

**U.S. Army Corps of Engineers
Omaha District**

**Draft Phase I – Reconnaissance
Site-Specific Work Plan
Northwest Maneuver Area
FUDS Property No. F10OR0208**

**Site Inspections at Multiple Sites, NWO Region
Formerly Used Defense Sites
Military Munitions Response Program**

**Contract No. W912DY-04-D-0010
Delivery Order No. 003**

February 2008



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DRAFT

PHASE I – RECONNAISSANCE SITE-SPECIFIC WORK PLAN

NORTHWEST MANEUVER AREA
FUDS Property No. F10OR0208

Formerly Used Defense Sites
Military Munitions Response Program

Submitted to:

U.S. Department of the Army
U.S. Army Corps of Engineers, Omaha District

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List of Acronyms and Abbreviations

AOC	area of concern
ASR	Archives Search Report
BLM	U.S. Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CSM	Conceptual Site Model
DERP	Defense Environmental Restoration Program
DMM	discarded military munitions
DoD	U.S. Department of Defense
EPA	U.S. Environmental Protection Agency
FUDS	Formerly Used Defense Site
GPS	global positioning system
MC	munitions constituents
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
MRA	munitions response area
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDAI	No Department of Defense Action Indicated
NWMA	Northwest Maneuver Area
NWO	U.S. Army Corps of Engineers, Omaha District Military Munitions Design Center
ODEQ	Oregon Department of Environmental Quality
PRG	Preliminary Remediation Goal
ROE	right of entry
SAP	Sampling and Analysis Plan
Shaw	Shaw Environmental, Inc.
SI	Site Inspection
SSHP	Site Safety and Health Plan
SSWP	Site-Specific Work Plan
TPP	Technical Project Planning
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
UXO	unexploded ordnance
Work Plan	<i>Final Type I Work Plan</i>

1.0 Introduction

This Site-Specific Work Plan (SSWP) presents the information necessary to conduct field reconnaissance activities associated with a Site Inspection (SI) planned at the Northwest Maneuver Area (NWMA) (Figure 1). Since the historical information is limited, the aerial extent of the property is expansive, and the areas of concern are not specific, the SI field activities for the NWMA will be conducted using a phased approach. The first phase will consist of visual site reconnaissance for munitions and explosives of concern (MEC) at locations related to historical use of the Formerly Used Defense Site (FUDS) property, at locations negotiated with the Oregon Department of Environmental Quality (ODEQ), and at locations chosen based on information disseminated from personal interviews. Because of the vast land area covered by the NWMA and the resulting number of rights-of-entry (ROE) required for access, it is impractical and unrealistic to conduct a visual survey of everything; therefore, emphasis was placed on identifying locations to conduct visual reconnaissance while still providing adequate evaluation of the NWMA. Locations will be focused on federal-owned or state-owned parcels with limited reconnaissance activities performed on privately-owned parcels.. Following the completion of the visual site reconnaissance, this draft SSWP will be revised to include the results of the site reconnaissance and identify proposed locations for sampling and analysis of media for munitions constituents (MC) (Phase II).

MEC are military munitions that may pose unique explosives safety risks, such as unexploded ordnance (UXO), discarded military munitions (DMM), or MC present in high enough concentrations to pose an explosive hazard. MC are any materials originating from UXO, DMM, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S. Code [USC] 2710(e)(3) and 10 USC 2710(e)(2)).

1.1 Project Authorization

The U.S. Department of Defense (DoD) has established the Military Munitions Response Program (MMRP) to address DoD sites suspected of containing MEC or MC. Under the MMRP, the U.S. Army Corps of Engineers (USACE) is conducting environmental response activities at FUDS for the Army, the DoD Executive Agent for the FUDS program.

Pursuant to USACE Engineer Regulation 200-3-1 (2004a) and the *Management Guidance for the Defense Environmental Restoration Program* (DERP) (DoD, 2001), USACE is conducting FUDS response activities in accordance with the DERP statute (10 USC 2701 et seq.), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 USC 9601), Executive Orders 12580 and 13016, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] Part 300). As such, USACE is conducting remedial SIs, as set forth in the NCP, to evaluate hazardous substance releases or threatened releases from eligible FUDS.

While not all MEC/MC constitute CERCLA hazardous substances, pollutants, or contaminants, the DERP statute provides DoD the authority to respond to releases of MEC and MC, and DoD policy states that such responses shall be conducted in accordance with CERCLA and the NCP.

Shaw Environmental, Inc. (Shaw) is responsible for conducting SIs at FUDS in the Northwest Region managed by the USACE Northwestern Division Omaha District (NWO) Military Munitions Design Center. Shaw has prepared this SSWP for the USACE, under USACE Contract No. W912DY-04-D-0010, as a supplement to the *Final Type I Work Plan* (Work Plan; Shaw, 2006).

1.2 Site Name and Location

The NWMA FUDS (FUDS property number F10OR0208) is located in central and south-central Oregon and consists of approximately 8 million acres, including portions within Jefferson, Deschutes, Crook, Grant, Lake, Harney, and Klamath counties (Figure 1). Land was used by the DoD to facilitate a large-scale force-on-force exercise during September, October, and November 1943, prior to deployment of the IV Corps unit of the Army into its World War II theatre of operations. Between 75,000 and 100,000 troops and 12,000 vehicles participated in the war games. This FUDS is situated on land owned by the State of Oregon, the United States, and private individuals and entities. The FUDS property boundary is shown on Figure 2. Encompassed in its boundary are six separate identified FUDS (Figure 2). They are as follows:

- Central Oregon Air to Air Gunnery Range F10OR017000
- Camp Abbot F10OR004100
- Fort Rock Maneuver Area F10OR018000
- Redmond Precision Bombing Range F10OR021900
- Redmond Air to Ground Gunnery Range F10OR021700
- Redmond Army Air Field F10OR002800

Of these, only Camp Abbot and the Central Oregon Air to Air Gunnery Range FUDS are included in the MMRP Inventory in the *Defense Environmental Programs Annual Report to Congress Fiscal Year 2006* (DoD, 2006). An SI has been completed for both Camp Abbot (Shaw, 2007a) and the Central Oregon Air to Air Gunnery Range (Shaw, 2007b) FUDS sites and have been reviewed by ODEQ.

The Archives Search Report (ASR) (USACE, 1995) indicates the NWMA consists of 6,890,880.08 acres of land. Coupled with the lands of the six FUDS within the boundary of the NWMA, total acreage available for the NWMA exceeded 8 million acres.

The NWMA is included in the MMRP Inventory (DoD, 2006) with the only range information identified as the anti-tank minefield (F10OR020801R01). The *ASR Supplement*

(USACE, 2004b) identifies the range as being located on private land in the Fort Rock Valley approximately 7 miles northwest of the town of Christmas Valley, Oregon. The *ASR Supplement* indicates that the size of the anti-tank minefield range is based on an assumed “standard pattern” practice minefield site. This would result in a minefield three rows deep, each row with three belts of mines, yielding a total depth of about 300 feet. The length of the minefield would have been dependent on the terrain and is estimated to be about 1,200 feet. Assuming a conservative explosive safety distance of 200 feet, the resultant range cell would total approximately 18 acres.

1.3 Scope and Objectives

The primary objective of the MMRP SI is to determine whether or not a FUDS project warrants further response action under the CERCLA and the NCP (40 CFR 300). The SI collects the minimum amount of information necessary to make this determination, as well as it (i) eliminates from further consideration those releases that pose no significant threat to public health or the environment; (ii) determines the potential need for removal action; (iii) collects or develops additional data, as appropriate, for Hazard Ranking System scoring by the U.S. Environmental Protection Agency (EPA) (1990); and (iv) collects data, as appropriate, to characterize the release for effective and rapid initiation of the remedial investigation and feasibility study process. An additional objective of the MMRP SI is to collect the appropriate data necessary to complete the Munitions Response Site (MRS) Prioritization Protocol (DoD, 2005).

The scope of the SI is restricted to evaluation of the presence of MEC or MC related to historical use of the FUDS prior to transfer of the property. Potential releases of hazardous, toxic, or radioactive wastes are not addressed within this scope. The intent of the SI is to confirm the presence or absence of contamination from MEC and/or MC. The general approach for each SI is to conduct a records review and visual site reconnaissance in order to evaluate the presence or absence of MEC and to collect samples (Phase II) at locations where MC might be expected based on the Conceptual Site Model (CSM) (Appendix A). As indicated previously, the field work for the SI for the NWMA will be conducted using a phased approach. Phase I will consist of visual site reconnaissance. Based on the findings of the visual site reconnaissance, proposed locations will be identified to collect and analyze media samples (Phase II).

1.4 Site Inspection Process

The steps involved in conducting an SI for the NWMA include the following:

1. Review the existing data,
2. Apply the Technical Project Planning (TPP) process,
3. Prepare this visual site reconnaissance SSWP,
4. Perform Phase I of the SI field activities (visual site reconnaissance),

5. Revise this SSWP to include the results of the visual site reconnaissance and identify sample locations,
6. Perform Phase II of the SI field activities (media sampling and analysis), and
7. Prepare the SI Report.

The TPP process is one through which project objectives and data collection processes are identified, and site stakeholders are brought together to discuss goals and objectives. This process includes the following phases:

- Identification of the current project area,
- Determination of data needs,
- Development of data collection options, and
- Finalization of the data collection program.

A multi-disciplinary team of key stakeholders attended a TPP meeting(s) in order to participate in the process so SI activities can be conducted in a timely and efficient manner.

1.5 Munitions Response Site Prioritization Protocol

The DoD is required to assign a relative priority for each MRS within a munitions response area (MRA). This process is to be completed for all DoD sites including FUDS, which are known or suspected of containing UXO, DMM, or MC.

Definitions:

Defense Sites – Locations that are or were owned by, leased to, or otherwise possessed or used by the DoD. The term does not include any operational range, operating storage, or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions (10 USC 2710(e)(1)).

Munitions Response Area – An MRA refers to any area on a Defense Site that is known or suspected to contain UXO, DMM, or MC. Examples are former ranges and munitions burial areas. An MRA can be comprised of one or more MRS (32 CFR 179.3).

Munitions Response Site – A discrete location within an MRA that is known to require a munitions response (e.g., remedial response) (32 CFR 179.3). MRS Prioritization Protocol scoring is completed for each MRS.

1.6 TPP Summary

The TPP Meeting for the NWMA FUDS was held on April 26, 2007, at the Bend Senior Citizen Center located in Bend, Oregon. Representatives from the USACE - Omaha Design Center, USACE - Seattle District, ODEQ, U.S. Forest Service, U.S. Bureau of Land Management (BLM), and Shaw were in attendance.

During the meeting, historical site information was discussed and the CSM and proposed SI approach for the NWMA, addressing MEC reconnaissance and MC sampling, were reviewed. The USACE and ODEQ came to mutual agreement with the approach and the decision rules that were developed during the TPP meeting and the review of the final TPP Memorandum (Shaw, 2007c). Key TPP agreements include:

Areas of Concern: One specific area of concern (AOC) has been identified within the site, an Anti-tank Minefield, as presented in the ASR (USACE, 1995). However, the NWMA also consists of additional FUDS (Central Oregon Air to Air Gunnery Range, Camp Abbot, Fort Rock Maneuver Area, Redmond Precision Bombing Range, Redmond Air to Ground Gunnery Range, and Redmond Army Airfield). Two of these FUDS, Camp Abbot and the Central Oregon Air to Air Gunnery Range, are being evaluated under the MMRP. SI reports have been completed (Shaw, 2007a and 2007b) and reviewed by the ODEQ.

Reconnaissance Objectives: The TPP team agreed that the SI would include visual field reconnaissance activities in Christmas Valley (location of anti-tank minefield) and the 1943 maneuver route. ODEQ requested that reconnaissance also be performed at the Redmond Precision Bombing Range and the Redmond Air to Ground Gunnery Range. Reconnaissance will be performed to:

- Confirm site conditions and land usage,
- Observe evidence of MEC and munitions history, and
- Select optimal sample locations (biased toward evidence of MEC, if observed).

The proposed field investigation and sampling to be conducted at the NWMA will be conducted in a phased approach. The first phase will consist of visual field reconnaissance surveys at various locations throughout the NWMA FUDS to determine the presence of MEC and to identify potential sampling locations. Collection of samples at identified locations will be the second phase of the investigation.

MC Sampling: The TPP team agreed in principle that sampling for MC is appropriate for the site. However since the TPP Meeting, it was decided by the USACE and ODEQ that sampling locations could not be identified until completion of the visual site reconnaissance. The location and analytical parameters for the samples will be determined based on the results of the visual reconnaissance and any observed evidence of MEC. However, based on historical information, the analytical suite will likely consist of select metals and explosives.

Background Sampling: The TPP team agreed in principle that background sampling for the site is appropriate; however, no specifics were discussed. Based on the results of the site reconnaissance (Phase I), sample locations for Phase II will be identified. The background sampling approach will be presented in the revised SSWP based on the results of Phase I.

Screening Values: ODEQ indicated at a previous TPP Meeting for the Kingsley Firing Range Annex that the EPA Region 9 residential soil and tap water Preliminary Remediation Goals (PRG) for human health screening values have not been updated for a number of years. Therefore, ODEQ requested that EPA Region 6 PRGs be used for evaluation. Region 6 PRGs will also be used for screening at the NWMA.

Other Stakeholders: Representatives of the BLM and U.S. Forest Service, who own a large portion of the land within the NWMA were present at the TPP Meeting and were provided the ROE request documentation.

The USACE - Seattle District indicated that they would contact the applicable Indian tribes regarding the planned investigation as necessary. During further discussions, the USACE District Project Manager indicated that in October 2006 the Army initiated conversations with the Umatilla Confederated Tribes during coordination of the Army's MMRP-SI activities on northeastern Oregon FUDS property. During those discussions, the Tribes acknowledged that the SI would be primarily a visual and nonintrusive geophysical inspection. The SI would also include limited soil sampling as deep as 6 inches. Since the Tribe did not have resources to participate in the inspection, the Army agreed to contact the Tribes and the landowners if historic or cultural items were encountered. Therefore, any applicable Tribes will only be contacted if historic or cultural items are encountered

1.7 Decision Rules

The following proposed data quality objectives and decision rules that will guide Shaw's technical approach at various stages of the SI as the specific AOC is evaluated:

Based on the presence or absence of MEC, is a No Department of Defense Action Indicated (NDAI) or is a remedial investigation/feasibility study warranted?

Utilizing trained UXO personnel and handheld magnetometers, a visual search will be conducted searching for physical evidence to indicate the presence of MEC (e.g., MEC on the surface, munitions debris, craters, or soil discoloration indicative of explosives. According to the *ASR Supplement* (USACE, 2004b), there are several documented reports of ordnance being found on the site. This included practice anti-tank mines found on a property in Christmas Valley, Oregon and a practice bomb found in the sand dunes near Christmas Valley. Therefore, the visual search will consist of areas near the town of Christmas Valley and where the 1943 maneuver areas were conducted. During the TPP Meeting, the ODEQ requested that reconnaissance be conducted at the Redmond Air to Ground Gunnery Range and the Redmond Precision Bombing Range. Since the TPP Meeting, additional locations have been identified to conduct visual reconnaissance based on interviews, anecdotal information, and regulatory requests. Visual field reconnaissance will be performed at all of these locations. However, because of the vast land area covered by the NWMA and the resulting number of required ROEs for access, emphasis was placed on identifying locations to conduct visual reconnaissance while still providing adequate evaluation

of the NWMA. Locations will be focused on federal-owned or state-owned parcels with limited reconnaissance activities performed on privately-owned parcels.

The following reconnaissance results would support a recommendation for further action with respect to MEC:

- Direct evidence is found of the presence of MEC (from historical records or SI activities) or evidence of potential MEC that is inconsistent with the NWMA CSM (e.g., use of munitions containing high explosives).
- Direct evidence of MEC is not found, but abundant munitions debris is identified suggesting a potential for the presence of MEC.

The following reconnaissance results would support a recommendation for NDAI with respect to MEC:

- Direct evidence of MEC is not found; munitions debris is isolated and consistent with the NWMA CSM.
- No evidence of MEC, munitions debris, or magnetic anomalies is identified.

If there is indication which site users are exposed to an MEC hazard, the site may be recommended for a removal action.

Based on the presence or absence of MC, is an NDAI or is a remedial investigation/feasibility study warranted?

Sample locations will be identified for Phase II based on the results of Phase I. Samples will be collected and analytical results will be compared to background. United States Geological Survey background information, if available, will also be included in the evaluation provided the analytical data meet data quality requirements developed for the SI. The following decision rules will apply:

- If sample results do not exceed background, the site will be recommended for NDAI relative to MC.
- If sample results that exceed background are less than human health and ecological screening values, the site will be recommended for NDAI relative to MC.
- If sample results exceed both background and human health screening values, the site will be recommended for additional investigation.
- If sample results exceed both background and ecological screening values but not human health screening values, consultation with stakeholders will occur.

1.8 MEC Technical Approach

The technical approach is based on the Work Plan (Shaw, 2006), *Final Technical Project Planning Memorandum* (Shaw, 2007c), and the *Formerly Used Defense Sites, Military Munitions Response Program, Site Inspections, Program Management Plan* (USACE, 2005). In accordance with Section 3.1.1 of the Work Plan, the technical approach includes the following:

- Existing data will be used to document the presence or absence of MEC.
- A magnetometer-assisted site reconnaissance will supplement the existing data in an attempt to identify evidence of MEC at the ground surface, under vegetative cover, or beneath the surface.

If MEC is found during SI field activities, the following excerpted procedures will be followed, per Interim Guidance Document 06-05 and Safety Advisory 06-2 (see Appendix B for complete document):

“a. (1) The property owner or individual granting rights of entry to the property will be notified of the hazard and advised to call the local emergency response authority (i.e., police, sheriff, or fire department). The individual will also be informed that if they do not call the local response authority within 1 hour, the individual who identified the UXO item will notify the local emergency response authority.”

“b. (2) The local response authority will decide how to respond to the reported incident, including deciding not to respond (e.g., if the local response authority is already aware of the hazards on the property). If the local response authority decides to respond, the individual who identified the item or his designee will mark the location of the item and provide accurate location information to the emergency response authority. The individual who identified the item or his designee will generally remain in the area until the local response authority arrives, unless specifically indicated by the appropriate response authority that the individual may leave the area.”

“(c) Neither the U.S. Army Corps of Engineers personnel, nor their contractors have the authority to call EOD [Explosive Ordnance Disposal] to respond to an explosive hazard. This call is the responsibility of the local emergency response authority for FUDS properties and it must come through the proper chain of command on installations.”

1.9 SSWP Organization

This SSWP supplements the Work Plan (Shaw, 2006), which includes an Accident Prevention Plan and Site Safety and Health Plan (SSHP; in Appendix D), and a Sampling and Analysis Plan (SAP; in Appendix E) that includes both the USACE SAP and the Shaw SAP. The SAPs contain a Field Sampling Plan and a Quality Assurance Project Plan. The Work Plan, as amended by this SSWP, governs work that will be implemented during the SI at the FUDS. This SSWP provides additional information not available in the Work Plan, including site information (background information, summary of historical documents evaluated, and resulting data needs), a discussion of activities to be conducted prior to mobilizing to the field, a presentation of field

data to be collected, and appendices with supporting documents. Specifically, this SSWP includes the following sections:

- Section 1.0 Introduction,
- Section 2.0 Site Information,
- Section 3.0 Pre-Field Activities,
- Section 4.0 SI Activities,
- Section 5.0 Investigation-Derived Waste,
- Section 6.0 Proposed Schedule,
- Section 7.0 References,
- Figures,
- Tables,
- Appendix A CSM,
- Appendix B USACE Interim Guidance Document 06-05 and Safety Advisory 06-2,
and
- Appendix C SSHP Addendum.

2.0 Site Information

Unless otherwise referenced, the following historical and physical setting information in the ASR (USACE, 1995), the *ASR Supplement* (USACE, 2004b), and the final TPP Memorandum (Shaw, 2007c). This section provides a summary of site-specific information not available in the Work Plan, which was used to profile the site in development of the CSM (Appendix A).

2.1 Installation History

The NWMA, consisting of 6,890,880.08 acres of land, was acquired by special use permit by the U.S. Government from the Department of Agriculture and the Department of Interior in 1943. Coupled with the lands of the six former DoD sites located within the boundary of the NWMA, total acreage available for the NWMA exceeded 8 million acres. Today the NWMA is comprised of farms and ranches, private residences and businesses, commercial properties, and federal and state resource agency owned/managed lands.

Land was used by the DoD to facilitate a large-scale force-on-force exercise during September, October, and November 1943, prior to deployment of the IV Corps of the Army into its World War II theatre of operations. Between 75,000 and 100,000 troops and 12,000 vehicles participated in the war games. The 3-month exercise was separated into eight “problems” for the troops to complete (Figure 2):

- Problem #1: Seize Horse Ridge located 17 miles east of Bend, Oregon.
- Problem #2: Fighting took place on the 6,000-foot slopes of Hampton Buttes, located 2 miles north of the Central Oregon Highway. Fighting extended 20 miles south to Yreka Butte.
- Problem #3: Fighting in an area approximately 30 miles southwest of Burns, Oregon in a rough triangle bounded by Glass Buttes, a highway junction, and the hamlet of Wagontire. The fiercest fighting was being waged along a 20-mile front near Wagontire.
- Problem #4: Highlands south of Stauffer. Forces attacked astride a new 37-mile military highway south of Wagontire (Larcey Boulevard) and Silver Lake. The main axis of the attack was through Christmas Valley. Units were noticed in the areas ranging from 15 miles north of Stauffer to the south near Alkali Lake.
- Problem #5: Seize Horse Ridge, Bear Creek Buttes, Seven Mile Ridge, Cougar Mountain, North Table Mountain, Squaw Butte, and Watkins Butte. Fort Rock Maneuver Area was also a battle scene northward and on either side of China Hat Road and north to meet Highway 20 near Milican.
- Problem #6: Horse Ridge and Bear Creek Butte were defended.
- Problem #7: Forces crossed the Deschutes River to attack Kline Butte and head toward Bend.
- Problem #8: Areas included north of Bend, Sisters, Alfalfa, and the Deschutes River.

Six FUDS sites are included within the boundary of the NWMA. The six FUDS include Central Oregon Air to Air Gunnery Range, Camp Abbot, Fort Rock Maneuver Area, Redmond Precision Bombing Range, Redmond Air to Ground Gunnery Range, and Redmond Army Airfield.

2.2 Physical Setting

The topography, geology, climate, groundwater, and surface water of the site are discussed below.

2.2.1 Access and Land Use

The NWMA is located in central to south-central Oregon and consists of approximately 8 million acres, including portions within Jefferson, Deschutes, Crook, Grant, Lake, Harney, and Klamath counties. This FUDS is situated on land owned by the State of Oregon, the United States, and private individuals and entities.

2.2.2 Topography, Geology, Climate, and Hydrogeology

The NWMA FUDS is located in the Columbia Intermotane Province and the Basin and Range Province of the Columbia Intermountain Physiographic province. The area is underlain by Quaternary and Tertiary volcanic and sedimentary rocks. Bedrock beneath the NWMA consists almost entirely of basalt lava flows interspersed with many rhyolitic deposits and rhyolite volcanic structures. There are also some deposits of light colored volcanic ash.

In the southern half of the site, the area is covered by extensive faulting (northwest-southeast trending faults). The faults are collectively named the Brothers fault and there are at least 25 of them present within the site area.

Everywhere south of the Brothers fault, the lava plateau is broken into big fault block mountain ranges and valleys. North of the Brothers fault, the lava plateau is relatively intact and unbroken by faulting (Alt and Hyndman, 1990).

Where there are soils present in the site area, they are very thin. For the most part, the surface is mainly composed of various outcropping rocks, mostly basalt. In some areas, fault block valley floors filled with muddy sediments, which were washed into them from neighboring mountains is present. The Miocene age fills and sediments are mostly gravelly and silty sand in nature.

The upper elevations are covered mainly with coniferous forests, while at the lower elevations the areas are arid and dominated by grassland, sagebrush, and juniper.

The occurrence and movement of groundwater and the interaction of groundwater and streams are controlled by the distribution of permeability of the depositional sequence. The Cascade Range crest is the principal source of recharge for the groundwater system. Groundwater flows eastward from the Cascade Range and then generally northward through permeable Quaternary and Tertiary deposits. About half of the groundwater discharges to spring-fed streams along the margins of the range. The remaining groundwater flows through the subsurface, mainly through

the permeable volcanic rocks. The large area is drained by many streams, with the Deschutes and the John Day Rivers being the largest. Both rivers drain north to the Columbia River. Many of the sites are dry lake beds for much of the year.

2.3 Previous Investigations

Historical documents were reviewed to collect information about the former NWMA. A summary of these documents is provided below:

- An ASR was issued in August 1995 (USACE, 1995). The ASR documented that the NWMA was used for a military maneuver during September, October, and November 1943. Historical records indicate that no live munitions were used during the maneuvers.
- There are several documented reports of ordnance being found within the NWMA FUDS boundary. These include practice anti-tank training mines, an Mk43 practice bomb, 2.36-inch rocket, artillery, mortar rounds, and anti-personnel fragmentation bombs.
- An *ASR Supplement* was completed in 2004 and indicated one range, the Anti-tank Minefield (USACE, 2004b).

Activities from the six identified FUDS located within the boundary of the NWMA, but not related to the 1943 maneuvers may have contributed to contamination on the NWMA FUDS. A brief description of these six FUDS and other investigations are as follows:

- Two of the six FUDS (Camp Abbot and Central Oregon Air to Air Gunnery Range) located within the NWMA boundary have had SI reports completed (Shaw, 2007a and 2007b); therefore, these two FUDS will not be investigated further as part of the NWMA. The Findings and Determination of Eligibility for the remaining four FUDS found them to have been formerly used by DoD but at the time of determination there was no evidence of unsafe conditions resulting from DoD use. However, these four locations will be evaluated under the NWMA SI.
- The Redmond Army Airfield was used in conjunction with a remote bombing range and an air-to-ground gunnery range:
 - Consisted of 1,730 acres BLM land, which was transferred to the Army Air Force April 25, 1945.
 - Site determined excess September 1946.
 - Conveyed property to the city of Redmond on October 3, 1947.
 - Currently used as the Redmond Municipal Airport.
 - Findings and Determination of Eligibility signed November 2, 1986 (no unsafe conditions resulting from DoD use).

- The Fort Rock Maneuver Area was used by the U.S. Army, Army Ground Forces as a maneuver area from July 1943 to April 1945:
 - Consisted of 275,000 acres of Department of Agriculture and Department of Interior land, which were transferred under special use permit to the DoD in July and October 1943.
 - The DoD relinquished portions of the site in December 1944 and April 1945.
 - Findings and Determination of Eligibility signed May 27, 1989 (no unsafe conditions resulting from DoD use).
- The Redmond Air to Ground Gunnery Range was used by the Army Air Corps for an aircraft gunnery range:
 - Consisted of 10,745 acres BLM land, acquired on August 14, 1943, and 2,351 acres of privately-owned lands also acquired in 1943.
 - Site determined excess September 1946.
 - Findings and Determination of Eligibility signed July 14, 1989 (no unsafe conditions resulting from DoD use).
- The Redmond Precision Bombing Range was used by the U.S. Army Air Corps for an aircraft bombing range:
 - Consisted of 1,266 acres BLM land, transferred to the Army Air Force on August 14, 1943, and an additional 1,335 acres of private land acquired in 1943.
 - Site determined excess October 1946.
 - Findings and Determination of Eligibility signed July 14, 1989 (no unsafe conditions resulting from DoD use).

An additional FUDS property, not identified in the ASR (USACE, 1995), which will be investigated per the direction of the USACE, is the Biak Training Center located near Redmond, Oregon, which is currently owned by the BLM. The Training Center consists of two properties: Transferred Range 1 and Transferred Range 2. Transferred Range 1 is on active National Guard property and is being investigated under an U.S. Army Environmental Center contract. Transferred Range 2 has been determined to be FUDS-eligible but was listed as a duplicate property, which would be investigated under the NWMA SI. A summary of transferred Range 2 is as follows:

- The former range is located to the east of the current Biak installation.
- Property was leased from BLM from approximately 1960 through 1980.
- Range was used to train troops on tracked and wheeled all-terrain vehicles for infantry field training exercises consisting of land navigation, bivouacking, and temporary construction of fortifications and defensive positions.
- Training involved the use of smoke grenades, artillery simulators, and ground and aerial flares.

- No live firing was conducted on this range.
- Property is currently owned and controlled by BLM, is subject to grazing under allotments issued by BLM, and is fenced.

2.4 *Munitions Information*

According to the ASR (USACE, 1995), the munitions potentially used on the NWMA and the associated MC are presented below:

- The Lakeview District BLM office reported an anti-personnel fragmentation bomb was found in 1986 near Silver Lake, Oregon.
- Historical records indicate that 11 intact M1B1 anti-tank training mines were found in 1987 on the property of Terry Gratrix located 6 miles northwest of the town of Christmas Valley, Oregon.
- A tear drop shape AN-MK43 practice bomb was found in 1988 in the sand dunes approximately 14 miles north of the town of Christmas Valley, Oregon.
- While conducting a site survey of a related FUDS property, personnel from the St. Louis District completed the SI for the NWMA by inspecting the property of Mr. Terry Gratrix on May 22, 1995. Four additional anti-tank training mines were observed. It was noted that the mines were apparently excavated and removed to the location where they were observed.
- Records indicate that the units trained with blanks and inert munitions during the 1943 maneuvers. However, according to press accounts, live ammunition was on hand but it was not to be fired. The ammunition was present in containers so that soldiers already proficient in firing would learn how to better handle live rounds. Reportedly, ammunition requirements ran around 2,000 tons, and it was moved place to place to provide that phase of realism (Edwards, 1943).
- During the SI in 1994, St. Louis District personnel interviewed Sergeant Terry Silbaugh of the Deschutes County Emergency Services (Sheriff's Office) who indicated the locations of munitions recovered as recently as 1988. Items recovered included a 2.36-inch rocket, artillery, and mortar rounds. It was indicated by the inspection team that these items were probably the result of activities from Camp Abbot, the Redmond Precision Bombing Range, and the Redmond Air-to-Ground Gunnery Range. The Prineville District BLM office reported ordnance was found in the Milican area (timeframe unknown).
- Deschutes County Emergency Services reported artillery rounds found west of Sunriver, Oregon (timeframe unknown – likely associated with Camp Abbot activities).
- Deschutes County Emergency Services reported ordnance found in sand dunes approximately 4 miles west and 1 mile north of Alfalfa, Oregon (timeframe unknown).
- Sunriver Nature Center reported spent mortar and rocket rounds found near a cliff northwest of the airstrip (timeframe unknown, associated with Camp Abbot activities).

- Bend District office reported a bazooka round was located approximately 1-1/2 miles west of Sunriver (timeframe unknown, associated with Camp Abbot activities).

Specific ordnance information for the FUDS located within the NWMA was not available. However, based on review of the available historical information related to the 1943 maneuvers, no live firing was conducted; therefore, there is no evidence of high explosive use. According to the ASR (USACE, 1995), the MC associated with the type of munitions possibly used at the ranges is summarized in Table 1. This includes the practice land mines and a practice bomb discovered within the maneuver area, as well as, the small arms in use in 1943.

3.0 *Pre-Field Activities*

The following sections discuss the activities to be conducted prior to conducting the planned field activities.

3.1 *Coordination with State Historic Preservation Office*

The State Historic and Preservation Office has been contacted to determine if any areas of cultural or archaeological significance have been identified on or within proximity to the MRA/MRSs at the NWMA FUDS. Intrusive field activities (Phase II) will not be started until a determination is received from the State Historic and Preservation Office.

3.2 *Coordination Regarding Natural Resources*

The ASR (USACE, 1995) states that a variety of threatened and endangered species may be found in the vicinity of the NWMA. These include the following:

- The United States Fish and Wildlife Service indicated the following federally protected species may be found in the vicinity of the NWMA:
 - Columbian white-tailed deer (endangered),
 - Bald eagle (threatened),
 - Brown pelican (endangered),
 - Marbled murrelet (threatened),
 - Snake River Chinook salmon (threatened),
 - Snake River sockeye salmon (endangered),
 - Oregon silver spot butterfly (threatened),
 - White-footed vole (candidate),
 - Pacific-western big eared bat (candidate),
 - Northern red-legged frog (candidate),
 - Tall bugbane (candidate), and
 - Howell's montia (candidate).
- The Oregon Department of Fish and Wildlife indicated the following state threatened and endangered species occur in the vicinity of the site:
 - Bull trout (critical),
 - Cascades frog (critical),
 - Spotted frog (critical),
 - American peregrine falcon (endangered),
 - Bald eagle (endangered),
 - Northern spotted owl (threatened),
 - Black-backed woodpecker (critical),
 - Burrowing owl (critical),
 - Ferruginous hawk (critical),
 - Flammulated owl (critical),
 - Lewis' woodpecker (critical),

- Northern goshawk (critical),
- Pileated woodpecker (critical),
- Red-necked grebe (critical),
- Three-toed woodpecker (critical),
- White-headed woodpecker (critical),
- American martin (critical),
- Pacific western big-eared bat (critical), and
- Wolverine (threatened).

In addition, the Oregon Department of Fish and Wildlife and the U.S. Fish and Wildlife Service have been contacted to obtain more current information, if available.

3.3 Coordination of ROEs

Per Section 2.5.2 of the Work Plan (Shaw, 2006) and as the geographic USACE District office for the NWMA FUDS, the Project Manager from the USACE, Seattle District office is responsible for obtaining the ROEs for the property where the SI activities will be performed. Access to identified properties is necessary for conducting Phase I and Phase II field activities. All necessary ROEs for the Phase I investigation will be obtained prior to starting the visual site reconnaissance activities. Tables 2 through 4 identify the properties of interest and the status of the ROEs.

3.4 Equipment

A four-wheel drive vehicle will be necessary for access on unpaved roads, with the permission of the landowners. In areas where large sports utility vehicles are not permitted, access will be on foot or by an alternate means of least impact (e.g., all-terrain vehicle). A hand-held fluxgate magnetometer (Schonstedt or equivalent) and/or Fisher metal detector will be used to support the visual site reconnaissance effort. A hand-held global positioning system (GPS) unit will be used for traverses and to document any surface remains, document the reconnaissance survey, and identify the location of MEC, if found.

3.5 Communications

The primary means of on-site communication will be cellular telephones or radios. The two-person Field Team (and any other accompanying parties) will remain together throughout all aspects of the field activities.

3.6 Training and Briefing

Any additional training will be conducted on site during the Daily Tailgate Safety Briefing, to include awareness of endangered species, culturally sensitive areas, and anticipated ordnance types.

4.0 *Site Inspection Activities*

An SI of the NWMA FUDS will be conducted which will include the following activities:

- Phase I – Visual site reconnaissance,
- Revise this Draft SSWP to include the Phase I findings and the identification of sampling locations based on the Phase I findings,
- Phase II – Media sampling and analysis,
- Recording sampling and site information (using a hand-held GPS unit), and
- Photograph documentation.

All SI field activities will be conducted in accordance with the SSHP Addendum (Appendix C). The SSHP Addendum is a supplement to the program-wide Accident Prevention Plan and SSHP contained in the Work Plan (Shaw, 2006). All SI field activities will be documented in the field logbook.

4.1 *Key Personnel*

This section identifies key project personnel and their specific roles and responsibilities for each SI activity conducted at the FUDS. Additionally, this section defines the responsibilities, authority, and the interrelationships of all personnel who manage, perform, and verify activities affecting quality, particularly for personnel who need the organizational freedom and authority to:

- Initiate action to prevent the occurrence of nonconformance,
- Identify and record and quality problems,
- Initiate, recommend, or provide solutions through designated channels,
- Verify the implementation of solutions, and
- Control further processing, delivery, or installation of non-conforming items until the deficiency or unsatisfactory condition has been corrected.

Project Manager – The Shaw Project Manager will have overall responsibility, authority, and accountability for the project. Mr. Peter Kelsall is the Project Manager. He will provide additional management or technical support when needed and will serve as the final reviewer on all technical documents produced for the project.

Chemical Quality Control Officer – The Shaw Chemical Quality Control Officer shall ensure that all chemistry-related objectives, including responsibilities for data quality objective definitions, sampling and analysis, project requirements for data documentation and validation, and final project reports are attained. Mr. Tim Roth will serve as the Chemical Quality Control Officer for this project.

Health and Safety Manager – The Shaw Health and Safety Manager is responsible for the development and implementation of the SSHP and SSHP Addendum for the SI. Ms. Pamela Moore will serve as the Health and Safety Manager for this project.

Technical Lead – The Shaw Technical Lead will oversee the technical aspects of the inspection activities. Mr. Anthony Searls will serve as the Technical Lead for this site. Although his presence is not required, Mr. Searls may act as a team member during the field activities. He may also serve as an alternate Field Team Leader.

Field Team Leader – The Shaw Field Team Leader will be responsible for the management and execution of all field project activities in accordance with the approved Work Plan, and federal, state, and local laws and regulations. Mr. Anthony Searls and/or Mr. Dale Landon will serve as the Field Team Leader for this site. The Field Team Leader will function as the primary point of contact for the stakeholders and field personnel, and will document technical progress, needs, potential problems, and recommended solutions.

UXO Technician – The UXO Technician will be responsible for the UXO avoidance measures to be implemented during field activities. One of the following individuals will serve as the UXO Technician: David Watkins (1420), Rob Irons (1137), Jim Bayne (1212), Rueben Rhodes (0169), Ron Stanfield (1161), or Dave Van Deman (1057).

4.2 *Field Reconnaissance*

This section discusses the visual surface reconnaissance planned for the AOCs.

4.2.1 *Objectives*

The first phase of the investigation will consist of a visual field reconnaissance survey by a trained UXO technician in various locations within the NWMA FUDS boundary. Proposed locations for visual reconnaissance are based on the areas of the 1943 maneuvers, the FUDS properties located within the NWMA, at locations negotiated with the ODEQ for investigation, and at locations chosen based on information disseminated from personal interviews and anecdotal information. Based on this information, visual reconnaissance is planned at the following locations):

- Redmond Army Airfield (Figure 3)
- Redmond Air-to-Ground Gunnery Range (Figure 4)
- Redmond Precision Bombing Range (Figure 5)
- Fort Rock Maneuver Area (Figures 6 through 9)
- Biak Training Center Transferred Range 2 (Figure 10)
- Badlands Wilderness Research Center AOC (Figure 11)
- Anti-tank Minefield (range area identified in MMRP inventory) (Figure 12)

- Lumber Camp Demolition Area (Figure 13)
- Stevens Road Tract (Figure 14)
- Sand Dunes (near Christmas Valley, Oregon) (Figure 15)
- Confirmed location of ordnance (location identified by Forest Service during TPP meeting) (Figure 16)

The visual surface reconnaissance will be conducted along a meandering path through portions of the FUDS listed above to identify MEC, munitions debris, and/or other evidence of range activities. The presence of MEC, munitions debris, and other potential evidence of range activities will be identified and located. The visual site reconnaissance will be performed by conducting a visual inspection of the range by a field team of two or more persons, including a qualified UXO technician. The UXO technician will supplement the visual inspection with the use of a hand-held fluxgate magnetometer (or similar) and/or Fisher metal detector in areas where vegetation or soil cover may obscure potential ferrous objects. The path walked during the reconnaissance will be recorded using a hand-held GPS unit. Reconnaissance will not include detailed mapping.

If MEC is observed at any point during field activities, the field team will respond according to the requirements of the SSHP (Shaw, 2006) and SSHP Addendum (Appendix C) and make appropriate notifications in accordance with USACE direction (Appendix B). Further reconnaissance for the purpose of determining the presence or absence of MEC will be terminated, and further reconnaissance will be limited to the minimum amount necessary to document site conditions and determine appropriate sample locations. If evidence of munitions activity is observed, which is inconsistent with the CSM described in Appendix A (e.g., if debris from high-explosive munitions is found), notification will be made to the USACE and ODEQ, and a variance to this SSWP will be submitted to initiate appropriate changes to the SI approach.

4.2.1.1 Document General Site Conditions

The following conditions, if present, will be recorded in the field logbook and documented by digital photographs:

- Access limitations(fencing, gates, rivers, buildings, etc.);
- Land use (agriculture, development, buildings, campgrounds, dumping, etc.);
- Land disturbance (destruction of historic berms, excavation, fill, subsidence, etc.);
- Type and condition of vegetative cover and habitat (noting especially any distressed populations);
- Presence or potential presence of wildlife

Wetlands or other features that would qualify the site as an Important Environmental Place;

- Soil conditions;
- Presence or absence of surface water (streams, ponds, etc.);

- Direction of surface water flow;
- Location and condition of groundwater wells;
- Evidence of use of surface water or groundwater for human consumption, stock feeding, or irrigation;
- General physical setting and topography;
- Any activities that could result in contamination, and
- Photograph details (GPS waypoint, key features, direction, time, distance to key objects, etc.).

4.2.2 Reconnaissance Methods

The site reconnaissance will be performed by conducting a visual inspection of appropriate and accessible portions of the range by a field team of two or more persons, including a qualified UXO technician. The UXO technician will supplement the visual inspection with the use of a hand-held fluxgate magnetometer and/or Fisher metal detector in areas where vegetation or soil cover may obscure potential ferrous objects. The path walked during the reconnaissance will be recorded using a hand-held GPS unit. Reconnaissance will not include detailed mapping, however GPS waypoints and tracks will be presented on SI figures. The reconnaissance effort will be concentrated in areas determined from historical evidence.

The magnetometer will generally be used in areas where it would be difficult to see objects on the ground surface because of vegetation or other site conditions. The magnetometer may also be used around targets or in areas where subsurface MEC may reasonably be expected. The magnetometer may not be used in portions of the AOC if the ground surface is visible and there is no visual evidence indicating the presence of ferrous munitions-related objects, or in areas where interference from ferrous objects unrelated to munitions, such as buried utilities, are present.

4.2.3 Extent of Reconnaissance

Site reconnaissance will use available aerial photographs and a Geographic Information System base map developed from the ASR (USACE, 1995) and other sources. Field crews will be provided both current and historical aerial photographs. Information shown on the reconnaissance base map will include AOC boundaries, property boundaries, information from reported MEC findings, topography, and current roads and buildings. One objective of reconnaissance is to “ground truth” features seen on aerial photographs (e.g., if targets are still visible, or if buildings have been removed or added).

The reconnaissance effort will be focused on the AOC and may be further concentrated in areas where MEC or MC is most likely to be found based on the CSM (e.g., bombing targets). General site conditions will be documented throughout the AOC and as appropriate in other parts of the FUDS.

4.3 Sample Locations

The findings of the initial visual reconnaissance (Phase I) will be used to determine the areas of concern and potential sampling locations for the Phase II activities. This information will be documented in the revision to this draft SSWP and the CSM (Appendix A) will be updated, as necessary.

5.0 Proposed Schedule

Timing of the field activities assumes there will be no delays because of inclement weather or obtaining ROEs. The proposed schedule for Phase I and Phase II field activities and reporting is provided below:

February 2008 – Submittal of Draft SSWP (Phase I activities);

February/March 2008 – Conduct Phase I Visual Site Reconnaissance Field Activities;

March 2008 – Submittal of Draft SSWP (Phase II activities) (includes findings of Phase I and proposed sample locations for Phase II activities);

April 2008 – Submittal of Final SSWP (Phase II activities);

April/May 2008 – Conduct Phase II Field Sampling Activities;

June/July 2008 – Submittal of Draft SI Report;

July/August 2008 – Review of Draft SI Report;

August/September 2008 – Submittal of Draft Final SI Report;

September/October 2008 – Review of Draft Final SI Report; and

October 2008 – Submittal of Final SI Report.

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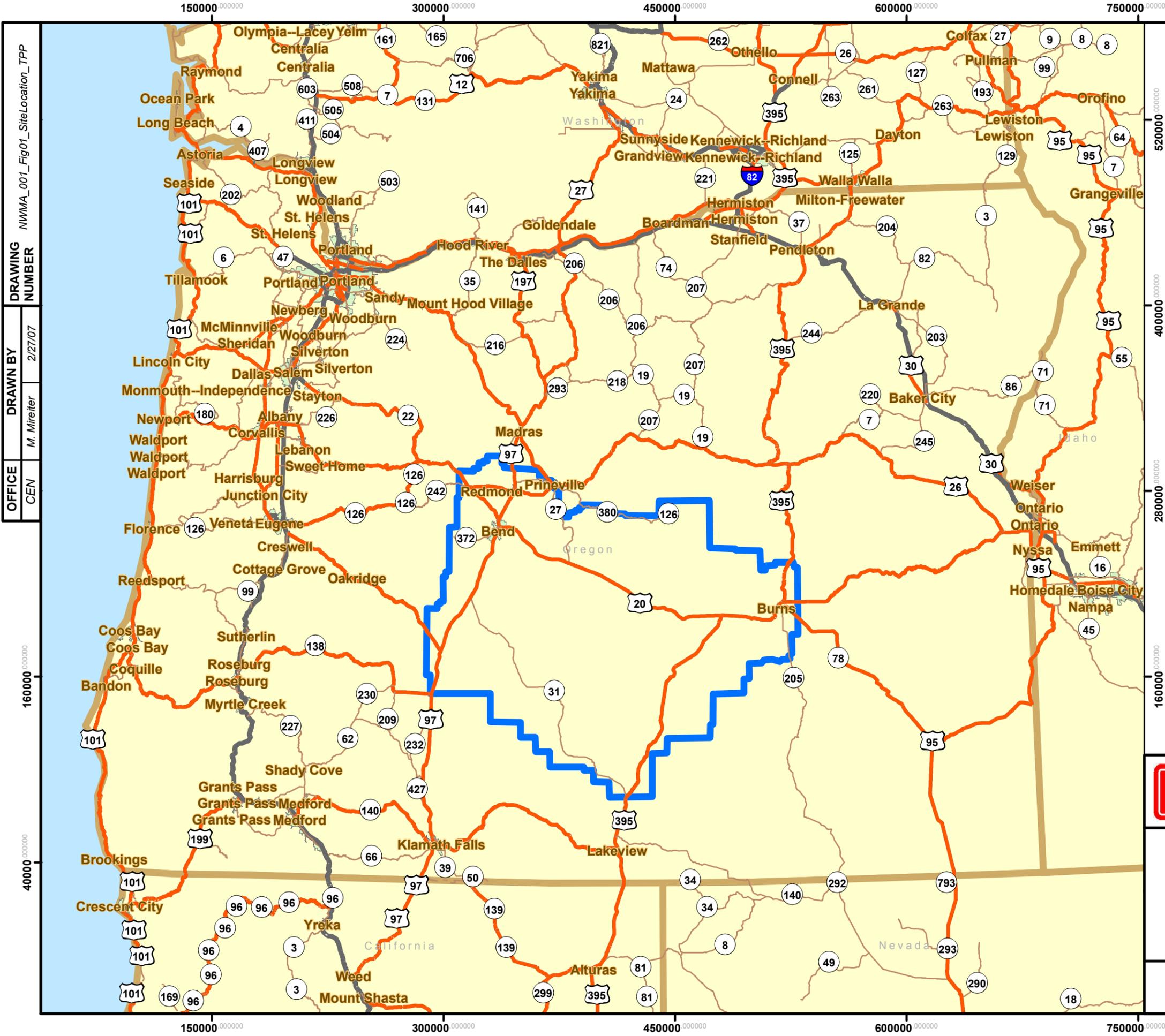
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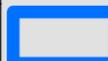
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Figures

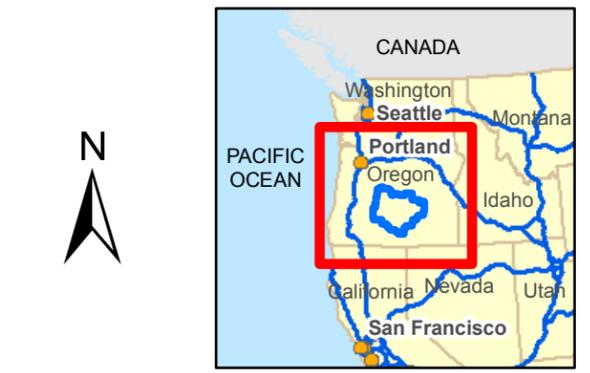


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Legend

 Northwest Maneuver Area FUDS Boundary

NOTES:
 1) FUDS boundary was derived from the Northwest Maneuver Area ASR Supplement.



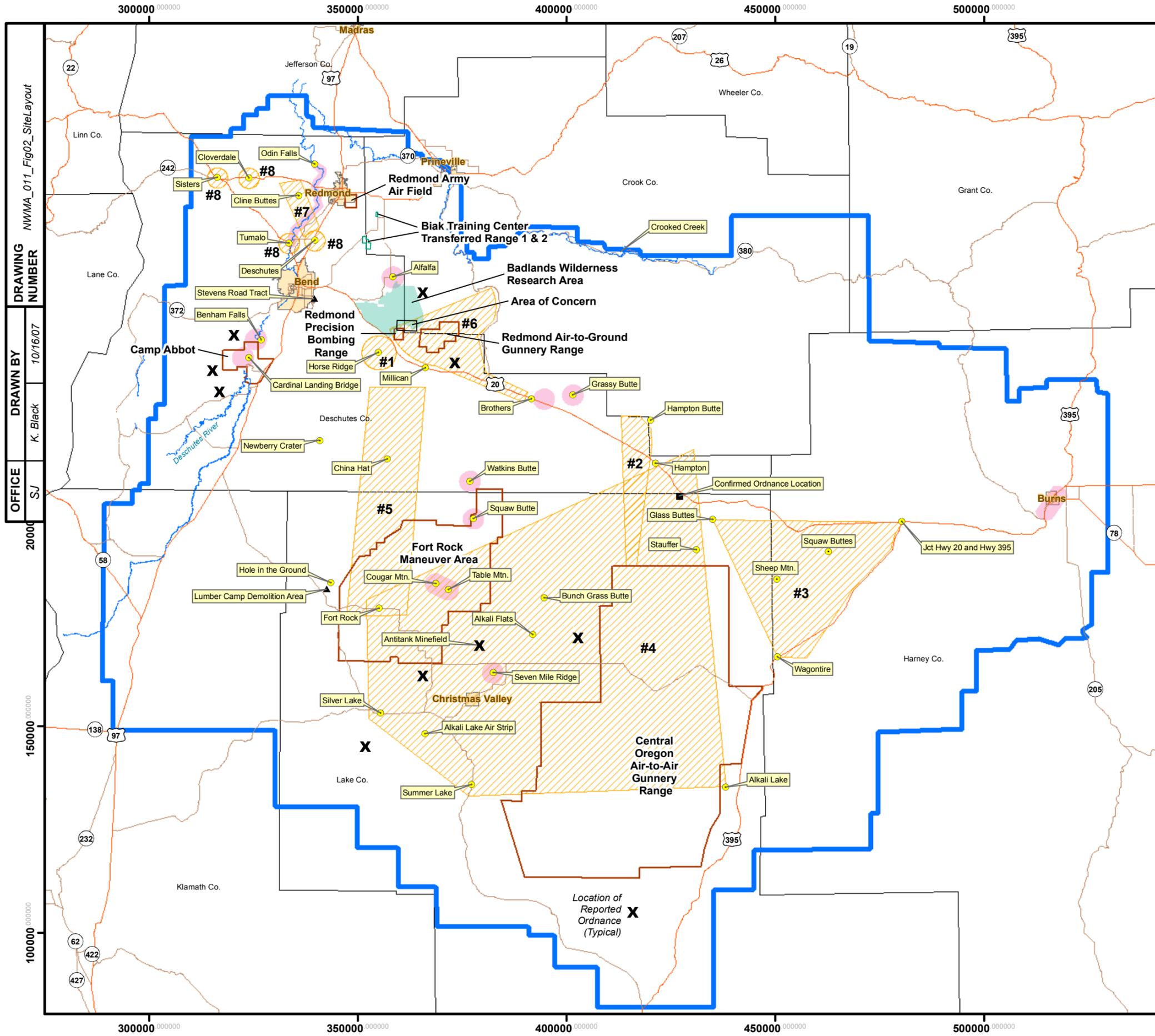
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REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

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FIGURE 1
SITE LOCATION
 NORTHWEST MANEUVER AREA

 Shaw Environmental, Inc.



Legend

- Northwest Maneuver Area FUDS Boundary
- Badlands Wilderness Research Area
- Biak Training Center Areas of Interest
- Approximate Location of 1943 Maneuver Exercises (See Section 2.1)
- Approximate Location of 1943 Areas of Interest
- Location of Reported Ordnance
- Confirmed Location of Ordnance
- Additional FUDS Located Within the Northwest Maneuver Area
- County Boundary

NOTES:
 1) Northwest Maneuver Area FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



0 10 20 40 Miles
 REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

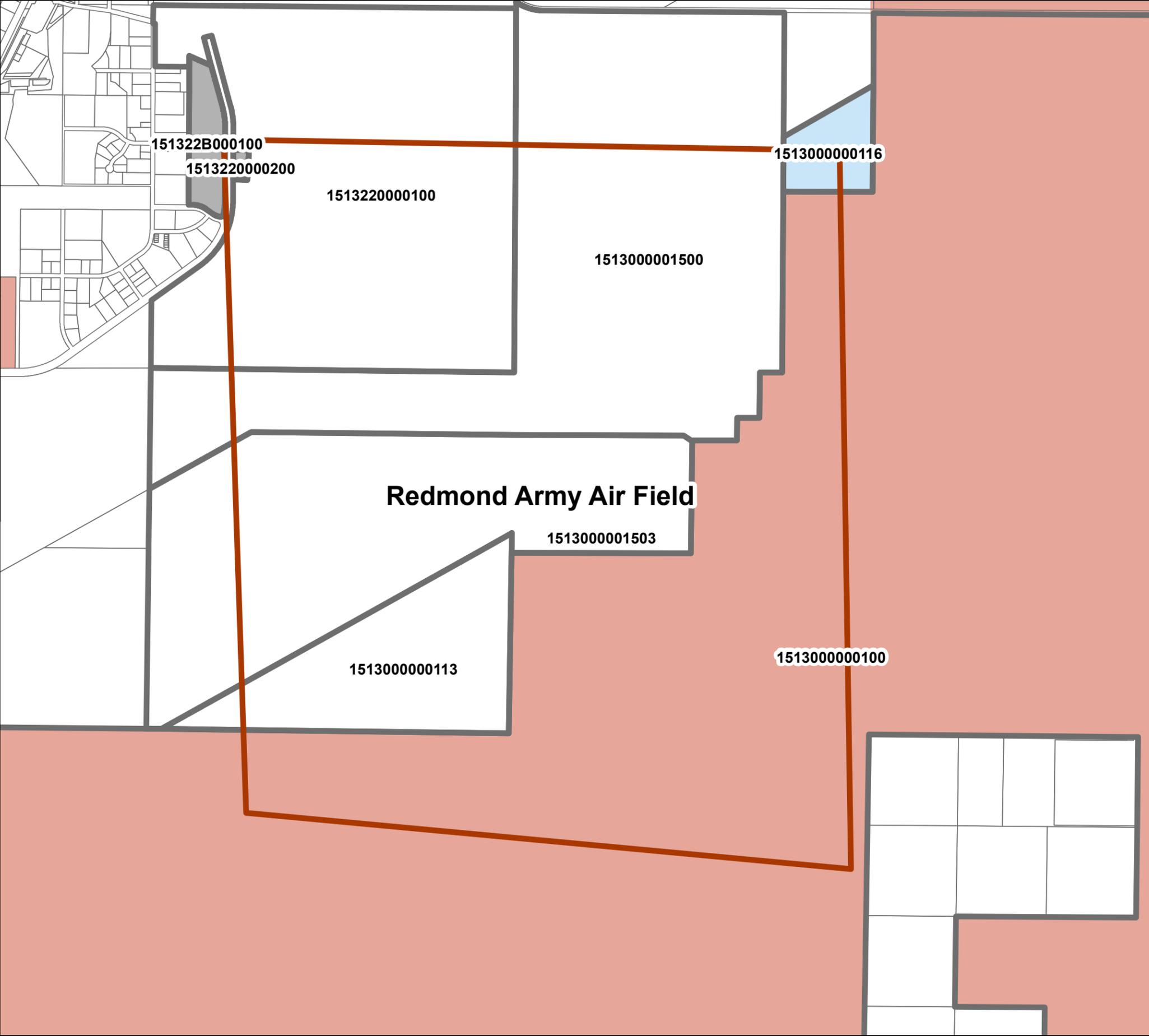
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FIGURE 2
SITE LAYOUT
 NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.

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 OFFICE SJ



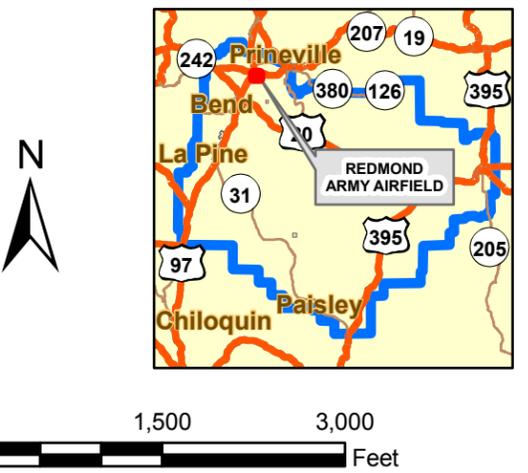
Legend

- Additional FUDS Located Within the Northwest Maneuver Area

Parcels

- State
- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.

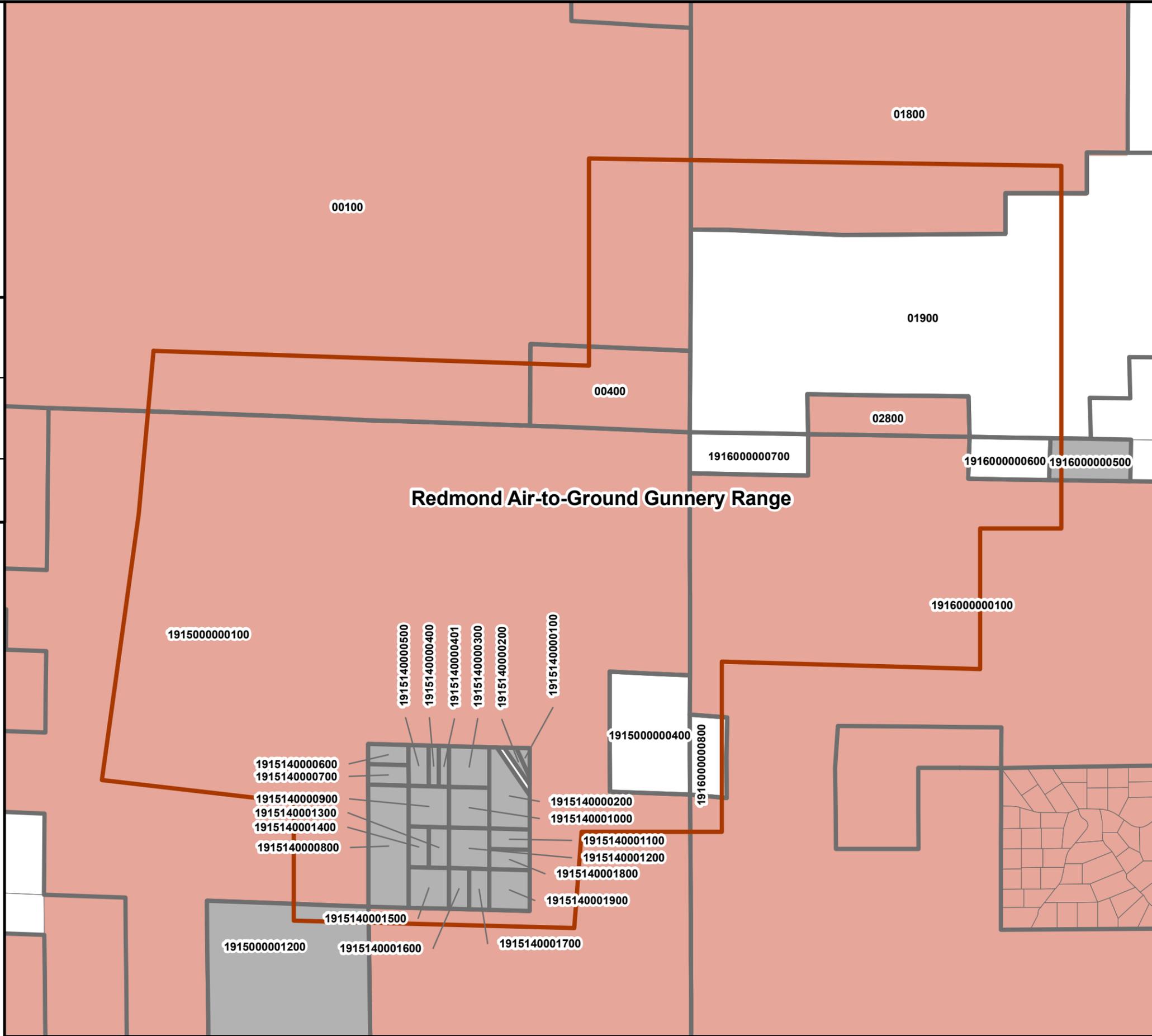


REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

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FIGURE 3
REDMOND ARMY AIRFIELD
PARCELS
DESCHUTES COUNTY
 NORTHWEST MANEUVER AREA

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 DATE: 01/28/08
 OFFICE: SJ



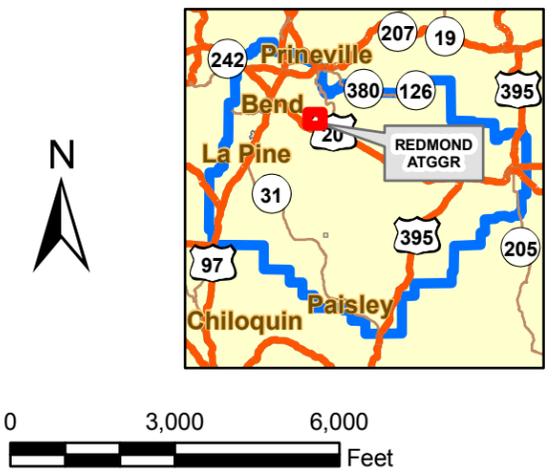
Legend

- Additional FUDS Located Within the Northwest Maneuver Area

Parcels

- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



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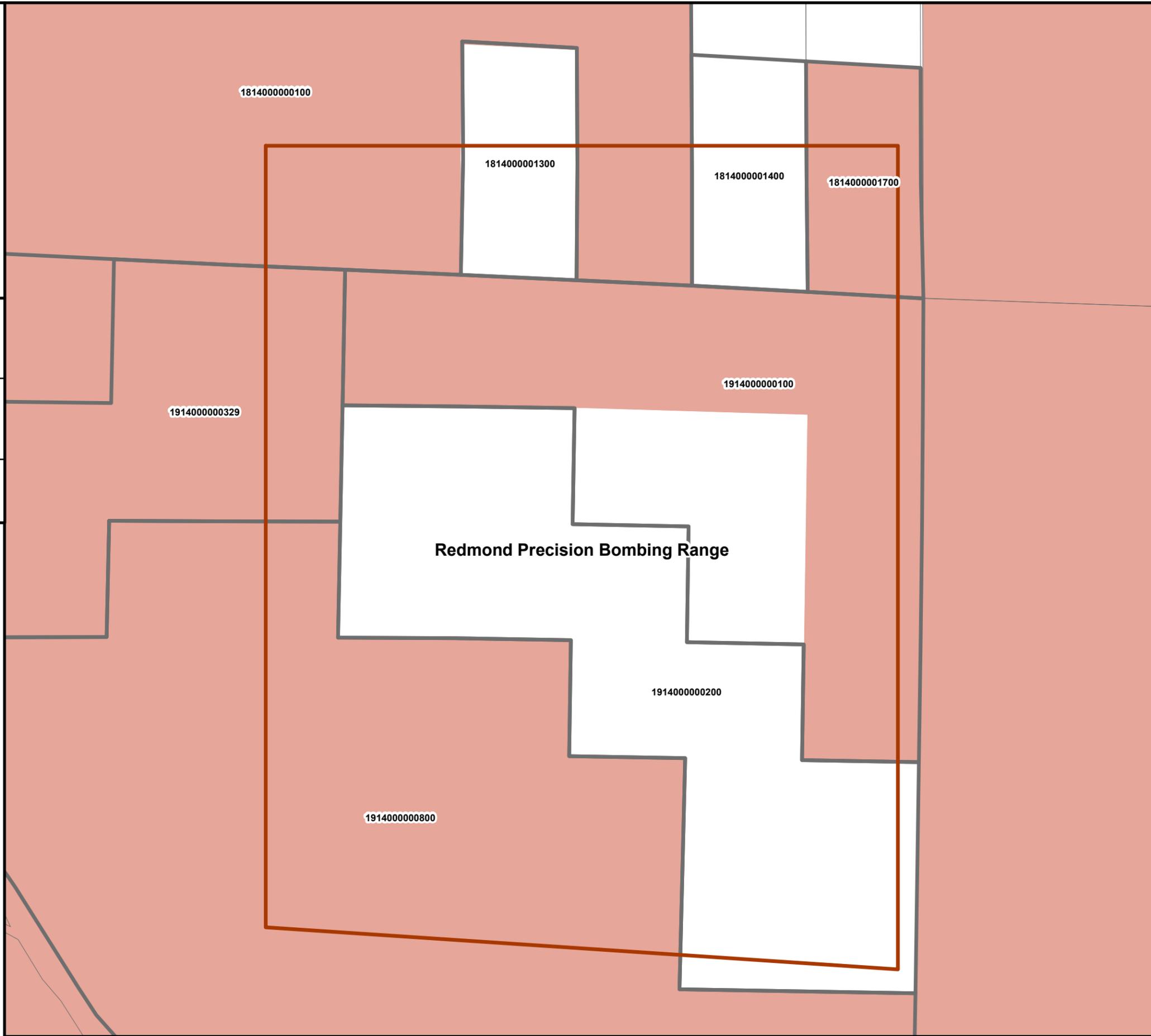
FIGURE 4

**REDMOND AIR-TO-GROUND
 GUNNERY RANGE PARCELS
 CROOK AND DESCHUTES COUNTIES**

NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.

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 DRAWN BY: K. Black 01/28/08
 OFFICE: SJ



Legend

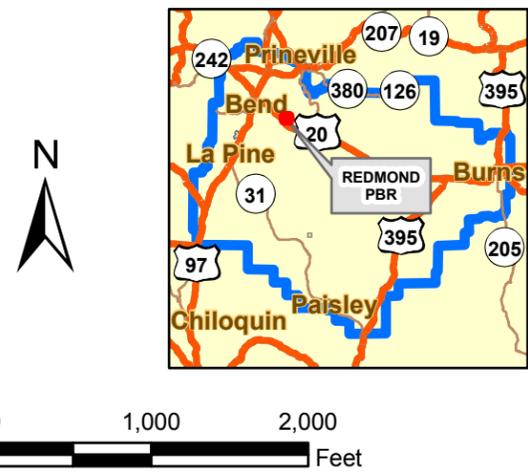
Additional FUDS Located Within the Northwest Maneuver Area

Parcels

Federal

Private

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



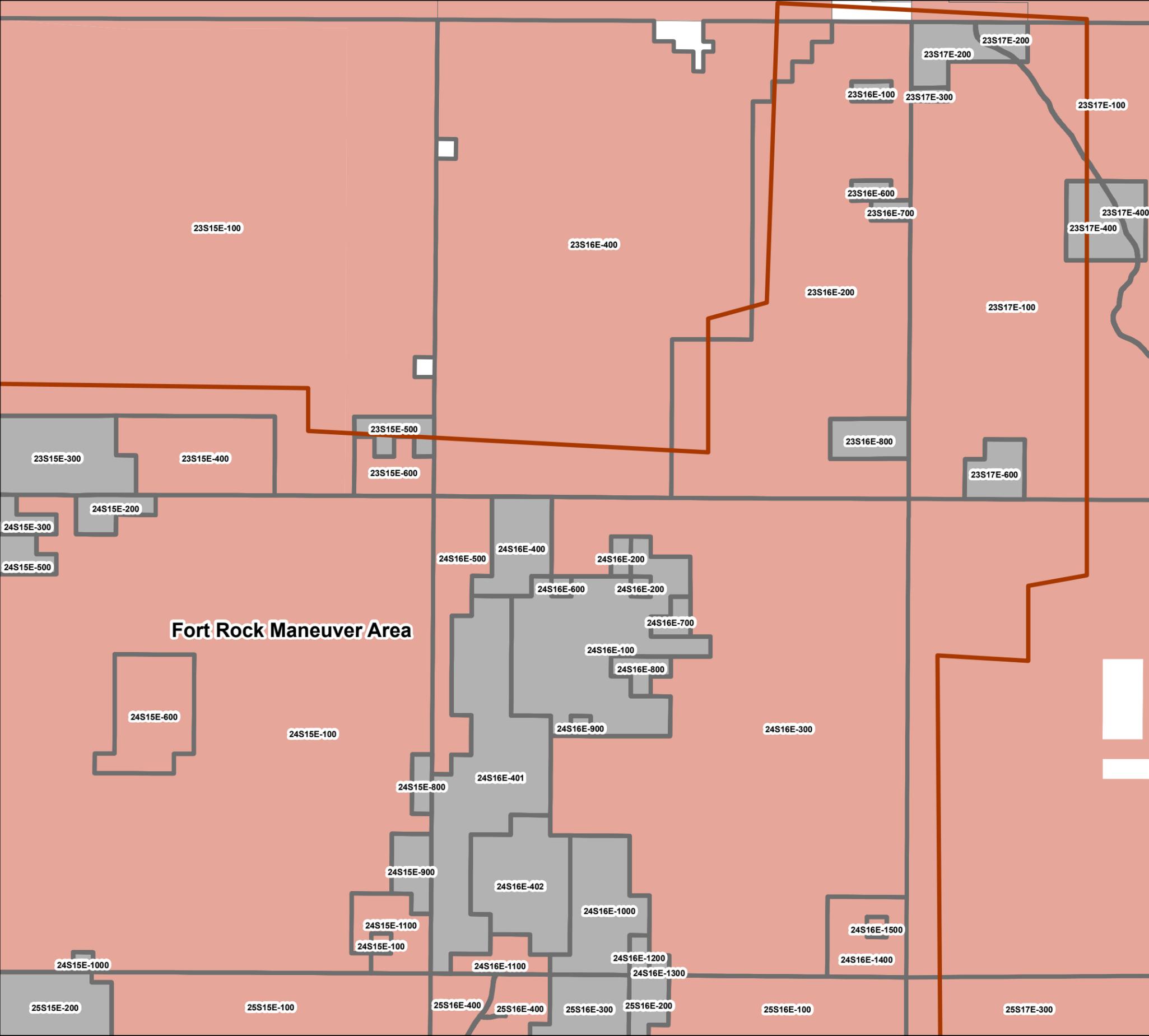
REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert


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FIGURE 5
REDMOND PRECISION BOMBING RANGE
PARCELS
DESCHUTES COUNTY
 NORTHWEST MANEUVER AREA


 Shaw Environmental, Inc.

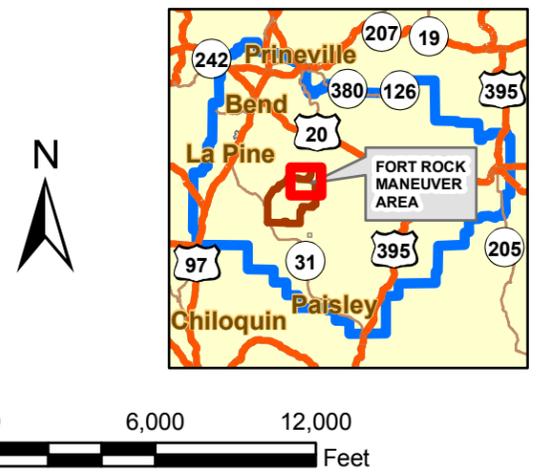
DRAWING NUMBER: NWMA_023_Fig06_Parcels_FortRock_NE
 DRAWN BY: K. Black
 DATE: 01/28/08
 OFFICE: SJ



Legend

- Additional FUDS Located Within the Northwest Maneuver Area
- Parcels**
- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



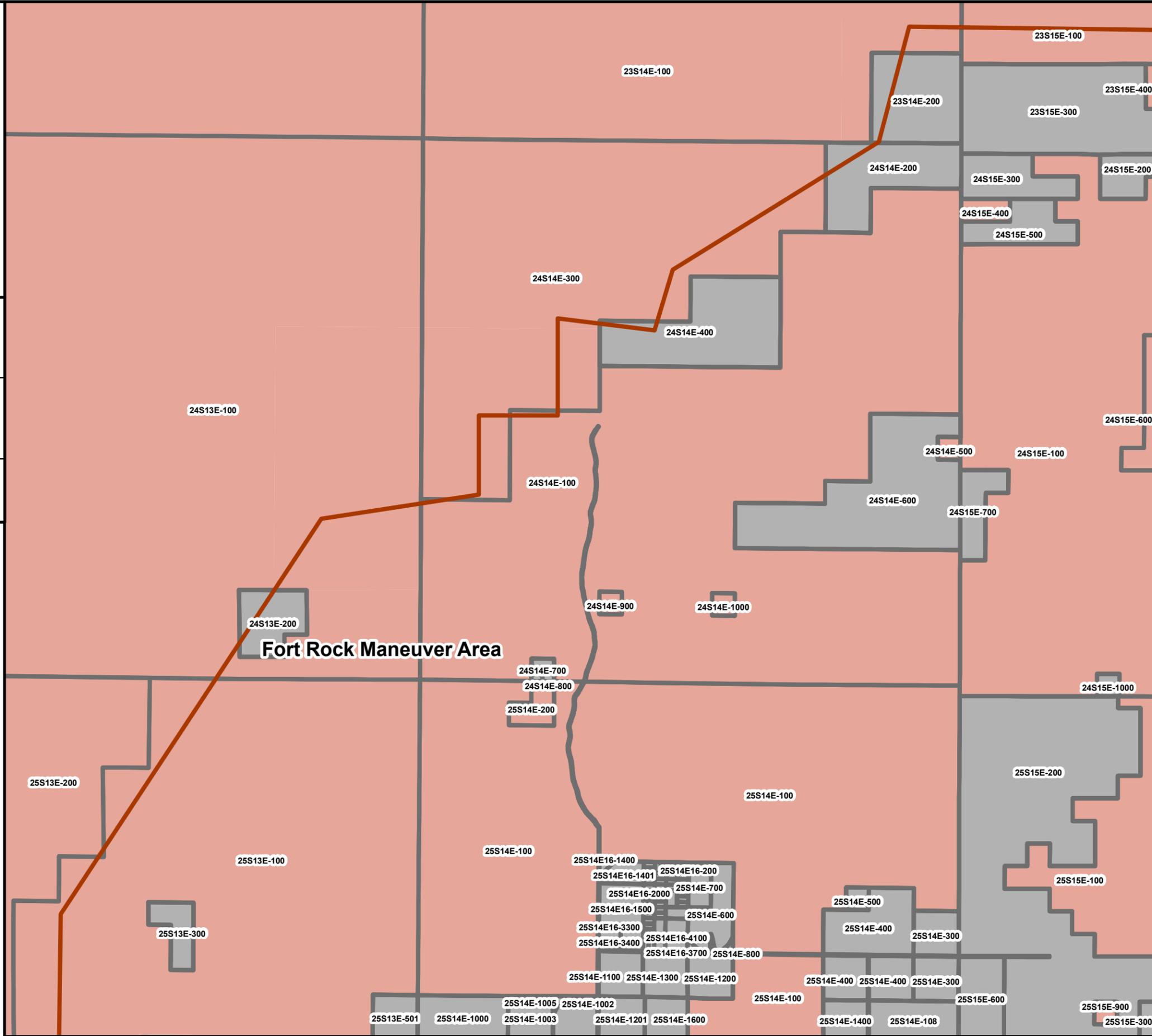
REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 6
FORT ROCK MANEUVER AREA
(NE QUARTER) PARCELS
LAKE COUNTY

NORTHWEST MANEUVER AREA

DRAWING NUMBER: NWMA_022_Fig07_Parcels_FortRock_NW
 DRAWN BY: K. Black
 DATE: 01/28/08
 OFFICE: SJ



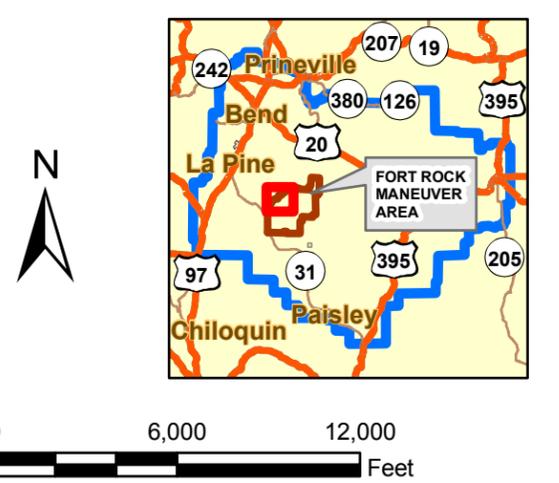
Legend

- Additional FUDS Located Within the Northwest Maneuver Area

Parcels

- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.

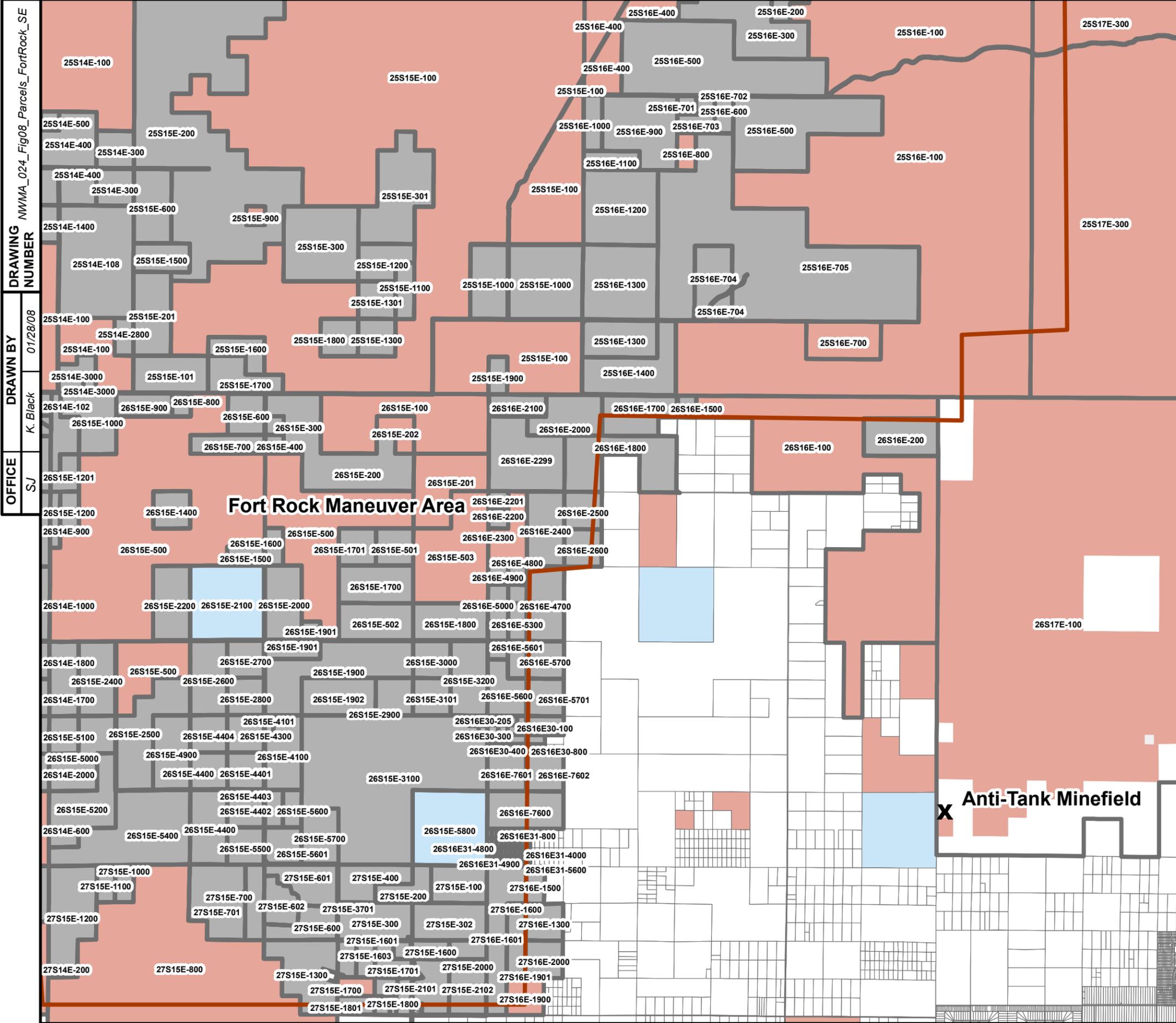


REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 7
FORT ROCK MANEUVER AREA
(NW QUARTER) PARCELS
LAKE COUNTY
 NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.

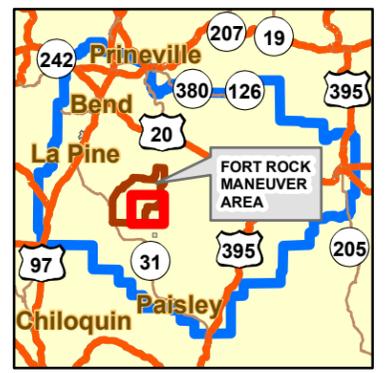


DRAWING NUMBER: NWMA_024_Fig08_Parcels_FortRock_SE
 DRAWN BY: K. Black
 DATE: 01/28/08
 OFFICE: SJ

Legend

- Additional FUDS Located Within the Northwest Maneuver Area
- Parcels**
- State
- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



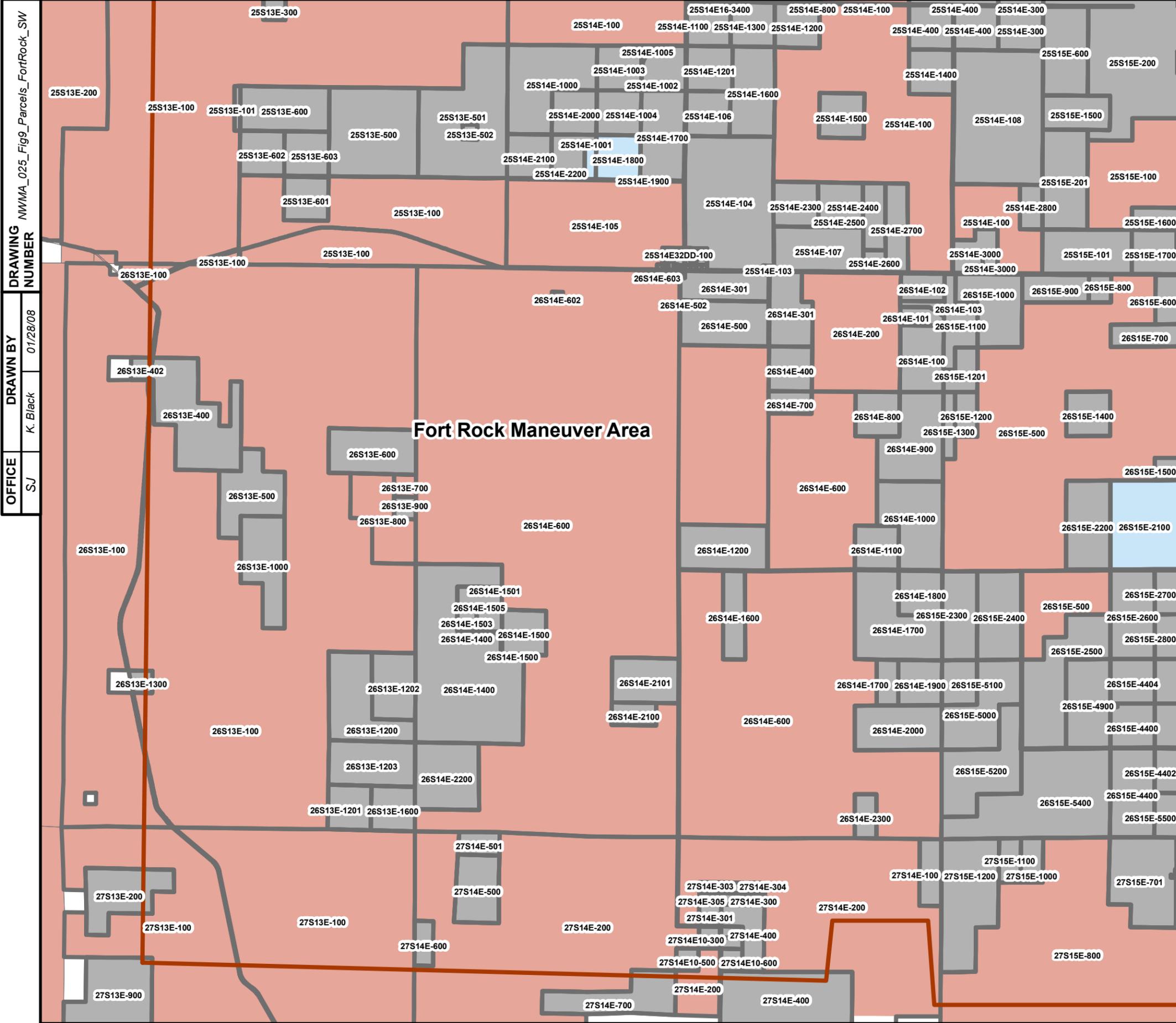
REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 8
FORT ROCK MANEUVER AREA
(SE QUARTER) PARCELS
LAKE COUNTY

NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.

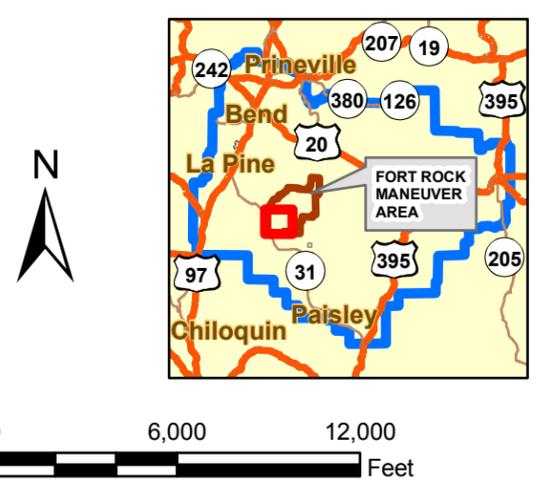


DRAWING NUMBER: NWMA_025_Fig9_Parcels_FortRock_SW
 DRAWN BY: K. Black
 DATE: 01/28/08
 OFFICE: SJ

Legend

- Additional FUDS Located Within the Northwest Maneuver Area
- Parcels**
- State
- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.

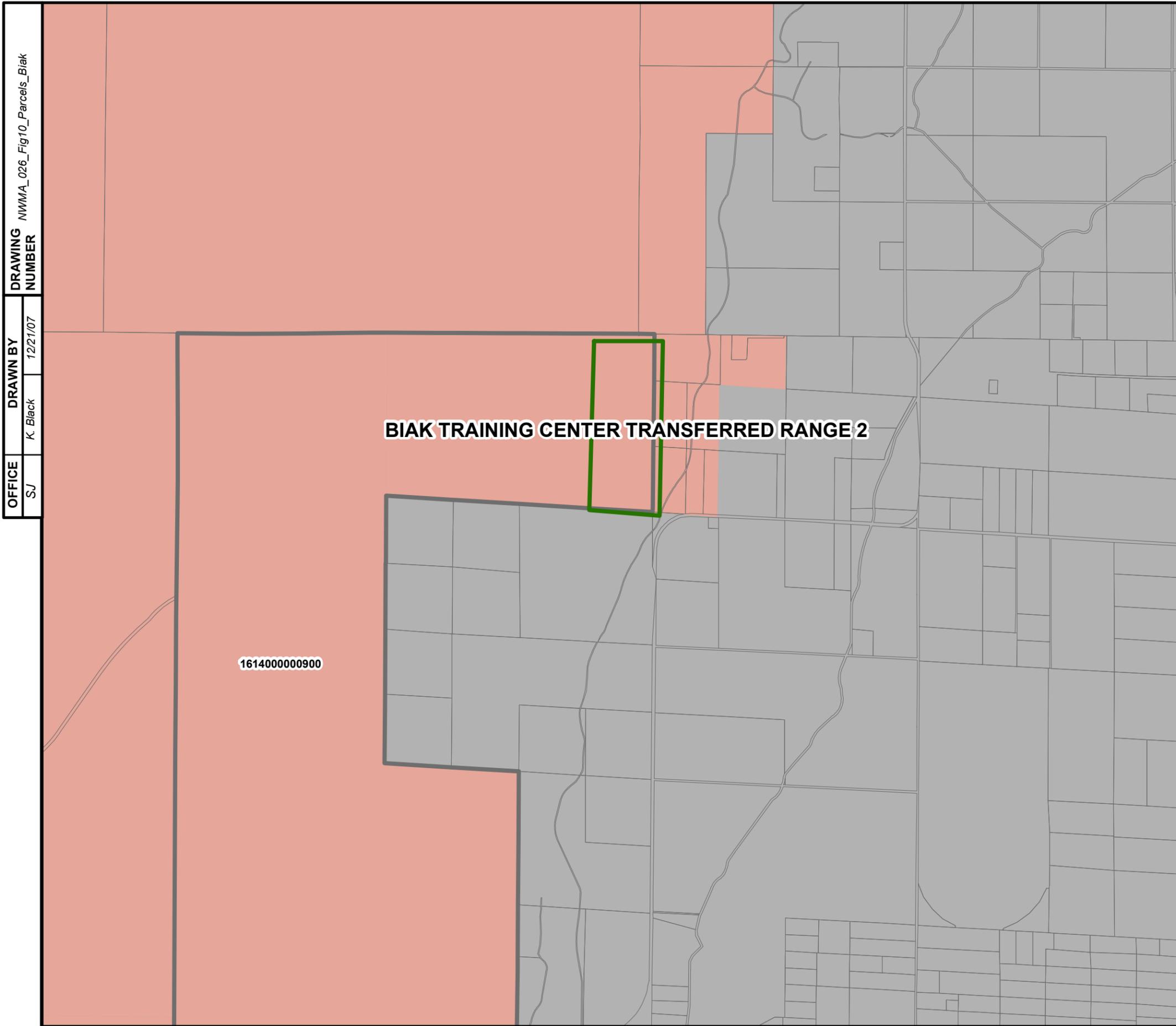


REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 9
FORT ROCK MANEUVER AREA
(SW QUARTER) PARCELS
LAKE COUNTY
 NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.



OFFICE: SJ
 DRAWN BY: K. Black
 DATE: 12/21/07
 DRAWING NUMBER: NWMA_026_Fig10_Parcels_Biak

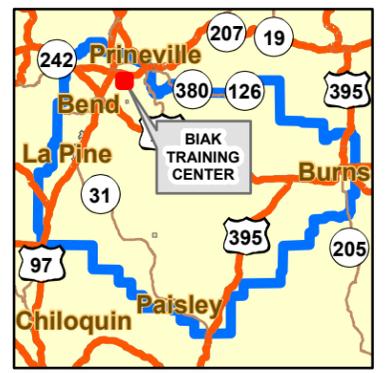
Legend

- Biak Transferred Range 2

Parcels

- Federal
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert



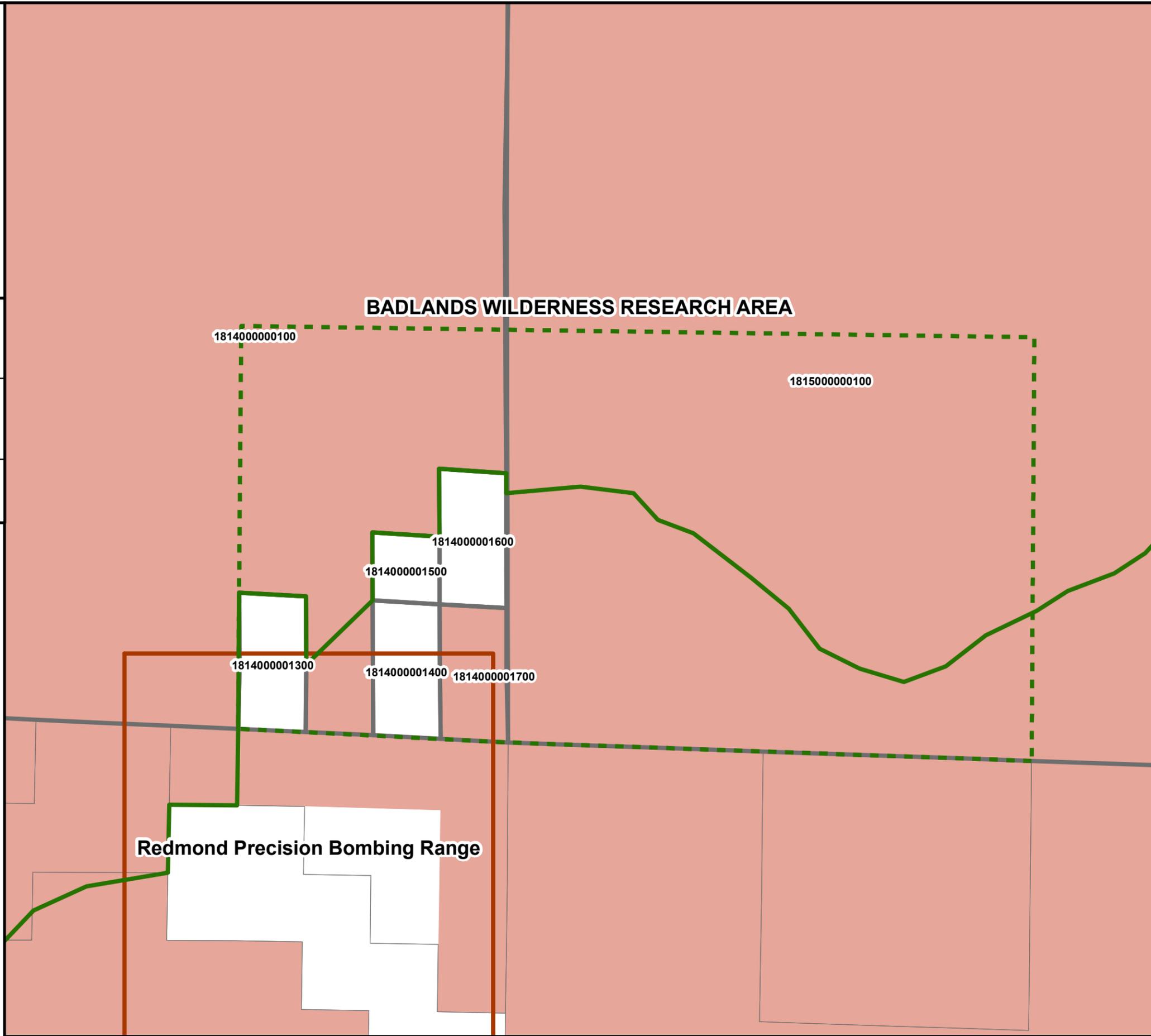
U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 10
BIAK TRANSFERRED RANGE 2
PARCELS
CROOK COUNTY
 NORTHWEST MANEUVER AREA

DRAWING NUMBER NWMA_020_Fig11_Parcels_BadlandsAOC

DRAWN BY K. Black 01/28/08

OFFICE SJ



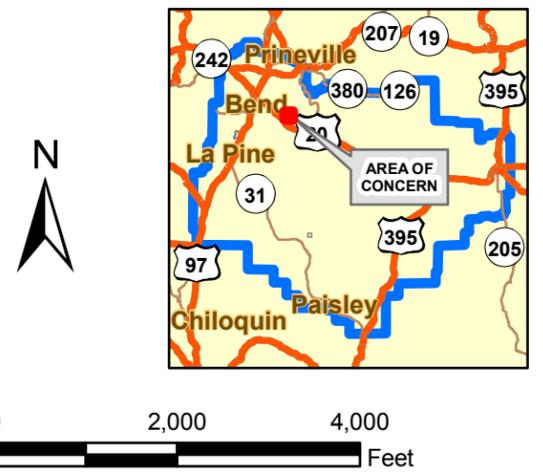
Legend

- Badlands Wilderness Research Area
- Area of Concern
- Additional FUDS Located Within the Northwest Maneuver Area

Parcels

- Federal
- Private

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

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FIGURE 11
BADLANDS WILDERNESS RESEARCH AREA
AREA OF CONCERN PARCELS
CROOK AND DESCHUTES COUNTIES
 NORTHWEST MANEUVER AREA

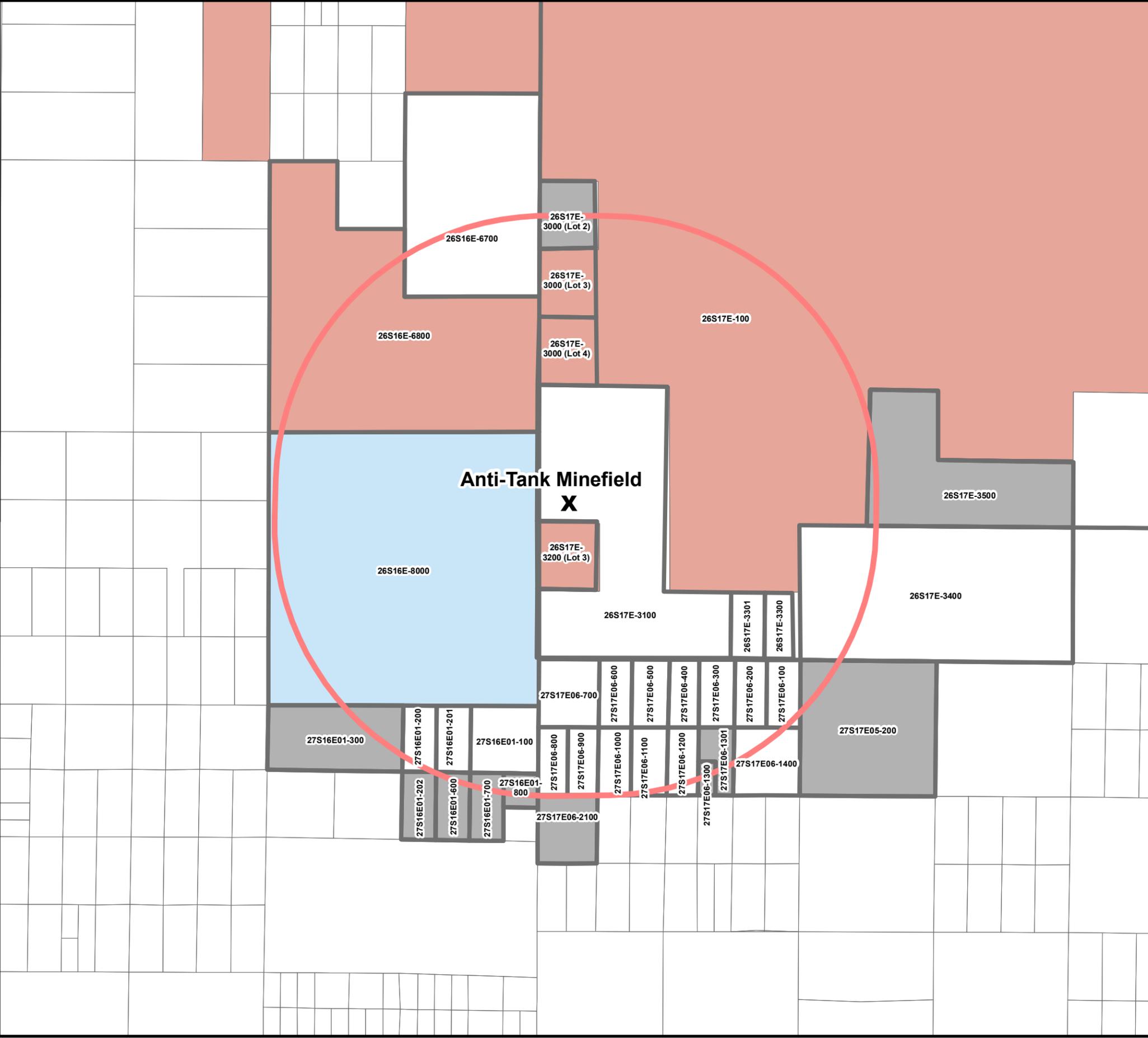
 Shaw Environmental, Inc.

OFFICE
SJ

DRAWN BY
K. Black

DATE
01/28/08

DRAWING NUMBER
NWMA_013_Fig12_Parcel_AntiTank



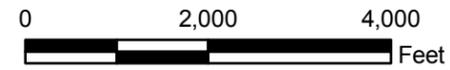
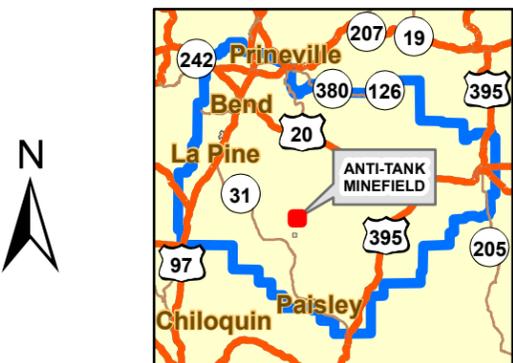
Legend

- X Anti-tank Minefield
- 1-Mile Radius

Parcels

- State
- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

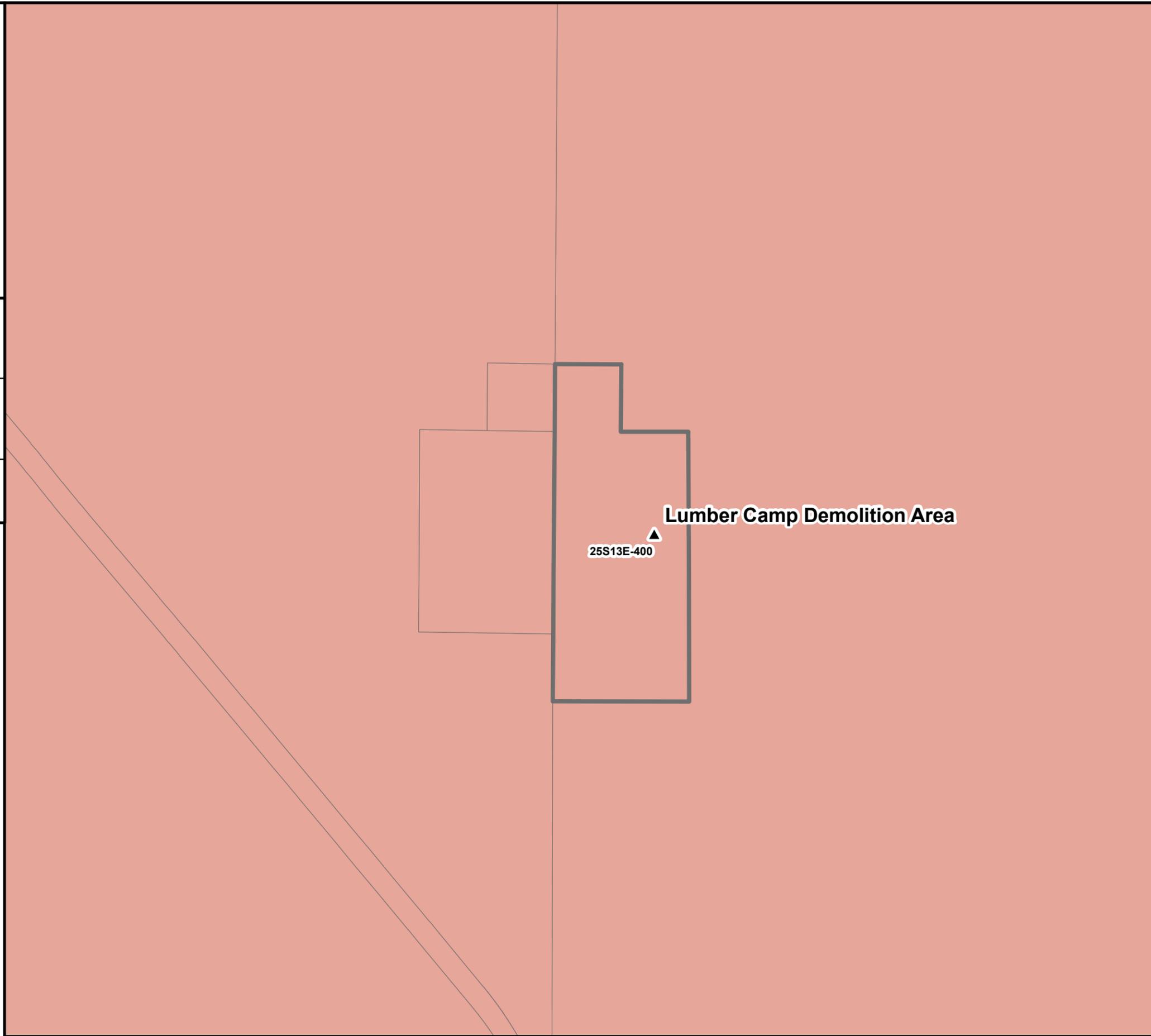
 U.S. ARMY CORPS OF ENGINEERS
OMAHA DESIGN CENTER

FIGURE 12
ANTI-TANK MINEFIELD
PARCELS
LAKE COUNTY

NORTHWEST MANEUVER AREA



OFFICE	DRAWN BY	DRAWING NUMBER
SJ	K. Black	NWMA_021_Fig13_Parcel_LumberCamp
		01/28/08



Legend

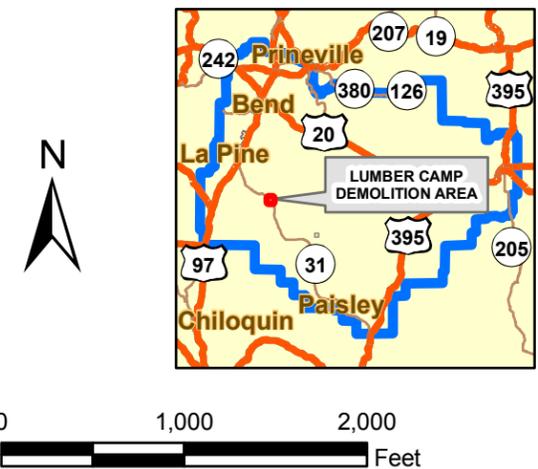
Location

- ▲ Lumber Camp Demolition Area

Parcels

- Federal

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

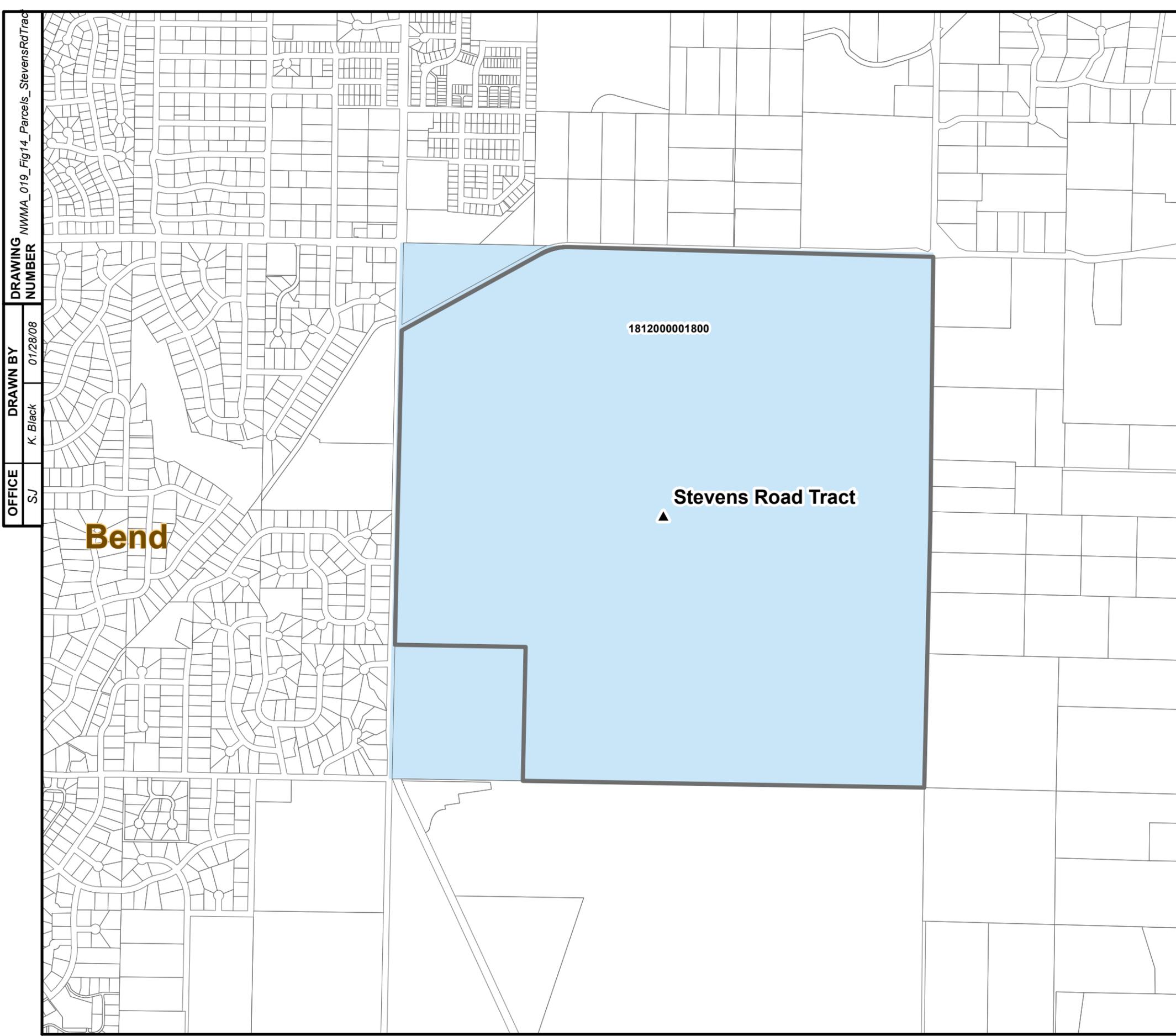


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FIGURE 13
LUMBER CAMP DEMOLITION AREA
PARCELS
LAKE COUNTY

NORTHWEST MANEUVER AREA





DRAWING NUMBER: NMMMA_019_Fig14_Parcels_StevensRdTract
 DRAWN BY: K. Black 01/28/08
 OFFICE: SJ

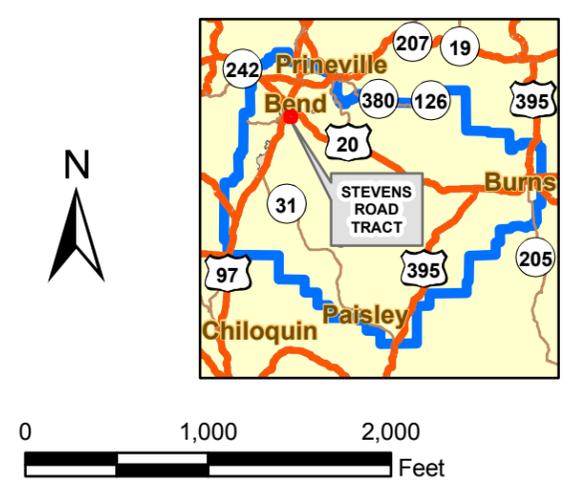
Legend

- ▲ Stevens Road Tract

Parcels

- State
- Private

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.

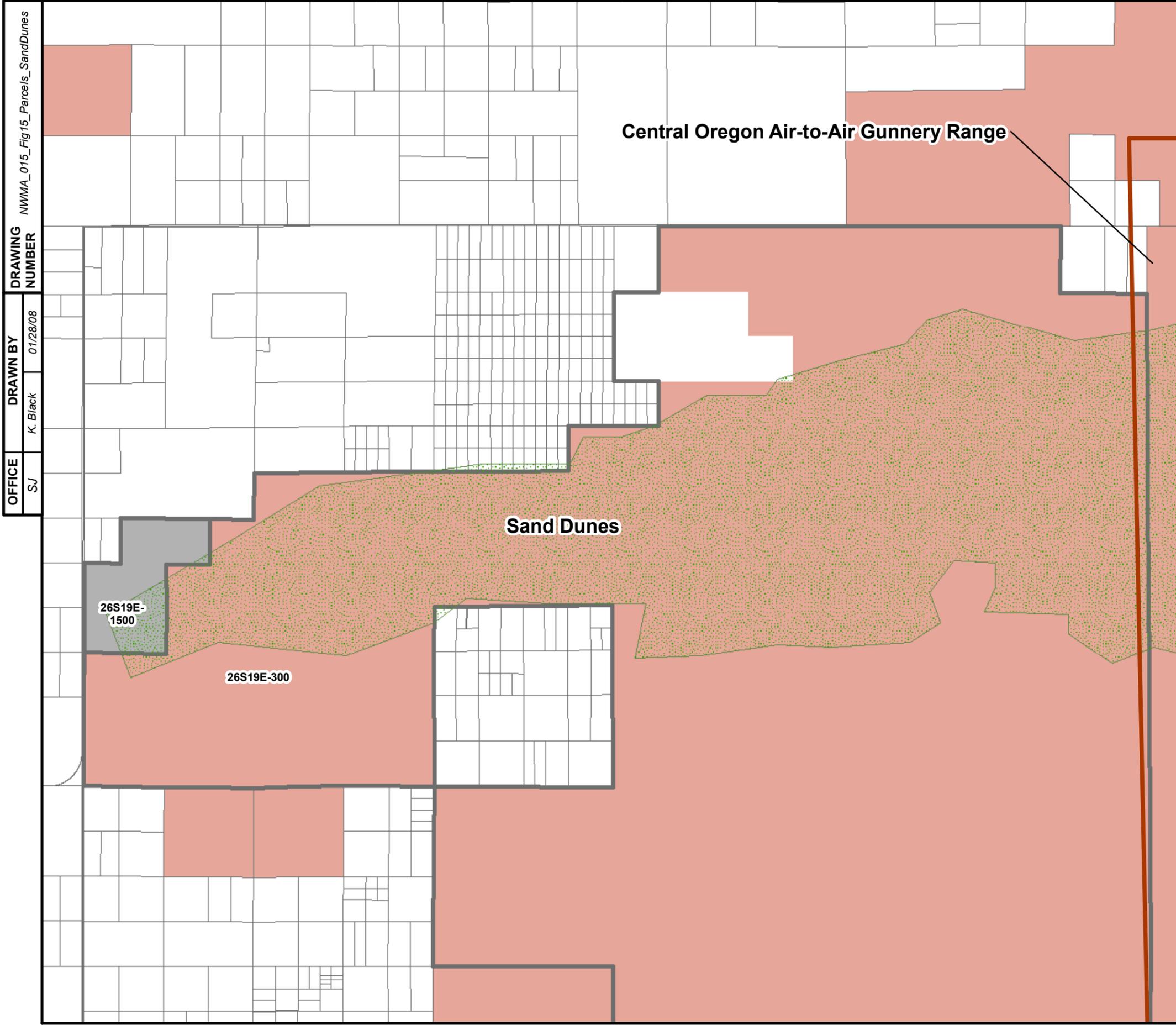


REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
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FIGURE 14
STEVENS ROAD TRACT
PARCELS
DESCHUTES COUNTY
 NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.



OFFICE: SJ
 DRAWN BY: K. Black
 DRAWING NUMBER: 01/28/08
 NWMA_015_Fig15_Parcels_SandDunes

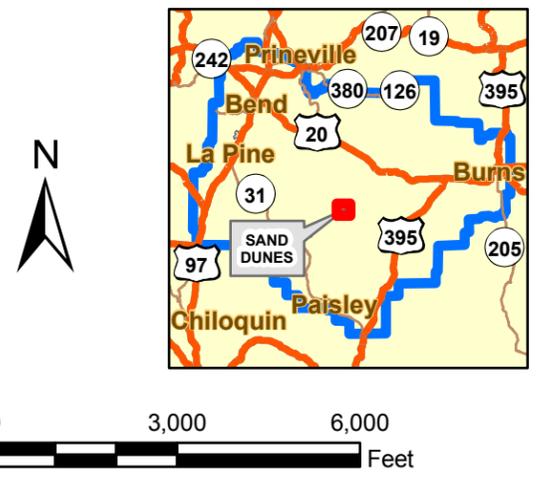
Legend

- Christmas Valley Sand Dunes
- Additional FUDS Located Within the Northwest Maneuver Area

Parcels

- Federal
- Private
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.

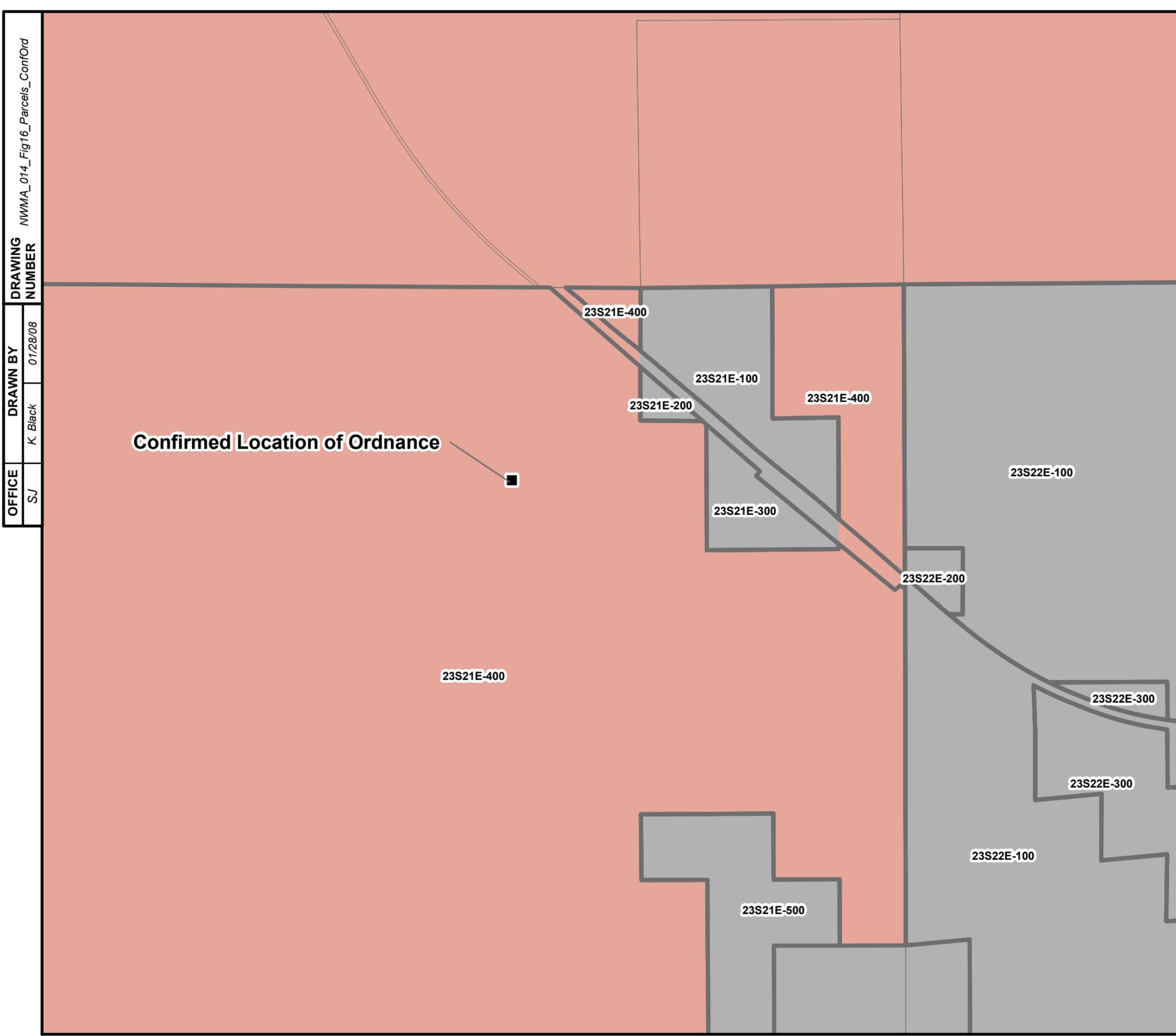


REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 15
SAND DUNES
PARCELS
LAKE COUNTY
 NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.



OFFICE: SJ
 DRAWN BY: K. Black
 DRAWING NUMBER: 01/28/08
 NWMA_014_Fig16_Parcels_ConfOrd

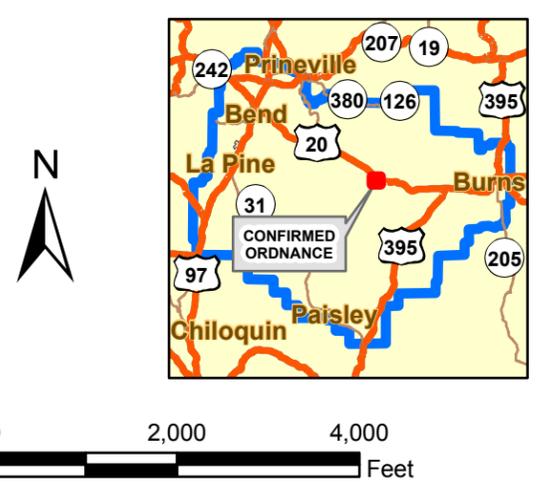
Legend

- Confirmed Location of Ordnance

Parcels

- Federal
- No Visual Reconnaissance Planned

NOTES:
 1) FUDS boundary and range boundary obtained from the Northwest Maneuver Area ASR Supplement.



REFERENCE/PROJECTION: NAD 83 HARN Oregon Statewide Lambert

U.S. ARMY CORPS OF ENGINEERS
 OMAHA DESIGN CENTER

FIGURE 16
CONFIRMED LOCATION OF ORDNANCE
PARCELS
LAKE COUNTY

NORTHWEST MANEUVER AREA

Shaw Environmental, Inc.

Tables

Table 1
Munitions Information – Northwest Maneuver Area

Range Areas	Munitions ID	Munitions	Associated MC
Anti-Tank Minefield	Practice land mine	M1B1	Sheet metal (chromium, copper, iron, lead, manganese, and nickel)
	Fuze	M1 (0.32 caliber blank)	Aluminum and lead Black powder (potassium nitrate, sulfur, charcoal) Red phosphorus
Maneuver Area	Small Arms	.30 and .45 caliber blanks	Brass (copper and zinc), aluminum, antimony, barium, lead Nitrocellulose Nitroglycerin
Sand Dunes	Practice Bomb	45-pound AN-Mk 43	Cast iron (iron) or steel (chromium, copper, iron, lead, manganese, and nickel)
	Spotting charge		Black powder (potassium nitrate, sulfur, and charcoal)

Based on information presented in the Archives Search Report (USACE, 1995) relating to the 1943 maneuvers within the Northwest Maneuver Area.

Table 2
Proposed Parcels for Visual Site Reconnaissance
(Crook County, Oregon)

MAPTAXLOT	TAXLOT	Town	Range	Section	GIS Acres	Owner Name	Where?
181500000400	00400	18	15	00	317.09000000	UNITED STATES DEPT OF THE INTE	Redmond Air-to-Ground Gunnery Range
181500000100	00100	18	15	00	21903.22000000	UNITED STATES	Redmond Air-to-Ground Gunnery Range
1816000002800	02800	18	16	00	157.54000000	UNITED STATES	Redmond Air-to-Ground Gunnery Range
1816000001800	01800	18	16	00	3092.97000000	UNITED STATES	Redmond Air-to-Ground Gunnery Range
1816000001900	01900	18	16	00	3432.10000000	SINGHOSE WAYNE P	Redmond Air-to-Ground Gunnery Range
181500000100	00100	18	15	00	21903.22000000	UNITED STATES	Badlands Wilderness Research Area AOC

Note:

Personal property information is considered confidential.

Table 3
Proposed Parcels for Visual Site Reconnaissance
(Deschutes County, Oregon)

TAXLOT	Name_1	Where?
151322B000100	CENTRAL OREGON COMMUNITY COLLEGE	Redmond Army Air Field
1513220000100	CITY OF REDMOND	Redmond Army Air Field
1513220000200	NEIBAUER,LINDA	Redmond Army Air Field
1513000000116	STATE OF OREGON MILITARY DEPT	Redmond Army Air Field
1513000001503	CITY OF REDMOND	Redmond Army Air Field
1513000000113	DESCHUTES COUNTY PROP MGT	Redmond Army Air Field
1513000001500	CITY OF REDMOND	Redmond Army Air Field
1513000000100	COMMON SCHOOL FUND	Redmond Army Air Field
1915000000100	USA	Redmond Air-to-Ground Gunnery Range
1915000000400	WEST BUTTE LLC	Redmond Air-to-Ground Gunnery Range
1915000001200	USA	Redmond Air-to-Ground Gunnery Range
1916000000700	WEST BUTTE LLC	Redmond Air-to-Ground Gunnery Range
1916000000600	WEST BUTTE LLC	Redmond Air-to-Ground Gunnery Range
1916000000500	WEST BUTTE LLC	Redmond Air-to-Ground Gunnery Range
1916000000800	WEST BUTTE LLC	Redmond Air-to-Ground Gunnery Range
1916000000100	USA	Redmond Air-to-Ground Gunnery Range
1915140000600	ZIMMERMAN,MICHAEL J	Redmond Air-to-Ground Gunnery Range
1915140000500	ROSS,ROBERT H II	Redmond Air-to-Ground Gunnery Range
1915140000400	ACE,MYRON L II	Redmond Air-to-Ground Gunnery Range
1915140000401	ROWE,JERRY L	Redmond Air-to-Ground Gunnery Range
1915140000700	ANKENY,JEFRE A ETUX	Redmond Air-to-Ground Gunnery Range
1915140000800	MERRILL,JOSEPH A	Redmond Air-to-Ground Gunnery Range
1915140000900	HUGHES LIVING TRUST	Redmond Air-to-Ground Gunnery Range
1915140001000	DESCHUTES COUNTY PROP MGT	Redmond Air-to-Ground Gunnery Range
1915140001400	NIELSEN,JACK H ETUX	Redmond Air-to-Ground Gunnery Range
1915140001300	HART,JASON M	Redmond Air-to-Ground Gunnery Range
1915140001200	RINGO DECEDENT'S TRUST PORTION OF RINGO JOINT LIVING TRUST	Redmond Air-to-Ground Gunnery Range
1915140001800	MERRYMAN,LARRY E	Redmond Air-to-Ground Gunnery Range
1915140001500	BROWN,MARGARET L	Redmond Air-to-Ground Gunnery Range
1915140001600	GINA LOUISE EDMUNDSON TRUST	Redmond Air-to-Ground Gunnery Range
1915140001700	ANDERSON,GLENN E	Redmond Air-to-Ground Gunnery Range
1915140001900	WEATHERHEAD,NANCI L	Redmond Air-to-Ground Gunnery Range
1915140000300	KRAUS,THOMAS A	Redmond Air-to-Ground Gunnery Range
1915140000200	WEBSTER,WILLIAM R	Redmond Air-to-Ground Gunnery Range
1915140000200	WEBSTER,WILLIAM R	Redmond Air-to-Ground Gunnery Range

Table 3
Proposed Parcels for Visual Site Reconnaissance
(Deschutes County, Oregon)

TAXLOT	Name_1	Where?
1915140000100	WEBSTER,WILLIAM R	Redmond Air-to-Ground Gunnery Range
1915140001100	MERRYMAN,LARRY E	Redmond Air-to-Ground Gunnery Range
1814000001300	DAY,HOWARD M	Redmond Precision Bombing Range
1814000001400	HEINLEIN,AMY	Redmond Precision Bombing Range
1814000001700	USA	Redmond Precision Bombing Range
1814000000100	USA	Redmond Precision Bombing Range
1914000000329	USA	Redmond Precision Bombing Range
1914000000100	USA	Redmond Precision Bombing Range
1914000000200	HOOKER CREEK LAND CO LLC	Redmond Precision Bombing Range
1914000000800	USA	Redmond Precision Bombing Range
1812000001800	STATE OF OREGON DIVISION OF STATE LANDS TRUSTEE FOR COMMON SCHOOL FUND	Stevens Road Tract
1814000001600	DAY,HOWARD M	Badlands Wilderness Research Area AOC
1814000001500	NELSON,BERTIL G ETUX	Badlands Wilderness Research Area AOC
1814000001300	DAY,HOWARD M	Badlands Wilderness Research Area AOC
1814000001400	HEINLEIN,AMY	Badlands Wilderness Research Area AOC
1814000001700	USA	Badlands Wilderness Research Area AOC
1814000000100	USA	Badlands Wilderness Research Area AOC
1614000000900	UNITED STATES	Biak Training Center - Transferred Range #2

Note:

Visual Reconnaissance will not be conducted at parcels shaded "GRAY"

Personal property information is considered confidential.

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
26S17E	100	U S A	16941.930000	26S17E-100	Anti-Tank Minefiled	
26S16E	6700	WALDRON, ALLEN K ET AL	240.000000	26S16E-6700	Anti-Tank Minefiled	
26S16E	6800	U S A	440.000000	26S16E-6800	Anti-Tank Minefiled	
26S16E	8000	STATE OF OREGON	640.000000	26S16E-8000	Anti-Tank Minefiled	
27S17E	700	EIVISON, DAVID ROSS	34.530000	27S17E06-700	Anti-Tank Minefiled	
27S17E	600	VILLA, ALFRED R	19.970000	27S17E06-600	Anti-Tank Minefiled	
27S17E	500	JOHNSON, CLAUDE A & LORNA L	19.960000	27S17E06-500	Anti-Tank Minefiled	
27S17E	400	BLAUSER, DANIEL & ANDREA	19.940000	27S17E06-400	Anti-Tank Minefiled	
27S17E	300	LARAMORE, KATHLEEN	19.930000	27S17E06-300	Anti-Tank Minefiled	
27S17E	200	STUTZMAN, MERVIN A & RUTH R	160.240000	27S17E05-200	Anti-Tank Minefiled	
27S16E	300	BROWN, LARRY D & CARIE L	77.150000	27S16E01-300	Anti-Tank Minefiled	
27S16E	200	STREED, GWAIN E	19.550000	27S16E01-200	Anti-Tank Minefiled	
27S16E	201	MILLER, JOHN BURNHAM	19.560000	27S16E01-201	Anti-Tank Minefiled	
27S16E	100	THORP, HAROLD J & DEE A	39.460000	27S16E01-100	Anti-Tank Minefiled	
27S17E	800	REED, CLIFFORD W JR & ANNE	17.290000	27S17E06-800	Anti-Tank Minefiled	
27S17E	900	PORTERFIELD FAMILY TRUST	17.300000	27S17E06-900	Anti-Tank Minefiled	
27S17E	1000	LAKE COUNTY	20.000000	27S17E06-1000	Anti-Tank Minefiled	
27S17E	1100	IGLOO INDUSTRIES, LLC	20.000000	27S17E06-1100	Anti-Tank Minefiled	
27S17E	1200	CONLIN, EDWARD J	20.000000	27S17E06-1200	Anti-Tank Minefiled	
27S17E	1400	BURNS, DAVID A	79.810000	27S17E06-1400	Anti-Tank Minefiled	Also includes parcels 27S17E06-200 and 27S17E06-100
27S17E	1301	BOYD, THOMAS A	15.000000	27S17E06-1301	Anti-Tank Minefiled	
27S17E	1300	BOYD, THOMAS A	5.000000	27S17E06-1300	Anti-Tank Minefiled	
27S16E	202	SUTTER, RONALD A	20.000000	27S16E01-202	Anti-Tank Minefiled	
27S16E	600	SOUTHWEST LAND VENTURES TWO	20.000000	27S16E01-600	Anti-Tank Minefiled	
27S16E	700	DAY, DEBORAH A	20.000000	27S16E01-700	Anti-Tank Minefiled	
27S16E	800	WALTMANN, FREDERICK & TUK S	10.000000	27S16E01-800	Anti-Tank Minefiled	
27S17E	2100	DEWITT, DAVID P & JACQUE B	34.610000	27S17E06-2100	Anti-Tank Minefiled	
26S17E	3000	OVERHOLSER, DENYS D & DIANA	34.19	26S17E-3000	Anti-Tank Minefiled	Listed as Lots 2,3, and 4 on the figure

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
26S17E	3100	MCCORD, DONALD K & KARLA K	303.61	26S17E-3100	Anti-Tank Minefiled	
26S17E	3200	U S A	34.55	26S17E-3200	Anti-Tank Minefiled	
26S17E	3300	ALBERTSON, LARRY R & JOLENE	20	26S17E-3300	Anti-Tank Minefiled	
26S17E	3301	SMITH, GARY L & KAREN I	20	26S17E-3301	Anti-Tank Minefiled	
26S17E	3400	STUTZMAN, MERVIN A & RUTH R	320	26S17E-3400	Anti-Tank Minefiled	
26S17E	3500	GOLDEN RULE FARMS, INC.	320	26S17E-3500	Anti-Tank Minefiled	
23S21E	400.000000	U S A	21719.010000	23S21E-400	Confirmed Location of Ordnance	
23S21E	200.000000	PURVIS, MADELYN R & C F TRU	9.850000	23S21E-200	Confirmed Location of Ordnance	
23S22E	100.000000	U S A	19183.520000	23S22E-100	Confirmed Location of Ordnance	
23S21E	100.000000	PURVIS, MADELYN R & C F TRU	202.660000	23S21E-100	Confirmed Location of Ordnance	
23S21E	300.000000	PURVIS, MADELYN R & C F TRU	90.040000	23S21E-300	Confirmed Location of Ordnance	
23S22E	200.000000	STATE OF OREGON	38.260000	23S22E-200	Confirmed Location of Ordnance	
23S22E	300.000000	GI RANCH CORP	307.600000	23S22E-300	Confirmed Location of Ordnance	
23S22E	300.000000	GI RANCH CORP	307.600000	23S22E-300	Confirmed Location of Ordnance	
23S21E	500.000000	DE MONTE, LEO & VIVIAN TRS	320.000000	23S21E-500	Confirmed Location of Ordnance	
26S19E	300.000000	U S A	13532.540000	26S19E-300	Sand Dunes	
26S19E	1500.000000	BOYLES, DONALD R & MARLENE	224.120000	26S19E-1500	Sand Dunes	
23S17E	200.000000	J R SIMPLOT COMPANY REV TR	557.370000	23S17E-200	Fort Rock Maneuver Area	
23S17E	400.000000	J R SIMPLOT COMPANY REV TR	631.900000	23S17E-400	Fort Rock Maneuver Area	
24S14E	400.000000	W & V PHILLIPS, LLC	960.000000	24S14E-400	Fort Rock Maneuver Area	
24S14E	900.000000	U S A	40.000000	24S14E-900	Fort Rock Maneuver Area	
24S14E	1000.000000	U S A	40.000000	24S14E-1000	Fort Rock Maneuver Area	
24S15E	600.000000	U S A	960.000000	24S15E-600	Fort Rock Maneuver Area	
24S16E	600.000000	KITTREDGE, JACK L CREDIT SH	40.000000	24S16E-600	Fort Rock Maneuver Area	
24S16E	200.000000	KITTREDGE, JACK L CREDIT SH	120.000000	24S16E-200	Fort Rock Maneuver Area	
24S16E	700.000000	KITTREDGE, JACK L CREDIT SH	120.000000	24S16E-700	Fort Rock Maneuver Area	
24S16E	800.000000	KITTREDGE, JACK L CREDIT SH	160.000000	24S16E-800	Fort Rock Maneuver Area	
24S16E	900.000000	KITTREDGE, JACK L CREDIT SH	40.000000	24S16E-900	Fort Rock Maneuver Area	
25S13E	300.000000	MC CLURG,JEFF & NANCY	160.000000	25S13E-300	Fort Rock Maneuver Area	
25S13E	101.000000	WAGNER, RAYMOND B & EDNA M	20.000000	25S13E-101	Fort Rock Maneuver Area	
25S13E	600.000000	WAGNER, RAYMOND & EDNA	320.000000	25S13E-600	Fort Rock Maneuver Area	
25S13E	500.000000	WAGNER, RAY B & EDNA M	636.360000	25S13E-500	Fort Rock Maneuver Area	

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
25S13E	602.000000	HORTON TRUST 1/2	158.400000	25S13E-602	Fort Rock Maneuver Area
25S13E	603.000000	WAGNER, J ELAINE	158.180000	25S13E-603	Fort Rock Maneuver Area
25S14E	1400.000000	SIMMONS, JERALD N & VERLIND	9.360000	25S14E16-1400	Fort Rock Maneuver Area
25S14E	1401.000000	SIMMONS, JERALD N & VERLIND	69.730000	25S14E16-1401	Fort Rock Maneuver Area
25S14E	500.000000	MORTON, ERVIN L & LAVERNE C	5.000000	25S14E16-500	Fort Rock Maneuver Area
25S14E	400.000000	YAMAUCHI, MASARU & BESSIE Y	5.000000	25S14E16-400	Fort Rock Maneuver Area
25S14E	300.000000	YOSHIOKA, HOWARD H & MARJOR	5.000000	25S14E16-300	Fort Rock Maneuver Area
25S14E	200.000000	HAYNES, ISABELLA & JOHN D	10.000000	25S14E16-200	Fort Rock Maneuver Area
25S14E	100.000000	HANKINS, BILL G & BARBARA L	5.000000	25S14E16-100	Fort Rock Maneuver Area
25S14E	700.000000	GREINER, LEO E & LINDA L	80.000000	25S14E-700	Fort Rock Maneuver Area
25S14E	600.000000	GREINER, LEO E & LINDA L	213.120000	25S14E-600	Fort Rock Maneuver Area
25S14E	600.000000	PARK, WALTER	5.000000	25S14E16-600	Fort Rock Maneuver Area
25S14E	1000.000000	MANLEY, MELVIN ZUNIGA	5.000000	25S14E16-1000	Fort Rock Maneuver Area
25S14E	700.000000	CLARK, CRAIG H	5.000000	25S14E16-700	Fort Rock Maneuver Area
25S14E	800.000000	CLARKE, TONI	15.000000	25S14E16-800	Fort Rock Maneuver Area
25S14E	900.000000	UNITED METHODIST CHURCH	5.000000	25S14E16-900	Fort Rock Maneuver Area
25S14E	1100.000000	BLAINE, CYRIL & MARIEL	5.000000	25S14E16-1100	Fort Rock Maneuver Area
25S14E	800.000000	CLARKE, TONI	15.000000	25S14E16-800	Fort Rock Maneuver Area
25S14E	1300.000000	CLARK, CRAIG H	5.000000	25S14E16-1300	Fort Rock Maneuver Area
25S14E	800.000000	CLARKE, TONI	15.000000	25S14E16-800	Fort Rock Maneuver Area
25S14E	1200.000000	CHAPPELL, ROXANNE & STANLEY	10.000000	25S14E16-1200	Fort Rock Maneuver Area
25S14E	1500.000000	SIMMONS, JERALD N & VERLIND	158.180000	25S14E16-1500	Fort Rock Maneuver Area
25S14E	1600.000000	IGLOO INDUSTRIES, LLC	5.000000	25S14E16-1600	Fort Rock Maneuver Area
25S14E	1700.000000	SIMMONS, JERALD N & VERLIND	5.000000	25S14E16-1700	Fort Rock Maneuver Area
25S14E	1800.000000	SURCAMP, LEROY W & ESTA M	5.000000	25S14E16-1800	Fort Rock Maneuver Area
25S14E	500.000000	PULOS, GERTRUDE E SANDBERG	40.000000	25S14E-500	Fort Rock Maneuver Area
25S14E	2200.000000	SIMMONS, JERALD N & VERLIND	5.000000	25S14E16-2200	Fort Rock Maneuver Area
25S14E	2100.000000	CRAVER, KENNETH E & MARY C	5.000000	25S14E16-2100	Fort Rock Maneuver Area
25S14E	2000.000000	GRAY, EUWELL JR ET AL	15.000000	25S14E16-2000	Fort Rock Maneuver Area
25S14E	1900.000000	SEVERSON, RICHARD & DONNA	5.000000	25S14E16-1900	Fort Rock Maneuver Area
25S14E	2300.000000	CAMPBELL, JACK E & BARBARA	5.000000	25S14E16-2300	Fort Rock Maneuver Area
25S14E	2400.000000	WILSON, PATRICK H ET AL	5.000000	25S14E16-2400	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
25S14E	2500.000000	HANKINS, BILL G & BARBARA L	5.000000	25S14E16-2500	Fort Rock Maneuver Area
25S14E	2800.000000	JOHNSON, RANDOLPH W	5.000000	25S14E16-2800	Fort Rock Maneuver Area
25S14E	2700.000000	MARSTERS, DAVID E & TOMMIE	5.000000	25S14E16-2700	Fort Rock Maneuver Area
25S14E	2600.000000	AUSTIN, FRANK B & CATHERINE	5.000000	25S14E16-2600	Fort Rock Maneuver Area
25S14E	2900.000000	BECK, JAMES T	5.000000	25S14E16-2900	Fort Rock Maneuver Area
25S14E	3900.000000	GRECO, MICHAEL RICHARD	5.000000	25S14E16-3900	Fort Rock Maneuver Area
25S14E	4000.000000	PHIPPS, PHYLLIS ET AL	20.000000	25S14E16-4000	Fort Rock Maneuver Area
25S14E	3000.000000	BLAKE, WOODROW	5.000000	25S14E16-3000	Fort Rock Maneuver Area
25S14E	3800.000000	CRUZ, JUANITA P	5.000000	25S14E16-3800	Fort Rock Maneuver Area
25S14E	3100.000000	LAEL, DANIEL R & JEANNETTE	5.000000	25S14E16-3100	Fort Rock Maneuver Area
25S14E	3700.000000	HARRIS, PETER M & LEAH M	29.550000	25S14E16-3700	Fort Rock Maneuver Area
25S14E	4100.000000	DEROL COMPANY, LLC	59.090000	25S14E16-4100	Fort Rock Maneuver Area
25S14E	3200.000000	WEISER, MICHAEL J & TERRIE	5.000000	25S14E16-3200	Fort Rock Maneuver Area
25S14E	3300.000000	PITMAN, ELENORA ESTATE	38.180000	25S14E16-3300	Fort Rock Maneuver Area
25S14E	3400.000000	SIMMONS, JERALD N & VERLIND	39.090000	25S14E16-3400	Fort Rock Maneuver Area
25S14E	3500.000000	COSTLEY, MICHAEL A & STEPHA	9.770000	25S14E16-3500	Fort Rock Maneuver Area
25S14E	3600.000000	TUTTLE, ROBERT E & SHARON L	9.770000	25S14E16-3600	Fort Rock Maneuver Area
25S14E	800.000000	GREINER, DOUGLAS S	24.150000	25S14E-800	Fort Rock Maneuver Area
25S14E	1100.000000	RENNER, RYAN	156.360000	25S14E-1100	Fort Rock Maneuver Area
25S14E	1300.000000	GATES, SPENCER A & MARCIA A	158.180000	25S14E-1300	Fort Rock Maneuver Area
25S14E	1200.000000	WEST, THOMAS J & DIANE C TR	158.180000	25S14E-1200	Fort Rock Maneuver Area
25S14E	400.000000	HUFFORD ESTATE LLC	709.080000	25S14E-400	Fort Rock Maneuver Area
25S14E	1003.000000	KITTREDGE, J SCOTT & JANA S	174.030000	25S14E-1003	Fort Rock Maneuver Area
25S14E	1005.000000	HAMLINGTON, MARK	10.270000	25S14E-1005	Fort Rock Maneuver Area
25S14E	1002.000000	KITTREDGE, J SCOTT & JANA S	147.980000	25S14E-1002	Fort Rock Maneuver Area
25S14E	1201.000000	CHITWOOD, MIKE H & LORI A	163.630000	25S14E-1201	Fort Rock Maneuver Area
25S14E	1600.000000	RENNER,RYAN1/2 & ELSASSER,	309.000000	25S14E-1600	Fort Rock Maneuver Area
25S14E	1400.000000	HUFFORD ESTATE LLC	158.180000	25S14E-1400	Fort Rock Maneuver Area
25S14E	2000.000000	MOREHOUSE, JANICE	160.000000	25S14E-2000	Fort Rock Maneuver Area
25S14E	1004.000000	NELSON, DICK A, COURTNEY L	160.000000	25S14E-1004	Fort Rock Maneuver Area
25S14E	1700.000000	KITTREDGE, J SCOTT & JANA S	313.860000	25S14E-1700	Fort Rock Maneuver Area
25S14E	106.000000	RICE, RICHARD R & CHERYL L	158.180000	25S14E-106	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
25S14E	1500.000000	RENNER,RYAN1/2 & ELSASSER,	160.000000	25S14E-1500	Fort Rock Maneuver Area
25S14E	1001.000000	NELSON, DICK A, COURTNEY L	128.640000	25S14E-1001	Fort Rock Maneuver Area
25S14E	1800.000000	STATE OF OREGON	158.180000	25S14E-1800	Fort Rock Maneuver Area
25S14E	2200.000000	STATE OF OREGON	29.550000	25S14E-2200	Fort Rock Maneuver Area
25S14E	1900.000000	FORT ROCK CEMETERY	0.690000	25S14E-1900	Fort Rock Maneuver Area
25S14E	2300.000000	KRUSE RANCH, LLC	160.000000	25S14E-2300	Fort Rock Maneuver Area
25S14E	2400.000000	KRUSE RANCH, LLC	160.000000	25S14E-2400	Fort Rock Maneuver Area
25S15E	301.000000	OLSON, LLOYD C & JULIA N	640.000000	25S15E-301	Fort Rock Maneuver Area
25S15E	900.000000	U S A	40.000000	25S15E-900	Fort Rock Maneuver Area
25S15E	300.000000	OLSON, LLOYD C & JULIA N	640.000000	25S15E-300	Fort Rock Maneuver Area
25S15E	1200.000000	CADE, KENNETH A & MARIA M	200.000000	25S15E-1200	Fort Rock Maneuver Area
25S15E	1000.000000	O'KEEFFE, PATRICK 1/3;	631.520000	25S15E-1000	Fort Rock Maneuver Area
25S15E	1100.000000	WARMINGTON, RICHARD & SUSAN	120.000000	25S15E-1100	Fort Rock Maneuver Area
25S15E	1301.000000	WARMINGTON, RICHARD W & SUE	160.000000	25S15E-1301	Fort Rock Maneuver Area
25S16E	701.000000	MOORE, JOANNE C	39.340000	25S16E-701	Fort Rock Maneuver Area
25S16E	702.000000	MOORE, JOANNE C	39.270000	25S16E-702	Fort Rock Maneuver Area
25S16E	600.000000	PARKER, WENDY	79.090000	25S16E-600	Fort Rock Maneuver Area
25S16E	500.000000	MORRISON, MARILYN	2305.450000	25S16E-500	Fort Rock Maneuver Area
25S16E	703.000000	MOORE, JOANNE C	80.270000	25S16E-703	Fort Rock Maneuver Area
25S16E	800.000000	U S A	80.000000	25S16E-800	Fort Rock Maneuver Area
25S16E	705.000000	MORRISON, MARILYN	3036.120000	25S16E-705	Fort Rock Maneuver Area
25S16E	704.000000	MORRISON, FRITZ L & MARILYN	315.390000	25S16E-704	Fort Rock Maneuver Area
26S13E	402.000000	KINNEY, MICHAEL & ELIZABETH	39.390000	26S13E-402	Fort Rock Maneuver Area
26S13E	400.000000	BOWERS, PAUL E & NANCY L	561.250000	26S13E-400	Fort Rock Maneuver Area
26S13E	500.000000	BOWERS, PAUL E & NANCY L	320.000000	26S13E-500	Fort Rock Maneuver Area
26S13E	1000.000000	BOWERS, PAUL E & NANCY L	320.000000	26S13E-1000	Fort Rock Maneuver Area
26S13E	1300.000000	MATTIS, MICHAEL W	77.480000	26S13E-1300	Fort Rock Maneuver Area
26S14E	400.000000	KRUSE RANCH LLC	158.180000	26S14E-400	Fort Rock Maneuver Area
26S14E	700.000000	BETTENCOURT, ANDREW S & SHA	240.000000	26S14E-700	Fort Rock Maneuver Area
26S14E	600.000000	U S A	16825.210000	26S14E-600	Fort Rock Maneuver Area
26S14E	800.000000	KRUSE RANCH LLC	160.000000	26S14E-800	Fort Rock Maneuver Area
26S14E	1200.000000	BOWERS, PAUL E & NANCY L	156.360000	26S14E-1200	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
26S14E	1100.000000	BETTENCOURT, ANDREW S & SHA	158.180000	26S14E-1100	Fort Rock Maneuver Area	
26S14E	1600.000000	JUDD, TIMOTHY D & CANDIS A	159.090000	26S14E-1600	Fort Rock Maneuver Area	
26S14E	1505.000000	BRAMLETT, JONI D & BEN	95.840000	26S14E-1505	Fort Rock Maneuver Area	
26S14E	1501.000000	BENNETT, BART AND KATHLEEN	5.000000	26S14E-1501	Fort Rock Maneuver Area	
26S14E	1500.000000	WORDEN, JOSEPH D & ALMA D	157.360000	26S14E-1500	Fort Rock Maneuver Area	
26S14E	1503.000000	BRAMLETT, JONI D & BEN	39.990000	26S14E-1503	Fort Rock Maneuver Area	
26S14E	1400.000000	MATTIS, MICHAEL W	1233.690000	26S14E-1400	Fort Rock Maneuver Area	
26S14E	1500.000000	WORDEN, JOSEPH D & ALMA D	157.360000	26S14E-1500	Fort Rock Maneuver Area	
26S14E	2101.000000	MATTIS, MICHAEL W	79.090000	26S14E-2101	Fort Rock Maneuver Area	
26S14E	1700.000000	KITTREDGE, J SCOTT & JANA	558.180000	26S14E-1700	Fort Rock Maneuver Area	
26S14E	2100.000000	MATTIS, RUSSELL B	80.000000	26S14E-2100	Fort Rock Maneuver Area	
26S15E	400.000000	COIT RANCH	39.190000	26S15E-400	Fort Rock Maneuver Area	
26S15E	700.000000	KAHLER, KELLY G & ROXANNE	159.190000	26S15E-700	Fort Rock Maneuver Area	
26S15E	500.000000	U S A	5411.110000	26S15E-500	Fort Rock Maneuver Area	
26S15E	1400.000000	WIDENOJA, RICHARD N - LIVIN	160.000000	26S15E-1400	Fort Rock Maneuver Area	
26S15E	1600.000000	DINSDALE, SAMUEL C	79.180000	26S15E-1600	Fort Rock Maneuver Area	
26S15E	1701.000000	DINSDALE, SAMUEL C	160.000000	26S15E-1701	Fort Rock Maneuver Area	
26S15E	501.000000	DINSDALE, SAMUEL C	160.000000	26S15E-501	Fort Rock Maneuver Area	
26S15E	1500.000000	DINSDALE, SAMUEL C	79.090000	26S15E-1500	Fort Rock Maneuver Area	
26S15E	2100.000000	STATE OF OREGON (LEASE)	632.730000	26S15E-2100	Fort Rock Maneuver Area	
26S15E	2000.000000	MOREHOUSE, RICHARD & VIRGIN	310.200000	26S15E-2000	Fort Rock Maneuver Area	
26S15E	1700.000000	DINSDALE, SAMUEL C	320.000000	26S15E-1700	Fort Rock Maneuver Area	
26S15E	2200.000000	TUTTLE, ROBERT E & SHARON L	318.180000	26S15E-2200	Fort Rock Maneuver Area	
26S15E	502.000000	DINSDALE, SAMUEL C	320.000000	26S15E-502	Fort Rock Maneuver Area	
26S15E	1901.000000	LA FRANCHI, RON	159.090000	26S15E-1901	Fort Rock Maneuver Area	
26S15E	1901.000000	LA FRANCHI, RON	159.090000	26S15E-1901	Fort Rock Maneuver Area	
26S15E	2700.000000	DINSDALE, SAMUEL C	156.360000	26S15E-2700	Fort Rock Maneuver Area	
26S15E	2600.000000	DINSDALE, SAMUEL C	318.180000	26S15E-2600	Fort Rock Maneuver Area	
26S15E	1900.000000	LA FRANCHI, RON	677.270000	26S15E-1900	Fort Rock Maneuver Area	
26S15E	500.000000	U S A	5411.110000	26S15E-500	Fort Rock Maneuver Area	
26S15E	2800.000000	LAFRANCHI, RON	158.180000	26S15E-2800	Fort Rock Maneuver Area	
26S15E	1902.000000	LA FRANCHI, RON	320.000000	26S15E-1902	Fort Rock Maneuver Area	

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
26S15E	2500.000000	DINSDALE, SAMUEL C	514.540000	26S15E-2500	Fort Rock Maneuver Area	
26S15E	2900.000000	LA FRANCHI, RON	160.000000	26S15E-2900	Fort Rock Maneuver Area	
26S15E	4101.000000	LA FRANCHI, RON	9.550000	26S15E-4101	Fort Rock Maneuver Area	
26S15E	4300.000000	MORRISON, MARILYN	158.180000	26S15E-4300	Fort Rock Maneuver Area	
26S15E	4404.000000	DINSDALE, SAMUEL C	160.000000	26S15E-4404	Fort Rock Maneuver Area	
26S15E	4100.000000	LA FRANCHI, RON	297.260000	26S15E-4100	Fort Rock Maneuver Area	
26S15E	4900.000000	DINSDALE, SAMUEL C	318.180000	26S15E-4900	Fort Rock Maneuver Area	
26S15E	4200.000000	LA FRANCHI, RON	9.550000	26S15E-4200	Fort Rock Maneuver Area	
26S15E	100.000000	PARKS, ALAN & LAURA L	0.920000	26S15E28CB-100	Fort Rock Maneuver Area	
26S15E	200.000000	PARKS, ALAN & LAURA L	0.920000	26S15E28CB-200	Fort Rock Maneuver Area	
26S15E	4400.000000	THE POPLARS RANCH, INC	474.520000	26S15E-4400	Fort Rock Maneuver Area	
26S15E	4401.000000	POPLARS RANCH INC	158.180000	26S15E-4401	Fort Rock Maneuver Area	
26S16E	1800.000000	O'KEEFFE, PATRICK 1/3;	423.100000	26S16E-1800	Fort Rock Maneuver Area	
26S16E	2500.000000	O'LEARY, JOHN K	160.000000	26S16E-2500	Fort Rock Maneuver Area	
26S16E	2600.000000	BANSEN, DAN K & JUDY C	160.000000	26S16E-2600	Fort Rock Maneuver Area	
26S16E	2702.000000	MOREHOUSE, RICHARD & VIRGIN	2394.550000	26S16E-2702	Fort Rock Maneuver Area	
27S13E	900.000000	RIMROCK TIMBER L.L.C.	840.000000	27S13E-900	Fort Rock Maneuver Area	
27S14E	303.000000	BROWN, JAMES H & JANE E	20.000000	27S14E-303	Fort Rock Maneuver Area	
27S14E	304.000000	BROWN, JAMES H & JANE E	20.000000	27S14E-304	Fort Rock Maneuver Area	
27S14E	306.000000	DAVIS, RONALD R & ROSEMARIE	20.000000	27S14E-306	Fort Rock Maneuver Area	
27S14E	302.000000	LAFOND, JAMES A	20.000000	27S14E-302	Fort Rock Maneuver Area	
27S14E	305.000000	HEETER, JOHN F	20.000000	27S14E-305	Fort Rock Maneuver Area	
27S14E	300.000000	SCALES, VAUGHN W & SHERRY L	20.000000	27S14E-300	Fort Rock Maneuver Area	
27S14E	301.000000	LYONS, LANCE P & TINA L	40.000000	27S14E-301	Fort Rock Maneuver Area	
27S14E	400.000000	BELL 'A' LAND & CATTLE CO	2752.800000	27S14E-400	Fort Rock Maneuver Area	
27S14E	100.000000	POOLE, PAUL D	19.540000	27S14E10-100	Fort Rock Maneuver Area	
27S14E	300.000000	GLADDEN, JOSHUA	38.160000	27S14E10-300	Fort Rock Maneuver Area	
27S14E	200.000000	POOLE, PAUL D	19.550000	27S14E10-200	Fort Rock Maneuver Area	
27S14E	500.000000	BELL 'A' LAND & CATTLE CO	39.980000	27S14E10-500	Fort Rock Maneuver Area	
27S14E	200.000000	U S A	11442.950000	27S14E-200	Fort Rock Maneuver Area	
27S14E	600.000000	GLADDEN, WAYNE & SHARON	39.090000	27S14E10-600	Fort Rock Maneuver Area	
27S14E	700.000000	BACHELER, ROBERT S III & LI	320.000000	27S14E-700	Fort Rock Maneuver Area	

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
27S15E	300.000000	MILES, HAROLD & LOIS TRUST	313.710000	27S15E-300	Fort Rock Maneuver Area
27S15E	600.000000	HEAVILIN, JACK L & CHERIL M	241.200000	27S15E-600	Fort Rock Maneuver Area
27S15E	500.000000	MIDSTATE ELECTRIC CORP INC	1.000000	27S15E-500	Fort Rock Maneuver Area
27S15E	301.000000	MILES, HAROLD & LOIS TRUST	1.650000	27S15E-301	Fort Rock Maneuver Area
27S15E	1300.000000	MILES, HAROLD & LOIS TRUST	464.130000	27S15E-1300	Fort Rock Maneuver Area
27S15E	1600.000000	DINSDALE, SAMUEL C	117.270000	27S15E-1600	Fort Rock Maneuver Area
27S15E	1601.000000	SWEET, CYNDIA A	76.360000	27S15E-1601	Fort Rock Maneuver Area
27S15E	1603.000000	DUNBAR, JAY L & DIANE F	79.090000	27S15E-1603	Fort Rock Maneuver Area
27S15E	1602.000000	MILES, HAROLD & LOIS TRUST	39.090000	27S15E-1602	Fort Rock Maneuver Area
27S15E	1701.000000	NORTH LAKE SCHOOL DIST #14	78.260000	27S15E-1701	Fort Rock Maneuver Area
27S15E	2104.000000	NORTH LAKE SCHOOL DIST #14	0.210000	27S15E-2104	Fort Rock Maneuver Area
27S15E	2101.000000	DINSDALE, SAMUEL C	210.810000	27S15E-2101	Fort Rock Maneuver Area
27S15E	2100.000000	FORT ROCK COMMUNITY CHURCH,	3.900000	27S15E-2100	Fort Rock Maneuver Area
27S15E	2105.000000	DINSDALE, SAMUEL C	4.590000	27S15E-2105	Fort Rock Maneuver Area
27S15E	1301.000000	U S A BPA	2.070000	27S15E-1301	Fort Rock Maneuver Area
27S15E	1400.000000	U S A	6.900000	27S15E-1400	Fort Rock Maneuver Area
27S15E	1604.000000	U S A	2.730000	27S15E-1604	Fort Rock Maneuver Area
27S15E	1700.000000	U S A	79.250000	27S15E-1700	Fort Rock Maneuver Area
27S15E	1802.000000	SPRAGUE, GARY G & LAURA R	49.230000	27S15E-1802	Fort Rock Maneuver Area
27S15E	1800.000000	MILES, LLOYD L & REBECCA K	99.450000	27S15E-1800	Fort Rock Maneuver Area
27S15E	1801.000000	MILES, LLOYD L & REBECCA K	80.000000	27S15E-1801	Fort Rock Maneuver Area
27S15E	1900.000000	MILES, LLOYD & REBECCA	11.430000	27S15E-1900	Fort Rock Maneuver Area
27S15E	203.000000	HOLY FAMILY CATHOLIC CHURCH	0.000000	27S15E12CC-203	Fort Rock Maneuver Area
27S15E	202.000000	CARDWELL, KERRY R & CARMAN	0.440000	27S15E12CC-202	Fort Rock Maneuver Area
27S15E	103.000000	SNYDER, JAMES F JR	0.660000	27S15E12CC-103	Fort Rock Maneuver Area
26S16E	1700.000000	WIEGAND, MARK DAVID	5.470000	26S16E31-1700	Fort Rock Maneuver Area
26S16E	1800.000000	WIEGAND, MARK DAVID	5.470000	26S16E31-1800	Fort Rock Maneuver Area
26S16E	1900.000000	DOYLE, CHIRS & ANGELA	5.470000	26S16E31-1900	Fort Rock Maneuver Area
26S16E	2000.000000	DOYLE, CHIRS & ANGELA	5.470000	26S16E31-2000	Fort Rock Maneuver Area
26S16E	2100.000000	BEAVER, JODIE J 1/2	5.000000	26S16E31-2100	Fort Rock Maneuver Area
26S16E	2200.000000	HANSON, GERALD	5.000000	26S16E31-2200	Fort Rock Maneuver Area
26S16E	2300.000000	HANSON, GERALD & JOYCE	5.000000	26S16E31-2300	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
26S16E	2400.000000	STRAND, JASON M & SHANNON A	5.000000	26S16E31-2400	Fort Rock Maneuver Area
26S16E	2500.000000	MCDIVITT, RONALD L & MARY L	5.000000	26S16E31-2500	Fort Rock Maneuver Area
23S14E	100.000000	U S A	22293.350000	23S14E-100	Fort Rock Maneuver Area
23S15E	100.000000	U S A	19992.210000	23S15E-100	Fort Rock Maneuver Area
23S16E	400.000000	U S A	14299.740000	23S16E-400	Fort Rock Maneuver Area
23S16E	200.000000	U S A	8002.560000	23S16E-200	Fort Rock Maneuver Area
23S17E	200.000000	J R SIMPLOT COMPANY REV TR	557.370000	23S17E-200	Fort Rock Maneuver Area
23S17E	100.000000	U S A	20601.890000	23S17E-100	Fort Rock Maneuver Area
23S17E	100.000000	U S A	20601.890000	23S17E-100	Fort Rock Maneuver Area
23S16E	100.000000	J R SIMPLOT COMPANY REV TR	80.000000	23S16E-100	Fort Rock Maneuver Area
23S17E	300.000000	MCGEHEE, DONNA 2002 TRUST	50.000000	23S17E-300	Fort Rock Maneuver Area
23S16E	600.000000	KITTREDGE, DORIS	40.000000	23S16E-600	Fort Rock Maneuver Area
23S16E	700.000000	KITTREDGE, JACK L CREDIT SH	80.000000	23S16E-700	Fort Rock Maneuver Area
23S14E	200.000000	BOWERS, PAUL E & NANCY L	640.000000	23S14E-200	Fort Rock Maneuver Area
23S15E	300.000000	BOWERS, PAUL E & NANCY L	1388.200000	23S15E-300	Fort Rock Maneuver Area
23S15E	400.000000	U S A	1200.000000	23S15E-400	Fort Rock Maneuver Area
23S15E	500.000000	ROTH, DAVID A & JEANETTE	240.000000	23S15E-500	Fort Rock Maneuver Area
23S16E	800.000000	LEE, KENNETH & TERESA	320.000000	23S16E-800	Fort Rock Maneuver Area
23S15E	600.000000	U S A	400.000000	23S15E-600	Fort Rock Maneuver Area
23S17E	600.000000	KITTREDGE, DORIS H	320.000000	23S17E-600	Fort Rock Maneuver Area
24S13E	100.000000	U S A	21737.730000	24S13E-100	Fort Rock Maneuver Area
24S14E	300.000000	U S A	6988.830000	24S14E-300	Fort Rock Maneuver Area
24S14E	200.000000	BOWERS, PAUL E & NANCY L	637.700000	24S14E-200	Fort Rock Maneuver Area
24S15E	300.000000	VONDERHEIT, RUBY, ET AL 1/2	331.610000	24S15E-300	Fort Rock Maneuver Area
24S15E	100.000000	U S A	20079.150000	24S15E-100	Fort Rock Maneuver Area
24S15E	200.000000	BOWERS, PAUL E & NANCY L	239.240000	24S15E-200	Fort Rock Maneuver Area
24S16E	500.000000	U S A	1013.260000	24S16E-500	Fort Rock Maneuver Area
24S16E	400.000000	FORT ROCK RANCH, L.L.C.	598.350000	24S16E-400	Fort Rock Maneuver Area
24S16E	300.000000	U S A	12945.590000	24S16E-300	Fort Rock Maneuver Area
24S14E	100.000000	U S A	12743.700000	24S14E-100	Fort Rock Maneuver Area
24S15E	500.000000	BOWERS, PAUL E & NANCY L	286.160000	24S15E-500	Fort Rock Maneuver Area
24S15E	400.000000	U S A	86.270000	24S15E-400	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
24S16E	200.000000	KITTREDGE, JACK L CREDIT SH	120.000000	24S16E-200	Fort Rock Maneuver Area
24S16E	100.000000	KITTREDGE, JACK L CREDIT SH	2360.000000	24S16E-100	Fort Rock Maneuver Area
24S16E	401.000000	FORT ROCK RANCH, L.L.C	2435.570000	24S16E-401	Fort Rock Maneuver Area
24S14E	600.000000	NELSON, COURTNEY L, WADE R	1480.000000	24S14E-600	Fort Rock Maneuver Area
24S14E	500.000000	U S A	40.000000	24S14E-500	Fort Rock Maneuver Area
24S15E	800.000000	FORT ROCK RANCH, L.L.C.	120.000000	24S15E-800	Fort Rock Maneuver Area
24S15E	700.000000	NELSON, DICK A & COURTNEY L	219.340000	24S15E-700	Fort Rock Maneuver Area
24S16E	402.000000	DEVILS GARDEN	1120.000000	24S16E-402	Fort Rock Maneuver Area
24S15E	900.000000	FORT ROCK RANCH, L.L.C.	280.000000	24S15E-900	Fort Rock Maneuver Area
24S16E	1000.000000	KITTREDGE, JACK L CREDIT SH	960.000000	24S16E-1000	Fort Rock Maneuver Area
24S13E	200.000000	DROESSLER, TERRY	320.000000	24S13E-200	Fort Rock Maneuver Area
24S15E	1100.000000	U S A	520.000000	24S15E-1100	Fort Rock Maneuver Area
24S16E	1400.000000	U S A	600.000000	24S16E-1400	Fort Rock Maneuver Area
24S16E	1500.000000	U S A	40.000000	24S16E-1500	Fort Rock Maneuver Area
24S15E	100.000000	U S A	20079.150000	24S15E-100	Fort Rock Maneuver Area
24S16E	1100.000000	U S A	280.000000	24S16E-1100	Fort Rock Maneuver Area
24S16E	1200.000000	KITTREDGE, JACK L CREDIT SH	80.000000	24S16E-1200	Fort Rock Maneuver Area
24S14E	700.000000	MERRILL, SHIRLEY A	30.000000	24S14E-700	Fort Rock Maneuver Area
24S14E	800.000000	REEVES, ROBIN A	10.000000	24S14E-800	Fort Rock Maneuver Area
24S15E	1000.000000	HUFFORD ESTATE LLC	40.000000	24S15E-1000	Fort Rock Maneuver Area
25S13E	200.000000	U S A	6807.350000	25S13E-200	Fort Rock Maneuver Area
24S16E	1300.000000	WEBB, STEVEN A & TAMI L	40.000000	24S16E-1300	Fort Rock Maneuver Area
25S13E	100.000000	U S A	13561.380000	25S13E-100	Fort Rock Maneuver Area
25S14E	100.000000	U S A	13071.130000	25S14E-100	Fort Rock Maneuver Area
25S14E	200.000000	STATE OF OREGON	118.950000	25S14E-200	Fort Rock Maneuver Area
25S15E	200.000000	HUFFORD EST EXCHANGE B05120	4093.690000	25S15E-200	Fort Rock Maneuver Area
25S15E	100.000000	U S A	13198.920000	25S15E-100	Fort Rock Maneuver Area
25S16E	400.000000	U S A	1114.000000	25S16E-400	Fort Rock Maneuver Area
25S16E	300.000000	KITTREDGE, JACK L CREDIT SH	922.780000	25S16E-300	Fort Rock Maneuver Area
25S16E	200.000000	KITTREDGE, JACK L CREDIT SH	240.750000	25S16E-200	Fort Rock Maneuver Area
25S16E	100.000000	U S A	11077.600000	25S16E-100	Fort Rock Maneuver Area
25S17E	300.000000	U S A	18785.210000	25S17E-300	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
25S16E	400.000000	U S A	1114.000000	25S16E-400	Fort Rock Maneuver Area
25S16E	500.000000	MORRISON, MARILYN	2305.450000	25S16E-500	Fort Rock Maneuver Area
25S17E	300.000000	U S A	18785.210000	25S17E-300	Fort Rock Maneuver Area
25S16E	100.000000	U S A	11077.600000	25S16E-100	Fort Rock Maneuver Area
25S15E	100.000000	U S A	13198.920000	25S15E-100	Fort Rock Maneuver Area
25S16E	1000.000000	O'KEEFFE, PATRICK 1/3;	77.900000	25S16E-1000	Fort Rock Maneuver Area
25S16E	900.000000	O'KEEFFE, PATRICK 1/3;	370.910000	25S16E-900	Fort Rock Maneuver Area
25S15E	100.000000	U S A	13198.920000	25S15E-100	Fort Rock Maneuver Area
25S14E	400.000000	HUFFORD ESTATE LLC	709.080000	25S14E-400	Fort Rock Maneuver Area
25S14E	300.000000	HUFFORD ESTATE LLC	316.360000	25S14E-300	Fort Rock Maneuver Area
25S16E	1100.000000	O'KEEFFE, PATRICK 3/8	89.410000	25S16E-1100	Fort Rock Maneuver Area
25S14E	100.000000	U S A	13071.130000	25S14E-100	Fort Rock Maneuver Area
25S14E	400.000000	HUFFORD ESTATE LLC	709.080000	25S14E-400	Fort Rock Maneuver Area
25S14E	300.000000	HUFFORD ESTATE LLC	316.360000	25S14E-300	Fort Rock Maneuver Area
25S15E	600.000000	HUFFORD EST EXCHANGE B05120	321.180000	25S15E-600	Fort Rock Maneuver Area
25S16E	1200.000000	O'KEEFFE, PATRICK 1/3;	424.800000	25S16E-1200	Fort Rock Maneuver Area
25S13E	501.000000	NELSON, DICK A, COURTNEY L	776.370000	25S13E-501	Fort Rock Maneuver Area
25S14E	1000.000000	NELSON, COURTNEY L, WADE R	461.580000	25S14E-1000	Fort Rock Maneuver Area
25S14E	108.000000	O'RYAN, REED M	318.200000	25S14E-108	Fort Rock Maneuver Area
25S15E	1500.000000	TUTTLE, CHARLES & JOYCE	181.060000	25S15E-1500	Fort Rock Maneuver Area
25S16E	1300.000000	O'KEEFFE, PATRICK 1/3;	631.380000	25S16E-1300	Fort Rock Maneuver Area
25S15E	1000.000000	O'KEEFFE, PATRICK 1/3;	631.520000	25S15E-1000	Fort Rock Maneuver Area
25S13E	502.000000	STATE OF OREGON, PARKS & RE	20.000000	25S13E-502	Fort Rock Maneuver Area
25S15E	201.000000	HUNT, JEFF & LYNDA	363.060000	25S15E-201	Fort Rock Maneuver Area
25S14E	2100.000000	KITTREDGE, DORIS H	157.690000	25S14E-2100	Fort Rock Maneuver Area
25S14E	104.000000	KRUSE RANCH LLC	909.560000	25S14E-104	Fort Rock Maneuver Area
25S13E	100.000000	U S A	13561.380000	25S13E-100	Fort Rock Maneuver Area
25S13E	601.000000	WAGNER, RAYMOND & EDNA	158.180000	25S13E-601	Fort Rock Maneuver Area
25S14E	105.000000	U S A	1230.930000	25S14E-105	Fort Rock Maneuver Area
25S14E	2500.000000	TOBIASSON, SCOTT W & JOSE L	120.000000	25S14E-2500	Fort Rock Maneuver Area
25S14E	2700.000000	TOBIASSON, SCOTT W & JOSE L	159.090000	25S14E-2700	Fort Rock Maneuver Area
25S14E	100.000000	U S A	13071.130000	25S14E-100	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
25S14E	2800.000000	HUNT, JEFF & LYNDA	80.000000	25S14E-2800	Fort Rock Maneuver Area	
25S15E	1800.000000	CADE, KENNETH A & MARIA L	160.000000	25S15E-1800	Fort Rock Maneuver Area	
25S15E	1300.000000	WARMINGTON, RICHARD W & SUE	160.000000	25S15E-1300	Fort Rock Maneuver Area	
25S15E	100.000000	U S A	13198.920000	25S15E-100	Fort Rock Maneuver Area	
25S16E	1300.000000	O'KEEFFE, PATRICK 1/3;	631.380000	25S16E-1300	Fort Rock Maneuver Area	
25S16E	1400.000000	O'KEEFFE, PATRICK 3/8;	354.330000	25S16E-1400	Fort Rock Maneuver Area	
25S16E	700.000000	U S A (BLM)	320.000000	25S16E-700	Fort Rock Maneuver Area	
25S15E	1600.000000	KAMPERMAN, JASON & MICHELLE	160.000000	25S15E-1600	Fort Rock Maneuver Area	
25S14E	107.000000	KRUSE RANCH LLC	316.360000	25S14E-107	Fort Rock Maneuver Area	
25S13E	100.000000	U S A	13561.380000	25S13E-100	Fort Rock Maneuver Area	
25S14E	3000.000000	KITTREDGE, JACK L CREDIT SH	19.380000	25S14E-3000	Fort Rock Maneuver Area	
25S15E	101.000000	KITTREDGE, DORIS	317.250000	25S15E-101	Fort Rock Maneuver Area	
25S15E	1700.000000	CUMMINS, DUANE W & ANN MARI	156.600000	25S15E-1700	Fort Rock Maneuver Area	
25S15E	1900.000000	HOLLIS, WENDELL D & SALLY J	80.000000	25S15E-1900	Fort Rock Maneuver Area	
25S14E	1200.000000	FRANKS, DON E - TRUSTEE	1.110000	25S14E32DD-1200	Fort Rock Maneuver Area	
25S14E	1100.000000	DAVIS, DANIEL J	1.110000	25S14E32DD-1100	Fort Rock Maneuver Area	
25S14E	100.000000	GOECO INC	7.920000	25S14E32DD-100	Fort Rock Maneuver Area	
25S14E	200.000000	JOHNSON, DALTON	1.140000	25S14E33CC-200	Fort Rock Maneuver Area	
25S14E	100.000000	COLE, JUDY K & KENNETH C	1.140000	25S14E33CC-100	Fort Rock Maneuver Area	
25S14E	1800.000000	KRUSE, RANDY	4.690000	25S14E33CC-1800	Fort Rock Maneuver Area	
25S14E	2600.000000	TOBIASSON, SCOTT W & JOSE L	39.900000	25S14E-2600	Fort Rock Maneuver Area	
25S13E	100.000000	U S A	13561.380000	25S13E-100	Fort Rock Maneuver Area	
25S14E	1300.000000	MATTIS, MAX R	1.110000	25S14E32DD-1300	Fort Rock Maneuver Area	
25S14E	1000.000000	DAVIS, DANIEL JAMES	1.110000	25S14E32DD-1000	Fort Rock Maneuver Area	
25S14E	300.000000	FRANKS, LOWELL	2.240000	25S14E33CC-300	Fort Rock Maneuver Area	
25S14E	400.000000	AVERY, CHESTER	1.140000	25S14E33CC-400	Fort Rock Maneuver Area	
25S14E	1400.000000	COLE, KENNETH C & JUDY K	1.110000	25S14E32DD-1400	Fort Rock Maneuver Area	
25S14E	900.000000	DAVIS, WILLIAM E & MARY	1.110000	25S14E32DD-900	Fort Rock Maneuver Area	
25S14E	1700.000000	KRUSE, RANDY	4.690000	25S14E33CC-1700	Fort Rock Maneuver Area	
25S14E	500.000000	AVERY, CHESTER P & JOSEPHIN	1.140000	25S14E33CC-500	Fort Rock Maneuver Area	
25S14E	1500.000000	FRANKS, DON E REV TRUST 1/9	1.110000	25S14E32DD-1500	Fort Rock Maneuver Area	
25S14E	800.000000	WARMINGTON, RICHARD & SUE	1.110000	25S14E32DD-800	Fort Rock Maneuver Area	

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
25S14E	700.000000	BOATWRIGHT, MARION	1.140000	25S14E33CC-700	Fort Rock Maneuver Area
25S14E	800.000000	AVERY, CHESTER P & JOSEPHIN	1.140000	25S14E33CC-800	Fort Rock Maneuver Area
25S14E	102.000000	GOECO INC	6.990000	25S14E32DD-102	Fort Rock Maneuver Area
25S14E	3000.000000	KITTREDGE, JACK L CREDIT SH	19.380000	25S14E-3000	Fort Rock Maneuver Area
25S14E	1600.000000	BURROUGHS, WILLIAM H & MARG	1.120000	25S14E32DD-1600	Fort Rock Maneuver Area
25S14E	700.000000	WARMINGTON, RICHARD & SUE	1.110000	25S14E32DD-700	Fort Rock Maneuver Area
25S14E	1600.000000	KRUSE, CHRISTIE	4.690000	25S14E33CC-1600	Fort Rock Maneuver Area
25S14E	1100.000000	OSWOLD, GARY L	2.280000	25S14E33CC-1100	Fort Rock Maneuver Area
25S14E	900.000000	MCMURREN, DONALD E & THOMAS	1.140000	25S14E33CC-900	Fort Rock Maneuver Area
25S14E	600.000000	FORT ROCK COMMUNITY CHURCH	3.390000	25S14E32DD-600	Fort Rock Maneuver Area
25S14E	1700.000000	FORT ROCK CARE CENTER, INC	1.110000	25S14E32DD-1700	Fort Rock Maneuver Area
25S14E	1000.000000	ZOLLNER, K E & DOLORES L	1.140000	25S14E33CC-1000	Fort Rock Maneuver Area
25S14E	1800.000000	FORT ROCK CARE CENTER, INC	1.120000	25S14E32DD-1800	Fort Rock Maneuver Area
26S13E	100.000000	U S A	12774.120000	26S13E-100	Fort Rock Maneuver Area
25S14E	101.000000	FRANKS, DON E - TRUSTEE OF	1.280000	25S14E32DD-101	Fort Rock Maneuver Area
25S14E	2000.000000	FORT ROCK CARE CENTER, INC	2.250000	25S14E32DD-2000	Fort Rock Maneuver Area
25S14E	1400.000000	KRUSE, CHRISTIE	2.350000	25S14E33CC-1400	Fort Rock Maneuver Area
25S14E	1500.000000	KRUSE, CHRISTIE	2.350000	25S14E33CC-1500	Fort Rock Maneuver Area
25S14E	1200.000000	BLACKMAN, CLAUDE & SHARI	2.070000	25S14E33CC-1200	Fort Rock Maneuver Area
25S14E	1300.000000	GILLETTE, LOU G & CORA D	2.070000	25S14E33CC-1300	Fort Rock Maneuver Area
25S14E	300.000000	STRATTON, LYLE M &	0.000000	25S14E32DD-300	Fort Rock Maneuver Area
25S14E	103.000000	FORT ROCK SCALES ASSOCIATIO	4.550000	25S14E-103	Fort Rock Maneuver Area
26S14E	600.000000	U S A	16825.210000	26S14E-600	Fort Rock Maneuver Area
25S14E	200.000000	FORT ROCK GRANGE	0.860000	25S14E32DD-200	Fort Rock Maneuver Area
25S14E	1900.000000	FORT ROCK CARE CENTER, INC	1.120000	25S14E32DD-1900	Fort Rock Maneuver Area
25S14E	400.000000	KITTREDGE, JACK L CREDIT SH	0.390000	25S14E32DD-400	Fort Rock Maneuver Area
25S14E	500.000000	JOHNSON, DALTON D	0.250000	25S14E32DD-500	Fort Rock Maneuver Area
26S14E	603.000000	FT ROCK VALLEY HISTORICAL S	19.090000	26S14E-603	Fort Rock Maneuver Area
26S14E	601.000000	LAKE COUNTY NOT FOR S	5.810000	26S14E-601	Fort Rock Maneuver Area
26S14E	300.000000	HOPKINS, SANDRA H	0.230000	26S14E03BB-300	Fort Rock Maneuver Area
26S14E	200.000000	DARK, THOMAS E & JUDY J	0.180000	26S14E03BB-200	Fort Rock Maneuver Area
26S14E	102.000000	HOPKINS, SANDRA H & DUTCHER	0.640000	26S14E03BB-102	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
26S14E	100.000000	WAHL, VIOLA	0.020000	26S14E03BB-100	Fort Rock Maneuver Area
26S14E	301.000000	BOWERS RANCHES INC	444.260000	26S14E-301	Fort Rock Maneuver Area
26S14E	400.000000	HOPKINS, SANDRA H	0.110000	26S14E03BB-400	Fort Rock Maneuver Area
26S14E	200.000000	U S A	885.560000	26S14E-200	Fort Rock Maneuver Area
26S14E	104.000000	CAMPBELL, JACK E & BARBARA	0.290000	26S14E03BB-104	Fort Rock Maneuver Area
26S14E	101.000000	CAMPBELL, JACK & BARBARA	0.020000	26S14E03BB-101	Fort Rock Maneuver Area
26S14E	102.000000	HENDRICKSON, ROBERT L & DEB	110.890000	26S14E-102	Fort Rock Maneuver Area
26S15E	500.000000	U S A	5411.110000	26S15E-500	Fort Rock Maneuver Area
26S15E	1100.000000	KRUSE, KENNETH	166.020000	26S15E-1100	Fort Rock Maneuver Area
26S14E	103.000000	EDWARDS, LETA M	0.650000	26S14E03BB-103	Fort Rock Maneuver Area
26S14E	105.000000	EDWARDS, LETA M	1.040000	26S14E03BB-105	Fort Rock Maneuver Area
26S15E	1000.000000	KITTREDGE, DORIS	313.060000	26S15E-1000	Fort Rock Maneuver Area
26S15E	900.000000	TOBIASSON, WENDELL & KATHLE	149.300000	26S15E-900	Fort Rock Maneuver Area
26S15E	800.000000	TOBIASSON, WENDELL & KATHLE	49.340000	26S15E-800	Fort Rock Maneuver Area
26S15E	600.000000	FINE, HAROLD L & JUDITH E	176.210000	26S15E-600	Fort Rock Maneuver Area
26S15E	200.000000	COIT RANCH	822.510000	26S15E-200	Fort Rock Maneuver Area
26S15E	100.000000	U S A	989.880000	26S15E-100	Fort Rock Maneuver Area
26S16E	100.000000	U S A	3400.920000	26S16E-100	Fort Rock Maneuver Area
26S16E	2100.000000	TACHERRA, WILLIAM J & JAN P	145.760000	26S16E-2100	Fort Rock Maneuver Area
26S16E	2000.000000	TACHERRA, WILLIAM J	302.960000	26S16E-2000	Fort Rock Maneuver Area
26S16E	1700.000000	O'KEEFFE, PATRICK 1/3;	203.060000	26S16E-1700	Fort Rock Maneuver Area
26S16E	1500.000000	RUNELS, SCOTT L & MARGIE B	45.850000	26S16E-1500	Fort Rock Maneuver Area
26S17E	100.000000	U S A	16941.930000	26S17E-100	Fort Rock Maneuver Area
26S14E	602.000000	LAKE COUNTY NOT FOR SA	10.000000	26S14E-602	Fort Rock Maneuver Area
26S14E	502.000000	CLOUD, BILL & MARVEEN L	4.160000	26S14E-502	Fort Rock Maneuver Area
26S14E	500.000000	BOWERS RANCHES INC	314.020000	26S14E-500	Fort Rock Maneuver Area
26S14E	103.000000	DUNBAR, LARRY D	27.650000	26S14E-103	Fort Rock Maneuver Area
26S15E	300.000000	ARCHAEOLOGICAL CONSERVANCY,	39.190000	26S15E-300	Fort Rock Maneuver Area
26S15E	202.000000	U S A	120.000000	26S15E-202	Fort Rock Maneuver Area
26S16E	2299.000000	FLAT IRON LLC	569.350000	26S16E-2299	Fort Rock Maneuver Area
26S16E	200.000000	J R SIMPLOT COMPANY REV TR	320.000000	26S16E-200	Fort Rock Maneuver Area
26S14E	101.000000	KRUSE RANCH LLC	52.350000	26S14E-101	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
26S16E	4900.000000	FINE, HAROLD L & JUDY E	42.810000	26S16E-4900	Fort Rock Maneuver Area
26S16E	4800.000000	FINE, HAROLD L & JUDY	40.000000	26S16E-4800	Fort Rock Maneuver Area
26S16E	4700.000000	FINE, HAROLD L & JUDY E	320.000000	26S16E-4700	Fort Rock Maneuver Area
26S14E	1000.000000	KRUSE RANCH LLC	398.180000	26S14E-1000	Fort Rock Maneuver Area
26S13E	900.000000	GREGOR, GARY L & MARTHA J	40.000000	26S13E-900	Fort Rock Maneuver Area
26S16E	5000.000000	FINE, HAROLD L & JUDY	86.140000	26S16E-5000	Fort Rock Maneuver Area
26S16E	5100.000000	FINE, HAROLD L & JUDY	20.000000	26S16E-5100	Fort Rock Maneuver Area
26S15E	1800.000000	DINSDALE, SAMUEL C	320.000000	26S15E-1800	Fort Rock Maneuver Area
26S16E	5300.000000	FINE, HAROLD L & JUDY	80.000000	26S16E-5300	Fort Rock Maneuver Area
26S16E	5400.000000	FINE, HAROLD L & JUDY E	43.330000	26S16E-5400	Fort Rock Maneuver Area
26S14E	1400.000000	MATTIS, MICHAEL W	1233.690000	26S14E-1400	Fort Rock Maneuver Area
26S16E	5500.000000	FORMAN, ROY L & PAULA A	43.360000	26S16E-5500	Fort Rock Maneuver Area
26S14E	600.000000	U S A	16825.210000	26S14E-600	Fort Rock Maneuver Area
26S14E	1700.000000	KITTREDGE, J SCOTT & JANA	558.180000	26S14E-1700	Fort Rock Maneuver Area
26S16E	5601.000000	FORMAN, ROY & PAULA	80.000000	26S16E-5601	Fort Rock Maneuver Area
26S16E	5700.000000	FINE, TROY D & ROBERTA K	160.000000	26S16E-5700	Fort Rock Maneuver Area
26S15E	3000.000000	LA FRANCHI, RON	160.000000	26S15E-3000	Fort Rock Maneuver Area
26S15E	3200.000000	CURRY, CARLOS C & ANNA M	320.000000	26S15E-3200	Fort Rock Maneuver Area
26S14E	1800.000000	KITTREDGE, J SCOTT & JANA	158.180000	26S14E-1800	Fort Rock Maneuver Area
26S15E	2400.000000	DINSDALE, SAMUEL C	314.550000	26S15E-2400	Fort Rock Maneuver Area
26S15E	2300.000000	DINSDALE, SAMUEL C	250.270000	26S15E-2300	Fort Rock Maneuver Area
26S14E	100.000000	KRUSE, KENNETH V & KATHLEEN	240.000000	26S14E-100	Fort Rock Maneuver Area
26S15E	201.000000	U S A	480.000000	26S15E-201	Fort Rock Maneuver Area
26S15E	1201.000000	KRUSE RANCH LLC	100.670000	26S15E-1201	Fort Rock Maneuver Area
26S15E	503.000000	U S A	800.000000	26S15E-503	Fort Rock Maneuver Area
26S16E	2201.000000	MARTINEZ, S P & LILLIAN TR	42.260000	26S16E-2201	Fort Rock Maneuver Area
26S16E	2300.000000	U S A	245.190000	26S16E-2300	Fort Rock Maneuver Area
26S16E	2400.000000	FINE, HAROLD L & JUDY E	320.000000	26S16E-2400	Fort Rock Maneuver Area
26S14E	900.000000	KRUSE, KENNETH V & KATHLEEN	400.000000	26S14E-900	Fort Rock Maneuver Area
26S15E	1200.000000	KRUSE RANCH LLC	80.000000	26S15E-1200	Fort Rock Maneuver Area
26S15E	1300.000000	KRUSE, KENNETH	63.820000	26S15E-1300	Fort Rock Maneuver Area
26S16E	2200.000000	MOORE, HALLY L	42.390000	26S16E-2200	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
26S13E	600.000000	SMITH, TONY S & GAYLE L TRU	320.000000	26S13E-600	Fort Rock Maneuver Area
26S13E	800.000000	U S A	320.000000	26S13E-800	Fort Rock Maneuver Area
26S13E	700.000000	U S A	40.000000	26S13E-700	Fort Rock Maneuver Area
26S16E	5600.000000	FORMAN, ROY L & PAULA A	209.360000	26S16E-5600	Fort Rock Maneuver Area
26S15E	3101.000000	LA FRANCHI, RON	160.000000	26S15E-3101	Fort Rock Maneuver Area
26S16E	5701.000000	FORMAN, ROY L & PAULA A	160.000000	26S16E-5701	Fort Rock Maneuver Area
26S13E	1200.000000	MATTIS, MICHAEL W	400.000000	26S13E-1200	Fort Rock Maneuver Area
26S13E	1202.000000	MATTIS, MICHAEL W	240.000000	26S13E-1202	Fort Rock Maneuver Area
26S15E	3100.000000	POPLARS RANCH INC	2290.300000	26S15E-3100	Fort Rock Maneuver Area
26S15E	300.000000	SWEET THINGS INVESTMENT'S I	0.300000	26S15E25AA-300	Fort Rock Maneuver Area
26S15E	100.000000	POPLARS RANCH INC	0.300000	26S15E25AA-100	Fort Rock Maneuver Area
26S16E	205.000000	SING, JOE W & CONNIE R	10.750000	26S16E30-205	Fort Rock Maneuver Area
26S16E	200.000000	SING, JOE W & CONNIE R	10.740000	26S16E30-200	Fort Rock Maneuver Area
26S15E	5000.000000	DINSDALE, SAMUEL C & ALICE	363.890000	26S15E-5000	Fort Rock Maneuver Area
26S16E	204.000000	SING, JOE W & CONNIE R	10.000000	26S16E30-204	Fort Rock Maneuver Area
26S14E	1900.000000	KITTREDGE, J SCOTT & JANA	160.000000	26S14E-1900	Fort Rock Maneuver Area
26S15E	400.000000	HAYES, CHRISTEN C	9.700000	26S15E25AA-400	Fort Rock Maneuver Area
26S15E	200.000000	DEARDORFF, BRUCE V	9.700000	26S15E25AA-200	Fort Rock Maneuver Area
26S16E	201.000000	FEATHERSTON, MITCHELL ANDRE	10.000000	26S16E30-201	Fort Rock Maneuver Area
26S16E	100.000000	HANSON, GERALD R & JOYCE J	80.000000	26S16E30-100	Fort Rock Maneuver Area
26S15E	5100.000000	DINSDALE, SAMUEL C	126.010000	26S15E-5100	Fort Rock Maneuver Area
26S16E	202.000000	SING, JOE W & CONNIE R	10.750000	26S16E30-202	Fort Rock Maneuver Area
26S16E	203.000000	FEATHERSTONE, DARRELL	10.750000	26S16E30-203	Fort Rock Maneuver Area
26S16E	206.000000	FEATHERSTONE, DARRELL	10.000000	26S16E30-206	Fort Rock Maneuver Area
26S16E	207.000000	FEATHERSTON, MITCHELL ANDRE	10.000000	26S16E30-207	Fort Rock Maneuver Area
26S15E	500.000000	RAEL, STEPHEN S & FRANCES K	9.700000	26S15E25AA-500	Fort Rock Maneuver Area
26S16E	300.000000	HANSON, GERALD R & JOYCE J	21.540000	26S16E30-300	Fort Rock Maneuver Area
26S16E	600.000000	HANSON, GERALD R & JOYCE J	20.000000	26S16E30-600	Fort Rock Maneuver Area
26S16E	700.000000	HANSON, GERALD R & JOYCE J	20.000000	26S16E30-700	Fort Rock Maneuver Area
26S16E	400.000000	HANSON, GERALD R & JOYCE J	21.540000	26S16E30-400	Fort Rock Maneuver Area
26S16E	500.000000	HANSON, GERALD R & JOYCE J	20.000000	26S16E30-500	Fort Rock Maneuver Area
26S16E	800.000000	RHINEHART, BOB & JUDY ANN	20.000000	26S16E30-800	Fort Rock Maneuver Area

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
26S15E	5200.000000	DINSDALE, SAMUEL C & ALICE	403.350000	26S15E-5200	Fort Rock Maneuver Area	
26S16E	7601.000000	KERNS, GARY J & SHARON	166.450000	26S16E-7601	Fort Rock Maneuver Area	
26S16E	7602.000000	HANSON, GERALD R	160.000000	26S16E-7602	Fort Rock Maneuver Area	
26S14E	2000.000000	BELL 'A' LAND & CATTLE CO	320.000000	26S14E-2000	Fort Rock Maneuver Area	
26S13E	1203.000000	MATTIS, MICHAEL W	320.000000	26S13E-1203	Fort Rock Maneuver Area	
26S14E	2200.000000	MATTIS, MICHAEL W	344.190000	26S14E-2200	Fort Rock Maneuver Area	
26S15E	4400.000000	THE POPLARS RANCH, INC	474.520000	26S15E-4400	Fort Rock Maneuver Area	
26S15E	4402.000000	POPLARS RANCH INC	156.390000	26S15E-4402	Fort Rock Maneuver Area	
26S15E	5400.000000	DINSDALE, SAMUEL C & ALICE	836.360000	26S15E-5400	Fort Rock Maneuver Area	
26S15E	4403.000000	POPLARS RANCH, INC. THE	78.180000	26S15E-4403	Fort Rock Maneuver Area	
26S15E	5600.000000	POPLARS RANCH, INC. THE	80.000000	26S15E-5600	Fort Rock Maneuver Area	
26S15E	5800.000000	STATE OF OREGON	640.000000	26S15E-5800	Fort Rock Maneuver Area	
26S16E	7600.000000	HANSON, GERALD R & JOYCE J	326.970000	26S16E-7600	Fort Rock Maneuver Area	
26S15E	5700.000000	POPLARS RANCH INC	238.180000	26S15E-5700	Fort Rock Maneuver Area	
26S13E	1201.000000	MATTIS, MICHAEL W	160.000000	26S13E-1201	Fort Rock Maneuver Area	
26S13E	1600.000000	MATTIS, MICHAEL W	160.000000	26S13E-1600	Fort Rock Maneuver Area	
26S15E	5500.000000	POPLARS RANCH, INC	158.180000	26S15E-5500	Fort Rock Maneuver Area	
26S15E	5601.000000	POPLARS RANCH INC	154.970000	26S15E-5601	Fort Rock Maneuver Area	
26S14E	2300.000000	BELL 'A' LAND & CATTLE CO	80.000000	26S14E-2300	Fort Rock Maneuver Area	
26S16E	1600.000000	BYRD, STEPHEN C & JUDY	5.470000	26S16E31-1600	Fort Rock Maneuver Area	
26S16E	1500.000000	LUKER, DANNY JOE	5.470000	26S16E31-1500	Fort Rock Maneuver Area	
26S16E	1400.000000	HANSON, GERALD & JOYCE	5.470000	26S16E31-1400	Fort Rock Maneuver Area	
26S16E	1300.000000	DALE, STEPHEN F	5.470000	26S16E31-1300	Fort Rock Maneuver Area	
26S16E	1200.000000	BRENNAN, JOHN C	5.000000	26S16E31-1200	Fort Rock Maneuver Area	
26S16E	1100.000000	SAXTON, DAVID & DEBRA	5.000000	26S16E31-1100	Fort Rock Maneuver Area	
26S16E	1000.000000	HANSON, GERALD	5.000000	26S16E31-1000	Fort Rock Maneuver Area	
26S16E	900.000000	HANSON, GERALD	5.000000	26S16E31-900	Fort Rock Maneuver Area	
26S16E	800.000000	MUNSON, SHIRLEE L	5.000000	26S16E31-800	Fort Rock Maneuver Area	
26S16E	4800.000000	YATES, DOROTHY E	5.490000	26S16E31-4800	Fort Rock Maneuver Area	
26S16E	4700.000000	CHRISTENSEN, JANELLE A	5.490000	26S16E31-4700	Fort Rock Maneuver Area	
26S16E	4600.000000	BORTNER, BARRY	5.490000	26S16E31-4600	Fort Rock Maneuver Area	
26S16E	4500.000000	BORTNER, BARRY	5.490000	26S16E31-4500	Fort Rock Maneuver Area	

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?	
26S16E	4400.000000	DUNCAN, MARY J. ET AL	5.000000	26S16E31-4400	Fort Rock Maneuver Area	
26S16E	4300.000000	BUSBY, SCOTT	5.000000	26S16E31-4300	Fort Rock Maneuver Area	
26S16E	4200.000000	VANNINI, THOMAS L	5.000000	26S16E31-4200	Fort Rock Maneuver Area	
26S16E	4100.000000	BULLARD, MARTIN L & ADA L	5.000000	26S16E31-4100	Fort Rock Maneuver Area	
26S16E	4000.000000	WRIGHT, ROBERT H & EDITH H	5.000000	26S16E31-4000	Fort Rock Maneuver Area	
27S13E	100.000000	U S A	7388.430000	27S13E-100	Fort Rock Maneuver Area	
26S16E	4900.000000	DINSDALE, SAMUEL C & ALICE	5.490000	26S16E31-4900	Fort Rock Maneuver Area	
26S16E	5000.000000	GORTON, KENNETH P & PATRICI	5.490000	26S16E31-5000	Fort Rock Maneuver Area	
26S16E	5100.000000	ROZELLE, JAMES & MARGUERITE	5.490000	26S16E31-5100	Fort Rock Maneuver Area	
26S16E	5200.000000	BROWN, ROBERT D & ALLISON J	5.490000	26S16E31-5200	Fort Rock Maneuver Area	
26S16E	5300.000000	BROWN, ROBERT D & ALLISON J	5.000000	26S16E31-5300	Fort Rock Maneuver Area	
26S16E	5400.000000	MICHALAK, FRED A	5.000000	26S16E31-5400	Fort Rock Maneuver Area	
26S16E	5500.000000	VLOEDMAN, HERBERT R & ANNA	5.000000	26S16E31-5500	Fort Rock Maneuver Area	
26S16E	5600.000000	BEARDEN, A E & DOROTHY A	5.000000	26S16E31-5600	Fort Rock Maneuver Area	
26S16E	5700.000000	KILBRIDE, VINCENT J	5.000000	26S16E31-5700	Fort Rock Maneuver Area	
27S14E	200.000000	U S A	11442.950000	27S14E-200	Fort Rock Maneuver Area	
27S14E	501.000000	BETTERIDGE, JAMES M EST	80.810000	27S14E-501	Fort Rock Maneuver Area	
27S15E	800.000000	U S A	12662.070000	27S15E-800	Fort Rock Maneuver Area	
27S15E	701.000000	POPLARS RANCH INC	479.410000	27S15E-701	Fort Rock Maneuver Area	
27S15E	700.000000	POPLARS RANCH	161.600000	27S15E-700	Fort Rock Maneuver Area	
27S15E	400.000000	MILES, LLOYD L & REBECCA	251.650000	27S15E-400	Fort Rock Maneuver Area	
27S15E	601.000000	LIBOLT, DALE L & CATHERINE	234.480000	27S15E-601	Fort Rock Maneuver Area	
27S15E	3701.000000	DINSDALE, SAMUEL C	512.730000	27S15E-3701	Fort Rock Maneuver Area	
27S15E	200.000000	PORTER, GENE C & LORAIN E G	151.280000	27S15E-200	Fort Rock Maneuver Area	
27S15E	1000.000000	DINSDALE, SAMUEL C & ALICE	79.400000	27S15E-1000	Fort Rock Maneuver Area	
27S15E	100.000000	PORTER, GENE C & LORAIN E G	241.260000	27S15E-100	Fort Rock Maneuver Area	
27S15E	1100.000000	DINSDALE, SAMUEL C & ALICE	79.370000	27S15E-1100	Fort Rock Maneuver Area	
27S15E	1200.000000	BELL 'A' LAND & CATTLE CO	538.940000	27S15E-1200	Fort Rock Maneuver Area	
27S14E	100.000000	BELL 'A' LAND & CATTLE CO	120.000000	27S14E-100	Fort Rock Maneuver Area	
27S16E	1601.000000	DINSDALE, SAMUEL C	254.210000	27S16E-1601	Fort Rock Maneuver Area	
27S16E	1500.000000	DINSDALE, SAMUEL C & ALICE	79.780000	27S16E-1500	Fort Rock Maneuver Area	
27S15E	602.000000	HEAVILIN, JACK L & CHERIL M	160.000000	27S15E-602	Fort Rock Maneuver Area	

Table 4
Proposed Parcels for Visual Site Reconnaissance
(Lake County, Oregon)

Map	Tax Lot	Name	Acres	TXT_PIN	Where?
27S14E	500.000000	BETTERIDGE, JAMES M EST	240.000000	27S14E-500	Fort Rock Maneuver Area
27S13E	200.000000	HUEY, CHARLES KENT & SANDY	320.000000	27S13E-200	Fort Rock Maneuver Area
27S15E	702.000000	POPLARS RANCH INC, THE	0.810000	27S15E-702	Fort Rock Maneuver Area
27S15E	302.000000	MILES, HAROLD & LOIS TRUST	320.000000	27S15E-302	Fort Rock Maneuver Area
27S16E	1600.000000	ROGERS, JAMES E & DEBRA NYB	80.000000	27S16E-1600	Fort Rock Maneuver Area
27S16E	1300.000000	GUSEY, DARYL L & MARLA	160.000000	27S16E-1300	Fort Rock Maneuver Area
27S14E	600.000000	BELL 'A' LAND & CATTLE CO	72.670000	27S14E-600	Fort Rock Maneuver Area
27S15E	2000.000000	DINSDALE, SAMUEL C	80.000000	27S15E-2000	Fort Rock Maneuver Area
27S16E	1901.000000	MILES, LLOYD & REBECCA	80.000000	27S16E-1901	Fort Rock Maneuver Area
27S16E	2000.000000	ALANKO, TAUNO A ET AL	160.000000	27S16E-2000	Fort Rock Maneuver Area
27S15E	2102.000000	DINSDALE, SAMUEL CHAPMAN	238.180000	27S15E-2102	Fort Rock Maneuver Area
27S14E	400.000000	BELL 'A' LAND & CATTLE CO	2752.800000	27S14E-400	Fort Rock Maneuver Area
27S16E	1900.000000	U S A (BLM)	160.000000	27S16E-1900	Fort Rock Maneuver Area
25S13E		USA (Forest Service)		25S13E-400	Lumber Camp Demolition Area

Note:

Visual Reconnaissance will not be conducted at parcels shaded "GRAY"

Personal property information is considered confidential.

Appendix A
Conceptual Site Model

Conceptual Site Model

Overview

A site-specific Conceptual Site Model (CSM) summarizes available site information and identifies relationships between exposure pathways and associated receptors. A CSM is used to determine the data types necessary to describe site conditions and quantify receptor exposure, and discusses the following information:

- Current site conditions and future land use;
- Potential contaminant sources (e.g., metals and explosives from bombs);
- Affected media;
- Governing fate and transport processes (e.g., surface water runoff and/or groundwater migration);
- Exposure media (i.e., media through which receptors could contact site-related contamination);
- Routes of exposure (e.g., inhalation, incidental ingestion, and dermal contact); and
- Potential human and/or representative ecological receptors at the exposure point. Receptors likely to be exposed to site contaminants are identified based on current and expected future land uses.

The CSM is evaluated for completeness and further developed as needed through Technical Project Planning (TPP) meetings and additional investigation.

Background

During the months of September, October, and November 1943, the 4th Corps of the U.S. Army engaged in a series of war maneuvers on 8 million acres of Oregon land. The military units participating in the maneuvers reportedly carried live ammunition into the field to create an atmosphere of realism; however, all records indicate it was not fired. Historical documentation reports only practice ammunition was used. Even the bombers participating in the exercises dropped bags of flour to mark the location of hits. While some live fire was found in the Northwest Maneuver Area (NWMA), indications are this material was overflow from the live fire exercises performed on one of the six Formerly Used Defense Sites (FUDS) within the boundary of the NWMA.

History of Use

Used during September, October, and November 1943 by the 4th Corps of the U.S. Army for a series of war maneuvers.

There are several documented reports of ordnance being found on the NWMA:

- Eleven intact M1B1 anti-tank training mines were found in 1987 on the property of Mr. Terry Gratrix located outside the town of Christmas Valley, Oregon.
- In 1988 in the sand dunes near the town of Christmas Valley, a teardrop shape AN-Mk 43 practice bomb was discovered.
- The U.S. Army Corps of Engineers (USACE) – St. Louis District located four additional anti-tank mines on the property of Mr. Gratrix during a site visit the week of May 22, 1995.
- The Lakeview District, U.S. Bureau of Land Management (BLM) office reported an anti-personnel fragmentation bomb was found in 1986 near Silver Lake.
- The Lakeview District BLM office reported ordnance was found in the Lake Abert area in approximately 1973.
- The Prineville District BLM office reported ordnance was found in the Milican area (timeframe unknown).
- Deschutes County Emergency Services reported an artillery round found west of Sunriver, Oregon (timeframe unknown).
- Deschutes County Emergency Services reported ordnance found in sand dunes approximately 4 miles west and 1 mile north of Alfalfa, Oregon (timeframe unknown).
- Sunriver Nature Center found spent mortar and rocket rounds near a cliff northwest of the airstrip (timeframe unknown, associated with Camp Abbot activities).
- Bend District office reported a bazooka round was located approximately 1-1/2 miles west of Sunriver (timeframe unknown, associated with Camp Abbot activities).

Munitions and Associated MC

Area of Concern	Munitions	Munitions Constituents
Anti-tank Minefield	Practice land mines	Sheet metal (chromium, iron, copper, lead, manganese, and nickel)
	Fuze .32-caliber blank	Lead and aluminum Black powder (potassium nitrate, sulfur, and charcoal) Red phosphorus

Additionally within the NWMA, and mainly near the town of Christmas Valley, the *Archives Search Report* (ASR) (USACE, 1995) and *ASR Supplement* (USACE, 2004b) report that the following munitions and associated munitions constituents (MC) were found.

Munitions	Munitions Constituents
Small arms (.30- and .45-caliber)	Brass (copper and zinc), aluminum, antimony, barium, lead, single-base (nitrocellulose) powder, double-base (nitrocellulose and nitroglycerin) powder
4.5-pound Navy practice bomb (AN-Mk 43)	Cast iron (iron) or steel (chromium, iron, copper, lead, manganese, and nickel)
Spotting Charge	Black powder (potassium nitrate, sulfur, and charcoal)

Previous MEC Finds

Anti-tank mines and practice bomb near the town of Christmas Valley.

Previous MC Sample Results

None.

Current and Future Land Use

- The NWMA contains several small communities and incorporated areas.
- Vast majority of the site is federally owned open range and forest land.
- Current land use is for cattle grazing, agriculture, and timber production purposes; this should continue into the future.

Ecological Receptors

This FUDS does qualify as an Important Ecological Places because the habitat is known to be used by state and/or federal designated or proposed designated threatened and endangered species.

MEC Evaluation

- Only documented use was from September to November 1943, for troop maneuvers using blank ammunition and sacks of flour for bombs.
- A 4.5-pound Navy practice bomb was found in the sand dunes near Christmas Valley. No other munitions and explosives of concern (MEC) or munitions debris associated with the bomb has been reported.
- Practice anti-tank mines were found in Christmas Valley. No other MEC or munitions debris associated with the mines has been reported. The fuze contained black powder or red phosphorus.
- An anti-personnel fragmentation bomb was found near Silver Lake. No other MEC or munitions debris associated with the bomb has been reported.
- Some 2.36-inch rocket, artillery, and mortar rounds found in Deschutes County.
- The vast majority of the site is federally owned open range and forest land. Other portions are privately owned.

- Site is currently used for cattle grazing, agriculture, timber production, and recreation.
- The eastern portion of the site is used for cattle grazing and the western portion supports a dense pine forest.
- Portions of the site have restricted access.

MEC Evaluation/Investigation Needed

The first phase of investigation will consist of conducting visual field reconnaissance of Christmas Valley and the 1943 maneuver route by a qualified unexploded ordnance (UXO) technician with the aid of a hand-held magnetometer. Additional visual field reconnaissance will be conducted at other identified “support” sites and sites identified by the public during the TPP process that are within the NWMA FUDS. At the TPP meeting, Oregon Department of Environmental Quality requested field reconnaissance be conducted at the Redmond Air to Ground Gunnery Range and the Redmond Precision Bombing Range. The findings of the initial reconnaissance will be used to determine the areas of concern and potential sampling locations for the second phase of activities. This information will be documented in the Draft Site-Specific Work Plan (SSWP), and the CSM (included in the SSWP) will be updated, as necessary. The level of evaluation will be dependent on the amount of historic information available that documents potential sources.

MC Pathway Evaluation

- Munitions debris from practice anti-tank mines in the site soils near Christmas Valley consists mainly of steel (chromium, copper, iron, lead, manganese, and nickel) and lead, aluminum, black powder (potassium nitrate, sulfur, and charcoal), and red phosphorus from the fuze.
- Munitions debris from a 4.5-pound practice bomb, found by a landowner in the sand dunes near the town of Christmas Valley, consists mainly of cast iron (iron) or steel (chromium, copper, iron, lead, manganese, and nickel).
- Small arms casings consisting of brass (copper and zinc).

Overview of Pathways

Affected media and potential pathways for MC include:

- Soil: Soil is the primary medium of concern due to the presence of munitions debris (i.e., landmines) and possibly MC in the soil resulting from the discharge of munitions. The soil also serves as a secondary source of air contamination.
- Sediment: Sediment is a potentially affected media.
- Surface Water: Surface water is a potentially affected media.
- Groundwater: Groundwater is a potentially affected media since the migration of MC directly to groundwater from soil is considered to be possible.
- Air: Air is a possible completed pathway through inhalation of contaminated soil particles. The pathway is considered to be complete.

An analysis of exposure pathways and receptors for MEC is provided in Table 3.

Terrestrial Pathway

Sources of MC

- MC from the spotting charges could include black powder.
- MC from the landmine fuze could include black powder or red phosphorous.
- Most substantiated reports of munitions (anti-tank minefield) were found near the town of Christmas Valley.

Migration Pathway

- Wildlife in the area potentially may be exposed to MC through soil.
- Humans may come in contact with MC contamination through intrusive and nonintrusive work and recreational activities in areas where munitions debris may be present.

Land Use and Access

- The NWMA contains several small communities and incorporated areas.
- Current land use is for cattle grazing, agriculture, timber production, and recreation and it is assumed that the land will be used the same in the future.
- Some of the land is privately owned. The vast majority of the site is federally owned open range and forest land.
- Access to portions of the site is restricted.

Human Receptors

The most likely current and future human receptors at the site would be the landowners and recreational users.

Ecological Assessment

- The site has been determined to be an Important Ecological Places based on the potential for threatened and endangered to use the property.
- The potential threatened and endangered species are listed in Section 3.2.6 (Shaw, 2007).
- The pathway for ecological receptors is complete.

Surface Water/Sediment Pathway

Surface water and sediment is a completed pathway at the NWMA. The large area is drained by many streams, with the Deschutes and the John Day Rivers being the largest. Both rivers drain north to the Columbia River.

Sources of MC

Metals (chromium, copper, iron, lead, manganese, and nickel).

Migration Pathway

- The potential routes of human exposure to contaminated surface water include incidental ingestion of, dermal contact with, and inhalation of surface water.

- The potential routes of livestock and wildlife (including aquatic organisms) exposure to contaminated surface water include ingestion of and direct contact with surface water.
- The potential routes of human exposure to contaminated sediment include incidental ingestion of and dermal contact with sediment.
- The potential routes of livestock and wildlife exposure to contaminated sediment include ingestion of and direct contact with sediment.

Surface Water Use and Access

Recreation and wildlife.

Human Receptors

Residents and recreational users.

Ecological Assessment

According to the ASR (USACE, 1995), federal and state threatened and endangered species may be present in the vicinity of the site.

Groundwater Pathway

- The potential routes of human exposure to contaminated groundwater include ingestion, dermal contact, and inhalation where groundwater is used as a water supply.
- The potential route to wildlife is through direct exposure and ingestion.

Air Pathway

Air is a possible completed pathway through inhalation of contaminated soil particles. Exposure to the air pathway is considered in the human health screening values and is not assessed further here.

MC Evaluation/Investigation Needed

Sampling locations and analysis will be identified in the SSWP following completion of the visual field reconnaissance phase.

CSM Summary/Data Gaps

- MEC was established when training anti-tank mines were found near Christmas Valley by a private resident and by USACE – St. Louis personnel. Additionally, an AN-Mk 43 practice bomb was discovered near Christmas Valley.
- MC from the fuze and spotting charges could include black powder and red phosphorous. Metals from anti-tank mines and a bomb body could include aluminum, chromium, iron, copper, lead, manganese, and nickel.

**Table 3
MEC and MC Exposure Pathway Analysis
Northwest Maneuver Area**

Range Area & Type	MMRP Concern	Potential Contaminant of Concern (PCOCs)	Affected Media (Potential Contaminant Sources) (Fate and Transport)	Exposure Routes and Potential Receptors			Data Gaps	Activities to Address Data Gaps (i.e., Sampling)
				Site Workers/Contractor Personnel	Residents/General Public	Ecological (Biota)		
Anti-Tank Minefield and 1943 Maneuver Area	MEC	MEC in the form of <i>unexploded</i> practice bomb spotting charges may exist on the land surface. MEC in the form of <i>unexploded</i> practice anti-tank mines may exist on the land surface.	Surface Soil <ul style="list-style-type: none"> MEC (unexploded practice landmines and bombs) are a hazard. MEC (unexploded practice landmines bombs) reported on surface. 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Vehicle and foot traffic 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Vehicle and foot traffic 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Foot traffic 	<ul style="list-style-type: none"> Locations and type of MEC 	<ul style="list-style-type: none"> Historical documents indicate that the NWMA was used from September – November 1943 for troop exercises with practice ammunition. However, ordnance has been found at the NWMA, specifically including practice anti-tank mines and a 45-pound practice bomb. A field reconnaissance survey by a trained unexploded ordnance (UXO) technician using a hand-held magnetometer will be performed in the areas of Christmas Valley and the maneuver areas to assess the presence or absence of munitions and explosives of concern (MEC) and to document the current site conditions. The ODEQ also requested a reconnaissance survey of the Redmond Air to Ground Gunnery Range and the Redmond Precision Bombing Range. Visual reconnaissance will be conducted at additional areas within the NWMA FUDS.
			Subsurface Soil <ul style="list-style-type: none"> MEC (unexploded practice landmines and bombs) are a hazard. MEC (unexploded practice landmines bombs) reported in subsurface 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Intrusive activities 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Intrusive activities 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Burrowing 	<ul style="list-style-type: none"> Locations and type of MEC 	<ul style="list-style-type: none"> Historical documents indicate that the NWMA was used from September – November 1943 for troop exercises with practice ammunition. However, ordnance has been found at the NWMA, specifically including practice anti-tank mines and a 45-pound practice bomb. A field reconnaissance survey by a trained UXO technician using a hand-held magnetometer will be performed in the areas of Christmas Valley and the maneuver areas to assess the presence or absence of MEC and to document the current site conditions. The ODEQ also requested a reconnaissance survey of the Redmond Air to Ground Gunnery Range and the Redmond Precision Bombing Range. Visual reconnaissance will be conducted at additional areas within the NWMA FUDS.
	MC	Black powder, red phosphorous, sheet metal (chromium, iron, copper, lead, manganese, and nickel), steel, lead, aluminum	Soil <ul style="list-style-type: none"> Directly affected. Potential metals contamination from munitions used. Spotting charges do not contain hazardous components. Fuze does not contain hazardous substances. Fate & Transport: secondary source of potential sediment, surface water, and air contamination. 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Incidental ingestion Dermal contact Inhalation of soil particles 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Incidental ingestion Dermal contact Inhalation of soil particles 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Ingestion Direct Contact 	<ul style="list-style-type: none"> Metals and explosives data are needed. 	<ul style="list-style-type: none"> The location and number of soil samples collected and the analytical methods will be determined following completion of the visual field reconnaissance surveys.
			Sediment/Surface Water <ul style="list-style-type: none"> Potentially affected media – numerous streams and rivers Potential metals contamination Spotting charges and fuze do not contain hazardous substances Fate & Transport: via surface runoff from impacted soil 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Incidental ingestion Dermal contact Inhalation of surface water 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Incidental ingestion Dermal contact Inhalation of surface water 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Ingestion Direct Contact 	<ul style="list-style-type: none"> Metals and explosives data are needed. 	<ul style="list-style-type: none"> The location and number of sediment samples collected and the analytical methods will be determined following completion of the visual field reconnaissance surveys.
			Groundwater <ul style="list-style-type: none"> Potentially affected media due to leaching of contaminants through the soil. 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Incidental ingestion Dermal contact Inhalation of groundwater 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Incidental ingestion Dermal contact Inhalation of groundwater 	<ul style="list-style-type: none"> Potentially complete pathway. Exposure routes: <ul style="list-style-type: none"> Ingestion Direct Contact 	<ul style="list-style-type: none"> Metals and explosives data are needed. 	<ul style="list-style-type: none"> The location and number of groundwater samples collected and the analytical methods will be determined following completion of the visual field reconnaissance surveys.
			Air <ul style="list-style-type: none"> Potentially affected media due to blowing soil. 	Potentially complete Pathway Exposure routes: Inhalation	Potentially complete Pathway Exposure routes: Inhalation	Potentially complete Pathway Exposure routes: Inhalation	<ul style="list-style-type: none"> Metals and explosives data are needed. 	Will use soil analytical data in risk screening

Appendix B
USACE Interim Guidance Document 06-05
and Safety Advisory 06-2



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

REPLY TO
ATTENTION OF:

MAR 16 2006

CEHNC-OE-CX

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Procedure for Preliminary Assessment (PA) and Site Inspection (SI) Teams that Encounter Unexploded Ordnance (UXO) While Gathering Non-UXO Field Data, Military Munitions Center of Expertise (MM CX) Interim Guidance Document (IGD) 06-05

1. PURPOSE: This procedure describes the responsibilities of project teams during the preliminary assessment and site investigation phases should unexploded ordnance (UXO) be discovered.
2. APPLICABILITY: This guidance is applicable to the geographic military Districts, Military Munitions Response Program (MMRP) Design Centers, Major Subordinate Commands (MSCs), and designated Remedial Action Districts performing MMRP response actions.

3. REQUIREMENTS AND PROCEDURES:

a. During site visits to formerly used defense site (FUDS) properties to gather PA or SI information, in the rare instance that a UXO-qualified individual identifies an item that is an explosive hazard, the following actions will occur:

(1) The property owner or individual granting rights of entry to the property will be notified of the hazard and advised to call the local emergency response authority (i.e., police, sheriff, or fire department). The individual will also be informed that if they do not call the local response authority within 1 hour, the individual who identified the UXO item will notify the local emergency response authority.

(2) The local response authority will decide how to respond to the reported incident, including deciding not to respond (e.g., if the local response authority is already aware of the hazards on the property). If the local response authority decides to respond, the individual who identified the item or his designee will mark the location of the item and provide accurate location information to the emergency response authority. The individual who identified the item or his designee will generally remain in the area until the local response authority arrives, unless specifically indicated by the appropriate response authority that the individual may leave the area.

(3) During the SI, the state regulator may also be notified at their request.

MAR 1 6 2006

CEHNC-OE-CX

SUBJECT: Procedure for Preliminary Assessment (PA) and Site Inspection (SI) Teams that Encounter Unexploded Ordnance (UXO) While Gathering Non-UXO Field Data, Military Munitions Center of Expertise (MM CX) Interim Guidance Document (IGD) 06-05

b. During site visits to active installations or Base Realignment and Closure (BRAC) sites to gather PA or SI information, in the rare instance that a UXO-qualified individual identifies an item that is an explosive hazard, the following actions will occur:

(1) The installation point of contact (POC) or the BRAC coordinator will be notified of the hazard and requested to notify explosive ordnance disposal (EOD) through their channels.

(2) The installation/EOD will make the determination if they are going to respond to the incident. The installation/EOD may be aware of the hazards at the site and make the decision not to respond. If the installation/EOD decides to respond, the individual who identified the item or his designee will mark the location and provide accurate location information to the installation/EOD unit and will remain in the area unless the installation/EOD unit requests otherwise.

c. Neither the US Army Corps of Engineers personnel, nor their contractors have the authority to call EOD to respond to an explosive hazard. This call is the responsibility of the local emergency response authority for FUDS properties and it must come through the proper chain of command on installations.

d. AR 75-14 and AR 75-15 contain the information on how EOD responds to explosives hazards.

4. EFFECTIVE DATES: The requirements and procedures set forth in this interim guidance are effective immediately. They will remain in effect indefinitely, unless superseded by other policy or regulation.

5. POINT OF CONTACT: If you need additional information, please contact Mr. Brad McCowan at 256-895-1174.



CAROL A. YOUKEY, P.E.
Chief, Center of Expertise for Ordnance
and Explosives Directorate



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

May 23, 2006

REPLY TO
ATTENTION OF:

OE Safety Division for Ordnance
and Explosives Directorate

Shaw Environmental
4171 Essen Lane
Baton Rouge, Louisiana 70809

Dear Sir/Madam:

This is Safety Advisory 06-2 – Munitions and Explosives of Concern (MEC) Safety During Site Inspections (SI), Pre-Work Plan Visits, Archive Search Reports (ASR) Investigations and Other Site Visits of a Non-Intrusive Nature.

Reference EP 75-1-1, EP 385-1-95a, and Interim Guidance Document (IGD), March 15, 2006.

The following procedures will be followed if an item is found that has an explosive hazard during the activities identified in the subject line:

- a. MEC items are not to be moved or disturbed during the above subject SI, Pre-Work Plan visits, ASR Investigations and other site visits of a non-intrusive nature.
- b. The locations of any discovered explosive hazardous items should be marked for accurate relocating purposes and the information provided to the designated Point of Contact (POC) and any emergency response authorities as may be required.
- c. During site visits to active Installations and/or Base Realignment and Closure (BRAC) sites the identified Installation POC or the BRAC coordinator should be notified of discovered MEC hazards. They then will request any appropriate emergency response action as deemed necessary through their channels if required.
- d. When a site visit is on a Formerly Utilized Defense Site, the property owner shall be notified in the event of finding any found explosive hazards along with the location of the explosive item(s) found, the property owner should then in turn notify their local emergency response authorities.

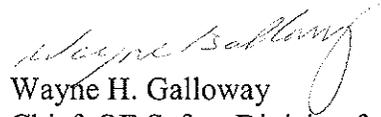
e. During these site visits all required MEC security requirements should be implemented as necessary and required. All team members are to be instructed in and made aware of any MEC security requirements.

f. All team members will be briefed on these procedures prior to any site investigations being performed and daily before any work begins.

This Safety Advisory is intended to serve as an explosives safety reminder.

Comments or questions about this Safety Advisory can be directed to the undersigned at (256) 895-1598/82.

Sincerely,



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

Appendix C
Site Safety and Health Plan Addendum

ADDENDUM OR-7 TO SITE SAFETY AND HEALTH PLAN (SSHP) REVIEWS AND APPROVAL U.S. Army Corps of Engineers, Omaha District	This SSHP is a part of the Omaha District Safety Program. Please read and comply with USACE EM 385-1-1 and CENWO OM 385-1-1.	
Reviewer	Date	Signatures
Authored by: Pamela Moore	1/6/08	Signature: 
Peer Review by: Dale Landon	1/4/08	Signature: 
Quality Control Review (QCR) by: Paul Sadowski	1/7/08	Signature: 
Project Manager Reviewed by: Peter Kelsall	1/6/08	Signature: 
USACE Omaha District MM DC OE Safety Specialist Review: Andrew G. Marks		Signature:
USACE Omaha District MM DC Project Manager Approval: John Miller		Signature:

<p>ADDENDUM <u>OR-7</u> TO SITE SAFETY AND HEALTH PLAN (SSHP) TITLE PAGE US Army Corps of Engineers, Omaha District</p>	<p>This SSHP is a part of the Omaha District Safety Program. Please read and comply with USACE EM 385-1-1 and CENWO OM 385-1-1.</p>
<p>PROJECT NAME: FUDS SI – Northwest Maneuver Area</p>	
<p>PURPOSE OF ADDENDUM:</p> <p>This Addendum provides details specific to activities at this FUDS that were not provided in the approved Accident Prevention Plan and Site Safety and Health Plan included in the <i>Final Type I Work Plan, Site Inspections at Multiple Sites, NWO Region</i> (Shaw, 2006).</p>	
<p>DESCRIBE THE CHANGES EFFECTED BY THIS ADDENDUM:</p> <p>Site-specific supplemental information for Phase I Site Reconnaissance.</p>	

SITE SAFETY AND HEALTH PLAN ADDENDUM

Site Name:	Northwest Maneuver Area
Site Location:	<p>The Northwest Maneuver Area is located in central to south-central Oregon and consists of approximately 8 million acres, including portions within Jefferson, Deschutes, Crook, Grant, Lake, Harney, and Klamath counties. Encompassed in its boundary are six separate identified FUDS (Central Oregon Air to Air Gunnery Range, Camp Abbot, Fort Rock Maneuver Area, Redmond Precision Bombing Range, Redmond Air to Ground Gunnery Range, and Redmond Army Air Field). Of these six FUDS, only Camp Abbot and the Central Oregon Air to Air Gunnery Range are included in the Military Munitions Response Program Inventory in the <i>Defense Environmental Programs Annual Report to Congress Fiscal Year 2006</i> (DoD, 2006) and have had a Site Inspection conducted. The Site Inspection for the Northwest Maneuver Area FUDS will focus on the following sites (figures are in the SSWP):</p> <ul style="list-style-type: none"> • Redmond Army Airfield • Redmond Air-to-Ground Gunnery Range • Redmond Precision Bombing Range • Fort Rock Maneuver Area • Biak Training Center Transferred Range 2 • Badlands Wilderness Research Center Area of Concern • Antitank Minefield (range area identified in Military Munitions Response Program inventory) • Lumber Camp Demolition Area • Stevens Road Tract • Sand Dunes • Confirmed location of ordnance (location identified by Forest Service during TPP meeting)
Purpose of Visit:	Site Inspection to conduct visual site reconnaissance for munitions of explosive concern. The visual site reconnaissance is Phase I of a two-phased investigation.
Date(s) of Site Visit:	February/March 2008 (Phase I)
Office:	Shaw Environmental, Inc., Richland, Washington office
Address:	1045 Jadwin Avenue, Suite C Richland, Washington 99352
Telephone:	Commercial: (509) 946-2062

Site Inspection work at this Formerly Used Defense Site (FUDS) will be conducted in accordance with the approved Accident Prevention Plan and Site Safety and Health Plan included in the *Final Type I Work Plan, Site Inspections at Multiple Sites, NWO Region* (Shaw, 2006). This Addendum provides details specific to activities at this FUDS that were not provided in the Site Safety and Health Plan.

I. SITE DESCRIPTION AND PREVIOUS INVESTIGATIONS

(A site map is provided in the Site-Specific Work Plan.)

A. SITE DESCRIPTION:

- o Size: The Northwest Maneuver Area (NWMA) FUDS consists of approximately 8 million acres. The only range information included in the Military Munitions Response Program Inventory (DoD, 2006) is the anti-tank minefield. The ASR Supplement (U.S. Army Corps of Engineers [USACE], 2004b) identifies the range as being located on private land in the Fort Rock Valley approximately 7 miles northwest of the town of Christmas Valley, Oregon. The ASR Supplement indicates that the size of the anti-tank minefield range is based on an assumed “standard pattern” practice minefield site. This would result in a minefield three rows deep, each row with three belts of mines, yielding a total depth of about 300 feet. The length of the minefield would have been dependent on the terrain and is estimated to be about 1,200 feet. Assuming a conservative explosive safety distance of 200 feet, the resultant range cell would total approximately 18 acres. Additionally, encompassed in its boundary of the NWMA FUDS are six separate identified FUDS (Central Oregon Air to Air Gunnery Range, Camp Abbot, Fort Rock Maneuver Area, Redmond Precision Bombing Range, Redmond Air to Ground Gunnery Range, and Redmond Army Air Field). Of these six FUDS, only Camp Abbot and the Central Oregon Air to Air Gunnery Range FUDS have had site inspections conducted.
- o Present Usage (Check all that apply)

<input checked="" type="checkbox"/> Military	<input checked="" type="checkbox"/> Recreational	<input checked="" type="checkbox"/> Agricultural
<input checked="" type="checkbox"/> Residential	<input checked="" type="checkbox"/> Commercial	<input type="checkbox"/> Landfill
<input checked="" type="checkbox"/> Natural Area	<input checked="" type="checkbox"/> Industrial	
<input checked="" type="checkbox"/> Other Specify: State Park and Airport		

<input checked="" type="checkbox"/> Secured	<input checked="" type="checkbox"/> Active	<input checked="" type="checkbox"/> Unknown
<input checked="" type="checkbox"/> Unsecured	<input checked="" type="checkbox"/> Inactive	

B. PAST USES:

The NWMA, consisting of 6,890,880.08 acres of land, was acquired by special use permit by the U.S. Government from the U.S. Department of Agriculture and the U.S. Department of Interior in 1943. Coupled with the lands of the six former U.S. Department of Defense (DoD) sites within the boundary of the NWMA, total acreage available for the NWMA exceeded 8 million acres. Six FUDS are included within the boundary of the NWMA. The six FUDS include Central Oregon Air to Air Gunnery Range, Camp Abbot, Fort Rock Maneuver Area, Redmond Precision Bombing Range, Redmond Air to Ground Gunnery Range, and Redmond Army Airfield. A Site Inspection has been completed for both Camp Abbot (Shaw, 2007a) and the Central Oregon Air to Air Gunnery Range (Shaw, 2007b) FUDS and has been reviewed by ODEQ.

The NWMA is currently comprised of small farms and ranches, private residences and businesses, commercial and industrial areas, airports, and federal and state resource agency owned/managed lands.

Land was used by the DoD to facilitate a large-scale force-on-force exercise during September, October, and November 1943, prior to deployment of the Fourth Army into its World War II theatre of operations. Between 75,000 and 100,000 troops and 12,000 vehicles participated in the war games.

C. SURROUNDING POPULATION:

<input checked="" type="checkbox"/> Rural	<input checked="" type="checkbox"/> Residential	<input checked="" type="checkbox"/> Commercial
<input checked="" type="checkbox"/> Urban	<input checked="" type="checkbox"/> Industrial	
<input checked="" type="checkbox"/> Other Specify: Airport		

D. PREVIOUS SAMPLING/INVESTIGATION RESULTS:

An Archives Search Report (ASR) was issued in August 1995 (USACE, 1995). The ASR documented that the NWMA was used for a military maneuver during September, October, and November 1943. Historical records indicate that no live munitions were used during the maneuvers.

There are several documented reports of ordnance being found within the NWMA FUDS boundary. These include practice anti-tank training mines, an Mk43 practice bomb, 2.36-inch rocket, artillery, mortar rounds, and anti-personnel fragmentation bombs.

An *ASR Supplement* was completed in 2004 and indicated one range, the Anti-tank Minefield (USACE, 2004b).

Activities from six other FUDS located within the boundary of the NWMA, but not related to the 1943 NWMA maneuvers may have contributed to contamination on the NWMA FUDS. A brief description of these other six FUDS and other investigations are as follows:

- Two of the six FUDS (Camp Abbot and Central Oregon Air to Air Gunnery Range) located within the NWMA boundary had ASR (USACE, 1995) and *ASR Supplement* (USACE, 2004b) conducted and are currently being investigated under the Military Munitions Response Program. The Findings and Determination of Eligibility for the remaining four FUDS found them to have been formerly used by DoD but at the time of determination there was no evidence of unsafe conditions resulting from DoD use. However, these four locations will be evaluated under the NWMA Site Investigation.
- The Redmond Army Airfield was used in conjunction with a remote bombing range and an air-to-ground gunnery range.
 - Consisted of 1,730 acres BLM land, which was transferred to the Army Air Force April 25, 1945.
 - Site determined excess September 1946.
 - Conveyed property to the city of Redmond on October 3, 1947.

- Currently used as the Redmond Municipal Airport.
- Findings and Determination of Eligibility signed November 2, 1986 (no unsafe conditions resulting from DoD use).
- The Fort Rock Maneuver Area was used by the U.S. Army, Army Ground Forces as a maneuver area from July 1943 to April 1945.
 - Consisted of 275,000 acres Department of Agriculture and Department of Interior land that were transferred under special use permit to the DoD in July and October 1943.
 - The DoD relinquished portions of the site in December 1944 and April 1945.
 - Findings and Determination of Eligibility signed May 27, 1989 (no unsafe conditions resulting from DoD use).
- The Redmond Air to Ground Gunnery Range was used by the U.S. Army Air Corps for an aircraft gunnery range.
 - Consisted of 10,745 acres BLM land acquired on August 14, 1943, and 2,351 acres of privately-owned lands also acquired in 1943.
 - Site determined excess September 1946.
 - Findings and Determination of Eligibility signed July 14, 1989 (no unsafe conditions resulting from DoD use).
- The Redmond Precision Bombing Range was used by the U.S. Army Air Corps for an aircraft bombing range.
 - Consisted of 1,266 acres BLM lands, which were transferred to the Army Air Force August 14, 1943 and 1,335 acres of private land acquired also in 1943.
 - Site determined excess October 1946.
 - Findings and Determination of Eligibility signed July 14, 1989 (no unsafe conditions resulting from DoD use).

An additional FUDS property, not identified in the ASR, which will be investigated per the direction of the USACE, is the Biak Training Center located near Redmond, Oregon which is currently owned by the BLM. The Training Center consists of two properties, Transferred Range #1 and Transferred Range #2. Transferred Range #1 is on active National Guard property and is being investigated under an U.S. Army Environmental Center contract. Transferred Range #2 has been determined to be FUDS eligible but was listed as a duplicate property which would be investigated under the NWMA SI. A summary of transferred range 2 is as follows:

- The former range is located to the east of the current Biak installation.
- Property was leased from BLM from approximately 1960 through 1980.
- Range was used to train troops on tracked and wheeled all-terrain vehicles for infantry field training exercises consisting of land navigation, bivouacking, and temporary construction of fortifications and defensive positions.

- Training involved the use of smoke grenades, artillery simulators, and ground and aerial flares.
- No live firing was conducted on this range.
- Property is currently owned and controlled by BLM, is subject to grazing under allotments issued by BLM, and is fenced.

II. DESCRIPTION OF ON-SITE ACTIVITIES:

<input checked="" type="checkbox"/> Walk Through	<input checked="" type="checkbox"/> Drive Through	<input type="checkbox"/> Fly Over
<input checked="" type="checkbox"/> On-Road	<input checked="" type="checkbox"/> Off-Road	<input checked="" type="checkbox"/> On-Path
<input checked="" type="checkbox"/> Off-Path		
<input type="checkbox"/> Other Specify		

Activities/Tasks to be Performed

Reconnaissance

Phase I is a visual field reconnaissance survey by a trained, unexploded ordnance (UXO) technician, using a hand-held magnetometer and/or Fisher metal detector. The reconnaissance will be performed on select portions of the NWMA FUDS to look for evidence of munitions activity and to assure that personnel avoid any potential munitions and explosives of concern (MEC). This will include but not be limited to visual field reconnaissance in various locations near the town of Christmas Valley (where the anti-tank minefield was found) and in areas where the 1943 maneuvers took place to assess the presence or absence of MEC and to document the current site conditions. Additionally, the Oregon Department of Environmental Quality requested conducting visual reconnaissance of the six former FUDS located within the boundary of the NWMA. Since the TPP Meeting, individuals have provided additional information regarding activities at select locations. Following is a list of the areas/sites where visual site reconnaissance will be conducted (figures are provided in the SSWP):

- Deschutes County
 - Redmond Army Airfield
 - Badlands Wilderness Research Area – Area of Concern
 - Redmond Air-to-Ground Gunnery Range
 - Redmond Precision Bombing Range
 - Stevens Road Tract
 - Biak Training Center Transferred Range 2
- Crook County
 - Badlands Wilderness Research Area – Area of Concern
 - Redmond Air-to-Ground Gunnery Range

- Lake County
 - Anti-tank Minefield
 - Confirmed Location of Ordnance
 - Sand Dunes
 - Fort Rock Maneuver Area
 - Lumber Camp Demolition Area

Transects will be recorded using a global positioning system, and appropriate features influencing the survey will be noted, such as vegetation density and type, topography, etc. Suspect areas of interest, as indicated in the SSWP, will be inspected as part of the field reconnaissance. If MEC is found, the qualified UXO technician will attempt to make a determination of the hazard, and appropriate notifications will be made as detailed in the *Final Type I Work Plan, Site Inspections at Multiple Sites, NWO Region, Formerly Used Defense Sites, Military Munitions Response Program* (Shaw Environmental Inc. [Shaw], 2006) and SSWP.

During site reconnaissance, the following conditions, if encountered, will be documented or recorded in the field logbook and/or by digital photographs:

- Presence or absence of MEC, shell casings, bullets, or debris,
- Access limitations,
- Vegetative cover,
- Soil conditions, and
- Other conditions encountered that would impact proposed sample collection locations.

The site reconnaissance will be performed by conducting a visual and geophysical inspection of the range. The geophysical inspection will be accomplished using a Schonstedt magnetometer and/or Fisher metal detector (or equivalent) by the UXO technician. The path walked during the visual reconnaissance will be recorded using a hand-held Global Positioning System unit. Reconnaissance will not include detailed mapping. Touching or handling of MEC or munitions debris will not be allowed.

III. SITE PERSONNEL AND RESPONSIBILITIES:

Name/Responsibility	Training					
	HAZWOPER 40-hour	8-hour HAZWOPER refresher	Hazardous Waste Site Supervisor	First Aid	Cardiopulmonary Resuscitation	UXO Specialist
Anthony Searls Technical Lead	X	X	X	X	X	NA
Field Team Leader/SSHO Anthony Searls and/or Dale Landon	X	X	X	X	X	NA
UXO Technician David Watkins (#1420), Rob Irons (#1137), Jim Bayne (#1212), Rueben Rhodes (#0169), Ron Stanfield (#1161), or Dave Van Deman (#1057)	X	X	NA	X	X	X

HAZWOPER denotes Hazardous Waste Operations and Emergency Response.

NA denotes not applicable.

SSHO denotes Site Safety and Health Officer.

IV. HAZARD ANALYSIS:

A. Safety and Health Hazards Anticipated:

<input checked="" type="checkbox"/> Heat Stress	<input checked="" type="checkbox"/> Cold Stress	<input checked="" type="checkbox"/> Tripping Hazard
<input checked="" type="checkbox"/> Noise	<input checked="" type="checkbox"/> Electrical	<input type="checkbox"/> Falling Objects
<input checked="" type="checkbox"/> Foot Hazard	<input type="checkbox"/> Biological	<input type="checkbox"/> Overhead Hazard
<input type="checkbox"/> Radiological	<input type="checkbox"/> Confined Space	<input type="checkbox"/> Water
<input checked="" type="checkbox"/> Explosive	<input checked="" type="checkbox"/> Climbing	<input type="checkbox"/> Flammable
<input type="checkbox"/> Other Specify		

B. Overall Hazard Evaluation:

<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Unknown
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JUSTIFICATION:

There are several documented reports of ordnance being found within the NWMA FUDS boundary. These include practice anti-tank training mines, an AN-Mk 43 practice bomb, 2.36-inch rocket, artillery, mortar rounds, and anti-personnel fragmentation bombs.

V. SITE INSTRUCTIONS FOR MEC AVOIDANCE:

See Section 4.3 of the Site Safety and Health Plan (SSHP) (Shaw, 2006) for full scope of MEC avoidance requirements, as follows:

- a. DO NOT touch or move any ordnance items regardless of the marking or apparent condition.
- b. DO NOT visit an ordnance site if an electrical storm is occurring or approaching. If a storm approaches during a site visit, leave the site immediately and seek shelter.
- c. DO NOT use radio or cellular telephones in the vicinity of suspect ordnance items.
- d. DO NOT walk across an area where the ground cannot be seen. If dead vegetation or dead animals are observed, leave the area immediately due to potential chemical agent contamination.
- e. DO NOT drive vehicles into suspected MEC areas; use clearly marked lanes.
- f. DO NOT carry matches, lighted cigarettes, lighters, or other flame producing devices into a MEC site.
- g. DO NOT rely on color codes for positive identification of ordnance items or their contents.
- h. Only the on-site UXO Specialist is allowed to approach suspected ordnance items to take photographs and prepare a full description (take notes of the markings or any other identifiers/features).
- i. The location of any ordnance items found during the site investigation should be clearly marked so it can be easily located and avoided.
- j. Always assume ordnance items contain a live charge until it can be determined otherwise.

Section 4.3 of the SSHP (Shaw, 2006) defines on-site MEC avoidance requirements for FUDS properties. In general, the purpose of MEC or anomaly avoidance during Site Inspection activities is to avoid any potential surface or subsurface anomalies. Intrusive anomaly investigation is not authorized during MEC avoidance operations. The reconnaissance shall include a minimum of two people, one of whom shall be a UXO technician. This team will be on site during all reconnaissance activities. If anomalies or MEC are detected, the UXO team will halt escorted personnel in place, select a course around the item, and instruct escorted personnel to follow. If MEC is encountered, Shaw will stop work in the vicinity and make notifications as outlined in the Work Plan. Shaw is not to conduct further investigation or removal of any MEC.

VI. SITE CONTROL AND COMMUNICATIONS:

A. SITE WORK ZONES: Rigid demarcation of work zones, for example, using barricades or caution tape, will generally not be required for this project. The Field Team Leader/Site Safety and Health Officer, in consultation with the UXO Technician, will determine the boundary of an Exclusion Zone (EZ) to be established around a specific area of activity, appropriate to the potential hazards. The boundaries may be described by physical features, for example, fences, tree lines, or topographic features, or may be defined by a radius around the center of activity. The EZ boundary will be verbally communicated to team members, who will maintain a watch to assure that only field team members are within the work zone. If a

bystander or intruder approaches the EZ, the field team will cease work and ask the person to remain outside the area. A Contamination Reduction Zone (CRZ) will generally not be required because personnel decontamination is not anticipated. If required, a CRZ will be established in a manner similar to that described for the EZ. The support zone will consist of all portions of the site not defined as an EZ or CRZ.

B. COMMUNICATIONS:

(1) ON SITE: Verbal communications will be used among team members to communicate to each other on site. If this communication is not possible, the following hand signals will be used.

- GRIP PARTNER'S WRIST OR BOTH HAND AROUND WAIST – Leave the area immediately.
- HAND GRIPPING NOSE – Unusual smell detected.
- THUMBS UP – OK, I am alright or I understand.
- THUMBS DOWN – No, negative.

(2) OFF SITE: Off-site communications will be established at the site and may include an on-site cellular telephone or the nearest public telephone or private telephone that may be readily accessed.

Cellular Phone: (509) 531-9028

Public/Private Telephone

TELEPHONE NUMBERS:

1. MEDICAL FACILITY (Emergency Care): St. Charles Medical Center, Bend, Oregon Pioneer Memorial, Prineville, Oregon Harney District Hospital, Burns, Oregon Lake District Hospital, Lakeview, Oregon	(541) 382-4321 (541) 447-6254 (541) 573-7281 (541) 947-2114
2. MEDICAL FACILITY (Non-Emergency Care Shaw-Approved Occupational Health Clinic): Mount Bachelor Clinic, Bend, Oregon	(541) 317-0909
3. OREGON STATE POLICE: MEC Notification: Sgt. Sigurdson	(503) 378-3387 x 241 (office) (503) 932-2171 (cell)
4. FIRE DEPARTMENT: Bend Fire Department Redmond Fire Department Burns Fire Department Crook County Fire Department	(541) 322-6335 or 911 (541) 504-5000 or 911 (541) 573-2320 or 911 (541) 447-5011 or 911
5. POLICE DEPARTMENT (SHERIFF): Lake County Sheriff – Phil McDonald Deschutes County Sheriff – Les Stiles Crook County Sheriff – Rodd Clark	(541) 947-6027 or 911 (541) 388-6655 or 911 (541) 447-6398 or 911
6. POLICE DEPARTMENT (LOCAL): Bend – Andy Jordan Redmond – Lane Roberts Lakeview – Jeff Kamp Prineville – James Soules	(541) 322-2960 or 911 (541) 504-3400 or 911 (541) 947-2504 or 911 (541) 447-4168 or 911
7. POISON CONTROL CENTER:	(800) 222-1222
8. USACE MM DC PROJECT MANAGER: John Miller	(402) 221-1618
9. USACE DISTRICT PROJECT MANAGER: Michael Nelson, P.E.	(206) 764-3458 (office) (206) 390-9873 (cell)
10. USACE OE SAFETY: Glenn Marks	(402) 221-7683 (office) (402) 740-4954 (cell)
11. SHAW PROJECT MANAGER: Peter Kelsall	(720) 554-8178 (office) (303) 981-8435 (cell)
12. SHAW TECHNICAL LEAD: Anthony Searls	(509) 946-2062 (office) (509) 531-9028 (cell)
13. SHAW FIELD LEADER: Anthony Searls or Dale Landon	(509) 531-9028 (cell) – Anthony (509) 521-1437 (cell) – Dale
14. SHAW OE SAFETY: Brian Hamilton	(303) 690-3117 (office) (303) 809-0416 (cell)

TELEPHONE NUMBERS:

15. SHAW UXO TECHNICIAN:

David Watkins (#1420), Rob Irons (#1137), Jim Bayne (#1212), Rueben Rhodes (#0169), Ron Stanfield (#1161), or Dave Van Deman (#1057)

(Contact: Morey Engle)

(303) 690-3870
(720) 480-3204 (cell)

(3) **EMERGENCY SIGNALS:** In the case of small groups, a verbal signal for emergencies shall suffice. The emergency signal for large groups should be incorporated at the discretion of the UXO Technician.

Verbal Nonverbal (Specify)

VII. EMERGENCY RESPONSE

(1) **ACCIDENTS:** Safety-related incidents and accidents will be immediately reported to the Shaw Project Manager and the USACE MM DC Project Manager. Additional notifications within the USACE organization will be coordinated by the USACE MM DC Project Manager. Additional accident reporting responsibilities of Shaw personnel are described in Section 1.9 of the Accident Prevention Plan (Shaw, 2006).

(2) DIRECTIONS TO THE NEAREST HOSPITAL/MEDICAL FACILITY:

Emergency medical care is available at:

St. Charles Medical Center, 2500 NE Neff Road, Bend, Oregon (541) 382-4321 (Figure 1)

Pioneer Memorial, 1201 NE Elm Street, Prineville, Oregon (541) 447-6254 (Figure 2)

Harney District Hospital, 557 West Washington Street, Burns, Oregon (541) 573-7281 (Figure 3)

Lake District Hospital, 700 South J Street, Lakeview, Oregon (541) 947-2114 (Figure 4)

Figure 1 Directions to St. Charles Medical Center, Bend, Oregon

1-Click Directions

Page 1 of 2

1-click directions to St Charles Medical Ctr

2500 NE Neff Rd, Bend, OR (541) 382-4321

Show directions from:

- the north (via US-97 S / Bend Pkwy S)
- the south (via US-97)
- the east (via US-20)
- the west (via Knott Rd)
- ■ ■ ■ View All



97 From the north (via US-97 S / Bend Pkwy S)	
1. At exit 136 , take ramp right and follow signs for Butler MKT. Rd.	0.3 mi
2. Turn left onto NE Butler Market Rd	0.7 mi
3. At roundabout, take 2nd exit	1.6 mi
4. Turn right onto NE 27th St	1.3 mi
5. Turn right onto NE Neff Rd	0.2 mi
6. Arrive at 2500 NE Neff Rd, Bend, OR	

97 From the south (via US-97)	
1. At exit 137 , take ramp right for Revere Ave. toward Downtown	0.2 mi
2. Turn right onto NE Revere Ave	0.6 mi
3. Turn right onto NE 8th St	0.1 mi
4. Turn left onto NE Penn Ave	0.6 mi
5. Road name changes to NE Neff Rd	0.7 mi
6. Arrive at 2500 NE Neff Rd, Bend, OR	

20 From the east (via US-20)	
1. Turn right onto NE 27th St	0.8 mi
2. Turn left onto NE Neff Rd	0.2 mi
3. Arrive at 2500 NE Neff Rd, Bend, OR	

97 From the west (via Knott Rd)	
1. Road name changes to SE Knott Rd	1.6 mi
2. Road name changes to Knott Rd	1.3 mi
3. Road name changes to 27th St	2.9 mi
4. Road name changes to NE 27th St	1.0 mi
5. Turn left onto NE Neff Rd	0.2 mi
6. Arrive at 2500 NE Neff Rd, Bend, OR	

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Figure 2 Directions to Pioneer Memorial, Prineville, Oregon

1-Click Directions

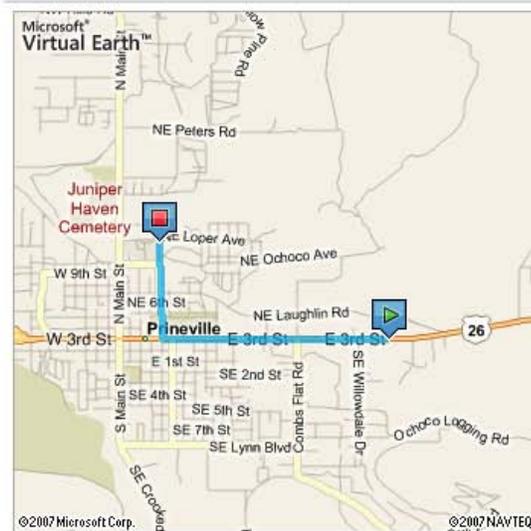
Page 1 of 1

1-click directions to Pioneer Memorial Hospital

1201 NE Elm St, Prineville, OR (541) 447-6254

Show directions from:

- the east (via US-26 / E 3rd St / NE Ochoco Hwy)
- View All



26 From the east (via US-26 / E 3rd St / NE Ochoco Hwy)

- | | | |
|-------------------------------------|---|--------|
| ➔ | 1. Turn right onto N Elm St | 0.4 mi |
| ↑ | 2. Road name changes to NE Elm St | 0.1 mi |
| ■ | 3. Arrive at 1201 NE Elm St, Prineville, OR
<i>The last intersection is NE Lookout Ave
If you reach NE Loper Ave, you've gone too far</i> | |

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Figure 3 Directions to Harney District Hospital, Burns, Oregon

1-Click Directions

Page 1 of 1

1-click directions to Harney District Hospital

557 W Washington St, Burns, OR (541) 573-7281

Show directions from:

- the north (via US-395 / John Day-Burns Hwy)
- the south (via SR-205 / Frenchglen Hwy)
- the east (via US-20 / Central Oregon Hwy)
- the west (via US-20 / US-395 / Central Oregon Hwy / S Oregon Ave)
- ■ ■ ■ View All



From the north (via US-395 / John Day-Burns Hwy)	
1. Turn right to stay on US-20 / US-395 / Central Oregon Hwy / John Day-Burns Hwy / N Seneca Dr	2.5 mi
2. Turn right onto W A St	0.3 mi
3. Turn left onto N Egan Ave	0.1 mi
4. Turn right onto W Washington St	
5. Arrive at 557 W Washington St, Burns, OR	

From the south (via SR-205 / Frenchglen Hwy)	
1. Turn left onto SR-78 / Steens Hwy	1.7 mi
2. Keep straight onto US-20 / US-395 / Central Oregon Hwy / W Monroe St	0.3 mi
3. Turn right onto N Egan Ave	0.2 mi
4. Turn left onto W Washington St	
5. Arrive at 557 W Washington St, Burns, OR	

From the east (via US-20 / Central Oregon Hwy)	
1. Turn right onto W A St	0.3 mi
2. Turn left onto N Egan Ave	0.1 mi
3. Turn right onto W Washington St	
4. Arrive at 557 W Washington St, Burns, OR	

From the west (via US-20 / US-395 / Central Oregon Hwy / S Oregon Ave)	
1. Turn left onto N Grand Ave	0.2 mi
2. Turn right onto W Washington St	0.1 mi
3. Arrive at 557 W Washington St, Burns, OR	

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Figure 4 Directions to Lake District Hospital, Lakeview, Oregon

1-Click Directions

Page 1 of 1

1-click directions to Lake District Hospital

700 S J St, Lakeview, OR (541) 947-2114

Show directions from:

- the north (via US-395 / N F St / Fremont Hwy)
- the south (via US-395 / Fremont Hwy)
- the east (via SR-140 / Warner Hwy)
- the west (via SR-140 / Klamath Falls-Lakeview Hwy)
- ■ ■ ■ **View All**



395 From the north (via US-395 / N F St / Fremont Hwy)
1. Turn right onto S 10th St 0.2 mi
2. Turn right onto S J St 0.1 mi
3. Arrive at 700 S J St, Lakeview, OR

395 From the south (via US-395 / Fremont Hwy)
1. Turn left onto S 10th St 0.2 mi
2. Turn right onto S J St 0.1 mi
3. Arrive at 700 S J St, Lakeview, OR

140 From the east (via SR-140 / Warner Hwy)
1. Bear left onto US-395 / Fremont Hwy 5.9 mi
2. Turn right onto S 10th St 0.2 mi
3. Turn right onto S J St 0.1 mi
4. Arrive at 700 S J St, Lakeview, OR

140 From the west (via SR-140 / Klamath Falls-Lakeview Hwy)
1. Bear right onto US-395 / N F St / Fremont Hwy 1.2 mi
2. Turn right onto S 10th St 0.2 mi
3. Turn right onto S J St 0.1 mi
4. Arrive at 700 S J St, Lakeview, OR

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(3) CLINIC FOR NONEMERGENCY MEDICAL TREATMENT

In the event of a work-related, non life threatening injury, the following occupational health clinics are approved by Health Resources for medical treatment of Shaw employees:

Mt. Bachelor Clinic, 1302 North East 3rd Street, Bend, Oregon (541) 317-0909 (Figure 5)

Notifications per Section VII (1), above, and to Health Resources (800-350-4511) are required prior to transporting the employee to the clinic.

Figure 5
Directions to Mt. Bachelor Medical, Bend, Oregon



Live Search Maps

Start: **Bend, Oregon, United States**
 End: **1302 NE 3rd St, Bend, OR 97701-4333**
 Trip: **1.0 mi, 5 min**

My Notes
 Immediate Care Center, Mount Bachelor
 Clinic
 541-317-0909

	1. Depart NW Wall St	
	2. Turn left onto NW Louisiana Ave	0.1 mi
	3. Turn left onto NW Bond St	0.3 mi
	4. Bear right onto NW Greenwood Ave	0.2 mi
	5. Road name changes to NE Greenwood Ave	0.2 mi
	6. Turn left onto US-20 / US-97 Bus / NE 3rd St	0.2 mi
	7. Arrive at 1302 NE 3rd St <i>The last intersection is NE Lafayette Ave If you reach NE Marshall Ave, you've gone too far</i>	

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VIII. PERSONAL PROTECTIVE EQUIPMENT:

For field work to be performed at this site, Level D personal protective equipment (PPE) is required. Level D PPE requirements are defined in Section 5.1.5 of the SSHP (Shaw, 2006). In general, the use of hard hats is required on all USACE work sites, except on MEC-contaminated sites. At this FUDS, hard hats will only be worn if an overhead hazard is identified. If hard hats are worn, they will be securely fastened to the wearers head.

Contingency: Evacuate site if higher level of protection is needed.

IX. DECONTAMINATION PROCEDURES:

Decontamination procedures are not anticipated as Level D PPE is being used. If decontamination is deemed necessary, procedures defined in Section 7.0 of the SSHP (Shaw, 2006) will be followed. Team members are cautioned not to walk, kneel, or sit on any surface with potential leaks, spills, or contamination.

X. TRAINING:

All site personnel and visitors will have completed the minimum training required by EM 385-1-1 and 29 Code of Federal Regulations 1910.120(e). The Shaw Field Team Leader will verify that all on-site personnel and visitors have completed the appropriate training prior to admitting the individuals on site. Additionally, the UXO Technician assigned to this field reconnaissance will inform personnel before entering, of any potential site-specific-hazards and MEC safety procedures.

XI. GENERAL:

The number of persons visiting the site will be held to a minimum. The UXO Technician can supervise no more than six non-UXO qualified persons while on MEC sites performing intrusive or nonintrusive work. The Field Team Leader may modify this SSHP Addendum if site conditions warrant. All changes to the SSHP (Shaw, 2006) require USACE review and concurrence before new procedures can be applied in the field.

XII. SEVERE WEATHER CONTINGENCY PLAN

Sudden changes in the weather, extreme weather conditions, and natural disasters can create a number of subsequent hazards. Inclement weather may cause poor working conditions including slip, trip, and fall hazards to exist. Natural disasters can create many secondary hazards such as release of hazardous materials to the environment, structure failure, and fires.

Weather conditions will be monitored throughout the day by all field team members. Additionally, field personnel should be aware/informed of daily weather forecasts. Local weather broadcasts and information from a severe weather alert radio will be monitored by the Field Team Leader, Site Safety and Health Officer, or designee when the likelihood for severe weather exists. The location of tornado shelters that may be located in the general area where field work is being performed will be identified. Severe weather may include:

- Tornadoes,
- Thunderstorms (lightning, rain, flash flooding),
- Hail, and/or
- High wind.

Generally, cellular telephone communication will be used to alert crews to threatening weather. The necessary precautions or response, as directed by the Field Team Leader, to implement the Severe Weather Contingency Plan include:

- Suspend drilling and sampling operations when the potential for lightning occurs. Operations may resume 30 minutes after the last observed lightning strike.
- For most types of severe weather, personnel should take refuge in vehicles or inside a designated office.
- In the event of a tornado, personnel should take cover in a basement, ditch, culvert, open “igloo,” or interior room of a strong building. Personnel should be aware that ditches and culverts may fill up with water quickly and should only use these as shelters as a last resort.
- Field Team Leader must decide what operations, if any, are safe to perform based on existing conditions and anticipated conditions.

Additional information will be developed and communicated to personnel before commencing new tasks or activities. It may be necessary to halt certain hazardous operations or stop work altogether to allow the weather situation to pass.

Routinely monitoring weather conditions and reports may help reduce the impact of severe weather and natural disasters. The best protection against most severe weather episodes and natural disasters is to avoid them. This means seeking shelter before the storm hits. If lightning is a threat, stay away from pipes and electrical equipment and watch for damage caused by nearby lightning strikes.

SAFETY BRIEFING CHECKLIST

SITE NAME: Northwest Maneuver Area	DATE/TIME: /
------------------------------------	---------------------

GENERAL INFORMATION

(Check subjects discussed)

- PURPOSE OF VISIT
- IDENTIFY KEY SITE PERSONNEL
- TRAINING AND MEDICAL REQUIREMENTS

SPECIFIC INFORMATION

- SITE DESCRIPTION/PAST USES
- RESULTS OF PREVIOUS STUDIES
- POTENTIAL SITE HAZARDS
- MEC SAFETY PROCEDURES
- SITE SOPs
- SITE CONTROL AND COMMUNICATIONS
- EMERGENCY RESPONSE
 - LOCATION OF FIRST AID KIT
 - EMERGENCY PHONE NUMBERS & LOCATION
 - LOCATION AND MAP TO NEAREST MEDICAL FACILITY
 - PPE AND DECONTAMINATION

Stress the following during the briefing: If hazardous conditions arise, stop work, evacuate the area, and notify the Site Safety and Health Officer and Shaw Project Manager immediately.

