PRESIDIO OF MONTEREY FIRE DEPARTMENT

FORMER FORT ORD, MONTEREY, CALIFORNIA

DRAFT FINAL

BLM Area B - Units A, B, and C
PRESCRIBED BURN PLAN

July 2017

BLM Area B - Units A, B, and C

PRESCRIBED BURN PLAN

Signature Page

DRAFT FINAL

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This approved plan constitutes authority to use prescribed burn, actions taken by approved personnel, acting within the scope of their authority.

Table of Contents

Table of Contents

Table of Contents

Table of Contents

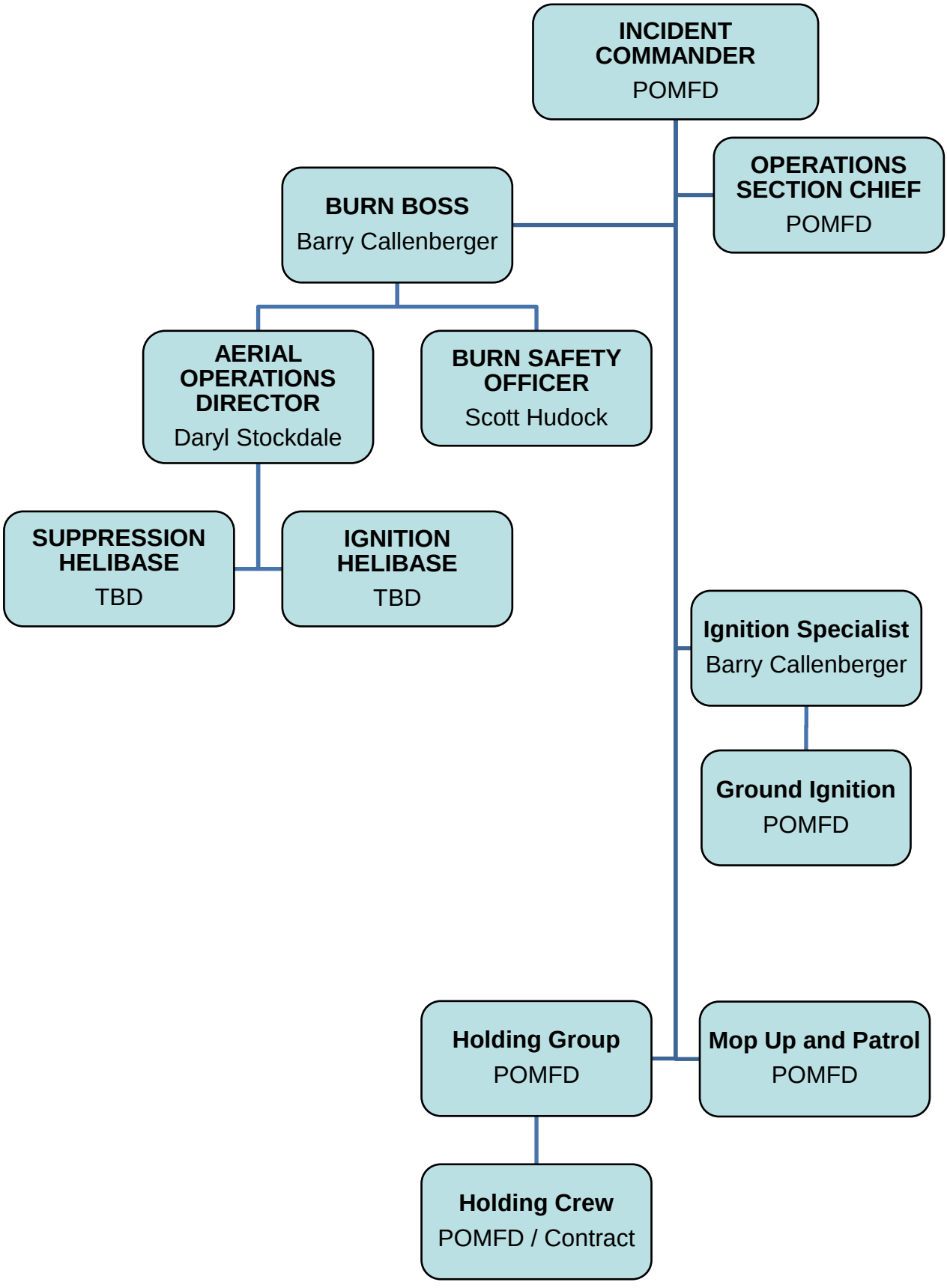
Acronym List

ºF	degree Fahrenheit
ac	acre
BLM	Bureau of Land Management
BO	Biological Opinion
BRAC	Base Realignment and Closure
CARB	California Air Resources Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ch/hr	Chains Per Hour
CHOMP	Community Hospital of the Monterey Peninsula
CMC	Central Maritime Chaparral
CTS	California Tiger Salamander
DES	Directorate of Emergency Services
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
E	East
EMT	Emergency Medical Technician
EPA	Environmental Protection Agency
EZ	Exclusion Zone
FAA	Federal Aviation Administration
F	Fahrenheit
ft	Foot and/or Feet (as applicable)
FOFEM	First Order Fire Effect Model
FO1	Fort Ord RAWS 1 (FO2, FO3, etc.)
HCL	Habitat Checklist
HE	High Explosive
HFD	Hazardous Fragment Distance
HMP	Habitat Management Plan
hr	Hour
IC	Incident Commander
ICS	Incident Command System
ICP	Incident Command Post
JHA	Job Hazard Analysis
LCES	Lookouts, Communications, Escape Routes, Safety Zones
MBARD	Monterey Bay Air Resources District
MCEC	Monterey County Emergency Communications
MEC	Munitions and Explosives of Concern
MFD	Maximum Fragment Distance
MFD-H	Maximum Fragment Distance - Horizontal
MGFD	Munition with the Greatest Fragmentation Distance
mi	Mile or Miles (as applicable)
mm	Millimeter
mph	Miles Per Hour
mps	Meters Per Second
MRA	Munitions Response Area
MRS	Munitions Response Site
MSD	Minimum Separation Distance
MSL	Mean Sea Level
N	North

Acronym List

NE	Northeast
NFDRS	National Fire Danger Rating System
NTE	Not To Exceed
NPS	Naval Postgraduate School
NW	Northwest
NWCG	National Wildfire Coordinating Group
NWS	National Weather Service
OE	Ordnance and Explosives
OESS	Ordnance and Explosives Safety Specialist
PAO	Public Affairs Office
PI	Probability of Ignition
PIO	Public Information Officer
PM	Particulate Matter
POM	Presidio of Monterey
POMFD	Presidio of Monterey Fire Department
POMPD	Presidio of Monterey Police Department
PPE	Personal Protective Equipment
RASS	Radio Acoustic Sounding System
RAWS	Remote Automated Weather Station
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Rx	Prescribed/Prescription
RXB1	Prescribed Burn Boss 1
RXI1	Prescribed Ignition 1
SDS	Safety Data Sheets
SE	Southeast
SMP	Smoke Management Plan
SoDAR	Sonic Detection and Ranging
SPCA	Society for the Prevention of Cruelty to Animals
SSA	Smoke Sensitive Areas
SW	Southwest
T/L	Time Lag
UXO	Unexploded Ordnance
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
WFSA	Wildland Fire Situation Analysis

1 BURN OPERATIONS ORGANIZATION



2 PROJECT BACKGROUND AND SITE DESCRIPTION

2.1 BACKGROUND:

A burn plan is a set of guidelines of intended activities to achieve a desired objective. Actual conditions during the event may result in a dynamic response and could require deviations from the guidelines which are set in this burn plan. The prescribed burn program is a dynamic program. As part of each year's Lessons Learned, methods and processes are refined and the latest applicable technologies are incorporated to improve the efficiency and effectiveness of the program.

The Army previously used areas such as the BLM Area B for a variety of military training activities involving military munitions. As a result of these training activities, portions of the areas are suspected to contain munitions and explosives of concern (MEC) concealed by dense central maritime chaparral (CMC) vegetation. The Army needs to conduct remedial actions to address explosive items that may have been left over from past training activities.

For MEC to be removed, the surface must be cleared of vegetation so that workers can access it safely. Vegetation clearance options were studied and the results are documented in *Draft Final Technical Memorandum - Evaluation of Vegetation Clearance Methods Ordnance and Explosives Remedial Investigation / Feasibility Study (RI/FS), Former Fort Ord, CA* (Harding ESE, 2002). This information was incorporated in *Final, Revision 2, Track 2 Munitions Response Remedial Investigation /Feasibility Study, BLM Area B and Munitions Response Site 16 (MRS-16), Former Fort Ord, California* (Gilbane, 2015).

After considering public comments on the proposed plan, the Army and the U.S. Environmental Protection Agency (EPA) jointly selected the remedy of *Technology-aided Surface MEC Remediation, with Subsurface MEC Remediation in Selected Areas, and Land Use Controls*, which includes the use of prescribed burns to clear vegetation to facilitate the cleanup of MEC. This action is part of the remedy (including prescribed burning as a component of the remedy) that was selected for the BLM Area B under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The selected remedy is described in *Final Record of Decision (ROD), Track 2 BLM Area B and MRS-16, Former Fort Ord, California* (Army, 2017)"

2.2 SITE DESCRIPTION:

BLM Area B, Units A, B, and C are outside the Impact Area MRA, adjacent to the north and east of MRS-16 and north of Parker Flats and Eucalyptus Roads. (Figures 1-2). Unit A is bordered by Watkins Gate Road to the north and west, Hennekens Ranch Road to the east and West Machine Gun Flats Road to the south. Unit B is bordered by West Machine Gun Flats Road to the north, Eucalyptus Road to the south, Little Moab to the east and Watkins Gate Road to the west. Unit C is bordered by Watkins Gate Spur to the northwest, Watkins Gate Road to the northeast and Parker Flats Road to the southwest.

Through coordination with BLM, BLM Area B sub-area B-3 was divided into Units A, B, and C incorporating pre-existing roads and trails to be used for containment lines. The intention was to develop manageable burn units as close to 100 acres as possible, using the existing fuel breaks as the unit boundaries and foundation of the primary containment lines. However, due to terrain, fuel loading, topography, slope, aspect and other fire operation factors, as well as munitions restrictions, vegetation

clearance in portions of BLM Area B sub-area B-3 that are not included in the burn units will be accomplished by manual and mechanical cutting.

The units identified in this burn plan will be prepared for burning in 2017 or later. Units A, B and C will be prepared, in part, by having a primary containment line established around their perimeters by mechanically cutting a buffer around the unit. The width of the primary containment line will be determined by the project United States Army Corps of Engineers (USACE) Ordnance and Explosives Safety Specialist (OESS) as the Minimum Separation Distance (MSD) for ground resource essential personnel. The MSD will be based on type of munitions previously found in the area. The mastication for the primary containment line will not be maintained as a fuel break and will be allowed to recover per the requirements of the 2015 Programmatic Biological Opinion ([BO], United States Fish and Wildlife Service [USFWS] 2015).

As part of the 2013 lessons learned, an additional mastication will be created adjacent to the intended burn units' primary containment line if deemed necessary by the IC. (A list of the 2013 Lessons Learned are included on the following page.) The width of the adjacent mastication is determined by the IC, Burn Boss or the project USACE OESS depending on whether or not technology-aided surface MEC removal has been completed in that area. An additional 150-ft buffer of mastication will be created adjacent to Units A, B and C (Figures 2A and 2B).

To reinforce the secondary containment line and as a wildfire prevention measure the secondary containment line will be increased to 100-ft. The tertiary will be increase to 150-ft on the west and south sides of East Garrison housing development and to 100-ft going south along Barloy Canyon Road to East Machine Gun Flats Road. The 2015 BO describes the areas necessary to be masticated in preparation of the primary containment lines for areas associated with the former Fort Ord cleanup. Any additional mastication of habitat reserve not described in the BO will be considered on a case-by-case basis by BRAC and may require additional concurrence from USFWS.

Based on the type of munitions previously found in the area, the 4.5 inch Barrage Rocket is the Munition with the Greatest Fragmentation Distance (MGFD) as described in *Site-Specific Work-Plan, MEC Remedial Action BLM Area B, Former Fort Ord, California* (Kemron, 2017). For the purpose of prescribed burning, the nonessential personnel exclusion zone (EZ) (based on the Maximum Fragment Distance [MFD]) for these munitions is 1,759-ft from the interior edge of the unit for Units A, B, and C.

The EZ will be established prior to ignition of the prescribed burn and enforced until the area is declared safe by the USACE OESS. A MSD set-back distance of 316-ft from the interior edge of the primary containment line will be used for essential personnel during prescribed burn operations until the area is declared safe by project USACE OESS. The configuration of the EZ for burn operations is subject to the approval of the project USACE OESS. After the burn operations and during MEC operations, site security will be established according to *Site-Specific Work-Plan, MEC Remedial Action BLM Area B, Former Fort Ord, California* (Kemron, 2017).

Lessons Learned from the BLM Units 7 and 10 Burns

OPERATIONAL AND SMOKE MANAGEMENT:

- Assess the preparation activities in relation to mastication fuel loading. Historically, mastication has been very difficult to burn. In 2013, partially due to the depth of the mastication from the heavy fuel loading (vegetation debris) of Units 7 and 10, the mastication burned very well unaided and with longer flame lengths. A couple considerations would be:
  - Investigate removing part of the duff (the layer of organic materials lying on the ground including masticated or cut vegetation material) from the primary containment as brush is masticated.
    - This was considered for 2017 and determined that it was unnecessary due to the fact that the IC determined to enhance the primary containment by creating a blackline through ground firing. Removal of masticated debris could limit the effectiveness of the terra torch operation.
  - Consider increasing mastication areas to include portions of adjacent units.
    - This was considered for the 2017 burn and will be conducted in areas recommended by the Burn Boss and IC (Figure 2).
  - Consider pretreatment of the containment line by burning the mastication simultaneously during active ignition or pretreat the adjacent mastication with water or fire foam.
    - This lesson learned was considered for the 2017 burn and determined that burning the mastication during active ignition would be conducted by POMFD to help prevent spot fires or escapes. In addition, manually burning off of an adjacent area may be considered to assist in the containment of a spot fire.

COMMUNICATIONS/COORDINATION:

- Increase interoperability and functionality of radio systems by transitioning from a combined UHF/VHF system to a dedicated VHF.
  - A new VHF radio system was installed in 2015
- Further increase protection of the habitat by making a stronger effort to brief contingency agencies on habitat precautions.

METEOROLOGICAL:

- Weather forecasting and mobilization determination went well.

2.3 UNIT DETAILS (LOCATION, SIZE AND TOPOGRAPHIC FEATURES):

2.3.1 Unit A

LOCATION: Latitude: 36º 38’ 11” N

Longitude: -121º 45’ 42.8” W

BURN UNIT SIZE (gross): 324 ACRES

BURN UNIT SIZE (net): 215 ACRES (post containment line mastication)

ELEVATION (FEET ABOVE MEAN SEA LEVEL [MSL]):

TOP: 510’

BOTTOM: 320’

SLOPE (%) 30%

ASPECT: Eastern, Southern

2.3.2 Unit B

LOCATION: Latitude: 36º 37’ 43” N

Longitude: -121º 45’ 38” W

BURN UNIT SIZE (gross): 265 ACRES

BURN UNIT SIZE (net): 160 ACRES (post containment line mastication)

ELEVATION (FEET ABOVE MSL):

TOP: 600’

BOTTOM: 410’

SLOPE (%) 60%

ASPECT: All

2.3.3 Unit C

LOCATION: Latitude: 36º 37’ 47” N

Longitude: -121º 46’ 24” W

BURN UNIT SIZE (gross): 143 ACRES

BURN UNIT SIZE (net): 79 ACRES (post containment line mastication)

ELEVATION (FEET ABOVE MSL):

TOP: 500’

BOTTOM: 325’

SLOPE (%) 30%

ASPECT: All

2.4 FUEL CHARACTERISTICS

VEGETATION TYPES:

Vegetation within these units is dominated by CMC, with some areas of coast live oak woodland, grassland, and coastal scrub. Dominant species in the CMC include shaggy-bark manzanita, Monterey ceanothus, and chamise. Toro (Monterey) manzanita is also the dominant species in some areas. Other frequently occurring shrub species include California black sage, California coffee berry, toyon, sticky monkey flower, sandmat manzanita, and Hooker's manzanita. Additionally, several vernal pools and the associated wetlands are present. Vernal pools and wetland areas are distinguished from the surrounding areas by the presence of wetland plant species, such as rushes and sedges. Habitat Management Plan (HMP; USACE, 1997) annual species present on the sites include Monterey gilia (sand gilia), Monterey spineflower, and Contra Costa goldfields. Suitable habitat for Yadon's Piperia and Seaside's bird's-beak is also present; however, these species have not been observed within these units.

There are approximately 732 acres total in Units A, B, and C. The primary containment lines will be established by cutting a minimum 316-ft wide buffer of vegetation around the interior perimeter and additional adjacent widths as indicated by the IC (Figure 2). The adjacent mastication will be 150-ft wide (Figure 2). The trees within the primary and adjacent mastication will have any understory removed and will be limbed and/or have canopy trimmed to a minimum height of 8-ft where possible and safe to do so. Additional tree limbing may be necessary to open up continuous tree canopy that connect the burn area with adjacent areas.

After the primary containment lines are established (by mastication) around the interior perimeter of the burn units, the remaining acreage of live fuel to be burned will be approximately 454 acres (Figure 2). Because these areas include protected habitat and species, the 278 acres of masticated brush within Units A, B, and C will be strategically burned to the best of the fire personnel's ability and where the IC determines that is it safe to do so.

2.4.1 Unit A

Unit A is 324 acres in size. After the primary containment line is established the remaining acreage of live fuel will be 215 acres and 109 acres will be masticated debris. Although, the MSD is 316-ft for Unit A there is no drivable northern perimeter road to anchor the northern primary mastication. Instead of improving BLM's trail 59 to support wildland fire equipment the IC determined to use the existing paved roads on the west and east sides, (Watkins Gate Road and Hennekens Ranch Road, respectively). The area between Trail 59 and Watkins Gate and Hennekens Ranch Road is referred to as "A-N". Because A-N is not part of the burn unit nor is it an area that requires additional MEC removal, A-N is not required to have a 316-ft primary containment line, however the IC determined to have a 175-ft wide buffer cut along the interior perimeter of A-N to assist in fire containment.

Unit A has contiguous fuel dominated by CMC species throughout the site. Unit A's CMC ranges from 0.5-12-ft in height with an average height of 6-ft. Unit A includes 19 acres of grasslands interspersed throughout, 2-acres of oak woodland in the northeast boundary, and three (3) vernal pools (approximately 3 acres total) along Unit A's southern boundary. See Section 2.4.4 for Potential California Tiger Salamander [CTS] Habitat Considerations. There are no known wood structures within Unit A but several former wooden military communication poles exist throughout the southern

boundary. These poles will be removed during burn preparation as they are an aerial obstruction and pose a hazard for aerial equipment.

2.4.2 Unit B

Unit B is 265 acres in size. After the primary containment line is established the remaining acreage of live fuel to be burned will be 160 acres and 105 acres of masticated debris. Unit B consists primarily of CMC. Unit B's CMC ranges from 0.5-8-ft in height with an average of 5-ft. Unit B's vegetation includes 18 acres grassland area and 54 acres of oak woodlands interspersed around the eight (8) vernal pools (4 acres). There are no known wood structures within Unit B but there are also some wooden former military communication line poles which will be removed during burn preparation activities.

The southern portion of Unit B's primary containment line mastication is outside the sub-area B-3 and does not require MEC removal (similar to A-N). The boundary for Unit B was extended to Eucalyptus Road at the request of the fire department for operational and defensive purposes.

2.4.3 Unit C

Unit C is 143 acres in size. After the primary containment line is established the remaining acreage of live fuel to be burned will be 79 acres with 64 acres of masticated debris. Unit C consists primarily of CMC. Unit C's CMC ranges from 0.5-12-ft in height with an average of 7-ft. There are no vernal pools in Unit C nor any known wood structures or former military communication poles.

2.4.4 Additional Mastication

As part of the 2013 Lessons Learned, the Burn Boss and IC recommended masticating a buffer outside the primary containment line in adjacent units.

For 2017 the IC and Burn Boss identified adjacent mastication as follows:

- 150-ft masticated buffer adjacent to the primaries of Units A, B and C (Figure 2).
- 50-ft along the both sides of existing roads identified as secondary containment lines. (Figure 2).
- 100-ft swath along the western and southern boundaries of East Garrison Housing (West Camp and Watkins Gate Roads), and 100-ft on the west side of Barloy Canyon Road from Watkins Gate Road to East Machine Gun Flats Road (Figure 2).

2.4.5 CTS Habitat Considerations

It should be noted that there are 11 vernal pool within Units A and B as identified in Section 2.4.1 and 2.4.2 above. In addition, there are three vernal pools which form one contiguous vernal pool in wet years. This area is part of the Fort Ord National Monument known as Hennekens Lake. A portion of Hennekens Lake lies within the north portion of A-N. The majority of Hennekens Lake lies just east of Hennekens Ranch Road and to the northeast of A-N.

Fort Ord vernal pools are habitats and possible breeding grounds for the CTS. Because of the sensitive status of all vernal pools, fire personnel and cleanup crews will avoid this area to the greatest extent possible. Vernal pools must not be disrupted or have any fire foam or retardant applied within 300-ft of their boundaries (Figure 2). Any vernal pools that lie within a mastication line boundary will be cut during the dry season and only areas determined necessary by the IC and Burn Boss. Vehicles and heavy equipment are to be excluded from the vernal pool areas whenever possible. BRAC will approve

the Habitat Checklists (HCL) prepared ahead of the burn preparatory activities. These HCLs will describe allowed activities and minimization measures to limit disturbance to the natural resources.

FUEL MODEL (SPECIFY SYSTEM):

For Units A, B, and C the fuel model classifications are Shrub 5 and 8 (Standard Fire Behavior Fuel Models 2005). These fuel models are a conservative classification for a "worst-case scenario" escape into other burn units outside of Units A, B, and C and are not the fire behavior expected under orchestrated conditions during a prescribed burn.

FUEL LOADING (TONS/ACRE):

The fuel loading for Units A, B, and C is categorized as mixed chaparral (including 37 acres of grasslands) which calculates to approximately 5 to 11 tons of biomass per acre. This is an estimate based on fuel models.

FUEL DISTRIBUTION (TONS/ACRE BY SIZE CLASS):

UNIT A:

Size Class	Tons/Acre	Acreage
Grass	2.65	19
Shrub	10.1	300
Oak Woodland		2
Vernal Pool		3
Total		**324**

UNIT B:

Size Class	Tons/Acre	Acreage
Grass	2.65	18
Shrub	10.1	189
Oak Woodland		54
Vernal Pool		4
Total		**265**

UNIT C:

Size Class	Tons/Acre	Acreage
Grass	2.65	(minimal)
Shrub	10.1	143
Oak Woodland		(minimal)
Total		**143**

FUEL ARRANGEMENT:

The sites are predominately characterized by CMC vegetation. The fuel is typical CMC with sandy soil or sandstone in areas with openings in the vegetation and grasslands in the low points of the valleys.

FUEL CONTINUITY:

The fuel continuity is primarily contiguous and uniform; however, due to former military training there are a few old roads, trails and/or areas where the vegetation is disturbed causing open areas and grasslands. Unit A has some areas of low fuel characterized by grassland features and vernal pools. Unit A's oak woodland are along the western boundary.

Unit B has a 1.5 acre grassland with some of oak woodland along the southern side of the grassland. The grassland is in a valley framed by one north-south running ridge to the northeast and one east-west running ridge to the south. The remaining acreage of oak woodland run along the southeast, east and northeast boundary.

SURFACE FUEL DEPTH: 0.5 – 12-FT (average – 6-FT)

DUFF DEPTH: 0.1 – 2-in

DESCRIBE VEGETATION UNDER 12-FT TALL (INCLUDE LIVE & DEAD %)

Most of the vegetation in the burn area is less than 12-ft (primarily CMC) with the exception of some large Ceanothus along the northern boundary of Unit A and coast live oaks and/or pine trees in all three units. The live-to-dead ratio is approximately 70% live to 30% dead. The total average fuel bed depth is approximately 2-ft.

DESCRIBE VEGETATION OVER 12-FT TALL:

Based onsite reconnaissance and aerial photograph interpretation Units A, B and C has 56-acres of oak woodland.

3 RESOURCE MANAGEMENT GOALS & OBJECTIVES

For the BLM Area B, Units A, B, and C prescribed burns to be considered successful, the following goals and objectives must be achieved:

GOAL 1: Complete prescribed burn operations with no injuries to prescribed burn personnel or the surrounding communities.

OBJECTIVES:

a) Ensure fire personnel receive adequate safety briefings as well as Personal Protection Equipment (PPE).

b) Provide adequate onsite resources to contain the prescribed burn.

c) Provide adequate site security to ensure that there is no entry by unauthorized personnel into the safety exclusion zone during burn operations.

GOAL 2: Hold the burn within the established containment lines.

OBJECTIVES:

a) Suppress spot fires immediately. Spot fires may be caused by unexpected wind changes and/or incidental MEC detonations.

b) Ensure adequate onsite resources for immediate aerial suppression.

c) Treat perimeter of burn by masticating. The mastication will be burned during the burn season or after as authorized by BRAC project biologist.

GOAL 3: Minimize smoke impacts.

OBJECTIVES:

a) Follow burn prescription or guidance from the project meteorologist and good smoke management practices to avoid direct smoke plume contact with smoke-sensitive areas (SSAs).

b) Apply operational practices to obtain desired consumption, minimize the duration of the burn event and to reduce residual smoldering.

GOAL 4: Clear vegetation to facilitate a safe MEC remedial action for Units A, B, and C.

OBJECTIVE:

a) Reduce vegetation/ground cover by 60% (acceptable) to 90% or greater (desired) to allow an unobstructed view of the ground for MEC remedial action workers.

GOAL 5: Minimize damage to natural resources and to rare, threatened, and endangered species.

OBJECTIVES:

a) Avoid areas containing plant and wildlife species identified by HMP during placement of all access roads, staging areas, and other associated facilities.

b) Use existing roads whenever possible and minimize use of vehicles off roads to the greatest extent practicable.

c) Minimize impacts to listed species by conducting prescribed burns between 1 July – 31 December.

d) To minimize potential impacts to the CTS and because of the sensitive status of all vernal pools, personnel and crews will follow the measures outlined in the HCL. Vehicles and heavy equipment are to be excluded from vernal pool areas to avoid collapsing CTS burrows which are crucial to their breeding grounds and habitat. Fire retardant and fire foam will not be used within 300-ft of any vernal pool unless required to prevent or suppress a wildfire.

4 RANGE OF ACCEPTABLE RESULTS EXPECTED

The primary goal of the BLM Area B, Units A, B, and C prescribed burn is to clear vegetation covering the units so that the MEC can be removed safely. To conduct MEC removal safely, the foliage needs to be consumed to a degree that will allow the ground to be seen. Consumption percent will vary by vegetation, fuel moisture, relative humidity, range and/or burn unit.

Further criteria may be established or existing criteria modified by mutual agreement between the IC and Burn Boss, in coordination with MBARD, following the test burn. Any modification will be agreed to by the POMFD prior to burning.

Suppression of all spot fires outside the Units A, B, and C boundaries should be initiated within three (3) minutes of detection.

5 PROTECTION OF SENSITIVE RESOURCES

5.1 RARE, THREATENED, AND ENDANGERED SPECIES AND CRITICAL HABITAT

The habitat in BLM Area B, Units A, B, and C consist mainly of CMC and occur in federally designated critical habitat for Monterey spineflower. CMC also contains numerous rare, threatened, and endangered species described in the HMP. The following table lists the HMP species known or potentially occurring within the Impact Area MRA.

Species name		Federal or State Listing Status
Monterey Gilia	*tenuiflora ssp. arenaria*	Federally Endangered California Threatened
Monterey Spineflower	*Chorizanthe pungens var. pungens*	Federally Threatened Critical Habitat
Yadon's Piperia	*Piperia Yadonii*	Federally Endangered
Contra Costa goldfields	*Lasthenia conjugens*	Federally Endangered
Seaside Bird's Beak	*Cordylanthus rigidus var. littoralis*	California Endangered
Sandmat Manzanita	*Arctostaphylos pumila*	None
Toro Manzanita	*Arctostaphylos montereyensis*	None
Hooker's Manzanita	*Arctostaphylos h. hokeri*	None
Monterey Ceanothus	*Ceanothus rigidus var. Rigidus*	None
Coast Wallflower	*Erysimum ammophilum*	None
Eastwood's Ericameria (golden bush)	*Ericameria fasciculata*	None
California Tiger Salamander	*Ambystoma californiense*	Federally Threatened
California Black Legless Lizard	*Anniella pulchra nigra*	California Species of Special Concern
California linderiella	*Linderiella occidentalis*	None

The HMP was developed in accordance with a BO issued by USFWS (1993) under the Endangered Species Act to protect threatened and endangered plant and wildlife species during cleanup activities at the former Fort Ord. The following mitigation measures identified in the HMP and/or BO will be implemented during the planning and execution of the prescribed burns:

- The prescribed burns will be conducted between 1 July – 31 December to minimize impacts to special-status species. However, under certain circumstances (low rainfall or early seed setting)

a burn could be considered as early as June or as late as January with the concurrence of the USFWS.

- Baseline habitat monitoring will occur for HMP annual species and shrubs prior to cutting.
- A HCL will be completed that identifies the HMP species present on the site and measures to reduce and/or avoid impacts during the actions.
- Areas containing special-status species and areas of chaparral will be avoided during placement of all access roads, staging areas, and other associated facilities to the extent possible.
- In the event that cutting of a primary containment line(s), up to 316 feet wide, is necessary to ensure containment of a prescribed burn, the cut primary containment line(s) will be burned, if possible, either before, during, or after burn operations to facilitate regeneration of HMP plant species.
- Existing roads will be used whenever possible and driving vehicles off existing roads will be minimized to the greatest extent possible.
- Habitat monitoring will be conducted for effects of chemical fire retardant, gels, and foams on plant communities and in affected wetlands (Note: Fire foams, gels, and retardants that may be used will not contain sodium ferrocyanide) (Collins, 2012).
- Vernal pools must not be disrupted or have any fire foam or retardant applied within 300-ft of their boundaries (Figure 2). Any vernal pool that lie within a containment line boundary can only be cut during the dry season and only areas determined necessary by the IC and Burn Boss. Vehicles and heavy equipment are to be excluded from vernal pool areas.
- The Army will monitor the water quality for five years following deployment if retardant is deployed within 300 feet of vernal pools or ponds.
- The Army will conduct CTS sampling in potential breeding ponds in accordance with the *Wetland Monitoring and Restoration Plan for Munitions and Contaminated Soil Remedial Activities at Former Fort Ord* (Burleson, 2006).

5.2 PRE-IGNITION PROCEDURES

- Cal Fire Hollister Air Attack will be advised of the 2015 BO restrictions to attempt to keep fire foam or retardant from within 300-ft of a vernal pool.
- The Army will coordinate with the local Society for the Prevention of Cruelty to Animals (SPCA) so that, in the event that any wildlife requires aid, the SPCA Wildlife Rescue and Rehab center will be prepared.

6 PROJECT FINANCING:

ESTIMATED COST**: $ TBD**

The estimated cost is for costs related to conducting the burn including costs for POMFD, burn consultants, contract ignition and suppression equipment, water, fuel, etc.

SOURCE OF FUNDING: The BLM Area B, Units A, B, and C prescribed burns will be financed by the U.S. Department of Army. The source of the funding is the Department of Army, BRAC Funding Military Munitions Response Program Budget.

7 PRESCRIBED BURN PRESCRIPTION

7.1 METEOROLOGICAL MONITORING AND BURN DAY DETERMINATION

As the burn season approaches the project meteorologist, Dr. Wendell Nuss, with the NPS, will continuously monitor meteorological conditions for trends that reflect the designated burn prescription for these burn units. The project meteorologist will provide periodic forecasts, increasing in frequency as the burn season approaches. The forecasts will be posted on the following project dedicated website: http://met.nps.edu/~nuss/fort-ord.html along with modeling and profiling links.

If a trend is identified by the project meteorologist as a potential burn window (a meteorological opportunity that meets the burn prescription requirements), the project meteorologist will contact the USACE PM (or designee) who will coordinate a conference call between the project meteorologist, MBARD, California Air Resources Board (CARB) meteorologist, National Weather Service (NWS) meteorologist, POMFD IC, Burn Boss, and Aerial Operations Branch Director. If the meteorologists agree that the upcoming trends favor the prescription being met, subsequent conference calls will take place to continue to monitor the meteorological conditions between the same party, including USACE, contractor, and other applicable parties. If the meteorological parameters continue to align the POMFD IC, and Burn Boss will determine if all other factors are in line in order to suggest a full mobilization.

7.2 PRESCRIPTION PARAMETERS

The following prescription is built on the premise that the "Hot" side of the prescription is the limit for one side of the prescription matrix and the "Cold" side of the prescription is the other limit to the prescription matrix. These prescription parameters create a matrix within which the Burn Boss has latitude to perform the burn. Any combination of environmental factors within the environmental parameters of the prescription can be used to achieve the project objectives.

The prescription is interactive and dynamic, a blend of both science and the art of fire management. The variables are actually guidelines or surrogates for achieving the overriding objective of good smoke behavior, although the various combinations of conditions possible within the prescription do not necessarily guarantee that result. Therefore, if an element is out of prescription action may or may not be taken depending on compensating effects by the other parameters and, most importantly, the observed smoke behavior. It should be noted that the prescription applies to the active ignition phase of the burn event and not necessarily the smoldering phase. Smolder phase is best minimized by fire management tactics that achieve as early and as complete of a burn down as possible during the active ignition phase. This deprives the lingering smolder phase of available fuels.

Various instruments and methods will be utilized to monitor conditions both remotely and onsite. For this burn season POMFD will be coordinating with MBARD as conditions are monitored in real time.

The following prescription elements were modeled using BEHAVE Plus, a fire behavior modeling program to determine potential fire behavior from the environmental variables. POMFD and the Burn Boss have coordinated with MBARD and the project meteorologist to determine if any refinements are necessary for BLM Area B, Units A, B, and C. The following is the prescription for Units A, B, and C.

WIND SPEED/WIND DIRECTION PARAMETERS FOR BLM Area B, Units A, B, and C:

Surface Wind Speed:

Winds should be calm to light and variable so that the smoke column has the best possible chance to rise vertically off the surface with minimal ground contact.

Ideal: Calm to light and variable - less than 5 mph (2.2 mps).

Maximum: 8 mph – Gusts not to exceed (NTE) 12 mph (3.6 mps – Gust NTE 5.4 mps)

Surface Wind Direction:

The wind direction becomes less important as long as the smoke rises. It may be possible to condition the wind direction parameter so that it does not apply as long as conditions remain light and variable and smoke impacts are not occurring. However, a light and variable wind situation is likely to be temporary at Fort Ord, therefore the following directions have the best potential for minimal smoke impact downwind:

Ideal or Preferred: Any wind direction, as long as winds are light and variable and plume lofting vertically.

Acceptable: Although less than ideal, these are acceptable wind directions when winds are not light and variable:

Southeast Counter Clockwise through North to West

Once the plume comes in contact with the ground, there is no ideal direction, since population resides in virtually all directions. It is also important to note that wind directions measured locally, at the burn site, typically do not represent wind directions in the downwind areas due to the effect of terrain, which causes the flow to change direction as it is transported downwind, especially as it enters the Salinas Valley.

Transport Wind Direction (layer above 1000-ft):

Similar to the surface wind direction, the wind direction aloft is less of a concern as long as the plume is rising intact and vertically. Overall, it is preferable to have the plume move aloft and offshore rather than inland where it could end up stagnating in the Salinas Valley.

Ideal or Preferred: Any wind direction, as long as winds are light and variable and the plume is lofting vertically.

Acceptable: Although less than ideal, these are acceptable wind directions when winds are not light and variable:

Southeast Counter Clockwise through North to West

Wind Shear

Past burns at Fort Ord have demonstrated that significant smoke impacts can occur when plumes encounter strong wind shear (i.e. sharp increases in wind speed) immediately above the surface. This phenomenon often occurs on clear fall mornings with offshore flow in the project area as drainage from the Salinas Valley rides above a shallow temperature inversion. Clear morning skies and offshore flow are a major component of the prescription, so it is essential that wind shear be considered in the design of the burn plan.

In order to prevent plume knockdown and smoke impacts by the lower part of the plume as it rises to the transport level, wind speeds within the first 1,000-ft should not exceed a sustained 10 knots (5 meters per second [mps]) and winds not to exceed 20 knots (~10 mps) above 1,500-ft to the top of the plume. Wind shear will be monitored continuously by a SoDAR (Sonic Detection and Ranging) system located near the burn area, the Marina radar wind profiler and RASS (Radio Acoustic Sounding System).

Target Mixing Height Parameters:

To determine a Burn Go/No-Go decision for the ignition phase we will look for neutral to unstable conditions developing in the lower atmosphere. During the burn phase the target mixing height should be anticipated to reach 1,500-ft or higher based on the forecasted surface temperature and smoke behavior.

It should be noted that the 1,500-ft mixing height may not develop until after ignition since the calculated mixing height is typically low in the morning. However, postponing ignition until the mixing height fully develops moves the project time frame later in the day where the smoke column can be subject to the afternoon sea breeze. Therefore, if there are otherwise optimal conditions for burning (e.g. low winds and little vertical shear, etc.) and smoke dispersion and good smoke behavior is being exhibited in the test burn, the burn could take place prior to reaching a fully developed mixing height as long as the calculated mixing height is rising and anticipated to reach 1,500-ft or more within the next few hours.

However, experience with the October 7th, 2009 burn day on Unit 14 demonstrated that an ideal plume can rise intact to heights well above 1,500-ft under conditions of calm to light winds and weak stability in the first 1,500-ft, independent of the meteorological mixing height. Consequently, the project meteorologist may further consider any combination of wind, stability and expected plume temperature that will allow the plume to rise to at least 1,500-ft during the ignition phase of the burn and still produce adequate plume rise during active burning.

Preferred Sky Conditions: Predominately clear skies and no fog.

Acceptable Sky Conditions: Mid to high clouds, no rain, drizzle or fog.

Temperature: 45 to 90º F.

Relative Humidity: 20 to 60%.

Burn Prescription Matrix:

Fuel model chosen is from the Standard Fire Behavior Fuel Model 2005.

FUEL MODEL:	Shrub 8	
Environmental Variables:	**HOT**	**COLD**
Relative Humidity %	20	60
Wind Speed (mph)	8	0
Temperature (F) (Dry Bulb %)	90°	45°
Live Fuel Moisture %	60	100
Dead Fuel Moisture % 1hr. T/L	5	12
10hr. T/L	6	10
100hr. T/L	8	11
Soil / Duff Moisture %	50	50
Probability of Ignition	66%	28%
Season	**Summer**	**Winter**

7.3 PREDICTED FIRE BEHAVIOR

FUEL MODEL	**Shrub 8**		
Environmental Variables:	**HOT**	**OPTIMUM**	**COLD**
Flame Length (ft)	18	7	4.5
Effective Wind Speed (mph)	8	1.8	1.2
Scorch Height (ft)	N/A	N/A	N/A
Forward Spread Rate (chains/hour)	71	10	4.1
Backing Spread Rate (chains/hour)	2	1.6	1
Spotting Distance (miles)	0.6	0.2	0.1

7.4 BEHAVIOR OUTSIDE OF UNIT BOUNDARIES USING WORST CASE WEATHER

The wind was increased to determine escape potential. The other environmental factors remained the same as those used in the "Hot" side of the prescription.

20' Wind (mi/hr)	Rate of Spread (ch/hr)*	Flame Length (ft)	Eye Level Wind Speed (mi/hr)	Fire Area in 0.5 Hours (ac)	Spot Fire Distance (mi)
16	71	18	8	34	0.6
18	81	19	9	40	0.7
20	92	20	10	48	0.8
22	103	22	11	55	0.8
24	114	23	12	64	0.9
26	125	24	13	72	1

* "ch" refers to chains used in fire behavior modeling. A chain equals 66-ft.

These fire behavior outputs are what can be expected if the winds exceed the prescription and an escape occurs in BLM Area B or adjacent areas. All suppression action is expected to occur within minutes of an escape.

These worst-case fire behavior outputs are in the same fuel model as the burn units (Shrub 8) which is coastal maritime chaparral 4 – 6 feet tall.

The table below represents the worst-case fire behavior in the mastication areas.

20' Wind (mi/hr)	Rate of Spread (ch/hr)*	Flame Length (ft)	Eye Level Wind Speed (mi/hr)	Fire Area in 1 Hours (ac)	Spot Fire Distance (mi)
16	14	4.5	8	5	0.2
18	16	5	9	6	0.3
20	18	5	10	7	0.3
22	20	5.4	11	9	0.3
24	23	6	12	10	0.4
26	25	6	13	12	0.4

8 WEATHER COLLECTION & FORECASTS

8.1 DATA COLLECTION/ONSITE MEASUREMENTS: WEATHER STATIONS AND PROFILERS

Instrument Locations:

Data is currently collected for the burn site by eight (8) onsite NPS weather stations and two Army SoDARs. Fort Ord #1 (FO1) is located at the intersection of trails 92 and 94 (578-ft elevation), FO2 is located at Range 43 (490-ft elevation), FO3 is positioned along with the SoDAR1 at Wildcat Ridge (935-ft), FO4 is located in Unit 10 north of Nowhere and west of Evolution (580-ft elevation), FO5 is located at Hawkeye and Impossible Canyon Roads (570-ft elevation) and FO6 is located along with SoDAR2 at Joe Lloyd Way and 8th Ave. (340-ft elevation). The remaining two weather stations are located off of Darwin Road in Range 30 (860-ft elevation) in the Impact Area MRA and the former Range 7 beach has been removed due to continued vandalism and will be relocated at a site yet to be determined. The locations for these units are selected by NPS and MBARD meteorologists. Additional offsite weather stations and profilers, whose data is utilized during meteorological analysis, are: Marina (profiler), Del Monte Beach, Monterey Aquarium, Monterey and Salinas airports' weather stations. (Salinas Airport is not shown on Figure 7).

The SoDAR units are mobile meteorological units placed in advantageous location to best benefit the burn operations. The SoDAR locations for 2017 have been determined in coordination with the project meteorologist (NPS). One SoDAR is positioned south of BLM Area B, Units A, B, and C on Wildcat Ridge and a second SoDAR is northwest of Units A, B, and C off of Joe Lloyd Way and 8th Avenue (Figure 7).

Data to be Collected:

Temperature, relative humidity, dead (10-hour) fuel moisture, wind speed, wind direction and other pertinent automated data is recorded from local weather stations. Dead fuel moisture data is collected both manually and automatically from in and around the burn units; both are used to assess burn-ability of fuel. Live fuel moisture samples and dead fuel moisture measurements will be collected by project personnel as directed by the Burn Boss. This data will be used to calculate the live (1-hour) fuel moisture, fire behavior and probability of ignition for determining the trend in weather and its effect on local fuel conditions. All collected weather data from weather stations and the SoDARs can be accessed online at the link listed in 8.2 below.

Sampling Period:

Live fuel moisture is measured according to the schedule provided by the Burn Boss. Live fuel moisture is measured monthly from April to August then biweekly from September to October or as recommended by the Burn Boss. Dead fuel moisture will be measured biweekly from July to October and daily, as necessary, when the likelihood of a burn window is predicted by the meteorologists or as requested by the Burn Boss.

8.2 FORECASTS:

Meteorologist Dr. Wendell Nuss, from the NPS, along with the Monterey NWS, and CARB meteorologists, provide fire weather forecasts. The project meteorologist will post the daily and

weekly forecasts on a website dedicated to the fire weather for Fort Ord prescribed burns. The website address is http://met.nps.edu/~nuss/fort-ord.html.

The project meteorologist will provide a spot weather forecast to the IC and Burn Boss the day prior to the planned burn and every day until the burn is declared out. The project meteorologist is familiar with the project site and the complex and dynamic weather environment which exists on Fort Ord. These factors include, but are not limited to: burn site location, complex environmental setting, land and marine weather environments, interaction with complex terrain, proximity of population and sensitive receptors, changing diurnal patterns, etc.

9 SMOKE MANAGEMENT PLAN

In an effort to reduce the risks of smoke impacts from prescribed burns, the burn planning has been closely coordinated with MBARD. For 2017, representative(s) from MBARD will be onsite during the burn for coordination and monitoring purposes. MBARD representative(s) will be monitoring both meteorological conditions and smoke behavior from the ground.

It should be stated that since the prescribed burn is part of the former Fort Ord CERCLA clean up action, the Army will comply with the substantive requirements of the MBARD's Smoke Management Plan. However, the procedural requirements, including obtaining an actual district permit to burn and authorization from MBARD, will not be required in order to perform the prescribed burn. MBARD has no regulatory authority over CERCLA burns or prescribed burning as the selected remedy for vegetation clearance from the former Fort Ord.

UNIT A

Smoke Management Plan (SMP) Project Description:

1.1 Project Name:
Former Fort Ord: BLM Area B Unit A

1.2 Operator Name: ***U.S. Army BRAC***

1.3 Operator Address:
Street: ***Bldg 4463 Gigling Road***
City: ***Seaside***
State: ***CA*** **Zip:** ***93955***

1.4 Operator/Field Contact: ***Incident Commander***

1.5 24-hour Phone/Pager: ***On File***

1.6 Project Location (County): ***Monterey County***

1.7 Nearest Town: ***Seaside***

1.8 Project Location: (Report at least one of the following location descriptions. Provide attachment as needed.)

1.8b Lat/Long:

Lat ***36*** **(deg.)** ***38*** **(min)** ***11*** **(sec)** ***N***

Long ***121*** **(deg.)** ***45*** **(min)** ***42.8*** **(sec)** ***W***

1.9 Project Elevation (msl feet):
Top: ***510'*** **Bottom:** ***320'***

1.10 Land Owner Name: ***U.S. Government***
Street: ***Bldg 4463 Gigling Road***
City: ***Seaside*** **State:** **CA** **Zip:** ***93955***

1.11 Anticipated Time of Year for Burn (Month/Year): *July – December*

1.12a Is the Primary Purpose of the Burn for Fire Hazard Reduction? *No*

1.12b Burn Type (Check one): ___ Forest Mgmt: ___ Range Improvement _____ Wildland Vegetation Management _____ Natural Ignition _____ Other ___*X*__

Prescribed burning is being conducted as site preparation for munitions response within the BLM Area B.

1.13 For Range Improvement Burns, Check Vegetation Management Objective: *N/A*

____ Wildlife or Game Habitat Improvement ____ Livestock Habitat Improvement

____ Initial Establishment of Agricultural Practice on Previously Uncultivated Land

1.14 Vegetation Type (Percentage*)*: *93%* Brush *6%* Grass ____ Timber Litter

____ Timber Slash ____ Other (Describe): *34%* Masticated Debris

1.15 Vegetation Condition: ____ Machine Pile Burn ____ Hand Pile Burn

_____ Understory ____ Landing Pile *Burn* *X* Broadcast

1.16 Project Area*:* *324* (gross acres) 1.17 Number of Piles: *0*

1.18 Average Pile Size: *N/A*

1.19 Total Project Fuel Loading: *11,610* (tons vegetation)
(First Order Fire Effect Model [FOFEM] fuel loading page 39)

1.20 Particulate Matter Emissions: *24.15* (tons PM2.5) (Use Emissions Factors Tables on pages 12-13 for assistance with emissions calculation) *(FOFEM emission factor page 40)*

1.21 Emission Factor Table Used or EPA-Approved Calculation Method: *FOFEM (pages 39-40)*

1.22 Preferred Ignition Hours for the Fire: *0700-1400*

UNIT B

Smoke Management Plan (SMP) Project Description:

1.1 Project Name:
Former Fort Ord: BLM Area B Unit B

1.2 Operator Name: ***U.S. Army BRAC***

1.3 Operator Address:
Street: ***Bldg 4463 Gigling Road***
City: ***Seaside***
State: ***CA*** **Zip:** ***93955***

1.4 Operator/Field Contact: ***Incident Commander***

1.5 24-hour Phone/Pager:

1.6 Project Location (County): ***Monterey County***

1.7 Nearest Town: ***Seaside***

1.8 Project Location: (Report at least one of the following location descriptions. Provide attachment as needed.)

1.8b Lat/Long:

Lat ***36*** **(deg.)** ***37*** **(min)** ***43*** **(sec)** ***N***

Long ***121*** **(deg.)** ***45*** **(min)** **38** **(sec)** ***W***

1.9 Project Elevation (msl feet):
Top: ***600'*** **Bottom:** ***410'***

1.10 Land Owner Name: ***U.S. Government***
Street: ***Bldg 4463 Gigling Road***
City: ***Seaside*** **State:** **CA** **Zip:** ***93955***

1.11 Anticipated Time of Year for Burn (Month/Year): *July - December*

1.12a Is the Primary Purpose of the Burn for Fire Hazard Reduction? *No*

1.12b Burn Type (Check one): ___ Forest Mgmt: ___ Range Improvement _____ Wildland Vegetation Management _____ Natural Ignition _____ Other ___*X*__

Prescribed burning is being conducted as site preparation for munitions response within the BLM Area B.

1.13 For Range Improvement Burns, Check Vegetation Management Objective: *N/A*

____ Wildlife or Game Habitat Improvement ____ Livestock Habitat Improvement

____ Initial Establishment of Agricultural Practice on Previously Uncultivated Land

1.14 Vegetation Type (Percentage*)*: *71%* Brush *7%* Grass ____ Timber Litter

_____ Timber Slash ____ Other (Describe): *40%* Masticated Debris

1.15 Vegetation Condition: ____ Machine Pile Burn ____ Hand Pile Burn

_____ Understory ____ Landing Pile *Burn* *X* Broadcast

1.16 Project Area*:* *265* (gross acres) 1.17 Number of Piles: *0*

1.18 Average Pile Size: *N/A*

1.19 Total Project Fuel Loading: *7,330* (tons vegetation) *(FOFEM fuel loading page 39)*

1.20 Particulate Matter Emissions: *15.25* (tons PM2.5) (Use Emissions Factors Tables on pages 12-13 for assistance with emissions calculation) *(FOFEM emission factor page 40)*

1.21 Emission Factor Table Used or EPA-Approved Calculation Method: *FOFEM (pages 39-40)*

1.22 Preferred Ignition Hours for the Fire: *0700-1400*

UNIT C

Smoke Management Plan (SMP) Project Description:

1.1 Project Name:
Former Fort Ord: BLM Area B Unit C

1.2 Operator Name: ***U.S. Army BRAC***

1.3 Operator Address:
Street: ***Bldg 4463 Gigling Road***
City: ***Seaside***
State: ***CA*** **Zip:** ***93955***

1.4 Operator/Field Contact: ***Incident Commander***

1.5 24-hour Phone/Pager:

1.6 Project Location (County): ***Monterey County***

1.7 Nearest Town: ***Seaside***

1.8 Project Location: (Report at least one of the following location descriptions. Provide attachment as needed.)

1.8b Lat/Long:

Lat ***36*** **(deg.)** ***37*** **(min)** ***47*** **(sec)** ***N***

Long ***121*** **(deg.)** ***46*** **(min)** ***24*** **(sec)** ***W***

1.9 Project Elevation (msl feet):
Top: ***500'*** **Bottom:** ***325'***

1.10 Land Owner Name: ***U.S. Government***
Street: ***Bldg 4463 Gigling Road***
City: ***Seaside*** **State:** **CA** **Zip:** ***93955***

1.11 Anticipated Time of Year for Burn (Month/Year): *July - December*

1.12a Is the Primary Purpose of the Burn for Fire Hazard Reduction? *No*

1.12b Burn Type (Check one): ___ Forest Mgmt: ___ Range Improvement _____ Wildland Vegetation Management _____ Natural Ignition _____ Other ___*X*__

Prescribed burning is being conducted as site preparation for munitions response within the BLM Area B.

1.16 For Range Improvement Burns, Check Vegetation Management Objective: *N/A*

____ Wildlife or Game Habitat Improvement ____ Livestock Habitat Improvement

____ Initial Establishment of Agricultural Practice on Previously Uncultivated Land

1.17 Vegetation Type (Percentage*)*: *100%* Brush __ Grass _____ Timber Litter

_____ Timber Slash ____ Other (Describe): *45%* Masticated Debris

1.18 Vegetation Condition: ____ Machine Pile Burn ____ Hand Pile Burn

_____ Understory ____ Landing Pile *Burn* *X* Broadcast

1.16 Project Area*:* *143* (gross acres) 1.17 Number of Piles: *0*

1.18 Average Pile Size: *N/A*

1.19 Total Project Fuel Loading: *5,534* (tons vegetation) *(FOFEM fuel loading page 39)*

1.20 Particulate Matter Emissions: *11.51* (tons PM2.5) (Use Emissions Factors Tables on pages 12-13 for assistance with emissions calculation) *(FOFEM emission factor page 40)*

1.21 Emission Factor Table Used or EPA-Approved Calculation Method: *FOFEM (pages 39-40)*

1.22 Preferred Ignition Hours for the Fire: *0700-1400*

1.23 Expected Burn Duration (ignition to complete extinction): Total Time: 6 hours active ignition but residual smoke from smoldering could last up to 24 hours as fuels burn out.

1.24 Fuel Drying Time and Conditions Prior to Ignition: *Live and dead fuel moisture between 5-12% (dead) and 60-100% (live).*

1.25 Limitations on Pile Size, Pile Number, and/or Acreage Limitations to Minimize Smoke (complete as appropriate): *BLM Area B, Units A, B, and C will be burned in a manner that minimizes smoke by using fire behavior techniques and optimum burn conditions to maximize fuel consumption and spread while minimizing smoke over the duration of the burn.*

It is the responsibility of the Operator to ensure that conditions of the SMP are met on the day of the burn.

Check as Applicable:

☒ **This burn could have an impact on smoke sensitive areas – I have filled out and attached all of Section A.**

☒ **This burn could have an impact on smoke sensitive areas - I have filled out and attached line items B.1 and B.2 of Section B.**

☒ **This burn is greater than 100 acres (or is estimated to produce greater than 10 tons of particulate matter) – I have filled out and attached all of Section B.**

Preparer's Statement: To the best of my knowledge the information contained in this Smoke Management Plan is complete and accurate.

SMP Preparation Date: *See signature page*

Preparer's Name/Title (print): _____

Preparer's Phone: _____

Preparer's Signature: _____

Name of Authorized Representative in Control of the Property: *See signature page*

Operator or Authorized Representative Signature: _____

Signature Date: _____

SECTION A: AS REQUIRED BY TITLE 17 AND AIR DISTRICT POLICIES, THIS SECTION APPLIES TO ALL BURNS WITH THE POTENTIAL TO IMPACT SMOKE SENSITIVE AREAS (SSAs)

A.1. Describe locations of SSAs and distances from burn site (miles) – (Also the attached Figure # 5 shows SSAs):

The principle SSAs are: the neighboring schools, residential areas, and the Salinas Valley (as far south as King City ~ 60 miles S) within the vicinity of the burn. Including, but not limited to: communities of East Garrison Housing, Ord Military Community: Fitch, Marshal, Hayes, Stilwell Parks; Cities of Marina, Seaside, Del Rey Oaks, Monterey; Carmel, Pebble Beach, Pacific Grove, Carmel Valley, Salinas including unincorporated communities of the Highway 68 corridor: Pasadera, Toro Park, Laureles Grade, San Benancio and Corral de Tierra communities; River Road residential corridor area: Las Palmas, Speckels, Indian Springs, etc. Other smoke sensitive areas include facilities such as the Monterey Peninsula Airport, and the Community Hospital of the Monterey Peninsula (CHOMP).

(1) **Nearest School:** *Chartwell School (~ 1.4 miles W)*

Nearest Residential Area: *CSUMB Frederick Park II Housing: (~ 1.05 miles N)*

Neighboring Areas: *Distance calculations based on closest town boundary to closest burn site boundary. Distances were calculated via GIS and are considered approximate.*

Neighboring Area	Approximate Distance to BLM Area B, Units A, B, and C burn areas
East Garrison Housing	1.15 miles NE
Fitch and Marshall Housing	1.15 and 1.25 miles W
Seaside	2.25 miles WSW
Del Rey Oaks	3.7 miles SW
CSUMB	1.5 miles NW
Marina	2.6 miles NNW
Laguna Seca	2.5 miles SSE
Monterey Peninsula Airport	4.3 miles SW
Monterey	4.7 miles SW
Salinas	4.4 miles E
Spreckels	5.5 miles ESE
Salinas Valley (down to King City)	8–52 miles E to SE

A.2 The attached map# _ provides smoke travel projections for: _____ Day _____ Night _____ Topographical considerations. *See Section 7 Prescribed Burn Prescription*

A.3 Has prescribed burning historically occurred in this area? ___X__ Yes ____ No _____ Don't Know

A.4 If yes, were there impacts to smoke sensitive areas? ___X__ Yes ____ No _____ Don't Know

A.5 If yes, please describe impacts: __*Smoke impacts in Fitch and Marshall Park Ord Military Communities, Seaside, Del Rey Oaks, Marina, Spreckels, Salinas (River Road and Hwy 68 Corridor communities), Monterey, Pacific Grove, Carmel, Carmel Valley and Pebble Beach.*__

A.6 For burns that will occur past daylight hours and/or for more than one day, please provide Air District contact information and a description of contact procedures that will be used to affirm that the burn project remains within the conditions specified in this SMP, and/or whether contingency actions are necessary. The Operator will follow any instructions by the Air District to communicate directly with CARB when necessary. Air District contact (or designee)

N/A

A.7a	Telephone:	*Richard Stedman, APCO,*	*David Frisbey, Planning and Air Monitoring Manager*
A.7b	24-hour Pager	*Cell:(831) 521-0358*	*Cell: (831) 706-1309*
A.7c	Fax:	*(831) 647-8501*	*Same*
A.7d	E-mail:	*rstedman@mbard.org*	*dfrisbey@mbard.org*

A.8 The Operator will use the frequency and method of contact described below:

POMFD will coordinate with MBARD personnel onsite before, during and after the burn. MBARD will be present at a predetermined location. They will have cell phones to contact the IC and the BRAC MMRP Manager during prescribed burn operations.

The Operator will monitor the burn project for meteorological conditions and smoke behavior before, during, and after the burn using the following techniques and timing:

Visual observations from the ground and air will be used. Eight weather stations and two SoDARs are located onsite and will be monitored for meteorological conditions. The SoDAR units will be used for real-time meteorological monitoring. Particulate monitoring will be conducted as described in the Prescribed Burn Air Monitoring Plan for BLM Area B (Attachment F).

A.9 Weather Observation (Wind Direction, Wind Speed, and Temperature):

Method	**Details**
X Belt Weather Kit	Location *Onsite* Beginning *0700* Interval *Hourly* Ending *2400*
X RAWS	Location *See Section 8.1 and Figure 7 for weather station and SoDAR locations.* Beginning *Jul 2017* Interval *Daily* Ending *Post burn*
____ Aircraft	Location _____ Beginning _____ Interval _____ Ending _____
X Other	Location *SoDAR and Marina Profiler* Beginning *Week prior* Interval *Daily/Hourly* Ending *Day after burn*

X Additional Requirements: *SoDARs to be used onsite to help determine atmospheric conditions for the Burn Go/No Go decision.*

A.10 2017 Smoke Behavior Observations:

Method	Details
_X_ Visual**	Location _Onsite_ Beginning _During Burn_ Interval _Continuous_ Ending _Post Burn_
_X_ Test Fire	Location _Onsite_ Beginning _ASAP_ Interval _Continuous_ Ending: _w/i 5 min_
_____ Balloon	Location _____ Beginning _____ Interval _____ Ending _____
_X_ Aircraft	Location _Onsite_ Beginning _During Burn_ Interval _Continuous_ Ending _Burn Down_
_X_ PM Monitoring	Location _Various: Air monitoring for PM 2.5 will be conducted. See Prescribed Burn Air Monitoring Plan in Appendix F_ Beginning _TBD_ Interval _Continuous_ Ending _TBD_

____ Additional Requirements: _____

A.11a The Operator shall begin public notification before the day of burning. The notification shall be on-going until the end of burning. Check which of the following procedures will be used to notify and educate the public about this burn project. _____Television ____ Radio __X__ Newspaper __X__Posters/flyers __X__Telephone calls __X__ Other (Explained in A.11b below)

A.11b The specifics of the notification procedure(s) checked above are as follows:

The Army will provide community notification prior, during and after the burn. Please refer to the Notification Plan in Attachment E.

A.12 The Operator will place appropriate signage at or near burn sites to identify the burn project to the public as noted on the attached figure #__6__.

* See General Information on page 1 for determining if your burn has the potential to impact a smoke sensitive area.

** Visual smoke observation refers to observations made through the eyes of designated individuals.

SECTION B: THIS SECTION APPLIES TO ALL BURN PROJECTS GREATER THAN 100 ACRES OR PRODUCING MORE THAN 10 TONS OF PARTICULATE MATTER

B.1. Meteorological Conditions for Ignition: The following descriptions are for conceptual ignition patterns for expected wind conditions but actual ignition will be based on present wind conditions at the time of the burn.

Source of Meteorological Information: See Section A.9 of the SMP and Section 8.1 of this burn plan for meteorological equipment locations. Conceptual aerial ignition patterns are shown in Figures 4A, 4B and 4C.

WIND SPEED/WIND DIRECTION PARAMETERS FOR BLM Areas B, Units A, B, and C:

Surface Wind Speed:

Winds should be calm to light and variable so that the smoke column has the best possible chance to rise vertically off the surface with minimal ground contact.

Ideal: Calm to light and variable - less than 5 mph (2.2 mps).

Maximum: 8 mph – Gusts not to exceed 12 mph (3.6 mps – Gust NTE 5.4 mps)

Surface Wind Direction:

The wind direction becomes less important as long as the smoke rises. It may be possible to condition the wind direction parameter so that it does not apply as long as conditions remain light and variable and smoke impacts are not occurring. However, a light and variable wind situation is likely to be temporary at Fort Ord, therefore the following wind directions have the best potential for minimal smoke impact downwind:

Ideal or Preferred: Any wind direction, as long as winds light and variable and plume lofting vertically.

Acceptable: Although less than ideal, these are acceptable wind directions when winds are not light and variable: **Southeast Counter Clockwise through North to West**

Once the plume comes in contact with the ground, there is no ideal direction, since population resides in virtually all directions. It is also important to note that wind directions measured locally at the burn site typically do not represent wind directions in the downwind impact areas due to the effect of terrain, which causes the flow to change direction as it is transported downwind, especially as it enters the Salinas Valley.

Transport Wind Direction (layer above 1000-ft):

Similar to the surface wind direction, the wind direction aloft is less of a concern as long as the plume is rising intact and vertically. Overall, it is preferable to have the plume move aloft and offshore rather than inland where it could end up stagnating in the Salinas Valley.

Ideal or Preferred: Any wind direction, as long as winds are light and variable and the plume is lofting vertically.

Acceptable: Although less than ideal, these are acceptable wind directions when winds are not light and variable: **Southeast Counter Clockwise through North to West**

Wind Shear

Past burns at Fort Ord have demonstrated that significant smoke impacts can occur when plumes encounter strong wind shear (i.e. sharp increases in wind speed) immediately above the surface. This phenomenon often occurs on clear fall mornings with offshore flow in the project area as drainage from the Salinas Valley rides above a shallow temperature inversion. Clear morning skies and offshore flow are major component of the prescription, so it is essential that wind shear be considered in the design of the burn plan.

In order to prevent plume knockdown and smoke impacts by the lower part of the plume, as it rises to the transport level, wind speeds within the first 1,000-ft should not exceed a sustained 10 knots (5 mps) and winds not to exceed 20 knots (~10 mps) above 1,500-ft to the top of the plume. Wind shear will be monitored continuously by a SoDAR (sonic detection and ranging) system located near the burn area.

Target Mixing Height Parameters:

To determine a Burn Go/No-Go decision for the ignition phase we will look for neutral to unstable conditions developing in the lower atmosphere. During the burn phase the target mixing height should be anticipated to reach 1,500-ft or higher based on the forecasted surface temperature and smoke behavior.

It should be noted that the 1,500-ft mixing height may not develop until after ignition since the calculated mixing height is typically low in the morning. However, postponing ignition until the mixing height fully develops moves the project time frame later in the day where the smoke column can be subject to the afternoon sea breeze. Therefore, if there are otherwise optimal conditions for burning (e.g. low winds and little vertical shear, etc.) and smoke dispersion and good smoke behavior is being exhibited in the test burn, the burn could take place prior to reaching a fully developed mixing height as long as the calculated mixing height is rising and anticipated to reach 1,500-ft or more within the next few hours.

However, experience with the October 7th, 2009 burn day on Unit 14 demonstrated that an ideal plume can rise intact to heights well above 1,500' under conditions of calm to light winds and weak stability in the first 1,500', independent of the meteorological mixing height. Consequently, the project meteorologists may further consider any combination of wind, stability and expected plume temperature that will allow the plume to rise to at least 1,500' during the ignition phase of the burn and still produce adequate plume rise during active burning.

Preferred Sky Conditions: Predominately clear skies and no fog.

Acceptable Sky Conditions: Mid to high clouds, no rain, drizzle or fog.

Temperature: 45 to 90º F.

Relative Humidity: 20 to 60%.

B.2a Describe contingency actions/methods/procedures Operator will take in the event that serious smoke impacts begin to occur or meteorological conditions deviate from those specified in this SMP (for example: stop ignitions, initiate mop-up, conduct fire suppression – describe in detail):

If meteorological conditions deviate from prescription causing smoke impact conditions, the fire ignition may be halted or increased to adjust smoke behavior at the discretion of the IC and the Burn Boss. CMC is a quick-burning fuel; once ignition is halted, the resulting smoke will be minimized. If project smoke continues to be a problem, further mop-up procedures will be undertaken. Interior boundary lines can be used as lines of defense to halt burning and bring the fire activity and smoke under control. After ignition is halted, it will not be restarted until the smoke impacts are mitigated.

B.2b Describe any applicable interior unit contingency cutoff lines (refer to Figures 2 and 3A-B):

The primary containment line width varies as it is dependent on the MGFD and associated MSD. As part of the 2013 Lessons Learned, the IC and Burn Boss identified additional mastication on the opposite side of the roads from the intended burn units. This additional mastication width varies by unit. The secondary and tertiary containment lines consist of trails, existing major fuel break roads and perimeter asphalt roads. The width variation is from 10-25'. These lines will be used to create lines of defense and control from which POMFD can work towards extinguishing the fire (Figures 3A-B).

There are existing interior roads and old interior control lines that may be used to slow the burning operations. However, once ignition commences the unit cannot be safely entered by equipment or personnel due to the potential MEC safety concerns.

B.3 An evaluation of alternatives to burning is described below:

This prescribed burn is being conducted as part of munitions response under CERCLA. Alternatives were evaluated in the document, *Final, Revision 2, Track 2 RI/FS BLM Area B and MRS-16 Former Fort Ord, CA (Gilbane, 2015).*

B.4 Alternatives Considered**:**

The Army evaluated the use of herbicides, mechanical, remotely operated mechanical and manual methods, animal grazing, and prescribed burning for vegetation clearance. This evaluation is discussed in *Draft Final Technical Memorandum - Evaluation of Vegetation Clearance Methods Ordnance and Explosives RI/FS Former Fort Ord, CA (Harding ESE, 2002)* and *Final, Revision 2, Track 2 RI/FS BLM Area B and MRS-16 Former Fort Ord, CA (Gilbane, 2015).*

B.5 Alternatives Rejected and Reasons for Rejection:

All vegetation clearance alternatives were rejected because the area proposed for prescribed burning contains MEC on the ground surface. Vegetation clearance workers would be directly exposed to these items while conducting vegetation clearance and could be seriously injured or killed by accidental detonation of MEC. Additional reasons were ineffectiveness at vegetation clearance, logistical difficulties, and excessive environmental impact.

B.6 Alternatives Used, and Tons of Vegetative Material Treated With Each Alternative: N/A See item B.4

B.7 Particulate Reduction for Each Alternative Used (tons): N/A See item B.4

B.8 Total Particulate Reductions from Alternatives Used: N/A See item B.4

B.9 If this project is greater than 250 acres or smoke impacts occur, the Operator will provide a completed Post Burn Evaluation Form to the Air District within 30 days of project completion. The Army provides a comprehensive post-burn evaluation in the prescribed burn after-action report.

B.10 For burns greater than 250 acres, Sections A.9 and A.10 describe the site monitoring requirements.

Post-Burn Evaluation
For Burns Greater Than 250 Acres
or Burns For Which Smoke Impacts Occurred*

This form will be used only if there smoke impacts occur.

Section A. General Information:

Date of Burn: _____ Burn Location: _____

Number of Acres Burned: _____ Estimated Actual PM Emissions: _____ (tons)

Burner Name: _____

Burner Address: _____

Burner Phone Number: _____

Burner Email: _____

1. Did the burn remain within the conditions specified in the Smoke Management Plan? _____
2. Were the tion B below.
3. Lessons

This form is not applicable for the Fort Ord burn program however, relevant information will be provided in the appropriate Prescribed Burn After-Action Report.

Section B. For Burns That Had Smoke Impacts, Complete The Following:

1. Describe adverse smoke impacts below (add attachment if needed):
   _____
   _____
   _____
   _____
2. Were there substantial complaints from the public? _____ If so, how many and from whom:
   _____
   _____
   _____
   _____
3. What Air Districts were Notified (who, when, and at what phone number(s))?
   _____
   _____
   _____
   _____
4. Lessons learned (add attachment if needed):
   _____
   _____
   _____
   _____
5. Attach all smoke observation and weather data collected before, during, and after the burn. See collection methods checked in sections A.9 and A.10 of the burn plan for relevant data.

* As required by Title 17 and air district policies.

Table 1

PM 10 EMISSION CALCULATION FOR BURNING OF MULTIPLE FUEL TYPES[1,2]

Section 80160 (b) of Subchapter 2 Smoke Management Guidelines for Agricultural and Prescribe Burning, Title 17, California Administrative Code states, "requires the submittal of smoke management plans for all burn projects greater than 10 acres in size or estimated to produce more than 1 ton of particulate matter". To determine what the particulate matter (PM 10) amount is of your burn project please use the equation below and review the following examples.

Information needed for PM 10 Calculations:

a. VT = Vegetation type
b. ACRES VT = Estimated number of acres for VT
c. FL est. = Estimated fuel loading in VT TONS per ACRE
d. EV = PM10 emission/ton of fuel

Calculating PM10 Emissions from Prescribed Burning of multiple vegetation types:

PM10 ton(s) emissions per VT = (number of acres VT) (FL tons per acre) (Emission Value (EV)) = _____ ton(s)/VT

PM10 ton(s) emissions per VT = (number of acres VT) (FL tons per acre) (Emission Value (EV)) = _____ ton(s)/VT

Sum Total is the Estimated PM 10 for the project = _____ ton(s)/project

VEGETATION TYPE(S)	ACRES (VT)	x	FL est.	x	EV[1]		PM10 EMISSIONS (ton(s))
Basing Sage/Low Sage	(_____)	x	(_____)	x	(0.010)	=	_____
Ceanothus	(_____)	x	(_____)	x	(0.010)	=	_____
Chamise	(_____)	x	(_____)	x	(0.009)	=	_____
Giant Sequoia	(_____)	x	(_____)	x	(0.007)	=	_____
Grass <1'							
Grass >1'							
Hackberry C							
Hardwood (							
Hardwood (							
Jeffrey Pine							
Live Oak (Canyon)	(_____)	x	(_____)	x	(0.007)	=	_____
Live Oak (Interior)	(_____)	x	(_____)	x	(0.007)	=	_____
Lodgepole Pine	(_____)	x	(_____)	x	(0.007)	=	_____
Manzanita (Productive Brush)	(_____)	x	(_____)	x	(0.009)	=	_____
Mixed Chaparral/Montane	(_____)	x	(_____)	x	(0.008)	=	_____
Mixed Conifer	(_____)	x	(_____)	x	(0.006)	=	_____
Oak (Black)	(_____)	x	(_____)	x	(0.005)	=	_____
Oak (Blue)	(_____)	x	(_____)	x	(0.003)	=	_____
Oak (White)	(_____)	x	(_____)	x	(0.003)	=	_____
Pinyon Pine	(_____)	x	(_____)	x	(0.007)	=	_____
Ponderosa Pine, Gray Pine	(_____)	x	(_____)	x	(0.007)	=	_____
Red Fir	(_____)	x	(_____)	x	(0.007)	=	_____
Wet Meadow	(_____)	x	(_____)	x	(0.004)	=	_____
Willow	(_____)	x	(_____)	x	(0.007)	=	_____

Please see pages 39-40 for emissions calculations derived from FOFEM.

Sum Total of the Estimated PM10 for the project in tons/project = _____

1. See Table 3 on next page for values used to calculate EVs.
2. For vegetation types not listed, contact Air District for assistance with determining appropriate emission factors.

Table 2

EMISSION VALUES (EVs) FOR BURNING OF MULTIPLE VEGETATION TYPES*

Calculation of PM10 emission values = (% combustion) x (PM10 emission lbs/ton) x (1 ton/2000 lbs)*

VEGETATION	% Combustion			PM EMISSION (lbs/ton fuel)		Conversion Factor		PM Emissions Value**
Basing Sage/Low Sage	=	(1.0)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	=	0.010
Ceanothus	=	(1.0)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	=	0.010
Chamise	=	(0.9)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	=	0.009
Giant Sequoia	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Grass/Forb	=	(1.0)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Hackberry Oak	=	(0.4)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.005
Hardwood (Stocked)	=	(0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	=	0.003
Hardwood (Non-stocked)	=	(0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	=	0.003
Jeffrey Pine/Knobcone	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Live Oak (Canyon)	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Live Oak (Interior)	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Lodgepole Pine	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Manzanita (Productive Brush)	=	(0.9)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	=	0.009
Mixed Chaparral/Montane	=	(0.8)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	=	0.008
Mixed Conifer	=	(0.6)	x	(20.5 lbs/ton)	x	(1 ton/2000 lbs)	=	0.006
Oak (Black)	=	(0.4)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.005
Oak (Blue)	=	(0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	=	0.003
Oak (White)	=	(0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	=	0.003
Pinyon Pine	=	(0.6)	x	(22 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Ponderosa Pine, Gray Pine	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Red Fir	=	(0.6)	x	(23.1 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007
Wet Meadow	=	(0.6)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	=	0.004
Willow	=	(0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	=	0.007

()

*** Percent combustion and PM10 emission factors for various fuel types derived from Table 8, Section 6, "Air Quality Conformity Handbook" from the USDA-Forest Service Air Resources / Fire Management Pacific Southwest Region dated November 1995.**

**** PM10 tons emissions /ton fuel**

***** These are the vegetation's estimated emissions values(EV) from the vegetation type as determined above to be use when the burn operator provides the vegetation's fuel loading estimate per acre.**

****** For additional information on emissions factors, see EPA document AP-42: "Compilation of Air Pollutant Emission Factors. Volume 1: Stationary Point and Area Sources," Fifth Edition, AP-42, January 1995, U.S. EPA. Table 2.5-5.**

TITLE: Results of FOFEM model execution on date: 4/19/2017

FUEL CONSUMPTION CALCULATIONS

Region: PacificWest
Cover Type: SRM 208 - Ceanothus Mixed Chaparral
Fuel Type: Natural
Fuel Reference: PMS-833

FUEL CONSUMPTION TABLE

Fuel Component Name	Preburn Load (t/acre)	Consumed Load (t/acre)	Postburn Load (t/acre)	Percent Reduced (%)	Equation Reference Number	Moist. (%)
Litter	0.00	0.00	0.00	0.0	999	
Wood (0-1/4 inch)	0.00	0.00	0.00	0.0	999	
Wood (1/4-1 inch)	0.00	0.00	0.00	0.0	999	6.0
Wood (1-3 inch)	0.00	0.00	0.00	0.0	999	
Wood (3+ inch) Sound	0.00	0.00	0.00	0.0	999	10.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Wood (3+ inch) Rotten	0.00	0.00	0.00	0.0	999	10.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Duff	0.00	0.00	0.00	0.0	2	20.0
Herbaceous	0.00	0.00	0.00	0.0	22	
Shrubs	38.70	30.96	7.74	80.0	231	
Crown foliage	0.00	0.00	0.00	0.0	37	
Crown branchwood	0.00	0.00	0.00	0.0	38	
Total Fuels	38.70	30.96	7.74	80.0		

FIRE EFFECTS ON FOREST FLOOR COMPONENTS

Duff Depth Consumed (in) 0.0 Equation: 6
Mineral Soil Exposed (%) 100.0 Equation: 10

Ground and Surface Fuel Carbon Loading

Fuel Component Name	Preburn Carbon (t/acre)	Postburn Carbon (t/acre)
Litter	0.00	0.00
Wood	0.00	0.00
Duff	0.00	0.00
Herbaceous	0.00	0.00
Shrub	19.35	3.87
Foliage+Branch	0.00	0.00
Total	19.35	3.87

TITLE: Results of FOFEM model execution on date: 4/19/2017

FUEL EMISSIONS CALCULATIONS

Region: PacificWest
Cover Type: SRM 208 - Ceanothus Mixed Chaparral
Fuel Type: Natural
Fuel Reference: PMS-833

	Emissions -- lbs/acre flaming	smoldering	total
PM 10	190	0	190
PM 2.5	161	0	161
CH 4	49	0	49
CO	404	0	404
CO 2	110121	0	110121
NOX	198	0	198
SO2	62	0	62

	Consumption tons/acre	Duration hour:min:sec
Flaming:	30.96	00:01:00
Smoldering:	0.00	00:00:00
Total:	30.96	
Unit Average Combustion Efficiency:	0.97	

10 FIRING/IGNITION PROCEDURES

All firing will be done to minimize flame lengths and rates of spread. Burn prescriptions and fire behavior can be altered by proper ignition to minimize the potential for an escape. The firing pattern can be adjusted by the Burn Boss to fit the environmental risk and explosive safety risk factors. Figures 4A, 4B and 4C are illustrations of conceptual ignition patterns for possible wind conditions. Actual ignition patterns will be based on meteorological conditions at the time of the burn.

The ignition pattern will start on the downwind side of a burn unit, depending on the wind direction, to create a black line back into the wind or by narrow strips. Once a sufficient black line has been established the burning crews can adjust the firing pattern to meet the consumption criteria for the brush as identified in the prescribed burn objectives. Helicopter above ground distance will be determined by the USACE OESS on a case-by-case basis. For the prescribed burning of BLM Area B, Units A, B, and C, the USACE has determined that helicopters must operate at 200-ft from the ground surface after vegetation is ignited and maintain a forward airspeed of 40 knots to avoid hovering over burning vegetation.

The burn unit takes advantage of existing roads and breaks in dense vegetation on all sides. A temporary containment line (316-ft) will be established around the sides of each burn unit based on MEC safety. (Figure 2)

A helitorch will be used to ignite Units A, B, and C. The Burn Boss will have the prerogative of using the Terra-Torch for any additional ignition as required.

Helitorch ignition fuel will be mixed at the helibase. A backup unit will also be available onsite in case a helitorch unit malfunctions. There will be aerial suppression buckets on hand at the helibase to convert the helicopter from ignition to suppression.

10.1 HELITORCH MODULE

10.1.1 Requirements, Restrictions, and Approvals

A. The helicopter and pilot must be approved for helitorch use and FAA approved for external load operations.

B. Pilots and ground personnel accomplishing the mixing, loading, and application of the gelled fuel will have received proper training to perform helitorch operations.

C. **All** personnel involved in the project will be thoroughly briefed in helicopter safety and the helitorch operations on the morning of the burn or prior to flight operations of any kind.

D. The helitorch module personnel will be certified as qualified by the helicopter operator for helitorch operations. The helitorch must be built or modified to current standards identified for aerial ignition devices, as described in the contract statement of work for the project.

E. All helitorch/helicopter operations will be conducted in accordance with this plan and a Job Hazard Analysis (JHA) for the prescribed burn.

F. Discrete radio frequencies are required for any helitorch operation, and will be assigned on the day of the burn both for helicopter to helicopter communications and helicopter to ignition boss communications.

G. The helitorch fuel mixing operation will be done in accordance with National Wildfire Coordinating Group's (NWCG) Interagency Aerial Ignition Guide regarding handling, mixing, transportation, and storage of the fuel.

10.1.2 Operational Sequence

A. Training

1. Assemble helitorch module personnel and equipment the day prior to ignition.
2. Conduct training and review session on the helitorch, assuring that all necessary equipment and supplies are available, in proper working order for the day of the burn and that all personnel are thoroughly familiar with operational procedures and equipment maintenance.

B. Day prior to Burn (or early morning on the day of the burn)

1. Deliver necessary equipment and supplies to project helibase.
2. Set up helibase, i.e., landing area, parking area, mixing area, crash rescue, etc.
3. Make an orientation flight with the pilots and Burn Boss. The flight will include:
    a. Reconnaissance of burn site
    b. Flight patterns
    c. Ignition patterns
    d. Local hazards
    e. Water sources for dipping operations
    f. Personnel and equipment locations during the burn.
    g. Location of project helibase and landing areas
    h. Review size, shape, number and location of burn areas.

C. Day of Burn

1. Burn boss to hold briefing on project explaining it in detail, (e.g., specific duties of each person, communications plan, JHA, flight paths and patterns, emergency procedures). All flight hazards will be reviewed and discussed.
2. The Aerial Operations Branch Director will conduct an operational and safety briefing with all personnel concerning helicopter and helitorch operations and safety.
3. If not conducted on the day prior to the burn, orientation flight will be conducted on the day of burn.
4. Mixing of helitorch fuel and helitorch hookup will be conducted, and helitorch operation will be ground checked prior to departing the helitorch helibase.
5. The Burn Boss will radio to helibase when ready for ignition to begin. All radio communications will be rechecked.
6. Helitorch operation will begin under close direction of the Burn Boss.

7. When ignition is completed, helicopter will return to helibase and shut down at the discretion of the Burn Boss.
8. Post operational safety briefing will be conducted by the Burn Boss and the Aerial Operations Branch Director.

10.1.3 HELIBASE OPERATIONAL PROCEDURES

1. Fuel truck and mix area will be outside of the safety circle - trucks and tanks, etc. must be 50-ft or more away from the helicopter landing pad.
2. Position foam-equipped engines away from fuel truck, mixing area, and clear of helicopter approach/departure path. Engines must be equipped with foam approved for extinguishing petroleum fires.
3. Helicopter will not take off or land unless landing area is clear of all personnel.
4. Helicopter takeoffs and landings will be directed by the helibase radio operator.
5. Unloading /loading crew will clear landing area perimeter immediately after completion of loading and will not enter landing area except when signaled to do so by the pilot.
    a. The helitorch shall be positioned in front of the helicopter for hook up and lift off.
    b. If cables tangle or other problems occur requiring adjustment of the helitorch or its suspension system the helicopter pilot shall be instructed to land or jettison the helitorch. The helitorch shall not be flown over persons on the ground at any time.
    c. All mix barrels being used will be grounded at all times except when being transported.
    d. Spare barrels will be stored away from the mixing area and outside the safety area.
    e. The foam engine assigned will be staffed and prepared to take suppression action during helicopter operations and mixing and loading of fuel.
6. No one is allowed in the mixing or landing area except those authorized by the helibase manager.
7. The ignition helicopters are under the control of the helibase manager. However, the pilot has the final say and shall not be pressured in any way to do something that he/she is not comfortable with.

10.1.3.1 Mixing Safety Gasoline-gel

1. The helitorch/helibase manager will appoint a mixmaster who is in direct control of mixing operations.
2. The mixmaster sees that:
    a. Tanks are grounded at all times except when being transported.
    b. Gasoline-gel quantities are exact.
    c. Gasoline nozzle is completely shut off before removal from tank being filled.
3. Mix Crew - only the number of people necessary to conduct mixing and transporting functions will be in the mixing and helitorch area.

4. General

    a. All members of the mixing-transporting job will wear safety clothing consisting of hardhat with chin strap, cotton coveralls, hearing protectors, safety goggles, dust mask, gloves, field boots at all times while engaged in the mixing-transporting operation. The mixing crew, due to the possibility of static electricity discharge, will wear no nylon or synthetic fabric.

    b. The foam engine assigned to the helibase will be placed in a location that provides quick access to both the mixing area and the helicopter -helitorch area.

    c. The helitorch/helibase manager will establish escape routes and all helibase personnel will know where to go and what to do in the event of an emergency.

    d. In the event that an emergency occurs, procedures outlined in the Crash Rescue Plan will be followed.

10.1.3.2 Helibase Safety

1. The helitorch/helibase manager is directly responsible for helibase safety. This includes:

    a. All personnel clear of the landing area during all takeoffs and landings.

    b. Mix crew is in the helitorch area only as long as required for loading and unloading torch.

    c. Mixing operation is conducted safely.

    d. Assures proper communications are established according to the communications plan

    e. Foam engine is properly positioned to provide emergency service to both mixing and helicopter functions.

    f. All helibase personnel are properly equipped with prescribed safety equipment:

        1) Hard hats with chin straps
        2) Hearing protection
        3) Safety goggles
        4) Dust masks
        5) Cotton coveralls for the mixers
        6) Boots
        7) Gloves.

10.2 CRASH RESCUE PLAN

In the event of an accident during the project the helitorch/helibase manager or Burn Boss will supervise and coordinate the crash rescue activities. Crash rescue and first aid equipment will be located on or near the engine assigned to the helibase and the equipment location made known to all helibase personnel. Specific crash rescue duties will be detailed in the Incident Action Plan.

If a crash occurs outside the jurisdiction of POMFD, the local fire agency having jurisdiction will be notified immediately. All requests for assistance will be coordinated by the IC through the Monterey County Emergency Communications center (Fire Comm).

10.3 COMMUNICATION PLAN

There will be a separate discrete frequency used for communication between the pilot, Burn Boss, Suppression helibase manager, and helitorch/helibase manager during helitorch operations.

Flight-following will be done onsite during helicopter operations.

All communications will be checked prior to start of operation and rechecked just prior to start of the operation.

10.4 HELITORCH CHECKLISTS

HELITORCH OPERATIONS CHECKLIST – BURN EVENT 1 (UNIT A)

This Helitorch Operations Checklist shall be completed prior to each day's operation.

A. Organization

1. Helitack organization chart has been prepared and posted showing responsibilities for functions named. ☐
2. All positions are filled by qualified personnel ☐

B. Helibase Operations

1. Helibase Manager
   a. Has established separate radio frequencies as designated on Communications Plan ☐
   b. Communications tested and operational ☐
   c. Briefings to include all essential helitack personnel, firing personnel, and helicopter pilots on: ☐
      1) Overhead responsibilities and authorities ☐
      2) Flight routes ☐
      3) Area flight hazards ☐
      4) Radio frequency assignments ☐
      5) Personnel assignments ☐
      6) Emergency procedures. ☐

NOTE: All personnel will be briefed on the adherence of alumagel and the hazards from coming into contact with it and gasoline.

C. Mixing Area

1. Separate from helibase activities ☐
2. Traffic control, aircraft, ground traffic and personnel ☐
3. Helitorch fuel supply available and properly located and grounded ☐
4. Fire Suppression equipment available ☐
5. Personnel assigned and briefed ☐
6. Emergency procedures reviewed ☐

D. Landing Area

1. Located where safe approach and departure paths exist, and separate from other helibase activities take place ☐
2. Free from flight hazards ☐
3. Traffic control of ground vehicles, personnel, and aircraft ☐
4. Dust abatement measures in place ☐
5. Helicopter fuel truck security - parking area and driving route designated, located away from flight routes, landing areas and personnel. Static grounding measures required ☐
6. Helitorch loading procedures briefed ☐
7. Fire suppression equipment available ☐
8. Fire suppression person available ☐

E. Orientation flight completed ☐

F. Go/no-go check list completed ☐

CERTIFICATION - All items of the helitorch operations check list have been accomplished

_____ _____
Helitorch/Helibase Manager Date

_____ _____
Burn Boss Date

_____ _____
Aerial Operations Branch Director Date

This Plan was developed with the framework from the Federal Interagency Aerial Ignition Guide, May 1995.

HELITORCH OPERATIONS CHECKLIST – BURN EVENT 2 (UNIT B)

This Helitorch Operations Checklist shall be completed prior to each day's operation.

A. Organization

1. Helitack organization chart has been prepared and posted showing responsibilities for functions named. ☐
2. All positions are filled by qualified personnel ☐

B. Helibase Operations

1. Helibase Manager
   a. Has established separate radio frequencies as designated on Communications Plan ☐
   d. Communications tested and operational ☐
   e. Briefings to include all required helitack personnel, key firing personnel, and helicopter pilots. ☐
      1) Overhead responsibilities and authorities ☐
      2) Flight routes ☐
      3) Area flight hazards ☐
      4) Radio frequency assignments ☐
      5) Personnel assignments ☐
      6) Emergency procedures ☐

NOTE: All personnel will be briefed on the adherence of alumagel and the hazards from coming into contact with it and gasoline.

C. Mixing Area

1. Separate from helibase activities ☐
2. Traffic control, aircraft, ground traffic and personnel ☐
3. Helitorch fuel supply available and properly located and grounded ☐
4. Fire suppression equipment available ☐
5. Personnel assigned and briefed ☐
6. Emergency procedures reviewed ☐

D. Landing Area

1. Located where safe approach and departure paths exist, and separate from other helibase activities take place ☐
2. Free from flight hazards ☐

3. Traffic control of ground vehicles, personnel, and aircraft ☐
4. Dust abatement measures in place ☐
5. Helicopter fuel truck security - parking area and driving route designated, located away from flight routes, landing areas and personnel. Static grounding measures required ☐
6. Helitorch loading procedures briefed ☐
7. Fire suppression equipment available ☐
8. Fire suppression person available ☐

E. Orientation flight completed ☐

F. Go/no-go check list completed ☐

CERTIFICATION - All items of the Helitorch operations Check list have been accomplished

_____ _____
Helitorch/Helibase Manager Date

_____ _____
Burn Boss Date

_____ _____
Aerial Operations Branch Director Date

This Plan was developed with the framework from the Federal Interagency Aerial Ignition Guide, May 1995.

HELITORCH OPERATIONS CHECKLIST – BURN EVENT 3 (UNIT C)

This Helitorch Operations Checklist shall be completed prior to each day's operation.

B. Organization

1. Helitack organization chart has been prepared and posted showing responsibilities for functions named. ☐
2. All positions are filled by qualified personnel ☐

B. Helibase Operations

2. Helibase Manager
   - b. Has established separate radio frequencies as designated on Communications Plan ☐
   - f. Communications tested and operational ☐
   - g. Briefings to include all required helitack personnel, key firing personnel, and helicopter pilots. ☐
     - 2) Overhead responsibilities and authorities ☐
     - 3) Flight routes ☐
     - 4) Area flight hazards ☐
     - 5) Radio frequency assignments ☐
     - 6) Personnel assignments ☐
     - 7) Emergency procedures ☐

NOTE: All personnel will be briefed on the adherence of alumagel and the hazards from coming into contact with it and gasoline.

C. Mixing Area

2. Separate from helibase activities ☐
3. Traffic control, aircraft, ground traffic and personnel ☐
4. Helitorch fuel supply available and properly located and grounded ☐
5. Fire suppression equipment available ☐
6. Personnel assigned and briefed ☐
7. Emergency procedures reviewed ☐

D. Landing Area

2. Located where safe approach and departure paths exist, and separate from other helibase activities take place ☐
3. Free from flight hazards ☐

4. Traffic control of ground vehicles, personnel, and aircraft ☐
5. Dust abatement measures in place ☐
6. Helicopter fuel truck security - parking area and driving route designated, located away from flight routes, landing areas and personnel. Static grounding measures required ☐
7. Helitorch loading procedures briefed ☐
8. Fire suppression equipment available ☐
9. Fire suppression person available ☐

F. Orientation flight completed ☐

G. Go/no-go check list completed ☐

CERTIFICATION - All items of the Helitorch operations Check list have been accomplished

_____ _____
Helitorch/Helibase Manager Date

_____ _____
Burn Boss Date

_____ _____
Aerial Operations Branch Director Date

This Plan was developed with the framework from the Federal Interagency Aerial Ignition Guide, May 1995.

11 PROVISIONS FOR TEST FIRE & RECORDING RESULTS

A small test burn, large enough to visually indicate potential smoke dispersion, will be ignited inside the first unit to be burned. The test burn will be observed to evaluate whether or not conditions conducive to good smoke management are developing. This visual evaluation will focus on the integrity and height of the smoke column, the evolution of the wind profile and mixing height, as well as other factors related to smoke management, as identified in the burn plan and by the project meteorologist.

12 HOLDING PROCEDURES

All POMFD ground holding/suppression resources will be positioned outside the MSD whenever possible. Any spot fires or slop overs will be suppressed aerially or from the perimeter fuel break road by ground resources as directed by the IC or Burn Boss. Any additional holding resources (Cal Fire, BLM or local fire agencies) will be located outside the EZ. After ignition has begun, all nonessential personnel shall remain out of the EZ until the burn unit has cooled for at least 24 hours or as directed by the USACE OESS. Prior to operating within the MSD for suppression action the Holding Group Supervisor will need to get permission from the USACE OESS unless an escape is declared.

Secondary and Tertiary lines of defense are established using existing fuel breaks and paved roadways and will be used in the event of an escape. The IC will determine the type of attack on any escape.

12.1 ONSITE RESOURCES:

Equipment Type		Optimum Quantity	Minimum Quantity	Provider
AERIAL:				
Helicopter – Type I (Suppression) Small Type 1		2	1	Contract
Helicopter – Type II (Suppression) ONE MUST BE UNRESTRICTED		5	4	Contract
Helicopter Type 3 (Ignition and Suppression)		3	2	Contract
Helitorch		3	2	Contract
Helicopter Communications Trailer		2	2	Contract
GROUND:				
Type 1 Engines - Crash and Rescue	(staffed by 2 personnel ea)	2	2	POMFD
Type 3 Engines	(staffed by 3 personnel ea)	8/11*	5	Contract 5 POMFD - 3
Type 6 Engines	(staffed by 3 personnel ea)	5*	5	Contract
Terra Torch w/ truck	(staffed by 2 personnel ea)	2	1	POMFD
Command Vehicles		2	2	POMFD
Water Tender – 1800 gal		2	1	POMFD
Water Tender – 4,000 gal		6	6	Contract
Tactical “Fat Tire” Water Tender – 2,000 gal		2	1	Contract
Fuel tanks (at BLM location)		2	2	Contract
WATER STORAGE:				
12.3K gal Dip Tank		6	4	On Hand
10K gal Poly tanks		6	4	On Hand
20K gal Baker Tanks		8	5	Contract
10K gal Klein Tanks		1	0	Contract
5K gal Fold-A-Tank		2	0	POMFD
ADDITIONAL STAFFING:				
Burn Safety Officer		1	1	Contract
Tactical Water Tenders Overnight Patrol Coverage (12-hour shift)		2	2	Contract
Dozer		1	1	Contract
ALS Ambulance with Paramedics		1	1	Contract

* In order to conduct burns on consecutive days three (3) additional Type 3 or Type 6 engines with 3 personnel each are required.

12.2 PERSONNEL PLACEMENT:

The Holding Group Supervisor and IC will stage personnel and equipment at selected locations. Personnel will be instructed to hold, set the hose lay and perform spot fire control.

The staging area is selected for briefings, equipment storage, organizing crews, first aid station, and debriefing. The staging area will be determined by the IC and will be addressed in technical fire operational plans.

The roads into the burn areas need to be kept clear of non-essential vehicles and any pedestrian traffic. Certain hard-packed roads, designated as operationally crucial, will be closed to public use during the burn operations. Dirt trails accessing these roads may be restricted to public use as well to prevent unauthorized individuals on closed roads. Details regarding the road closures will be released upon mobilization.

Conditions will be monitored for early warning in case of fire escape or excessive smoke impacts.

12.3 WATER (SOURCES, PUMP LOCATIONS, HOSELAYS, ETC):

Temporary water sources will be staged around the burn units and continuously supplied throughout the burn operations with water shuttles. There will be six (6)-12,300 gallon dip tanks, six (6)-10,000 gallon polytanks, for aerial suppression use, one (1) – 10,000 gallon overhead construction water tank and eight (8) 20,000 gallon Baker tanks for suppression use.

The locations for the dip tanks will be determined by the Aerial Operations Branch Director and will be contingent on anticipated wind direction forecasted on burn day. Locations of water sources may change depending on aerial requirements. (Figures 3A and 3B)

12.4 LINE CONSTRUCTION:

All line construction will be completed prior to the day of the burn as previously identified in the burn preparation documentation.

13 FIREFIGHTER, PUBLIC SAFETY & SPECIAL CONDITIONS

13.1 COMMUNICATIONS AND RADIO NEEDS:

Radio communications will be identified by the agency performing the prescribed burn. An Incident Command System (ICS) form will be used to identify frequencies and assignments. Sample forms are show below:

Table A:

CHANNEL	RECEIVE	RXL PL	TRANSMIT	TX PL	Controlled	Description
POMFD FED RED						Command
POMFD TACTICAL 1					YES	Burn Ops
POMFD TACTICAL 2					YES	Ground Suppression
POMFD CHIEFS					YES	
USFS A/G					YES	Aerial Ignition
USFS F1						Air to Ground
TBD						Mutual Aid Command
TBD						Mutual Aid Ops

IMPORTANT PHONE NUMBERS

Fire Staff	Radio #	Office #	Cell Phone	Alternate Cell	Home #

EMERGENCY CONTACTS:

AGENCY	NUMBER
Fire Comm	911
PG&E	800-743-5000
Marina Fire Department	831-384-7575
Seaside Fire Department	831-899-6262
Monterey County Regional FD	831-455-1828
Cal Fire – Garden Road	831-333-2600
Cal Fire – Emergency	831-647-6222

13.2 PUBLIC SAFETY:

The burn area and surrounding roads and trails will be closed to the public. The roads to be closed are not open for public vehicular use but are used for pedestrian recreational activities (hiking, walking, biking, and horseback riding). Certain roads will be closed to public access during the prescribed burn operations. (Figure 6)

Essential project personnel can refer to Attachment C: Site Security Plan which identifies the locations of checkpoints and road closures. Prior to the burn, signs will be positioned along the roads to inform the public of potential future road closures in the event of a prescribed burn. Upon mobilization for a burn, signs stating "Prescribed Burn in Progress" will be installed at locations around burn units. POMFD will set up and manage the burn event warning signs.

Fire and emergency vehicles are clearly marked. Safety is the primary concern; speed and congestion will be closely monitored especially because of the potential for reduced visibility due to smoke.

13.3 MEDICAL FACILITY:

The IC will handle all medical emergencies according to standard emergency procedures. Medivac orders will be placed through Monterey County Emergency Communications (MCEC) 911. Onsite emergency medical technicians (EMTs) will be identified and onsite medical assistance pre-planned.

Minor injuries will be handled through the IC and the injured can be sent to the emergency room at CHOMP.

Community Hospital of the Monterey Peninsula
23625 Holman Highway (Hwy 68)
Monterey, CA 93942

13.4 SAFETY AND HEALTH JOB HAZARD ANALYSIS

(See Attachment D)

14 PUBLIC INFORMATION PRE-BURN INFORMATION / COORDINATION

Prior to the start of burn season, the Army's website www.FortOrdCleanup.com will be updated and a press release will be provided to local media announcing the Army's plans to conduct a prescribed burn. The website will provide information related to the prescribed burns including: directions on how to sign up for the direct notification program and registration forms, prescribed burn program frequently asked questions, suggestions to reduce smoke exposure and background information on the prescribed burn program. The website also includes links to relevant websites for additional information.

For parties that have made the request to be included in the direct notification program, a notification will be provided by phone or email when the fire is ignited. See Attachment E - Notification Plan for details.

All burn information for members of the public will be conducted by the BRAC Office. Contact: the Fort Ord Community Relations Office: 831-393-1284.

15 ESCAPED FIRE PROCEDURES AND CONTINGENCY PLAN

The detailed Escape Contingency Plan document is located in Attachment B of this burn plan.

Definition of Escaped Prescribed Burn:

If a prescribed burn is not meeting the identified management objectives or otherwise meets the criteria below, then the prescribed burn becomes a wildland fire. Once a prescribed burn becomes a wildland fire it cannot be returned to a prescribed burn status.

A prescribed burn becomes a wildland fire when the IC determines that an escape has, or is likely to, occur or environmental conditions and/or fire behavior exceeds the parameters in the prescribed burn plan and the fire is no longer meeting the identified management objectives. Fire outside of the planned perimeter that cannot be contained with the holding forces identified in the prescribed burn plan is an escape and will be declared a wildland fire. This is not a "slop-over" that crosses the fire line but which can be contained by resources onsite (no suppression charges will be used).

15.1 ESCAPED PRESCRIBED BURN ACTION:

When an escape is declared, managers still have the full range of suppression options available under the concept of the "Appropriate Management Response".

If an escape is declared a "Fire Name" will be assigned. The following actions will be taken on all prescribed burns that escape and are declared a wildland fire.

1. Take prompt and reasonable action to control and suppress the fire.
2. Notify the appropriate representatives responsible for the area.
3. Notify other agency administrator(s), and/or other landowners that may be affected by the escaped fire. Coordinate suppression actions with the other affected parties.
4. Document the time and environmental conditions that existed when the escape occurred.
5. Document the incident, including all actions prior to and after the escape. Set up a file that includes all pertinent information including, but not limited to:
    - The prescribed burn plan,
    - A chronology of events including the prescribed burn report, unit logs or individual statements, and the fire investigation report,
    - Weather forecasts including any spot forecasts, Remote Automated Weather System (RAWS) data and National Fire Danger Rating System (NFDRS) data for the day of the escape for the nearest weather stations,
    - Photos,
    - Any appraisal of damages.

15.2 ESCAPEMENT CONTINGENCY PLAN:

This is a summary of the Escape Fire Contingency Plan which is included in Attachment B of this burn plan.

1. Should an escape occur, the IC (or other designated person) will organize all onsite resources for an aggressive response.
2. The IC will notify Fire Comm of the situation and order the needed resources.
3. The IC and command staff will develop a Wild Fire Situation Analysis (WFSA). This document will determine what the suppression effort will be, which resources can be deployed and which resources / materials cannot be used for suppression inside the habitat and watershed boundaries.
4. Upon an escape, all key personnel will initiate a unit log to document all actions taken. After the incident is contained, the IC will submit a report documenting weather, resources onsite, ignition sequence, suppression actions and other pertinent data to BRAC and Presidio of Monterey Directorate of Emergency Services (POM DES).
5. The strategy for an escaped fire will include flanking the fire until forward rate of spread is stopped and/or burning out from roads and/or natural barriers is complete.
6. The helicopters will be used for holding and helping to control any escape by transporting water and personnel to safe and strategic locations.

15.3 CONTAINMENT OPPORTUNITIES:

Analysis of Onsite Resources:

Line-Building Rate: Chains per hour over an extended period. A higher rate can be expected during the first hour.

NWCG* Engine Type:	Water Capacity	Chains/Hr
Type IV or VI	200 gal	40
Type III	500+ gal	40

*National Wildland Coordinating Group

Onsite Resources: See 12.1 for equipment matrix. Total onsite line building capabilities: 180 Ch/hr.

The line-building rate of onsite equipment will exceed the expected fire spread rate or increase in perimeter during an initial escape. If the escape occurs at eye level wind speeds over 12 mph, additional resources will be required to hold the line and mop up. In some cases, fire intensity or flame length could limit the effectiveness of engines in suppressing an escape.

Topography and MEC are significant factors limiting direct attack on any spot fires. Helicopters will play a significant role in knocking down any spot fires in restricted areas. If necessary, the secondary containment line will be used to indirectly attack the escaped fire. The escaped burn area target is based on the ability of the onsite firefighters to contain the fire within the prescribed plan. Containment

will be evaluated before an escape or target acreage is declared. At the time of an escape, active ignition will cease and all resources will be committed to containment efforts. (Figures 3A-B for secondary and tertiary containment line locations).

15.4 CLOSEST FORCES:

Local strike teams assigned to the Monterey County area will be activated. The strategy for an escaped fire will include flanking the fire until the forward rate of spread is stopped.

15.5 POST BURN CONTINGENCY PLAN:

This document describes the weather conditions which would trigger the activation of post-burn contingency actions with the objective of minimizing the potential for escape. It is the responsibility of the assigned IC to monitor weather forecasts and onsite conditions and to order the appropriate contingency action as outlined in this plan.

Activation levels are based upon the potential for prescribed burns to spot across fuel breaks/containment lines. This is a factor of the receptiveness of the receiving fuel bed to new ignitions from embers (Probability of Ignition [PI]), and the horizontal force driving embers across fire lines and into receptive fuel beds (wind speed). These two factors, both of which are easily measurable onsite or can be predicted from weather forecasts, will be matrixed to identify activation levels.

Three levels of PI will be used and are categorized as follows:

PI of 10 to 40:	Low potential for new ignitions
50 to 60:	Moderate potential for new ignitions
70+:	High potential for new ignitions

Weather records from local weather stations will be used. The three wind speed levels will be used based on the frequency of their occurrence and their effect on spotting. Wind speeds are 10-minute average readings at the 20’ level.

0 to 12 mph:	85% occurrence:	Minimal effect on holding.
13 to 24 mph:	12% occurrence:	Significant effect on holding.
25+ mph:	03% occurrence:	Adverse effect on holding.

The chart below shows the level of action required for actual and predicted weather conditions.

Activation Levels		Actions Required		
Probability of Ignition	**20' Wind Speed**	**Mop-up Distance**	**Patrol Frequency**	**Available Resources**
	0 to 12	Incident Commander	Incident Commander	Incident Commander
10 to 40	13 to 24	Incident Commander	Incident Commander	Incident Commander
	25+	50-ft	1 Patrol/day	5 Firefighters
	0 to 12	Incident Commander	Incident Commander	Incident Commander
50 to 60	13 to 24	50-ft	1 Patrol/day	5 Firefighters
	25+	100-ft	2 Patrol/day	10 Firefighters
	0 to 12	50-ft	2 Patrol/day	10 Firefighters
70 +	13 to 24	100-ft	3 Patrol/day	10 Firefighters
	25+	150-ft	Continuous	20 Firefighters

16 POST BURN SUMMARY AND DOCUMENTATION

SMOKE CONDITIONS: Direction of Smoke Movement: _____

Convection column or smoke plume: Well Formed ( ) Weak ( )

Height above fire: 5000'+ ( ) 500 - 5000' ( ) < 500' ( )

Describe smoke conditions the day after ignition:

This information will be included in the Prescribed Burn After-Action Report.

FIRE EFFECTS AND RESULTS (Narrative):

17 BURN DAY GO-NO-GO CHECKLISTS

(To be filled out daily by the Burn Boss and filed in project folder.)

A "NO" response to any item means stop!!!

17.1 BURN EVENT 1 (UNIT A)

17.1.1 Burning Operations:

1. Contacted Monterey County Fire Area Coordinator or Alternate? **Y/N?**
2. Negative Red Flag Conditions for Monterey County? **Y/N?**
3. Are **ALL** fire prescription criteria met? **Y/N?**
4. Is the fire weather forecast favorable? **Y/N?**
5. Are **ALL** personnel required in the prescribed burn plan onsite? **Y/N?**
6. Have **ALL** personnel been briefed on safety hazards, escape routes and safety zones? **Y/N?**
7. Is **ALL** of the required equipment in place and in working order? **Y/N?**
8. Have **ALL** personnel been briefed on the prescribed burn plan requirements? **Y/N?**
9. Are sufficient backup resources available for containment of escapes? **Y/N?**
10. Can the burn be executed according to plan and can it meet management objectives? **Y/N?**

17.1.2 Helicopter Operations:

11. Have **ALL** aviation safety requirements been met and the helicopter operation checklist completed? **Y/N?**
12. Have aerial hazards been noted? **Y/N?**
13. Have pilots been apprised of unavoidable flight hazards? **Y/N?**
14. Have pilots been reminded of hazards? **Y/N?**
15. Have over flights been avoided and personnel placed away from flight paths? **Y/N?**

17.1.3 Smoke Management:

16. Are **ALL** smoke management prescription specifications met? **Y/N?**

IF ALL QUESTIONS ABOVE HAVE BEEN ANSWERED "YES" YOU MAY PROCEED WITH IGNITION.

CERTIFIED BY: _____DATE:_____
POMFD Incident Commander

Daily Positions: **Burn Boss** _____

Ignition Specialist _____

Holding Specialist _____

Other _____

BURN DAY GO-NO-GO CHECKLISTS

(To be filled out daily by the Burn Boss and filed in project folder.)

A "NO" response to any item means stop!!!

17.2 BURN EVENT 2 (UNIT B)

17.2.1 Burning Operations:

1. Contacted Monterey Fire Area Coordinator or Alternate? **Y/N?**
2. Negative Red Flag Conditions for Monterey County? **Y/N?**
3. Are **ALL** fire prescription criteria met? **Y/N?**
4. Is the fire weather forecast favorable? **Y/N?**
5. Are **ALL** personnel required in the prescribed burn plan onsite? **Y/N?**
6. Have **ALL** personnel been briefed on safety hazards, escape routes and safety zones? **Y/N?**
7. Is **ALL** of the required equipment in place and in working order? **Y/N?**
8. Have **ALL** personnel been briefed on the prescribed burn plan requirements? **Y/N?**
9. Are sufficient backup resources available for containment of escapes? **Y/N?**
10. Can the burn be executed according to plan and can it meet management objectives? **Y/N?**

17.2.2 Helicopter Operations:

11. Have **ALL** aviation safety requirements been met and the helicopter operation checklist completed? **Y/N?**
12. Have aerial hazards been noted? **Y/N?**
13. Have pilots been apprised of unavoidable flight hazards? **Y/N?**
14. Have pilots been reminded of hazards? **Y/N?**
15. Have over flights been avoided and personnel placed away from flight paths? **Y/N?**

17.2.3 Smoke Management:

16. Are **ALL** smoke management prescription specifications met? **Y/N?**

BURN DAY GO-NO-GO CHECKLISTS

(To be filled out daily by the Burn Boss and filed in project folder.)

A "NO" response to any item means stop!!!

17.2 BURN EVENT 3 (UNIT C)

17.2.1 Burning Operations:

1. Contacted Monterey Fire Area Coordinator or Alternate? **Y/N?**
2. Negative Red Flag Conditions for Monterey County? **Y/N?**
3. Are **ALL** fire prescription criteria met? **Y/N?**
4. Is the fire weather forecast favorable? **Y/N?**
5. Are **ALL** personnel required in the prescribed burn plan onsite? **Y/N?**
6. Have **ALL** personnel been briefed on safety hazards, escape routes and safety zones? **Y/N?**
7. Is **ALL** of the required equipment in place and in working order? **Y/N?**
8. Have **ALL** personnel been briefed on the prescribed burn plan requirements? **Y/N?**
9. Are sufficient backup resources available for containment of escapes? **Y/N?**
10. Can the burn be executed according to plan and can it meet management objectives? **Y/N?**

17.2.2 Helicopter Operations:

11. Have **ALL** aviation safety requirements been met and the helicopter operation checklist completed? **Y/N?**
12. Have aerial hazards been noted? **Y/N?**
13. Have pilots been apprised of unavoidable flight hazards? **Y/N?**
14. Have pilots been reminded of hazards? **Y/N?**
15. Have over flights been avoided and personnel placed away from flight paths? **Y/N?**

17.2.3 Smoke Management:

16. Are **ALL** smoke management prescription specifications met? **Y/N?**

IF ALL QUESTIONS ABOVE HAVE BEEN ANSWERED "YES" YOU MAY PROCEED WITH IGNITION.

CERTIFIED BY: _____DATE:_____
POMFD Incident Commander

Daily Positions: **Burn Boss** _____

Ignition Specialist _____

Holding Specialist _____

Other _____

18 TECHNICAL REVIEW

Checklist for Review of Prescribed Burn Plans

Project Name: BLM Area B, Units A, B, and C

____ Plan is in compliance with the Track 2 BLM Area B and MRS-16 ROD, HMP and Biological Opinions for this project.

____ Objectives, desired results and tolerable deviations clearly outlined.

____ Prescription adequate to meet objectives and to have a safe burn.

____ Plan includes a prediction of expected fire behavior.

____ Plan provides for requesting a spot weather forecast on moderate and high complexity burns.

____ Plan requires a test burn.

____ Problem areas or sensitive areas identified clearly.

____ Plan includes organization needed and instructions for overhead.

____ Maps adequate.

____ Escape Contingency Plan adequate.

____ Safety aspect of burn plan adequate.

____ Smoke sensitive areas identified & Smoke Management Plan adequate.

____ RECOMMENDED FOR APPROVAL.

INSTRUCTIONS: Technical Reviewer shall complete this checklist and attach it to the prescribed burn plan. Initial each box to indicate item found satisfactory. Enter N/A (not applicable) for those items reviewed and found not applicable.

Technical Review Completed by: _____Date_____

Prescribed Burn Qualification_____

19 COMPLEXITY RATING

NWCG - PRESCRIBED BURN COMPLEXITY RATING WORK SHEET

Project Name BLM Area B, Units A, B, and C

Complexity elements:

1. POTENTIAL FOR ESCAPE	
RISK	**RATING AND RATIONALE**
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Potential for spot fires that can propagate at moderate rates of spread, but can be held by skilled and prompt holding actions. The prescribed burn has some limited potential to cross burn unit perimeters or allowable area boundaries and exceed the capability of holding forces to suppress it. The probability of ignition in fuels outside of the unit is between 60% and 80%. The probability of onsite resources being unable to suppress a spot fire is 20-30%.

POTENTIAL CONSEQUENCES	**RATING AND RATIONALE**
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: An escape could result in moderate damage to vegetation / habitat, improvements within the containment lines. The fire could burn onto BLM lands. An escape outside of the containment line network could risk life and property. Nearest housing is one mile away and outside of the tertiary containment. There would be moderate impact to the public or users. Social or political concerns from an escape could be expected. Primary concern would be smoke impacts from an escape.

TECHNICAL DIFFICULTY	**RATING AND RATIONALE**
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Holding activities require supervision at the Strike Team/Task Force Leader level. Several types of resources are involved in the holding operation. Portions of the burn unit and allowable area are not easily accessible to the holding resources. Only POM personnel will be permitted into the BLM Area B burn exclusion zones. Attack will be indirect along secondary containment lines. Except for direct attack by suppression helicopters.

2. THE NUMBER AND DEPENDANCY OF ACTIVITIES	
RISK	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Aerial ignition activities are complex and highly interactive. The failure of single key activities (e.g. aerial ignition) can prevent the implementation of many subsequent actions and lead to a failure to successfully complete the project. Few opportunities to remedy failures exist and require highly skillful actions to be taken.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Coordination failure(s) could result in a high risk of escape, failure to complete the project, failure to meet the project goals and objectives. A significant delay in implementation would be expected.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Requires a highly skilled team to successfully complete the project. Continuous coordination and communication is critical to the success of the project. Outside pressure could significantly impact the outcome of the burn. There is considerable coordination with regulatory agencies which could impact the burn program.

3. OFF SITE VALUES	
RISK	**RATING AND RATIONALE**
Rating: **LOW** ***Moderate*** *High*	**HIGH**: The burn units are removed from areas of high value with the nearest housing over a mile away. High risk to BLM Work Center due to the fact that the Unit B is adjacent to the BLM property. More than one critical protection area has been identified; those areas are the BLM Work Center, East Garrison and CSUMB Fredericks Housing.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: **LOW** ***Moderate*** ***High***	**LOW**: Some negative impacts are expected in the event of spot fires, slop-overs, and escapes. The vegetation potentially affected, generally has exception recovery rates since it is a fire-dependent plant community. The expected fire behavior may cause some other limited consequences to off-site values, improvements (e.g. BLM Work Center). Access to certain roads and trails for recreation use will be restricted during burn.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Protection of the off-site values requires special management, a high skill level and a high level of team coordination, particularly at the critical holding points. POMFD has the skills and experience to protect these values. Additional high volume assets will be in place as a precautionary measure.

4. ONSITE VALUES

RISK	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: There are MEC present within the unit that may need to be addressed in planning, strategies, briefings, and during project implementation.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: **LOW** ***Moderate*** ***High***	**LOW**: Implementation problems will not damage special features or adversely affect onsite resource values.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: MEC within the unit requires the development of special ignition AND holding plans. Special or additional equipment will be needed. Considerable pre-burn preparation work is required.

5. FIRE BEHAVIOR

RISK	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Fuels vary moderately within the unit, both in loading and arrangement. Medium loadings with some high concentrations are present. More than one fuel model may be present on significant portions of the area. Variable terrain features may significantly affect fire behavior and present moderate ignition and control problems. Local winds and burning conditions will vary enough to cause notable shifts in fire behavior. Periodic torching can be expected either as isolated points or limited areas at one time. Spotting is expected to be short-range.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Fire behavior outside of the primary unit boundary would be about the same as that experienced within the unit. Due to the time of the year required

	for the burn (July 1 thru December 31) the vegetation is at its driest and the weather becomes critical to the success of the burn.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Fire behavior may create unique safety problems or the need for special escape routes or other safety measures. Limited containment opportunities exist again due to the presence of MEC. Fire behavior and the presence of MEC is such that indirect attack tactics will be necessary for any major slop-overs that cannot be attacked directly with the engine resources.

6. MANAGEMENT ORGANIZATION

RISK	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Requires staffing of qualified prescribed fire personnel. A single person may fill more than one position. Two levels of supervision are needed (e.g. Burn Boss, Ignition Specialist and/or Holding Specialist, Aerial Ignition Specialists, Helibase Manager and Helicopter Coordinator plus lighters and holders).

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Problems related to supervision or communication may cause failure to meet some objectives, an increased chance of escaped fire, or violation of safety standards.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Numerous and varied resources, multiple ignition methods, and/or a large team of specialized positions are needed. The burn has difficult access, complicated logistics, potentially conflicting objectives, unusual fuel complexes, and is proximate to smoke sensitive areas and wildland/urban interface. If certain skills and qualified personnel are not available on the local unit, the Burn Boss and/or other primary team members may need to be hired from outside the local unit and may not be familiar with local factors. Special skills or supervision required for more than one function. (RXB1 suggested)

7. PUBLIC AND POLITICAL INTEREST	
RISK	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: The prescribed burning is highly visible to the public. Public and political interest is high. Management involvement in the day-to-day preparations is necessary to ensure public interests are addressed. The media is interested in the project and may desire to be present onsite during some phases of the operations.
POTENTIAL CONSEQUENCES	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Unexpected or adverse events would attract significant public, political, or media attention and may impact the overall program. Calls for investigations into the unexpected or adverse events should be expected from the public or politicians.
TECHNICAL DIFFICULTY	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Requires a political information liaison assigned to the project. Requires considerable involvement from the agency administrator. Media is expected to be onsite during implementation. Direct notifications are necessary prior to project implementation.

8. FIRE TREATMENT OBJECTIVES	
RISK	**RATING AND RATIONALE**
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Objectives may include changes in two or more strata of vegetation for ecosystem restoration or maintenance. Objectives are judged to be moderately hard to achieve. Basic monitoring of fire behavior and weather is needed to determine if prescribed burn objectives are being met. Time of the year for burning is limited by habitat concerns to that time when containment is difficult.
POTENTIAL CONSEQUENCES	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Other opportunities to meet objectives are not available. MEC removal activities are dependent on the completion of the project. Failure to meet objectives would have an impact on follow up projects and timely cleanup and transfer of the former Fort Ord property.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Measures to achieve the objectives are both moderately difficult/difficult to achieve and there are restrictions on the techniques. High intensity fire or a combination of fire intensities are needed to meet resource objectives. Success depends on precise timing and sequence of ignition. Extensive pre-burn monitoring is required to determine when the unit is in prescription.

9. CONSTRAINTS

RISK	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Significant constraints exist on access to parts of the project area, use of specific tactics, heavy equipment, or aircraft use. Potential smoke impacts and the season of the burn significantly affect the burn and increase the risks.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Meteorological constraints may result in a shorter burn window than required for completion and may cause the project to be implemented under less than optimal conditions. Constraints on the available tactics will increase the risk of unexpected or adverse events.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Prescribed burning in munitions response sites significantly increase the difficulty of completing the project. The length of time to complete the project and the size of organization will increase and project feasibility may be in doubt.

10. SAFETY

RISK	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: The presence of MEC and the proximity to urban areas result in high safety risk. Complex safety issues exist. Special safety briefings are required. Several safety hazards remain that require special cautions. Potential adverse impacts to public health and safety require special mitigation. Several required activities can be characterized as low frequency/high risk.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Moderate potential exists for more serious accidents/injuries to firefighters or the public.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Extra caution is needed during project operation to manage several safety concerns. The implementation team will include a Fire Safety Officer and an OE Safety Specialist. A special safety briefing with special issues or emphasis areas is needed as part of the project briefing. Special mitigation measures are required to protect public health and safety.

11. IGNITION PRACTICES & METHODS

RISK	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Firing sequence and timing are critical to meet project objectives. Portions of the project area are not readily visible to the Ignition Specialist and Burn Boss.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Firing methods and procedures must be carefully planned and well-coordinated to address safety concerns, meet project objectives, and reduce the risk of an unexpected or adverse event. Opportunities for remedial actions or corrections are limited in the event of problems.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: The need for special firing equipment, or different techniques, or firing patterns has been identified. Firing procedures are complex and the ignition function may be broken into multiple teams with more than one Ignition Specialist used. Simultaneous ignitions could occur. Use of several different ignition devices (aerial and ground) is planned. The ignition patterns and techniques to manipulate fire behavior are used and require tight control of the lighters to achieve project objectives and manage safety concerns. (RXI1 suggested)

12. INTERAGENCY COORDINATION

RISK	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: The project involves other land management agencies and/or jurisdictions. Project completion is dependent on coordinated implementation. Several interagency partners have interest or concerns with the project that may require additional attention. Restrictions related to national and regional preparedness levels may cause significant delays in project implementation or project cancellation in a given burn window.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Interagency coordination issues may delay project implementation or require minor modifications to the prescribed burn plan.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Project requires use of several special agreements. Implementation requires special attention to certain interagency details, such as communications and standards for operations.

13. PROJECT LOGISTICS

RISK	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: The project requires some logistical support in certain areas, such as communications, ground transportation, or personnel support. Most supplies are readily available. Some special transportation or storage needs may exist for burning equipment. One to two pieces of special equipment (aerial ignition device and the terra torch) requiring more intensive logistical support requiring a fuel truck and mixing area.

POTENTIAL CONSEQUENCES	RATING AND RATIONALE
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Problems or failures related to logistical support will substantially affect the completion of the project.

TECHNICAL DIFFICULTY	RATING AND RATIONALE
Rating: ***Low*** **MODERATE** ***High***	**MODERATE**: Project implementation requires a small logistical support operation. Logistical support may be combined with other functions. Securing, transporting, or storing some supplies or equipment may require additional effort. Obtaining some personnel may require additional contacts and advanced scheduling.

14. SMOKE MANAGEMENT	
RISK	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Smoke concerns are high and require special and sometimes difficult mitigation. Smoke will be readily visible to the public and may be discernable for a few days. Smoke exposures can be a cause of certain health issues for sensitive members of the community therefore, smoke management will require special mitigation. A small number of community members have expressed their concerns about smoke impacts.

POTENTIAL CONSEQUENCES	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Vistas, roads, and residences may experience longer-term decreases in visibility OR significant decreases in visibility over the short-term. Smoke intrusions may occur into smoke sensitive areas, such as schools, hospitals, and or major or local airports, at levels that trigger regulatory concern.
TECHNICAL DIFFICULTY	**RATING AND RATIONALE**
Rating: ***Low*** ***Moderate*** **HIGH**	**HIGH**: Special considerations are needed in the prescribed burn plan. Special smoke management techniques will be used. Burn window/opportunities are limited by the required weather/dispersion conditions. Special coordination with air quality officials is advisable. Accelerated mop up may be planned to reduce smoke impacts. Some mitigation measures or additional smoke modeling are required to address potential concerns with smoke impacts. Specific smoke monitoring is required to determine smoke plume heights and directions.

PRESCRIBED FIRE SUMMARY
COMPLEXITY RATING SHEET

(Document why H,M,L ratings where selected under rationale.)

RISK	OVERALL RATING:	**HIGH**
POTENTIAL CONSEQUENCES	OVERALL RATING:	**HIGH**
TECHNICAL DIFFICULTY	OVERALL RATING:	**HIGH**
SUMMARY COMPLEXITY DETERMINATION:		**HIGH**

RATIONALE: The burns at BLM Area B, Units A, B, and C are extremely complex from a political standpoint and implementation standpoint which elevates the complexity to a High. A great deal of planning and coordination will be part of the burn process.

Prepared by:_____ Date: _____
Barry Callenberger, Burn Boss

Approved by: _____ Date: _____
POMFD Incident Commander

20 REFERENCES

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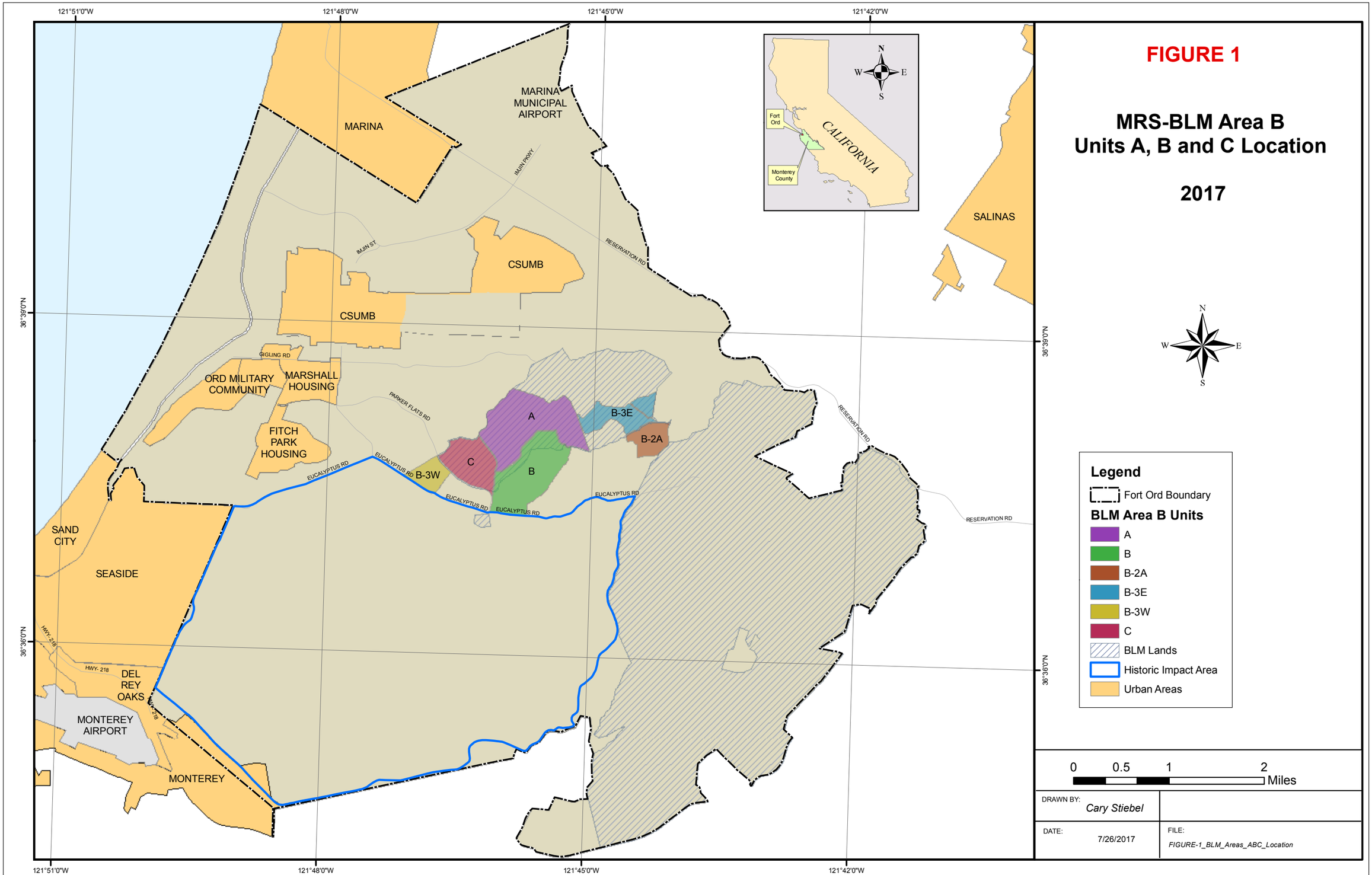
FIGURES

FIGURE 1

MRS-BLM Area B
Units A, B and C Location

2017



DRAWN BY: *Cary Stiebel*

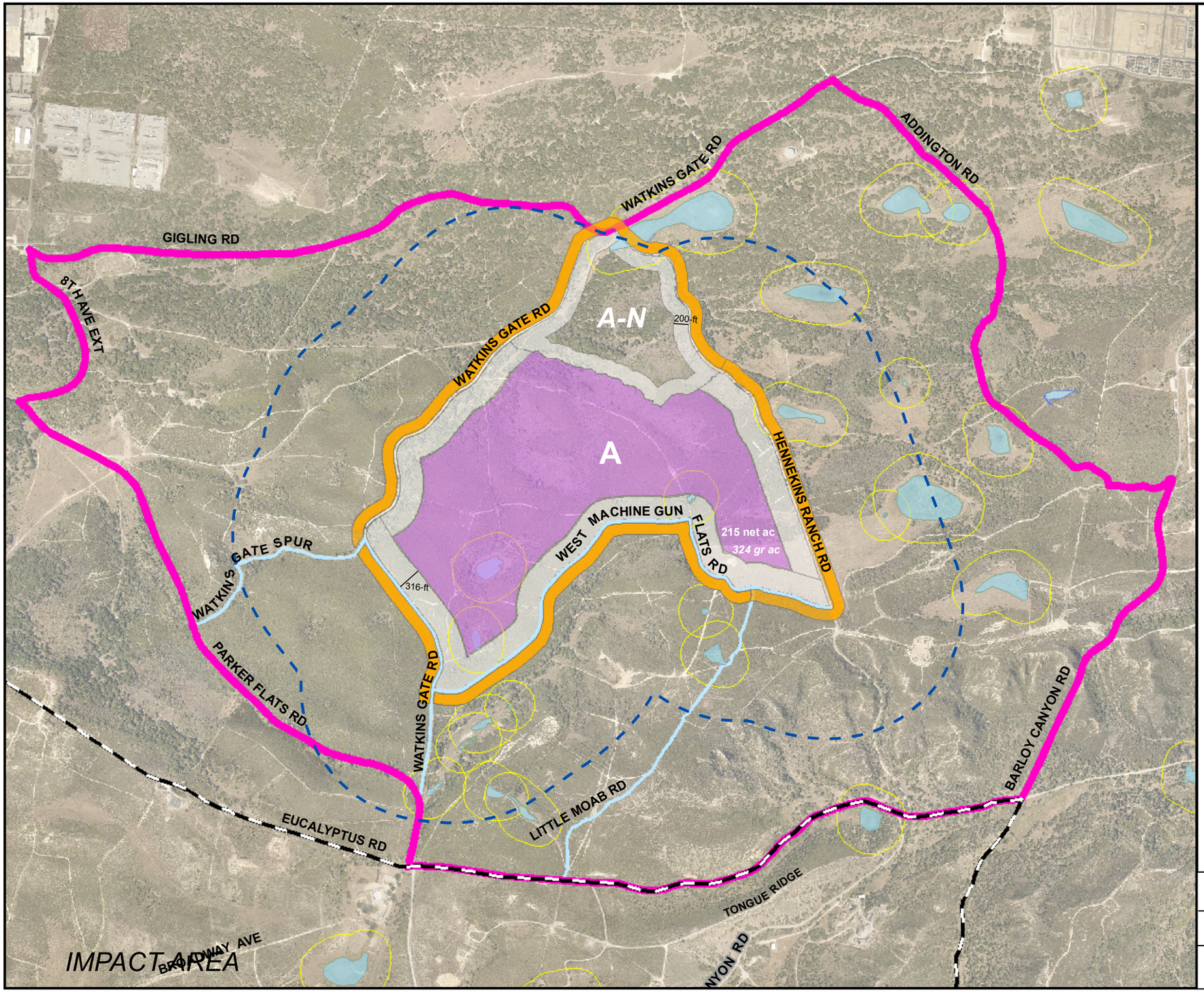
DATE: 7/26/2017

FILE: *FIGURE-1_BLM_Areas_ABC_Location*

FIGURE 2A

BLM Area B - Unit A
Location and Exclusion Zone

2017



N
W E
S

LEGEND

- Primary Containment (316-ft* HFD)
- Adjacent Mastication (150-ft)
- Secondary Containment (100-ft)
- Fuel break Roads
- Historical Impact Area
- 1,759 Exclusion Zone
- Vernal Pools
- 300-ft Vernal Pool Buffer

No fire foam or retardant use unless directed by IC. Heavy equipment, and vehicle use must be coordinated with project biologist.

* Unless otherwise noted

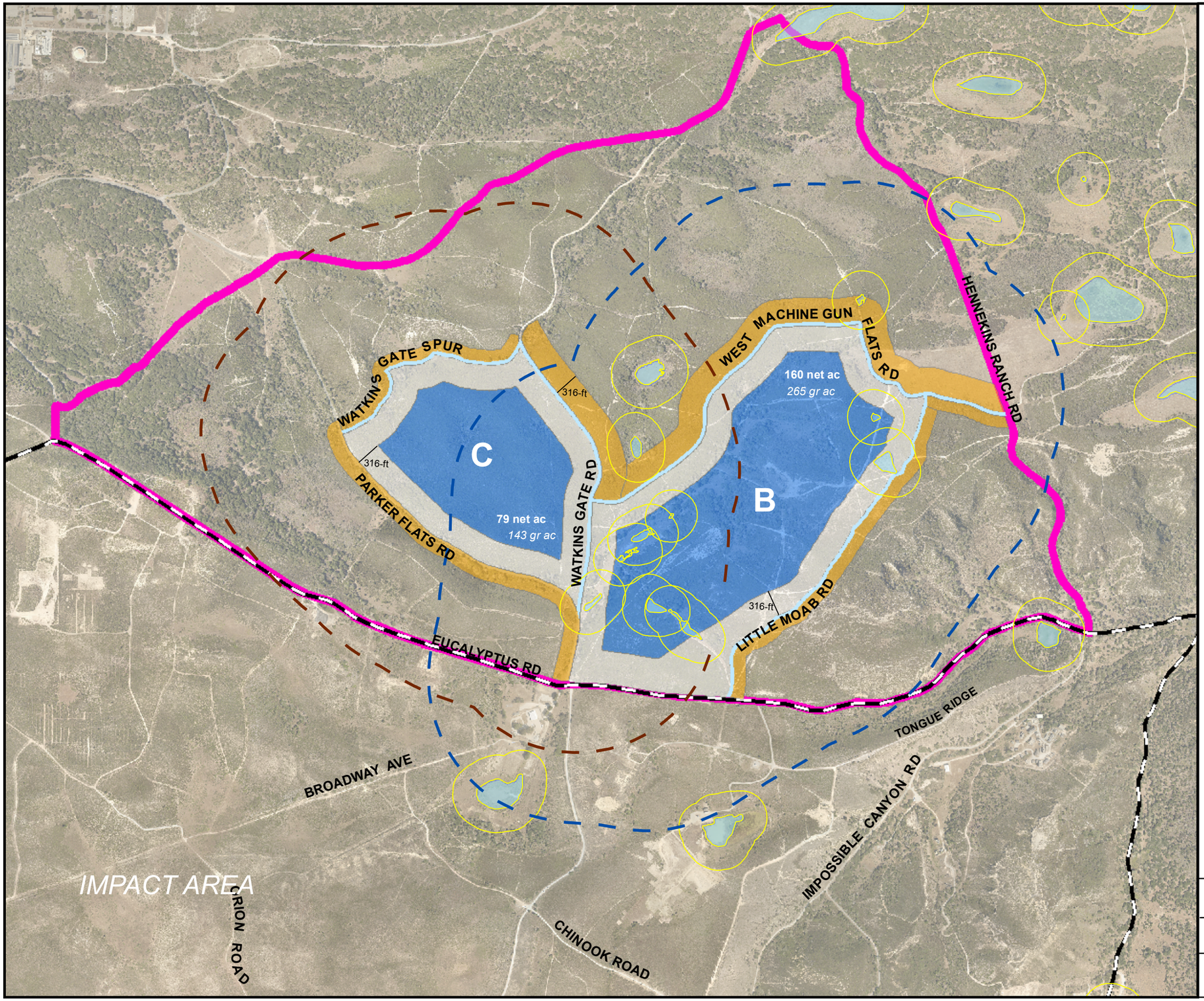
0 0.125 0.25 0.5 Miles

DRAWN BY:	DATA:
Cary Stiebel	*2016 Aerial Photography*
DATE: 7/26/2017	FILE: *FIGURE-2A_Unit_A_Map*

FIGURE 2B

BLM Area B - Units B and C Locations and Exclusion Zones

2017



LEGEND

- Primary Containment HFD 316-ft (170 ac)
- Secondary Containment 100-ft (86 ac)
- Adjacent Mastication 150-ft (126 ac)
- Fuel break Roads
- Historical Impact Area
- 1,759 Exclusion Zone
- Vernal Pools
- 300-ft Vernal Pool Buffer

No fire foam or retardant use unless directed by IC.
Heavy equipment, and vehicle use must be coordinated with project biologist.

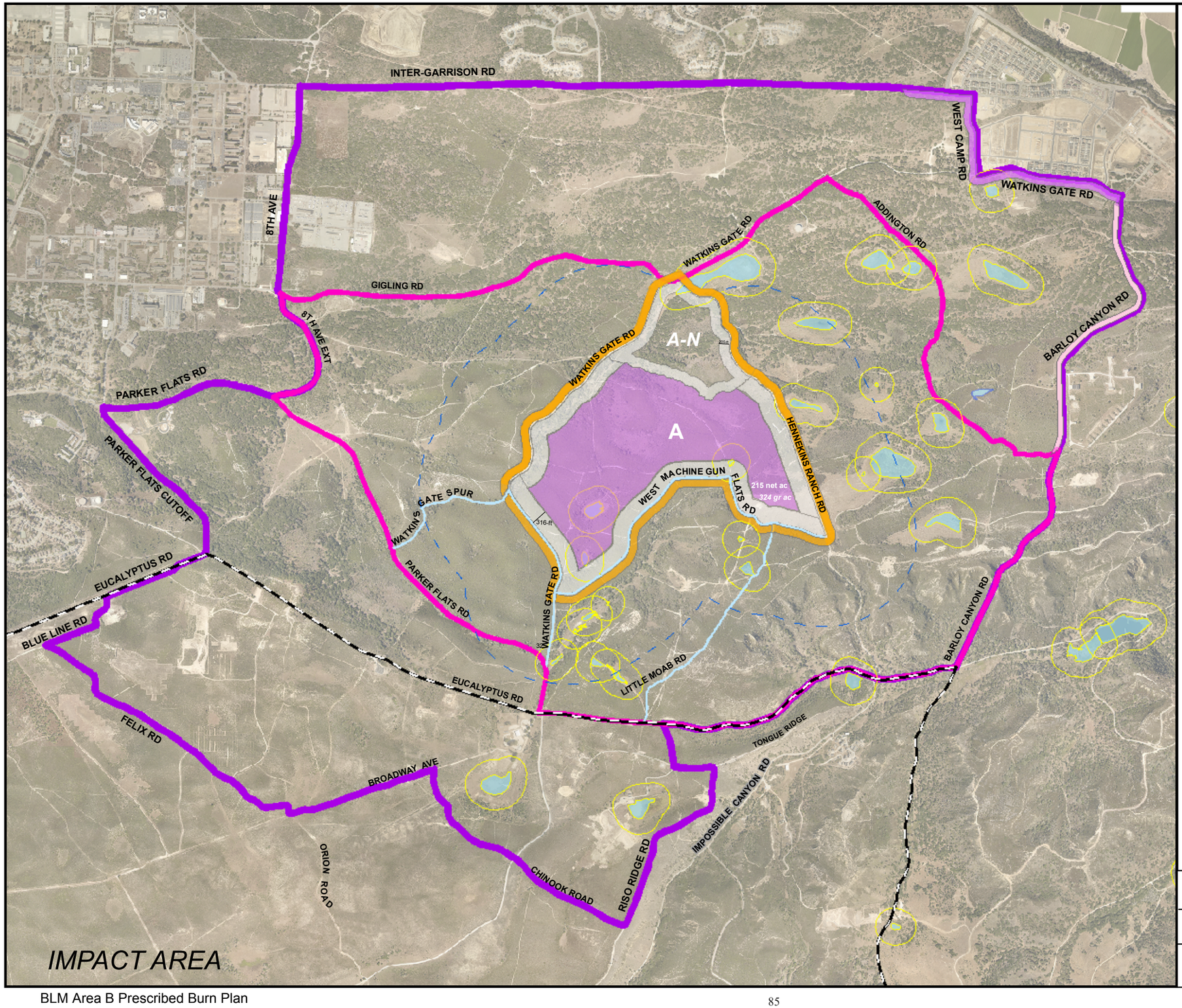
0 0.25 0.5 Miles

DRAWN BY: *Cary Stiebel*	DATA: *2016 Aerial Photography*
DATE: 7/27/2017	FILE: *FIGURE-2B_Units_BC_Location_EZs*

FIGURE 3A

BLM Area B - Unit A Containment Lines and Mastication Plan

2017



N
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LEGEND

- Primary HFD Mastication 316-ft (159 ac)
- Adjacent Mastication 150-ft
- Secondary Containment - 100-ft
- Tertiary Containment
- 150-ft Tertiary Mastication (22 ac)
- 100-ft Tertiary Mastication (13 ac)
- 1,759 Exclusion Zone
- Fuel break Roads
- Impact Area
- Vernal Pools
- 300-ft Vernal Pool Buffer

No fire foam or retardant use unless directed by IC. Heavy equipment, and vehicle use must be coordinated with project biologist.

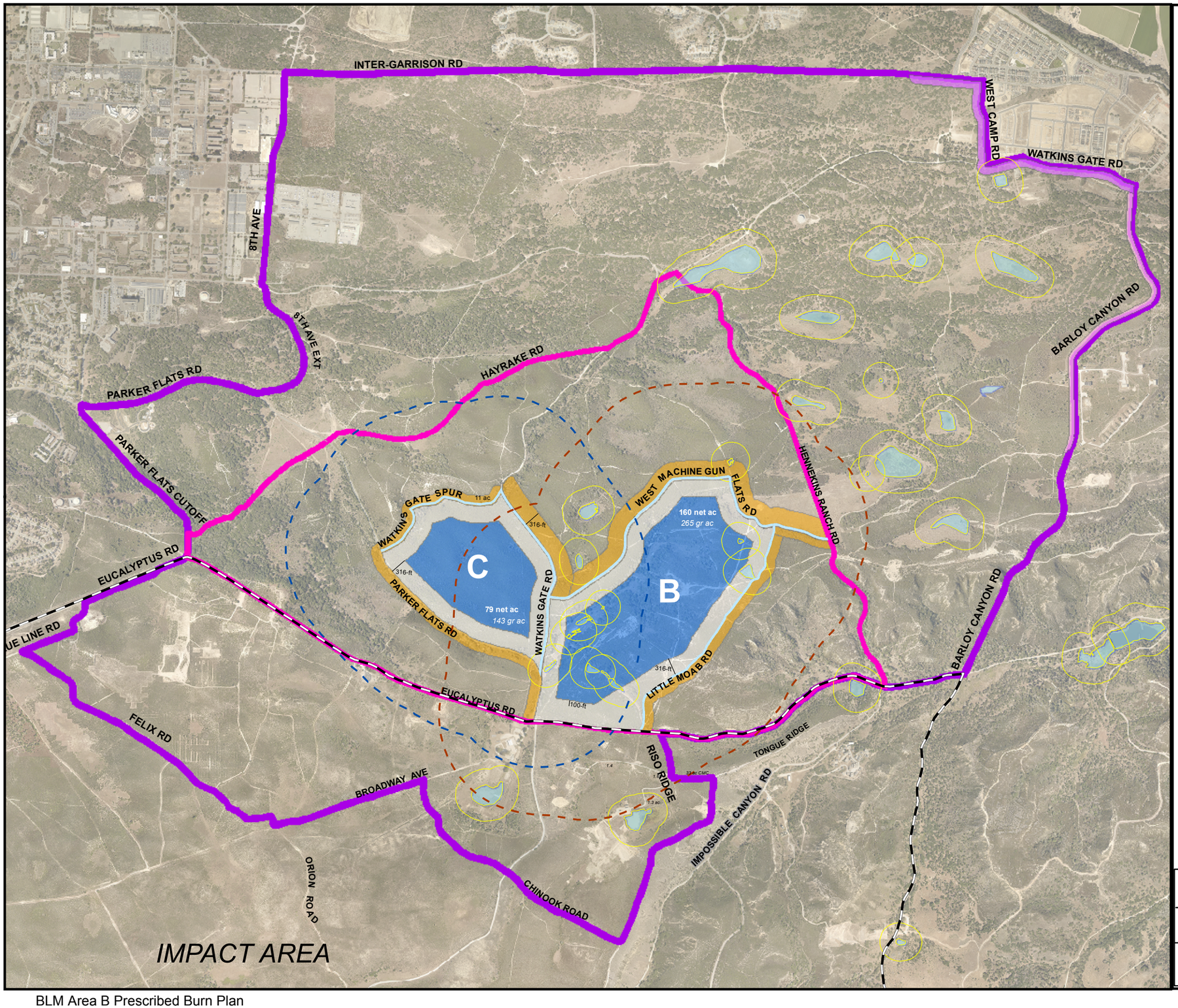
0 0.25 0.5 1 Miles

DRAWN BY: *Cary Stiebel*	DATA: *2016 Aerial Photography*
DATE: 7/26/2017	FILE: *FIGURE-3A_Unit_A_CL_Mastication_Plan*

FIGURE 3B

BLM Area B - Units B and C Containment Lines and Mastication Plan

2017



N
W E
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LEGEND

- Primary HFD Mastication 316-ft (170 ac)
- Secondary Containment - 100-ft (86 ac)
- Adjacent Mastication 150-ft (126 ac)
- Tertiary Containment
- 150-ft Tertiary Mastication (22 ac)
- 100-ft Tertiary Mastication (13 ac)
- 1,759 Exclusion Zone
- Fuel break Roads
- Historical Impact Area
- Vernal Pools
- 300-ft Vernal Pool Buffer

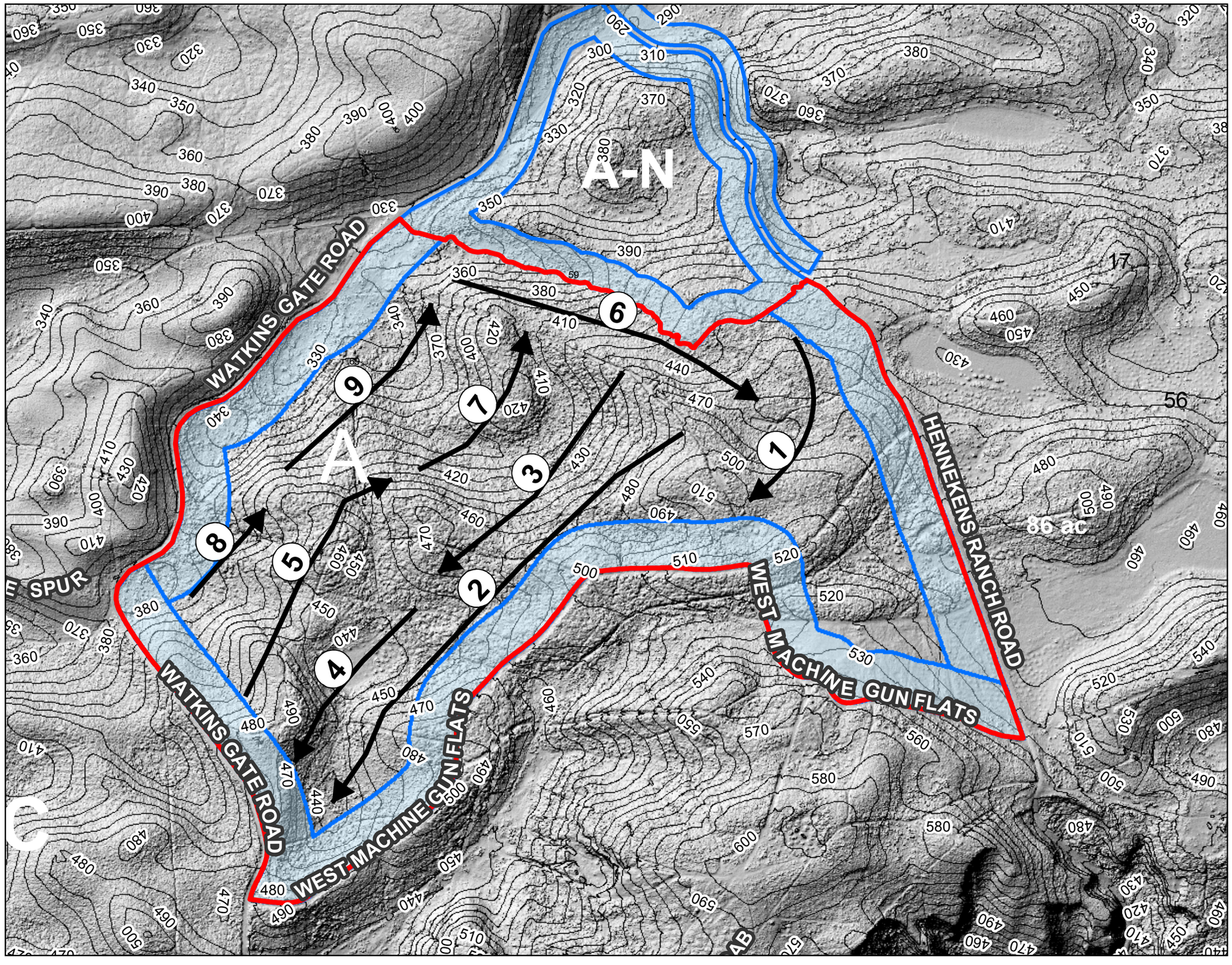
No fire foam or retardant use unless directed by IC. Heavy equipment, and vehicle use must be coordinated with project biologist.

0 0.25 0.5 1 Miles

DRAWN BY: *Cary Stiebel*	DATA: *2016 Aerial Photography*
DATE: 7/27/2017	FILE: *FIGURE-3B_Units_BC_CL_Mastication_Plan*

FIGURE 4A

BLM Area B
Conceptual Aerial
Ignition Pattern
Unit A



N
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Ignition Patterns

Burn Unit A

Primary Containment Line

10' Contours

0 250 500 1,000 Feet

DRAWN BY: *Cary Stiebel*	DATA: *BRAC*
DATE: 7/26/2017	FILE: *FIGURE-4A Ignition_BAB_Map_A*

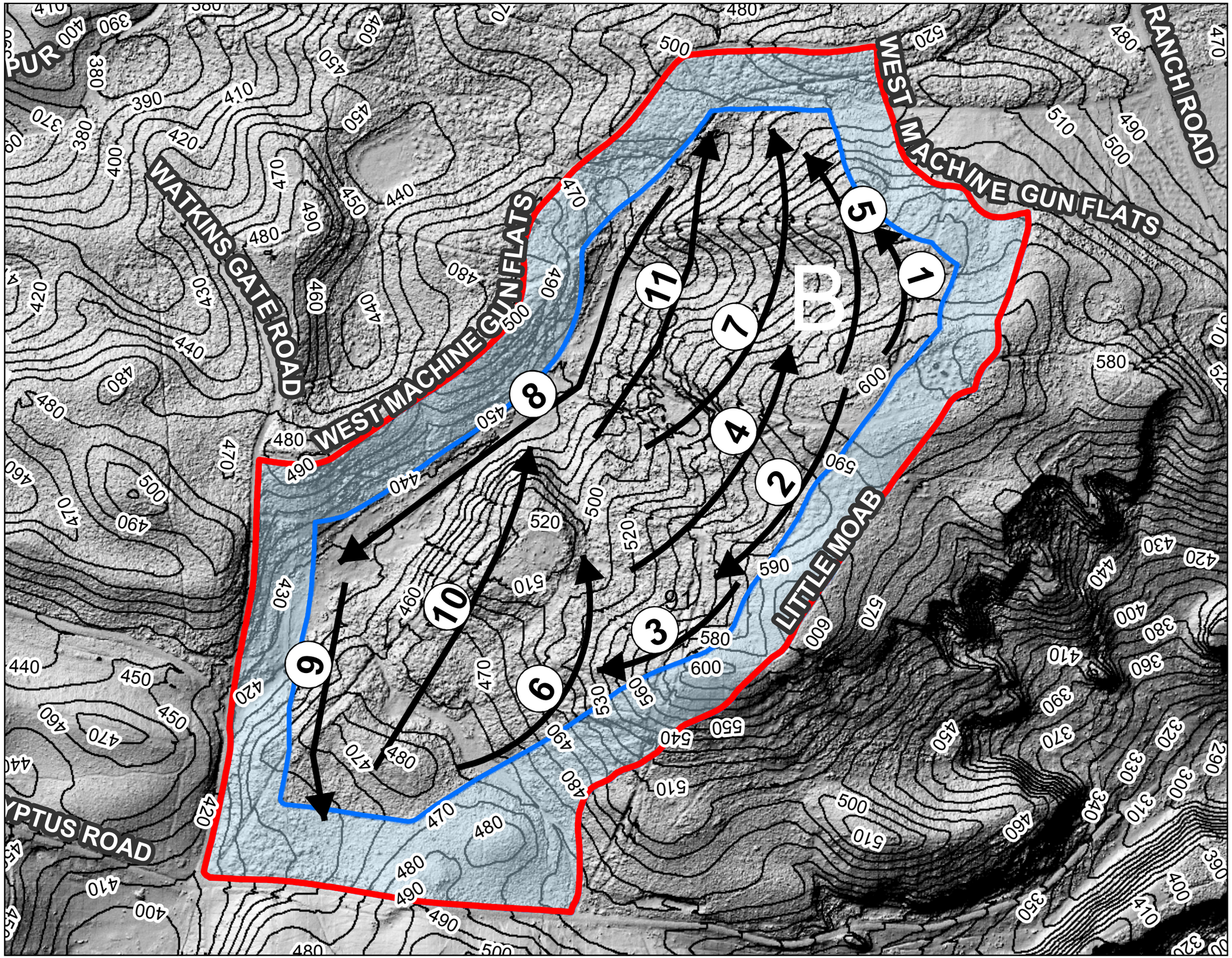

FIGURE 4B

BLM Area B
Conceptual Aerial
Ignition Pattern
Unit B

N
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Ignition Patterns

Burn Unit B

Primary Containment Line

10' Contours

0 250 500 1,000 Feet

DRAWN BY: *Cary Stiebel*	DATA: *BRAC*
DATE: 7/26/2017	FILE: *FIGURE-4B Ignition_BAB_Map_B*

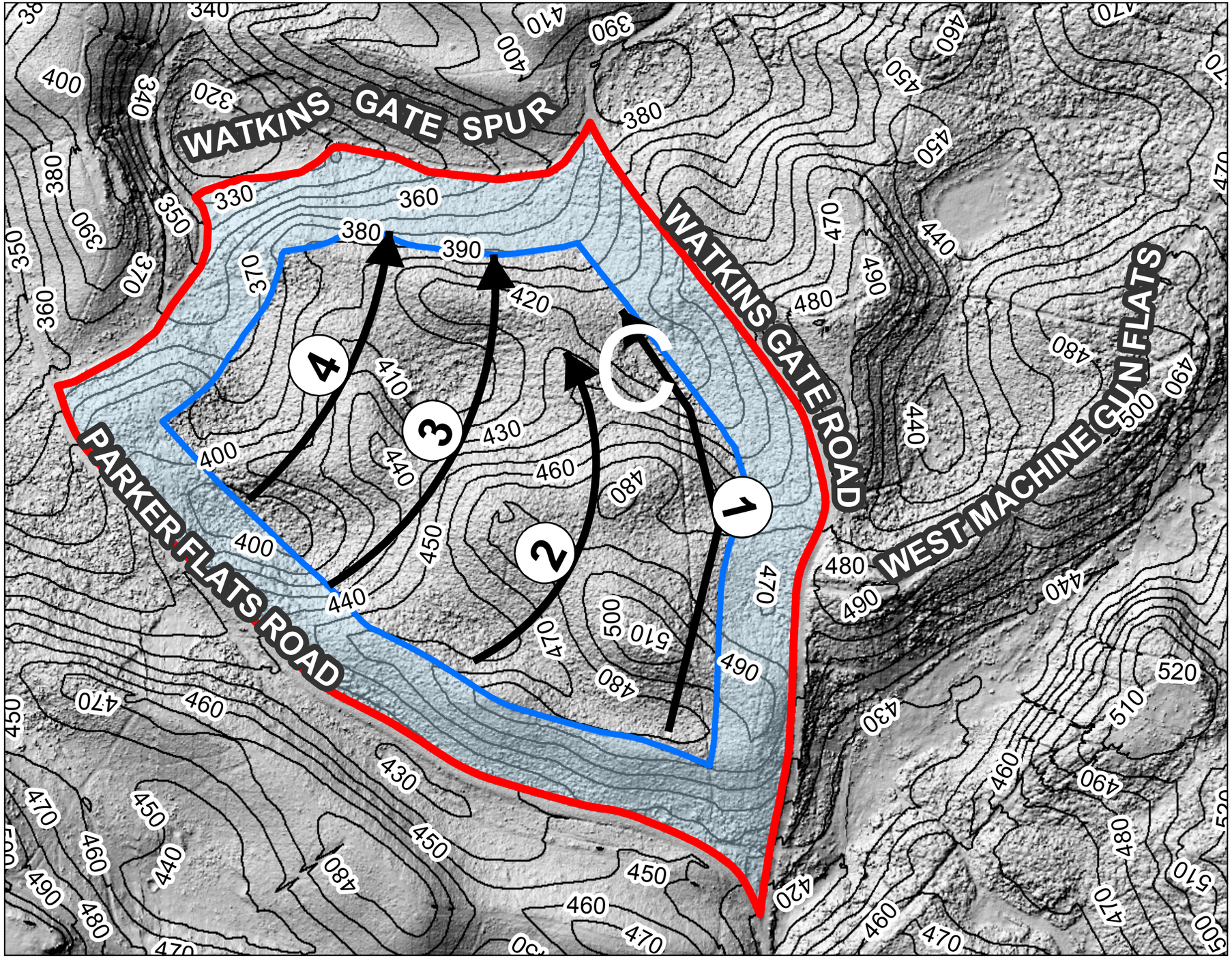


FIGURE 4C

BLM Area B
Conceptual Aerial
Ignition Pattern
Unit C

N
W E
S

Ignition Patterns

Burn Unit C

Primary Containment Line

10' Contours

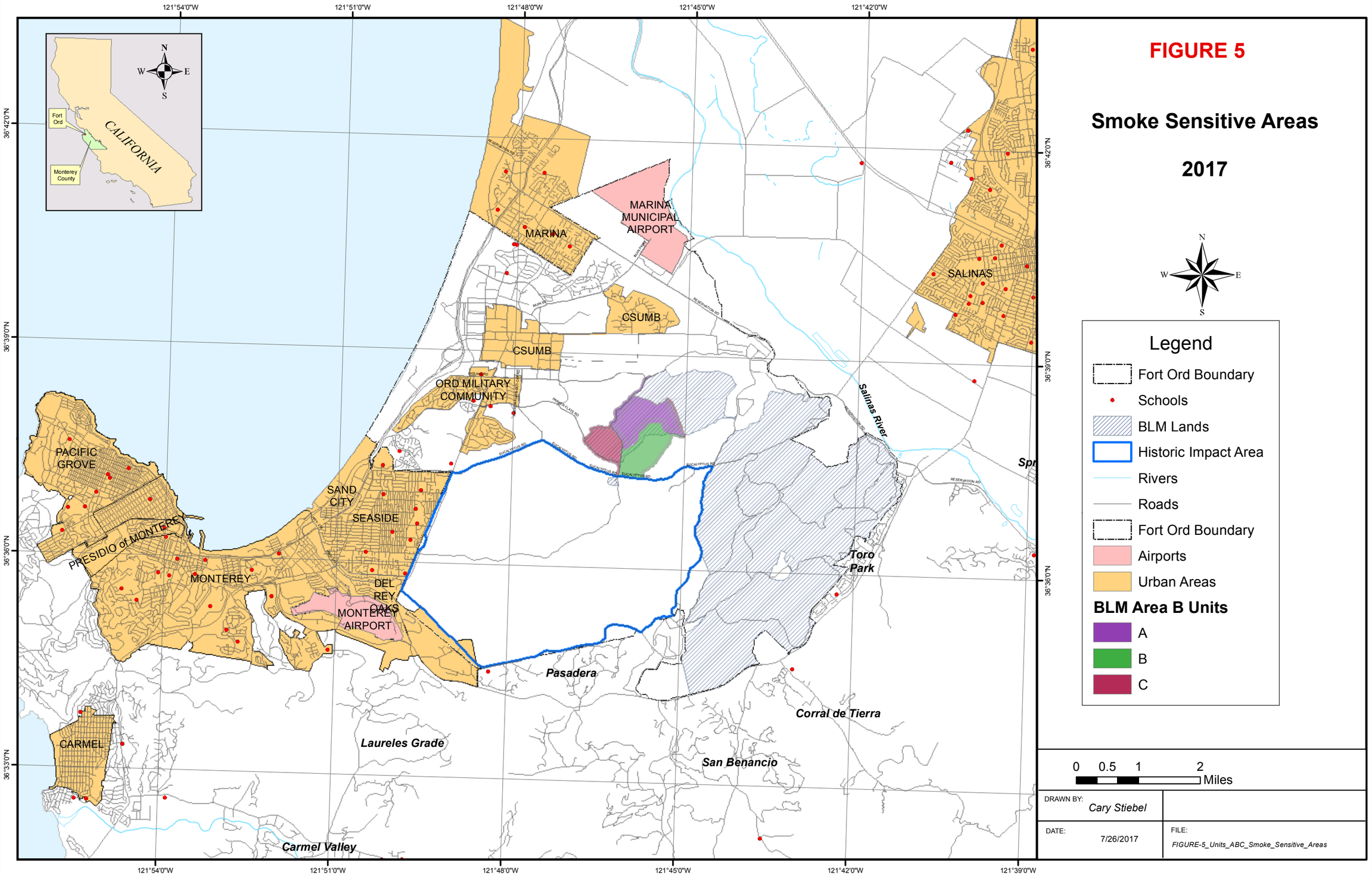
0 250 500 1,000 Feet

DRAWN BY: *Cary Stiebel*	DATA: *BRAC*
DATE: 7/26/2017	FILE: *FIGURE-4C Ignition_BAB_Map_C*

FIGURE 5

Smoke Sensitive Areas

2017



Legend

- Fort Ord Boundary
- Schools
- BLM Lands
- Historic Impact Area
- Rivers
- Roads
- Fort Ord Boundary
- Airports
- Urban Areas

BLM Area B Units

- A
- B
- C

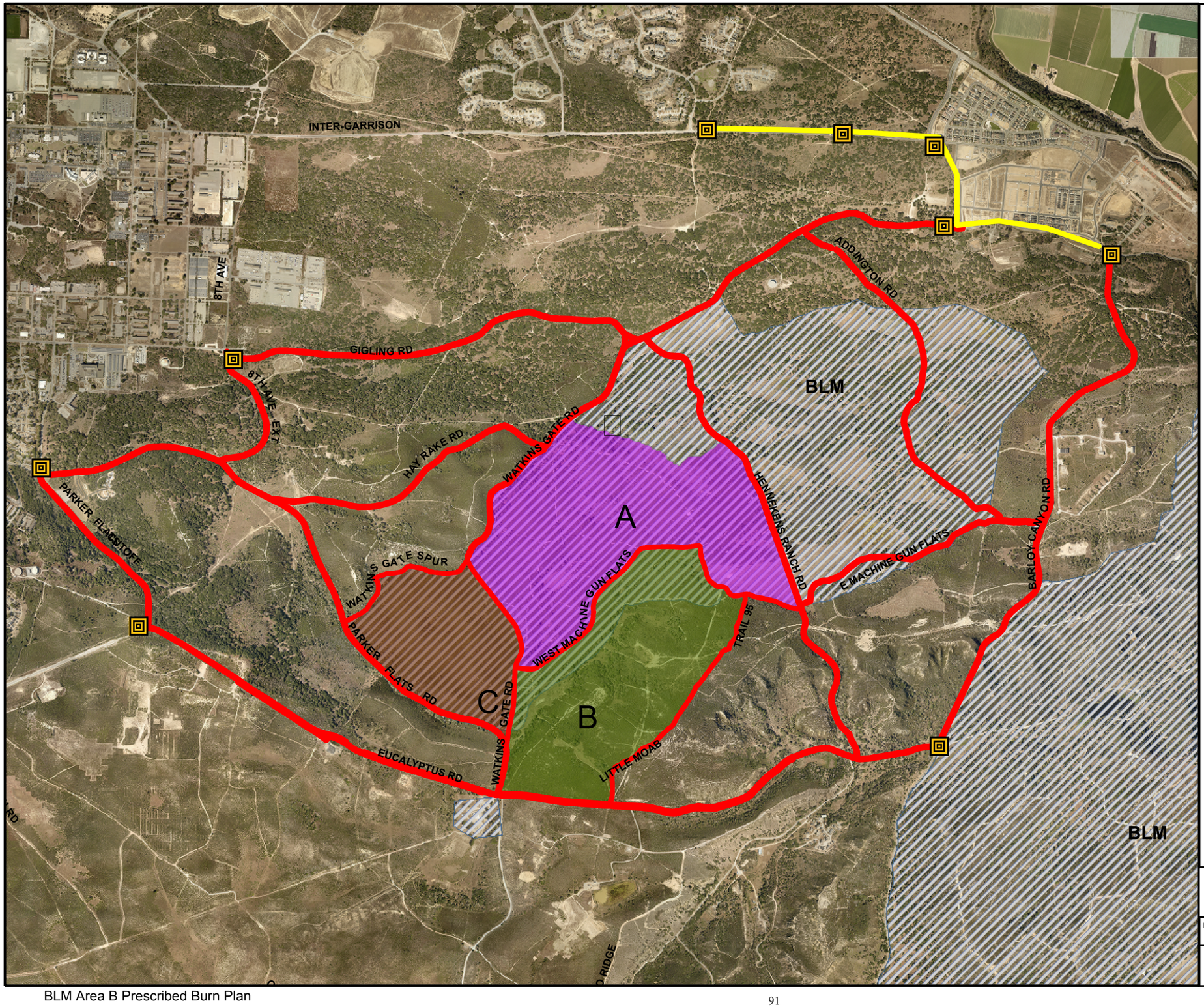
0 0.5 1 2 Miles

DRAWN BY: *Cary Stiebel*	
DATE: 7/26/2017	FILE: *FIGURE-5_Units_ABC_Smoke_Sensitive_Areas*

FIGURE 6

BLM Area B
Units A, B, and C
Burn Sign and Road
Closures Locations

2017



Legend

- Burn Signage
- Subject to Closure in Emergencies
- Road Closures during Burn Operations
- BLM Lands

BLM Area B Units

- A
- B
- C

0 0.25 0.5 1 Miles

DRAWN BY: *Cary Stiebel*	DATA: *2016 Aerial Photography*
DATE: *7/26/2017*	FILE: *FIGURE-6_Units_A-C_Burn_Signs_Loc*

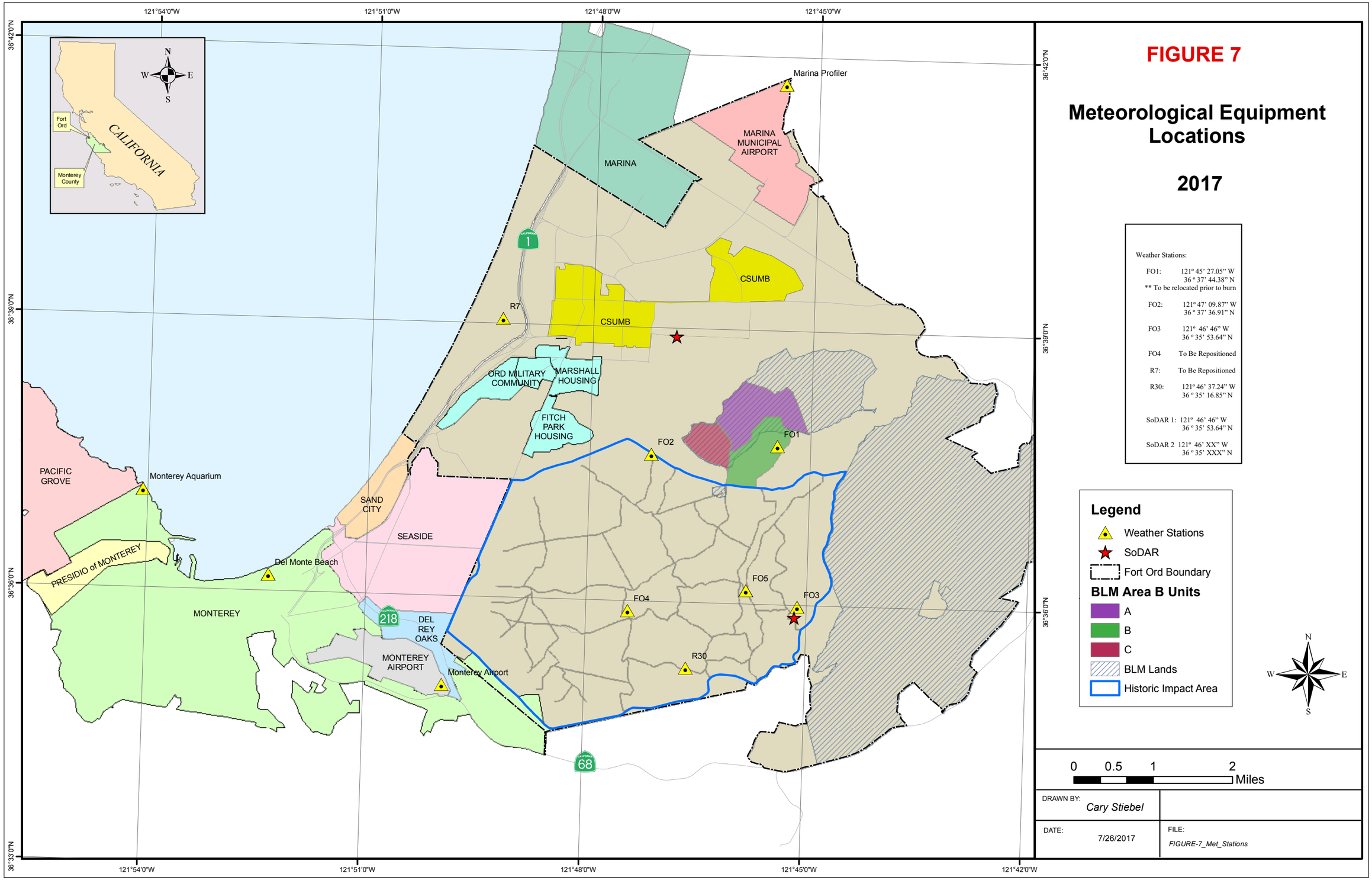


FIGURE 7

Meteorological Equipment Locations

2017

Weather Stations:

FO1: 121° 45' 27.05" W
36 ° 37' 44.38" N
** To be relocated prior to burn

FO2: 121° 47' 09.87" W
36 ° 37' 36.91" N

FO3 121° 46' 46" W
36 ° 35' 53.64" N

FO4 To Be Repositioned

R7: To Be Repositioned

R30: 121° 46' 37.24" W
36 ° 35' 16.85" N

SoDAR 1: 121° 46' 46" W
36 ° 35' 53.64" N

SoDAR 2 121° 46' XX" W
36 ° 35' XXX" N

Legend

- Weather Stations
- SoDAR
- Fort Ord Boundary

BLM Area B Units

- A
- B
- C
- BLM Lands
- Historic Impact Area

0 0.5 1 2 Miles

DRAWN BY: *Cary Stiebel*

DATE: 7/26/2017

FILE: *FIGURE-7_Met_Stations*

ATTACHMENTS

Attachment

A - COMMAND AND CONTROL PLAN

PRESIDIO OF MONTEREY FIRE DEPARTMENT

FORMER FORT ORD, MONTEREY, CALIFORNIA

DRAFT FINAL

BLM Area B, Units A, B, and C

PRESCRIBED BURN

COMMAND AND CONTROL PLAN

Attachment

B - ESCAPE CONTINGENCY PLAN

PRESIDIO OF MONTEREY FIRE DEPARTMENT

FORMER FORT ORD, MONTEREY, CALIFORNIA

DRAFT FINAL

BLM Area B, Units A, B, and C

PRESCRIBED BURN

ESCAPE CONTINGENCY PLAN

BLM Area B, Units A, B, and C

PRESCRIBED BURN

ESCAPE CONTINGENCY PLAN

1 PURPOSE

This contingency plan provides guidance for suppressing a spot fire or slop-over that escapes the perimeter of BLM Area B, Units A, B, and C burn areas.

It should be noted that if there is an escape, fire conditions may exclude using some or all of the tactical alternatives described in this contingency plan or dictate another alternative not described herein. In the event an escaped fire cannot be contained within the guidelines of this contingency plan, a WFSA will be developed to determine the appropriate strategy for containing the fire.

2 ESCAPE DETERMINATION

The IC will determine and issue an escape declaration based on the following criteria:

- A slop-over or spot fire that escapes the maximum allowable perimeter of the containment area, or
- A slop-over or spot fire that escapes initial attack within the first burning period following its occurrence, or
- More than two spot fires, or
- At the discretion of the IC.

2.1 NOTIFICATIONS:

Should an escape occur, the IC will organize all onsite resources for an aggressive response. The IC will notify Cal Fire dispatch, Monterey County Fire Communications (MCFC) center and place orders for any necessary additional resources.

2.2 WILDLAND FIRE SITUATION ANALYSIS:

The IC will assemble command staff and essential personnel and will develop an assessment team to determine what suppression efforts will be utilized.

2.3 EVACUATION PROCEDURES:

Evacuation, if needed, will be handled by the agency having jurisdiction and local, state and county protocols will be followed. Military property will be evacuated as set forth in the evacuation plan established. Evacuations will be voluntary, precautionary and mandatory.

2.4 STRUCTURAL PROTECTION:

Should an escape occur where immediate danger to structures exists; the IC will organize onsite resources for an aggressive response. The IC will notify MCFC and place orders for any necessary additional resources. There are no public or residential structures within the BLM Area B planned burn units however, the BLM Work Center is directly adjacent to Unit B and there are cinderblock buildings on an asphalt pad in the former Ammo Supply Point (ASP) off of Barloy. The ASP buildings are secured behind a locked fence and are vacant.

3 ESCAPE INTO ADJACENT AREAS:

If an escape occurs outside the BLM Area B, still within the project containment area, all firefighting operations will fall under the direction of the POMFD Fire Chief or his designated representative. If an escape enters areas outside the DoD jurisdiction all firefighting operations will fall under the direction of the POMFD Fire Chief or his designated representative until a change of command or unified command is established with the fire department having jurisdiction of the respective area. Units A, B and C are considered safety sensitive areas for firefighters due to possible presence of MEC on the ground surface. DoD firefighters will facilitate all containment and suppression activities. Outside resources will be strategically placed to prevent escapes onto civilian property. Resources will remain outside the exclusion zone (Maximum Fragmentation Distance) in order to sustain safety requirements set forth by the DoD.

3.1 STRATEGY

Strategy for an escaped fire will include utilizing all resources and techniques to reduce the forward-rate-of-spread including, if necessary, burning out from the fuel breaks, man-made and/or natural barriers, and using aerial and ground support personnel, depending upon location and safety factors.

3.2 TACTICS

Slop-over or spot fires will constitute immediate suppression efforts to suppress or contain the fire within the containment lines of the northern portion of the Fort Ord National Monument. Fire suppression and holding forces will utilize changes in fuel type, natural and man-made engineering controls to their advantage to prevent the spread of fire past the defensible polygons.

3.3 OPPORTUNITIES FOR CONTAINMENT

Unit A primary containment opportunities for an escape are Watkins Gate, West Machine Gun Flats, Hennekens Roads and Trail 59. Unit B primary containment opportunities are Watkins Gate, Eucalyptus, West Machine Gun Flats Roads and Trail 95 and Little Moab Trail. Unit C primary containment opportunities are Watkins Gate Spur, Parker Flats, and Watkins Gate Roads.

Secondary containment opportunities for Unit A include: Gigling, Addington, East Machine Gun Flats, Barloy Canyon, Eucalyptus, Watkins Gate, Parker Flats Roads, and 8th Avenue Extension.

Secondary containment opportunities for Units B and C include: Eucalyptus, Hay Rake, Watkins Gate, and Hennekens Ranch Roads.

Tertiary containment opportunities for all units include Inter-Garrison, West Camp, Watkins Gate, Barloy Canyon, Eucalyptus, Riso Ridge, Chinook, Broadway, Felix, and the Blueline Roads.

Mobile firing from pre-established fuel breaks, containment lines, foam and wet lines followed by aerial water drops and fire line construction may reduce the intensities and diminish the threat of fire allowing engine companies and hand crews to directly attack the fire. (Engine company and hand crew use is dependent upon MEC restrictions and safety concerns.)

4 ANALYSIS OF ONSITE RESOURCES

The onsite resources may meet the expected forward-rate-of-spread and may contain the fire to within the primary and secondary containment lines of the northern portion of the Fort Ord National Monument. In the event that a spot fire or slop-over occurs and it is anticipated that the forward-rate-of-spread will not be exceeded by onsite resources, additional resources will be ordered for suppression and containment.

If an escape occurs with winds over 12 mph additional resources will be required. In some cases, flame lengths, MEC and lack of engineering controls could limit effectiveness of crew in suppressing the escape inside the northern portion of the Fort Ord National Monument. Topography, fuels, water sources, exclusion zone and MEC restrictions could limit containment efforts.

4.1 ESCAPED FIRE INCIDENT RESOURCE ORGANIZATION

Resources for an escaped fire incident will be organized under the Incident Command System structure.

Table 1—Contingency Resources Available

Resource Supplied by	Resource	Optimum Quantity	Minimum Quantity
Local Fire Agencies in Tri-County Area	Incident Command Technical Support	2	2
	Safety Officer	1	1
	Operations Officer	1	1
	Public Information Officer	1	1
	Branch Director	1	1
	Division Group Supervisor	4	4
	Strike Team Leaders (5 engines ea)	3	3
	Bulldozers	2	2
	Aircraft	__[a]	
	Hand crews	1	1
	U.S. Department of Agriculture Forest Service (USFS)	__[b]	
	More equipment as needed	N/A	

[a]Available resources dependent on other commitments and requirements
[b]Available resources dependent on staffing and requests

Table 2—Estimated Time of Arrival for Resources from Local Fire Agencies

Fire Agency	ETA (min.)
Seaside Fire Department	15
California Department of Forestry (Cal Fire)	5
Monterey County Regional Fire Department	15
Marina Fire Department	15
Monterey Fire Department	20
Carmel Fire Department	25
Pacific Grove Fire Department	25
Salinas Fire Department	25
Carmel Valley Fire Department	30

4.2 FACILITIES

In the event of an escape, all incoming resources assigned to the contingency operations will report to the designated staging area. The ICP for contingency operations will be located on a site, the location of which will be determined the morning of the burn.

4.3 ESCAPED FIRE OPERATION BRIEFING

If an escape is declared, the incident safety officer will brief the incoming resources before being assigned to the contingency operation. The existing resources will be used to contain the escape. This briefing will cover, but will not be limited to, the following topics that are essential to the contingency operations:

- Maps and orientation
- Organization
- Communications
- Strategy/tactics
- Fire behavior
- Weather
- Safety
- Lookouts, Communications, Escape Routes, Safety Zones (LCES)
- MEC safety

At this briefing, the incident safety officer will inform all incoming resources on the authorized areas (defensible polygon fuel breaks and areas outside the exclusion zone); restricted areas (the Impact Area MRA) and areas to be avoided if possible (the habitat area).

The IC will ensure that all incoming firefighters are qualified for their positions and have the required fire line PPE. A strike team leader and either an engineer or a captain must accompany each engine before they are deployed. A division supervisor will perform reconnaissance, identify safety zones, and escape routes before committing the incoming resources.

It should be noted that all onsite resources will not be required to attend the escape briefing as they will have already been briefed before the start of the prescribed burn operations and will be engaged in the contingency operations.

Attachment

C - SITE SECURITY PLAN

PRESIDIO OF MONTEREY FIRE DEPARTMENT

FORMER FORT ORD, MONTEREY, CALIFORNIA

DRAFT FINAL

BLM Area B, Units A, B, and C

PRESCRIBED BURN

SITE SECURITY PLAN

Attachment

D - JOB HAZARD ANALYSIS

BLM Area B, Units A, B, and C Prescribed Burn
Job Hazard Analysis

TASK / PROCEDURES	HAZARD	ABATEMENT ACTIONS
1) Personnel, past experience and	Persons not physically fit, lack of experience and	Follow requirements for qualifications and physical testing with minimum standards to
knowledge of duties.	knowledge could endanger themselves or others.	meet or exceed NWCG310-1 training and physical standards.
		Keep documentation on each person. Each person is to carry a firefighter ID card with
		all qualifications listed.
		Structure Group firefighters will meet qualifications of either CA State Fire Marshall or
		NWCG 310-1.
2) PPE Required	As with any wildland fire, prescribed burning exposes	Follow NWCG specifications: wear Nomex shirt, pants, hard hat, eye protection, leather
	employees to the same conditions and hazards - known	non-skid boots, leather gloves, fire shelter, hearing protection; and carry enough water.
	and unknown such as burns, trips and falls, sharp tools,	
	vehicles, etc.	
3) Travel in and around project site	All normal traffic hazards.	Drivers trained to operate equipment. Drive safely, defensively, follow all laws and wear
before, during and after the project.		seat belts and be courteous.
	Heavy load - loss of brake.	
		Use proper 2-way communication at all times.
		Watch for Drop Point signs. Be familiar with project site.
4) Traveling on narrow back roads.	Steep, winding, rough dusty roads.	Drive slowly, watch for rough areas, check load.
	Some roads may be eroded.	Drive slowly, scan ahead, look for best option, and use 2-way radios.
	Other traffic and oncoming traffic.	Install DP signs and arrows.
5) Staging Area unloading and set	Backing of vehicles.	Use a backer, if no second person, check backing area first.
up.		
	Handling heavy loads - back injuries	Use proper lifting procedures – feet under knees, lift with legs, not with your back.
Parking of vehicles.	Vehicle rolling out of control.	Use chock-blocks. Tie bright flagging on chock-block as a reminder.

BLM Area B, Units A, B, and C Prescribed Burn
Job Hazard Analysis

TASK / PROCEDURES	HAZARD	ABATEMENT ACTIONS
6) Use and handling of burn fuels.	Spills, exposure, vapors, burns may cause injury to	Transport fuels in proper containers that are marked. Secure containers properly. Haul
(Terra torch fuels)	personnel or damage to the environment.	less than 119 g / vehicle. Use visquine or tarp while mixing and transferring.
		Carry a spill kit to handle any spills and notify supervisor in case of spill.
		Properly dispose of any contaminated soils or absorbent.
		Do not carry fuel inside cab. Clean torches.
	Possibility of a Class B type fire.	Carry a Class B fire extinguisher or foam on vehicle.
7) Project Safety Meetings /	If not done, may lead to confusion and possible cause of	Hold a Safety Meeting / Briefing at the beginning of the project and each day and shift.
Briefings	accidents and / or injuries	Hold tailgate safety meeting / briefing at each division, group base of each shift. Read
		over entire JHA and have all sign at the first safety meeting/ briefing. Go over Chain of
		Command, Teams, Objectives, Tactics, Assignments, and Contingencies.
8) MEC Safety Briefing by USACE	MEC items may be present throughout the area including	All personnel, including subcontractor personnel, must attend a MEC Safety Briefing
OESS	outside the burn units. MEC items may cause serious	prior to any work on the base.
	injury or death if disturbed. They come in many different	
	sizes and shapes and many are armed and ready to	No one is allowed to enter BLM Area B Remedial Work Areas (where MEC removal has
******MANDATORY******	explode with the slightest touch or even sensing	not been conducted) from the holding lines (containment line roads) (please see Figures
	something is within proximity to it. Reporting procedures	D-1 & D-2) unless authorized by the IC and upon approval of the USACE OESS.
	will be covered in the OESS MEC Safety Briefing and the	
	IAP.	When authorized to enter BLM Area B Remedial Work Areas (where MEC removal has
		not been conducted), enter with caution. Watch for any signs of MEC.
		DO NOT TOUCH OR KICK ANY MEC OR SUSPECTED MEC ITEMS.
9) Cutting fire line and pre-burn prep.	Sharp tools causing injuries.	Keep proper spacing of 10+ feet during work or hiking. Check tools for proper condition.
		Work as a Team. Keep full PPE on and use good communication.
	MEC may cause injury or death.	Personnel must have MEC safety briefing. May need MEC escort. Follow proper
		procedures as given.
10) Felling of trees/snags with chain	Improper operation may cause injury or death to sawyer	Only certified sawyers at appropriate levels may use chainsaws. Use a swamper and
saws.	or others. May cause damage to environment.	all safety steps when felling operations are taking place. LCES Before cutting any tree,

BLM Area B, Units A, B, and C Prescribed Burn
Job Hazard Analysis

TASK / PROCEDURES	HAZARD	ABATEMENT ACTIONS
		get approval from BRAC Biologist.
11) Patrolling, Hiking, Cutting Line in	Trip / Fall may cause injury. MEC in area may cause	Wear proper PPE, watch your step, do not run, work in pairs. Stay out of BLM Area B Remedial Work Areas (where MEC removal has not been conducted),
normal suppression operations.	injury/death.	unless directed by IC upon approval by OESS or MEC Safety. MEC escort is generally
		required. Personnel must have MEC safety briefing.
	Poison Oak may cause skin irritation and may become	Wear PPE with sleeves rolled down. Stay out of the Poison Oak. Change clothes each
	serious enough to cause loss of time. Poison Oak is	night, wash affected clothing. Shower and don't allow others to touch clothing. Point out
	scattered throughout coast live oak woodlands on the site.	the plant to others and stay out of heavy plant smoke. If necessary, take medication
		prior to being onsite.
	Ticks are in the area and can cause Lyme disease.	Keep full PPE on and sleeves down. Check yourself and each other periodically and at
		end of the day. Avoid walking through brush whenever possible.
12) Engine and Vehicle Operations.	Broken high pressure hose, slip and fall, foam use, and	Wear full PPE when working around high pressure hose. Watch step while on engine.
	sharp tools may cause injuries to personnel.	Keep tools properly stored while on or off engine. Any damaged tools, hose or
		equipment must be flagged and taken out of service; notify Supervisor for replacement.
	Driving of engines and vehicles may cause injury or death	Drive cautiously, follow all local vehicle laws.
	while on the project or during mob or demob.	
	Protesters or on-lookers may cause problems to disrupt	Pass all questions on to the Army's PAO unless otherwise directed. Notify your
	the project.	supervisor on any protester /on-looker problems or any trespassers.
13) Communication.	If not used or not used properly may cause confusion	Proper 2-way communication to be issued to the following: Burn Boss, Ignition
	which may lead to injury or escape of fire.	Specialist, Holding Specialist, Medics, Strike Team Leader, Engines WT operator,
		Mixing Teams all overhead personnel will have radios. Radio Frequency list is located
		in the Communications Plan. Frequencies will be issued to Air Ops. Burn Boss will have
		contact with IC at all times with 2 -way radio and cell phone.
14) Aerial Ignition Operation.	If not done by a certified and experienced person, may	Aerial Ignition freq. will be controlled. Only the Burn Boss, Ignition Specialist and pilots
	cause escape which may cause injury to personnel or	will have the freq. The Ignition Specialist is under supervision of Burn Boss and in

BLM Area B, Units A, B, and C Prescribed Burn
Job Hazard Analysis

TASK / PROCEDURES	HAZARD	ABATEMENT ACTIONS
	damage to the environment and/or private property.	communication with the Burn Boss and Holding Specialist. The Aerial Ignition Specialist
	Dripping ignited fuel outside of burn area or near ground	to be in direct radio communications with every helicopter & Helibase Director. Ignition
	personnel may cause an escape, or injury, or property	Specialist's duties are to supervise and not light.
	damage.	
	Vertical Safety Distance	Maintain vertical safety distance as directed by USACE. Keep moving while igniting. Do
		not hover. Maintain 40 knot speed.
15) Fuel Mixing Operation.	If not done by a qualified and experienced crew, may	Only qualified mixing crew-members will operate the fuel mixing system and loading
	cause injury to personnel or damage to the environment	systems. Area will be posted with proper signage and cordoned off to keep
	or ignition equipment.	unauthorized person out. Area to be kept picked up and organized for safe and
		efficient operation.
	Fire gel may cause health problems.	Wear proper PPE as shown in the SDS. Do not breathe or get it into eyes. Avoid
		prolonged skin contact. Wash off with detergent and water. Flush eyes with plenty of
	Fuel on clothing my cause skin irritation or serious burns.	water. Wash body where fuel contact was made.
16) Pre-treatment Operation.	Failure to follow safety regulations may cause injury or	When necessary, strap the monitor tip down in a manner that will not allow the angle to
	death to drivers and/or assistant during spraying of water,	pass above level spray. Drive with caution.
	foam or retardant.	
	Foam and retardant may cause slick road conditions.	Make sure that all foam and retardant is washed off any road surfaces.
17) Helicopter Pre-treatment.	Retardant or foam on roadways may cause slick	Tour of site shall be conducted by all pilots prior to any flight operations to become
	conditions.	familiar with all obstacles that may cause problems to lower flying aircraft.
18) Holding Operations.	If not done by a certified and experienced person, may	A qualified Holding Specialist will be in direct communication with the Burn Boss and
	cause escape which may cause injuries to personnel or	the Ignition Specialist along with STL and engines on all lines, dozer and the WT
	damage to the environment and private property.	operators. Holding procedures will follow the Burn Plan. If additional resources are
		needed, contact the Burn Boss.
	MEC in area may cause injury or death.	Patrol in designated areas only. Do not patrol in any BLM Area B Remedial Work Area (where MEC removal has not been conducted). You must have a MEC

BLM Area B, Units A, B, and C Prescribed Burn
Job Hazard Analysis

TASK / PROCEDURES	HAZARD	ABATEMENT ACTIONS
		escort when entering Remedial Work Areas unless authorized by the onsite OESS.
		DO NOT TOUCH (OR GET NEAR) ANY MEC OR SUSPECTED MEC ITEMS.
		Personnel must have MEC safety briefing.
		Observe all areas around the burn for spot fires caused by MEC. Report the
		location, rate of spread, type of fuel, escape potential, and other information to your
		supervisor.
		USACE OESS will inspect area prior to mop up. Do not go into area with exposed
		MEC without approval from OESS. Some areas may be pre-
		approved for ground suppression. Report any hazards to your supervisor and flag the
		area or post a look-out until the hazard has been mitigated.
19) Slop-over / Spot Fires.	Fire may cause injuries to personnel. Spot fire may cause	If the spot fire is outside the Impact Area MRA, use all standard safety procedures on
	MEC to detonate which could cause injury or death	direct attack. Notify your supervisor. Watch out for MEC. If found, report that
	to personnel and/or damage to equipment.	information to your supervisor and flag if safe. Supervisor MUST immediately report
		item to onsite OE Safety Specialist. If the spot fire is inside the Impact Area MRA, stay
		clear, report the location to your supervisor and monitor its spread. Air Operation
		Director will direct the air attack suppression into the area of the spot fire or slop over to
		provide direct attack on the fire under the direction of the IC.
20) Firing Out Operation.	May cause injury or death to personnel and damage to	Firing out procedures may be used to contain fires inside the containment line (inside the burning unit). Firing
	the environment and personal property	out operation will be under the direction of the IC and engines may be used to follow up
		behind the firing operation to suppress any slop-over of spots outside the containment line (outside the burning unit)
		. Water Tender may be used to pre-treat areas ahead of the firing operation Report
		any slop-overs or spot fires to your supervisor immediately Mark spot with flagging. Use
		date, time, etc. plus name.
21) Suppression.	Vertical Safety Distance	Do not hover. Maintain 40 knots speed. Maintain safe altitude as directed by USACE.
	Power lines are located along Eucalyptus Road and high	An aerial hazard map will be provided and special hazards will be identified in the site

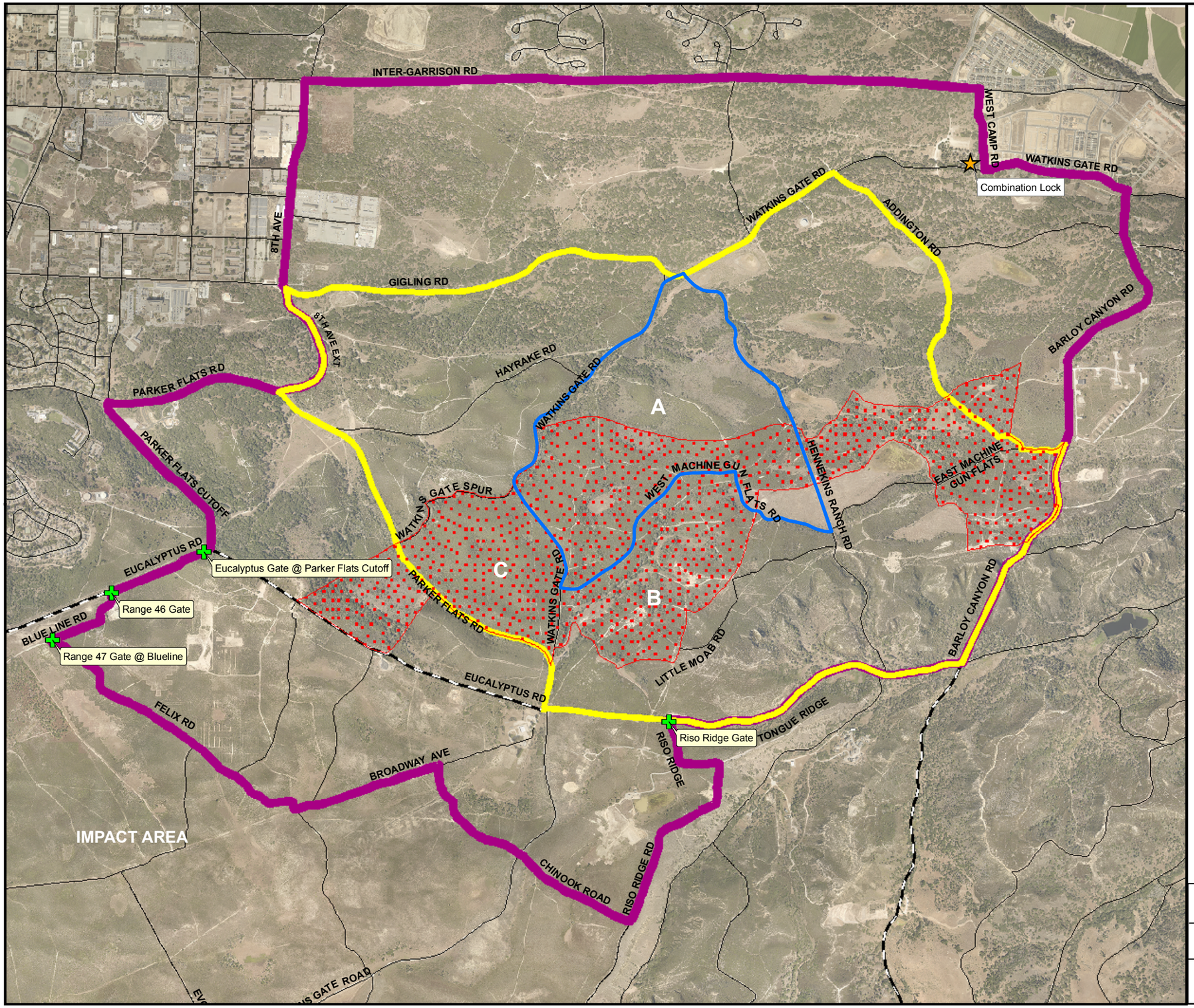
BLM Area B, Units A, B, and C Prescribed Burn
Job Hazard Analysis

TASK / PROCEDURES	HAZARD	ABATEMENT ACTIONS
	tension power lines run from Seaside along General Jim	safety briefing.
	Moore Blvd to Eucalyptus and Parker Flats Cutoff through	
	Parker Flats to East Garrison.	
	Any water or foam coming in contact with these line may	All pilots must tour the site and check the "Hazard Map" as to the location of these lines.
	cause injury or death.	No aerial suppressant will be dropped on the lines.
22) Medical Problems and Care.	Medical problems: Heat stress or exhaustion, cut,	Notify your supervisor and get help as soon as possible. Hydrate yourself throughout
	scrapes, sprains, broken bones, head injuries, foot	the day. Eat properly and get the proper rest.
	problems, burns, smoke inhalation and all other medical	
	problems. If not taken care of properly, may cause	Stay out of smoke or limit exposure to short duration and monitor each other.
	additional injury or loss of work.	Notify your supervisor for any medical attention.
23) Patrol Operations.	If not conducted properly, may cause escape which could	Follow the Burn Plan and any Burn Boss changes to that Plan A Division qualified
	lead to injuries to personnel.	person will be in charge of holding operations. Follow the JHA plans for safety.
	MEC in area and may cause injury or death. Steep and	Stay on designated roads. Always use an escort when entering into BLM Area B Remedial Work Areas (where MEC removal has not been conducted).
	sandy terrain in certain areas - use caution when driving.	Drive safe and slow, follow all posted speeds. Obey all local vehicle laws.
	Interested public or protesters may cause traffic	Pass all questions on to the Army's PAO unless otherwise directed.
	congestion in some areas.	Notify your supervisor on any protester /on-looker problems or any trespassers.
24) Clean Up and Demob.	Completed to prevent damage to the habitat or the	Check water bars, pick up all trash and remove from the project site. Remove all
	reputation of the U.S. Army and POMFD	signage from the site and roadways. Pick up all tools, hoses and equipment.

FIGURE D-1

BLM Area B - Unit A Containment Line Roads and Remedial Work Areas

2017



Legend

- Remediation Work Areas
- Primary Containment
- Secondary Containment
- Tertiary Containment
- Other Roads
- Historical Impact Area
- Locked Gates
- Locked Gate (Combination Lock)

0 0.25 0.5 1 Miles

DRAWN BY: *Cary Stiebel*	DATA: *2016 Aerial Photography*
DATE: 7/26/2017	FILE: *FIGURE-D-1 Unit AContainment Line Roads and RWA*

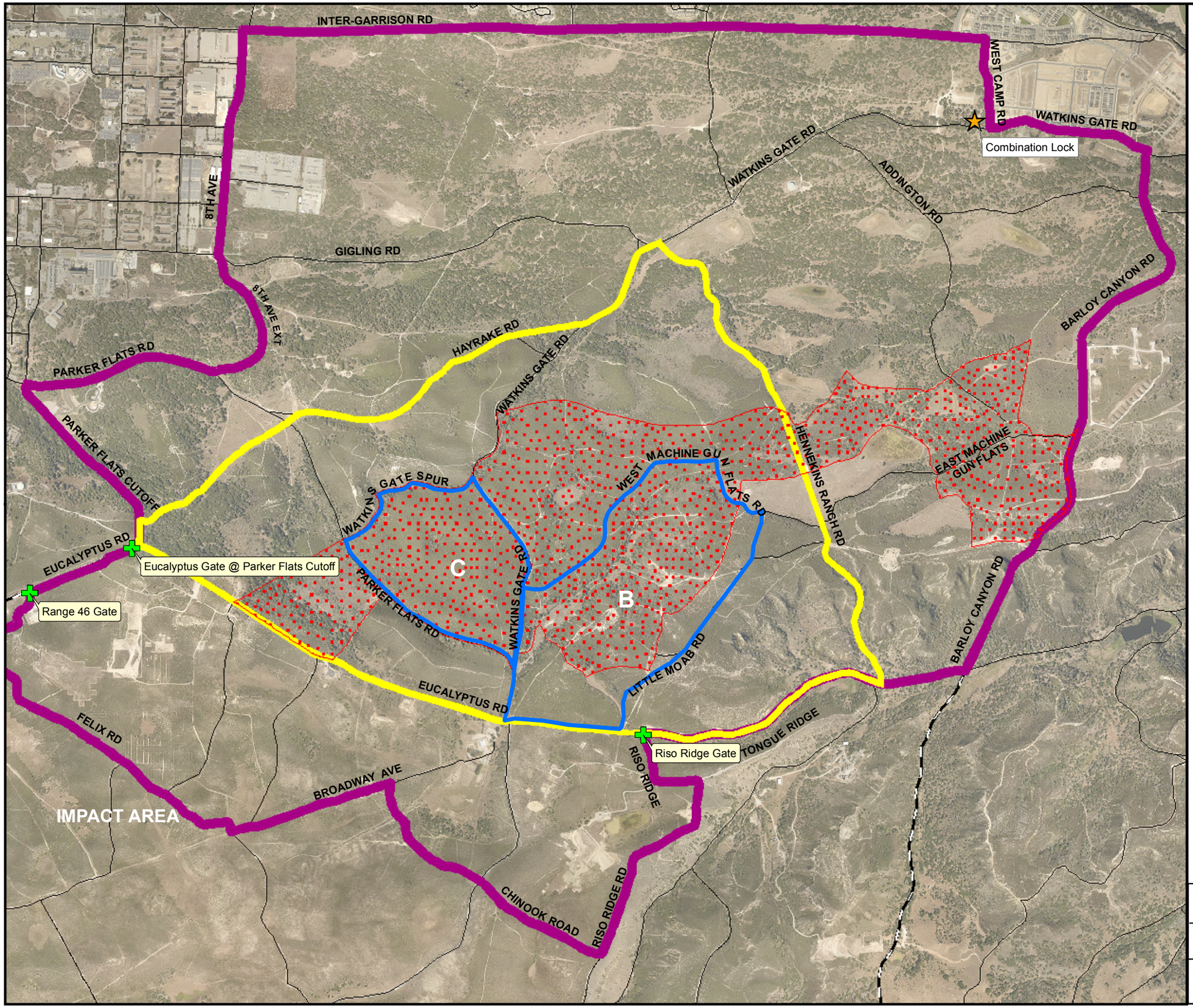


FIGURE D-2

BLM Area B - Units B and C Containment Line Roads and Remedial Work Areas

2017

N
W E
S

Legend

- Primary Containment
- Secondary Containment
- Tertiary Containment
- Other Roads
- Historical Impact Area
- Locked Gates
- Locked Gate (Combination Lock)

0 0.25 0.5 1 Miles

DRAWN BY: *Cary Stiebel*	DATA: *2016 Aerial Photography*
DATE: 7/26/2017	FILE: *FIGURE-D-2 Unit B and C Containment Line Roads and RWA*

Attachment

E - NOTIFICATION PLAN

BLM AREA B, UNITS A, B, AND C
NOTIFICATION PLAN

1 INTRODUCTION AND BACKGROUND

1.1 PURPOSE OF THE NOTIFICATION PLAN

This plan describes the actions that will be taken by the U.S. Army to notify Monterey County residents about prescribed burns in the areas called Bureau of Land Management (BLM) Area B, Units A, B, and C. These prescribed burns are planned for 2017 or later. This plan describes the roles and responsibilities of the various Army organizations and contractors, and local government and community organizations as it relates to public notification, prior to, during, and after these prescribed burns. The Army Base Realignment and Closure office is responsible for developing and implementing the notification program.

1.2 PURPOSE OF THE PRESCRIBED BURNS

The purpose of the prescribed burns is to remove vegetation on the surface of an area so that the Army can safely remove unexploded munitions and explosives remaining from when Fort Ord was a training facility. Units A, B, and C were identified for prescribed burn implementation for 2017 or later depending on weather conditions. Prescribed burn events may be conducted over a period of several days that could be interrupted by one or more days of no burning.

2 NOTIFICATION PLAN

2.1 OVERVIEW

The Army will provide public notification of planned prescribed burns. A prescribed burn will be started only when optimum burn conditions are identified by the project meteorologist. Mobilization of fire management personnel and equipment, and public notification, will occur when optimum burn conditions are reasonably expected. Once mobilized, fire and management personnel, equipment, and supplies may be in place and standing by for several days. Because the Army will be waiting for specific conditions, the Army will not know conclusively until moments before the fire is lit that the burn will occur that particular day. In addition, multiple burn events may be conducted over a period of several days that could be interrupted by one or more days of no burning. Through community notification, the public will be advised of reasonable precautions they can take to minimize exposure to smoke from prescribed burns, such as staying indoors with doors and windows closed, and limiting outdoor activity when smoke is present. This section describes the manner in which the public will be notified about the prescribed burns.

Direct Notification Program:
Participants receive personal notification at burn mobilization, ignition, and completion.
Participants can receive notices via email, phone calls/autodialer, text, or any combination of all three. It is their choice.

Other notification outlets include:

- Web site (www.FortOrdCleanup.com)
- Information line (toll-free phone number 1-800-852-9699)
- Fort Ord Community Relations Office phone 831-393-1284

- Media/Press Releases
- Communications with other agencies and community organizations

Four notifications will be provided:

- **Notification that the Army will be conducting a prescribed burn / announce a prescribed burn season for Fort Ord. This notification will occur at least several weeks prior to any prescribed burn.**
- **Notification that a prescribed burn is imminent and could occur anytime. (mobilization)**
- **Notification that a prescribed burn has been ignited. This notification will occur within approximately 60 minutes following ignition of the prescribed burn. (ignition)**
- **Notification that the prescribed burn has been completed. (completion)**

How these notifications are made is described in the following sections.

2.2 NOTIFICATION THAT THE ARMY WILL BE CONDUCTING PRESCRIBED BURNS

The Army plans to conduct the prescribed burns when an appropriate combination of atmospheric conditions and moisture levels in the vegetation occurs. Such conditions help to minimize smoke impacts on the surrounding community. These conditions occur during a period of several months in the summer to late fall. This period of time is usually referred to as "burn season" (July 1 to December 31).

Several weeks before a prescribed burn could be scheduled, the Army will mail (a) information about the upcoming prescribed burn program and (b) instructions for people to register for the direct notification program. This announcement will also include reasonable precautions people can take to minimize exposure to smoke. Because emails and phone number are subject to change, the Army requires registration every year. Direct notification plan contact information for the previous year is deleted.

The Army will take the following actions to ensure that the community is aware that prescribed burns are planned during the burn season:

2.2.1 Media

The Army will prepare a public information press release announcing the beginning of "burn season" and will send that press release to local media.

2.2.2 Display Advertisements

The Army will place paid advertisements announcing the upcoming prescribed burns in the following newspapers:

- **Monterey County Herald**
- **The Californian (Salinas)**
- **El Sol (Spanish language)**

These display ads will invite individuals to enroll for notification via email, text, and/or autodialer telephone.

2.2.3 Flyer

The Army will prepare a flyer announcing their intent to conduct prescribed burns. The flyer will provide information on who to contact for additional information regarding the prescribed burns and offer the opportunity for individuals to register for notification by email, text and/or autodialer telephone. The flyer will be distributed to schools, homeowners associations, labor unions, farm worker organizations, farm bureau, the Bureau of Land Management, and community organizations.

2.2.4 Information Letter to Physicians and Health Professionals

The Army will work with the Monterey County Public Health Officer to prepare a letter written specifically for physicians and other health professionals. This letter will describe what is known about the possible health effects of smoke, the constituents of smoke, and identify those populations susceptible to smoke impacts. This document will be distributed to physicians and health organizations throughout Monterey County by the Monterey County Health Department.

2.2.5 Coordination with Community Organizations, Schools, and Local Agencies

The Army will contact the following organizations.

2.2.5.1 Monterey County Health Department

The Army will consult with the Monterey County Health Department and other appropriate health service providers to discuss: (a) how they will be informed when burns will occur; and (b) what information they need to answer questions.

2.2.5.2 Monterey Bay Air Resources District

The Army will consult with the Monterey Bay Air Resources District to discuss: (a) what community information will be provided; and (b) what information the air district needs to answer questions from the public.

2.2.5.3 California State University Monterey Bay (CSUMB) and York School

The Army will consult with CSUMB and York School to discuss how students and faculty will be informed that prescribed burns are planned during "burn season." Notifications to the schools will consider the possibility that the prescribed burns (or notifications) could occur when the schools are not in session.

2.2.5.4 Emergency Service Providers

The Army will consult with emergency service providers – police, fire, and hospitals – on how best to inform them of the occurrence of burns and any events surrounding the burns.

2.2.5.5 Nursing Home Operators

The Army will provide information about the upcoming burn and notification program to local nursing homes/elder care facilities.

2.2.5.6 Schools

The Army will provide information to school districts and private schools in nearby and downwind areas, and offer briefings on planned prescribed burns.

2.2.5.7 Labor, Construction, Farming and Farm Worker Organizations

The Army will provide information about the upcoming burn and notification program to labor unions and construction, farming and farm worker organizations, inviting them to distribute flyers (in English and Spanish) to their members.

2.2.5.8 Fort Ord Environmental Justice Network, Fort Ord Community Advisory Group, Marina in Motion

The Army will provide information and, upon request, conduct briefings for Marina in Motion, the Fort Ord Environmental Justice Network, the Fort Ord Community Advisory Group and other community organizations.

2.2.5.9 Bureau of Land Management

The Army will consult with the Fort Ord Office of the Bureau of Land Management to ensure that staff, volunteers and visitors are informed that prescribed burns are planned during "burn season."

2.2.6 Information Line

The Army has established a toll-free information line capable of handling numerous calls and will post appropriate announcements alerting the community that prescribed burns are planned or are imminent and could occur anytime. The Army has retained a translation service capable of providing translation.

2.2.7 Web Page

The Fort Ord Cleanup Program maintains a web page that is accessed by several hundred people during prescribed burns. An announcement of the upcoming prescribed burns will be posted on the web page. A section of the web site is dedicated to prescribed burns. This section includes a direct notification form that can be completed on line.

2.2.8 Communication with Non-English Speakers

The flyer will be available in both English and Spanish versions. The Army has retained a translation service that will, on request, provide translation in several languages. All press releases and other publicity materials sent to the media will be sent to Spanish-speaking media and any other ethnic media that can be identified. The Army will also provide information to cultural or ethnic organizations, churches or community groups to inform them of the prescribed burns.

2.2.9 General Interested Party Mailing List

The Army will provide information about the upcoming burn and instructions to register for the direct notification program to those individuals on the general interested party mailing list and email notification list.

2.2.10 Targeted Mailing to Homes and Businesses near Prescribed Burn Area

The Army will provide information via a targeted mailing about the upcoming burn and instructions to register for the direct notification program to those nearby residents and businesses located in the vicinity of Fort Ord in the cities of Marina, Monterey, Del Rey Oaks, Salinas, the Highway 68 corridor, and Seaside between York School and Broadway Avenue.

2.2.11 Road Closure Notifications

Signs indicating any "road subject to closure" will be posted in areas that may be closed during the prescribed burns. As a part of the prescribed burn safety and security procedures, the roads will be closed during fire mobilization, ignition and mop-up. Commuter traffic may be affected around East Garrison Housing and along Inter-Garrison Road.

2.3 NOTIFICATION THAT A PRESCRIBED BURN IS IMMINENT/COULD OCCUR ANYTIME

When the Army anticipates that the proper combination of atmospheric conditions and moisture in the vegetation could occur, it will mobilize firefighting equipment. The Air Operations Branch Director will provide notification to the FAA (Monterey and Marina Airports). Local emergency services and Monterey County Office of Emergency Services will be notified. The Army will notify the public that a prescribed burn is considered imminent. The public will be informed that during this period of time, a fire could be ignited on any day within the "window of opportunity." The public will be informed that it may not be possible to provide any additional pre-notification before the prescribed burn is ignited. The mechanisms by which the community will be informed include:

2.3.1 Contact Notification List Using Autodialer, Text, and Email

As discussed above, the Army has established and will maintain a list of individuals who have requested direct notification. These individuals will be contacted using email, text, and/or an autodialer telephone system. They will be informed that a prescribed burn could occur anytime in the next several days.

2.3.2 Web Page

An announcement will be placed in the news section of FortOrdCleanup.com indicating that a prescribed burn could be ignited any time in the next several days. There will be regular updates on the status of the mobilization on the news section of the web page.

2.3.3 Press Release

The Army will prepare a press release announcing that prescribed burns could be conducted sometime within the next several days and will send that press release to the media.

2.3.4 Information Line

An announcement will be posted to the information line indicating that a prescribed burn is imminent. The Army will ensure that sufficient staffing is available to handle an increased volume of incoming calls that can be anticipated. The Army has retained a translation service capable of providing translation in a number of languages, including Spanish. There will be regular information line updates during the mobilization period.

2.3.5 Personal Contacts with Community Organizations, Schools, and Health Providers

Based on its initial contacts with community organizations during the announcement of burn season, the Army will develop a priority list of community organizations, schools and health care providers that will be notified by phone, text, and/or email informing them that a prescribed burn is imminent and could occur anytime. They will also be provided literature they can distribute to clients, students, etc.

Types of organizations to be contacted include, but are not limited to:

- York School
- California State University Monterey Bay
- Schools
- Monterey County
- City of Del Rey Oaks
- City of Carmel
- City of Monterey
- City of Seaside

- Bureau of Land Management
- County Health Department
- Emergency Service Providers – police, fire, and hospitals
- Nursing Home Operators
- Labor, Construction, Farming and Farm Worker Organizations
- Fort Ord Environmental Justice Network
- Fort Ord Community Advisory Group
- Marina in Motion

2.4 NOTIFICATION THAT A PRESCRIBED BURN HAS JUST BEEN STARTED

The decision to ignite the prescribed burn will occur when atmospheric conditions are appropriate for a prescribed burn. Notification will begin immediately following the ignition message from the field. The notification methods that will be employed include:

2.4.1 Notification of Those on Notification List Using Email, Text, and Autodialer

As soon as the decision to ignite the burn occurs, the Army will transmit an email, text, and/or autodialer phone message to everyone on the notification list, telling him or her that the prescribed burn has been started.

2.4.2 Information Line

Once a prescribed burn has been lit, an announcement will be placed on the information line indicating that a prescribed burn has been started and providing an option of talking with a live person. The information line will be staffed during business hours so that callers may speak with knowledgeable staff.

2.4.3 Web Page

An announcement will be posted on the web page indicating that a prescribed burn has started.

2.4.4 Press Release

A press release announcing that a prescribed burn has been ignited will be sent to the media.

2.4.5 Personal Contacts with Community Organizations, Schools and Health Providers

A list of key organizations will be notified by phone, text, and/or email that a prescribed burn has been started.

2.4.6 Announcement to Emergency Service Providers

The Army will notify emergency service providers of its decision to ignite the prescribed burns using email, fax or phone.

2.5 NOTIFICATION THAT THE PRESCRIBED BURN HAS BEEN COMPLETED

An announcement that the prescribed burn has been completed will be made in the following manner:

2.5.1 Notification of Those on Notification List Using Email, Text, and Autodialer Telephone

The Army will transmit an email, text, and/or autodialer phone message to those on the notification list telling them that the fire has been completed.

2.5.2 Information Line Announcement

An announcement will be placed on the information line announcing that the prescribed burn has been completed.

2.5.3 Web Page

An announcement will be placed on the web page announcing that the prescribed burn has been completed.

2.5.4 Press Release

A press release will be issued to the media announcing that the prescribed burn has been completed.

2.5.5 Announcement to Emergency Service Providers

The Army will notify emergency service providers using email, or phone that the prescribed burns has been completed.

Attachment

F – PRESCRIBED BURN AIR MONITORING PLAN

Draft Final
BLM Area B
Prescribed Burn Air Monitoring Plan
Former Fort Ord, California

Prepared For:

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814-2922

Prepared By:

KEMRON Environmental Services, Inc.
1359-A Ellsworth Industrial Boulevard
Atlanta, GA 30318

July 2017

Draft Final
BLM Area B
Prescribed Burn Air Monitoring Plan
Former Fort Ord, California

July 2017

Prepared by: Margaret M. Sheatzley Digitally signed by Margaret M. Sheatzley Date: 2017.07.17 14:12:18 -04'00' Date: _____

Margaret Sheatzley
Environmental Engineer
KEMRON Environmental Services, Inc.

Reviewed by: Kevin J. Siemann Digitally signed by Kevin J. Siemann DN: C=US, E=ksiemann@gilbaneco.com, O=Gilbane Company, OU=Gilbane Company, CN=Kevin J. Siemann Date: 2017.07.17 10:35:00-07'00' Date: _____

Kevin Siemann
MEC Task Manager
Gilbane

Reviewed by: Erin K. Caruso Digitally signed by Erin K. Caruso DN: C=US, E=ecaruso@gilbaneco.com, O=Gilbane, OU=Federal Services, CN=Erin K. Caruso Reason: I am approving this document Date: 2017.07.17 11:04:13-07'00' Date: _____

Erin Caruso, PE, PMP
Deputy Project Manager
Gilbane

Approved by: Steve Crane Date: 7/17/17

Steve Crane, PE
Project Manager
KEMRON Environmental Services, Inc.

Table of Contents

List of Figures

List of Attachments

Acronyms and Abbreviations

AMP	Air Monitoring Plan
Army	United States Department of the Army
BLM	Bureau of Land Management
CQCSM	Contactor Quality Control Site Manager
CS	Candidate Station
DTSC	Department of Toxic Substances Control
KEMRON	KEMRON Environmental Services, Inc.
MBARD	Monterey Bay Air Resources District
MRA	Munitions Response Area
PS	Pre-Selected Station
QAPP	Quality Assurance Project Plan
ROD	Record of Decision
SOP	Standard Operating Procedure

EXECUTIVE SUMMARY

This document serves as the Bureau of Land Management (BLM) Area B Prescribed Burn Air Monitoring Plan (hereinafter referred to as AMP) for implementation of the remedy selected for a site called "BLM Area B" at the former Fort Ord, California and described in the *Final Record of Decision (ROD), Track 2 BLM Area B and MRS-16, Former Fort Ord, California* (U.S. Department of the Army [Army], 2017). The AMP is based on the *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix C, Prescribed Burn Air Monitoring* (herein referred to as Air QAPP) (KEMRON Environmental Services, Inc. [KEMRON], 2016a) which supports the collection of appropriate air monitoring data during prescribed burns.

Three prescribed burn units are identified in BLM Area B in addition to the Impact Area Munitions Response Area (MRA). Several Air QAPP worksheets are revised to address the addition of the burn units and are provided in this AMP. This AMP will not reiterate the Air QAPP and will only reference specific sections and worksheets.

Prescribed burning is the primary method of vegetation clearance in habitat reserve areas containing Central Maritime Chaparral. There is no regulatory requirement to perform air monitoring during prescribed burns, but the Army conducts monitoring as part of its former Fort Ord prescribed burn program. The monitoring program provides data to support the program objectives: 1) to assess the adequacy of the burn prescription relative to smoke dispersion and downwind impacts and 2) monitor and evaluate whether the prescribed burns at the former Fort Ord result in downwind ambient concentrations of particulate matter that exceed the applicable health-based screening levels. The 24-hour National Ambient Air Quality Standard (NAAQS) for particulate matter less than 2.5 microns ($PM_{2.5}$) or 35 micrograms per cubic meter ($\mu g/m^3$) is used as the screening level.

Environmental proof instrument beta attenuation monitors (E-BAMs) will be used to continuously measure $PM_{2.5}$ during prescribed burns. The data will be recorded in real time and then compared to the 24-hour based screening level.

The BLM Area B burn units are located north of the Impact Area MRA. Updated Figure 2-1 provides the regional location of the Impact Area MRA and BLM Area B. The prescribed burn units scheduled to be burned during the 2017 burn season are Units 11, 12, 31, B and C.

1.0 Project Management

Section 1.0 of the Air QAPP describes the prescribed burn air monitoring project management. The following section addresses the updated worksheets in Section 1.0.

1.2 Project Organization and QAPP Distribution (Worksheets #3 and 5)

Worksheets #3 and 5 of the Air QAPP define the prescribed burn project organizational structure. The organizational structure, Figure 1-1 (See Attachment 1) is updated as of July 2017.

2.0 Project Quality Objectives

Section 2.0 of the Air QAPP describes the prescribed burn air monitoring project quality objectives. The locations for the BLM Area B and the Impact Area MRA burn units are shown on updated Figure 2-1. The following section addresses the updated worksheets in Section 2.0.

2.5 Project Trasks and Schedule (QAPP Worksheets #14 and 16)

Worksheets #14 and 16 (See Attachment 1) of the Air QAPP defines the project tasks and schedule. Worksheets #14 and 16 will be updated to reference the Air Monitoring Checklist (See Attachment 2). The Air Monitoring Checklist will be a useful tracking tool to ensure all project tasks and the schedule are adhered to.

3.0 Sample Design

Section 3.0 of the Air QAPP describes the prescribed burn air monitoring sampling design. To accommodate potential burn scenarios, the monitoring network locations will be chosen to meet the air monitoring units siting criteria, areas that may experience smoke and visual impacts based on typical, known weather patterns, and locations that ideally have AC power available. The pre-selected (fixed) locations are selected within or adjacent to populated areas that are likely to experience some smoke impacts. Candidate locations are identified to supplement the network to address potential gaps in monitoring network coverage. The air monitoring network for Impact Area MRA prescribed burns was reviewed and found to be applicable to use for BLM Area B prescribed burns. The burn prescription for prescribed burns in BLM Area B is identical to that for the Impact Area MRA. The current air monitoring sampling locations surrounds the burn units and are generally located within or adjacent to populated areas that are likely to experience the presence of smoke. The following pre-selected (fixed) and candidate locations are identified for prescribed burns in BLM Area B and the Impact Area MRA (Figure 2-1):

Site ID	Location ID	Matrix	Sampling Frequency
PS-1	Marshall Park Elementary School	Air	Continuous
PS-2	Monterey Peninsula Water Management District Aquifer Storage and Recovery facility	Air	Continuous
PS-3	City of Monterey	Air	Continuous
PS-4	Del Rey Woods Elementary School	Air	Continuous
PS-5	Ingham School	Air	Continuous
PS-6	Toro Park	Air	Continuous
CS-1	MBARD Office	Air	Continuous
CS-2	Monterey County Regional Fire District Station #2, Laureles	Air	Continuous
CS-3	Monterey County Regional Fire District Station #2, Toro	Air	Continuous
CS-4	Buena Vista Middle School	Air	Continuous
CS-5	Spreckels Elementary School	Air	Continuous

Note:

PS: Pre-Selected Station

CS: Candidate Station

4.0 Sampling Requirements

Section 4.0 of the Air QAPP describes the prescribed burn air monitoring sampling requirements. The following section addresses the updated worksheets in Section 4.0.

4.3 Field SOPs/Methods (QAPP Worksheet #21)

Field SOP 1 of the *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix A, Munitions and Explosives of Concern Remedial Action* (KEMRON, 2016b) will be added to the table on Worksheet #21 (See Attachment 1). Field SOP 1 is for field documentation and applies to the sampling team activities.

5.0 Analytical Requirements

Section 5.0 of the Air QAPP describes the prescribed burn air monitoring analytical requirements and is current with prescribed burns. No change is required.

6.0 Data Management and Data Review

Section 6.0 of the Air QAPP describes the prescribed burn air monitoring data management and data review. The following section addresses the updated worksheet in Section 6.0.

6.1 Project Documents and Records Table (QAPP Worksheet #29)

The Air Monitoring Plan Checklist will be added to the table on Worksheet #29 (See Attachment 1). A hardcopy will be kept in the KEMRON Fort Ord office and in the project file. Electronic copies will be maintained on the main computer (server).

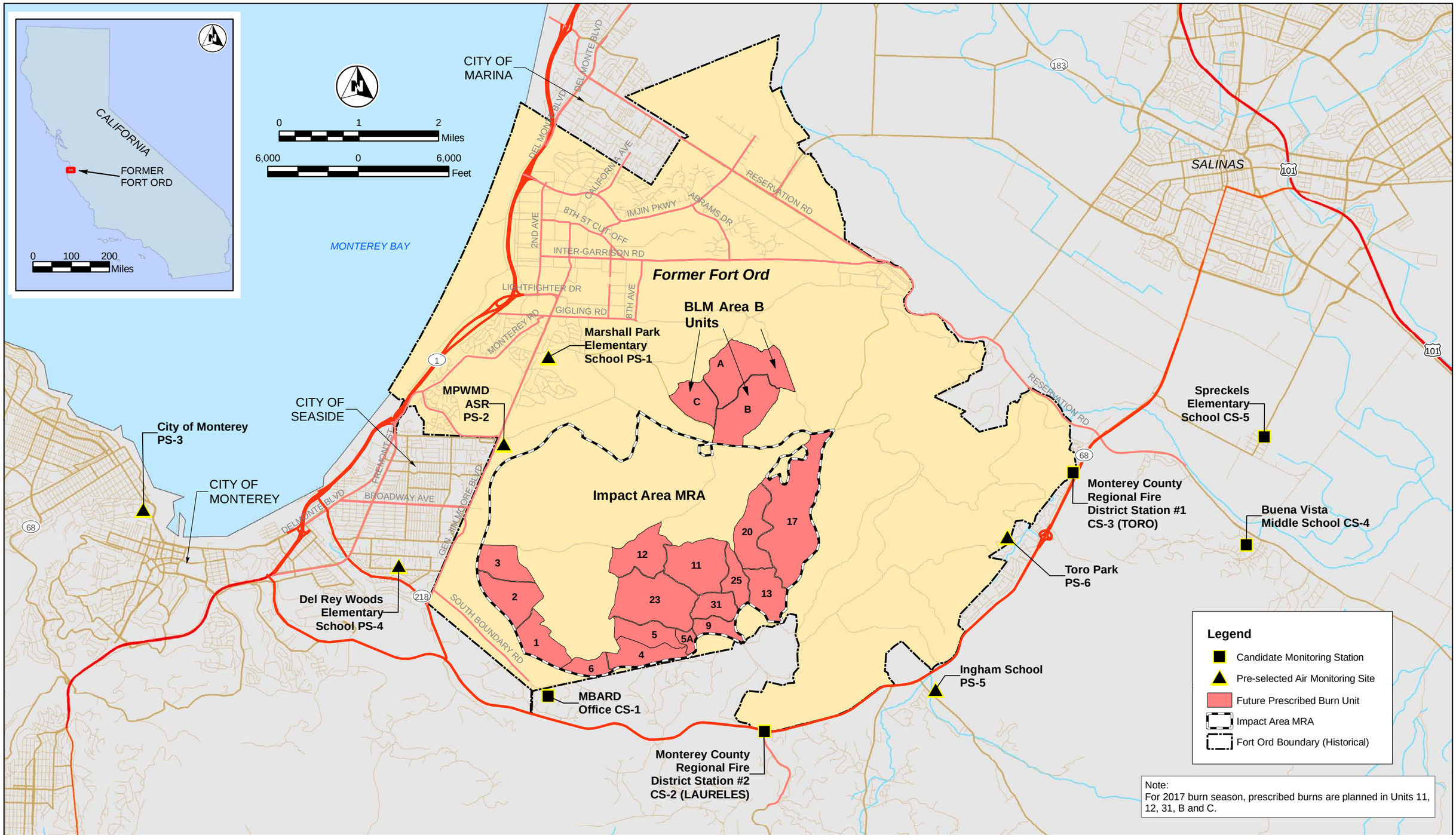
7.0 References

KEMRON Environmental Services, Inc. (KEMRON), 2016a. *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix C, Prescribed Burn Air Monitoring.* December. (AR# BW-2806B)

KEMRON, 2016b. *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix A, Munitions and Explosives of Concern Remedial Action.* December. (AR# OE-0884A)

U.S. Department of the Army (Army), 2017. *Final Record of Decision (ROD), Track 2 BLM Area B and MRS-16, Former Fort Ord, California* (AR# OE-0897)

Figures



Prescribed Burn Air Monitoring Plan
BLM Area B
Former Fort Ord, California

Figure 2-1

Site Location and Air Monitoring Network

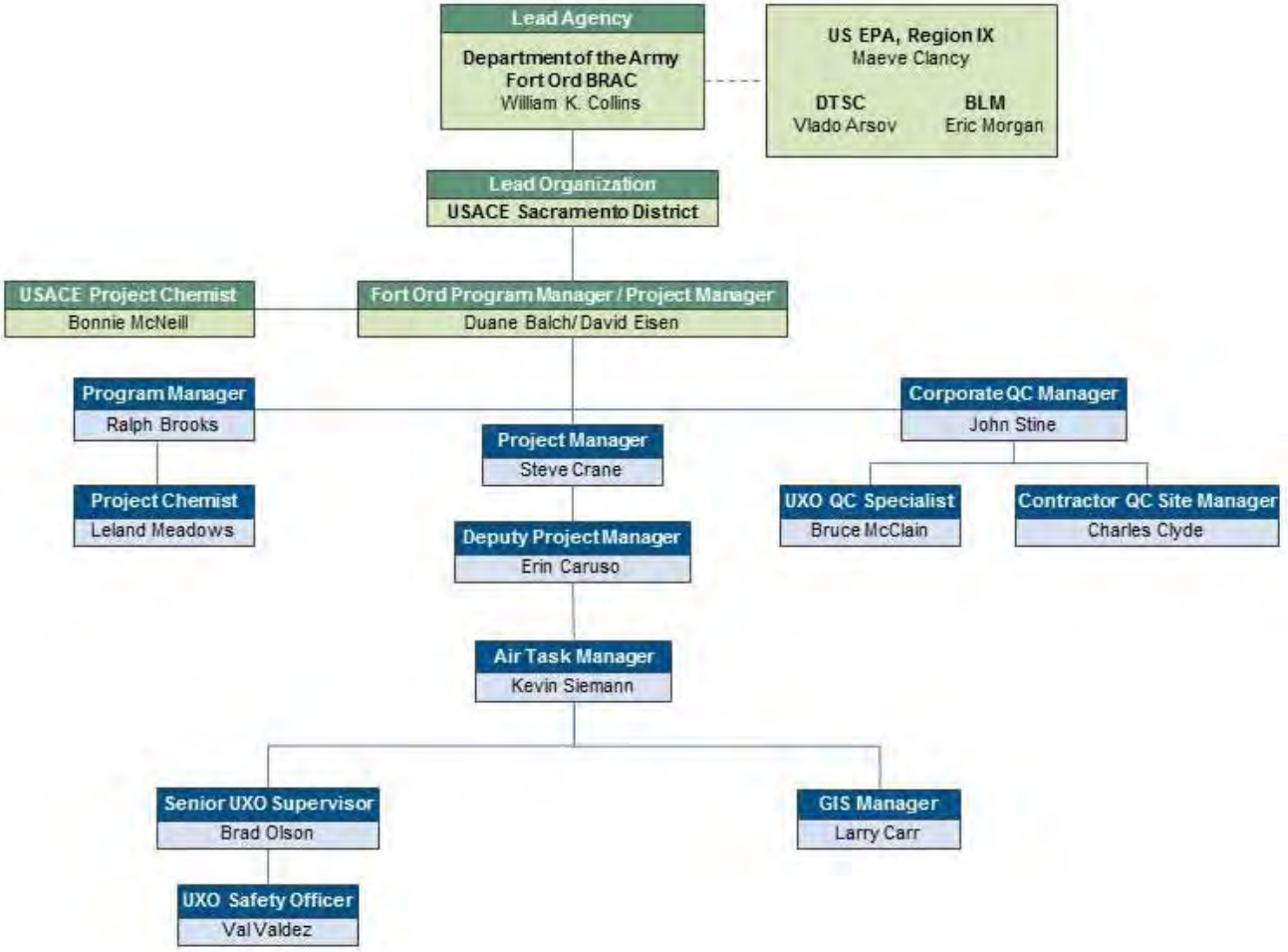
G:\ArcGIS\USACE\Fort_Ord\PROJECTS\KEMRON\QAPP_UFP\Map_Docs\AirMonitoringNetwork_UFP_QAPP.mxd 7/26/2017 [15:29 PM] KCHOLAK, Gilbane

Attachment 1
Updated Worksheets

- *Worksheets # 3 and 5 Updated*
- *Worksheets #14 and 16 Updated*
- *Worksheet #21 Updated*
- *Worksheet #29 Updated*

1.2 Project Organization and QAPP Distribution (QAPP Worksheets #3 and 5 Updated)

Figure 1-1. Organizational Structure



2.5 Project Tasks and Schedule (QAPP Worksheets #14 and 16 Updated)

Figure 2-3 and the Air Monitoring Plan Checklist (Attachment 4 of the BLM Area B Air Monitoring Plan) are documents to efficiently track and perform the prescribed burn air monitoring project tasks and schedule.

Pre-Sampling Tasks: There are two major pre-sampling tasks for the prescribed burn air monitoring and occur in June every year.

- Conduct E-BAM field calibrations.
- Conduct E-BAM flow checks as instructed in the E-BAM operation manual (Section 5 of Attachment 2) which audits and calibrates the flow system, ambient temperature sensor, barometric pressure sensors, filter sensors, analog output, and span membrane.
- Conduct verification with the E-BAM manufacturer will be made to ensure that no changes have been made to the specifications.
- Conduct a test run of remote data access.

Sampling Tasks: Sampling tasks will not commence until mobilization is confirmed. The POMFD will make the decision to mobilize for prescribed burn. Usually this decision is made about 48 hours prior to burn ignition. The air monitoring team will recommend the selection of one out of the five candidate locations for monitoring, and coordinate the selection with USACE. All the E-BAMs will be deployed at approved monitoring locations and undergo startup. The E-BAM data collection will start within 24 hours of a burn mobilization decision or at a minimum of 12 hours prior to burn ignition. The audit sheet (Section 13 of Attachment 3) will be completed during deployment at each monitoring station in the network. The 24 hours of collected data starting from burn ignition will be used to derive a 24-hour sample for comparison with the screening level. A telemetry system utilizing cell phone modems will transmit the data field to the third party data acquisition system as raw data may be used. The E-BAM raw data file will be near-time data and uploaded to the FTP. The following are the sampling task details:

- Concentration data and one-hour averages will be continuously logged throughout the burning process. The air monitoring during the burning process includes deploying and starting data collection at the six pre-selected and one candidate station upon a prescribed burn mobilization decision and collecting data during a 24-hour monitoring period beginning at ignition during the active burn events. Data will be recorded internally by the E-BAM and relayed for evaluation and interpretation via a telemetry system using cell phone modems. The data will be uploaded to a FTP site for download by the Project Chemist for data verification and validation.
- Air monitoring will be conducted at six pre-selected (fixed) locations and one of the five candidate locations for each burn event.

- All E-BAM monitors will collect data within the recommended siting criteria from approximately two (2) meters to 15 meters above ground level (agl), which is at or near the adult human breathing zone and within the probe siting criteria recommended by the EPA (Attachment 1). EPA and Met One guidance for spacing from obstructions will also be followed, and the monitoring stations will be sited to avoid influence from nearby sources of particulate matter. Visual observations at the monitoring stations during the burn event will be recorded and used to identify whether any unexpected temporary or intermittent emission sources may have influenced the sample collection and reported concentrations.

Analysis Tasks: Data verification will be conducted by the Project Chemist utilizing the E-BAM reporting software, Comet. The internal E-BAM data software will automatically run a self-test when power is applied. During data collection, deviations from the rolling average, high value excursions such as fault readings, and timeframes affected by power outages or other instrument errors will be logged within the system with a date, time, and type of error. Fault readings and system/instrument failures that are determined to have introduced bias to the concentration averages will be discarded from the data set by the Project Chemist. In addition, the beta attenuation vacuum tube requires a one-hour warm up before accurate concentration data is being produced by the unit. Therefore, data from the first operational hour for each unit will be discarded as the manufacturer warns optimum accuracy is not achieved during the warm up of the vacuum tube. If any fault readings or system/instrument failures occur throughout the monitoring process, they will be removed from the data set.

Quality Control Tasks: The E-BAMs will be installed at monitoring locations and programmed in accordance with manufacturer recommendation specified in the Operation Manual included in Attachment 2. Prior to deployment for an air monitoring event, each deployed E-BAM will undergo a series of field calibrations and flow checks as instructed in Section 5 of Attachment 2, which audit and calibrate the flow system, ambient temperature sensor, barometric pressure sensors, filter sensors, analog output, and span membrane. The E-BAM audit sheet found in Section 13 of Attachment 2 will be completed during deployment at each monitoring station in the network. The E-BAM set-up offers a series of prompts instructing the installer on the sequence to follow. Once the prompts are completed, the instrument will perform a series of self-test diagnostics and will alert the installer of any corrective action. Upon completion of set-up, the E-BAM will automatically place itself in normal operation mode. Particulate size selective concentration measurements will be made by using a specific $PM_{2.5}$ inlets.

The E-BAM is equipped for data logging in a data array in the internal E-BAM computer. Concentration data is recorded in hourly averages. After the initial set up and calibration and after burn ignition, sampling technicians will periodically check the E-BAM units to ensure the data is being collected and equipment errors are not occurring. Technicians will check the

E-BAM units at least twice during the active ignition phase. During the E-BAM checks, the E-BAM sampling screen readings displaying the latest hourly concentration data and flow rate will be recorded in the field log book.

Several methods exist to retrieve the data files from the E-BAM. The E-BAM is equipped with a two-way serial port which handles all digital data transfer, and can be directly connected to a computer, or can be used with an optional modem for remote communications through a phone line, cell system, radio link, or Internet Protocol addressable serial converter.

A telemetry system utilizing cell phone modems will transmit the data files to the third party data acquisition system as raw data may be used. The E-BAM raw data files will be uploaded to a FTP site where the Project Chemist will download the data files and perform data validation and verification. It is anticipated that the Project Chemist will download the data files at least twice during the active ignition phase to ensure data is being collected and data transmission is occurring. After active ignition, the E-BAM data will be downloaded periodically from the FTP site, at least twice during the remainder of the 24-hour monitoring period. Upon acquisition of the wireless cellular modems for the E-BAM units, the programming and interface with the third party data acquisition system will be field tested every year prior to burn season to ensure that during the burn data transmission failures do not occur. Met One Instruments will provide technical support as needed to verify that data transmission is seamless during the prescribed burns and verify all manufacturer specifications have not changed.

Secondary Data: See QAPP Worksheet #13.

Data Management Tasks: Data will be recorded internally by the E-BAM and relayed for evaluation and interpretation via a telemetry system using cell phone modems. The data will be uploaded to a FTP site for download by the Project Chemist. Data verification will be conducted by the Project Chemist utilizing the E-BAM reporting software, Comet.

Documentation and Records: All relevant field documentation, data and documentation will be maintained for at least five years. All final documents will be entered into the administrative record to be maintained longer than five years. Electronic copies including (but not limited to) all USACE Electronic Data Deliverables will be maintained in KEMRON's central repository for at least five years. The Air Task Manager, Project Chemist, and Data Manager will be responsible for ensuring that data are generated and managed in accordance with appropriate SOPs (See Attachment 2).

Assessment/Audit Tasks: The three-phase QC process will be implemented for the prescribed burn air monitoring activities. Each phase of QC is important for obtaining a quality product, however since the prescribed burn is anticipated to be a 24 to 48-hour event, the preparatory and initial inspections are most applicable to the scope of the project. Production work is not to be performed on a definable feature of work until successful preparatory and initial phase inspections have been completed. During these inspections, the Project or Air Task Manager will verify implementation of the requirements of the prescribed burn air sampling and analysis plan and QAPP.

Data Review Tasks: Data verification will be conducted by the Project Chemist utilizing the E-BAM reporting software, Comet. The internal E-BAM data software will automatically run a self-test when power is applied. During data collection, deviations from the rolling average, high value excursions such as fault readings, and timeframes affected by power outages or other instrument errors will be logged within the system with a date, time, and type of error. Fault readings and system/instrument failures that are determined to have introduced bias to the concentration averages will be discarded from the data set by the Project Chemist.

4.3 Field SOPs/Methods (QAPP Worksheet #21 Updated)

Reference Number	Document Control Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Specific for Project Work? (Y/N)
1	N/A	E-BAM-9800 Operation Manual Rev L[1]	Met One Instruments, Inc.	E-BAM	N
2	N/A	Field SOP 1[2]	KEMRON	N/A	Y

1 E-BAM-9800 Operation Manual with the SOPs is included as Attachment 2.

2 Field SOP 1 is documented in the *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix A, Munitions and Explosives of Concern Remedial Action* (KEMRON, 2016b) and is Attachment 4 of the BLM Area B Prescribed Burn Air Monitoring Plan.

6.0 DATA MANAGEMENT AND DATA REVIEW

6.1 Project Documents and Records Table (QAPP Worksheet #29 Updated)

Sample Collection Documents and Records	On-site/Off-site	Analysis Documents and Records
Pre-field activity operation checklist	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies maintained on the main computer (server).
Field notes/logbook	On-site	Hardcopy in KEMRON Fort Ord, in project file, or in designated storage facility. Electronic copies maintained on the main computer (server).
Field envelopes and filter logs	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies maintained on the main computer (server).
Field calibration logs	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies maintained on the main computer (server).
Audit/assessment checklists/reports	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies (if present) maintained on the main computer (server).
Corrective action forms and/or field change requests	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies (if present) maintained on the main computer (server).
Raw Data	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Raw data file will be provided to MBARD which has an ability to make the data available on its website for public information.
Validated data	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility which will be downloaded from the FTP site. Electronic copies (if present) maintained on the main computer (server).
Air Monitoring Report	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies (if present) maintained on the main computer (server).
Three Phase QC Forms	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies (if present) maintained on the main computer (server).
Air Monitoring Plan Checklist	On-site	Hardcopy in KEMRON Fort Ord office, in project file, or in designated storage facility. Electronic copies (if present) maintained on the main computer (server).

Attachment 2

Air Monitoring Checklist

Air Monitoring Plan Checklist
Former Fort Ord, California

Team Information		
Team:	Location:	Date:
Personnel Present:		
Phase of Inspection (Circle): *PRE-SAMPLING TASKS (T); PREPERATORY (P); MOBILIZATION (M); INITIAL (I); FOLLOW-UP (F) DEMOBILIZATION (D)*		

Checklist					
Item	Inspection Point	Yes	No	N/A	Comments
1	All required rights of entry (saved on SharePoint) have been obtained.				(*T*)
2	All necessary fence enclosures are deployed and a government property sign is properly attached.				(*T*)
3	Manufacturer specifications are current.				(*T*)
4	E-BAMs have been calibrated and flow checks completed within six months of the sampling event.				(*T*)
5	24-hour test run of co-located units is complete. (Air QAPP Worksheet #37: Precision)				(*T*)
6	Test run of remote data access with MBARD was completed and successful.				(*T*)
7	All personnel have signed the SOP Signature Page.				(*P*)
8	Any deviations to this checklist will be approved by the Air Task Manager.				*(P)*
9	All field personnel reviewed the appropriate sections of the Air QAPP and AMPs.				(*P*)
10	Formulate field plan defining which monitoring locations individual teams will be setting up equipment, completing an initial inspection and follow-up inspection.				(*P*)
11	Field personnel have the following required materials: • Access to E-BAM equipment • Access to vehicle and trailer to setup E-BAM equipment. • Field map with locations to place E-BAMs. • Directions to air monitoring locations (if necessary) • Field team contact information.				*(P)*

Air Monitoring Plan Checklist
Former Fort Ord, California

12	Designate Air Task Manager the responsibility of managing and reporting to the CQCSM for mobilization, initial, follow-up, and demobilization phases.				*(P)*
13	Provide Army a recommendation for a candidate station location.				*(M)*
14	Compile field personnel list with best contact information while in the field. Ensure CQCSM, Air Task Manager, Project Chemist and field personnel have the contact information list.				*(M)*
15	Ensure all field teams have received training to properly manage the E-BAM equipment.				*(M)*
16	Set-up E-BAMs and complete audit checklist.				*(M)*
17	Air Task Manager or designee ensures all E-BAMs are up and running prior to ignition.				*(I)*
18	Air Task Manager or designee ensures MBARD is properly retrieving data prior to ignition.				*(I)*
19	Air Task Manager or designee ensures all E-BAMs are up and running after ignition.				*(F)*
20	Air Task Manager or designee ensures MBARD is properly retrieving data after ignition.				*(F)*
21	Field teams remove all E-BAMs and properly store them.				*(D)*
22	Air task manager will assign designees to remove all fence enclosures after the burn season is complete.				*(D)*

Punch list Items	
No.	

Conducted by: _____ Date: _____
Kevin Siemann, Air Task Manager

Approved by: _____ Date: _____
Chuck Clyde, Contractor QC Site Manager

Attachment

G – RESPONSES TO COMMENTS

Document:	Draft BLM Area B Units A, B, and C Prescribed Burn Plan, Former Fort Ord, California, May 2017
Commenting Organization:	United States Environmental Protection Agency (EPA)
Name:	Maeve Clancy
Date of Comments:	June 12, 2017

General Comment 1:

The Draft, BLM Area B - Units A, B, and C Prescribed Bum Plan, May 2017, Former Fort Ord, California (hereinafter referred to as the Draft BLM Area B, Units A, B, & C PBP), provides no information concerning the potential for the burning action to detonate a munition that may be larger and/or have a longer hazardous fragment distance (HFD) and/or longer maximum fragment distance (MFD) than the munition with the greatest fragmentation distance (MGFD) currently identified for the site. If such a detonation is identified, or if a munition requiring additional distance is identified during the preparatory activities conducted prior to burning, this would require reevaluation of the current exclusion zone and the minimum separation distance (MSD). While the likelihood of such an occurrence is minimal, the potential should be addressed in the Draft BLM Area B, Units A, B, & C PBP, or it should be stated therein where this issue is/will be addressed (e.g., in the MEC Safety Briefing required for all participants).

Please review the cited issue and address it as needed.

Response to General Comment 1:

As described in Section 2.2 of the plan, the set-back distance for prescribed burn personnel is based on the HFD of the MGFD, and the nonessential personnel exclusion zone is based on the MFD of the MGFD. The MGFD for the three units was selected based on available data about types of munitions that may be expected to be present. If munitions and explosives of concern (MEC) with a greater fragmentation distance is encountered during burn site preparation activities, the MGFD and associated HFD and MFD will be reevaluated for possible updates. The selection of MGFD, various explosives safety minimum separation distances, and the process for future changes to the distances when warranted, are described in Explosives Safety Submission (ESS) for BLM Area B remedial action, which has been approved by Department of Defense Explosives Safety Board (DDESB).

The ESS, site-specific work plan, and this prescribed burn plan, for the BLM Area B remedial action, have been developed in close coordination with U.S. Army Corps of Engineers (USACE) including the Ordnance and Explosives Safety Specialist (OESS) assigned to the Fort Ord project. Based on available data and a comprehensive evaluation provided in the Remedial Investigation/Feasibility Study for BLM Area B, MEC is suspected to be present on the surface in the three units within BLM Area B, and as noted in the comment, MEC with greater distances than the MGFD (rocket, 4.5-inch, barrage, high explosive, MK III) are not expected. The safety briefing for prescribed burn personnel will address information appropriate for the tasks performed by different personnel (e.g., air operations personnel would receive customized information appropriate for helicopter and helibase operations in addition to general munitions safety briefing).

General Comment 2:

There are two attachments (Attachment A-Command and Control Plan and Attachment C Site Security Plan) that are not included in the document provided for review. No explanation is provided as to why they are not provided. Please provide the noted documents for review or include a statement in each attachment cover page as to why the document is not included.

Response to General Comment 2:

Attachment A Command and Control Plan and Attachment C Site Security Plan contain information unsuitable for public distribution. They remain internal to the personnel involved in prescribed burn execution and site security. Their attachment cover pages will be indicated as “confidential.”

Specific Comment 1:

Acronym List, Page vii: The acronym "PPE" is incorrectly defined. The correct definition according to the Glossary volume of the Department of Defense Ammunition and Explosives Safety Standards (DoD 6055.09-M, VS) is "personal protective equipment." Please correct this definition.

Response to Specific Comment 1:

The term will be revised to “personal protective equipment.”

Specific Comment 2:

Section 2, Project Background and Site Description, Lessons Learned from the BLM Units 7 and 10 Burns, Page 4: The term "duff' is used in the section and it is not defined there or elsewhere in the Draft BLM Area B, Units A, B, & C PBP. Please provide the definition of the term "duff' to assist the readers that are not familiar with its use.

Response to Specific Comment 2:

Duff is defined by National Wildfire Coordinating Group as “The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.” For the BLM Area B prescribed burns, masticated or cut vegetation material that is left on the ground surface is also included. The sentence will be revised to “Investigate removing part of the duff (the layer of organic materials lying on the ground including masticated or cut vegetation material) from the primary containment as brush is masticated.”

Specific Comment 3:

Section 9, Smoke Management Plan, Page 25: The description of the CALPUFF application does not provide sufficient detail to support the forecasted potential smoke impacts. At a minimum, the following information should be provided to fully support the forecasted potential smoke impacts:

- Clarify if CALMET was run to generate the wind fields necessary for CALPUFF.
- It is not clear if numerical weather prediction (MM5, WRF) data was used as an initial guess wind field for CALMET. Please clarify if this data was used.
- Clarify the resolution at which CALMET and/or CALPUFF were run.
- Provide the number of vertical levels that were used, and the heights at which they were set.
- Describe the technical options that were selected for CALPUFF. Clarify if the subgrid Thermal Internal Boundary Layer (TIBL) module for shorelines was utilized to characterize potential fumigation events.
- Clarify how the prescribed burns are characterized as sources in CALPUFF.

Response to Specific Comment 3:

The CALPUFF model is run by the Naval Postgraduate School (NPS). It was previously used as one of the inputs for planning process, however, it is not currently used as a primary input to the fire weather forecasting task and its contribution to the development of the burn prescription is very limited. For the prescribed burn air monitoring program, one of the five candidate locations will be selected on the day

before the planned burn to address potential gaps in the monitoring network based on the meteorological conditions anticipated for the burn day, primarily the wind directions. Therefore, Section 9.1 will be deleted from the prescribed burn plan. The model output will continue to be made available via the fire weather forecast web site http://met.nps.edu/~nuss/fort-ord.html.

The following technical information was provided by the NPS.

1) CALMET was used to generate the wind fields for CALPUFF runs.

2) Input initial guess wind fields are entirely from the NPS operational WRFV3.7 model. In particular, data from a 1km resolution nested grid is used. There is currently no observational data input for these predictive dispersion plume forecasts.

3) The resolution of the CALMET data input into CALPUFF is 0.5 km (120x100 grid) with 12 vertical layers with interfaces defined by
! ZFACE = 0.,20.,40.,80.,120.,160.,240.,360.,500.,750.,1250,2000.,2995. !
meters above the surface.

4) The following vertical levels were used.

	layer thickness:	mid level z
1	20m	10m
2	20m	30m
3	40m	60m
4	40m	100m
5	40m	140m
6	80m	200m
7	120m	300m
8	140m	430m
9	250m	625m
10	500m	1000m
11	750m	1625m
12	995m	2498m

5) Physical options selected for CALPUFF:

- Time step of 3600seconds.
- No subgrid terrain/hill features, but winds are adjusted to terrain and thermal slope effects by CALMET.
- No subgrid coastal features TIBL not used since 0.5km resolution adequate to resolve the coastal/land transition.
- Puffs are treated as slugs near source and are not allowed to split.
- Vertical distributions of puffs are assumed Gaussian.
- Partial puff penetration of inversions allowed, with transitional plume rise modeled.
- Partial plume path terrain adjustment used.
- Internally computed dispersion coefficients, mixing heights etc used.
- Simulated PM10, with dry deposition and gravitational settling, but no rain out.
- Minimum mixing height of 20 m and default stability classes were used.

6) The burns were simulated in a simplistic manner of considering them to be point sources having characteristics of height 10m above ground and upward velocity of 10 m/second and 340K temperature.

- The burn was assumed to start at 10am and burn over the course of four hours.
- The emissions were scaled at 1000 g/second.
- For the first hour of burn then declined rapidly to 200 second hour, 100 third hour, 50 fourth hour, then 20 fifth hour, 10 thereafter till 8pm at night when the smoldering would be assumed ended. The goal was to get predictions of how plumes might disperse given the WRF 1km input.

Specific Comment 4:

Section 9.1, CALPUFF Projection, Page 25: In the second paragraph of Section 9.1, there is a qualitative description of the smoke plume as being over 2000-ft and not impacting the area shown in the figure. CALPUFF is a 3-dimensional model, and it should be possible to quantitatively demonstrate that the impacts at ground level are indeed minimal. Revise the Smoke Management Plan to demonstrate that the impacts at ground level are indeed minimal, or explain why this information is not shown in the plan.

Response to Specific Comment 4:

The general approach to smoke management is to conduct the burn in a manner that follows the burn prescription to obtain desired consumption, minimize the duration of fire, and reduce residual smoldering. It would be a complex problem to modify the CALPUFF inputs to derive particulate concentrations at ground level over the course of the burn day. For example, in the current model runs the burns are simulated in a simplistic manner, considering them to be point sources. In reality, as the fire progresses, its size, location and intensity change. Also, the complex terrain of the receptor areas is not reflected in the model. Therefore, even with the actual meteorological data from the burn day, the CALPUFF model is not likely to produce accurate results for ground-level particulate concentrations. Ground-level impacts are documented by visual observation and near-real-time air monitoring during the prescribed burns. The prescribed burn air monitoring plan is provided at Attachment F.

Please also see response to EPA Specific Comment 3.

Specific Comment 5:

Section 9.1, CALPUFF Projection, Page 27: The Smoke Management Plan Project Descriptions of Section 9.1 state that, "FOFEM [First Order Fire Effect Model]: see page 46-47 for calculation and emissions estimate." Also, Table 1 of Section 9.1 contains a yellow shaded block that states, "Please see pages 47-50 for emissions calculations derived from FOFEM." These referrals are incorrect, as the cited information is located on pages 40 and 41. Please correct the noted referrals.

Response to Specific Comment 5:

The text will be revised to refer to the correct pages of the document.

Specific Comment 6:

Attachment F, Air Sampling and Analysis Plan: The Air Monitoring Plan in Attachment F provides little detail regarding the proposed sampling and analytical procedures. Much of the applicable information is referenced to the Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix C, Prescribed Burn Air Monitoring (Air QAPP). Since most of the applicable information is contained in the QAPP, it is requested that the QAPP be included as an attachment to the Draft BLM Area B, Units A, B, & C PBP. This approach ensures that the project team will have all the applicable procedural documents available for prescribed burn implementation.

Response to Specific Comment 6:

The *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix C, Prescribed Burn Air Monitoring* (Air QAPP) is available in the Fort Ord Administrative Record and accessible online at www.fortordcleanup.com. It is not necessary to provide a copy of the Air QAPP as an attachment.

Specific Comment 7:

Attachment F, Air Sampling and Analysis Plan: The Air Monitoring Plan in Attachment F does not identify the pollutants that will be monitored. It gives details on the E-BAMS sampler, but not the pollutant. It appears, based on the Air QAPP, that PM10 and PM2.s are planned to be monitored. However, this is not

discussed in the Air Monitoring Plan. Revise the Plan to indicate the pollutants that will be monitored in real time.

Response to Specific Comment 7:

The following text will be added to the executive summary in the Air Monitoring Plan:

"Prescribed burning is the primary method of vegetation clearance in habitat reserve areas containing Central Maritime Chaparral. There is no regulatory requirement to perform air monitoring during prescribed burns, but the Army conducts monitoring as part of its former Fort Ord prescribed burn program. The monitoring program provides data to support the program objectives: 1) to assess the adequacy of the burn prescription relative to smoke dispersion and downwind impacts and 2) monitor and evaluate whether the prescribed burns at the former Fort Ord result in downwind ambient concentrations of particulate matter that exceed the applicable health-based screening levels. The 24-hour National Ambient Air Quality Standard (NAAQS) for particulate matter less than 2.5 microns ($PM_{2.5}$) or 35 micrograms per cubic meter ($\mu g/m^3$) is used as the screening level. Environmental proof instrument beta attenuation monitors (E-BAMs) will be used to continuously measure $PM_{2.5}$ during prescribed burns. The data will be recorded in real time and then compared to the 24-hour based screening level."

Specific Comment 8:

Attachment F, Air Sampling and Analysis Plan, Figure 2-1, Site Locations and Air Monitoring Network: This figure has a color-code item in the legend entitled "Future Prescribed Burns Impact Area MRA." Units B and C of the BLM Area B are marked with this color-code, although they are not in the Impact Area MRA. In addition, the three units (A, B, and C) are labeled as work areas instead of as units. Please remove the incorrect information and color-codes as noted from the cited figure.

Response to Specific Comment 8:

Figure 2-1, Site Locations and Air Monitoring Network will be updated for clarification. In addition, the three units will be referred to as "units" in the executive summary in the Air Monitoring Plan.

Document:	Draft BLM Area B Units A, B, and C Prescribed Burn Plan, Former Fort Ord, California, May 2017
Commenting Organization:	Department of Toxic Substances Control (DTSC)
Name:	Noel D. Shrum
Date of Comments:	June 15, 2017

Specific Comment 1:

Section 13.2, second sentence of the second paragraph. A comma should be added after "Prior to the burn."

Response to Specific Comment 1:

Text will be revised as suggested.

Specific Comment 2:

Attachment B, Section 3, sentence near the middle of the first [paragraph]. Please rewrite the following sentence to make the meaning more clear: "Units A, B and C may contain MEC, is considered a safety sensitive area for firefighters."

Response to Specific Comment 2:

The cited sentence will be revised to “Units A, B and C are considered safety sensitive areas for firefighters due to possible presence of MEC on the ground surface."

Specific Comment 3:

Attachment D. The table in the Job Hazard Analysis uses terms that do not appear to be consistent with the figures and maps in the rest of the Plan. Task 8 uses the term "holding lines" but the figures use the term "containment lines." Tasks 11 and 18 use the term "MEC Areas" but those areas are not identified in the Plan.

Response to Specific Comment 3:

Term “holding line” is an industry term referring to a line from which actions to stop the spread of fire is taken. In this prescribed burn plan, it indicates the containment line roads. For Task 8, the second item under “abatement actions” will be revised to: “No one is allowed to enter BLM Area B Remedial Work Areas (where MEC removal has not been conducted) from the holding lines (containment line roads) unless authorized by the IC and upon approval of the USACE OESS. Containment line roads and Remedial Work Areas are shown in the attached figure.” A figure will be attached to the Job Hazard Analysis.

In addition, the third item will be revised to: “When authorized to enter BLM Area B Remedial Work Areas (where MEC removal has not been conducted), enter with caution. Watch for any signs of MEC. Do not touch or kick any MEC or suspected MEC items.”

For Tasks 11 and 18, terms “MEC area” and “MEC areas” will be changed to “Remedial Work Areas.”

Document:	Draft BLM Area B Units A, B, and C Prescribed Burn Plan, Former Fort Ord, California, May 2017
Commenting Organization:	Monterey Bay Air Resources District (MBARD)
Name:	David Frisbey
Date of Comments:	June 14, 2017

Specific Comment 1:

Page 4 - Lessons Learned from the BLM Units 7 and 10 Burns, Operational and Smoke Management. Preventing spot fires by pretreating the mastication areas with water or foam is encouraged; however, during the 2013 burns this practice delayed the ignition time of the burn. We prefer that a prescribed burn be ignited as early as meteorological and fuel conditions allow as outlined on page 34 of this Prescribed Burn Plan.

Response to Specific Comment 1:

This comment is acknowledged. On the day of the planned burn, the burn team plans to commence ignition as early as the conditions allow as outlined in the burn plan, and after verifying all required items on the burn Go/No-go checklist (Section 17).

Specific Comment 2:

Page 31 - Section A.6. (contact information). Bob Nunes has retired from the Monterey Bay Air Resources District. A replacement has not yet been appointed. In the interim, the contact is David Frisbey, Planning and Air Monitoring Manager, cell (831) 706-1309, dfrisbey@mbard.org, and fax number (831) 647-8501.

Response to Specific Comment 2:

The contact information for MBARD will be updated as provided.

Specific Comment 3:

Page 44 - Helibase Operational Procedures. In 2013, the ignition of the prescribed burn was delayed due to helicopter operation not being authorized in the Monterey Airport air space. All authorizations that could delay the ignition of the burn must be obtained prior to the day of the burn.

Response to Specific Comment 3:

This comment is acknowledged. The Army will coordinate with Federal Aviation Administration (FAA) to obtain necessary air space authorizations as early as possible. In 2013, FAA was contacted as soon as the decision to mobilize was made, however, the air space authorization was not granted until the morning of the burn.

Specific Comment 4:

Attachment F, Section 2.5 - Air Sampling and Analysis Plan. We would like to make near real-time E-BAM data available to the public by posting it directly to the Air District's website.

Response to Specific Comment 4:

The Army has worked with the MBARD to make the prescribed burn air monitoring data available to the public in near-real time starting with 2016. The release of data to MBARD is identified in the data management section of Worksheet #29 in *Final, Quality Assurance Project Plan, Former Fort Ord, California, Volume II, Appendix C, Prescribed Burn Air Monitoring* (BW-0806B).