US Army Corps of Engineers

Camp Abbot

Public Meeting
4 April 2005
Agenda

- Welcome / Project Introduction:

  Bill Graney, USACE Seattle
- Administrative Comments:

  Mike McAleer, USACE Portland
- HTRW work:

  Cathy Martin, USACE Seattle
- MMRP SI work:

  Zane Tuta, USACE Omaha contractor, Shaw Environmental Inc.
- Questions and Answers: Bill Graney

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Current Project Overview

- Hazardous, Toxic and Radiological Wastes (HTRW) Site Inspection – usually associated with industrial processes
  - Groundwater around the former landfill and demolition pit area may be further invested.
  - Other areas TBD.
- Military Munitions Response Program MMRP Site Inspection

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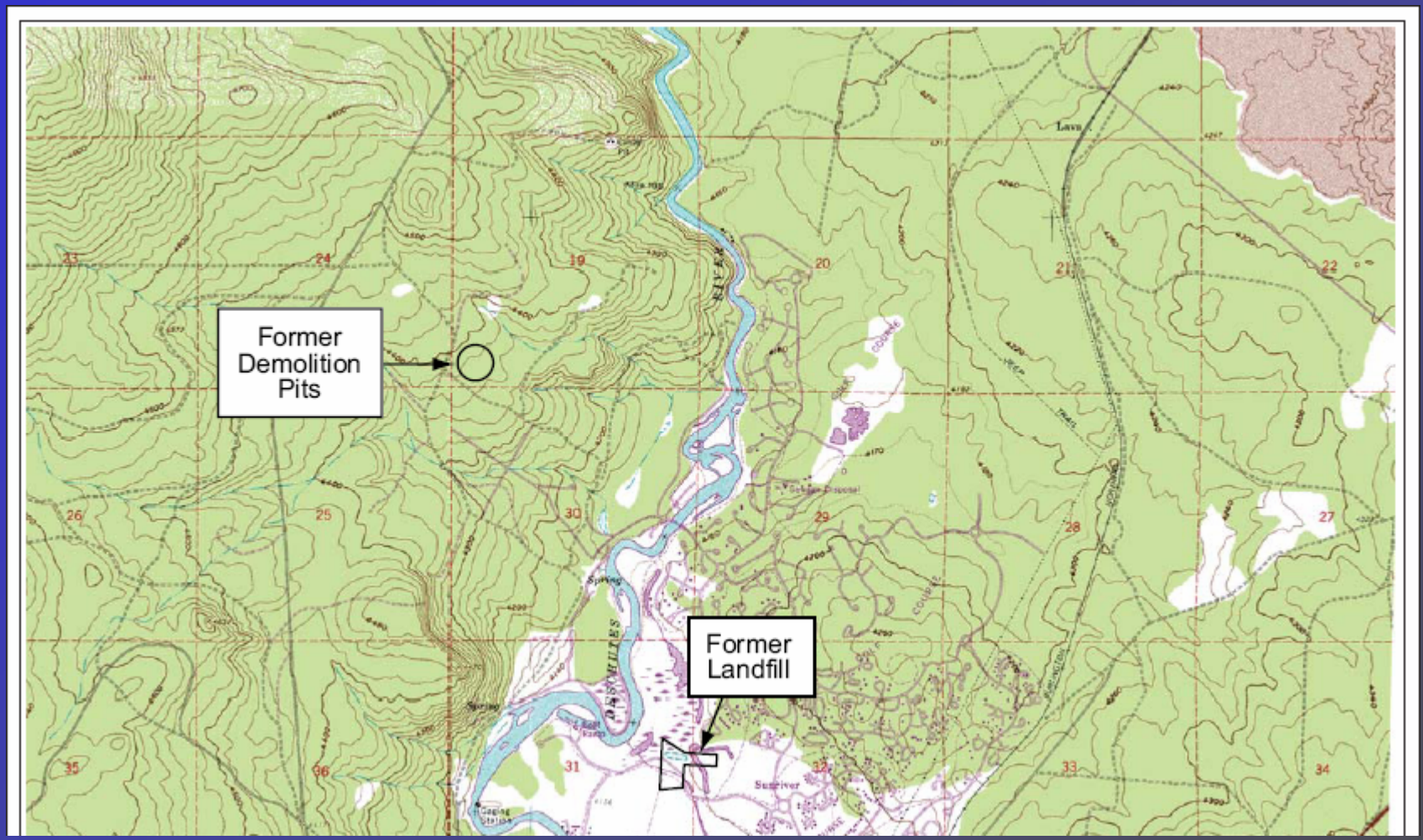

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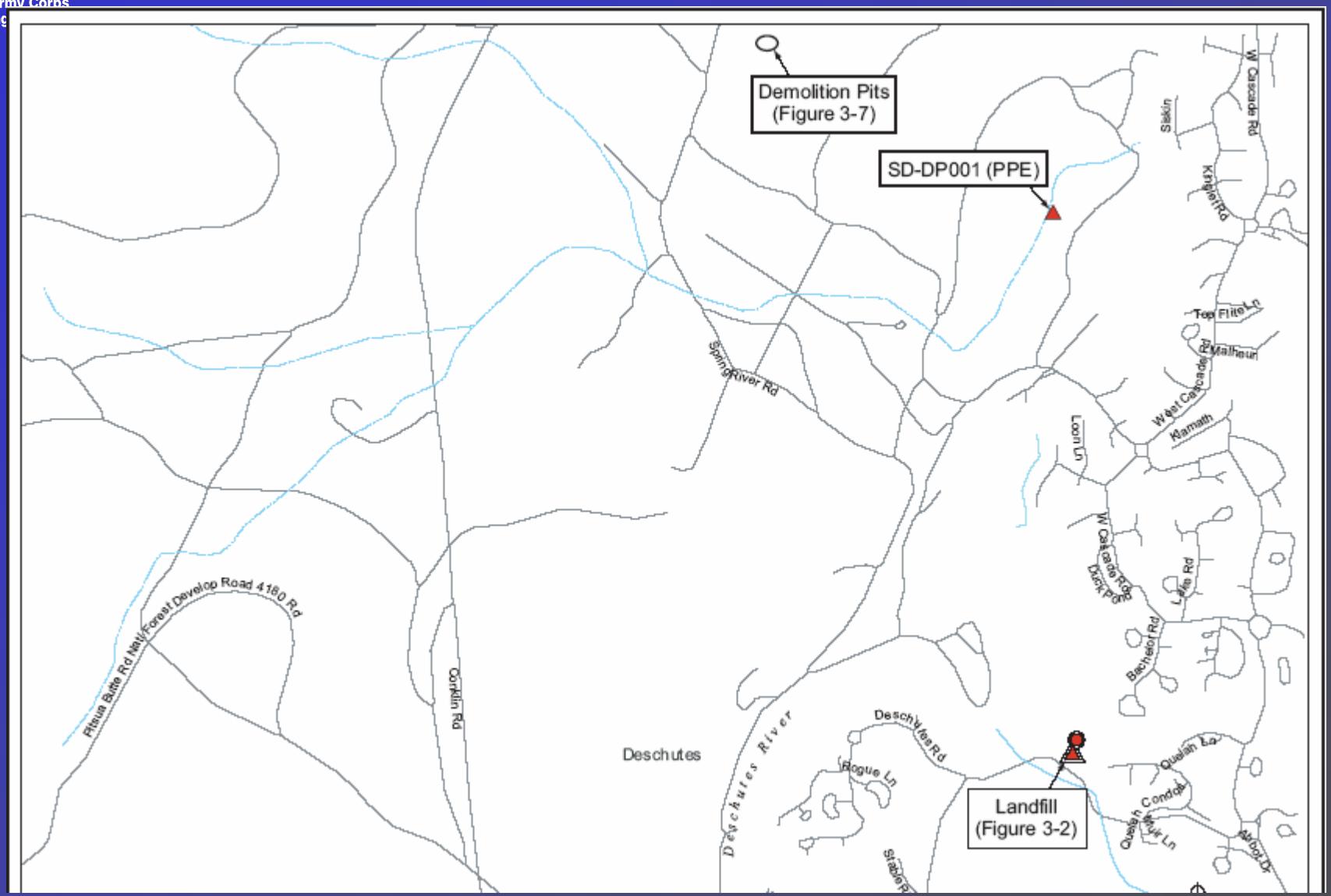

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Shaw

Camp Abbot

Military Munitions Response Program

Site Inspections

Sunriver Resort website

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Background

- For decades, Department of Defense (DoD) has used military munitions in training and testing to achieve force readiness
- When ranges are put to another use, it is necessary to protect human health and the environment from potential hazards

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What Could Be There?

- Munitions and Explosives of Concern (MEC)
  - Unexploded Ordnance (UXO)
  - Discarded Military Munitions
  - Explosive Munitions Constituents
- Munitions Constituents (MC)

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Why Now?

- In 2002 (National Defense Authorization Act), Congress required DoD to:
  - Create an inventory of defense sites known or suspected of containing munitions or munitions constituents
  - Prioritize sites needing action
  - Give Congress a response plan

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DoD's Response

- Military Munitions Response Program
- DoD has identified over 3,300 sites
- Active installations (1,333)
- Base Realignment & Closure (318)
- Formerly Used Defense Sites—FUDS (1,658)
- Site Inspections to be completed by 2010

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FUDS Site Inspections

- U.S. Army Corps of Engineers (USACE)
- Shaw Environmental, Inc.
- Oregon Department of Environmental Quality
- U.S. Environmental Protection Agency
- Stakeholders--Land owners, residents, public

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Site Inspection (SI) Goal

- Are munitions or munitions constituents present?

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Possible Outcomes of SI

- Eliminate a site from further action
- Determine need to investigate further
  - Remedial Investigation (RI)
  - Feasibility Study (FS)
- Determine need for a time-critical removal action

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Yardsticks

- SI provides information needed for
  - EPA's Hazard Ranking System for National Priorities List (Superfund) sites
  - DoD's new Munitions Response Site Prioritization Protocol

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SI Process

- Review data
- Technical Project Planning (TPP)
- Work Plan
- Field work
- SI Report

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TPP Process

- Meet stakeholders & identify concerns
- Identify Areas of Concern (AOCs)
- Review site information
- Verify current & future land use
- Develop a Conceptual Site Model
- Identify Data Gaps & Data Objectives
- Concur on field work approach

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Site History

- Army acquired 9,700 acres, principally in 1942
- Operated 14 months, May 1943 to June 1944
- Trained 90,000 men (up to 10,000 at once)

Construction of the Camp Abbot Officer's Club (now Sunriver Resort's Great Hall

Economic Development for Central Oregon website

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Engineer Replacement Training Center (ERTC)

- Trained combat engineers
- 17-week program
  - 6 wks basic
  - 8 wks technical
  - 3 wks maneuvers
- Specialist programs
  - Equipment operation
  - Mapmaking
  - Disarmament, etc

DEACTIVATING ANTIPERSONNEL MINES AND BOOBY TRAPS, *by touch only, part of combat training for Engineers, Camp Abbot, Oreg.*

Coll and others, 1958

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The Engineer Soldier

- "The crying need is and always has been for the versatile, balanced engineer who can scramble over a bridge, tighten a bolt, set a jack, drive a truck, skin a cat, and shoot a rifle, all in one night shift." Col. E.H. Coe
- (Coll and others, 1958)

Fort Belvoir (VA) website

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Early War Experience

- "Reports from North Africa were full of praise for the engineer soldier when he was called upon to perform such strictly engineering activities as road building and bridging…As combat troops they were as unprepared as the men from the other services."
  (Coll and others, 1958)

NOAA Photo Library website

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New Emphasis

- April 1943 directive: "Every trainee must 'so far as practicable…be subjected during training to every sight, sound, and sensation of battle.' He must be prepared mentally to perform his duties 'regardless of noise, confusion, and surprise.'" (Coll and others, 1958)

Timberwolf Artifacts website

http://timberwolf104.tripod.com

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Supply Problems

- Shortages of ammunition and weapons still affected ERTC programs
- Each center given a .50 caliber machine gun, but a low ammo allowance limited its use
- Flame throwers for demolition specialists and general assault demolitions were scarce
- Anti-tank rocket allowance was 1 per 50 men

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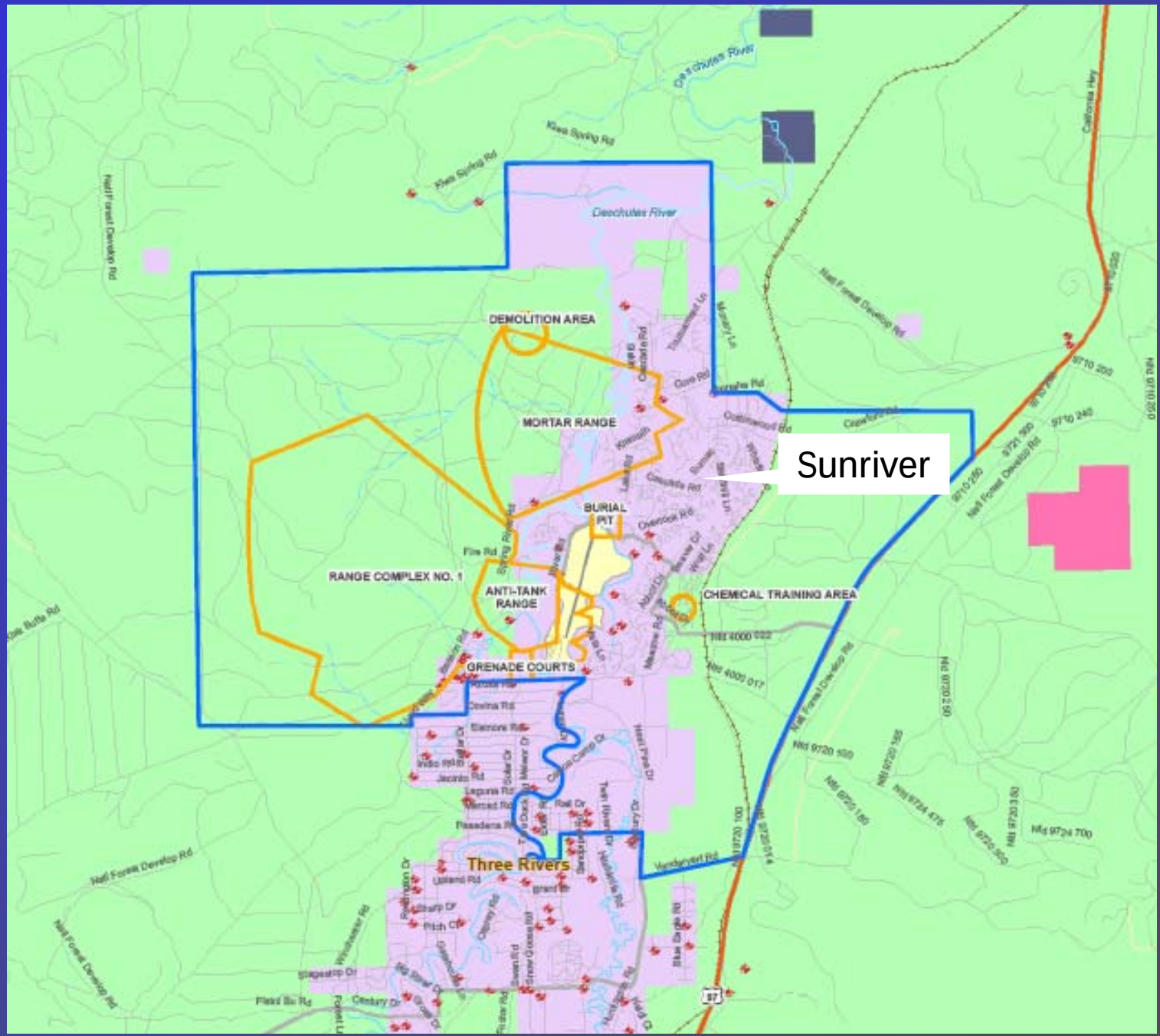

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Current & Future Use

- Recreation
  - Rafting, fishing
  - Hiking, biking
  - Golf, skiing…
- Residential
- Commercial
- National Forest

Sunriver Resort

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Site Conditions

- Flat, hills, mountains
- < 12 inches of rain
- Deschutes River
- Cascade Range to west
- Basaltic lava, faulted
- Silt, sand & gravel in valley
- Water supply
  - Domestic wells
  - Public systems: all groundwater except Bend

USGS

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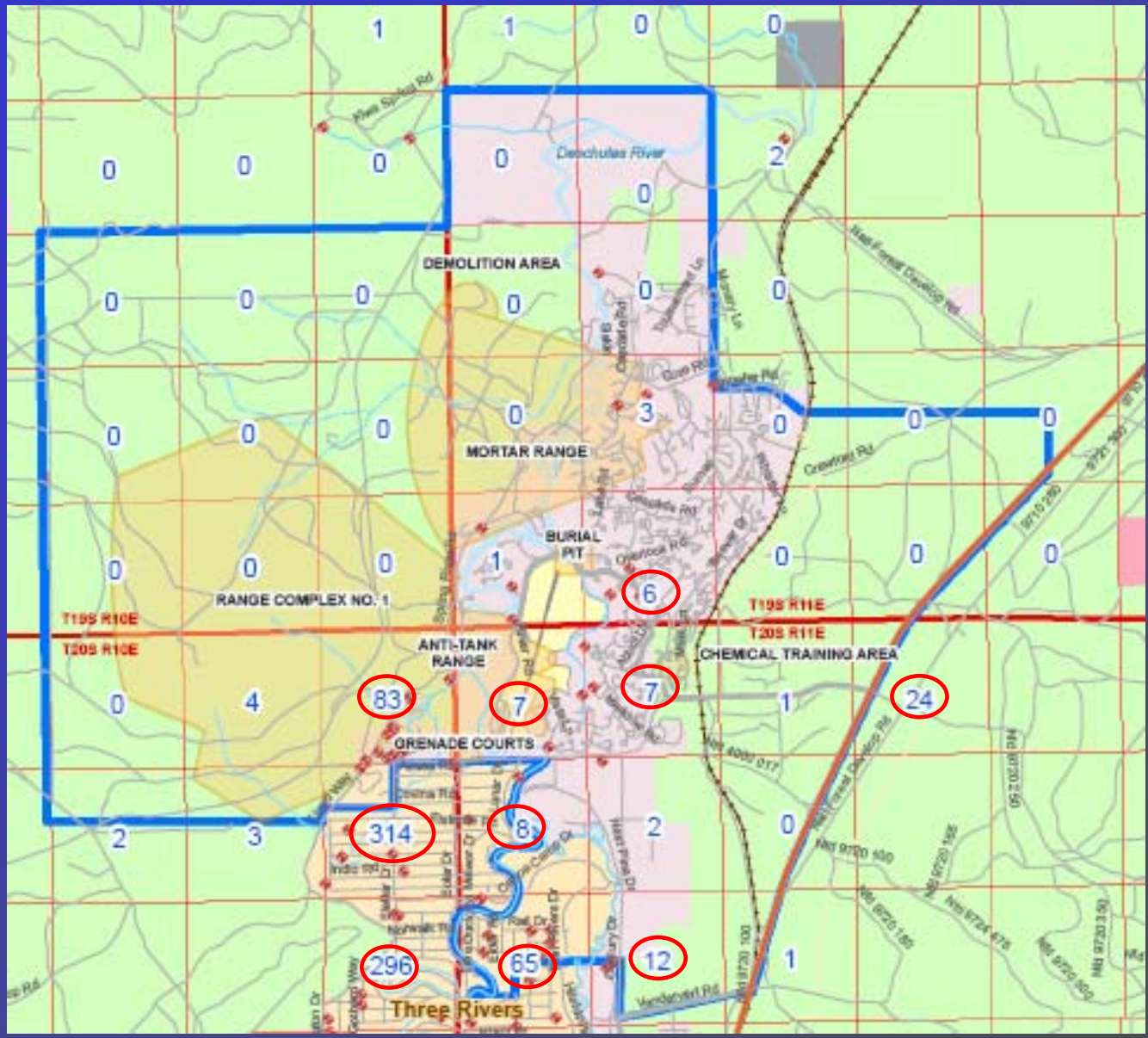
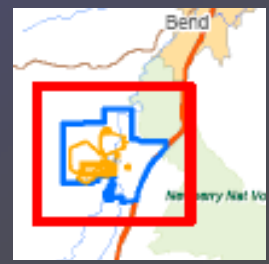
Water Wells





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Surface & Ground Water

- Surface water infiltrates fractured, permeable lava
- Abundant recharge from Cascades, Newberry
- Deeper volcanics & fine sediments divert flow
- Groundwater discharges at river (many springs)

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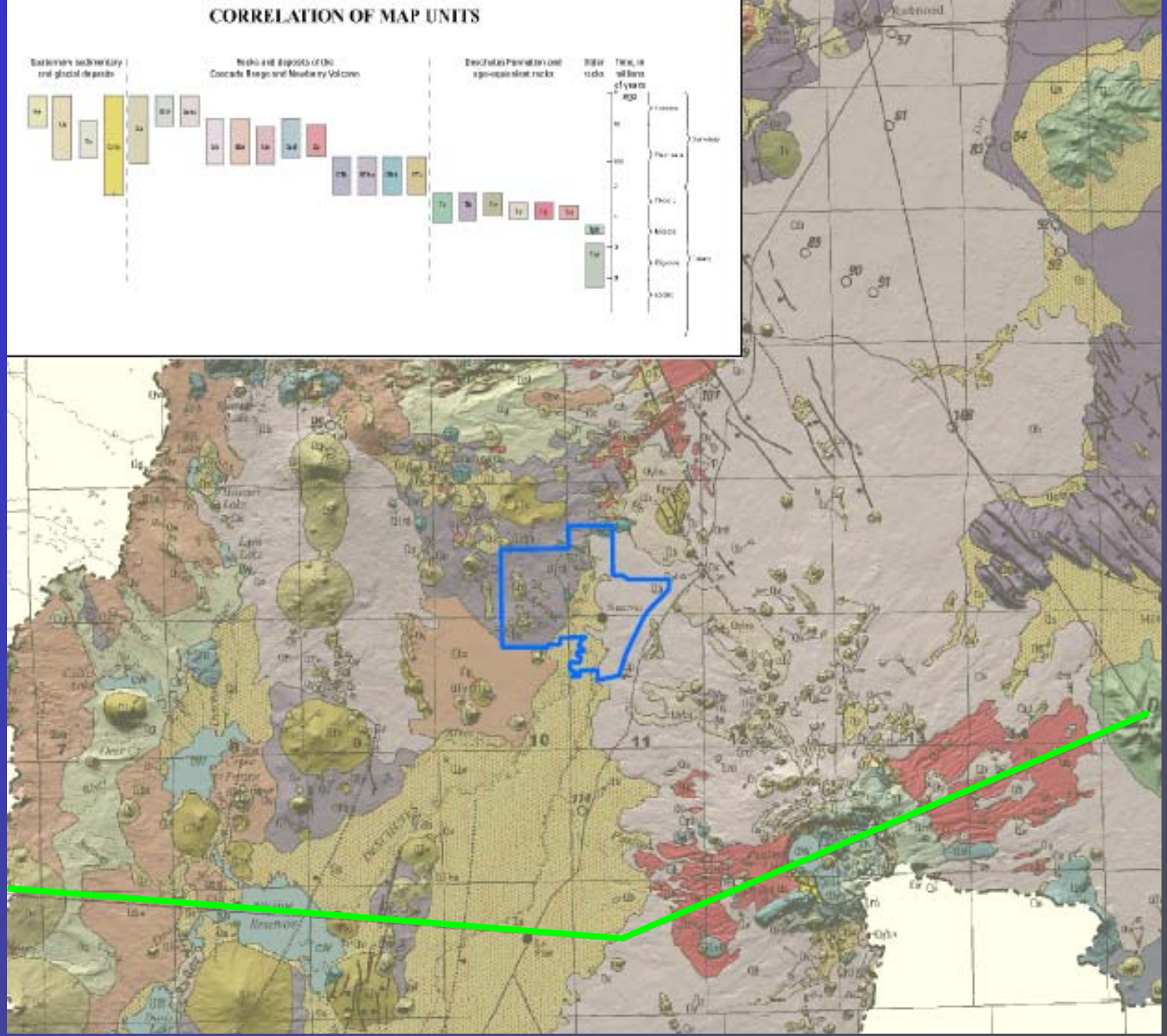

Lite and Gannett, 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon

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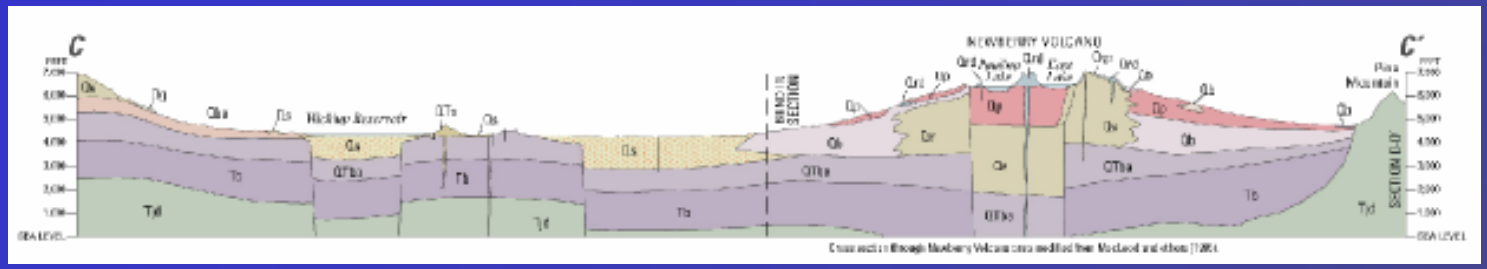
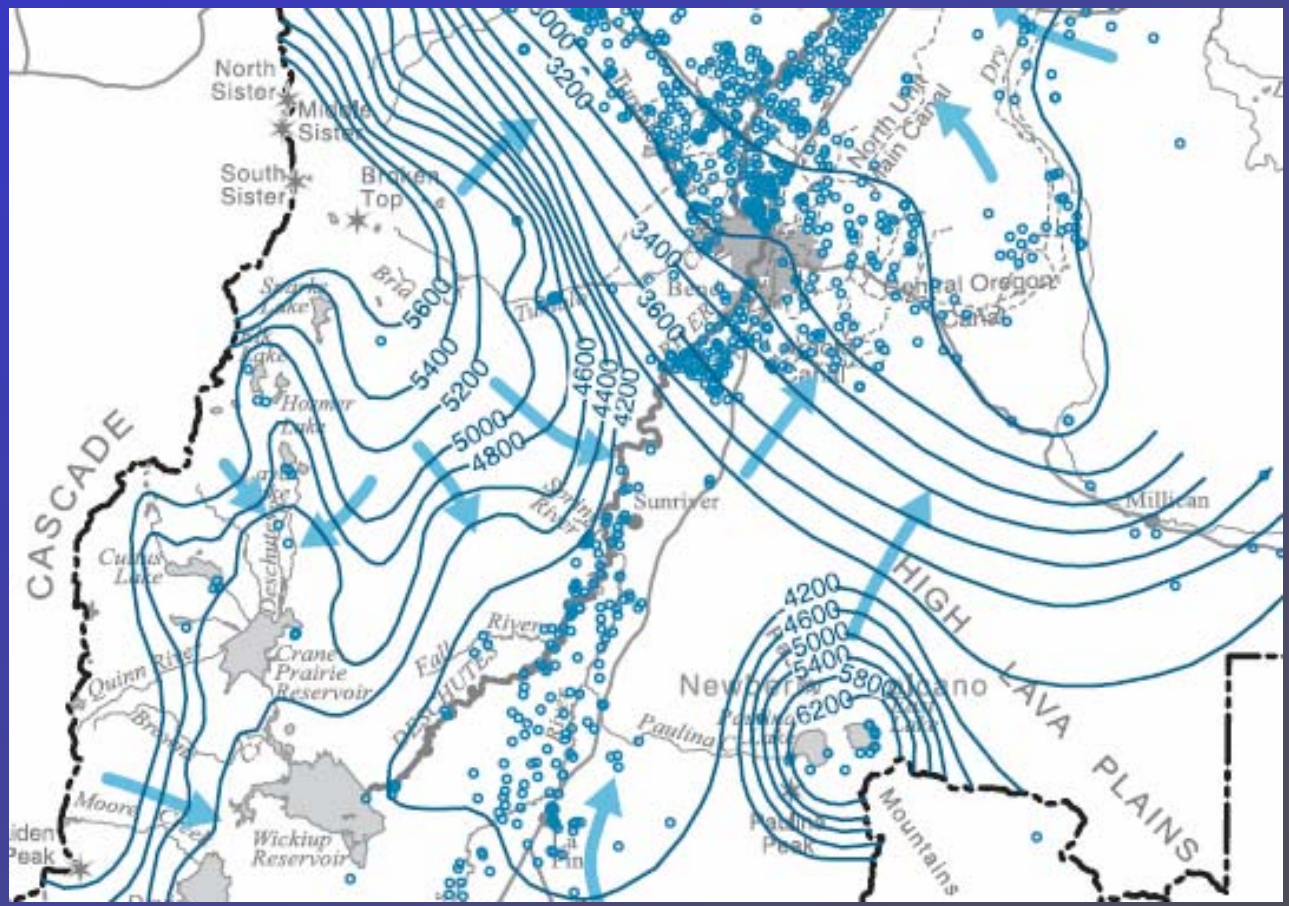


Lite and Gannett, 2002, Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon, USGS



Sherrod and others, 2002, Hydrogeology of the Upper Deschutes Basin, Oregon.

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Project History

- 1993-94 Inventory Project Report
- 1995 Archive Search Report (ASR)
- 2004 ASR Supplement
- 2005 Preliminary Assessment/Site Inspection (Weston for USEPA)
  - 28 samples
  - Explosives--not detected
  - Metals—some “significant” or “elevated”

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U. S. COAST GUARD PHOTOGRAPH

AMPHIBIOUS LANDING BEACH, TINIAN 1944, H +5 HOURS

Note survey party on left beginning transit and stadia traverse from an assumed position.

NOAA Photo Library website

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7 Areas of Concern (AOCs)

- Range Complex No. 1 (small arms ranges)
- Explosive Munitions Ranges
  - Anti-Tank Range
  - Demolition Area
  - Mortar Range
- Grenade Courts
- Burial Pit
- Chemical Training Area

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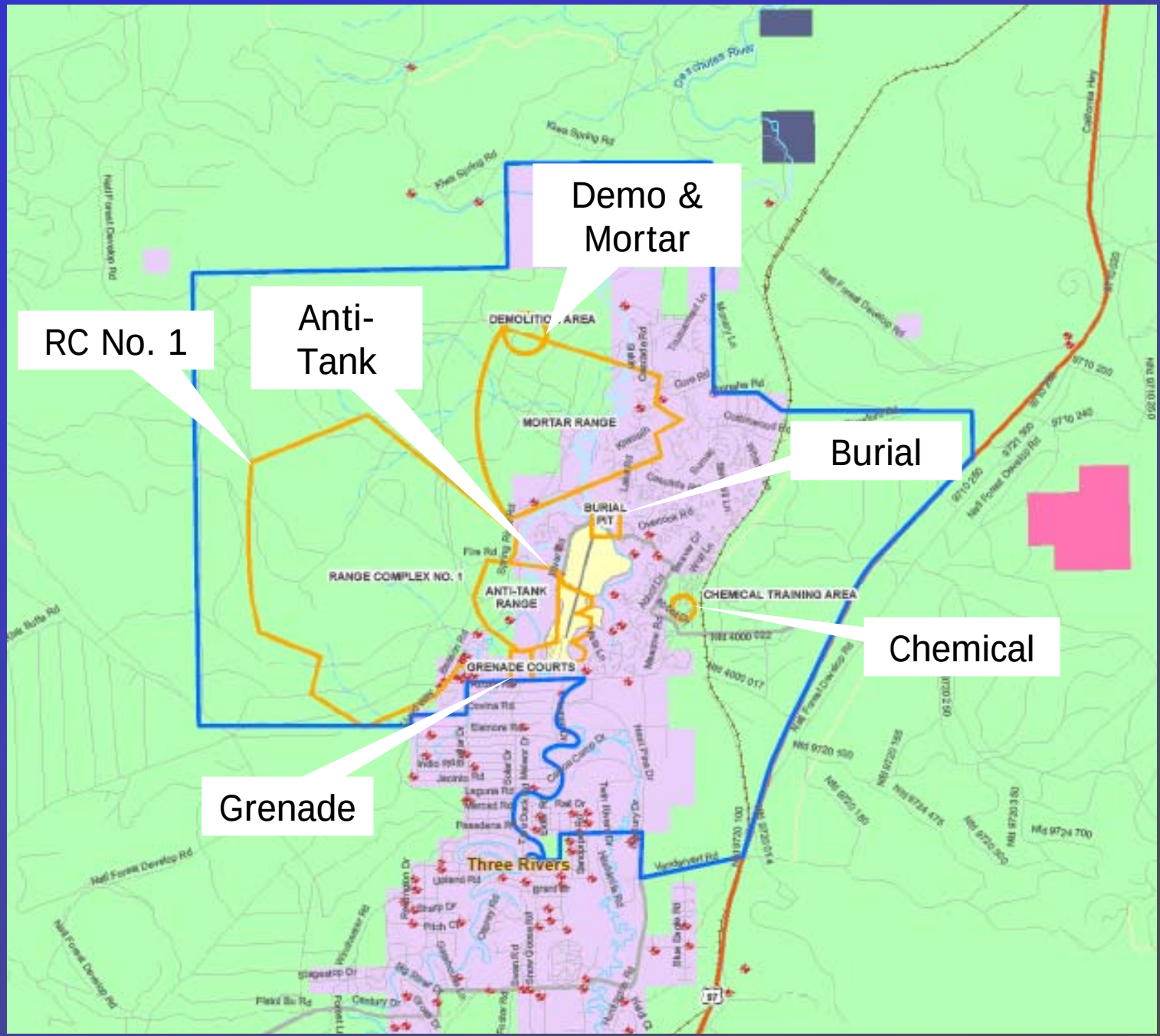

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Encounters with Munitions

- Grenade spoons, 2004 & 1995
- 2.36” rocket
  - 1988
  - USFS employee kicked out of ground
  - Forest Rd 40 1-1/2 mi west of Sunriver
- Artillery round
  - West of Sunriver
  - Reported to Sheriff
- 60 & 81mm mortar rounds
  - Cliff near Cardinal Landing Bridge
- Rockets, bullets, grenades
  - Reportedly found by youths

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Potentially Affected Media

- Soil
- Surface water & sediment
- Groundwater

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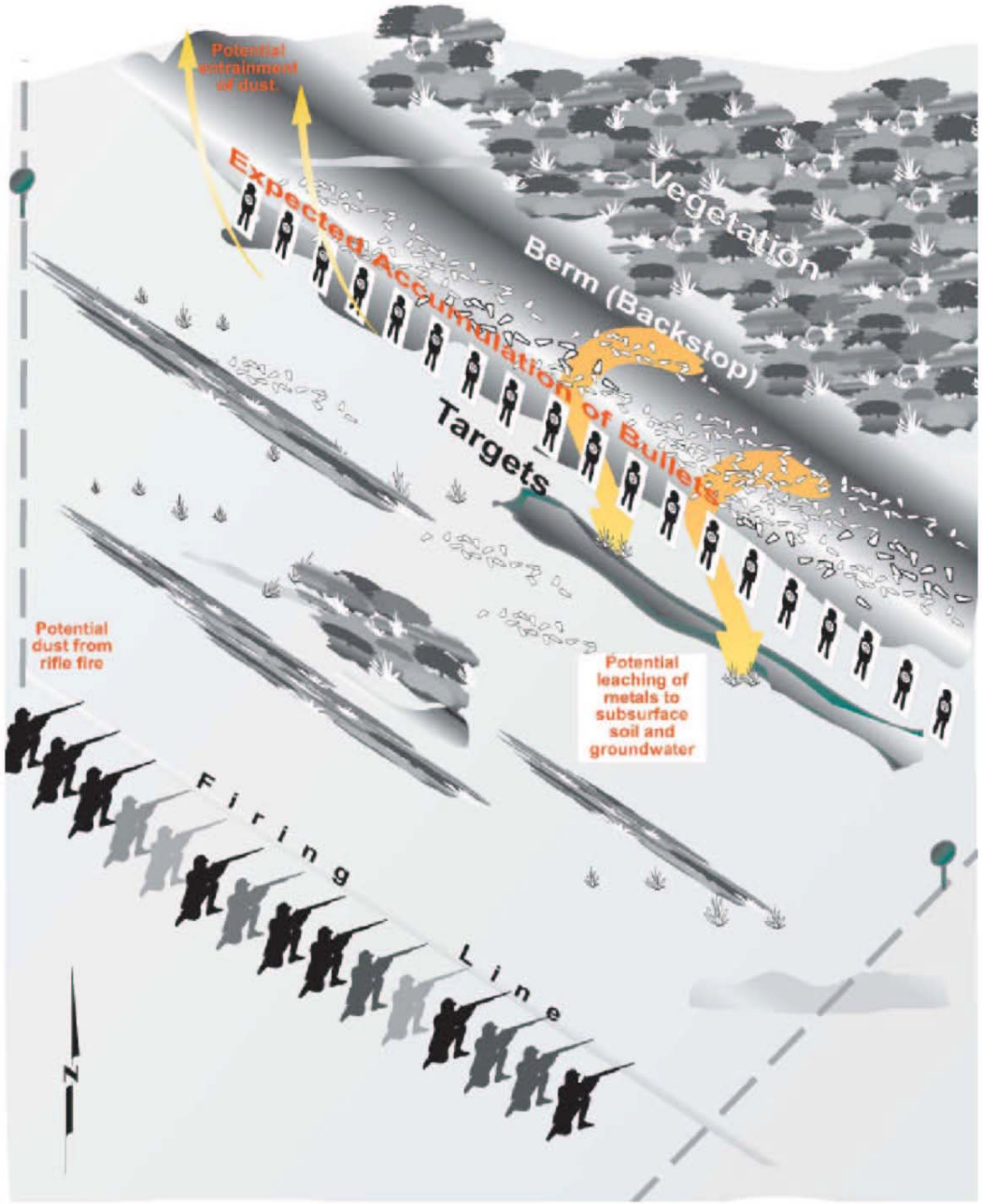
Conceptual Site Model- Small Arms Ranges

- Non-explosive projectiles (lead)
- Black powder propellant



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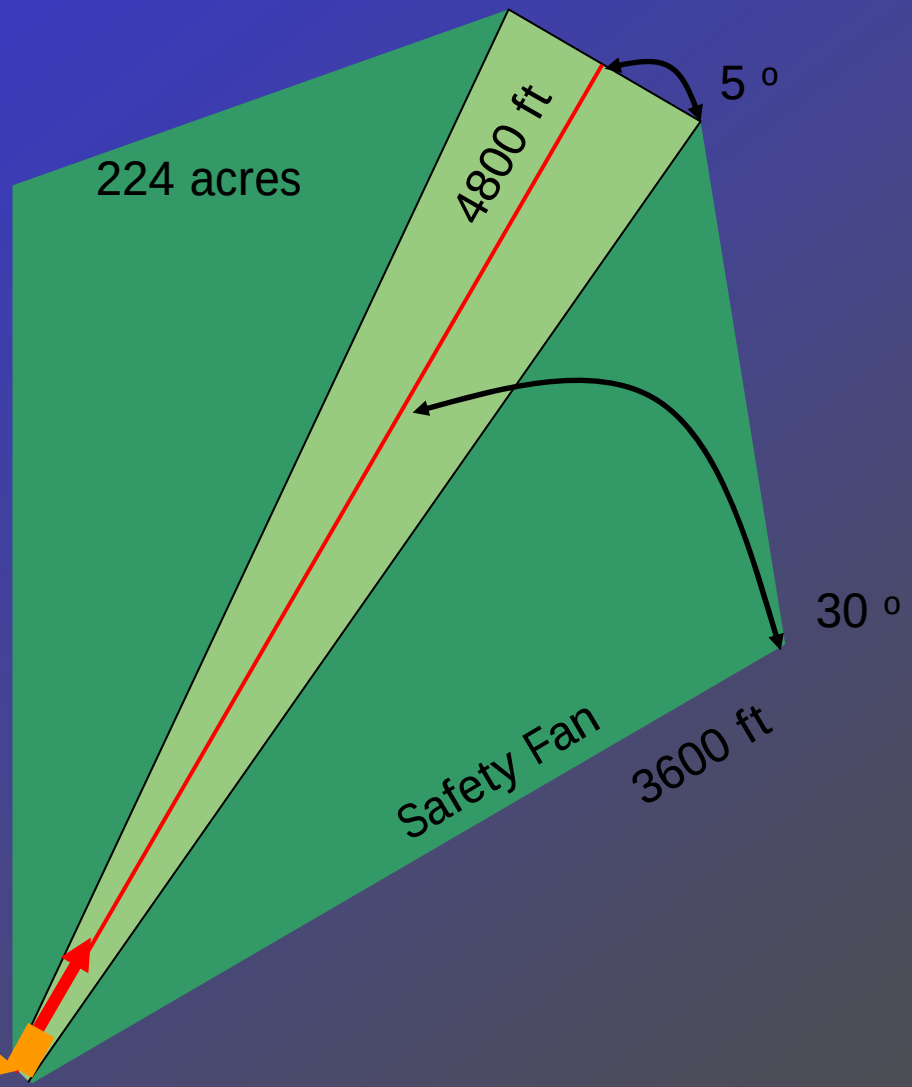
Conceptual Site Model- Range Fan



Active Area
90 x 150 ft
with
Firing Line &
Backstop Berm

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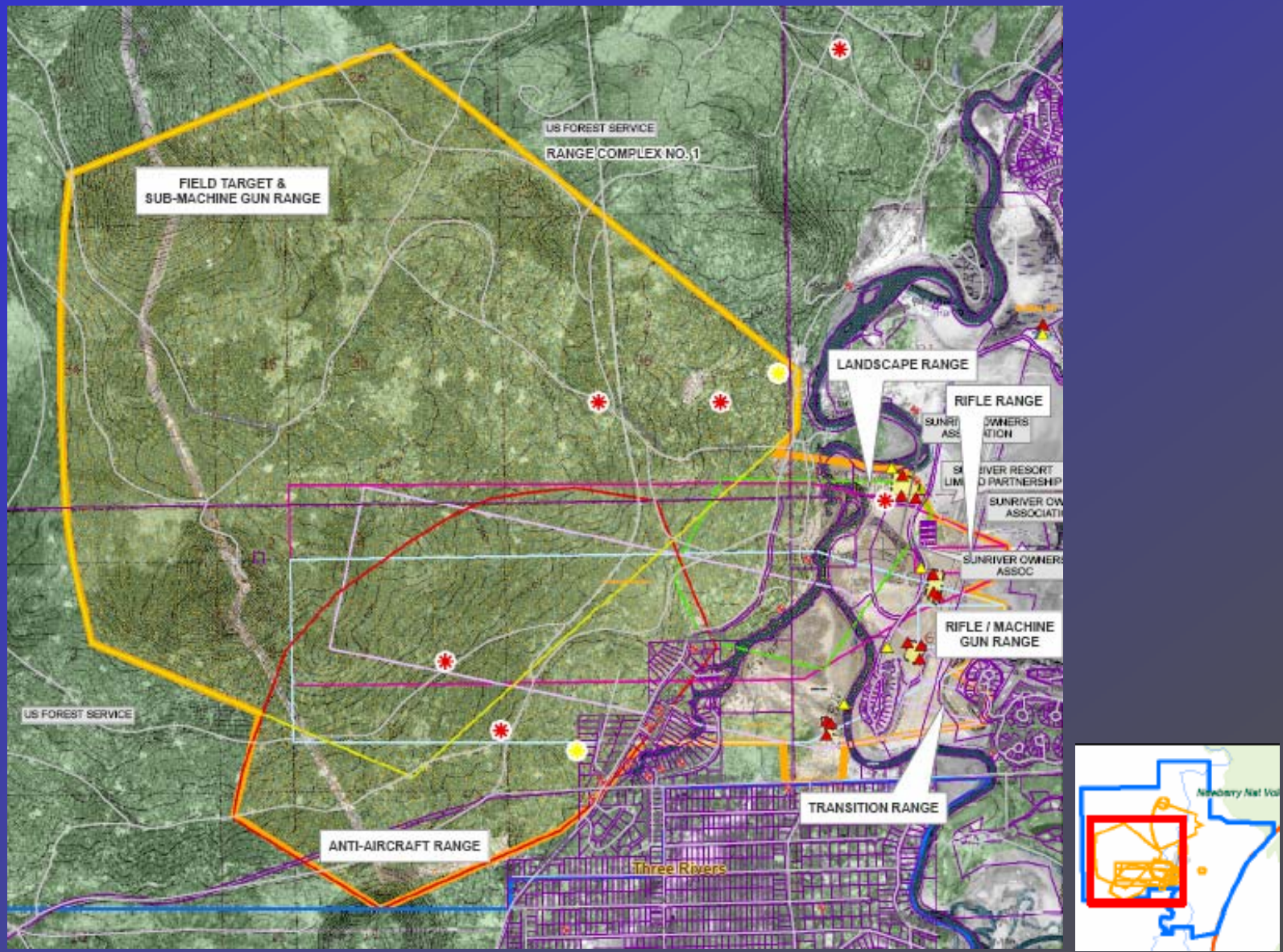
Range Complex No. 1



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Conceptual Site Model- Explosive Munitions Ranges

- Explosive projectiles and propellant
- Metals

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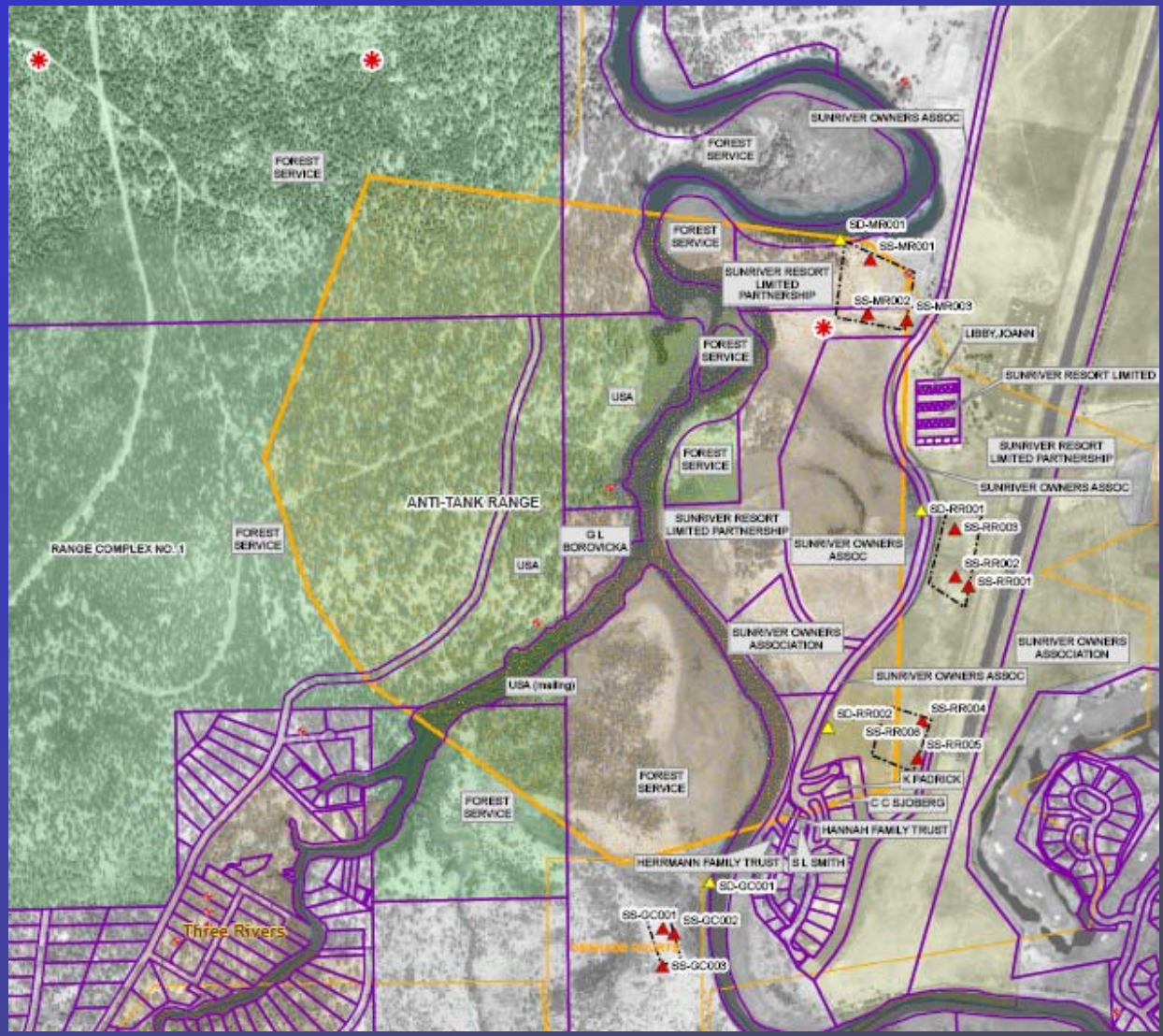
Anti-Tank Range



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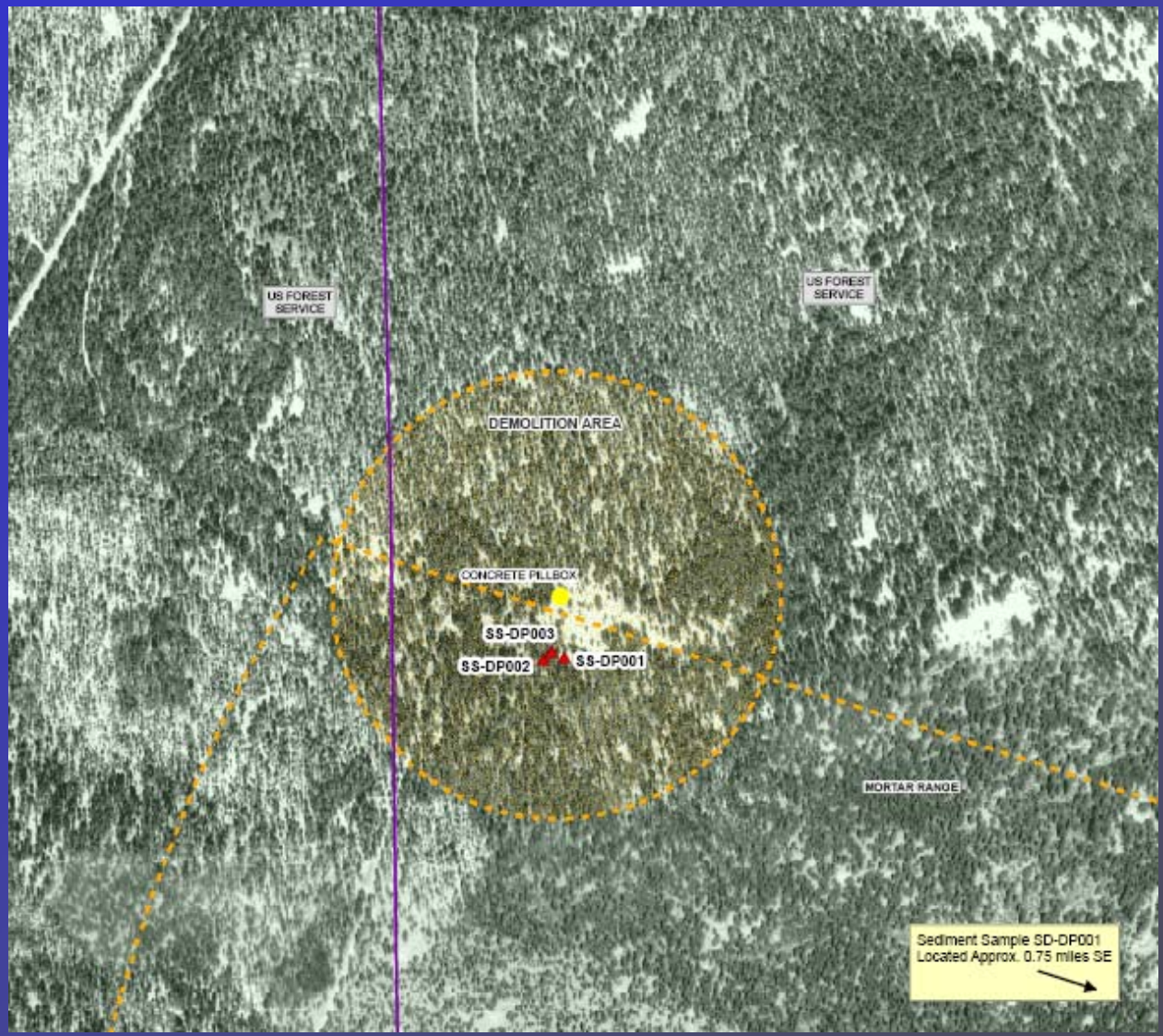
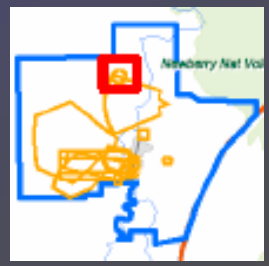
Demolition Area





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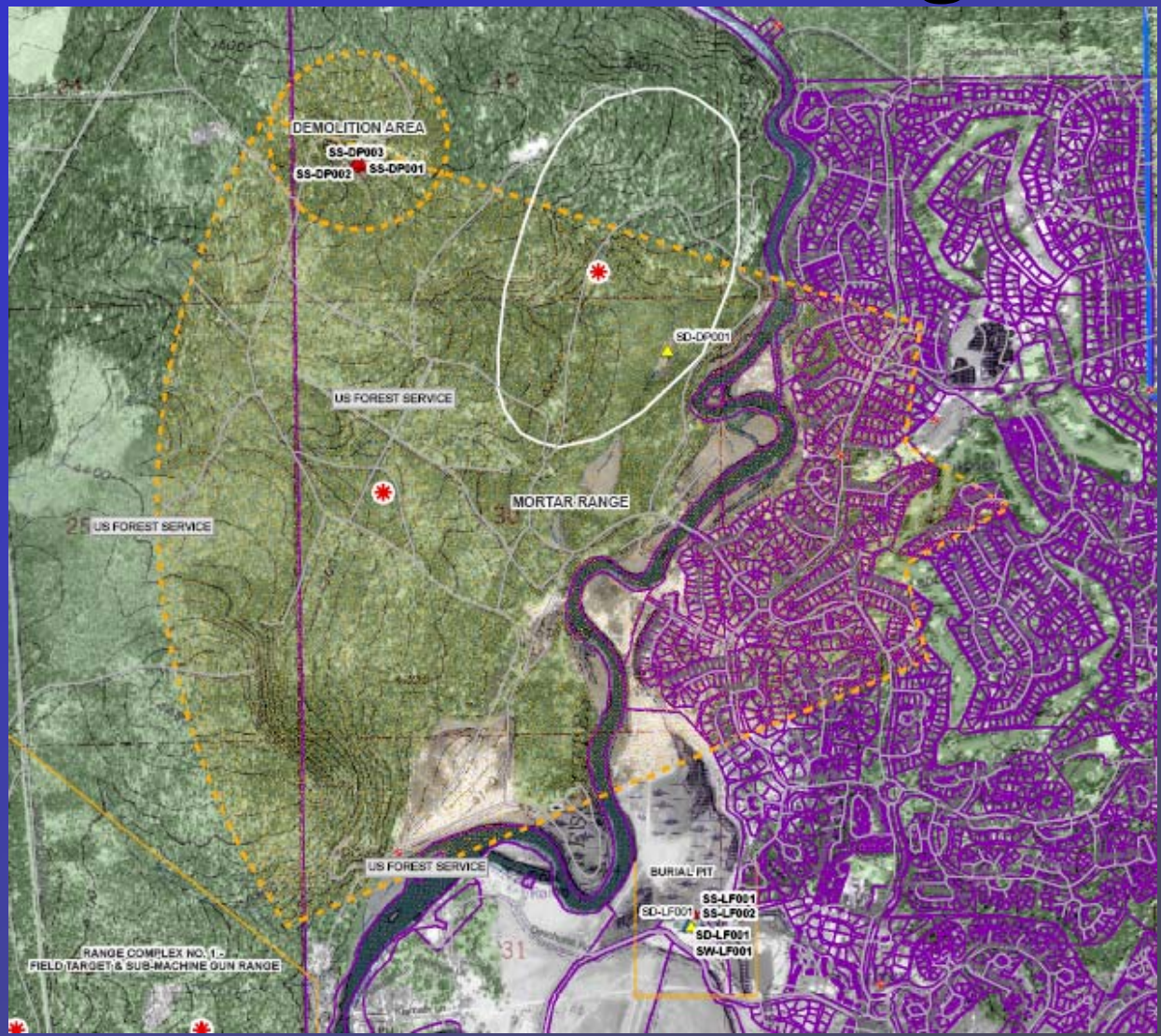
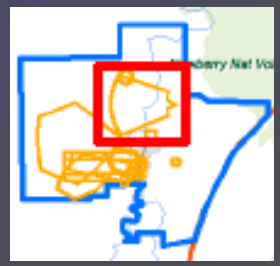
Mortar Range





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Multi-Use Range

- Camp Abbot newspaper, 12 Feb 1944
- “New assault and demolitions course”
- “Incorporates many problems of actual warfare, including barbed wire entanglements and machine gun fire”
- Tank directs simulated fire at machine gun nests & pill boxes (set charges)
- A demolitions squad uses Bangalore torpedoes to clear barbed wire
- Flame-thrower crew “running the distance and taking full advantage of cover and shell holes, to burn what remains of the ‘enemy’ from its positions”
- Demo squad “setting charges which complete destruction of the fortifications.”

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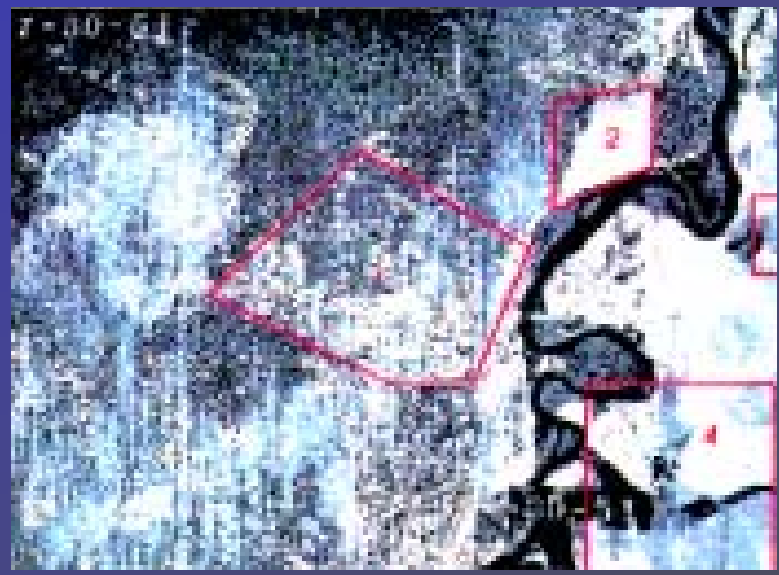
Multi-Use Ranges

www.globalsecurity.org



Field Firing/Transition Range

ASR, Plate RP-6

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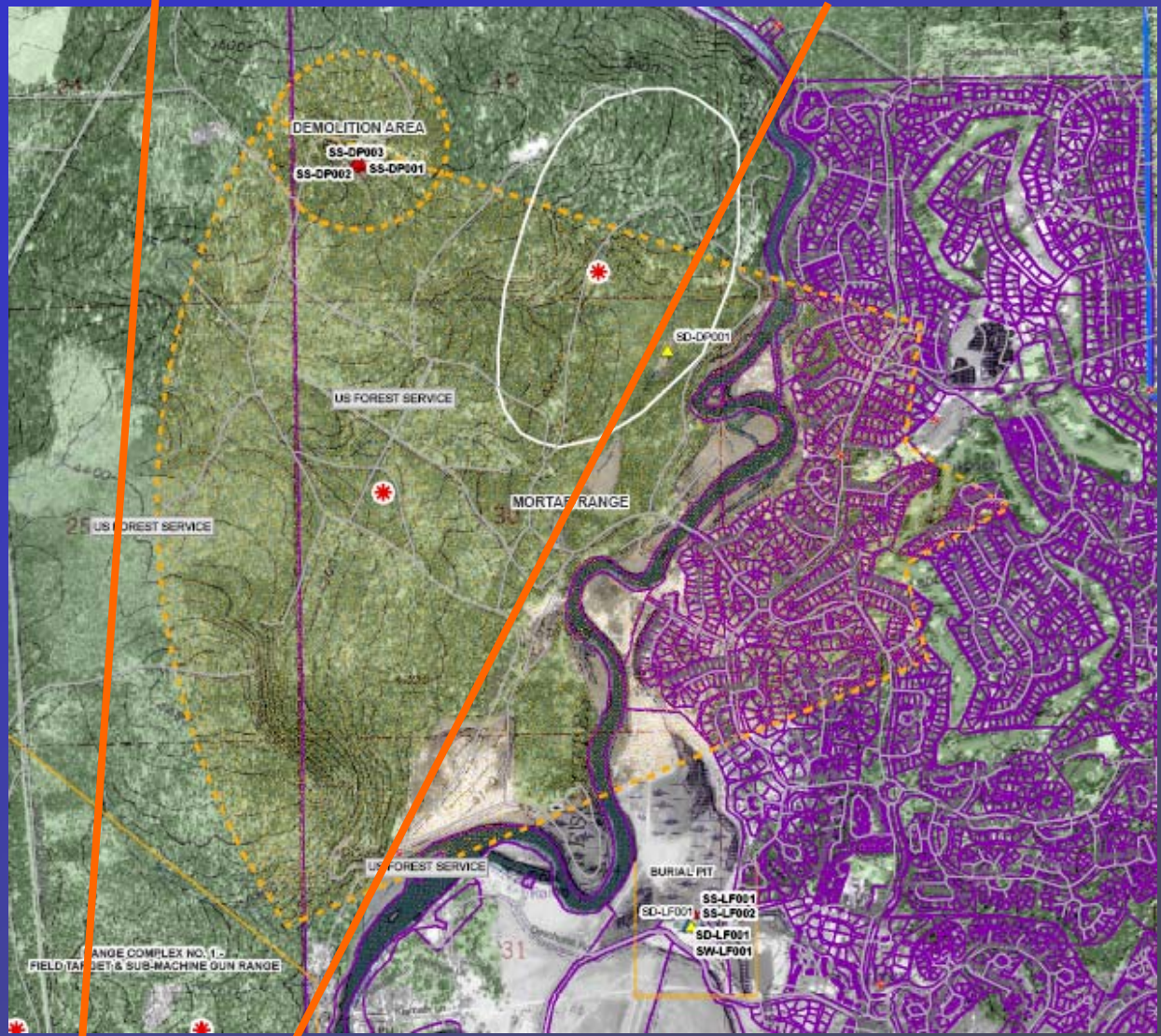
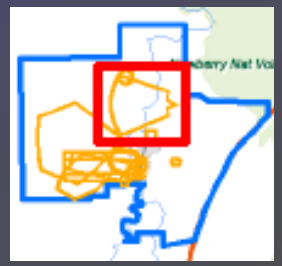
Combined Range Complex?





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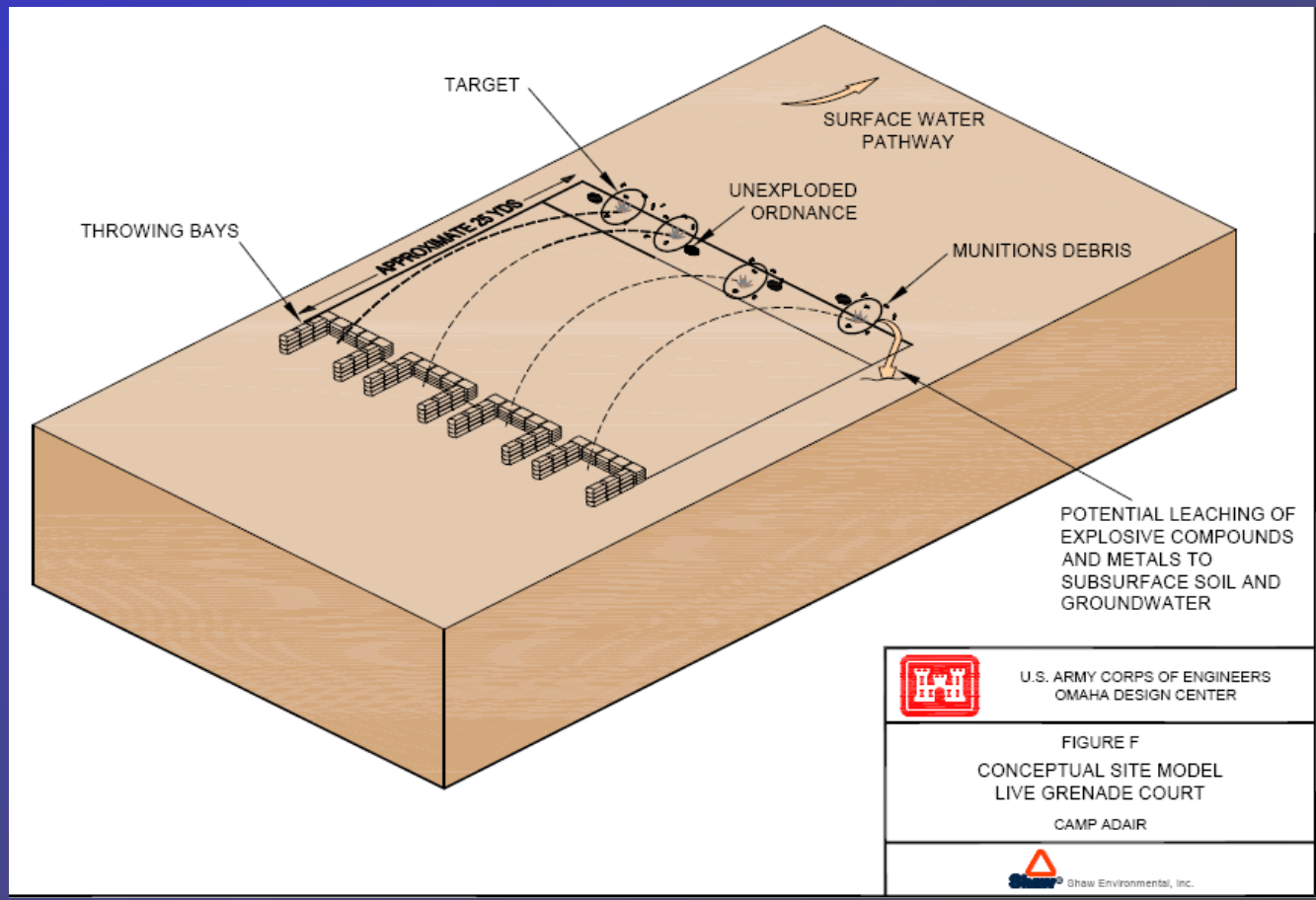
Conceptual Site Model- Grenade Courts

- Explosives
- Metals



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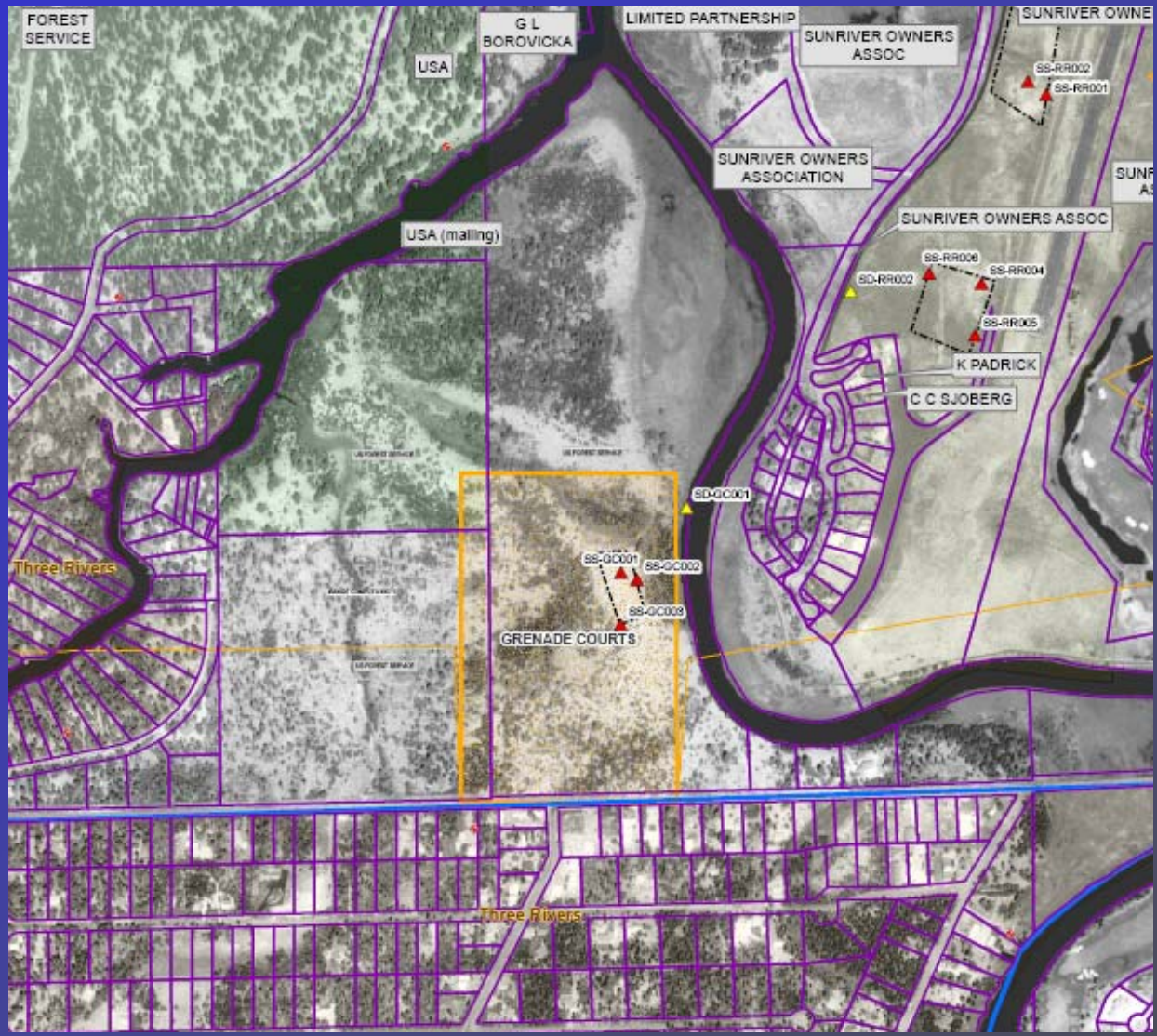
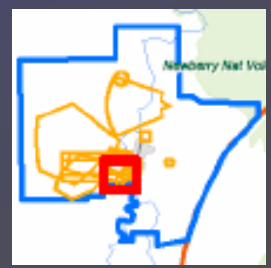
Grenade Courts





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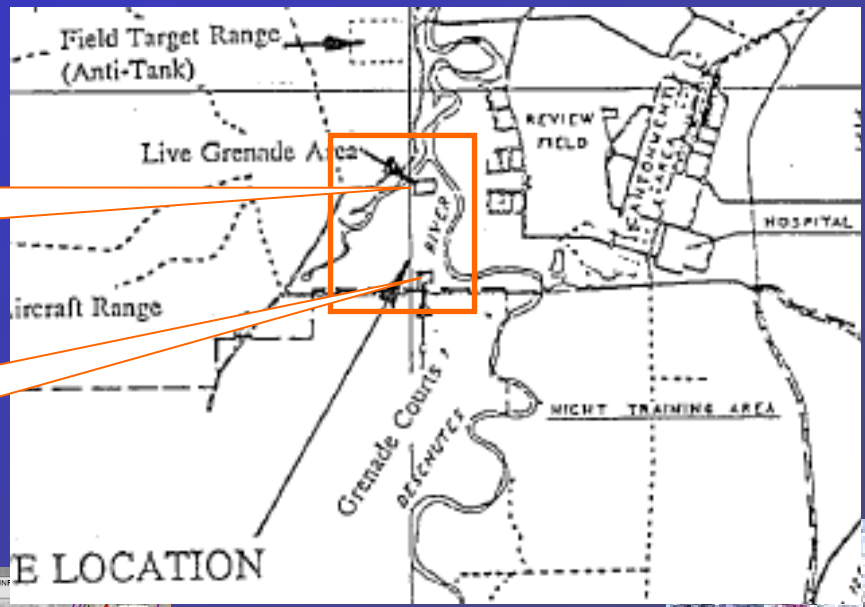
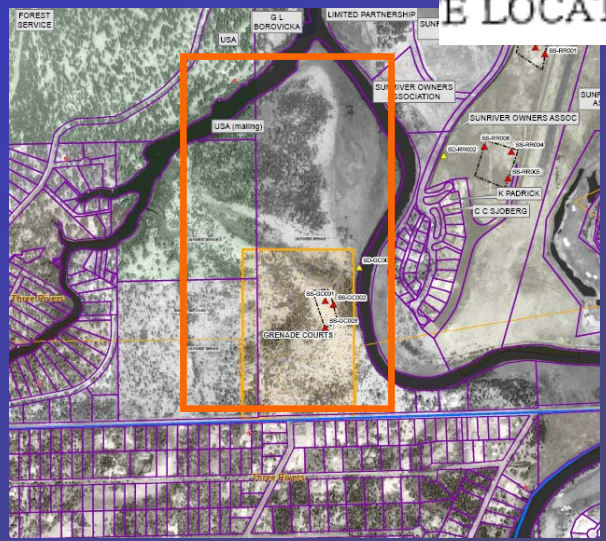
Grenade Courts

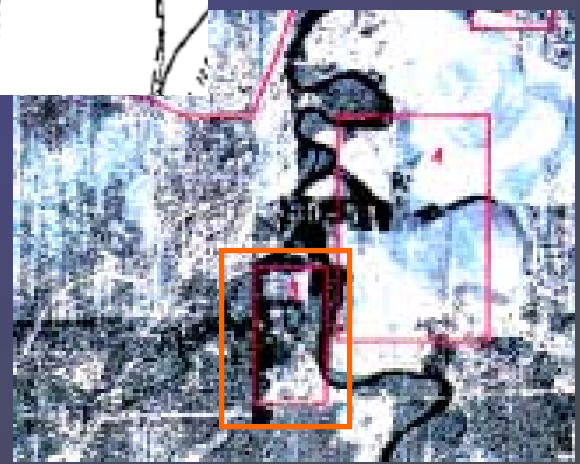
Live Grenade

Grenade Courts





ASR



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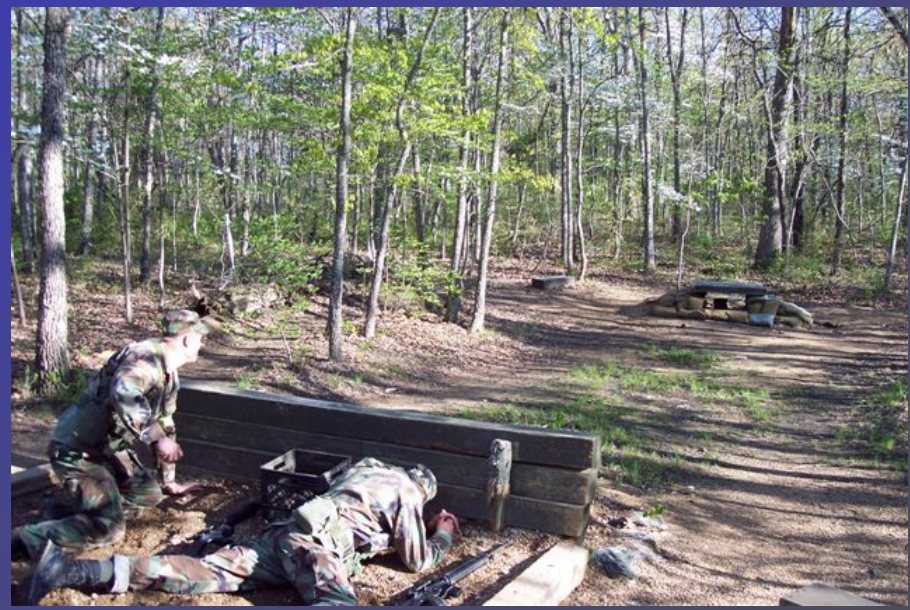
Grenade Courts

- Throwing bays or trench
  - Sandbags
  - Concrete
- Targets at 25 yards
  - Circle outline
  - Crater
  - Foxhole
- 5-foot high ready line barrier, 15 yards behind throwing area
- Grenade spoons found



Fort Leonard Wood 577th Engineer Battalion website

http://www.wood.army.mil/577th/

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Conceptual Site Model- Burial Pit

- Within landfill area
- Horseshoe shaped area, bermed and ringed with stone
- “Local inhabitants indicate both OE and CWM contamination may be buried in the old landfill”
- Use of chemical agents at Camp Abbot was very limited
- Need to confirm location of suspected pit
- Potential munitions, explosives, metals

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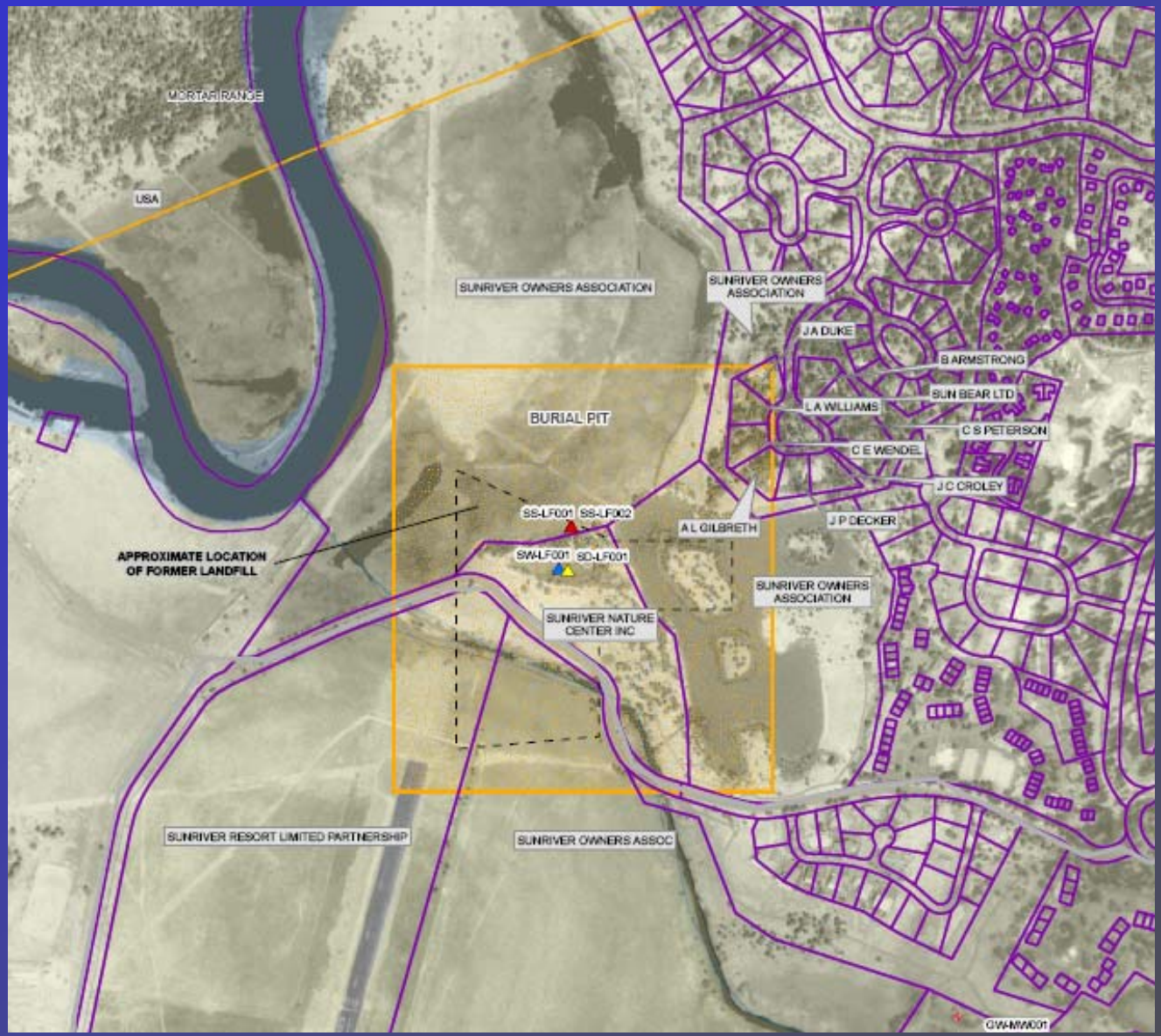
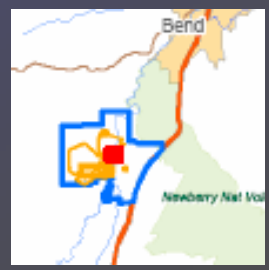
Burial Pit





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Conceptual Site Model- Chemical Training Area

- Gas chamber (gas mask training)
- Indoor sniff sets for odor identification
- Adjacent to cantonment
- Close to camp hospital
- Outdoor use would not be done here
- Limited quantities

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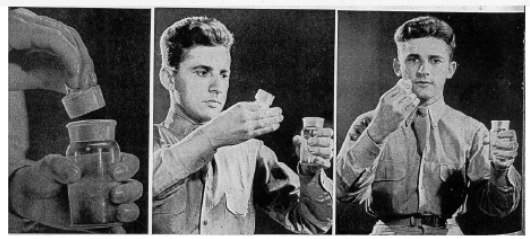
Chemical Training Area

- Specialist training
  - 34 hours
  - 30 officers & noncoms
- Repair of gas masks
- Protective measures
- Offensive use
- First aid measures
- Knowledge and identity of gasses
- Sniff sets – 4 oz bottles, charcoal w/ gas or bit of solid

Instructional gas identification set, M1, showing method of packing.



Use. The set is primarily used for indoor instruction prior to a field exercise with the detonation gas identification set.

- Not general training
- Small quantity
- No release potential

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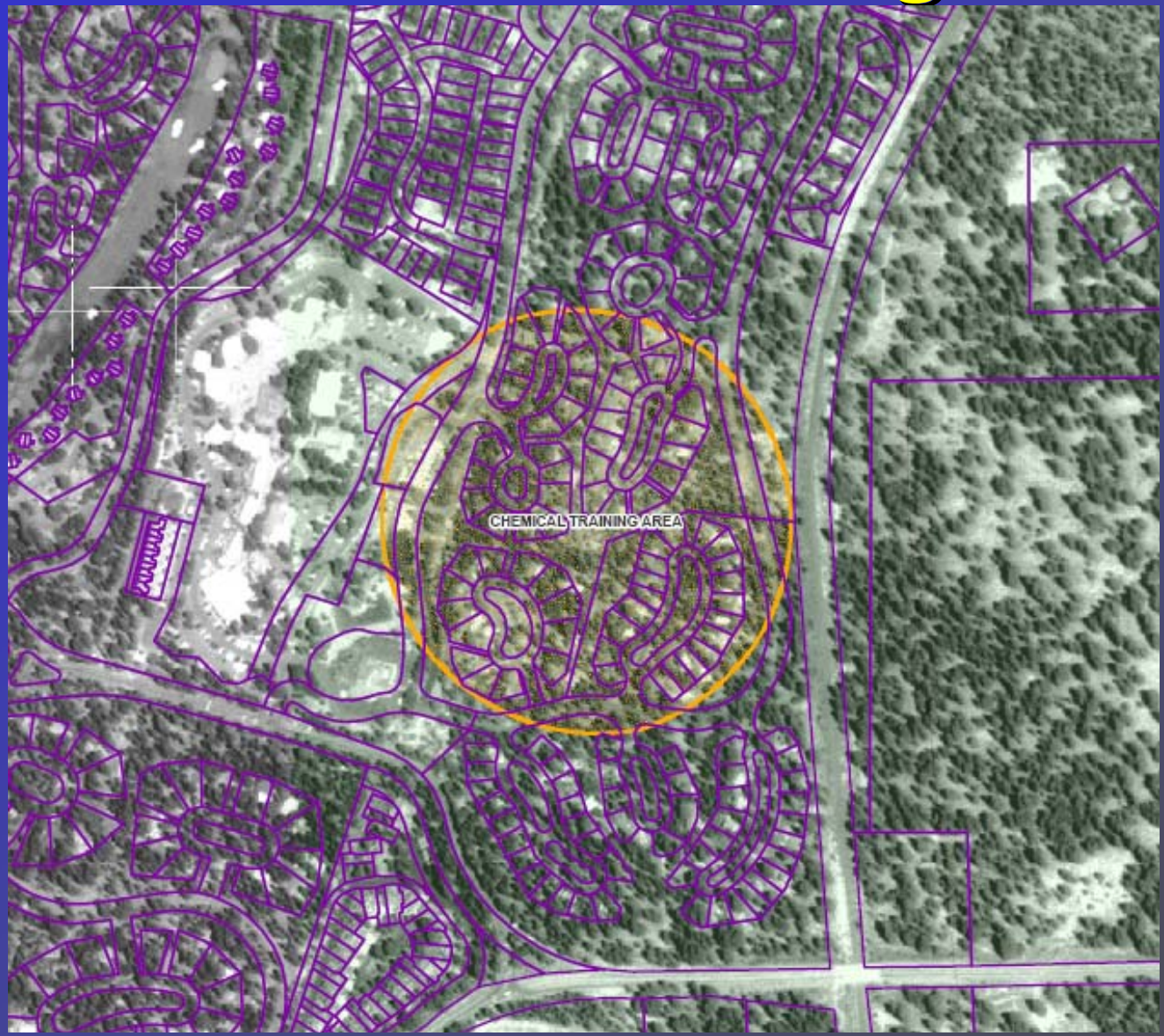
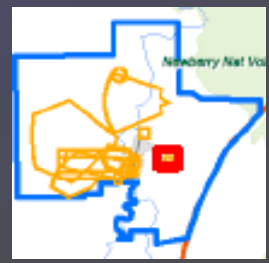
Chemical Training Area





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Data Gaps

AOC	Presence or Absence of MEC	Presence or Absence of MC	Proposed Inspection Activities
Range Complex No. 1	Unknown	Metals Present	Reconnaissance for MEC & sample location. Soil & sediment sampling.
Anti-Tank Range	Present	Unknown	Reconnaissance for sample location. Soil sampling.
Demolition Area	Present (range overlap)	Metals Present	None.
Mortar Range	Present	Unknown	Reconnaissance for sample location. Soil sampling.
Grenade Courts	Unknown	Unknown	Reconnaissance for MEC & sample location. Potential soil & sediment sampling
Burial Pit	Unknown	Metals Present (landfill)	Reconnaissance for MEC & sample location. Potential soil & sediment sampling.
Chemical Training Area	Absent (historical)	Absent (historical)	None

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Issues

- Analytical parameters & methods
- Screening values
  - Human health
  - Ecological
- Background concentrations for metals
  - Existing data
  - New sampling
- Surface water & groundwater pathways
- Threatened/endangered species
- History/culture/architecture

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Field Investigation

- Reconnaissance
  - Methods
    - Visual
    - Magnetometer
  - Objectives
    - Avoid UXO
    - Select samples
    - Munitions eval
- Sampling
  - Shallow Soils
  - Surface water/sediment
  - Groundwater (existing wells)

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Sampling Plan

AOC	Number	Media to be Sampled		Contaminants of Concern				
		Soil	Sedmnt	Lead*		TAL Metals		Explosives
				Soil/ Sed	TCLP	Soil/ Sed	TCLP	Soil/Sed
R. C. No. 1	6	4	2	6	TBD	--	--	--
Anti-Tank Range	1	1	--	--	--	1	TBD	1
Demolition Area	0	--	--	--	--	--	TBD	--
Mortar Range	2	2	--	--	--	2	TBD	2
Grenade Courts	2	1	1	--	--	2	TBD	2
Burial Pit	3	2	1	--	--	3	TBD	3
Chemical Training Area	0	--	--	--	--	--	--	--
	14	10	4	6	0	8	0	8

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Sunriver Resort website