will be developed for the remedial action at Area A7 based on this guidance document.
Clean Water Act: Final NPDES General Permits for Storm Water Discharges From Construction Sites; Notice (57 FR 44412-44435)	Relevant and Appropriate	Addresses NPDES permits for construction sites. For construction sites greater than 5 acres, develop and implement storm water pollution prevention plans. Storm water controls include stabilization practices, such as seeding and geotextiles, and structural practices, such as silt fences, swales, sediment traps, basins, etc. Identify maintenance procedures.	During construction, storm water management practices will be implemented.
Soil - State			
HWR - General Management Standards for All Facilities (310 CMR 30.510)	Relevant and Appropriate	Establishes requirements for operation of facilities including security, inspection, and personnel training.	Requirements regarding security, inspection, and training will be met during and after construction of the landfill cap.
HWR - Contingency Plan, Emergency Procedures, Preparedness, and Prevention (310 CMR 30.520)	Relevant and Appropriate	Requirements for notification, safety equipment, and spill control for hazardous waste facilities. A facility's contingency plan shall include: procedures to be used following emergency situations and to prevent hazards to public health, safety, or welfare and the environment. Copies of the plan shall be submitted to the local police and fire departments, hospitals, and emergency response teams.	During the remedial construction, safety and communication equipment will be kept at the site, and local authorities will be familiarized with site operations. Plans will be developed and implemented during site work. Copies of plans will be kept on site.

Requirement	*Status*	*Requirement Synopsis*	*Action To Be Taken To Attain ARAR*
HWR - Landfill Closure and Post-Closure Care (310 CMR 30.633(1) & (2B))	Relevant and Appropriate	Sets forth performance requirements for the closure of a landfill. For closure, the final cover must be designed and constructed to: provide long-term minimization of migration of liquids through the closed landfill; function with minimum maintenance; promote drainage and minimize erosion or abrasion of the cover; and accommodate settling. Post-closure, long-term maintenance, and monitoring requirements from 310 CMR 30.592 apply. Establishes a 30-year post-closure care period (310 CMR 30.590) and ground water monitoring (310 CMR 30.660).	Landfill cap at Area A7 will be designed to meet performance standards for this requirement. Following construction, long-term monitoring and maintenance requirements for the landfill will also apply.
HWR - Post-Closure (310 CMR 30.591(b) & 30.592(b))	Relevant and Appropriate	Requirement that establishes 30-year period of operations and maintenance for owners and operators of all facilities at which hazardous waste will remain on site after closure.	Requires a minimum of 30 years for post-closure care at Area A7, and at any other site where hazardous waste will remain in place.
HWR - Land Disposal Restrictions (310 CMR 30.750)	Relevant and Appropriate	Identifies and describes those hazardous wastes which are restricted from land disposal. These regulations also define the limited circumstances where prohibited land disposal is permissible.	If soils from Areas A7 and A9 fail TCLP test, then this requirement, which requires treatment prior to disposal, is applicable. Soil that fails TCLP testing could not be consolidated under the landfill cap as part of the necessary subgrade.
Massachusetts Surface Water Quality Standards (310 CMR 4.00) (see also 57 FR 44426-44427)	Relevant and Appropriate	Massachusetts 401 certification for the Clean Water Act requires additional measures for surface water discharges during construction. Set backs and best management practices (BMPs) are identified and are dependent upon the classification of the receiving water.	During construction, any new discharge outfill pipes will be designed to be set back from the Assabet River. Receiving swales, infiltration trenches or basins, filter media dikes or other BMPs will be prepared with the goal to minimize erosion yet maximize infiltration or otherwise improve water quality prior to discharge.
Massachusetts Ambient Air Quality Standards (310 CMR 6.00)	Applicable	Establishes the standards and requirements for ambient air quality standards in the Commonwealth. Specifically, Section 6.04(1) provides ambient air quality criteria such as particulate matter standards. The primary ambient air quality standards for particulate matter are: 50 $\mu g/m^3$ annual ambient air quality standard, attained when the expected annual mean arithmetic concentration is less than or equal to 50 $\mu g/m^3$; and 150 $\mu g/m^3$ - maximum 24-hour concentration, attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is less than or equal to one.	The emissions limits for particulate matter will be managed through engineering controls during construction activities at Area A7.

FORT DEVENS SUDBURY TRAINING ANNEX - AOC A9
ARARs FOR CONTAMINATED SOIL EXCAVATION
AND CONSOLIDATION AT AOC A7

Requirement	*Status*	*Requirement Synopsis*	*Action To Be Taken To Attain ARAR*
		CHEMICAL-SPECIFIC	
Federal			
Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals)(OSWER 9285.7-01B)	To Be Considered	USEPA guidance used to develop preliminary remediation goals for carcinogenic and non-carcinogenic contaminants in various media.	Using the guidance, risk-based cleanup levels were developed for arsenic and thallium. Arsenic and thallium contaminated soils at AOC A9 will be excavated to 30 and 20 parts per million, respectively. Confirmatory samples will be taken to ensure that all contaminated soils above the cleanup level are removed.
		LOCATION SPECIFIC - *None.*	
		ACTION-SPECIFIC	
Federal			
RCRA - Identification and Listing of Hazardous Waste (40 CFR 261)	Applicable	Establishes definitions for solid and hazardous waste. Sets forth criteria used to identify hazardous waste and to list particular wastes. Identifies the characteristics of a hazardous waste and contains a list of particular hazardous wastes.	Soils at Area A9 will be TCLP tested to determine if it is hazardous.
Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies (EPA/600/R-92/128, July 1992)	To Be Considered	USEPA guidance document for use in the development of soil sampling protocols. A particulate sampling theory is the basis for proper soil sampling. Other soil sampling scenarios are discussed including sampling from stockpiled material.	During remedial design, a soil sampling plan will be developed for implementation during excavation of soil. The goal of the sampling will be to determine whether soil can be consolidated as part of the subgrade of the landfill cap or must be shipped off-site for treatment/disposal.
State			
HWR - Identification and Listing of Hazardous Waste (310 CMR 30.100)	Applicable	Establishes provisions for classifying waste as regulated hazardous waste. Two methods are employed to identify wastes as hazardous, characteristics and listing.	Soil will be TCLP tested for arsenic to determine if it is hazardous by characteristics.
Massachusetts Air Pollution Control Regulations (310 CMR 6.00)	Applicable	Establishes the standards and requirements for ambient air quality standards in the Commonwealth. Specifically, Section 6.04(1) provides ambient air quality criteria such as particulate matter standards. The primary ambient air quality standards for particulate matter are: 50$\mu g/m^3$ annual ambient air quality standard, attained when the expected annual mean arithmetic concentration is less than or equal to 50$\mu g/m^3$; and 150$\mu g/m^3$ - maximum 24-hour concentration, attained when the expected number of days per calendar year with a 24-hour average concentration above 150$\mu g/m^3$ is less than or equal to one.	If necessary, emissions limits for particulate matter will be managed through engineering controls during excavation activities at all sites.

APPENDIX F – MEMORANDUM OF AGREEMENT

Details of the transfer documents to three Federal agencies are included in the pages that follow. Documents reproduced here include:

USFWS:
Memorandum of Agreement between the United States Army and the United States Fish and Wildlife Service for the Transfer of Military Property, 28 September 2000

USAF:
Transfer Agreement between the Department of the Army and the Department of the Air Force for a Portion of the Former Fort Devens, Massachusetts 3 June 2002
Notary Public affidavit 3 June 2002 regarding the Army signatory

FEMA:
Modification to Memorandum of Agreement between the Department of the Army and the Federal Emergency Management Agency for the Transfer of Real Property at the Sudbury Training Annex, Massachusetts, signed 3 July 2003 by Joseph W. Whitaker for the Department of the Army and 29 July 2003 by Michael D. Brown for the Federal Emergency Management Agency.
Letter of Transfer for a Portion of the Former Fort Devens, Massachusetts to the Federal Emergency Management Agency, March 31, 2003; Memorandum of Agreement between the Department of the Army and the Federal Emergency Management Agency for the Transfer of Real Property at the Sudbury Training Annex, Massachusetts, March 21, 2003
Notary Public affidavit 21 March 2003 regarding the Army signatory
Notary Public affidavit 31 March 2003 regarding the FEMA signatory

MEMORANDUM OF AGREEMENT
BETWEEN
THE UNITED STATES ARMY
AND THE UNITED STATES FISH AND WILDLIFE SERVICE
FOR THE TRANSFER OF
MILITARY PROPERTY

The United States Fish and Wildlife Service (FWS) and the United States Army (the Army) hereby enter into a Memorandum of Agreement (MOA) to clarify responsibilities and requirements of both parties pursuant to the transfer of real property at the Devens Reserve Forces Training Area (Devens RFTA), Sudbury Training Annex, Massachusetts, from the Army to the FWS. The authority to enter into this MOA is Defense Base Realignment and Closure (BRAC) Act of 1990, Public Law 101-510, 10 U.S.C. 2687 note and 16 U.S.C. 667b.

A. INTRODUCTION

Fort Devens, Massachusetts closed on 31 March 1996. The Devens RFTA was established on April 1 1996. The property to be transferred to the FWS is part of the Devens RFTA. The Army will transfer as excess property a parcel of approximately 2,205.2 acres to the FWS, which intends to use it as a National Wildlife Refuge. The boundaries of the property, hereinafter referred to as the Transfer Parcel or the Parcel (remaining BRAC parcels less 27(7) PS and 39(4) PS/PR) are identified in the official survey and legal description dated 25 September 1997 and 24 April 1997. Copies of these documents are on file with the U.S. Army Corps of Engineers, New England District, Concord, Massachusetts.

The FWS has requested transfer of the Parcel as excess Federal property, pursuant to the Federal Property and Administrative Services Act of 1949 (FPASA), 40 U.S.C. Sections 471-544 and 16 U.S.C. Section 667b for inclusion in the National Wildlife Refuge System based upon the FWS's determination that the Parcel has particular value in the execution of the national migratory bird management program. Both parties agree that the transfer of this property includes specific responsibilities and requirements as outlined in this MOA.

B. GENERAL TERMS AND CONDITIONS

1. The FWS acceptance of the Transfer Parcel, the buildings located on the Parcel and fixed equipment is at no cost to the FWS.

2. No provisions of this agreement shall be interpreted or applied so as to obligate the FWS or the Army in excess or advance of appropriations or otherwise so as to result in a violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341.

EXHIBIT B

NVIRONMENTAL COMPLIANCE RESPONSIBILITIES

1. Both the Army and the FWS acknowledge that the Sudbury Training Annex is a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. Sudbury Training Annex has been on the NPL since February 1990. Since that time, the CERCLA- regulated environmental investigations have been underway, and in August 1996, remedial actions to effect environmental cleanup and restoration began. The Transfer Parcel contains 74 Study Areas (SA) of potential environmental contamination. Of the 74 SAs, 62 have No Further Action Decision Documents (NFADDs) signed, 6 have No Further CERCLA Action Record Of Decision (ROD) signed, 4 have a Source Control ROD and/or Management Of Migration ROD signed, 1 is pending a Removal Action and 1 is pending sampling/analysis results. The Army agrees to provide the FWS copies of all work plans and reports relating to pending actions at SA's P27 and P58 at the same time said plans and reports are provided to Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MDEP)

The Army shall provide the FWS with a copy of the Sudbury Training Annex Federal Facility Agreement (FFA) entered into by the United States EPA Region 1 and the Army on 13 May 1991, and made effective on 15 November 1991. The Army agrees to provide the FWS with prompt Notice of the initiation of any negotiations to amend the FFA. The Army agrees to provide the FWS with any future amendments to the FFA within 30 days of execution of such amendments. The FWS agrees to take no action inconsistent with the terms of the FFA. The environmental remediation of the Sudbury Training Annex National Priority List (NPL) Site is being undertaken by the Army in accordance with the FFA negotiated with the EPA and in cooperation with MDEP. The Army and FWS agree that, should a conflict arise between the terms of the FFA as it presently exists or may be amended, and the provisions of this MOA, the terms of the FFA will take precedence over the provisions of this MOA. The Army will inform the FWS of any such conflicts affecting the FWS use of the Transfer Parcel. The Army reserves the right to access the premises as it deems necessary to fulfill its responsibilities under the FFA, the Army's Installation Restoration Program and this MOA.

2. Except as specifically provided for herein, the FWS does not assume any of the United States Government's present or future potential liability or responsibility for hazardous materials, hazardous substances, hazardous wastes, petroleum or any other contamination existing on or emanating from the Transfer Parcel, attributable to the Army's activities, on the date the Parcel is transferred to the FWS (hereinafter referred to as the Date of Transfer). In addition, except as specifically provided herein, the FWS does not assume, and shall not have after the Date of Transfer, any obligation to undertake the United States Government's defense or payment of any claim or action, whether in existence now or brought in the future, caused by or arising out of the use, storage, management, release, or disposal of any hazardous material, hazardous substance, hazardous waste, petroleum product or derivative or any other contaminant (including any use, storage, management, release, or disposal of such that occurs during any subsequent environmental remediation) on any portion of the Transfer Parcel prior to the Date of Transfer,

including hazardous material, hazardous substance, hazardous waste, petroleum or any other contamination not presently known but subsequently discovered and determined to be attributable to activities or conditions on the Parcel prior to the Date of Transfer.

3. With respect to hazardous material, hazardous substance, hazardous waste, petroleum or any other contamination existing on or emanating from the Transfer Parcel on the Date of Transfer, except as otherwise specifically provided herein, the Army warrants that it shall comply with and retain all of the United States Government's responsibility and present and potential liability, as required by law and regulation, for funding and implementing actions including, but not limited to, investigations, sampling, testing, cleanup, restoration, maintenance, monitoring, closure, five-year reviews, site inspections, removal actions, remedial actions, corrective actions and any other actions necessary to ensure the protection of human health and the environment (all actions to be so funded and implemented hereinafter collectively referred to as Response Actions).

Should a release or threatened release of any hazardous material, hazardous substance, hazardous waste, petroleum derivative or other contaminant, attributable to the Army's activities, occur on the Transfer Parcel after the Date of Transfer, the Army warrants that it shall be responsible for conducting all Response Actions necessary to protect human health and the environment in accordance with applicable laws and regulations. Except as otherwise specifically provided herein, the FWS has not assumed and shall assume no liability or costs arising out of, or related to, such contamination.

The Army shall not be liable for any claims arising out of or in any way predicated on release of any hazardous substance on the Transfer Parcel occurring after the Date of Transfer where such substance was placed on the Transfer Parcel by the FWS, its successors or assigns, its agents, contractors, invitees, or its lessees or sublessees or third parties after the Date of Transfer. This paragraph shall not affect the Army's responsibilities to conduct Response Actions that are required by applicable laws and regulations.

4. The Army hereby reserves an easement and right of access to and over any and all portions of the Transfer Parcel for itself and its officers, agents, employees and contractors, for purposes of conducting Response Actions after the Date of Transfer in order to fulfill the Army's environmental responsibilities under this Agreement, the FFA (including Section IX - ACCESS of the FFA), and applicable law. It is the intention of the Army and the FWS that such easement and right of access shall run with the land. In exercising this easement and right of access, except in case of imminent endangerment to human health or the environment, the Army shall give the FWS or the then record owner of the affected portion(s) of the Transfer Parcel reasonable prior written notice of the Response Action(s) to be conducted on the Transfer Parcel, and shall use reasonable means, to avoid and/or minimize interference with the FWS's or such record owner's use of the Transfer Parcel. Subject to the provisions of this Paragraph, and except as otherwise provided for by law, the FWS, such record owner, and any other person shall have no claim or cause of action against the Army, or any officer, agent, employee or contractor of the Army, for interference with the use of the Transfer Parcel based upon Response Actions taken under this Subsection.

a. Nothing in this Agreement shall limit or otherwise affect the Army's, EPA's or MDEP's respective rights of access to and over any and all portions of the Transfer Parcel under applicable law for purposes including but not limited to:

(i) conducting oversight activities, including but not limited to investigations, sampling, testing, monitoring, verification of data or information submitted to EPA or MDEP, and/or site inspections, in order to monitor the effectiveness of Response Actions and/or the protectiveness of any remedy which is required by (a) any ROD or amendments thereto, which ROD was approved by the Army and EPA and issued by the Army pursuant to CERCLA or the FFA and the modifications thereto before or after the Date of Transfer, or (b) any decision document approved by MDEP and issued by the Army under applicable state law before or after the Date of Transfer;

(ii) Performing five-year reviews as required by CERCLA, and

(iii) Taking additional Response Actions in accordance with applicable law and the FFA.

b. The FWS covenants on behalf of itself and its successors and assigns that the Army and EPA shall have, to and over the Transfer Parcel, those rights of access set forth in Section IX- ACCESS of the FFA in order to effectuate the purposes of the FFA in connection with any Study Area or Area of Contamination (as that term is defined under the FFA), including where the Transfer Parcel itself becomes a Study Area or Area of Contamination after the Date of Transfer.

c. The Army and EPA and their agents, employees, and contractors shall have access to and over the Transfer Parcel as may be necessary to conduct any Response Action pursuant to CERCLA or the FFA found to be necessary, before or after the Date of Transfer, on the Transfer Parcel or on other property comprising the Sudbury Training Annex NPL site. This reservation includes the right of access to and use of, to the extent permitted by law, any available utilities at reasonable cost to the Army or EPA.

d. In exercising the rights hereunder, the Army and EPA shall give the FWS or its successors or assigns reasonable prior written notice of Response Actions taken on the Transfer Parcel under the FFA and shall, to the extent reasonable, consistent with the FFA, and at no additional cost to the United States, endeavor to minimize any disruption to the FWS, or its successors' or assigns', use of the Transfer Parcel.

e. The FWS agrees that notwithstanding any other provision of this Agreement, except as otherwise provided by law, the Army assumes no liability, should implementation of the FFA interfere with the use of the Transfer Parcel. Except as otherwise provided by law, the FWS and its successors and assigns shall have no claim on account of any such interference against the Army or EPA or any officer, agent, employee, or contractor thereof.

f. Prior to the determination by the Army and EPA that all remedial action is complete under CERCLA and the FFA for the Sudbury Training Annex NPL site, (i) FWS, its successors and assigns shall not undertake activities on the Transfer Parcel that would interfere with or impede the completion of the CERCLA cleanup at the Sudbury Training Annex NPL site, and shall give prior written notice to the Army and EPA of any construction, alterations, or similar work on the Transfer Parcel that may interfere with or impede said cleanup, and (ii) the FWS shall comply with any institutional controls established or put in place by the Army relating to the Transfer Parcel which are required by any ROD or amendments thereto, or other applicable land use controls related to the Transfer Parcel, which ROD was approved by the Army and EPA and issued by the Army pursuant to CERCLA or the FFA before or after the Date of Transfer. Additionally, the FWS shall ensure that any leasehold it grants in the Transfer Parcel or any fee interest conveyance of any portion thereof provides for legally binding compliance with the institutional controls required by any such ROD.

g. For any portion of the Transfer Parcel subject to a Response Action under CERCLA or the FFA, prior to the conveyance of an interest therein, the FWS and its successors and assigns (i) shall include in all conveyance documents provisions for allowing the continued operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA or the FFA on said portion of the Transfer Parcel, and (ii) shall notify the Army and EPA by certified mail at least sixty (60) days prior to any such conveyance of an interest in said property, which notice shall include a description of said provisions allowing for the continued operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA or the FFA.

h. Prior to the determination by the Army and EPA that all remedial action under CERCLA and the FFA is complete for the Sudbury Training Annex NPL site, the FWS and all subsequent grantees or transferees of an interest in any portion of the Transfer Parcel will provide copies of the instrument evidencing such transaction to EPA and the Army by certified mail, within fourteen (14) days after the effective date of such transaction.

i. The FWS and all such subsequent grantees or transferees shall include the provisions of this Subsection C.4 in all subsequent lease, transfer, or conveyance documents related to the Transfer Parcel or any portion thereof that are entered into prior to a determination by the Army and EPA that all remedial action is complete at the Sudbury Training Annex NPL site.

The FWS acknowledges that arsenic-based herbicides were applied in the vicinity of the fence-line along Patrol Road and on the former railroad beds on the northern and southern portions of the Sudbury Annex, and that the Army has concluded, after completing a facility-wide investigation, that the resulting concentrations of arsenic in the soil do not pose an unacceptable risk to human health or the environment based on the future land use of the Transfer Parcel as a National Wildlife Refuge. The FWS covenants on behalf of itself and its successors and assigns that no portion of a fifty (50) foot strip of land on either side of the center of the above-described fence line or former railroad beds shall be used for residential habitation unless the then-owner of the Transfer Parcel can demonstrate to EPA that such use is consistent with the protection of human health and the environment. The positions of such fence line and former railroad beds will be established by survey. The FWS further covenants that it and its successors and assigns shall include in any deed or other conveyance document transferring any interest in any or all of the Transfer Parcel a restrictive covenant that identifies the use restriction set forth in this Subsection C.5 to all successors in interest to any interest in any or all of the Transfer Parcel. It is the intention of the FWS and the Army that this use restriction shall run with the land comprising the Transfer Parcel.

6. The FWS acknowledges that prior to the transfer of the Transfer Parcel to FWS, the Army informed the FWS that it had completed an Ordnance and Explosives Survey/Removal Action covering the entire Annex to determine if explosives or ordnance (OE) existed on the site. The Army represents that no OE was discovered but OE residue was found in Building T405, and was remediated in the fall of 1999. The Army's Conclusions of the Final UXO Characterization Report of 18 February 1998 states that: "Unless 100 percent of the site is searched, it cannot be positively determined with complete accuracy that no OE is present on the site. However, based upon the results of the surface and sub-surface activities and the results of the Site Stats/Grid Stats Random Selection Program, Sudbury Annex, Massachusetts, does not show evidence of being contaminated with OE or OE related material and can be excessed without further UXO activities except the 18 earth covered magazines. The interiors of these magazines require an inspection prior to being released with the Annex." The FWS acknowledges receipt of a copy of the Conclusions of the Army's Final UXO Characterization Report of 16 February 1998.

a. The FWS acknowledges that the Army has informed it that as of the Date of Transfer, the subsurface soil below the depth of four (4) feet on the Transfer Parcel may contain OE or OE-related material as a result of past Army activities on the Transfer Parcel. The FWS covenants on behalf of itself and its successors and assigns that, except as provided herein, no activity or use shall be undertaken on the Transfer Parcel that might disrupt or otherwise negatively impact the subsurface soil below the depth of four (4) feet. Such prohibited activities and uses shall include any disturbance of the subsurface soil below the depth of four (4) feet in any manner, including but not limited to construction activities such as filling, drilling, excavation or change of topography. The FWS covenants on behalf of itself and its successors and assigns that if it or its successor or assign wants to undertake an activity or use on the Transfer Parcel that will disrupt or otherwise negatively impact the subsurface soil below the depth of four (4) feet, including any construction activities involving the disturbance or disruption of the subsurface soil below the depth of four (4) feet, FWS or its

successor or assign shall pay for all costs associated with the clearance or removal of any OE or OE-related material discovered on the Transfer Parcel below the depth of four (4) feet. FWS further covenants on behalf of itself and its successors and assigns that it and its successors and assigns shall include in any deed or other conveyance document transferring any interest in any or all of the Transfer Parcel a restrictive covenant that identifies the use restriction and conditions set forth in this Subsection C.6. It is the intention of the FWS and the Army that this use restriction shall run with the land comprising the Transfer Parcel.

b. The Army covenants to FWS and its successors and assigns that the Army shall provide OE safety assistance at no cost to FWS and its successor or assign, including the clearance or removal of any OE or OE-related material discovered on the Transfer Parcel in the course of non-construction activities, including but not limited to landscaping, routine repair and maintenance, security surveys, and other activities not involving the disturbance or disruption of the subsurface soil on the Transfer Parcel below the depth of four (4) feet. The Army also covenants to FWS and its successors and assigns that it shall be responsible for the investigation and clearance or removal of all chemical munitions and all OE refuse sites found on the Transfer Parcel. An OE refuse site is defined as a site where military munitions have been collected and disposed of by burial and there are ten (10) or more munitions in a cubic yard. FWS covenants on behalf of itself and its successors and assigns that it and its successors and assigns shall include notice of these covenants by the Army in any deed or other conveyance document transferring any interest in any or all of the Transfer Parcel.

7. The Army has completed an Environmental Baseline Study (EBS) dated 27 January 1997 which characterized the environmental condition of the property. The Army has also completed an Environmental Condition of Property (ECOP) of the Transfer Parcel dated 8 August 2000. The ECOP summarizes what is known about the environmental condition of the Transfer Parcel and reflects the Army's position that the Transfer Parcel is suitable for transfer under the CERFA as a Category 1.3.4.5.& 7 parcel. The Army has complete asbestos and residual Unexploded Ordnance (UXO) cleanup work on the Transfer Parcel identified in the EBS. The Army will provide the FWS with a copy of the EBS and final ECOP.

8. The FWS covenants on behalf of itself and its successors and assigns that, except as provided herein, post-closure use of that portion of the Transfer Parcel that is within the boundaries of Area of Contamination (AOC) A7 (the Old Gravel Pit Landfill) shall not disturb either the integrity of the final covers, liners or any other components of the containment system(s) or the function of the monitoring system(s) in place at that AOC on the Date of Transfer or constructed at that AOC after the Date of Transfer. Post-closure activities prohibited under this Section C.8 shall include but not be limited to:

a. Surface application of water that could affect the effectiveness of the containment system(s) in preventing infiltration and directing runoff away from landfilled materials, or impact the migration of any contaminated groundwater underlying that portion of the Transfer Parcel that is within the boundaries of AOC A7;

b. Extraction, consumption, exposure or utilization of groundwater underlying that portion of the Transfer Parcel that is within the boundaries of AOC A7, except for the limited purpose of treating and monitoring groundwater contamination levels in accordance with plans approved by EPA and/or MADEP and issued by the Army, unless the Army determines that such extraction, consumption, exposure or utilization will not have any adverse impacts on any Response Action or Remedy at the Sudbury Training Annex NPL site;

c. Any disturbance of the surface or subsurface of that portion of the Transfer Parcel that is within the boundaries of AOC A7 in any manner, including but not limited to construction, filling, drilling, excavation or change of topography within AOC A7, that might interfere with, negatively impact, or restrict access for any ongoing Response Action within AOC A7 at the Sudbury Training Annex NPL site;

d. Any disturbance of the surface or subsurface of that portion of the Transfer Parcel that is within the boundaries of AOC A7 in any manner, including but not limited to construction, filling, drilling, excavation or change of topography within AOC A7, that might interfere with, negatively impact, or jeopardize the protectiveness of any Remedy within AOC A7 at the Sudbury Training Annex NPL site; and

e. Any activity within AOC A7 that will result in disturbance of the mobilization and/or transport of any hazardous substance, hazardous waste, petroleum product or derivative or any other contaminant existing on or emanating from that portion of the Transfer Parcel that is within the boundaries of AOC A7 on the Date of Transfer.

f. If the FWS or any of its successors or assigns proposes an activity that may disturb either the integrity of the final covers, liners or any other components of the containment system(s) or the function of the monitoring system(s) at AOC A7, FWS or such successor or assign shall not undertake such activity unless it first obtains written approval from the Army and EPA. The Army and EPA shall have the discretion to approve a disturbance of the final cover, liners or other component of the containment system(s), including any removal of waste, if FWS or such successor or assign demonstrates that such disturbance will not increase the potential threat to human health or the environment. Any investigation, remediation, or disposal of hazardous or other waste arising out of a disturbance of the final covers, liners or other component of the containment system(s) at AOC A7 by FWS or such successor or assign shall be the sole responsibility of FWS or such successor or assign. Any request for approval as described above shall be made in writing and delivered to the Army and the Administrator of EPA Region 1.

g. FWS also covenants that it and its successors and assigns shall include in any deed or other conveyance document transferring any interest in any of that portion of the Transfer Parcel that is within the boundaries of AOC A7 a restrictive covenant that runs with the land and identifies all the use restrictions and conditions set forth in this Subsection C.8 to all successors to any interest in any or all of the Transfer Parcel.

9. The Army has completed a Record of Environmental Consideration (REC) dated 16 January 1997 for this property transfer and the FWS acknowledges receipt of a copy of that REC.

10. To the extent not inconsistent with the Army's continuing obligations with respect to environmental remediation, as provided for in Section C of this MOA, the Transfer Parcel, including all buildings, structures and other improvements, are transferred without any representation, warranty, or guaranty by the Army as to quality, character, condition, size, kind, or that the same is in condition or fit to be used for the purpose the FWS intends.

11. The Transfer Parcel may include buildings and structures with asbestos containing materials (ACM), lead-based paint and small electrical fixtures with Polychlorinated Biphenyl (PCB). To the extent available, information regarding ACM lead-based paint and PCBs on the property is contained in the EBS. Details of the information gathering process regarding these issues are contained in the EBS. After the Date of Transfer, the FWS will be responsible for any and all remediation of any remaining ACM, lead-based paint and PCB containing electrical fixtures located within structures on the Transfer Parcel.

12. Lands to be transferred to the FWS have been partially surveyed for historic properties. A number of the archeological sites found by these surveys may be eligible for the National Register of Historic Places. As a federal agency, with the responsibility to comply with all federal laws and regulations that govern the treatment of cultural resources, it will be the responsibility of the FWS to complete any necessary historic property inventories for lands it is to receive from the Army and to take into account the effects of its undertakings on historic properties discovered there.

D. ARMY SPECIFIC RESPONSIBILITIES

Designate an installation program manager who will be the primary point of contact between the FWS and the Army.

E. FWS SPECIFIC RESPONSIBILITIES

1. Designate an individual who will be the primary point of contact between the Army and the FWS.

2. Allow Army access to the Transfer Parcel for completion of any remedial environmental work described in Section C.

F. NOTIFICATION REQUIREMENTS Any notices to be given pursuant to this MOA shall be addressed to:

U.S. Army: Commander, Devens Reserve Forces Training Area
31 Quebec Street
Devens, MA 01432-4424

U.S. Fish & Wildlife Service:
Refuge Manager
Assabet River National Wildlife Refuge
Weir Hill Road
Sudbury, MA 01776

G. MODIFICATIONS OR AMENDMENTS

1. This MOA may be modified, amended or terminated by the mutual agreement of both parties, in writing, and signed by a duly authorized representative of the FWS and the Army.

The duly authorized representative of the Army is Mr. Paul W. Johnson, Deputy Assistant Secretary of the Army (Installations and Housing).

The duly authorized representative of the FWS is Regional Director ~~FWS Region 5~~, or his/her designee.

2. This MOA will be reviewed by both parties prior to the beginning of each fiscal year. The MOA will remain in effect unless both parties determine modification or termination is necessary.

3. Both parties to the MOA are required to provide notice to EPA and MDEP of any modifications or amendments to the MOA.

IN WITNESS WHEREOF, each of the parties has executed this MOA effective on the date last signed, the 28th day of September 2000.

DEPARTMENT OF THE ARMY

Paul W. Johnson
Deputy Assistant Secretary of the Army
(Installations and Housing)

County/City of Arlington
Commonwealth/State of Virginia
The foregoing instrument was subscribed and sworn before me this 28th day of Sept 2000 by Paul W. Johnson

DEPARTMENT OF THE INTERIOR

Dr. Mamie A. Parker
Acting Regional Director
U.S. Fish and Wildlife Service, Region 5

Notary Public
My commission expires

TRANSFER AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE DEPARTMENT OF THE AIR FORCE
FOR
A PORTION OF THE FORMER FORT DEVENS, MASSACHUSETTS

The Secretary of the Army ("Army"), acting through Joseph W. Whitaker, Deputy Assistant Secretary of the Army (Installations and Housing), does hereby transfer to the Department of the Air Force ("Air Force"), jurisdiction, custody, and control of approximately 4.148 acres, more or less, including all facilities thereupon, of the former Fort Devens, Massachusetts, Sudbury Training Annex, more specifically described in Exhibit A to this Transfer Agreement (hereinafter called the "Property"), and the interests, rights, easements, and appurtenances, as described and set forth herein, subject to the following terms and conditions:

Article 1 - Authority: This transfer of the Property is made in accordance with Public Law 101-510, section 2905(b)(2)(C), as amended. This transfer is without cost to either the Army or the Air Force. This transfer is also detailed on Department of Defense Form 1354, Exhibit B to this Transfer Agreement, of even date with this Transfer Agreement.

Article 2 – Environment:

2.1 Both the Army and the Air Force acknowledge that the Property was a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, and such property was de-listed on January 29, 2002. The Army has provided the Air Force with a copy of the Sudbury Training Annex Federal Facilities Agreement (FFA) entered into by the United States Environmental Protection Agency Region 1 and the Army on 13 May 1991, and made effective on 15 November 1991, and the Air Force acknowledges receipt of a copy of that FFA. The Army agrees to provide the Air Force with any future amendments to the original FFA. The Air Force agrees to take no action on the Property inconsistent with the terms of the FFA. The environmental remediation of the contaminated portions of the Property has been undertaken by the Army in accordance with the FFA and in cooperation with the Massachusetts Department of Environmental Protection. Except in

regard to property disposal, the Army and the Air Force agree that should a conflict arise between the terms of the FFA as it presently exists or may be amended and the provisions of this Transfer Agreement, the terms of the FFA will take precedence over the provisions of this Transfer Agreement. The Army will inform the Air Force of any such conflicts affecting the Air Force's use of the Property. The Army reserves the right to access the Property, as it deems necessary, to fulfill its responsibilities under the FFA and this Transfer Agreement.

2.2 The Air Force does not assume any of the U.S. Government's liability or responsibility for contamination caused by the Army's use, management, or release of hazardous substances, hazardous waste, or petroleum products on any portion of Fort Devens, the Sudbury Annex, or the Property. The Army does not assume any of the U.S. Government's liability or responsibility for contamination caused by the Air Force's use, management, or release of hazardous substances, hazardous waste, or petroleum products on any portion of the Property. The Army and the Air Force retain, respectively, any and all liability and responsibility for any release of hazardous substances, hazardous waste, or petroleum products on any portion of the Property resulting from its use or management of the Property prior to the effective date of this Transfer Agreement.

2.3 The Army has completed an Environmental Baseline Study (EBS), dated 27 January 1997, which characterized the environmental condition of the Property. The Army has also completed an Environmental Condition of Property (ECOP), dated 1 Feb 2001. The ECOP summarizes what is known about the environmental condition of the Property and reflects the Army's position that the Property is suitable for transfer under the Community Environmental Response Facilitation Act as a Category 4 parcel. The Air Force acknowledges receipt of the EBS and the ECOP.

2.4 The Army has completed a Record of Environmental Consideration (REC), dated 16 January 1997, for this transfer and the Air Force acknowledges receipt of the REC.

2.5 The Property has been partially inventoried for historic properties. Known archeological sites are present on the Property. The Air Force will be responsible for completion of any outstanding historic property inventories for the Property and to take into account the effects of its undertakings on historic properties.

2.6 To the extent not inconsistent with the Army's continuing obligations with respect to environmental remediation, the Property, including all buildings, structures, and other improvements, are transferred without any representation, warranty, or guarantee by the Army as to quality, character, condition, size, kind, or that the same is in condition or fit to be used for the purpose(s) intended by the Air Force.

2.7 The Property may include buildings and structures with asbestos containing materials (ACM), lead-based paint, and PCBs. To the extent available, information regarding ACM, lead-based paint, and PCBs on the property is contained in the EBS. Details of the information gathering process regarding these issues are contained in the EBS. After the effective date of this Transfer Agreement, the Air Force will be responsible for any and all remediation of any remaining ACM, lead based paint, and PCBs on the Property.

Article 3 - Possession and Accountability: Full administrative jurisdiction and control

for the Property will shift from the Army to the Air Force as of the date of this Transfer Agreement (its effective date)

Article 4 - Other Terms and Conditions of Transfer:

4.1 No provisions of this agreement shall be interpreted or applied so as to obligate the Army or the Air Force in excess or advance of appropriations or otherwise so as to result in a violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

4.2 The Air Force will be permitted to use all existing roadways for ingress and egress to the property in accordance with the ingress/egress easement reserved for the Air Force in the transfer of the property by the Army to U.S. Fish and Wildlife Service (USFWS). The same ingress and egress easements are provided in the legal description of the Property at Exhibit A to this Transfer Agreement.

4.3 The Air Force shall continue to reimburse the Army for utilities until the effective date of this Transfer Agreement. After the transfer, the Air Force shall make its own arrangements for the payment of utilities to the utility providers.

4.4 The Army will not be responsible to provide any services for operation, maintenance, and care of the roadways within and outside the Property or leading to the Property. This includes snow removal, cleaning, maintenance, and repair of the roadways. Since the Army will no longer own the Property, the Air Force will make arrangements with the USFWS for access to the Property as necessary. The Air Force will be responsible for the security, safety, and protection of the Property.

4.5 This Transfer Agreement may be modified or amended by the mutual agreement of both parties in writing and signed by a duly authorized representative of the Army and the Air Force. The duly authorized representative of the Army for this purpose is the Deputy Assistant Secretary of the Army (Installations and Housing) or his/her designee. The duly authorized representative of the Air Force for this purpose is the Deputy Assistant Secretary of the Air Force (Installations) or his/her designee.

Article 5 – Notice:

Any notices to be given pursuant to this Transfer Agreement shall be addressed to—

For the Army:
Commander, Devens Reserve Forces Training Area
31 Quebec Street
Devens, MA 01432-4424

For the Air Force:
Air Force Real Estate Agency
ATTN: AFREA/DR, Mr. Jon Peterson
112 Luke Ave, Room 104
Bolling Air Force Base, D.C. 20332-8020

or such other address as the parties may, from time to time, direct.

NOW THEREFORE, in consideration of the foregoing, the Army and the Air Force enter into this Transfer Agreement this 3rd day of June, 2002.

FOR THE DEPARTMENT OF THE ARMY

By: ______________________ Date: 3 JUN 2002

Joseph W. Whitaker
Deputy Assistant Secretary of the Army
(Installations and Housing)
OASA(I&E)

FOR THE DEPARTMENT OF THE AIR FORCE

By: ______________________ Date: 5 JUN 2002

Fred W. Kuhn
Deputy Assistant Secretary of the Air Force
(Installations)

Exhibits:

A – Legal Description
B – DD Form 1354

County/City of Arlington
Commonwealth/State of Virginia
The foregoing instrument was subscribed and sworn before me this 5th day of June, 2002 by Fred W. Kuhn
Notary Public
My commission expires: May 31, 2002

COMMONWEALTH OF VIRGINIA)

COUNTY OF ARLINGTON)

I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose Commission as such expires on the 30th day of November, 2002, do hereby certify that this day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, whose name is signed to the foregoing document and acknowledged this document is his free act and deed, dated this 3rd day of June, 2002.

Karen R. Cooper

NOTARY PUBLIC

MODIFICATION TO MEMORANDUM OF AGREEMENT
BETWEEN THE DEPARTMENT OF THE ARMY
AND
THE FEDERAL EMERGENCY MANAGEMENT AGENCY
FOR THE TRANSFER OF REAL PROPERTY
AT THE SUDBURY TRAINING ANNEX, MASSACHUSETTS

WHEREAS, the Department of the Army (hereinafter "Army"), and the Federal Emergency Management Agency (hereinafter "FEMA"), entered into a Memorandum of Agreement (hereinafter "MOA") dated March 31, 2003 for the transfer of real property at the Sudbury Training Annex, Massachusetts from Army to FEMA; and

WHEREAS, Army and FEMA desire to amend the MOA with respect to certain provisions relating to the property's environmental conditions and compliance responsibilities of the parties.

NOW, THEREFORE, Army and FEMA agree that the MOA is hereby amended as follows:

2. The following text is substituted for the texts of the introductory statement of paragraph 7 and subparagraph 7.a of Section D, ENVIRONMENTAL CONDITION AND COMPLIANCE RESPONSIBILITES:

7. FEMA acknowledges that arsenic-based herbicides were applied in the vicinity of the fence-line along Patrol Road and on the former railroad beds on the northern and southern portions of the Sudbury Annex, and that the Army has concluded, after completing a facility-wide investigation, that the resulting concentrations of arsenic in the soil do not pose an unacceptable risk to human health or the environment based on the future land use of the FEMA Parcel for operations (offices, a communication center, storage space and communication antennas) and training (in establishing mobile communications centers in the field).

a. In order to protect human health and the environment and further the common environmental objectives and land use plans of the United States and Massachusetts, a use restriction is needed to assure the future use of the property is consistent with the potential soil arsenic environmental condition of the Parcel. This restriction benefits the United States and the public welfare generally and is consistent with state and federal environmental statutes.

I. FEMA covenants on behalf of itself and its successors and assigns that no portion of the FEMA Parcel shall be used for either residential habitation or for any

extended use by children under six (6) years of age (including child care or recreation facilities), the FEMA Parcel having been remediated only for general business office operations and training purposes. (Extended use is defined as more than the exposure time of 38 days per year used in the risk assessment for children ages 1-6). FEMA, for itself, its successors or assigns covenants that it will not undertake nor allow any activity on or use of the property that would violate the restriction contained herein. This restriction and covenant is intended to be binding on FEMA, its successors and assigns; shall run with the land; and are forever enforceable. Nothing contained herein shall preclude FEMA, its successors and assigns, from undertaking, in accordance with applicable laws and regulations and without any cost to the Army, such additional remediation of arsenic in soil necessary to allow for residential or extended use of the Parcel. Upon completion of such remediation required to allow for residential or expanded use of the Parcel and if the then-owner of the FEMA Parcel can demonstrate to EPA that such use is consistent with the protection of human health and the environment, the United States agrees, without cost, to release or, if appropriate, modify this restriction by an amendment hereto or recordation of an amendment to the deed if transferred from Federal ownership.

ii. The restriction and conditions stated above benefit the public in general and the territory surrounding the FEMA Parcel, including lands retained by the United States, and, therefore, are enforceable by the United States government and EPA. FEMA covenants for itself, its successors, and assigns that it shall include and otherwise make legally binding, the above use restrictions in all subsequent lease, transfer or conveyance documents relating to the Parcel subject hereto. Any successor, assignee, grantee, transferee, lender, employer, agent, lessee or sublessee of FEMA, or any other third party, shall be liable for any costs that result from its violation of this restriction. It is the intention of Army and FEMA that this use restriction shall run with the land comprising the Parcel.

The MOA is amended only as set forth above. All other provisions of the agreement remain in full force and effect.

IN WITNESS WHEREOF, each of the parties has executed this agreement effective on the date of last signature below.

DEPARTMENT OF THE ARMY

JOSEPH W. WHITAKER
Deputy Assistant Secretary of the Army
(Installations and Housing) OASA (I&E)

Date: 30 July 2003

FEDERAL EMERGENCY MANAGEMENT AGENCY

MICHAEL D. BROWN
Under Secretary
Emergency Preparedness & Response
Department of Homeland Security,
on behalf of the Federal Emergency Management Agency

Date: JUL 29 2003

CMMONWEALTH OF VIRGINIA)

COUNTY OF ARLINGTON)

I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose Commission as such expires on the 30th day of November, 2006, do hereby certify that this day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, whose name is signed to the foregoing document and acknowledged this document is his free act and deed, dated this 3rd day of July, 2003.

Vera A. Cooper

NOTARY PUBLIC

COUNTY OF FAIRFAX
COMMONWEALTH OF VIRGINIA

Sworn and subscribed to before me by Michael D. Brown, who is to me well known, this 29th day of July, 2003.

Notary Public

My Commission Expires 5/31/05

My Commission Expires:

LETTER OF TRANSFER
FOR
A PORTION OF THE FORMER FORT DEVENS, MASSACHUSETTS
TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY

FROM: The Department of the Army

TO: The Federal Emergency Management Agency

For the Department of the Army ("Army"), I, Joseph W. Whitaker, Deputy Assistant Secretary of the Army (Installations and Housing), do hereby transfer to the Federal Emergency Management Agency ("FEMA"), jurisdiction, custody, and control of approximately 71.525 acres, more or less, of the former Fort Devens, Massachusetts, Sudbury Training Annex, more specifically described in Exhibit A to this Letter of Transfer (hereinafter called the "Property"), and the interests, rights, leases, easements, and appurtenances, as described and set forth herein and the applicable sections of the Memorandum of Agreement ("MOA") between the parties, dated 3-31-, 2003, attached hereto at Exhibit B to this Letter of Transfer, to be used, operated, maintained, and funded by the FEMA, except as required to be funded by the Army by law or agreement.

Article 1 - Authority: This transfer of the Property is made in accordance with the authority delegated to the Secretary of the Army under the Defense Base Closure and Realignment Act of 1990, Public Law 101-510, 10 U.S.C. 2687, as amended.

Article 2 – Consideration: In accordance with 10 USC § 2687, 16 USC § 667b, and 40 USC §§ 471-531, this transfer of the Property is made without monetary reimbursement from the FEMA.

Article 3 - Possession and Accountability: Full administrative jurisdiction and control for the Property will shift from the Army to the FEMA as of the date of the acceptance of this Letter of Transfer by the FEMA.

Article 4 - Other Terms and Conditions of Transfer: The MOA between the parties, which is hereby incorporated by reference, sets out the general terms and conditions of this transfer, which shall be binding on the parties.

NOW THEREFORE, in consideration of the foregoing, I hereby approve and deliver this Letter of Transfer and cause jurisdiction, custody, and control of the Property described herein to be transferred to the FEMA, effective upon the date of acceptance, as recorded below.

Dated this 21st day of March, ~~2002~~ 2003.

DEPARTMENT OF THE ARMY

By: _____
Joseph W. Whitaker
Deputy Assistant Secretary of the Army
(Installations and Housing)
OASA(I&E)

Accepted:

The Federal Emergency Management Agency hereby accepts this transfer in accordance with the terms provided for herein:

FEDERAL EMERGENCY MANAGEMENT AGENCY

Date: 3-31-03 By: _____
Michael D. Brown

Its: Acting Under Secretary, Emergency Preparedness & Response Department of Homeland Security, on behalf of the Federal Emergency Management Agency

Exhibits:

A – Property Description
B – Memorandum of Agreement
C – DD Form 1354

COMMONWEALTH OF VIRGINIA)

COUNTY OF ARLINGTON)

I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose Commission as such expires on the 30th day of November, 2006, do hereby certify that this day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, whose name is signed to the foregoing document and acknowledged this document is his free act and deed, dated this 21st day of March, 2003.

Karen A. Cooper
NOTARY PUBLIC

THE DISTRICT OF COLUMBIA

Subscribed and sworn to before me by Michael D. Brown, who is to me well known, this 31st day of March, 2003.

Andrea Williams

ANDREA WILLIAMS
Notary Public, District of Columbia
My Commission Expires May 14, 2006

LEGAL DESCRIPTION AND EASEMENT
FOR FEDERAL EMERGENCY MANAGEMENT 71.525 ACRES
SUDBURY TRAINING ANNEX

MIDDLESEX COUNTY, COMMONWEALTH OF MASSACHUSETTS

The hereinafter described tracts of land are located in the Commonwealth of Massachusetts, Middlesex County, Towns of Maynard, Sudbury, and Stow, situate generally westerly of Cutting Pond, generally northerly of Willis Pond and Hudson Road and generally southeasterly of lands formerly of the Boston and Maine Corporation, being a portion of Fort Devens, Sudbury Training Annex, and being more particularly bounded and described as follows:

All bearings in the following description are referenced to grid north, Massachusetts State Plane Coordinate System (NAD 1983 Mainland Zone).

FEMA PARCEL I

BEGINNING at Corner 10373 on the northwesterly boundary of Old Marlborough Road from which Corner 69 of the Sudbury Training Annex Transfer Tract (1) bears N 41° 36′ 04″ E, 46.18 feet;

thence from Corner 10373 through the lands now or formerly of Fort Devens, Sudbury Training Annex, partially along the northeasterly boundary of a 50 foot wide access easement the following eight (8) courses:

1) N 49° 59′ 03″ W, 85.72 feet to Corner 6918;

2) thence N 49° 49′ 36″ W, 102.66 feet to Corner 10320;

3) thence N 68° 10′ 29″ W, 118.68 feet to Corner 10319;

4) thence N 73° 00′ 09″ W, 58.97 feet to Corner 10374, a standard USF&WS aluminum monument, set and marked "COR 10374 1998";

5) thence N 08° 46′ 06″ W, 698.95 feet continuing through said lands to Corner 10389;

6) thence N 08° 46′ 06″ W, 618.34 feet to Corner 10390, a standard USF&WS aluminum monument, set and marked "COR 10390 1998";

7) thence N 66° 02′ 58″ E, 393.72 feet to Corner 10391, a standard USF&WS aluminum monument, set and marked "COR 10391 1998"; and

8) thence N 57° 49′ 26″ W, 134.63 feet to Corner 52, a drill hole in a stone wall found as a witness at its point of intersection with the common division line between the lands of the United States of America on the southwest and the lands now or formerly of Mark I.

and Amy L. Toporoff as described in Book 23591 of Deeds at Page 216, lands now or formerly of Robert and Kerri J. Gorgon as described in Book 23903 of Deeds at Page 483, lands now or formerly of David W. Moss, III and Sharon Moss as described in Book 23603 of Deeds at Page 512, lands now or formerly of Rezaul K. and Fatema A. Khandker as described in Book 22765 of Deeds at Page 484, lands now or formerly of Paula A. and Richard C. Waterhouse as described in Book 24276 at Page 503 and lands now or formerly of James H. and Katherine A. McNulty as described in Book 20368 of Deeds at Page 266 on the northeast with the common division line between the lands of the United States of America on the south and the lands now or formerly of James A. and Mary W. Bulger as described in Book 25602 of Deeds at Page 459 and lands now or formerly of William T. and Linda M. Nachtrab as described in Book 19602 of Deeds at Page 381 on the north;

thence N 82° 36' 44" E, along the above last mentioned common division line, 200.12 feet to Corner 53, a standard USF&WS aluminum monument, set and marked "COR 53, 1996" at its point of intersection with the common division line between the lands of the United States of America on the west and the lands now or formerly of David M. and Sandra R. Manshel as described in Book 20030 of Deeds at Page 567, lands now or formerly of David L. and Christina M. Brooks as described in Book 23502 of Deeds at Page 91, the westerly terminus of Vose Hill Road and lands now or formerly of George E. and Mary Weber Saylor as described in Book 16484 of Deeds at Page 376 on the east;

thence along the above last mentioned common division line the following two (2) courses:

1) thence S 00° 15' 30" E, 254.63 feet to Corner 54, a standard USF&WS aluminum monument, set and marked "COR 54, 1996" and

2) thence S 21° 41' 53" W, 50.58 feet to Corner 55 from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "55", bears N 52° 46' 11" E, 9.69 feet at its point of intersection with the common division line between the lands of the United States of America on the south and the lands now or formerly of said George E. and Mary Weber Saylor as described in Book 16484 of Deeds at Page 376, lands now or formerly of James P. and Mary S. Brannelly as described in Book 19138 of Deeds at Page 349, lands now or formerly of James E. and Anita M. Clemens as described in Book 19171 of Deeds at Page 329 and lands now or formerly of Scott A. and Susan F. Bradley as described on Book 19111 of Deeds at Page 290 on the north;

thence along the last mentioned common division line the following four (4) courses:

1) thence from Corner 55 N 83° 50' 30" E, 216.63 feet to Corner 56, from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "56", bears N 07° 00' 41" W, 5.00 feet;

2) thence from Corner 56, N 82° 08' 09" E, 38.21 feet to Corner 57 from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "57", bears N 05° 58' 21" W, 5.00 feet;

3) thence from Corner 57, N 85° 55' 10" E, 54.20 feet to Corner 58 from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "58", bears N 05° 24' 01" W, 5.00 feet; and

4) thence from Corner 58, N 83° 16' 49" E, 161.08 feet to Corner 59 from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "59", bears N 44° 52' 56" E, 8.05 feet at its point of intersection with the common division line between the lands of United States of America on the west and lands now or formerly of Robert D. Quirk as described in Book 19670 of Deeds at Page 452, lands now or formerly of David A. and Margaret N. Purdy as described in Book 24564 of Deeds at Page 224, lands now or formerly of Dawson Heights Realty Trust, Thomas J. Sheridan, Trustee as described in Book 24569 of Deeds at Page 177, lands now or formerly of John Paul Loretta as described in Book 12585 of Deeds at Page 70, lands now or formerly of Thomas L. Coin, Jr. and Francoise Coin as described in Book 25025 of Deeds at Page 391, lands now or formerly of John P. O'Dowd and Christy H. Hill as described in Book 25025 of Deeds at Page 391 and lands now or formerly of John R. Allan as described in Book 14628 of Deeds at Page 98 on the east;

thence from Corner 59 and running along the above last mentioned common division line the following eight (8) courses:

1) S 06° 29' 04" W, 80.12 feet to Corner 60, from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "60", bears S 82° 58' 17" E, 5.00 feet;

2) thence from Corner 60, S 07° 34' 22" W, 173.61 feet to Corner 61, from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "61", bears S 82° 18' 26" E, 5.00 feet;

3) thence from Corner 61, S 07° 48' 47" W, 82.69 feet to Corner 62, a drill hole in an existing stone wall found as a witness;

4) thence S 07° 40' 47" W, 95.22 feet to Corner 63, a drill hole in an existing stone wall found as a witness;

5) thence S 08° 11' 25" W, 56.92 feet to Corner 64 from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "64", bears S 82° 25' 15" E, 5.00 feet;

6) thence from Corner 64, S 06° 58' 04" W, 125.86 feet to Corner 65, a drill hole in an existing stone wall found as a witness;

7) thence S 08° 14' 58" W, 53.43 feet to Corner 66, a drill hole in an existing stone wall found as a witness; and

8) thence S 07° 10' 05" W, 266.34 feet to Corner 67, from which a standard Army Corp. of Engineers aluminum monument found as a witness and marked "67" at its point of intersection with the northwesterly boundary of Old Marlborough Road;

thence along the said northwesterly road boundary the following two (2) courses:

1) S 40° 46' 34" W, 589.17 feet to Corner 68, a standard Army Corp. of Engineers aluminum monument found as a witness and marked "68"; and

2) thence S 41° 36' 04" W, 158.93 feet to the point or place of beginning and containing 29.697 acres of land more or less.

FEMA PARCEL II

COMMENCING at Corner 69, a standard USF&WS aluminum monument, set and marked "COR 69 1996" on the outside boundary of the Fort Devens, Sudbury Training Annex, at its point of intersection of the northwesterly road boundary of Old Marlborough Road with the southwesterly road boundary of Puffer Road and thence from point of commencement through the lands of the United States of America, Fort Devens, Sudbury Training Annex, N 81° 53' 30" W, 30.65 feet to Corner 10323 and being the true point of beginning of the hereinafter described FEMA Parcel II, from which a standard USF&WS aluminum monument, set as a witness and marked "COR 10340 1998" bears N 84° 21' 53" E, 10.12;

thence from Corner 10323 through the lands now or formerly of Fort Devens, Sudbury Training Annex, along the northwesterly boundary of a fifty (50) foot wide access and utility easement, the following seven (7) courses:

1) S 27° 15' 03" W, 51.18 feet to Corner 10324;

2) thence S 54° 06' 04" W, 120.13 feet to Corner 10307;

3) thence S 55° 24' 01" W, 186.06 feet to Corner 10306;

4) thence S 58° 10' 33" W, 186.50 feet to Corner 10305;

5) thence S 59° 32' 41" W, 273.06 feet to Corner 10304;

6) thence S 58° 52' 35" W, 228.40 feet to Corner 10303; and

7) thence S 55° 08' 51" W, 105.69 feet to Corner 10341, a standard USF&WS aluminum monument, set and marked "COR, 10341, 1998";

thence continuing through the lands now or formerly of Fort Devens, Sudbury Training Annex the following nine (9) courses:

1) N 29° 21' 42" E, 203. 66 feet to Corner 10339;

2) thence N 28° 07' 27" E, 126.79 feet to Corner 10348, a standard USF&WS aluminum monument, set and marked "COR 10348 1998";

3) thence N 17° 00' 52" E, 190.36 feet to Corner 10349, a standard USF&WS aluminum monument, set and marked "COR 10349 1998";

4) thence N 52° 09' 09" E, 38.60 feet to Corner 10350;

5) thence N 61° 32' 00" E, 203.82 feet to Corner 10351, a standard USF&WS aluminum monument, set and marked "COR 10351 1998";

6) thence N 58° 17' 22" E, 252.00 feet to Corner 10352;

7) thence N 44° 05' 33" E, 37.71 feet to Corner 10353;

8) thence N 25° 12' 40" E, 38.15 feet to Corner 10354; and

9) thence N 08° 16' 30" E, 16.28 feet to Corner 10338, a standard USF&WS aluminum monument, set and marked "COR 10338 1998" on the southerly boundary of a fifty (50) foot wide access easement;

thence continuing through the lands now or formerly of Fort Devens, Sudbury Training Annex, along the southerly and southwesterly boundary of a fifty (50) foot wide access easement the following five (5) courses:

1) S 73° 00' 09" E, 58.45 feet to Corner 10318;

2) thence S 68° 10' 29" E, 108.49 feet to Corner 10321;

3) thence S 49° 49' 41" E, 94.54 feet to Corner 10322;

4) thence S 44° 14' 00" E, 38.56 feet to Corner 10355; and

5) thence S 27° 13' 32" E, 21.97 feet to Corner 10323 the point or place of beginning and containing 5.650 acres of land more or less.

FEMA PARCEL III

COMMENCING at Corner 69, a standard USF&WS aluminum monument, set and marked "COR, 69 1996" on the outside boundary of the Fort Devens, Sudbury Training Annex, at its point of intersection with the northwesterly of boundary of Old Marlborough Road with the southwesterly boundary of Puffer road and thence from said point of commencement through the lands of the United States of America, Fort Devens, Sudbury Training Annex, S 22° 27' 02" W, 98.76 feet to Corner 10336, a

standard USF&WS aluminum monument, set and marked "COR 10336 1998" and being the true point of beginning of the hereinafter described FEMA Parcel III;

thence from Corner 10336 through the lands now or formerly of Fort Devens, Sudbury Training Annex, parallel to and distant 25 feet westerly measured at right angles from the center line of wood road the following five (5) courses:

1) S 07° 31' 32" E, 15.28 feet to Corner 10329;

2) thence S 00° 43' 53" W, 99.78 feet to Corner 10328;

3) thence S 07° 05' 45" W, 123.32 feet to Corner 10327;

4) thence S 11° 39' 35" W, 143.86 feet to Corner 10326; and

5) thence S 08° 39' 14" W, 20.28 feet to Corner 10347, at its point of intersection with an existing stonewall, a standard USF&WS aluminum monument set and marked "COR 10347 1998";

thence through the lands now or formerly of Fort Devens, Sudbury Training Annex, partially along an existing stonewall the following seven (7) courses:

1) S 65° 23' 27" W, 263.36 feet to Corner 6988;

2) thence S 64° 09' 03" W, 325.98 feet to Corner 6979;

3) thence S 64° 37' 31" W, 289.54 feet to Corner 10345, a standard USF&WS aluminum monument set and marked "COR 10345 1998";

4) thence S 72° 02' 01" W, 83.92 feet to Corner 10344, a standard USF&WS aluminum monument set and marked "COR 10344 1998";

5) thence N 59° 08' 45" W, 112.79 feet to Corner 10343, a standard USF&WS aluminum monument set and marked "COR 10343 1998";

6) thence N 46° 49' 50" W, 49.73 feet to Corner 10342, a standard USF&WS aluminum monument set an marked "COR 10342 1998"; and

7) thence N 46° 49' 50" W, 2.00 feet to Corner 10363, marked by a cross cut in a rock on the southeasterly boundary of a 50 foot wide access and utility easement;

thence continuing through the lands now or formerly of Fort Devens, Sudbury Training Annex, along the southeasterly boundary of said 50 foot wide access and utility easement the following eight (8) courses:

1) N 42° 51' 58" E, 53.12 feet to Corner 10314;

2) thence N 49° 02' 48" E, 95.13 feet to Corner 10313;

3) thence N 55° 08' 51" E, 144.76 feet to Corner 10312;

4) thence N 58° 52' 35" E, 226.48 feet to Corner 10311;

5) thence N 59° 32' 41" E, 273.37 feet to Corner 10310;

6) thence N 58° 10' 33" E, 188.31 feet to Corner 10309;

7) thence N 55° 24' 01" E, 187.84 feet to Corner 10308; and

8) thence N 54° 06' 04" E, 104.32 feet to the point or place of beginning and containing 6.436 acres of land, more or less.

FEMA PARCEL IV

COMMENCING at Corner 10373 on the northwesterly boundary of Old Marlborough road from which Corner 69 of the Sudbury Training Annex Transfer Tract (I) bears N 41° 36' 04" E, 46.18 feet;

thence from said point of commencement from Corner 10373 along the southwesterly and southerly boundary of herein described FEMA Parcel I the following four (4) courses:

1) N 49° 59' 03" W, 85.72 feet to Corner 6918;

2) thence N 49° 49' 36" W, 102.66 feet to Corner 10320;

3) thence N 68° 10' 29" W, 118.68 feet to Corner 10319; and

4) thence N 73° 00' 09" W, 58.97 feet to Corner 10374, a standard USF&WS aluminum monument, set and marked "COR 10374 1998", being the true point of beginning of beginning of the hereinafter described FEMA Parcel IV;

thence from Corner 10374 continuing through the lands of the Sudbury Training Annex Transfer Tract and along the northerly boundary of a 50 foot wide access easement the following seven (7) courses:

1) N 73° 00' 09" W, 43.97 feet to Corner 10317;

2) thence N 76° 59' 00" W, 105.28 feet to Corner 10366;

3) thence N 77° 31' 55" W, 161.21 feet to Corner 10367;

4) thence N 78° 02' 33" W, 213.86 feet to Corner 10368;

5) thence N 76° 49' 23" W, 103.23 feet to Corner 10369;

6) thence N 73° 03' 30" W, 271.67 feet to Corner 10380; and

7) thence N 66° 36' 11" W, 67.67 feet to Corner 10385, a standard USF&WS aluminum monument set and marked "COR 10385 1998";

thence continuing through the lands now or formerly of Fort Devens, Sudbury Training Annex the following two (2) courses:

1) N 23° 23' 49" E, 319.49 feet to Corner 10383, a standard USF&WS aluminum monument set and marked "COR 10383 1998"; and

2) thence S 80° 12' 41" E, 754.58 feet to Corner 10388, a standard USF&WS aluminum monument set and marked "COR 10388 1998" on the westerly boundary of FEMA Parcel I;

thence S 08° 46' 06" E, continuing through the lands now or formerly of Fort Devens, Sudbury Training Annex, along the westerly boundary of FEMA Parcel I a distance of 415.02 feet to Corner 10374 the point or place of beginning and containing 7.136 acres of land, more or less.

FEMA PARCEL V

BEGINNING at Corner 40 at its point of intersection with the division line between the lands of the United States of America on the Southeast and the lands now or formerly of Maynard Sand and Gravel as described in Book 10292 of Deeds of Page 154 on the northwest with the division line between the lands of the United States of America on the south and the lands now or formerly of Frances C. Denesivk and Elizabeth Schnair as described in Book 14873 of Deeds of Page 409 on the north, said Corner 40, being a standard Army Corp. of Engineers aluminum monument found as a witness and marked "40";

thence N 86° 51' 30" E, along the above last mentioned division line 590.00 feet to Corner 10375, marked by a standard USF&WS aluminum monument set and marked "COR 10375 1998";

thence from Corner 10375 through the lands now or formerly of Fort Devens, Sudbury Training Annex, the following five (5) courses:

1) S 00° 47' 35" E, 807.79 feet to Corner 10376, a standard USF&WS aluminum monument, set and marked "COR 10376 1998";

2) thence S 40° 33' 29" W, 164.05 feet to Corner 10378, a standard USF&WS aluminum monument, set and marked "COR 10378 1998";

thence S 45° 52' 09" W, 485.69 feet to Corner 10377, a standard USF&WS aluminum monument, set and marked "COR 10377 1998";

) thence S 89° 51' 57" W, 392.26 feet to Corner 10362, a standard USF&WS aluminum nonument set and marked "COR 10362 1998" and;

i) thence S 89° 51' 57" W, 9.89 feet to Corner 10292, said point being fifteen (15) feet easterly measured at right angles from the center line of a right-of-way from the "North Gate" through lands now or formerly of Fort Devons, Sudbury Training Annex, to the U. S. Air Force Parcel, said right-of-way known as White Pond Road;

thence continuing through the lands now and formerly of Fort Devons, Sudbury Training Annex, along the easterly boundary of said "Air Force" easement for ingress and egress, parallel to and distant 15 feet easterly measured at right angles from said easement center line, the following five (5) courses;

1) N 06° 52' 06" E, 218.97 feet to Corner 10293;

2) thence, N 10° 23' 47" W, 135.83 feet to Corner 10294;

3) thence N 22° 06' 13" W, 189.14 feet to Corner 10295;

4) thence N 12° 23' 16" W, 130.78 feet to Corner 10296; and

5) thence N 08° 18' 27" W, 237.65 feet to Corner 10297 at its point of intersection with the above first mentioned division line between the lands of the United States of America on the southeast and the lands now or formerly of Maynard Sand and Gravel on the northwest;

thence along the above first mentioned division line, the following two (2) courses:

1) N 45° 04' 31" E, 162.94 feet to Corner 39, a standard Army .Corp. of Engineers aluminum monument found as a witness and marked "39"; and

2) thence in a generally northeasterly direction along a curve to the right having a radius of 2,418.25 feet, a chord bearing of N 49° 21' 06 " E, and a chord distance of 360.66 feet and an arc length of 361.00 feet to Corner 40, and the true place of beginning containing 22.606 acres more or less.

TRACT 2M-1

Being a right-of-way from Old Marlborough Road to Puffer Pond, fifty (50) feet in width and being an easement for ingress, egress and utilities, the center line of which is more particularly bounded and described as follows:

BEGINNING at Corner 10397 from which Corner 69 of the Sudbury Training Annex Transfer Tract (1) bears N 46° 46' 29" W, 5.49 feet;

thence from Corner 10397 along the center line of said fifty (50) foot wide access and utility easement the following twenty-six (26) courses:

1) S 35° 46' 32" W, 68.16 feet to Corner 6899;

2) thence S 54° 06' 04" W, 124.44 feet to Corner 6896;

3) thence S 55° 24' 01" W, 186.95 feet to Corner 6891;

4) thence S 58° 10' 33" W, 187.40 to Corner 6887;

5) thence S 59° 32' 41" W, 273.21 feet to Corner 6873;

6) thence S 58° 52' 35" W, 227.44 feet to Corner 6868;

7) thence S 55° 08' 51" W, 146.91 feet to Corner 6864;

8) thence S 49° 02' 48" W, 97.81 feet to Corner 6862;

9) thence S 42° 51' 58" W, 54.47 feet to Corner 10398;

10) thence S 46° 43' 48" W, 96.61 feet to Corner 7026;

11) thence S 45° 50' 29" W, 124.34 feet to Corner 7028;

12) thence S 54° 03' 32" W, 168.16 feet to Corner 7029;

13) thence S 55° 06' 17" W, 167.75 feet to Corner 7024;

14) thence S 27° 40' 11" W, 120.78 feet to Corner 7021;

15) thence S 65° 44' 20" W, 16.06 feet to Corner 7019;

16) thence N 49° 33' 06" W, 147.64 feet to Corner 7015;

17) thence N 47° 57' 00" W, 66.22 feet to Corner 7014;

18) thence N 53° 56' 00" W, 140.12 feet to Corner 7012;

19) thence N 48° 38' 43" W 57.04 feet to Corner 6808;

20) thence S 88° 14' 52" W 33.10 feet to Corner 7009;

21) thence S 77° 26' 54" W, 24.10 feet to Corner 7008;

22) thence S 66° 52′ 42″ W, 25.34 feet to Corner 7007;

23) thence S 60° 10′ 28″ W, 26.86 feet to Corner 7005;

24) thence N 60° 00′ 26″ W, 32.40 feet to Corner 7004;

25) thence N 63° 40′ 50″ W, 47.04 to Corner 10298; and

26) thence N 43° 06′ 14″ W, 25.25 feet to Corner 10299 at the terminus of said easement.

Being a fifty (50) foot wide strip of land, approximately 2686 feet in length to be used for access to FEMA Parcel II and FEMA Parcel III and as an utility easement for the reconstruction and maintenance of a water pipeline together with all necessary appurtenances, as said water line exists from the FEMA Parcel I, Headquarters site to the Puffer Pond wells site.

TRACT (2R)

Being a right-of-way from Old Marlborough Road to the Unit Training Parcel, Tract 2M, through the lands now or formerly of Fort Devens, Sudbury Training Annex, the first portion being fifty (50) feet in width, being an easement for ingress and egress, the center line of which being more particularly bounded and described as follows:

BEGINNING at Corner 10392 on the northwesterly boundary of Marlborough Road from which Corner 69 of the Sudbury Training Annex Transfer (1) bears N 41° 36′ 04 " E, 21.17 feet;

thence from Corner 10392 through the lands now or formerly of Fort Devens, Sudbury Training Annex the following forty-nine (49) courses:

1) N 49° 59′ 03″ W, 85.06 feet to Corner 10393;

2) thence N 49° 49′ 41″ W, 98.66 feet to Corner 10394

3) thence N 68° 10′ 29″ W, 113.58 feet to Corner 6959;

4) thence N 73° 00′ 09″ W, 101.01 feet to Corner 6961;

5) thence N 76° 59′ 00′ W, 104.29 feet to Corner 6963;

6) thence N 77° 31′ 55″ W, 160.98 feet to Corner 6966;

7) thence N 78° 02′ 33″ W, 214.01 feet to Corner 6970;

8) thence N 76° 49′ 23″ W, 103.49 feet to Corner 6973;

9) thence N 73° 04' 10" W, 274.71 feet to Corner 7962;

10) thence N 66° 36' 11" W, 116.59 feet to Corner 7964;

11) thence N 58° 02' 57" W, 212.45 feet to Corner 7971;

12) thence N 46° 53' 15" W, 264.56 feet to Corner 7976;

13) thence N 46° 23' 47" W, 606.58 feet to a point of curvature at Corner 10007;

14) thence in a generally northwesterly direction along a curve to a left, having a radius of 550.00 feet, a chord bearing of N 65° 55' 38" W, and a chord distance 358.35 feet, an arc length of 365.01 feet to a point of tangency at Corner 10010;

15) thence N 84° 56' 23" W, 670.61 feet to Corner 10011;

16) thence N 49° 56' 19" W, 414.34 feet to a point of curvature at Corner 10012;

17) thence in a generally northerly direction along a curve to the left, having a radius of 175.00 feet, a chord bearing of N 18° 53' 38" W, and a chord distance of 184.96 feet, an arc length of 194.87 feet to a point of tangency at Corner 10016;

18) thence N.13° 00' 23" E, 298.36 feet to Corner 10016;

19) thence N 19° 25' 22" E, 221.94 feet to a point of curvature at Corner 10017;

20) thence in a generally northerly direction along a curve to the left, having a radius of 568.00 feet, a chord bearing of N 02° 19' 59" W, and a chord distance of 421.06 feet, an arc length of 431.35 feet to a point of tangency at Corner 10019;

21) thence N 24° 05' 21" W, 300.01 feet to Corner 10020;

22) thence N 07° 38' 51" W, 318.35 feet to Corner 10021;

23) thence N 18° 26' 45" W, 367.39 feet to Corner 10022;

24) thence N 60° 52' 53" W, 129.67 feet to Corner 10023;

25) thence N 67° 11' 16" W, 149.27 feet to Corner 10024;

26) thence N 83° 36' 48"W, 360.29 feet to Corner 10025;

27) thence N 71° 05' 35" W, 397.19 feet to Corner 10026;

28) thence N 70° 53' 36" W, 205.64 feet to Corner 10027;

29) thence N 61° 38′ 25″ W, 234.91 feet to Corner 10028;

30) thence N 74° 16′ 03″ W, 117.70 feet to Corner 10029;

31) thence S 85° 17′ 36″ W, 34.75 feet to Corner 10031;

32) thence S 58° 39′ 32″ W, 584.74 feet to Corner 10032;

33) thence S 43° 18′ 42″ W, 97.15 feet to Corner 10033;

34) thence S 57° 03′ 53″ W, 116.98 feet to Corner 10034;

35) thence S 65° 56′ 26″ W, 444.80 feet to Corner 10036;

36) thence N 82° 37′ 51″ W, 216.98 feet to Corner 10037

37) thence N 88° 24′ 11″ W, 256.71 feet to Corner 6732, said point being on the center line of the Air Force White Pond Road easement;

38) thence continuing through the lands of Sudbury Training Annex along the center line of the thirty (30) foot wide portion of said easement S 20° 49′ 48″ W, 387.49 feet to Corner 10039;

39) thence S. 21° 35′ 22″ W, 469.24 feet to Corner 10040;

40) thence S 23° 59′ 01″ W, 156.95 feet to Corner 10041;

41) thence S 33° 02′ 28″ W, 149.23 feet to Corner 10042;

42) thence S 46° 06′ 22″ W, 430.34 feet to Corner 10043;

43) thence S 41° 53′ 31″ W, 382.99 feet to Corner 10044;

44) thence S 39° 28′ 35″ W, 322.65 feet to a point of curvature at Corner 10045;

45) thence in a generally southerly direction along a curve to the left, having a radius of 155.49 feet, a chord bearing S 15° 42′ 48″ W, and a chord distance of 97.89 feet, an arc length of 99.59 feet to Corner 10048;

46) thence continuing through the lands of the Sudbury Training Annex along the center line of the twenty (20) foot wide portion of said easement S 50° 39′ 37″ W, 884.24 feet to Corner 10049;

47) thence S 38° 00′ 52″ W, 119.61 feet to Corner 10050;

48) thence S 20° 51′ 31″ W, 161.88 feet to Corner 10051; and

49) thence S 36° 05' 30" E, 211.34 to Corner 10396 on the northwesterly boundary of the 3.476± acre Unit Training Parcel, Tract 2M, being the terminus of the above described varied width easement for ingress and egress from Old Marlborough Road to White Pond Road to the Unit Training Parcel, Tract 2M.

TRACT (2R-1) FEMA PORTION (1R)

Being a thirty (30) foot wide right-of-way from Northgate through the lands now or formerly of Fort Devons, Sudbury Training Annex, to the varied width right-of-way for ingress and egress leading from Old Marlborough Road to the FEMA Unit Training Parcel, Tract 2M, and being an easement for ingress and egress the center line of which being more particularly bounded and described as follows:

BEGINNING at Corner 6728 from which Corner 38 of the Sudbury Training Annex Transfer Tract (1) bears N 45° 04' 31" E, 51.68 feet;

thence from Corner 6728 and through the lands now or formerly of Fort Devens, Sudbury Training Annex, the following five (5) courses:

1) thence S 08° 18' 27" E, 227.04 feet to Corner 6371;

2) thence S 12° 23' 16" E, 132.58 feet to Corner 6366;

3) thence S 22° 06' 13" E ,188.88 feet to Corner 6729;

4) thence S 10° 23' 47" E, 132.01 feet to Corner 6730; and

5) thence S 06° 52' 06" W, 218.54 feet to Corner 6731 being a point of terminus of the above described thirty (30) foot wide easement for ingress and egress on the center line of the varied width right-of-way ingress and egress easement, 2R, from Marlborough Road to the previously described FEMA Unit Training Parcel, Tract 2M.

The above described tracts of land are delineated on a plan entitled "United States Department of Interior Fish and Wildlife Service, Great Meadows National Wildlife Refuge Puffer Pond Division, Sudbury Training Annex Transfer Tract (1,1R,2R,2R-1,1E,1E-1,1E-2,2M,2M-1) 2007.1 acres, Middlesex County, Towns of Maynard, Stow and Sudbury, Commonwealth of Massachusetts," surveyed November 1986, map prepared October 18, 1996, last revised December, 1998, prepared by C.T. Male Associates, P.C., Latham, New York, said plan as of record in the files of the Department of Interior. A print of that plan is attached hereto.

MEMORANDUM OF AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE FEDERAL EMERGENCY MANAGEMENT AGENCY
FOR THE TRANSFER OF
REAL PROPERTY
AT THE SUDBURY TRAINING ANNEX, MASSACHUSETTS

The Federal Emergency Management Agency (hereinafter "FEMA") and the Department of the Army (hereinafter the "Army") hereby enter into a Memorandum of Agreement (MOA) to clarify responsibilities and requirements of both parties pursuant to the transfer of real property at the Sudbury Training Annex, Massachusetts (hereinafter the "Annex"), from the Army to FEMA. The authority to enter into this MOA is the Defense Base Closure and Realignment (BRAC) Act of 1990, Public Law 101-510, 10 U.S.C. Section 2687, note; and the Federal Property and Administrative Services Act of 1949 (FPASA), 40 U.S.C. Sections 471-544.

A. INTRODUCTION

The Annex was identified for closure under BRAC in 1995. FEMA has had a permit to occupy a part of the Annex hereinafter known as "Parcel I" since 27 May 1980 (hereinafter the "Use Permit Date"), and the Army will transfer to FEMA a total of 71.525 acres of land (hereinafter the "FEMA Parcel") that includes 5 non-contiguous small parcels, including Parcel I. FEMA intends to continue to use the land for its operations and training missions. The FEMA Parcel includes two large buildings (one above ground and one under ground), several communication antennas, and other structures and improvements that were owned and operated by FEMA on Parcel I. The boundaries of the FEMA Parcel are identified in the official survey map and legal description dated December 1998, copies of which are on file with the U.S. Army Corps of Engineers, New England District, Concord, Massachusetts, and attached as Exhibit A to the letter of transfer.

NOW, THEREFORE, the parties agree as follows:

B. TRANSFER OF REAL PROPERTY

1. The Army agrees to transfer by DD form 1354, and FEMA agrees to accept the transfer of , certain real property (hereinafter referred to as the "Property") consisting of a total of 71.25 acres of land (the FEMA Parcel) located at the Sudbury Training Annex, Massachusetts, and including 5 non-contiguous small parcels, among them Parcel I. FEMA intends to continue to use the land for its operations and training missions. The FEMA Parcel includes two large buildings (one

above ground and one under ground), several communication antennas, other structures and improvements that were owned and operated by FEMA on Parcel I since the Use Permit Date.

2. In accordance with an Office of Management and Budget waiver dated 26 September 2001, the acquisition of the FEMA Parcel, the buildings located on the Parcel, and the fixed equipment will be conveyed to FEMA for no-cost.

C. ACKNOWLEDGMENTS AND GENERAL CONDITIONS

1. The Army has had no operational presence on the property or facilities owned, built, or operated by FEMA on Parcel I since the Use Permit Date.

2. The Army has completed an Environmental Baseline Survey (EBS, January 1997), the BRAC Cleanup Plan Report (October 1996), and an Environmental Condition of Property (ECOP, August 2002). The ECOP and the EBS summarize what is known about the environmental condition of the property and reflect the Army's finding that the property is suitable for transfer to another federal agency, FEMA, for its continued use as a management facility and as a training area. FEMA acknowledges receipt of the EBS and ECOP. The Army has completed any necessary remediation for the FEMA Parcel as identified in the EBS and further described in the ECOP. FEMA has been given the opportunity to inspect the property.

3. In accordance with the National Environmental Policy Act, the Army completed a Record of Environmental Consideration (REC) dated 16 Jan 97 for this property disposal and determined that the disposal would not have any significant impact on the quality of the natural or human environment. FEMA acknowledges receipt of a copy of that REC.

D. ENVIRONMENTAL CONDITION AND COMPLIANCE RESPONSIBILITIES

1. The Army and FEMA acknowledge that the Annex was previously listed as a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended. The Army has provided FEMA with a copy of the Sudbury Training Annex Federal Facility Agreement (FFA) entered into by the United States Environmental Protection Agency, Region 1, (EPA) and the Army on 13 May 1991, and made effective on 15 November 1991; and FEMA acknowledges receipt of this document. The Army agrees to provide FEMA with any future amendments to the FFA. FEMA agrees to take no action inconsistent with the terms of the FFA. The environmental remediation of the Sudbury Training Annex NPL Site was undertaken by the Army in accordance with the FFA negotiated with the EPA and in cooperation with the Massachusetts Department of Environmental Protection (MADEP). The Army and FEMA agree that should a conflict arise between the terms of the FFA as it presently exists or as amended and the provisions of this MOA, the terms of the FFA will take precedence over the provisions of this MOA. The Army will inform FEMA of any such conflicts affecting the FEMA use of its parcel. Both parties to this MOA are required to provide notice to EPA and MADEP of any modifications, amendments or termination of the

MOA. FEMA and it successors and assigns shall take no action inconsistent with the terms of the FFA.

2. If there is an actual or threatened release of a hazardous substance on that portion of Parcel I which has been occupied by FEMA since the Use Permit Date, or in the event that a hazardous substance is discovered on that parcel after the Use Permit Date, FEMA or its successors or assigns shall be responsible for such release or newly discovered substance, unless FEMA can adequately demonstrate that such release or newly discovered substance was present on the property prior to the Use Permit Date or such release or newly discovered substance is determined to be attributable to past activities of the Army, its contractors or agents. This paragraph shall not affect the Army's responsibilities to conduct Response Actions that are required by applicable laws and regulations.

3. The FEMA Parcel may include buildings, structures or other improvements with asbestos containing materials (hereinafter "ACM"), lead-based paint, and/or polychlorinated biphenyls (hereinafter "PCBs"). To the extent it is available, information regarding ACM, lead-based paint, and PCBs on the Property is contained in the EBS and the ECOP. After the date of transfer, the FEMA shall be responsible for any and all remediation or abatement of any remaining ACM, lead-based paint, and PCBs on the Property.

4. Right of Access

a. The Army reserves a right of access to and over any and all portions of the FEMA Parcel for itself and its officers, agents, employees and contractors, for purposes of conducting Response Actions after the date of transfer in order to fulfill the Army's environmental responsibilities under this Agreement, the FFA (including Section IX - ACCESS of the FFA), and applicable law. This right shall run with the land, and FEMA shall provide for and preserve the right of access to the property by the Army as set forth in this Subsection in any subsequent transfer or conveyance of the Property. Except in case of imminent endangerment to human health or the environment, the Army shall give FEMA or the then record owner of the affected portion(s) of the FEMA Parcel reasonable prior notice of the Response Action(s) to be conducted on the FEMA Parcel, and shall use reasonable means, without significant additional cost to the Army, to avoid and/or minimize interference with FEMA's or such record owner's use of the FEMA Parcel. Subject to the provisions of this Agreement, and except as otherwise provided for by law, FEMA, such record owner, and any other person shall have no claim or cause of action against the Army, or any officer, agent, employee or contractor of the Army, for interference with the use of the FEMA Parcel arising from Army implementation of the FFA or Army Response Actions taken under this Subsection.

b. Nothing in this Agreement shall limit or otherwise affect the Army's, EPA's or MADEP's rights of access to and over any and all portions of the FEMA Parcel under applicable law for purposes including but not limited to:

(1). conducting oversight activities, including but not limited to investigations, sampling, testing, monitoring, verification of data or information submitted to EPA or MADEP, and/or site inspections, in order to monitor the effectiveness of Response Actions and/or the protectiveness of any remedy which is required by (i) any record of decision ("ROD") or amendments thereto-or (ii) any decision document approved by MADEP and issued by the Army under applicable state law before or after the Date of Transfer.

(2). performing five-year reviews as required by CERCLA, and;

(3). taking additional Response Actions in accordance with applicable law and the FFA.

5. FEMA shall comply with any institutional controls established or put in place by the Army relating to the FEMA Parcel which are required by any ROD or amendments thereto. Additionally, FEMA shall ensure that any leasehold or transfer it grants in the FEMA Parcel or any fee or easement interest conveyance of any portion thereof provides for legally binding compliance with the institutional controls required by any such ROD.

6. For any portion of the FEMA Parcel subject to a Response Action under CERCLA or the FFA, FEMA and its successors and assigns (i) shall, prior to the conveyance of an interest therein, include in all conveyance documents provisions for allowing the continued operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA or the FFA on said portion of the FEMA Parcel, and (ii) shall notify the Army and EPA by certified mail at least sixty (60) days prior to any such conveyance of an interest in said property, which notice shall include a description of said provisions allowing for the continued operation of any monitoring wells, treatment facilities, or other response activities undertaken pursuant to CERCLA or the FFA.

7. FEMA acknowledges that arsenic-based herbicides were applied in the vicinity of the fence-line along Patrol Road and on the former railroad beds on the northern and southern portions of the Sudbury Annex, and that the Army has concluded, after completing a facility-wide investigation, that the resulting concentrations of arsenic in the soil do not pose an unacceptable risk to human health or the environment based on the future land use of the FEMA Parcel for operations (offices, a communication center, storage space and communication antennas) and training (in establishing mobile communications centers in the field).

a. FEMA is informed and does acknowledge that pesticides may be present on the Property. To the best of the Army's knowledge, the past use and application of any pesticide product by the Army was in accordance with its intended purpose, and any pesticide residue resulting from such application does not an unacceptable risk to human health and the environment. To the extent allowed under CERCLA Section 107(i), the Army assumes no liability for damages or for future remediation of such pesticide residue.

b. FEMA agrees that its continued possession, potential use and continued management of the Property, including any demolition of structures, will be in compliance with all applicable laws relating to hazardous substances/pesticides and hazardous wastes.

c. To the best of the Army's knowledge and according to FEMA, there are no hazardous materials that remain or pose an unacceptable risk to human health or the environment on this property. No transformers containing PCB are on the property, nor has any lead-based paint or friable asbestos been identified during inspections. Since the Army does not own, operate or maintain any buildings or structures on the FEMA Parcel, the environmental condition and responsibility for any remediation found to be necessary for these buildings and any other structures will remain the responsibility of FEMA. FEMA agrees that its future use of the property after the date of transfer will be in compliance with all applicable laws relating to hazardous substances, petroleum, underground and above-ground storage tanks, PCBs, asbestos, lead based paint, radiological materials, radon, etc. Both the Army and FEMA agree that institutional controls listed in the MOA will be maintained even though the site has been delisted from the NPL.

8. Information received from FEMA indicates that there is no lead-based paint in the buildings on the property. However, because of FEMA access restrictions to the buildings constructed and operated by FEMA, this cannot be confirmed by the Army. Available information concerning known lead-based paint and/or lead-based paint hazards contained in the Environmental Baseline Survey, have been provided to FEMA. FEMA hereby acknowledges receipt of all of the information described in this paragraph. Further, FEMA acknowledges that it has received the opportunity to conduct its own risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of this document

a. The Army and FEMA acknowledge that all buildings on the FEMA Parcel, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint on the interior and/or exterior. Continued exposure to lead from paint, paint chips, and dust may pose a health hazard to young children if not managed properly. Prior to occupation of such buildings for residential purposes, FEMA will be responsible for the evaluation, notification, management, and abatement, if necessary, of any lead-based paint hazards in accordance with Applicable Law; to include the guidelines and regulations established pursuant to Title X of the Housing and Community Development Act of 1992. Residential buildings or property means dwelling units, common areas, building exterior surfaces; and, buildings visited regularly by the same child, 6 years of age or under, on at least two different days within any week, including day-care centers, preschools and kindergarten classrooms and similarly used buildings; and, any surrounding land, including outbuildings, fences and play equipment affixed to the land, available for use by residents and children; but not including land used for agricultural, commercial, industrial, or other non-residential purposes; and, not including paint on the pavement of parking lots, garages, or roadways.

b. FEMA further covenants that it and its successors and assigns shall include in any

deed or other conveyance document transferring any interest in any or all of the FEMA Parcel a restrictive covenant that identifies the use restriction set forth in this Subsection D.8 to all successors in interest to any interest in any part or all of the FEMA Parcel. It is the intention of FEMA and the Army that this use restriction shall run with the land comprising the FEMA Parcel.

9. FEMA acknowledges that prior to the transfer of the FEMA Parcel to FEMA, the Army completed an Ordnance and Explosives Survey/Removal Action covering the entire Annex to determine if explosives or ordnance (OE) existed on the site. No OE was discovered. The Conclusion of the Final UXO Characterization Report of 18 February 1998, however, states that: "Unless 100 percent of the site is searched, it cannot be positively determined with complete accuracy that no OE is present on the site. However, based upon the results of the surface and sub-surface activities and the results of the Site Stats/Grid Stats Random Selection Program, Sudbury Annex, Massachusetts, it does not show evidence of being contaminated with OE or OE related material and can be excessed without further UXO activities except the 18 earth covered magazines. The interiors of these magazines require an inspection prior to being released with the Annex." The magazine area is not located near the FEMA parcel. FEMA acknowledges receipt of a copy of the Conclusions of the Army's Final UXO Characterization Report of 16 February 1998.

10. FEMA acknowledges that the subsurface soil below the depth of four (4) feet on the FEMA Parcel may contain OE or OE-related material as a result of past Army activities on the FEMA Parcel.

a. FEMA covenants on behalf of itself and its successors and assigns that, except as provided herein, no activity or use shall be undertaken on the FEMA Parcel that might disrupt or otherwise negatively impact the subsurface soil below the depth of four (4) feet. Such prohibited activities and uses shall include any disturbance of the subsurface soil below the depth of four (4) feet in any manner, including but not limited to construction activities such as filling, drilling, excavation or change of topography. FEMA covenants on behalf of itself and its successors and assigns that if, however, it or its successor or assign wants to undertake an activity or use on the FEMA Parcel that will disrupt or otherwise negatively impact the subsurface soil below the depth of four (4) feet, including any construction activities involving the disturbance or disruption of the subsurface soil below the depth of four (4) feet, FEMA or its successor or assign, following written notice to and approval by the Army of any such activity or use, shall pay for all costs associated with the clearance or removal of any OE or OE-related material discovered on the FEMA Parcel below the depth of four (4) feet. FEMA further covenants on behalf of itself and its successors and assigns, that it shall include in any deed or other conveyance document transferring any interest in any or all of the FEMA Parcel a restrictive covenant that identifies the use restriction and conditions set forth in this Subsection. It is the intention of FEMA and the Army that this use restriction shall run with the land comprising the FEMA Parcel.

b. The Army covenants to FEMA and its successors and assigns that the Army shall provide OE safety assistance at no cost to FEMA or its successor or assign, including the clearance or removal of any OE or OE-related material discovered on the FEMA Parcel in the course of non-construction activities, including but not limited to landscaping, routine repair and maintenance, security surveys, and other activities not involving the disturbance or disruption of the subsurface soil on the FEMA Parcel below the depth of four (4) feet. FEMA and its successors and assigns shall notify the Army immediately if any OE material is discovered. The Army also covenants to FEMA and its successors and assigns that it shall be responsible for the investigation and clearance or removal of all chemical munitions and all OE refuse sites found on the FEMA Parcel. An OE refuse site is defined as a site where military munitions have been collected and disposed of by burial on which there are ten (10) or more munitions in a cubic yard. FEMA covenants on behalf of itself and its successors and assigns that it and its successors and assigns shall include notice of these Army covenants in any deed or other conveyance document transferring any interest in any or all of the FEMA Parcel.

11. Lands to be transferred to FEMA have been partially surveyed for historic properties. Known archeological sites are present on the property. These sites may be eligible for the National Register of Historic Places. As a federal agency, with the responsibility to comply with all federal laws and regulations that govern the treatment of cultural resources, FEMA will be responsible for the completion of any necessary historic property inventories for lands it is to receive from the Army and for taking into account the effects of its undertakings on historic properties discovered there.

E. LIABILITY

1. Each party to this Agreement shall be responsible for any liability arising from its own conduct. Neither party agrees to insure, defend, or indemnify the other.

2. Except as otherwise provided in this MOA, the Army, rather than FEMA, shall remain liable and responsible for any costs, claims, or damages arising against the U.S. Government for the use, management, release or disposal of hazardous substances, hazardous waste, or petroleum products, or any other contamination thereof existing on or emanating from Parcel I prior to the Use Permit Date and for the remainder of the FEMA Parcel up until the date of transfer to FEMA. FEMA assumes liability and responsibility for contamination caused by use, management or release of hazardous materials, hazardous substances, hazardous wastes or petroleum products by FEMA for Parcel I as of the Use Permit Date and for the FEMA Parcel as of the date of its transfer to FEMA.

3. In the circumstances described in Subsection D.2. above, the Army shall remain responsible for funding and implementing actions to include investigations, sampling, testing, cleanup, restoration, maintenance, monitoring, closure, five-year reviews, site inspections, removal actions, remedial actions, corrective actions and any other actions necessary to ensure

the protection of human health and the environment. FEMA shall assume no liability or costs arising out of or related to contamination existing prior to the FEMA Use Permit Date for Parcel I or prior to the date of transfer for the remainder of the FEMA Parcel.

4. FEMA agrees to hold the Army harmless from, and indemnify the Army against, any liability for any claims arising out of or in any way predicated on release of any hazardous substance on Parcel I occurring after the Use Permit Date, and on the remainder of the FEMA parcels after the date of transfer, where such substance was placed on the property by FEMA, its successors or assigns, its agents, contractors, invitees, or its lessees or subleases. Unless it is attributable to Army occupancy of the property, the Army will have no liability for future remediation of any hazardous substances, petroleum, underground and above ground storage tanks, PCBs, asbestos, lead-based paint, radiological materials, radon, etc., and will have no liability for damages for personal injury, illness, disability, or death to FEMA employees, officers, or agents, or any successors or assigns, lessees, licensees, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with such substances on the property, whether or not FEMA, its successors or assigns have properly warned or failed to properly warn the individual(s) injured.

F. TRANSFER OF THIS PARCEL WITHOUT WARRANTY OR REPRESENTATION

1. FEMA shall accept transfer of the FEMA Parcel, including all FEMA owned, built, and operated buildings, structures and other improvements from the Army without any representation, warranty, or guaranty by the Army as to the quality, character, condition, size, kind, or that the same is in condition or fit to be used for the purpose FEMA intends, except for the Army's position that the property is suitable for transfer and the Army's continuing obligations as provided within this MOA.

2. FEMA shall covenant for itself, its successors, and assigns that it shall include in any subsequent grant, lease, transfer or conveyance documents all required covenants and restrictions described in this MOA (such as residential use restriction, digging/ground disturbance limitations) as well as any required because of FEMA ownership and operation of the facilities (such as lead-based paint, PCBs and asbestos) and CERCLA 120(h). FEMA agrees that these institutional controls are necessary on the property because of its occupancy, benefit the public in general and the territory surrounding the property, run with the land, and are enforceable by the U. S. Government.

F. NOTIFICATION REQUIREMENTS

Any notices to be provided pursuant to this MOA shall be addressed to:
-U.S. Army: Commander, Devens Reserve Forces Training Area, 31 Quebec Street, Devens, MA 01432-4424, telephone (978) 796-3053.

- Federal Emergency Management Agency: Mr. Vernon L. Wingert, Chief, Support Services Liaison Branch FEMA, 500 C St., SW, Room 325, Washington, DC 20472, telephone: (202) 646-2872.

G. MISCELLANEOUS AGREEMENTS

1. If any provision of this MOA becomes invalid or unenforceable, the remaining provisions shall remain in force and unaffected to the extent permitted by law and regulation.

2. In the event of a dispute between the parties, The Army and FEMA agree that they will use their best efforts to resolve the dispute in an informal fashion through consultation and communication, or other forms of non-binding alternative dispute resolution mutually acceptable to the parties.

H. OBLIGATION OF APPROPRIATIONS

No provision of this agreement shall be interpreted or applied so as to obligate the Army or FEMA in excess or advance of appropriations or otherwise so as to result in a violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341.

IN WITNESS WHEREOF, each of the parties has executed this MOA effective on the date last signed, the 21st day of March 2003.

DEPARTMENT OF THE ARMY

JOSEPH W. WHITAKER
Deputy Assistant Secretary of the Army
(Installations and Housing) OASA(I&E)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MICHAEL D. BROWN
Acting Under Secretary
Emergency Preparedness & Response
Department of Homeland Security,
on behalf of the Federal Emergency Management Agency

COMMONWEALTH OF VIRGINIA)

COUNTY OF ARLINGTON)

I, the undersigned, a Notary Public in and for the Commonwealth of Virginia, County of Arlington, whose Commission as such expires on the 30th day of November, 2006, do hereby certify that this day personally appeared before me in the Commonwealth of Virginia, County of Arlington, Joseph W. Whitaker, whose name is signed to the foregoing document and acknowledged this document is his free act and deed, dated this 21st day of March, 2003.

Karen A. Cooper
NOTARY PUBLIC

THE DISTRICT OF COLUMBIA

Subscribed and sworn to before me by Michael D. Brown, who is to me well known, this 31st day of March, 2003.

Andrea L Williams

ANDREA WILLIAMS
Notary Public, District of Columbia
My Commission Expires May 14, 2006

APPENDIX G – USFWS SAMPLING RESULTS MARCH 2016

Nashoba Analytical, LLC
31A Willow Road Ayer MA 01432
Tel: 978-391-4428 Fax: 978-391-4643
Web Site: http://www.nashobaanalytical.com

Lab/Invoice Number: **164579**
Use this number with all correspondence

Client:
Sontag Pump
177 Rowley Hill Road
Sterling, MA 01564

Report Date: 4/1/2016
Location: US Wildlife Preserve, White Pond Road, Stow MA, Well Head
Sampled: 3/23/2016 9:55:00 AM by Lab Staff

EPA 524.2-Volatile Organics

PARAMETER	MCL	RESULT	PARAMETER	MCL	RESULT
Benzene	5.0	ND	Chloromethane	--	ND
Carbon Tetrachloride	5.0	ND	Bromomethane	--	ND
1,1-Dichloroethylene	7.0	ND	1,2,3-Trichloropropane	--	ND
1,2-Dichloroethane	5.0	ND	1,1,1,2-Tetrachloroethane	--	ND
p-DichloroBenzene	5.0	ND	Chloroethane	--	ND
Trichloroethene	5.0	ND	2,2-Dichloropropane	--	ND
1,1,1-Trichloroethane	200.0	ND	o-Chlorotoluene	--	ND
Vinyl Chloride	2.0	ND	p-Chlorotoluene	--	ND
Monochlorobenzene	100.0	ND	Bromobenzene	--	ND
ortho-Dichlorobenzene	600.0	ND	1,3-Dichloropropene	--	ND
trans-1,2-Dichloroethylene	100.0	ND	1,2,3-Trimethylbenzene	--	ND
cis-1,2-Dichloroethylene	70.0	ND	1,2,4-Trimethylbenzene	--	ND
1,2-Dichloropropane	5.0	ND	1,3,5-Trimethylbenzene	--	ND
Ethylbenzene	700.0	ND	n-Propylbenzene	--	ND
Styrene	100.0	ND	n-Butylbenzene	--	ND
Tetrachloroethylene	5.0	ND	Naphthalene	--	ND
Toluene	1000.0	6.4	Hexachlorobutadiene	--	ND
Xylenes(Total)	10000.0	ND	1,2,3-Trichlorobenzene	--	ND
Dichloromethane	5.0	ND	p-Isopropyltoluene	--	ND
1,2,4-Trichlorobenzene	70.0	ND	Isopropylbenzene	--	ND
1,1,2-Trichloroethane	5.0	ND	t-Butylbenzene	--	ND
Chloroform	--	ND	sec-Butylbenzene	--	ND
Bromodichloromethane	--	ND	FluoroTrichloromethane	--	ND
Chlorodibromomethane	--	ND	Dichlorodifluoromethane	--	ND
Bromoform	--	ND	Bromochloromethane	--	ND
m-Dichlorobenzene	--	ND	*MethylTertiaryButylEther	*70	ND
Dibromomethane	--	ND	Acetone	--	ND
1,1-Dichloropropene	--	ND	2-Butanone (MEK)	--	ND
1,1-Dichloroethane	--	ND	t-Amyl methyl ether (TAME)	--	ND
1,1,2,2-Tetrachloroethane	--	ND	t-Butyl alcohol (TBA)	--	ND
1,3-Dichloropropane	--	ND	Tetrahydofuran (THF)	--	ND

% Recovery of Internal Standards:

4-Bromofluorobenzene 82
1,2-Dichlorobenzene-d 93

Detection Limit: 0.5 ug/L

This analysis was performed at DEP Certified Laboratory #M-NH003

Date of analysis: 3/24/16
ND=None Detected

David L. Knowlton
Laboratory Director

Nashoba Analytical, LLC Tel: 978-391-4428 Fax: 978-391-4643
31A Willow Road, Ayer MA 01432 Website: http://www.NashobaAnalytical.com

LabNumber: 164579
Use this number with all correspondence

Client:

Sontag Pump
177 Rowley Hill Road
Sterling, MA 01564

ReportDate: 4/1/2016

Certificate of Analysis

Parameter	Method		Result	MCL	MRL	Date of Analysis	Analyst
US Wildlife Preserve, White Pond Road, Stow MA, Well Head							
Sampled: 3/23/2016 9:55:00 AM by Lab Staff							
Total Coliform Bacteria, /100ml	ENZ. SUB. SM9223		Absent	Absent	Absent	3/23/2016 11:00:00 AM	M-MA1118
Arsenic, Total, MG/L	SM 3113B	#	0.011	0.01	0.001	3/24/2016	M-MA1118
Calcium, MG/L	EPA 200.7		8.8	Not Spec	0.2	3/24/2016	M-MA1118
Copper, MG/L	EPA 200.7		ND	1.3	0.003	3/24/2016	M-MA1118
Iron, MG/L	EPA 200.7	#	0.52	0.3	0.003	3/24/2016	M-MA1118
Lead, MG/L	SM 3113B		ND	0.015	0.001	3/24/2016	M-MA1118
Magnesium, MG/L	EPA 200.7		2.1	Not Spec	0.1	3/24/2016	M-MA1118
Manganese, MG/L	EPA 200.7	#	0.069	0.05	0.002	3/24/2016	M-MA1118
Potassium, MG/L	EPA 200.7		1.6	Not Spec	0.1	3/24/2016	M-MA1118
Sodium, MG/L	EPA 200.7		4.6	See Note	0.2	3/24/2016	M-MA1118
Zinc, MG/L	EPA 200.7		0.002	5	0.002	3/24/2016	M-MA1118
Alkalinity, MG/L	SM 2320B		27	Not Spec	1	3/23/2016	M-MA1118
Ammonia as N, MG/L	SM 4500-NH3-D		ND	Not Spec	0.1	3/23/2016	M-MA1118
Chloride, MG/L	EPA 300.0		3.2	250	1	3/23/2016	M-MA1118
Chlorine, Free Residual, MG/L	SM 4500-CL-G		ND	Not Spec	0.02	3/23/2016	M-MA1118
Color Apparent, CU	SM 2120B		5	15	0	3/23/2016	M-MA1118
Conductivity, UMHOS/CM	SM 2510B		111	Not Spec	1	3/23/2016	M-MA1118
Fluoride, MG/L	EPA 300.0		0.1	4	0.1	3/23/2016	M-MA1118
Hardness, Total, MG/L	SM 2340B		31	Not Spec	1	3/24/2016	M-MA1118
Nitrate as N, MG/L	EPA 300.0		0.05	10	0.05	3/23/2016	M-MA1118
Nitrite as N, MG/L	EPA 300.0		ND	1	0.02	3/23/2016	M-MA1118
Odor, TON	SM 2150B		2	3	0	3/23/2016	MFL
pH, PH AT 25C	SM 4500-H-B	#	6	6.5 - 8.5	NA	3/23/2016	M-MA1118
Sediment, pos/neg	----------		NEG	------	NEG	3/23/2016	MFL
Sulfate, MG/L	EPA 300.0		14.9	250	1	3/23/2016	M-MA1118
Total Dissolved Solids, MG/L	SM 2540C		70	500	1	3/28/2016	M-MA1118
Turbidity, NTU	EPA 180.1		1.6	Not Spec	0.1	3/23/2016	M-MA1118
Gross Alpha, PCI/L	EPA 900.0		2.3 +/- 0.8	15	0.9	3/30/2016	KNL
Radon, PCI/L	EPA 913.0		2370	10000	100	3/25/2016	M-NH003

MCL=Maximum Contaminant Level (EPA Limit), MRL = Minimum Reporting Level
Sodium Guidelines- Mass 20, EPA 250, # = Result Exceeds Limit or Guideline
ND = None Detected (<MRL), * = Background Bacteria Noted

Massachusetts Certified
Laboratory #M-MA1118

David L. Knowlton
Laboratory Director

APPENDIX H – RESPONSES TO COMMENTS

U.S. ARMY RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT FIFTH FIVE-YEAR REVIEW REPORT FOR FORMER SUDBURY TRAINING ANNEX FOR AOC 7 SUDBURY FORMER TRAINING ANNEX, SUDBURY, MA

The following U.S. Army responses pertain to the U.S. Environmental Protection Agency (EPA) comments, dated 10 June 2021 on the Draft *Fifth Five-Year Review Report for Former Sudbury Training Annex for AOC A7* which was submitted on 3 May 2021.

EPA Specific Comment 1: Title Page – Add "(2016-2021)" after "Report." Add a month and date to mark the date of publication.

Army Response: The title was revised to include "(2016-2021)" and the month and date were added to the cover and title page.

EPA Specific Comment 2: Page E-i, Para 1, 1st sentence – After "…(AOC) A7," add "and covers the time period between September 27, 2016 to September 2021."

Army Response: The text was revised per the comment.

EPA Specific Comment 3: Page E-i, Para 1, 2nd Sentence – After "Five-Year Review Guidance (June 2001)," add "and EPA Region 1 FY2021 Supplemental Template."

Army Response: The text was revised as following:

"This review, which was completed in accordance with the U.S. Environmental Protection Agency (EPA) Comprehensive Five-Year Review Guidance (USEPA, 2001) and with applicable portions of EPA Region 1 FY2021 Supplemental Template (USEPA Region I, 2021) was performed from January to September 2021."

EPA Specific Comment 4: Page E-i, Para 1, 3rd Sentence – After "Annex," add "covering the time period from September 27, 2016 to September 2021."

Army Response: The text was revised per the comment.

EPA Specific Comment 5: Page E-I, Para 3, 1st Sentence – There appears to be a space between "A" and "7" in "AOC A7". Either add or remove space to keep consistent throughout report – Global comment.

Army Response: The space between "A" and "7" in "AOC A7" was deleted.

EPA Specific Comment 6: Page E-i, Para 3, 1st Sentence – After "decision documents," add the following phrase: "after sites were assessed in preliminary assessments and/or site investigations".

Army Response: The text was revised as follows:

"This review addresses only the AOC A7 source area since the rest of former Sudbury Annex had no further action decision documents after sites were assessed in preliminary assessments and/or site investigations and no further actions per records of decision (ROD) after removal actions. Also, the AOC A9 source area was cleaned up to levels that are protective of human health and the environment as a result of the remedial action. At the time of the ROD, USFWS requested the majority of the land, including AOC A9, become part of a wildlife refuge. "

EPA Specific Comment 7: Page E-i, Para 4, General – Suggest moving to the next page and place the end of executive summary.

Army Response: The 4th paragraph was moved to before the FYR Report Summary Form.

EPA Specific Comment 8: Page E-i, Para 4, 2nd Sentence – Add month and year to the date of groundwater sampling and analysis for VOCs and PFAS.

Army Response: The text was revised as follows:

"Investigation of the overburden groundwater at AOC A9 indicated historic VOC concentrations (sampled in June 2018) have further attenuated to concentrations below applicable federal and state standards. Per- and polyfluoroalkyl substances (PFAS) were not detected in the USFWS well (sampled in August 2016) but were detected in the overburden groundwater (sampled in June 2018)."

EPA Specific Comment 9: Page E-i, Para 4 – After 2nd sentence, add the following sentence: "There was a fire training area as AOC A9 which was used from (insert start year) to (insert end year)."

Army Response: The following text was added:

"Various activities were conducted by numerous entities at AOC A9 POL Burn Area. At the former fire training area portion of AOC A9, the Massachusetts Fire Fighting Academy conducted fire training exercises."

EPA Specific Comment 10: Page E-i, Para 4, 5th Sentence – Delete "site" and replace with "AOC A9 and AOC P13." At the end of the sentence, add "which includes an evaluation of the shallow and deep groundwater."

Army Response: The sentence was revised as follows:

"A decision document has not yet been prepared for PFAS as a Comprehensive Environmental Response, Compensation and Liability Act (CERALCA) site inspection is being conducted at AOC A9 and AOC P13, which includes sampling a combination of groundwater, soil, surface water and sediment."

EPA Specific Comment 11: Page E-i, Para 4 – After the 5th sentence, add "Currently, the USFWS water supply well at AOC A9 is not in use."

Army Response: The text was added per the comment.

EPA Specific Comment 12: Page E-i, Para 4, last sentence – The summary of the PFAS investigation work should reference Section 12, not Section 11.

Army Response: The text was revised per the comment.

EPA Specific Comment 13: Page E-ii, Para 4, 3rd Sentence – Add "cap" after "landfill".

Army Response: The text was revised per the comment.

EPA Specific Comment 14: Page E-ii, Para 4, 7th Sentence –Delete recommendation on landfill. The 30 year period is generally used for cost estimating. So long as contaminants remain on site

above levels that allow for unlimited use and unrestricted exposure, monitoring, and operation and maintenance is required to support future five-year reviews.

Army Response: In accordance with CERCLA, the assessment of the performance of the remedy for purposes of the five-year reviews will continue and monitoring and maintenance of the landfill will continue per the LTMP for AOC A7.

Per 40 CFR 254.117, 310 CMR 30.633, 310 CMR 30.591 & 592, and 310 CMR 19.142, the post-closure period is a minimum of a 30-year period. The continuation of the post-closure period will be assessed in accordance with the 2016 EPA Memorandum: Guidelines for Evaluating the Post-Closure Car Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA. The transition from Post-Closure Care to Custodial Care will be evaluated using the 2006 Interstate Technology & Regulatory Council's Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on site-Specific Data Evaluations.

Text revisions are detailed in response to EPA Specific Comment 25.

EPA Specific Comment 15: Page E-ii – At end of the summary, add the following:

"For this fifth five-year review, an Issue at AOC A7 is damage to the perimeter fence. The report's Recommendation is repair of the fence.

The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired."

Army Response: The perimeter fence is not a component of the remedy as described in the Description of the Selected Remedy in the Decision Summary portion of the ROD (OHM, 1995). The perimeter fence was installed before the landfill cap was installed and is described as a "security fence" in the ROD (OHM, 1995).

The detailed description of the AOC A7 source control Alternative 3 in the feasibility study does not mention a fence (OHM, 1995). A fence is not mentioned in the Access and Institutional Controls portion of the alternative description. Maintenance of a fence is not described in the Post-Closure Monitoring and Maintenance portion of the alternative description.

As the fence is not a component of the alternative, a fence is not considered in evaluation of the alternative, and therefore a fence does not contribute to the Long-Term Effectiveness and Permanence of the alternative. The Long-Term Effectiveness and Permanence portion of the assessment of the alternative indicates the landfill cap will prevent direct contact with landfill contents and the "capping, combined with institutional controls such as deed restrictions and periodic inspection of the cap, aids in managing any potential direct exposure to the contaminants in soil." In the ROD, the Summary of Comparative Analysis of Alternatives section indicates the removal of waste and consolidation of waste under the cap provides an effective method of long-term contaminant of contaminates soil and debris. And effectiveness of containment is

dependent on maintenance of the landfill cap; there is no mention of a fence. Therefore, a recommendation to repair the fence is not needed for the remedy to be effective in the long-term and no text change is proposed.

The Army proposes to remove the fence because it is not a component of the remedy and it prevents the movement of wildlife. The Army proposes to substitute the fence with signs.

EPA Specific Comment 16: Page E-iii, "Review Period" – Edit to "September 27, 2016 to September 26, 2021".

Army Response: The text was revised per the comment.

EPA Specific Comment 17: Page E-iii, Issues/Recommendation – Add the following text:

"Damage to the perimeter fence at AOC A7 (OU1) is recommended for repair."

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 18: Page E-iv, Protectiveness Statements – Add the following text:

"The remedy at AOC A7 (OU1) currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired to ensure long-term protectiveness."

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 19: Page 1-1, Section 1.0, Para 2, 1st Sentence – Edit sentence to "This fifth five-year review report covers the period from September 27, 2016 to September 2021."

Army Response: The text was revised per the comment.

EPA Specific Comment 20: Page 2-1, Table 2, Line 9 – After AOC A7, add "(OU1)". After AOC A9, add "(OU2)"

Army Response: The text was revised per the comment.

EPA Specific Comment 21: Page 2-1, Table 2 - Chronology of "Monitoring Well Installation"-1996" appears to be in wrong place – it is placed after "ROD Management" 1997. Font and sizing also appear inconsistent throughout table.

Army Response: "Monitoring Well Installation" was moved above "ROD – Management of Migration. The font size was corrected throughout the table.

EPA Specific Comment 22: Page 3-1, Section 3.0, Para 1, 1st Sentence – Add a reference to the First Five-Year Review so that the reader can be able to identify the 73 study areas since they are not covered in this report.

Army Response: A reference to Weston, 2001 was added to the text per the comment and the following reference was added to Appendix A.

"Roy F. Weston, Inc. (Weston), 2001. First Five-Year Review Report for Sudbury Training Annex, Sudbury, Massachusetts. September."

EPA Specific Comment 23: Page 3-1, Section 3.2, Para 2, 3rd Sentence – Add "running" to list of uses.

Army Response: The text was revised per the comment.

The first two sentences of the third paragraph were revised as follows: "

"AOC A7 is within a portion of the refuge that the USFWS has designated as an area that is closed to the public."

EPA Specific Comment 24: Page 4-2, Section 4.3.1, Bullets – Add "perimeter fence"

Army Response: The perimeter fence is not a component of the remedy; it is not mentioned in the Description of the Selected Remedy in the ROD (OHM, 1995). See response to EPA Specific Comment 15.

EPA Specific Comment 25: Page 4-4, - The discussion of the LUCs—what they are and how they were implemented—is unclear. Please add language to clarify that these LUCs were specifically identified and implemented through the MOA (Appendix F) between Army and USFWS. Further, please explain that these specific LUCs were selected to achieve the RAOs set forth in the ROD for AOC A7 and that they continue to be necessary to ensure compliance with the ROD and achievement of the RAOs.

Army Response: The section was revised as follows:"

"*The 1995 SC ROD required implementation of LUCs to limit future use of AOC A7. The AOC A7 LUCs are detailed in Subsection C.8 of the MOA for the transfer of property between the Army and USFWS. The LUCs indicate USFWS and its successors and assigns shall not disturb the landfill liner or any components of the containment system or function of the monitoring system. The LUCs prohibit:*

- *Surface application of water that could affect the effectiveness of the containment system.*
- *Extraction, consumption, exposure, or utilization of groundwater underlying AOC A7.*
- *Any disturbance of the surface or subsurface of that portion of land within the boundaries of AOC A7 in any manner (construction, filling, drilling, excavation, or change in topography) that might interfere with the response action within AOC A7.*
- *Any disturbance of the surface or subsurface of that portion of land within the boundaries of AOC A7 in any manner (construction, filling, drilling, excavation, or change in topography) that might interfere with the protectiveness of the remedy.*
- *Any activity within AOC A7 that will result in disturbance of the mobilization and/or transport of any hazardous substance.*
- *If the USFWS or any of its successors proposes any activity that may disturb and components of the remedy, they shall not undertake such activity unless they first obtain written approval from the Army and EPA.*

- *USFWS also agrees that it and it successors or assigns shall include in any deed the restrictive covenant detailed in Subsection C.8.*

The LUCs were designed to preserve the effectiveness of the landfill cap which in turn achieves the following RAOs:

- *Eliminate potential risk to human health and the environment associated with exposure to contaminated wastes;*
- *Minimize off-site migration of contaminants, and;*
- *Limit infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation and ground water degradation.*

The LUCs also prevent exposure to groundwater at AOC A7.

The LUCs are monitored in accordance with the Land-Use Control Implementation and Monitoring Plan (KGS, 2020c). Existing land use and site conditions are assessed during an annual physical on-site inspection and during annual interviews with site representatives. The results are included in annual reports. The results of the inspections for the last five years are included in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021).

Preservation of the effectiveness of the landfill cap is necessary to achieve the RAOs. Activities identified in the Land-Use Control Implementation and Monitoring Plan are effective in assessing potential disturbance of the landfill cap."

The first three paragraphs on page E-ii were revised as follows:

"During the FYR period, AOC A7, was subject to operation and maintenance inspections of the landfill cap, landfill gas vent monitoring, groundwater sampling and analysis, and water level monitoring. LUCs in place at the former Sudbury Training Annex ensure protectiveness of the remedy from adjacent landowners and involved entities. The LUCs required by the 1995 SC ROD are detailed in Clause C8 of the Memorandum of Agreement (MOA) between the U.S. Army (Army) and the current property owners, the USFWS dated 28 September 2000 (Appendix F). The LUCs protect the AOC A7 landfill from tampering, described as surface application of water, the use of groundwater, disturbing the parcel by earthworks that would negatively affect any response actions or jeopardize the remedy, activities that might impede the function of the containment design, or any unauthorized work that might be done without the consent of EPA and the Army on the landfill cap itself.

The land use at AOC A7 has not changed from the wildlife refuge use evaluated prior to the ROD and is not expected to change. The remedy at AOC A7 protects human health and the environment because the landfill is capped. Contaminant concentrations detected in groundwater have decreased over time at AOC A7. The landfill cap at AOC A7 remains in good condition and continues to function as intended by the 1995 SC ROD. No protectiveness issues were identified in this FYR.

No recommendations were identified related to issues during this FYR. It is recommended that the long-term monitoring and maintenance plan (LTMMP) be revised to eliminate analysis of pesticides, cyanide, and chemical oxygen demand as concentrations have decreased and remained low or nondetect. It is also recommended that the sampling frequency be decreased to once every five years one year prior to the next FYR as concentrations have decreased to low concentrations or are nondetect. The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance."

The following reference will be added to Appendix A:

USEPA, 2016c. Memorandum: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA.

The first two paragraphs of 7.0 Technical Assessment, Implementation of Institutional Controls and Other Measures were revised as follows:

"The LUCs required by the 1995 SC ROD are detailed in Clause C8 of the MOA between the Army and the USFWS. The MOA was reviewed and indicates that the AOC A7 landfill site is protected by Clause C8 from tampering, described as surface application of water, the use of groundwater, disturbing the parcel by earthworks that would negatively affect any response actions or jeopardize the remedy, activities that might impede the function of the containment design, or any unauthorized work that might be done without the consent of EPA and the Army on the landfill cap itself. There are provisions in the MOA allowing for the Army to conduct remedial actions at the former Sudbury Training Annex. A map of the Assabet River National Wildlife Refuge, owned by USFWS, was reviewed as part of this FYR and AOC A7 is within the boundaries of the refuge.

LUCs are in place and functioning properly. Review of the annual LUC inspection checklists and interviews contained in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021) was conducted. The annual interviews of USFWS personnel indicate USFWS is aware of the LUCs and that no actions have occurred at the site that violate the LUCs. The annual LUC inspections and interviews and the FYR site inspection indicate land use at the AOC A7 has not changed from the presumed future wildlife refuge use evaluated prior to the ROD and is not expected to change."

EPA Specific Comment 26: Page 5-7, Issue 1, 1st Sentence – Add month with year that USFWS installed their well.

Army Response: The text was revised as follows:

"In June 2016, the USFWS installed a bedrock water supply well at AOC A9 to support a new facility at the Assabet River National Wildlife Refuge."

EPA Specific Comment 27: Page 5-8, Issues 4 and 5 – 10-6 RBC for 1,4-Dioxane is 0.46 ppb.

Army Response: The text was revised per the comment.

EPA Specific Comment 28: Page 6-3, Section 6.4.2, *Emerging Contaminants*, Para 3, 3rd Sentence – 10-6 RBC for 1,4-Dioxane is 0.46 ppb.

Army Response: The text was revised per the comment.

EPA Specific Comment 29: Page 7-1, Section 7.0, QUESTION A, Question A Summary – Following EPA's Five Year Review guidance, change "Yes" to "No" due to the perimeter fence damage. [See language at EPA "Comprehensive Five Year Review Guidance" (EPA 540-R-01-007), page 4-3, Section 4.1.1: "… you should confirm that access controls (e.g., fencing, security guards) necessary at this stage of the remediation are in place and successfully prevent exposure."]

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 30: Page 7-1, Section 7.0, QUESTION A, Question A Summary, Para 1, Last Sentence – At the end of the sentence, add ", however due to damage to the perimeter fence, the remedy is not considered to be functioning as intended."

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 31: Page 7-1, Section 7.0, QUESTION A, *Implementation of Institutional Controls and Other Measures*, Para 2, 1st Sentence – Edit to "LUCs are in place, however, due to damage in the perimeter fence which was discovered during the January 2021 site inspection, the LUCs, as a whole, are not functioning properly."

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 32: Page 7-2, QUESTION B, *Question B Summary*, Last Sentence - The summary of the PFAS investigation work should reference Section 12, not Section 11.

Army Response: The reference was corrected.

EPA Specific Comment 33: Page 7-2, *Changes in Standards and TBCs* – This section is missing the following text from EPA Region 1's template for PFAS.

On October 2, 2020, the State promulgated Massachusetts Maximum Contaminant Levels (MMCLs) for drinking water for the sum of six PFAS compounds into the State's Drinking Water Regulations (310 CMR 22.00). The MMCL is 20 ng/L (ppt) for the sum of six PFAS compounds:

perfluorooctanesulfonic acid (PFOS)

perfluorooctanoic acid (PFOA)

perfluorohexane sulfonic acid (PFHxS)

perfluorononanoic acid (PFNA)

perfluoroheptanoic acid (PFHpA)

perfluorodecanoic acid (PFDA)

[I**nclude a summary of what is known about the PFAS contamination and make the case why the presence of PFAS does not impact protectiveness. T**he case needs to be made under Question B that the presence of these co-contaminants will not affect the remedies that are in place. For example: As shown in the Data Review Section above, the data to date shows

exceedances of these newly promulgated standards under the waste management area but not in the area outside of the landfill.]

At this time EPA has made no determination of whether these new standards will be adopted for this Site. For purposes of this five-year review, EPA has evaluated the PFAS data collected against EPA's PFOA/PFOS health advisory for drinking water of 70 ng/L(ppt) and the State's MMCLs for PFAS. EPA's health advisory of 70 ng/L (ppt) equates to a Superfund non-cancer risk of less than an HQ of 1, which is below EPA's acceptable non-cancer risk range. Thus, the existing remedy remains protective and the remedy does not need to be modified to the new MMCLs for PFAS at this time. Monitoring for PFAS should continue to ensure the remedy remains protective.

> **Army Response:** Based on the evaluation of AOC A7 in the *Final Site Inspection Report for Per- and Polyfluoroalkyl Substances (PFAS).* Former Sudbury Training Annex, Sudbury, Massachusetts (KGS, 2020b), a site investigation for PFAS at AOC A7 was not conducted and further investigation or evaluation of PFAS at AOC A7 is not planned. As further investigation or evaluation of PFAS at AOC A7 will not be conducted, a technical assessment of the remedy at AOC A7 to remain protective of potential exposure to PFAS impacted media is not applicable. PFAS investigations at Sudbury Annex are discussed in Section 12.

EPA Specific Comment 34: Page 7-2, *Changes in Toxicity and Other Contaminant Characteristics* - This section is missing the following text from EPA Region 1's template for PFAS.

2016 PFOA/PFOS non-cancer toxicity values

In May 2016, EPA issued final lifetime drinking water health advisories for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), which identified a chronic oral reference dose (RfD) of 2E-05 mg/kg-day for PFOA and PFOS (USEPA, 2016a and USEPA, 2016b). These RfD values should be used when evaluating potential risks from ingestion of contaminated groundwater at Superfund sites where PFOA and PFOS might be present based on site history. Potential estimated health risks from PFOA and PFOS, if identified, would likely increase total site risks due to groundwater exposure. Further evaluation of potential risks from exposure to PFOA and PFOS in other media at the Site might be needed based on site conditions and may also affect total site risks.

[Insert brief paragraph about site-specific PFOA/PFOS information, if applicable.]

2014 PFBS non-cancer toxicity value

Perfluorobutanesulfonic acid (PFBS) has a chronic oral RfD of 2E-02 mg/kg-day based on an EPA Provisional Peer Reviewed Toxicity Value (PPRTV) (USEPA, 2014a). This RfD value should be used when evaluating potential risks from ingestion of contaminated groundwater at Superfund sites where PFBS might be present based on-site history. Potential estimated health risks from PFBS, if identified, would likely increase total site risks due to groundwater exposure. Further evaluation of potential risks from exposure to PFBS in other media at the Site might be needed based on site conditions and may also affect total site risks.

[Insert brief paragraph about site-specific PFBS information, if applicable.]

Army Response: See response to EPA Specific Comment 33.

EPA Specific Comment 35: Page 8-1, Section 8.0 – Revise text to the following: "For this fifth five-year review, an issue at AOC A7 is damage to the perimeter fence."

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 36: Page 9-1 – Edit to the following: "Based on the issue identified in the previous section, the Recommendation and its targeted completion date is the following:

Repair perimeter fence, (Add date for completion of repair)

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 37: Page 9-1, Section 9.0, Para 2 –The proposed LTMMP modifications should be specifically identified as an action that doesn't not impact the protectiveness of the remedy. EPA typically identifies such actions in an "Other Findings" section below the Recommendations section. Add the following text after 1st paragraph:

Other Findings

AOC A7

An analysis of monitoring data at AOC A7 over the five-year review period showed reduction on contaminant concentrations to low concentrations or nondetect. Therefore, the Army recommends an update to LTMMP elimination of analysis for pesticides, cyanide, chemical oxygen demand, and decrease in sampling frequency to once every five years, (Add submission date for update)

AOC A9 and P13

Based on a site investigation, PFAS has been confirmed to be present at AOC A9 and P13. Follow-up PFAS investigations at both sites are described in Section 12.2. At AOC A9, the USGWS water supply well installed in 2016 poses a potential human health risk exposure point. Until the investigations are complete, a risk determination is made, and a cleanup remedy (if needed) is selected, the Army is ensuring protection of human health by: preventing the use of the USFWS water supply well; collecting groundwater samples and other hydraulic data to determine whether or not the overburden aquifer is connected to the bedrock aquifer; and, if needed, installing wellhead treatment if needed (reference Army letter dated May 14, 2021).

Army Response: The second paragraph was revised as follows:

*"**Other Findings***

An analysis of monitoring data at AOC A7 over the five-year review period showed reduction of contaminant concentrations to low concentrations or nondetect. Therefore, the Army recommends an update to LTMMP that includes elimination of analysis for pesticides, cyanide and COD, and a decrease in sampling frequency to once every five years for VOCs.

The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance."

PFAS investigations at Sudbury Annex, including AOC A9 and P13, are addressed in Section 12. No text revisions are proposed for Section 9. A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process.

The Army is continuing to confirm that the USFWS water supply well poses no risk to human health through additional evaluation of the hydraulic connection between the overburden and the bedrock to assess potential risk of contaminated water entering the well, and is working on installation of wellhead treatment for the water supply well.

EPA Specific Comment 38: Page 9-1, Section 9.0, Para 3 – Delete this section of the recommendation. The 30-year period is generally used for cost estimating. So long as contaminants remain on site above levels that allow for unlimited use and unrestricted exposure, monitoring, and operation and maintenance is required to support future five-year reviews.

Army Response: See response to EPA Specific Comment 14.

EPA Specific Comment 39: Page 10-1, Section 10.0 –The Protectiveness Statement should be revised to:

"The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired, to ensure long-term protectiveness."

Army Response: See response to EPA Specific Comment 15.

EPA Specific Comment 40: Page 11-1, Section 11.0 – Assuming finalization of this FYR by the end of September, edit to: "The next FYR report is projected to be completed by September 2026."

Army Response: The text was revised per the comment.

EPA Specific Comment 41: Page 12-1, Section 12.0, Para 1, 3rd Sentence - The statement - "*Although PFAS is not currently a CERCLA-regulated contaminant, the USACE is following the CERCLA process for the investigation*." – is incorrect. First, the FFA covers hazardous substances as well as pollutants and contaminants. Also, the definitions of CERCLA apply, and PFAS falls within the definition of pollutant or contaminant in CERCLA 101(33). Thus, please revise the sentence to state that 'PFAS is not currently a CERLCA-regulated hazardous substance.'

Army Response: The sentence was deleted.

EPA Specific Comment 42: Page 12-1, Section 12.2, Para 3, Bullet 1 – Add a sub-bullet for each site, AOC A9 and P13, and include maximum detected PFAS in groundwater and soil for each.

Army Response: The following text was added as a sub-bullet to the first bullet:

"Maximum concentration in soil at AOC A9 was PFOS = 360 (estimated) micrograms per kilogram, PFOA 7.1 micrograms per kilogram.

- *Maximum concentration in groundwater at AOC A9 PFOS = 11,000 ng/L,*

PFOA = 1,500 ng/L.

- *Maximum concentration in groundwater at AOC P13 PFOS = 130 ng/L, PFOA = 100 ng/L."*

EPA Specific Comment 43: Table 8 - Suggest adding definition for "NS" under "Maximum Concentration" column under Notes. Also, the "NS" is missing in some other Tables under the "Field Parameter" Sections. Suggest keeping it consistent.

Army Response: Tables 6 through 11 were revised, where needed, to include NS (No Standard) for the field parameters and NS was added to the notes.

EPA Specific Comment 44: Table 9 - Suggest adding definition for "R" qualifier under Notes.

Army Response: The table was revised per the comment.

EPA Specific Comment 45: Figure 1 & 2 – P13 is shown on Figure 7. As PFAS Add P13 to figure.

Army Response: P13 is shown on Figure 7. As the PFAS investigations are not part of the AOC A7 FYR, P13 was not included into the introductory figures of the FYR.

U.S. ARMY RESPONSES TO MASSACHUSETTS DEPARMENT OF ENVIRONMENTAL PROTECTION COMMENTS ON THE DRAFT FIFTH FIVE-YEAR REVIEW REPORT FOR FORMER SUDBURY TRAINING ANNEX FOR AOC 7 SUDBURY FORMER TRAINING ANNEX, SUDBURY, MA

The following U.S. Army responses pertain to the Massachusetts Department of Environmental Protection (MassDEP) comments, dated 28 May 2021 on the Draft *Fifth Five-Year Review Report for Former Sudbury Training Annex for AOC A7* which was submitted on 3 May 2021.

PAGE-SPECIFIC COMMENTS

MassDEP Specific Comment 1: Executive Summary - References to Section 11 and Appendix G here and elsewhere in the report should be corrected (Annex-wide PFAS is discussed in Section 12 and the Army-FWS MOU is presented in Appendix F).

> **Army Response:** The references to Section 11 and Appendix G were revised throughout the document where appropriate.

MassDEP Specific Comment 2: Executive Summary, Final paragraph, and Section 9.0, Second paragraph. MassDEP disagrees with the recommendation to eliminate pesticides analyses from the monitoring program and the recommendation to reduce the sampling frequency to 5 years. Continued monitoring of pesticides and continued monitoring at the current frequency is warranted because: (1) pesticides are contaminants of concern that persist in site groundwater (e.g., Lindane was reported slightly below the PAL in a Fall 2020 sample), and (2) the recommended frequency of sampling will not be sufficient to support the termination of post-closure period application the Army plans to submit in 2026.

> **Army Response:** Pesticide concentrations in groundwater have decreased over time and have been nondetect or below the PALs since 2015. These data indicate the landfill cap is performing as intended; specifically, the RAOs of minimizing off-site migration of contaminants and limiting infiltration of precipitation to minimize leachate generation and groundwater degradation have been attained by installation of the cap. The cap performance has been verified through monitoring since the cap installation in 1996. There are no groundwater cleanup criteria for AOC A7, and attainment of specific contaminant concentrations is not a goal of the remedy.
>
> Sampling frequency is not specified in the Post-Closure Requirements (40 CFR 254.117, 310 CMR 30.633, 310 CMR 30.591 & 592, and 310 CMR 19.142) nor is there a recommended sampling frequency to support termination of Post-Closure Requirements. The continuation of the post-closure period will be assessed in accordance with the 2016 EPA Memorandum: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA. The transition from Post-Closure Care to Custodial Care will be evaluated using the 2006 Interstate Technology & Regulatory Council's Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on site-Specific Data Evaluations. Specific text revisions are provided in response to EPA Text revisions are detailed in response to EPA Specific Comments 25 and 37.

MassDEP Specific Comment 3: Section 1.0, First Paragrah. The sentence indicating that no action was required for groundwater at AOC A7 appears to be inconsistent with the on-going, ROD-specified groundwater monitoring program.

> **Army Response:** The groundwater monitoring program was developed based on the requirements in the AOC A7 Source Control ROD to develop an environmental monitoring program at AOC A7, as indicated in Section 4.2 Remedy Selection. The program was designed to monitor the effectiveness of the cap, which was the selected remedy to achieve the RAOs, specifically to evaluate minimization of off-site migration of contaminants and evaluate the limiting of infiltration of precipitation to minimize leachate generation and groundwater degradation.

MassDEP Specific Comment 4: Table 5, Issues 1 and 6, and Section 5.2, Issues 1 and 6. The descriptions of the outcomes for these issues are incomplete and misleading. During the review period, PFAS was discovered with concentrations exceeding the state drinking water standard in samples collected from AOC A9, and a decision on the imposition of LUCs to prevent extraction of groundwater at AOC A9 has been deferred until the after the results from the on-going PFAS Supplemental Site Inspection are available (refer to SSI work plan). In addition, MassDEP is not aware of any legal obstacle to imposing LUCs on groundwater use on AOC A9. On the contrary, the existing irrigation well permit is likely invalid due to an incomplete application (reportedly, the application did not disclose that the well was installed at a federal cleanup site), the Army-FWS MOU (Appendix F) prohibits drilling beneath 4 feet at the site, and the installation of a well for extraction of potable water is inconsistent with the ROD, which was based on the assumption that a potable water well would not be installed at the site. A relatively straight-forward report revision could simply note that AOC A9 is not under review in this report and explain briefly that Issues 1 and 6 will be resolved outside of the current five-year review process during the on-going PFAS response actions.

> **Army Response:** There is no requirement in Town of Stow well regulations to indicate in the well permit application that the proposed well is located in a federal cleanup site and therefore the permit would not be considered invalid based on the omission of that information.
>
> The language in the Army-USFWS Memorandum of Agreement (MOA) with respect disturbance of subsurface soil below four feet is not a CERCLA land use control established in support of the CERCLA remedy at the former Sudbury Annex. The MOA indicates that USFWS acknowledges there is potential for explosives or ordnance (OE) and OE-related material across the entire Annex and that if USFWS or its successor choose to disturb any soil below four feet, they can and will be responsible for costs associated with clearance or removal of OE and OE-related material below four feet.
>
> A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process. The Army is continuing to confirm that the USFWS water supply well poses no risk to human health through additional evaluation of the hydraulic connection between the overburden and the bedrock to assess potential risk of contaminated water entering the well, and is working on installation of wellhead treatment for the water supply well.

The following text was added to the Action Taken and Outcome fields for Issues 1 and 6 in Table 5 and at the end of Issue 1 in Section 5.2.

"A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process."

MassDEP Specific Comment 5: Table 5, Issues 4 and 5. The results (outcome) from the PFAS, 1,4-dioxane, and perchlorate sampling conducted at AOC A7 should summarized.

Army Response: The following text was added to the Action Taken and Outcome fields for issues 4 and 5 in Table 5:

"The results are discussed in Section 5.2."

MassDEP Specific Comment 6: Section 5.2, Issue 4; Section 6.4.2, Next to Last Paragraph; and Table 12 . Consistent with the comparison of 1-4-dioxane results to the state ORSG, the PFAS results from groundwater samples collected at AOC A7 should be compared to the state PFAS MCL, and to support the conclusion that PFAS in groundwater at AOC A7 need not be identified as a continuing issue, the report should explain why the discovery of PFAS in groundwater during the review period does not require action.

Army Response: The following text was added:

"The concentrations at OHM-A7-08 were greater than the Massachusetts Maximum Contaminant Level of the individual or summed concentration of six PFAS compounds (PFOA, PFOS, perfluorodecanoic acid [PFDA], perfluorononanoic acid [PFNA], perfluoroheptanoic acid [PFHpA], and perfluorohexanesulfonic acid [PFHxS]) of 20 ng/L. The groundwater at AOC A7 is not used for drinking water now or in the foreseeable future and is classified as GW-3 where the concentrations are based on the potential environmental effects resulting from contaminated groundwater discharging to surface water. The concentrations at AOC A7 do not exceed the Massachusetts GW-3 (PFOA = 40,000 µg/L, PFOS = 500 µg/L, PFDA = 40,000 µg/L, PFNA = 40,000 µg/L, PFHpA = 40,000 µg/L, PFHxS = 500 µg/L)."

MassDEP Specific Comment 7: Table 11. The Fall 2020 cyanide analyses were rejected and should be qualified accordingly (refer to 2020 Annual Report).

Army Response: Table 11 was revised to indicate the cyanide results from the Fall 2020 sampling event were rejected.

MassDEP Specific Comment 8: Appendix B. For the record, the FWS and COE interview forms should include interview dates.

Army Response: The USFWS and USACE interviews were revised to indicate the dates the questionnaires were received.

U.S. ARMY SECOND SET OF RESPONSES TO U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE DRAFT FIFTH FIVE-YEAR REVIEW REPORT FOR FORMER SUDBURY TRAINING ANNEX FOR AOC A7 SUDBURY FORMER TRAINING ANNEX, SUDBURY, MA

The following U.S. Army responses pertain to the U.S. Environmental Protection Agency (EPA) comments, dated August 30, 2021 on the U.S. Army responses to EPA comments dated 10 June 2021 on the Draft *Fifth Five-Year Review Report for Former Sudbury Training Annex for AOC A7.*

EPA Specific Comment 14 (June 10, 2021): Page E-ii, Para 4, 7th Sentence – Delete recommendation on landfill. The 30 year period is generally used for cost estimating. So long as contaminants remain on site above levels that allow for unlimited use and unrestricted exposure, monitoring, and operation and maintenance is required to support future five-year reviews.

> **Army Response Comment 14 (July 26, 2021):** In accordance with CERCLA, the assessment of the performance of the remedy for purposes of the five-year reviews will continue and monitoring and maintenance of the landfill will continue per the LTMP for AOC A7.
>
> Per 40 CFR 254.117, 310 CMR 30.633, 310 CMR 30.591 & 592, and 310 CMR 19.142, the post-closure period is a minimum of a 30-year period. The continuation of the post-closure period will be assessed in accordance with the 2016 EPA Memorandum: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA. The transition from Post-Closure Care to Custodial Care will be evaluated using the 2006 Interstate Technology & Regulatory Council's Evaluating, Optimizing, or Ending Post-Closure Care at Municipal Solid Waste Landfills Based on site-Specific Data Evaluations.
>
> Text revisions are detailed in response to EPA Specific Comment 25.
>
> **EPA Specific Comment 14 (August 30, 2021):** See EPA comment below on Specific Comment 25.
>
> **Army Response Comment 14 (September 8, 2021):** See response to EPA comment below on Specific Comment 25.

EPA Specific Comment 15 (June 10, 2021): Page E-ii – At end of the summary, add the following:

"For this fifth five-year review, an Issue at AOC A7 is damage to the perimeter fence. The report's Recommendation is repair of the fence.

The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired."

> **Army Response Comment 15 (July 26, 2021):** The perimeter fence is not a component of the remedy as described in the Description of the Selected Remedy in the Decision Summary portion of the ROD (OHM, 1995). The perimeter fence was installed before the

landfill cap was installed and is described as a "security fence" in the ROD (OHM, 1995).

The detailed description of the AOC A7 source control Alternative 3 in the feasibility study does not mention a fence (OHM, 1995). A fence is not mentioned in the Access and Institutional Controls portion of the alternative description. Maintenance of a fence is not described in the Post-Closure Monitoring and Maintenance portion of the alternative description.

As the fence is not a component of the alternative, a fence is not considered in evaluation of the alternative, and therefore a fence does not contribute to the Long-Term Effectiveness and Permanence of the alternative. The Long-Term Effectiveness and Permanence portion of the assessment of the alternative indicates the landfill cap will prevent direct contact with landfill contents and the "capping, combined with institutional controls such as deed restrictions and periodic inspection of the cap, aids in managing any potential direct exposure to the contaminants in soil." In the ROD, the Summary of Comparative Analysis of Alternatives section indicates the removal of waste and consolidation of waste under the cap provides an effective method of long-term contaminant of contaminates soil and debris. And effectiveness of containment is dependent on maintenance of the landfill cap; there is no mention of a fence. Therefore, a recommendation to repair the fence is not needed for the remedy to be effective in the long-term and no text change is proposed.

The Army proposes to remove the fence because it is not a component of the remedy and it prevents the movement of wildlife. The Army proposes to substitute the fence with signs.

EPA Specific Comment 15 (August 30, 2021): EPA disagrees with the Army's response on two points – fencing as a component of the remedy and removal of the fence - and further requests the Army provide a completion date for repairs to the fence.

EPA maintains that the fence is part of the remedy based on text from the AOC A7 Record of Decision from 1995. In the description of remedial alternatives 2 and 3 (alternative 3 was the selected remedy and is essentially remedial alternative 2 plus additional components) for AOC A7 in the 1995 ROD, the following language is included:

- In the discussion of alternative 2, the ROD states, "Long-term O&M will include maintenance of the cap, ***site fencing***, drainage, and landfill gas control systems." (1995 ROD, https://semspub.epa.gov/work/01/51668.pdf, p. 12/113) (emphasis added).
- And, in the discussion of remedial alternative 3, the ROD states "Access to the area would be further restricted by the existing fence along the perimeter of AOC A7." (p. 13/113).
- The Responsiveness Summary also includes, "The preferred alternative involved excavating the laboratory waste and transporting the waste off site to an approved facility, excavation of contaminated soil and solid waste followed by consolidation in the central landfill area of AOC A7, capping the landfill area with a RCRA Subtitle C multi-layer cap, ***fencing*** and institutional controls,

> environmental monitoring, operation and maintenance, sue monitoring and inspections, and 5-year reviews. This preferred alternative was selected in coordination with the USEPA and MADEP." (1995 ROD, Appendix B, p. 54/113) (emphasis added).

EPA maintains that the fence was contemplated at the time of the ROD and is a necessary component of the selected remedy. EPA, therefore, does not support the Army's proposal to remove the fence, and requests that the Army repair the current damage within 60 days of finalization of the report and continue to maintain the fence. From a practical standpoint, the fence protects the landfill cap and associated monitoring points from trespassers and reduces the opportunity for vandalism and unauthorized dumping.

Because the fence is part of the remedy and remains damaged, EPA continues to conclude that the remedy is only short-term protective until the fence is repaired. EPA requests that the Army's Five-Year Review report be edited to reflect that the remedy is protective in the short-term. *See* EPA specific comments #15, 18. Additionally, as it originally requested in its comments on the draft report, EPA requests that Army add the following statement: "Damage to the perimeter fence at AOC A7 (OU1) is recommended for repair" to the issues and recommendations section (and table) with a completion due date for the repairs to the fence damage. Finally, please incorporate EPA's other related comments addressing the fence issue, as set forth in EPA specific comments #24, 29, 30, 31, 35, 36, and 39.

Alternatively, if Army chooses instead to repair the fence in the short-term and can complete this task by September 24, 2021, the text can be changed to reflect that the remedy is "Protective" with no follow up Issues or Recommendations.

Army Response Comment 15 (September 8, 2021): The text of the Executive Summary was revised as follows:

> *"For this fifth five-year review, an Issue at AOC A7 is damage to the perimeter fence. It is recommended that the perimeter fence be repaired.*
>
> *The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired."*

The Issues and Recommendations and Protectiveness Statement Section in the table in the Executive Summary was also revised accordingly as shown below.

Issues and Recommendations Identified in the Five-Year Review:

OU(s):	Issue Category: Operations and Maintenance			
	Issue: The perimeter fence needs to be repaired			
	Recommendation: Repair the perimeter fence.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	Federal Facility	EPA	11/30/2021

Protectiveness Statement(s)

Former Sudbury Annex OU1	*Protectiveness Determination: Short-term Protective*	*Addendum Due Date (if applicable): N/A*

The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired, to ensure long-term protectiveness.

EPA Specific Comment 18 (June 10, 2021): Page E-iv, Protectiveness Statements – Add the following text:

"The remedy at AOC A7 (OU1) currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired to ensure long-term protectiveness."

Army Response Comment 18 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 18 (August 30, 2021): See comment 15.

Army Response Comment 18 (September 8, 2021): The Executive Summary was revised per the comment.

EPA Specific Comment 24 (June 10, 2021): Page 4-2, Section 4.3.1, Bullets – Add "perimeter fence"

Army Response Comment 24 (July 26, 2021): The perimeter fence is not a component of the remedy; it is not mentioned in the Description of the Selected Remedy in the ROD (OHM, 1995). See response to EPA Specific Comment 15.

EPA Specific Comment 24 (August 30, 2021): See comment 15.

Army Response Comment 24 (September 8, 2021): The text was revised to add "Perimeter fence".

EPA Specific Comment 25 (June 10, 2021): Page 4-4, – The discussion of the LUCs—what they are and how they were implemented—is unclear. Please add language to clarify that these LUCs were specifically identified and implemented through the MOA (Appendix F) between Army and USFWS. Further, please explain that these specific LUCs were selected to achieve the RAOs set forth in the ROD for AOC A7 and that they continue to be necessary to ensure compliance with the ROD and achievement of the RAOs.

Army Response Comment 25 (July 26, 2021): The section was revised as follows:"

"*The 1995 SC ROD required implementation of LUCs to limit future use of AOC A7. The AOC A7 LUCs are detailed in Subsection C.8 of the MOA for the transfer of property between the Army and USFWS. The LUCs indicate USFWS and its successors and assigns shall not disturb the landfill liner or any components of the containment system or function of the monitoring system. The LUCs prohibit:*

- *Surface application of water that could affect the effectiveness of the containment system.*
- *Extraction, consumption, exposure, or utilization of groundwater underlying AOC A7.*
- *Any disturbance of the surface or subsurface of that portion of land within the boundaries of AOC A7 in any manner (construction, filling, drilling, excavation, or change in topography) that might interfere with the response action within AOC A7.*
- *Any disturbance of the surface or subsurface of that portion of land within the boundaries of AOC A7 in any manner (construction, filling, drilling, excavation, or change in topography) that might interfere with the protectiveness of the remedy.*
- *Any activity within AOC A7 that will result in disturbance of the mobilization and/or transport of any hazardous substance.*
- *If the USFWS or any of its successors proposes any activity that may disturb and components of the remedy, they shall not undertake such activity unless they first obtain written approval from the Army and EPA.*
- *USFWS also agrees that it and it successors or assigns shall include in any deed the restrictive covenant detailed in Subsection C.8.*

The LUCs were designed to preserve the effectiveness of the landfill cap which in turn achieves the following RAOs:

- *Eliminate potential risk to human health and the environment associated with exposure to contaminated wastes;*
- *Minimize off-site migration of contaminants, and;*
- *Limit infiltration of precipitation to the underlying waste within the landfill area, thereby minimizing leachate generation and ground water degradation.*

The LUCs also prevent exposure to groundwater at AOC A7.

The LUCs are monitored in accordance with the Land-Use Control Implementation and Monitoring Plan (KGS, 2020c). Existing land use and site conditions are assessed during an annual physical on-site inspection and during annual interviews with site representatives. The results are included in annual reports. The results of the inspections for the last five years are included in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021).

Preservation of the effectiveness of the landfill cap is necessary to achieve the RAOs. Activities identified in the Land-Use Control Implementation and Monitoring Plan are effective in assessing potential disturbance of the landfill cap."

The first three paragraphs on page E-ii were revised as follows:

"During the FYR period, AOC A7, was subject to operation and maintenance inspections of the landfill cap, landfill gas vent monitoring, groundwater sampling and analysis, and water level monitoring. LUCs in place at the former Sudbury Training Annex ensure protectiveness of the remedy from adjacent landowners and involved entities. The LUCs required by the 1995 SC ROD are detailed in Clause C8 of the Memorandum of Agreement (MOA) between the U.S. Army (Army) and the current property owners, the USFWS dated 28 September 2000 (Appendix F). The LUCs protect the AOC A7 landfill from tampering, described as surface application of water, the use of groundwater, disturbing the parcel by earthworks that would negatively affect any response actions or jeopardize the remedy, activities that might impede the function of the containment design, or any unauthorized work that might be done without the consent of EPA and the Army on the landfill cap itself.

The land use at AOC A7 has not changed from the wildlife refuge use evaluated prior to the ROD and is not expected to change. The remedy at AOC A7 protects human health and the environment because the landfill is capped. Contaminant concentrations detected in groundwater have decreased over time at AOC A7. The landfill cap at AOC A7 remains in good condition and continues to function as intended by the 1995 SC ROD. No protectiveness issues were identified in this FYR. No recommendations were identified related to issues during this FYR. It is recommended that the long-term monitoring and maintenance plan (LTMMP) be revised to eliminate analysis of pesticides, cyanide, and chemical oxygen demand as concentrations have decreased and remained low or nondetect. It is also recommended that the sampling frequency be decreased to once every five years one

year prior to the next FYR as concentrations have decreased to low concentrations or are nondetect. The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance."

The following reference was added to Appendix A:

USEPA, 2016c. Memorandum: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA.

The first two paragraphs of 7.0 Technical Assessment, Implementation of Institutional Controls and Other Measures were revised as follows:

"The LUCs required by the 1995 SC ROD are detailed in Clause C8 of the MOA between the Army and the USFWS. The MOA was reviewed and indicates that the AOC A7 landfill site is protected by Clause C8 from tampering, described as surface application of water, the use of groundwater, disturbing the parcel by earthworks that would negatively affect any response actions or jeopardize the remedy, activities that might impede the function of the containment design, or any unauthorized work that might be done without the consent of EPA and the Army on the landfill cap itself. There are provisions in the MOA allowing for the Army to conduct remedial actions at the former Sudbury Training Annex. A map of the Assabet River National Wildlife Refuge, owned by USFWS, was reviewed as part of this FYR and AOC A7 is within the boundaries of the refuge.

LUCs are in place and functioning properly. Review of the annual LUC inspection checklists and interviews contained in the 2016 through 2020 Annual Reports (KGS, 2017b, 2018b, 2019b, 2020b, Seres-Arcadis JV, 2021) was conducted. The annual interviews of USFWS personnel indicate USFWS is aware of the LUCs and that no actions have occurred at the site that violate the LUCs. The annual LUC inspections and interviews and the FYR site inspection indicate land use at the AOC A7 has not changed from the presumed future wildlife refuge use evaluated prior to the ROD and is not expected to change."

EPA Specific Comment 25 (August 30, 2021): The text in the third paragraph of the proposed for first three paragraphs on Page E-ii should include language that makes clear: 1) the FYR monitoring requirements continue so long as there is CERCLA waste remaining on-site; and 2) the discussion of the upcoming post-closure care evaluation does not have a preemptive conclusion of any kind. For example, the language as it is written suggests that the post-closure care will be allowed to automatically end at the 30-year mark and shift to "custodial care," but until the evaluation occurs, that is not conclusive.

The RTC revised language states: "*The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance." (Army Response #25).*

EPA requests editing the language, at least, to state something like the following (in red): *"The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and if after completing this assessment it is deemed appropriate, transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance."*

Army Response Comment 25 (September 8, 2021): The last sentence of the paragraph was revised as follows:

> *"The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and if after completing this assessment it is deemed appropriate, transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance. Monitoring is required so long as there is CERCLA waste remaining on-site."*

The last sentence of Section 9.0 was revised as follows:

> *"The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and if after completing this assessment it is deemed appropriate, transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance."*

EPA Specific Comment 29 (June 10, 2021): Page 7-1, Section 7.0, QUESTION A, Question A Summary – Following EPA's Five Year Review guidance, change "Yes" to "No" due to the perimeter fence damage. [See language at EPA "Comprehensive Five Year Review Guidance" (EPA 540-R-01-007), page 4-3, Section 4.1.1: "… you should confirm that access controls (e.g., fencing, security guards) necessary at this stage of the remediation are in place and successfully prevent exposure."]

Army Response Comment 29 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 29 (August 30, 2021): See comment 15.

Army Response Comment 29 (September 8, 2021): The response to Question A was revised to "No".

EPA Specific Comment 30 (June 10, 2021): Page 7-1, Section 7.0, QUESTION A, Question A Summary, Para 1, Last Sentence – At the end of the sentence, add ", however due to damage to the perimeter fence, the remedy is not considered to be functioning as intended."

Army Response Comment 30 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 30 (August 30, 2021): See comment 15.

Army Response Comment 30 (September 8, 2021): The following was added to Section 7.0 at the end of the last sentence in the first paragraph of Question A, page 7-1:

"however, due to damage to the perimeter fence, the remedy is not considered to be functioning as intended."

EPA Specific Comment 31 (June 10, 2021): Page 7-1, Section 7.0, QUESTION A, *Implementation of Institutional Controls and Other Measures*, Para 2, 1st Sentence – Edit to "LUCs are in place, however, due to damage in the perimeter fence which was discovered during the January 2021 site inspection, the LUCs, as a whole, are not functioning properly."

Army Response Comment 31 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 31 (August 30, 2021): See comment 15.

Army Response Comment 31 (September 8, 2021): The first sentence in the second paragraph of Section 7.0 Implementation of Institutional Controls and Other Measures, on page 7-1 was changed to read as follows:

"LUCs are in place, however, due to damage in the perimeter fence which was discovered during the January 2021 site inspection, the LUCs, as a whole, are not functioning properly."

EPA Specific Comment 35 (June 10, 2021): Page 8-1, Section 8.0 – Revise text to the following: "For this fifth five-year review, an issue at AOC A7 is damage to the perimeter fence."

Army Response Comment 35 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 35 (August 30, 2021): See comment 15.

Army Response Comment 35 (September 8, 2021): The text of Section 8.0, page 8-1 was revised as follows:

"For this fifth five-year review, an issue at AOC A7 is damage to the perimeter fence."

EPA Specific Comment 36 (June 10, 2021): Page 9-1 – Edit to the following: "Based on the issue identified in the previous section, the Recommendation and its targeted completion date is the following:

Repair perimeter fence, (Add date for completion of repair)

Army Response Comment 36 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 36 (August 30, 2021): See comment 15.

Army Response Comment 36 (September 8, 2021): The first sentence of Section 9.0, page 9-1 was revised as follows:

"Based on the Issue identified in the previous section, the Recommendation and its targeted completion date is the following: repair perimeter fence, November 30, 2021.

EPA Specific Comment 37 (June 10, 2021): Page 9-1, Section 9.0, Para 2 – The proposed LTMMP modifications should be specifically identified as an action that doesn't not impact the protectiveness of the remedy. EPA typically identifies such actions in an "Other Findings" section below the Recommendations section. Add the following text after 1st paragraph:

Other Findings

AOC A7

An analysis of monitoring data at AOC A7 over the five-year review period showed reduction on contaminant concentrations to low concentrations or nondetect. Therefore, the Army recommends an update to LTMMP elimination of analysis for pesticides, cyanide, chemical oxygen demand, and decrease in sampling frequency to once every five years, (Add submission date for update)

AOC A9 and P13

Based on a site investigation, PFAS has been confirmed to be present at AOC A9 and P13. Follow-up PFAS investigations at both sites are described in Section 12.2. At AOC A9, the USGWS water supply well installed in 2016 poses a potential human health risk exposure point. Until the investigations are complete, a risk determination is made, and a cleanup remedy (if needed) is selected, the Army is ensuring protection of human health by: preventing the use of the USFWS water supply well; collecting groundwater samples and other hydraulic data to determine whether or not the overburden aquifer is connected to the bedrock aquifer; and, if needed, installing wellhead treatment if needed (reference Army letter dated May 14, 2021).

Army Response Comment 37 (July 26, 2021): The second paragraph was revised as follows:

*"**Other Findings***

An analysis of monitoring data at AOC A7 over the five-year review period showed reduction of contaminant concentrations to low concentrations or nondetect. Therefore, the Army recommends an update to LTMMP that includes elimination of analysis for pesticides, cyanide and COD, and a decrease in sampling frequency to once every five years for VOCs.

The landfill will be 30 years old in 2026 and it is recommended the Army assess the continuation of the post-closure period (USEPA, 2016c) and transition from Post-Closure Care to Custodial Care during the next review period (ITRC, 2006) in accordance with the referenced guidance."

PFAS investigations at Sudbury Annex, including AOC A9 and P13, are addressed in Section 12. No text revisions are proposed for Section 9. A decision on the need for LUCs at AOC A9 will be determined after the AOC A9 PFAS Supplemental Site Inspection is complete, which is outside of the FYR process.

The Army is continuing to confirm that the USFWS water supply well poses no risk to human health through additional evaluation of the hydraulic connection between the overburden and the bedrock to assess potential risk of contaminated water entering the well, and is working on installation of wellhead treatment for the water supply well.

EPA Specific Comment 37 (August 30, 2021): EPA accepts the proposed text, however the scope of the Army's actions to protect human health as described in the last paragraph of the response to this specific comment is not sufficient. EPA requests that the Army expand its scope of ensuring the USFWS water supply well does not pose a risk by conducting periodic inspections of the water supply well and coordinate with the USFWS, so that no connections are made to the water supply well. If any connection is made prior to installation of the wellhead treatment and completion of the SSI, the Army should periodically sample and analyze the water supply well for PFAS to ensure protectiveness.

Army Response Comment 37 (September 8, 2021): The Army agrees to conduct annual inspections of the water supply well and coordinate with the USFWS, so that no connections are made to the water supply well. If any connection is made prior to installation of the wellhead treatment and completion of the Sudbury PFAS Supplemental Site Investigation, the Army will sample and analyze the water supply well for PFAS to ensure protectiveness on an annual basis.

As such, the Army has added the following text at the end of Section 9.0 Recommendation and Follow up Actions, page 9-1, Other Findings Sub-Section:

"*In conjunction with USFWS, the Long-Term Monitoring Plan will be updated to indicate inspection of the USFWS Well and sampling of the USFWS well to ensure protectiveness on an annual basis.*"

EPA Specific Comment 39 (June 10, 2021): Page 10-1, Section 10.0 – The Protectiveness Statement should be revised to:

"The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective in the long term, the perimeter fence needs to be repaired, to ensure long-term protectiveness."

Army Response Comment 39 (July 26, 2021): See response to EPA Specific Comment 15.

EPA Specific Comment 39 (August 30, 2021): See comment 15.

Army Response Comment 39 (September 8, 2021): Section 10 was revised per the comment. The text of Section 10.0, page 10-1 was revised as follows:

"*The remedy at AOC A7 currently protects human health and the environment because the landfill is capped, and the cap is functioning as designed. The LUCs are in effect and prevent use of the site. Annual and FYR site inspections and site interviews confirm that LUCs are enforced. In order for the remedy to be protective*

in the long term, the perimeter fence needs to be repaired, to ensure long-term protectiveness."

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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September 15, 2021

Robert Simeone
Department of the Army
Base Realignment and Closure Division
U.S. Army Garrison Fort Devens
30 Quebec Street, Unit 100
Devens, MA 01434-4479

Re: *Draft Fifth Five-Year Review Report for Former Sudbury Training Annex for AOC A7, Sudbury, Massachusetts*

Dear Mr. Simeone:

EPA Region 1 has completed its review of the Army's responses dated September 8, 2021 to EPA's letter dated August 30, 2021 which was a response to the Responses to Comments (RTC) letter dated July 26, 2021 on the *Draft Fifth Five-Year Review Report for Former Sudbury Training Annex for AOC A7, Sudbury, Massachusetts.*

EPA accepts the Army's responses and has no further comments. Our office acknowledges that the final five-year review report identifies the issue 'the perimeter fence needs to be repaired,' and a completion date of November 30, 2021 for the recommendation of 'repair the perimeter fence.'

Please contact me at (617) 918-1392 should you have any questions.

Sincerely,

Robert Lim, Remedial Project Manager
Superfund Federal Facilities & Information Management Section

cc: Anni Loughlin/EPA
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