DEPARTMENT OF ECOLOGY

Toxics Cleanup Program

DATE: August 2017

TO: Camp Bonneville RAU 3 File

FROM: Ben Amoah-Forson

SUBJECT: Proposed Changes to the 2010 Cleanup Action Plan for Remedial Action Unit 3, Site Wide Munitions Contamination

This memo presents proposed changes to recommended cleanup actions for the Central Impact Target Area (CITA– Target) Area, as described in section 4.3.5 of the Cleanup Action Plan (CAP) for site-wide munitions contamination, Remedial Action Unit (RAU) 3. These changes will amend the 2010 cleanup action plan for RAU 3.

CITA Background

The Central Impact Target Area (CITA) is the former primary artillery target and surrounding buffer areas at Camp Bonneville. It covers approximately 465 acres in the middle of RAU 3. For the purpose of this cleanup action, the CITA is divided into two areas, the targets themselves (CITA-Targets) area, comprising of 15 targets that cover roughly 10 acres, and the remaining buffer or Non-Target Zone (CITA-NT) encompasses the 455 remaining acres surrounding the targets and is part of the former artillery and mortar Range Safety Fans. As such, the CITA-NT has ordnance-related characteristics common to both Target Area and Range Safety Fan sites. The CITA-NT was selected for explosive hazard exposure assessment due to its remote location and its varied munitions of explosive concern (MEC) exposure characteristics, suggesting that this area may require a unique risk management strategy. The two areas are managed separately. The entire CITA (both Targets and NT) is wholly fenced with a five-strand barbed wire fence encircling the area. Additionally, signage warning of the potential danger to trespassers is in place around the CITA at 50-ft intervals.

CITA-Targets

The CITA-Targets area comprises of 15 targets (old vehicles and appliances) (**Figure 4.2 and page 26 section 4.2 in 2010 RAU 3 CAP**). This area is unique in that all six mortar and nine artillery firing positions could each fire at the various CITA-Targets. Four MEC items were recovered during the site characterization in 1998 and included one 2.36 in. HE rocket and three 105 mm HE-filled artillery rounds. During the site reconnaissance in 2001, one additional 105 mm artillery round was identified. An additional 155-mm projectile was discovered in May 2007during the Roads and Trails Interim Action. All these items were found on the surface.

The high likelihood of MEC combined with the very limited number of potential receptors in the area, results in an explosive hazards exposure assessment ranking of Rank B for each of the targets in the CITA-Targets. Summary of explosive hazards exposure characteristics associated with the CITA-Targets is presented in Table 4.4.

Cleanup Actions Recommended in the Final 2010 RAU 3 CAP

The existing recommended cleanup actions for CITA – Target Area include the following:

1. Removal of the 15 hard-targets.
2. Vegetation removal, surface and subsurface MEC removal to a frost depth of 14-inches of an area 200 x 200ft centered on the location of each hard-target, which amount to approximately 10 acres.
3. Step-Out procedure, as described in section 4.9 of the RAU 3 CAP applies.
4. Institutional controls including engineering controls signage to inform the public about this area's past usage, fencing to restrict access, and land use controls (restrictive deed covenants) to prohibit any future development and/or forestry and intrusive activities at this site.

Proposed Changes to Above Cleanup Actions

1. Removal of the 15 hard-targets (no change to 2010 RAU 3 CAP).
2. Vegetation removal and surface MEC clearance of 100-120 acre polygon that encompasses the 15 hard-target areas and previous MEC finding areas (amends 2010 RAU 3 CAP).
3. Step-Out procedure, as described in section 4.9 of the 2010 RAU 3 CAP applies (no change to 2010 RAU 3 CAP).
4. Institutional controls to include annual surface MEC inspection and surface MEC inspection after heavy rain storms to minimize potential risks from frost heave (Amends 2010 RAU 3 CAP, page 17, section 3).
5. Institutional controls including engineering controls signage to inform the public about this area's past usage, fencing to restrict access, and land use controls (restrictive deed covenants) to prohibit any future development and/or forestry and intrusive activities at this site (no change to 2010 RAU 3 CAP).

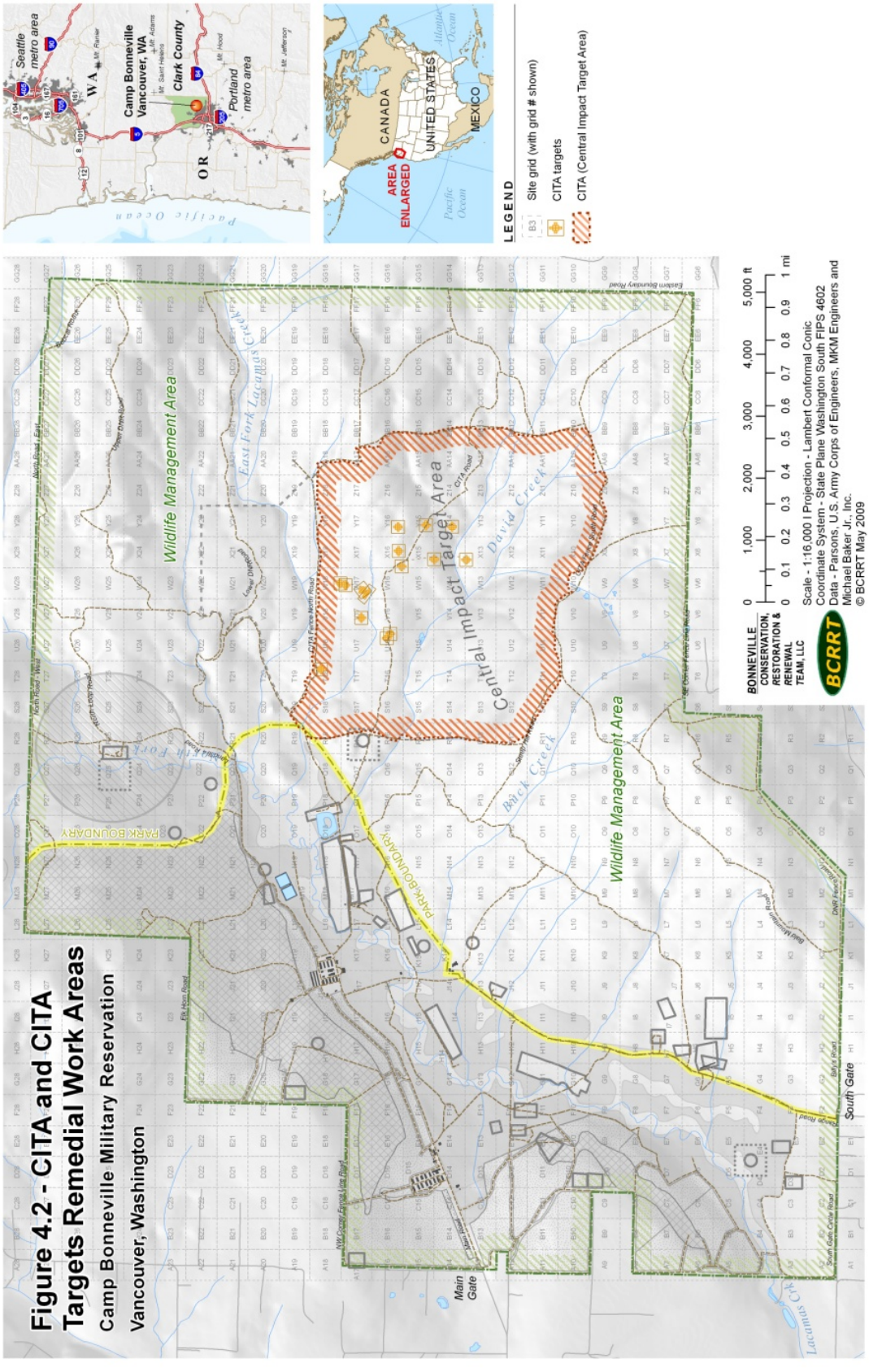
Figure 4.2 - CITA and CITA Targets Remedial Work Areas
Camp Bonneville Military Reservation
Vancouver, Washington
Seattle metro area
WA
Camp Bonneville Vancouver, WA
Clark County
Portland metro area
OR
Pacific Ocean
CANADA
UNITED STATES
MEXICO
AREA ENLARGED
LEGEND
Site grid (with grid # shown)
CITA targets
CITA (Central Impact Target Area)
Central Impact Target Area
Wildlife Management Area
Wildlife Management Area
East Fork Lacamas Creek
David Creek
Back Creek
PARK BOUNDARY
Main Gate
South Gate
BONNEVILLE CONSERVATION, RESTORATION & RENEWAL TEAM, LLC
BCRRT
Scale - 1:16,000 I Projection - Lambert Conformal Conic
Coordinate System - State Plane Washington South FIPS 4602
Data - Parsons, U.S. Army Corps of Engineers, MKM Engineers and Michael Baker Jr, Inc.
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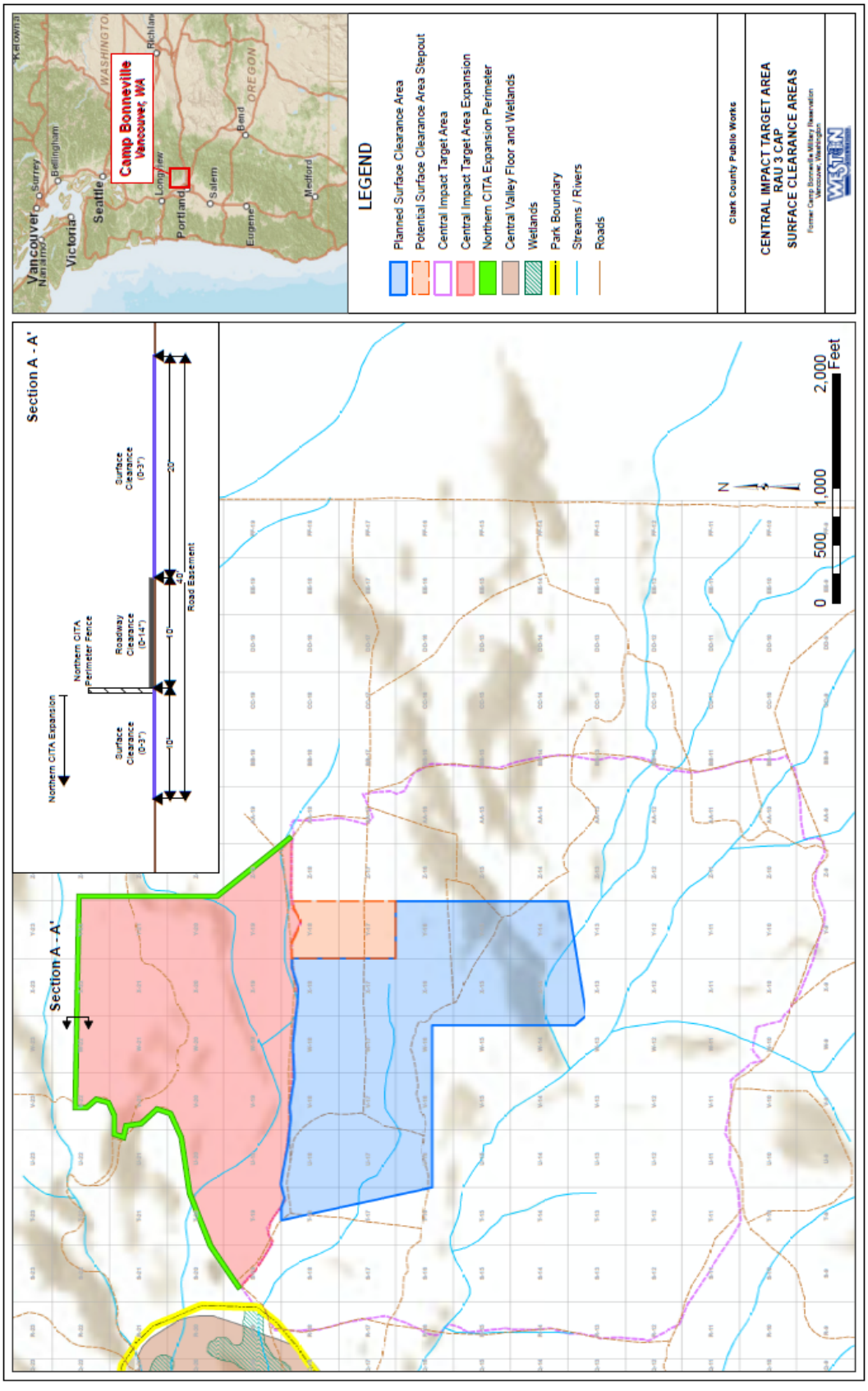
Camp Bonneville
Vancouver, WA
Vancouver
Victoria
Seattle
Portland
Salem
Eugene
Bend
Medford
WASHINGTON
OREGON
LEGEND
Planned Surface Clearance Area
Potential Surface Clearance Area Stepout
Central Impact Target Area
Central Impact Target Area Expansion
Northern CITA Expansion Perimeter
Central Valley Floor and Wetlands
Wetlands
Park Boundary
Streams / Rivers
Roads
Clark County Public Works
CENTRAL IMPACT TARGET AREA
RAU 3 CAP
SURFACE CLEARANCE AREAS
Former Camp Bonneville Military Reservation
Vancouver, Washington
WESTON
Section A - A'
Northern CITA Expansion
Surface Clearance (0-3')
Northern CITA Perimeter Fence
Roadway Clearance (0-14')
Road Easement
20'
10'
0
500
1,000
2,000
Feet
N

TABLE 4.4
SUMMARY OF EXPLOSIVE HAZARDS EXPOSURE CHARACTERISTICS FOR CENTRAL IMPACT TARGET AREA-TARGETS

Site	MEC Source	Receptor Interaction			Explosive Hazards Exposure Rank
	Explosive Relative Risk Ranking	Accessibility	Future Land Reuse	Depth of Activity / Reuse1	B
CITA-Targets	1	Limited to Regional Park Personnel	None	NA / Restricted Access Area	