

Environmental Assessment

49th Materiel Maintenance Group BEAR Base Improvements

Holloman Air Force Base, New Mexico



August 2004

**49 CES/CEV
Holloman Air Force Base**

Report Documentation Page

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Finding of No Significant Impact for the 49th Materiel Maintenance Group BEAR Base Improvements Environmental Assessment at Holloman Air Force Base, New Mexico

1.0 Name of Action and Description of Proposed Action and Alternatives

This document is an Environmental Assessment (EA) for the Basic Expeditionary Airfield Resources (BEAR) Base Improvements Project at Holloman Air Force Base (HAFB), New Mexico. Additional information can be obtained from HAFB 49th Environmental Flight, 505-572-3931.

2.0 Description of Proposed Action and Alternatives

The 49th Material Maintenance Group (49 MMG) proposes to upgrade the area known as the BEAR Base to meet upcoming mission requirements. Upgrades include expanding warehouse storage space, improving existing outdoor storage space, and consolidate training, mobility, storage, and maintenance facilities. These actions will improve the efficiency of cargo flow during deployment operations. Additionally, some operations will be moved out of the existing 80+ Day-Night Average A-Weighted Sound Level (DNL) and the Quantity/Distance (Q/D) arcs for the hot cargo pad and Building 923.

2.1 Proposed Action

BEAR Base would undergo expansion, construct several facilities, and improve several existing facilities. Expansion into the area south of the current compound would claim approximately 92 acres of land. Construction of 13 pre-engineered K-span buildings would provide 214,000 square feet of modular office and storage space. Construction of new T-storage units would provide an additional 58,000 square ft of temporary storage for deployable assets. Additional area improvements would provide 1.2 million square feet of storage space, roads and parking, and aircraft parking and taxiways for deployment of personnel and cargo.

2.2 No Action Alternative

The BEAR Base would remain in its current condition, neither improving existing facilities nor add additional facilities. People functions would be forced to remain in the +80 decibel noise zone and the quantity/distance arcs of the cargo hot pad. Deployable assets would continue to be exposed to the elements. Operations, such as maintenance, would continue to under utilize needed space. Semi-developed storage areas would continue to produce dust and potential Foreign Object Damage (FOD) incidents to equipment. Storm water would continue to collect and impede access to deployable asset storage. BEAR Base would be unable to efficiently meet mission goals.

3.0 Environmental Impacts of the Proposed Action

As required by the National Environmental Policy Act (NEPA), this EA evaluates the potential environmental impacts associated with the proposed BEAR Base Improvements Project. The findings for each resource area are described below.

Natural Resources. Within the existing BEAR Base the paving of multiple areas would result in a reduction of noxious weed plant and seed sources. Cumulative impacts of the paving projects will also serve to improve drainage, minimizing attractiveness of the area to wildlife species. This would minimize potential mission and wildlife/natural resource conflicts.

Impacts to the proposed 92-acre expansion area will include the loss of vegetation for land clearing. Following grading, there will likely be a dramatic increase in infestation of African rue, which may be minimized if a pre-emergent herbicide is applied to the area. Salt cedar will continue to sprout from the root-crowns if they are not removed. There will be permanent loss of habitat for avian species. Clearing of this area must take place outside the breeding season, primarily between mid-October and early February. Cumulative impacts for the area include the permanent loss of vegetation and wildlife habitat, but no threatened, endangered or sensitive species have been identified.

Water Quality. For this project, impacts are anticipated to be moderate if Best Management Practices (BMPs) are adequately applied. Additional assets to be stored and mobilized, area for training, and impervious surfaces could have a cumulative impact on water quality. Engineered controls must be implemented as part of these projects to avoid additive impacts.

Lake Holloman, the small un-named jurisdictional wetland south of BEAR Base, and Lake Stinky are noteworthy Waters of the US in the project area that receive Holloman AFB storm water. These waters are protected by current permits, and additional permitting will be required. However, all impacts discussed may be reduced to insignificant levels by implementation of proper BMPs.

Air Quality. Negative impacts will include construction emissions, noxious weed control and additional employee vehicle commuting emissions. The temporary emissions from construction and weed control will not cause or contribute to a violation of the air quality standards and will not impair visibility in Class I Areas. The commuting emissions from additional vehicles will not have a significant impact.

The positive impact on air quality will be the paving of several bare soil areas that are a source of particulate emissions.

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Cultural and Historical Sites. The area of the proposed BEAR Base Expansion and the vicinity, have been completely surveyed for cultural resources. No cultural resources are in the area to be directly affected by the expansion. Cultural resources on record in the vicinity have been thoroughly recorded, and are considered not potentially eligible for nomination to the NRHP. The expansion is reasonably expected to cause no affect to cultural resources.

Environmental Restoration Program (ERP) Sites. There are three ERP sites within or near the area of proposed action. Any activities that occur on ERP sites should be coordinated with the 49th Environmental Flight (49 CES/CEV) before the site is disturbed.

SD-25 is located east of Building 953, and will suffer no significant impacts from the projects described under this alternative.

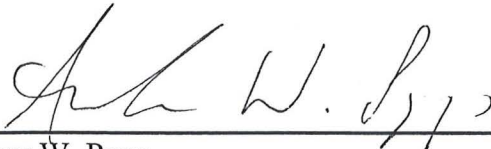
LF-22, the West Area Landfill No. 1 ERP, is located near the 92 acre expansion. Activity directly on LF-22 should be avoided. However, the site is outside the proposed security fence, and no significant impact is anticipated.

Portions of LF-23, the MOBSS Landfill, could be impacted by the proposed expansion of BEAR Base. The northern most section of the site is located within the 92 acre expansion. This site would be impacted by leveling of the area. Security fencing and leveling should be placed around the ERP site. If activity directly on LF-23 is avoided, there will be no significant impact to the site.

Night Sky. New Mexico's night sky is protected by N.M Stat. Ann. § 74-12-1 (2001), the Night Sky Protection Act. HAFB additionally has agreements with local solar observatories. By conforming to the requirements of the Night Sky Protection Act and these agreements, no significant impact to the night sky above HAFB is anticipated.

4.0 Conclusion.

Based on the findings of the environmental assessment, no significant impact on human health or the natural environment would be anticipated as a result of the implementation of the proposed action. A Finding of No Significant Impact is warranted and an Environmental Impact Statement is not required for this action.



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14 Sep 04

Date

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Acronyms

49 MMG	49th Materiel Maintenance Group
BEAR	Basic Expeditionary Airfield Resources
BLM	Bureau of Land Management
BMP	Best Management Practices
CWA	Clean Water Act
DD	Decision Document
DNL	Day-Night Average A-Weighted Sound Level
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FOD	Foreign Object Damage
HAFB	Holloman Air Force Base
MSGP	Multi-Sector General Storm Water Permit
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
POL	Petroleum, Oil, and Lubricants
Q/D	Quantity/Distance
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Assessment
RI	Remedial Investigation
SHPO	State Historic Preservation Office
SWMU	Solid Waste Management Unit
USACE	US Army Corp of Engineers
WWTP	Waste Water Treatment Plant

1.0 Purpose of and Need for Action

1.1 Introduction

The 49th Materiel Maintenance Group (49 MMG) proposes to upgrade the area known as the Basic Expeditionary Airfield Resources (BEAR) Base to meet upcoming mission requirements. Upgrades include expanding warehouse storage space, improving existing outdoor storage space, and consolidating training, mobility, storage, and maintenance facilities. These actions will improve the efficiency of cargo flow during deployment operations. Additionally, some operations will be moved out of the existing 80+ Day-Night Average A-Weighted Sound Level (DNL) and the Quantity/Distance (Q/D) arcs for the hot cargo pad and Building 923. See Figure 1 for the location of BEAR Base.

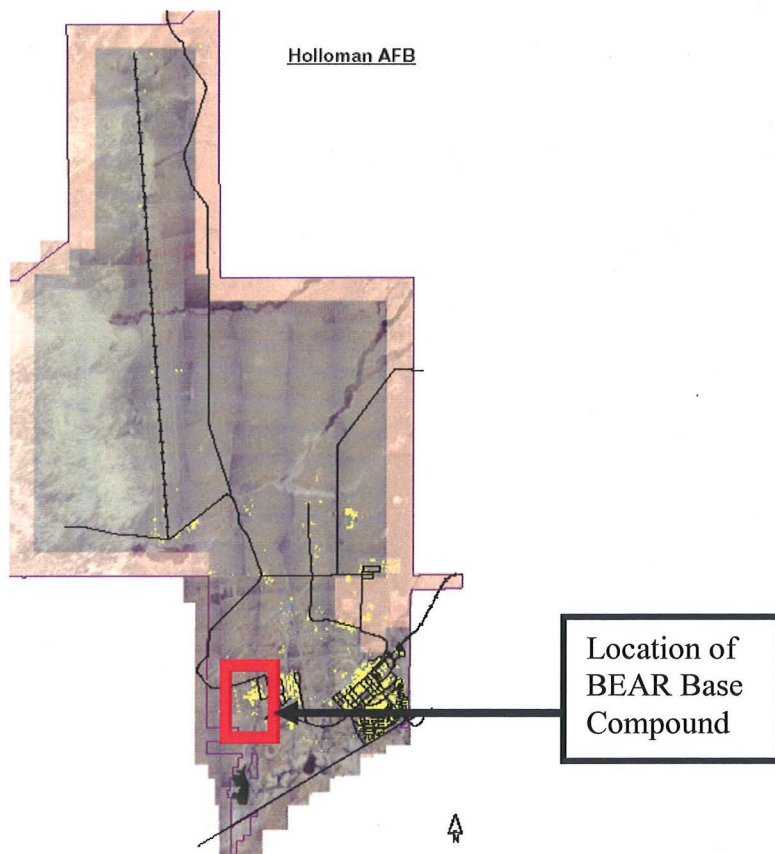


Figure 1 Holloman Air Force Base

1.2 Need for Action

Based on the existing conditions and proposed development, the following issues and concerns have been identified by 49 MMG.

- Parking is not adequate for the number of administrative personnel within BEAR Base. These problems are intensified during deployment, resulting in vehicle parking on Kelly Road. Parking will be further stretched if manning levels increase to near authorized levels.
- The location of BEAR Base does not support efficient traffic flow for visitors or supply trucks.
- Several facilities are located in areas of high aircraft noise, impeding administrative and training functions.
- The maintenance areas of Buildings 901, 902, and 953 have significant floor space and under utilized vertical space. Additionally, these maintenance functions are occupying flight-line property and could be relocated to other locations.
- Significant amounts of deployment assets are exposed to the elements in open storage and would be better suited to covered storage.
- BEAR Base will support training for additional units with the 49 MMG compound/exercise area for the new Air Expeditionary Wings, if tasked.

1.3 Project Goals and Objectives

In order to maximize mission performance and ensure efficient use of space and time, 49 MMG proposes to:

- Improve cargo and mobility flow by consolidating like functions and relocating courtesy storage to the periphery of the compound.
- Provide separate access from the controlled area for mobility operations.

To improve transportation within the compound, 49 MMG proposes to:

- Segregate private and government vehicles where possible.
- Provide additional parking spaces and improve existing layout.
- Ensure access to all areas of the compound during rainy weather.
- Improve traffic safety.

To improve overall facility conditions and accommodate future growth, 49 MMG proposes to:

- Improve aircraft parking capability on the apron.
- Increase covered storage space.
- Repair existing facilities, or demolish substandard facilities and build new to meet current Air Force standards.

To meet environmental and occupational compliance constraints, 49 MMG proposes to:

- Move people functions out of the 80+ DNL.
- Move people functions out of Q/D arcs of nearby hot cargo pad and munitions storage buildings.
- Ensure adequate space to site future improvements out of taxiway, apron, and runway clearance criteria.

1.4 Decision Options

The needs presented in Section 1.2 can be met in several ways. The decisions to be made are presented below.

- To expand the BEAR Base compound or provide all improvements within the existing compound boundaries.
- To increase the amount of warehouse storage and provide a location for the warehouse(s).
- To increase the amount of temporary storage (T-storage).
- To expand administrative office space and relocate office space to a more appropriate area.
- To further develop slightly improved areas or to continue operations with existing conditions.

1.5 Scope of Significant Issues

The following issues have been considered during this environmental assessment. These issues apply to all areas that may be impacted by the proposed actions.

- The natural resources of the area. This includes flora and fauna. Special attention was paid to threatened or endangered species and invasive species.
- The cultural resources of the area, including archeological and historical sites.
- Impacts on water quality. Special attention was paid to storm water runoff and nearby jurisdictional wetlands and Waters of the United States.
- Impacts on air quality focused on the effects of fugitive dust.
- Impacts on Environmental Restoration Program (ERP) sites in the immediate area.
- Impacts on the night sky due to outdoor lighting.

1.6 Permits

Impacts to protected Waters of the U.S. are limited by law. Discharges to these waters must be permitted under the US EPA Clean Water Act National Pollutant Discharge Elimination System (NPDES) program. Impacts from this collection of projects will disturb greater than 5-acres in an overall programmed development spanning 2-3 years and permits are required under the law. The permitting processes considered for this project include (1) the July 2003 Construction General Storm Water Permit and (2) the Clean Water Act Section 402 Multi-Sector General Industrial Storm Water Permit (MSGP). US Army Corp of Engineers (USACE) 401-404 permitting is discussed here, but not anticipated since site work will not be occurring within or across any designated

Waters of the US. Permit requirements will involve development of Storm Water Pollution Prevention Plans and submission of Notice(s) of Intent forms to the EPA, and possibly schedule delays of over 7-days. These permits and NOIs will be required prior to construction.

As all proposed construction is temporary in nature, no air quality or other construction permits are anticipated at this time.

2.0 Alternatives

2.1 Introduction

The following sections describe the reasonable alternatives, including the no action alternatives, which have been developed for this proposal. Alternatives have been developed by combining the project objectives discussed in Chapter 1 with the environmental issues discussed in Chapter 4. Additionally, alternatives considered but failing to meet project objectives or environmental standards are presented in section 2.3.

2.2 Alternative Profiles

2.2.1 Alternative A: No Action

Under this alternative, the 49 MMG compound would remain in its current condition. BEAR Base would neither improve existing facilities nor add additional facilities, as shown in Figure 2. Chapter 3 contains a more detailed description of the current conditions.

Cargo storage and mobility would remain unchanged. If additional deployable assets are assigned to 49 MMG as described in Section 1.2, BEAR Base would be unable to efficiently meet mission goals.

Administrative functions would remain unchanged. If additional personnel are assigned to 49 MMG as described in Section 1.2, parking would be insufficient to meet this need. People functions would be forced to remain in the +80 decibel noise zone and the quantity/distance arcs of the cargo hot pad.

Existing facilities would remain unchanged. Deployable assets would continue to be exposed to the elements. Operations, such as maintenance, would continue to under utilize needed space. Semi-developed storage areas would continue to produce dust and potential Foreign Object Damage (FOD) incidents to equipment. Storm water would continue to collect and impede access to deployable asset storage.

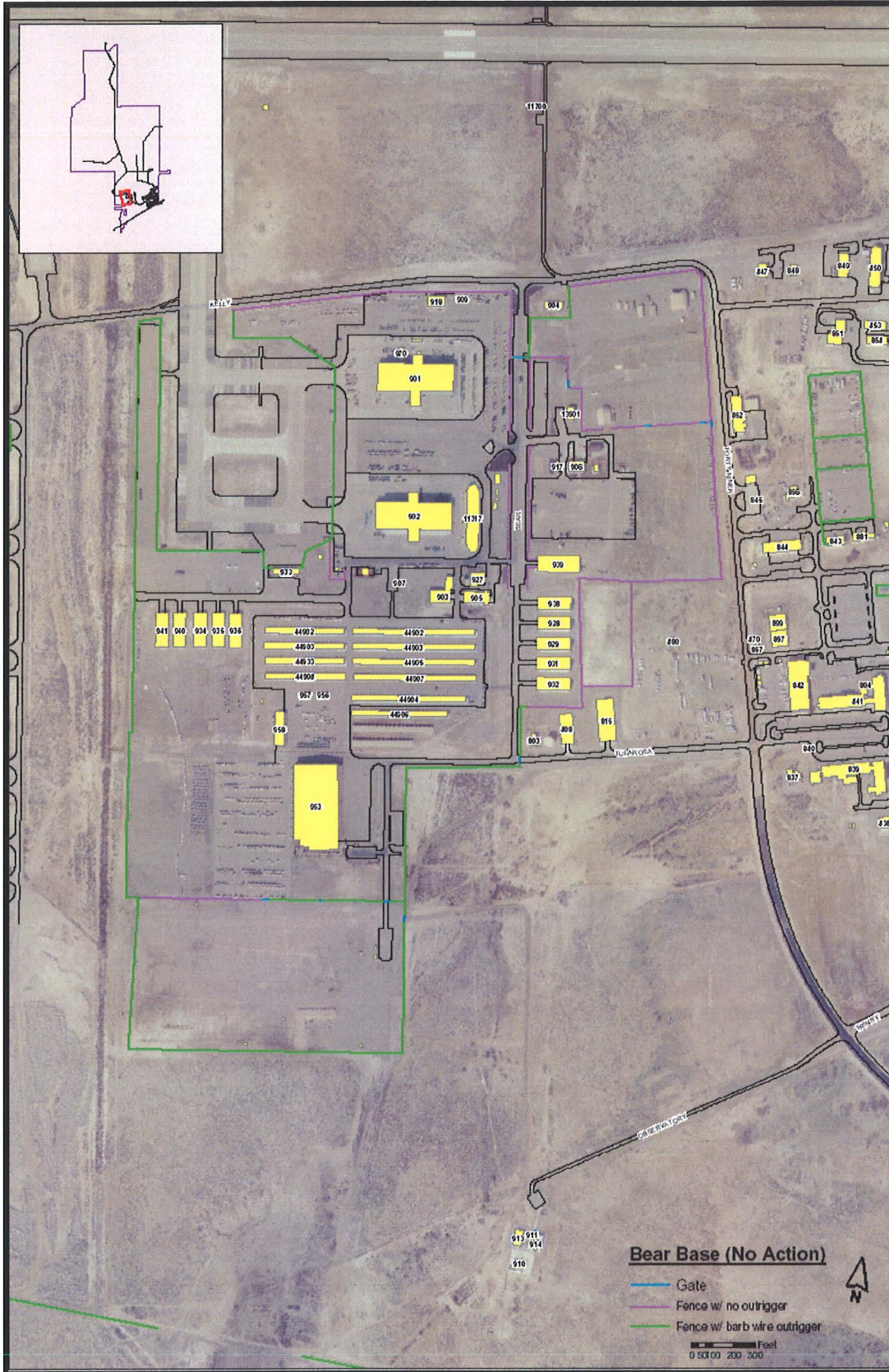


Figure 2 Alternative A

2.2.2 Alternative B: Proposed Action

Under this alternative, BEAR Base would undergo expansion, construct several facilities, and improve several existing facilities. These improvements are listed below. Additionally, the proposed projects are presented in Table 1. These improvements are spatially presented on the map located in Figure 3.

- BEAR Base would expand into the area south of the current compound. This would claim approximately 92 acres of land. The boundaries of this expansion would track along Tularosa Road to the east, Observatory Road to the south, and the current western boundary of the compound. The area would be cleared of vegetation, leveled, and graveled. Security fencing would be constructed around the perimeter, including security lighting, and the current southern boundary fence would be demolished.
- Construction of 5 pre-engineered buildings and 8 K-spans. This would provide 214,000 square feet of modular office and storage space. These structures would be located throughout the compound in areas that would remove personnel from noise and quantity/distance hazards and allow consolidation of like facilities.
- Construction of three new temporary storage (T-storage) units, and expansion of two existing T-storage units. Two T-storage units would be constructed south of Building 953. Another T-storage area would be constructed south of Buildings 917 and 906. T-storage units 44904 and 44906 would be extended to the same length as the surrounding buildings. This would result in an additional 58,000 square feet of temporary storage for deployable assets.
- Installation of pavement in storage areas, under T-storage, and around new K-Spans. This would provide approximately 910,000 square feet of open storage and parking space, 168,000 square feet of paved T-storage, and 18,000 square feet of roads and parking around K-spans. This would include the installation of several storm water drop inlets for drainage. The total area to be improved would be approximately 1.1 million square feet.
- Installation of pavement at the cargo marshalling area. This would include the demolition of existing shoulders and aprons on the taxiway, and stress paving of dirt areas. This would result in an additional 206,500 square feet of parking and taxiway for deployment of personnel and cargo.

This alternative would meet the needs presented in Section 1.2. Personnel would be moved out of +80 db noise zone and quantity/distance arcs. Parking would be increased and traffic would be moved away from cargo movement areas. Major facilities would be centrally located and like facilities would be consolidated to increase efficiency. Additional storage space for incremental mission increase would be provided. Space for training, storage, and new mission activities would also be provided. Aircraft parking would be increased to allow more efficient movement of cargo. However, a large amount of new land and construction would be required. See Table 1 and Figure 3 for more details.

Table 1 Alternative B Proposed Actions

Project # KWRD	Work Order #	EPF #	Description
040022 030335	20287 20539	2004009	Replace entrance gate and guard shack to Bear Base on Tularosa Rd
020159	46861	2002243	Current area is native soil and gravel. Pave area south of facility 44906. Also pave area around and under T-Storage facilities 44904 and 44906. Includes excavation, sub base prep, base, tack coat, asphalt, and striping.
010093	46414		Construct additional 12000 SY pavement south of FAC 44906 (T-Storage).
030333	48092 53717 48093 48216	2003373 2003365	Construct two rows of T-storage south of 44906. One 380', one 285 ', both with lighting. Construct along length of asphalt/parking lot 939
040213B	20151	2003503	Construct additional drop inlets, stormwater piping, trenching and backfill.
020178	45301		Install lights on four T-Storage facilities.
040213A	20151	2003503	Grade, compact subbase and base course, and place 2" asphalt pavement for parking and equipment storage. Includes installation of stormwater drop inlets. Establish elevations for proper drainage, grade area to contour.
040217			Construct area lighting to include electrical distribution, trenching, clear and grade 10' wide area on either side of existing fence line, conduit and wiring, and 94 20' light poles with one arm brackets.
030337	48160	2003408	Extend BLDG. 958 open storage. Amended to new stand alone pre-engineered bldg. 3400 SF next to 958.
040218			Construct T-storage near Bldgs 953 and 958.
030336	20985 61073		Construct five 25,000 square feet pre-engineered bldgs. Initial request for 3 bldgs closed.
	61074		Construct two K-spans with modular offices.

Table 1 Alternative B Proposed Actions Continued

Project # KWRD	Work Order #	EPF #	Description
020209B 020212	20880 20879 46314 46672 20821 20152	2002340 2002050 2003502	Construct new perimeter fence. Clear, grade, and place 3/4" layer of base material to area to be gained per Bear Base Area Development Plan. Install lighting on newly constructed fence. New security fencing. Shall be 6' high chain link fence, one vehicle swing gate, 10' clearing of vegetation on both sides of fence. DEMO existing fence line.
030261 040095	53533 48118	2003370	Pave large dirt area between current heavy parking spaces, west cargo ramp.
030035 000048	44962 46314	2000530	Construct 5 new 10,000 SF each, K-span structures. Construct new 20' wide asphalt roadway with concrete curb and gutters and intersections and utility adjustments. Relocate existing fence and install vehicle gate.
	45687	2000534	To acquire/claim land. Move MMG to the south of Tularosa Rd. Give back facilities and land in the north to main base.
020148	46254		DEMO current offices, replace with new prefabricated offices. Need electrical, phone, network, and environmental controls.
	60890	2003165	Pour a 30' X 60' X 6" concrete foundation for the erection of 30' X 60' steel storage bldg.
	x3827		Siting and location of water and electrical tie-ins for Eagle build pre-engineered bldgs and K-spans.
	45298		Extend two T-storage facilities to the same length as other facilities.
020151	46846		Install 4 light poles with flood lights to them to properly light the cargo yard.
030014	46062	2001493	Build K-span for utilities element. Located south of bldg. 939. Will need to be connected to gas, water, sewer, and electric.

2.3 Best Management Practices (BMPs)

All actions to take place under the alternatives presented must adhere to accepted BMPs. The environmental consequences considered in this assessment are presented with BMPs as a mandatory requirement for action. Failure to follow BMPs could result in environmental impacts not considered during this assessment.

Any Clean Water Act (CWA) permitting will require implementation of certain construction BMPs to reduce water quality impacts. BMPs for this project will include standard erosion and sediment controls (silt fence, rock check dams, and/or sediment traps are preferred for our highly erosive silty loam soils). Protection of downstream designated waters may be best accomplished by use of rock check dams and run-downs, which can also remain as permanent stabilization. Equipment storage should be in an area or method to preclude leaking fuels or oils being conveyed to designated waters of the U.S. (e.g. bermed area, use of drip pans or absorbent pads, secondary containment for fuel/oil tanks, etc.). The longer range impacts to surface water will be monitored as part of the MSGP, likely due to BEAR Base vehicle/generator and POL activities, or larger scale exercises in the expansion area. Outfall No. 6 is designated and fitted with an auto-sampler for the categorical monitoring of typical BEAR Base industrial sector storm water runoff. Preferred BMPs for the 92 acre expansion area is establishment of permanent erosion control, such as a gravel roadbed and surface water conveyance structures (culverts, rip-rap). BMP methods are summarized below.

- Culverts and/or rip-rap at drainage crossings - Several small drainage swales and arroyos are noted within and downstream of proposed project configurations and fence alignments. The use of culverts and/or rip-rap at these crossings is recommended to manage or reduce erosive forces. This will protect water quality and increase the projected life of the project by reducing undercutting and sink-holes, thus ensuring improvements are not damaged by storm events and fence line is secure with no breaches. Any rock, shaping, or culverts recommended as a construction period measure should be left in place as a permanent erosion control feature.
- Limited clearing - Due to the already sparse vegetation, clearing should be limited to only that which is necessary (mainly for new/replacement fence alignments). A single lane width centered on the fence alignment may suffice. Blading should result in a small berm on the downstream side providing silt dams at no more than 300-ft intervals. This can also be accomplished by phased construction activity.
- Scheduling - Completion of soil-disturbing activities during the mid-September to early June time period will avoid peak rainfall periods. Light

rains in the dry seasons typically do not create the erosive runoff conditions seen in the summer monsoon season.

- Silt-Fence - USACE specification section 01356 – Storm Water Pollution Prevention Measures is a good guide for silt fence construction. Properly installed with a backwire, tight stretch, proper material, and proper burial depth, it can be a very effective erosion control. Bench intervals with a ‘V’ configuration opening upstream should be limited to 300-ft along shallow slopes, less along steeper slopes.
- Gravel mulch and Rock Check Dams - Rock is a preferred BMP for erosion protection on Holloman AFB soils. Gravel mulch, or better yet a seeded mix of ¾-inch minus crushed gravel is recommended as both a construction period and permanent erosion control measure. Rock check dams of angular 4-inch to 6-inch material spanning small devegetated swales and ditches with a minimum 1-ft depth can be surprisingly effective at retaining eroded material and retaining or re-establishing hydrology.
- Sedimentation pond(s) and Drainage Improvements - For this development project, made up of numerous large and small construction activities, it may be advantageous to provide long-term drainage improvements as part of the short-term construction BMPs. These could in fact be performed in lieu of area-specific construction-period controls in some cases. For example, numerous low areas in the eastern portion of the BEAR Base compound could be drained with a north-south trending shallow rock-lined ‘V’-ditch across Tularosa Rd through a new culvert. This would drain standing water and prevent muddy site tracking conditions. This drain could be linked with drainage improvements from the new 49-er Road alignments, drainage from the areas south of Building 953 project sites (already in a low spot), and conveyed in a slightly larger rock-lined or earthen (if slope is shallow) ‘V’-ditch to a new sedimentation pond at the north end of the un-named wetland south of BEAR Base. This wetland ‘addition’ could be linked with the western perimeter ditch as well, and maintained to improve overall BEAR Base storm water runoff quality.
- Hay bales are not recommended.

2.4 Eliminated Alternative

Reasonable alternatives were considered to be ones that met all of the project needs within the bounds of relevant environmental issues. The following alternative was found to be lacking in terms of mission requirements. The primary difference of this alternative would be the lack of additional land, requiring all improvements to be within the current BEAR Base compound.

- Construction of 7 pre-engineered K-span buildings. This would provide 175,000 square feet of modular office and storage space. These buildings would be located throughout the compound in areas that would remove personnel from noise and quantity/distance hazards and allow consolidation of like facilities.
- Expansion of two existing T-storage units. T-storage units 44904 and 44906 would be extended to the same length as the surrounding buildings. This would result in an additional 2,000 square feet of storage space.
- Installation of pavement in storage areas and under T-storage. This would provide approximately 910,000 square feet of open storage and parking space, and 102,000 square feet of paved T-storage. This would include the installation of several storm water drop inlets for drainage. The total area to be improved would be approximately 1 million square feet.
- Installation of pavement at the cargo marshalling area. This would include the demolition of existing shoulders and aprons on the taxiway, and stress paving of dirt areas. This would result in an additional 206,500 square feet of parking and taxiway for deployment of personnel and cargo.

This alternative would meet some of the needs presented in the project proposal. Personnel would be moved away from high noise and quantity/distance arcs. The efficiency of existing facilities would be increased. However, further increases in efficiency would be limited due to space restraints. The mission would be constrained to current levels. Due to these restraints, this alternative was considered to be unreasonable, and no further analysis was provided.

3.0 Affected Environment

3.1 Introduction

The following chapter discusses the environmental resources that would be affected by the actions of the alternatives proposed. This is a snapshot of the environment as it currently exists, not of the effects of the proposed actions. The resources to be considered are natural resources, water quality, air quality, cultural and historical sites, and ERP sites.

3.2 Natural Resources

The soils in the area are Holloman-Gypsum land-Yesum complex, with slopes less than 5%. The vegetation types in the area are four-wing saltbush/alkali sacaton shrubland, alkali sacaton grassland and four-wing saltbush/gyp dropseed

grassland. Multiple neotropical migratory bird species utilize the area, some during the breeding season and others during migration.

Much of the area, especially within the existing compound, is already semi-developed, having been previously graded, bladed, contoured, graveled, or otherwise modified from the original land condition. The semi-improved grounds are infested with noxious weed plants, primarily African rue (*Peganum harmala*), although the occasional saltcedar (*Tamarix ramosissima*) is present. There are no threatened, endangered or sensitive species in the area.

The proposed 92-acre expansion area is located south to southeast of the existing compound. While there are high proportions of vegetation that remain native shrub- and/or grasslands, there are scattered populations, both sparse and dense, of both saltcedar and African rue. Prominent vegetation species in the area include four-wing saltbush (*Atriplex canescens*), alkali sacaton (*Sporobolus airoides*), iodine bush (*Allenrolfea occidentalis*), as well as the non-native invasive species, saltcedar and African rue. There are no threatened, endangered or sensitive species.

3.3 Water Quality

No major streams, rivers, or fresh water lakes exist in the closed Tularosa Basin. However, there are numerous protected or jurisdictional Waters of the United States on base, designated by the USACE. Those Waters of the U.S. within the zone of potential impact of this project, in order of closest proximity, include:

- Un-named wetland south of BEAR Base.
- Lake Holloman - contains water throughout the year due to continuous Waste Water Treatment Plant (WWTP) effluent discharge, located just south of the un-named wetland.
- Stinky Playa - intermittently holds water and is a downstream overflow south of Lake Holloman.

Storm water is sheet flow runoff resulting in ephemeral streams generated from rainfall, roughly the same definition as surface water in the Tularosa Basin. Holloman AFB receives approximately 8-10 inches of annual average rainfall. However, storms typically deposit a significant amount of rain (up to 2-inches) in a short time period over a limited area in the June through September 'monsoon' period. Lake Holloman, the small un-named jurisdictional wetland south of BEAR Base, and Lake Stinky are noteworthy Waters of the US in the project area that receive Holloman AFB storm water. These waters are protected by (1) the Storm Water NPDES MSGP for industrial discharges, and (2) The July 2003 NPDES General Permit for Discharges from Large and Small Construction Activities.

3.4 Air Quality

Holloman AFB is located in Otero County, a portion of New Mexico Air Quality Control Region 153, is classified as attainment for air pollutants with primary and secondary National Ambient Air Quality Standards (NAAQS). Primary standards are established to protect public health from adverse impacts of air pollution. Secondary standards are established to protect the public welfare from adverse impacts of air pollution.

3.5 Cultural and Historical Sites

Holloman AFB has been completely surveyed for heritage resources (archaeological sites, historic buildings, locations of important events, and traditional cultural properties). Two historic sites (#s HAR 37 and 40) were recorded in 1993 in the general vicinity of BEAR Base and reported in "The Main Base and West Area Cultural Resources Survey" (O'Leary (1994) which is on file at the HAFB Environmental Flight and New Mexico State Historic Preservation Office (SHPO). One historic site (HAR 064) is an historic corral and water tank with associated artifacts, which was recorded and researched in 1993-94 (Hawthorne, 1994a, 1994b). These sites were reassessed in 1996, by GeoMarine Inc. and reported in "South Main Base and High Speed Test Track Sites National Register Eligibility Evaluation" (Ernst & Barnes, 1997) which is also on file at HAFB and the SHPO.

Site HAR-037 (LA 104256) was apparently a military encampment site consisting of 3 tent base alignments and a light artifact scatter, dating to the earliest days of Holloman (nee Alamogordo Army Air Field). A site record and map were prepared, and time indicating artifacts were collected in 1993. The evidence for tents on this site could not be found again in 1996, apparently due to wind and water deposition and/or erosion. The site recording and artifact collection is considered to have exhausted the research potential of this site, and it is not recommended as eligible to the National Register of Historic Places (NRHP). HAR-037 is north of Snark Road, north of the BEAR Base compound, and not in the area of this expansion.

Site HAR-040 (LA 105442) was recorded in 1993 as the foundation slabs of four WW II buildings, with no distinctly associable artifacts. It was addressed again in 1996, and recommended as not eligible for the NRHP. HAR-040 is over a hundred meters east of the currently proposed BEAR Base Expansion.

Site HAR-064 (LA 103426) is a corral and stock water site associated with Bureau of Land Management grazing leases of the mid 1900s. It was on the Holloman south boundary, until the adjacent BLM land was acquired to allow HAFB to maintain wetlands in association with a complete reconstruction of the HAFB Waste Water Treatment facility. This site has been thoroughly recorded and researched, and reported by Hawthorne (1994a, 1994b), and reassessed by

Ernst & Barnes (1997). It is recommended as not eligible for the NRHP, and is about 100 meters south of the currently proposed BEAR Base Expansion.

3.6 Environmental Restoration Program Sites

There is one ERP site currently located within the BEAR Base compound. SD-25 is located east of Building 953. This drainage pond receives runoff from the MOBSS area (Buildings 901 and 902). According to one interviewee, outdated chemicals such as pesticides, high-test hypochlorite (HTH), and solvents have been disposed of in the drainage pond from around 1977. Remedial Investigation (RI) activities were conducted in 1989. Two sediment samples, two surface water samples, and two hand-augered soil samples were collected. The samples were analyzed for volatile organics and semi-volatile organics, pesticides, PCBs, TRPH, and metals. No significant levels of contaminants were found in any of the samples.

LF-22, the West Area Landfill No. 1, is located in an area that could be impacted by the proposed expansion of BEAR Base. LF-22 is located in an arroyo near the Solar Observatory, Building 910. See Figure 3 for more detail. The landfill covered a two to three acre area and was used during the years of 1974 to 1978. A December 28, 1978 memo describes the site and indicates that items such as plastics sheets, boxes, and empty cans were the types of solid waste disposed of at the site. Four monitor wells were installed for RI activities. No contaminant was discovered in high enough levels to consider remedial action. However, extremely low levels of the pesticide alpha-BHC were discovered. In April 2004, the New Mexico Environment Department directed Holloman AFB to conduct a RCRA Facility Investigation (RFI) at the site. This work is scheduled to occur in FY05.

LF-23, the MOBSS Landfill (SWMU 108), is located in a borrow pit west of the Solar Observatory covering approximately one acre. See Figure 3 for more detail. It received waste from 1976 to 1979. Asphalt, construction debris, a concrete vault, a trailer, two to three empty 55 gallon drums, four to five 1-gallon metal buckets with roofing tar, and other materials were found at the dumpsite. Cans of diazinon, dibromochloromethane, and 55-gallon drums of unknown contents were reportedly observed at the dumpsite. Four monitor wells were installed in 1992. Delta-BHC was detected in the groundwater in low quantities. Cadmium was also detected in the groundwater. No soil samples were collected for chemical analysis. Site closeout with long term groundwater monitoring through FY14 was recommended and approved for this site in the Decision Document (DD) by the NMED in September 1994.

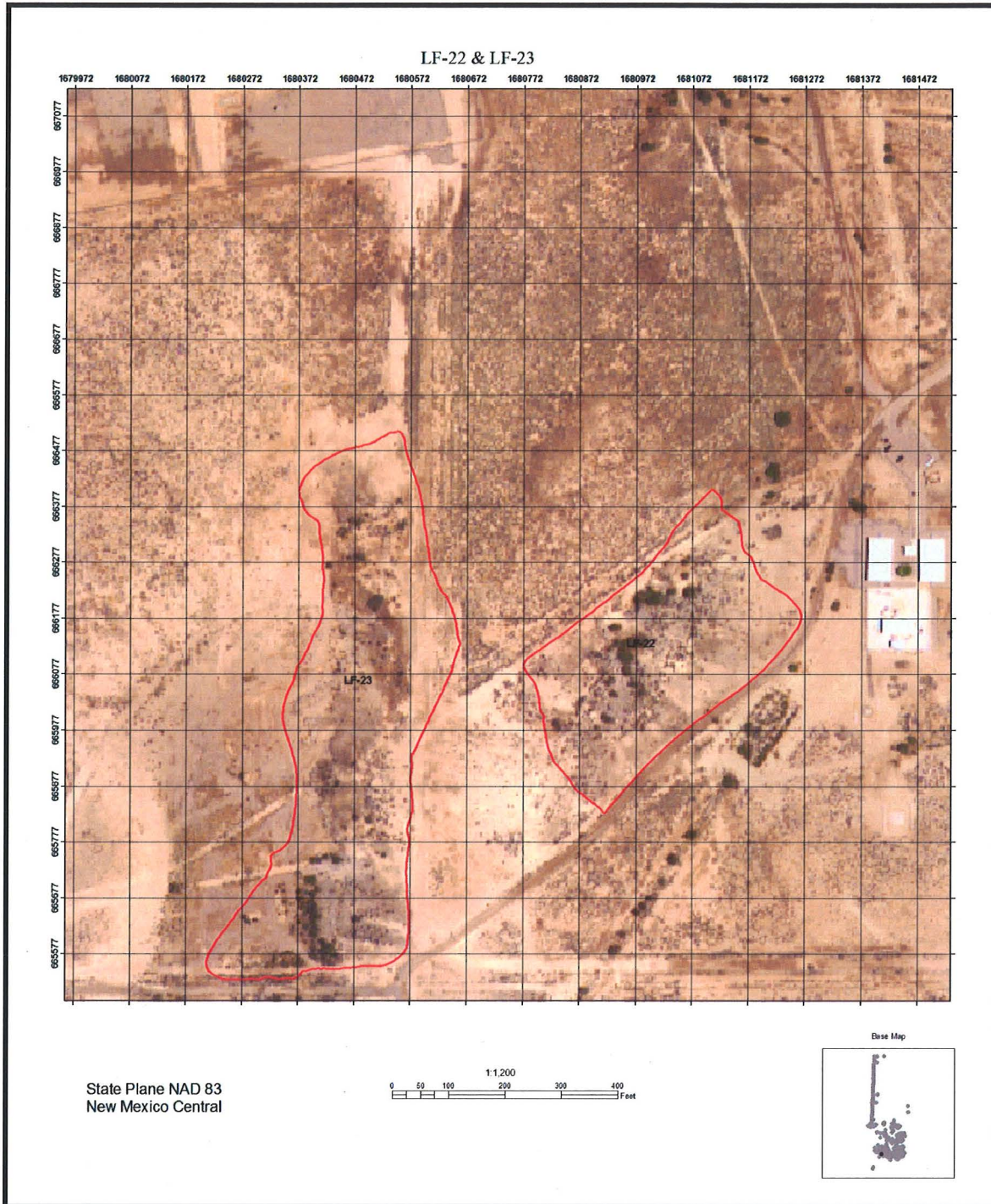


Figure 4 ERP Sites LF-22 and LF 23

3.7 Night Sky

New Mexico is known for its dark night skies and excellent environment for astronomy. In 2001, the “Night Sky Protection Act” was passed to preserve and enhance the state’s dark sky while promoting safety, conserving energy and

preserving the environment for astronomy. The effects of outdoor lighting are of particular importance in the HAFB area. The Sunspot Solar Observatory is located on the nearby Sacramento Mountains. The Meteorological Solar Observatory is located on HAFB. In order for these two organizations to conduct research, it is necessary to prevent light pollution and preserve a dark nighttime environment. The Night Sky Protection Act requires that all outdoor lighting fixtures shall be shielded, except incandescent fixtures of one hundred fifty watts or less and other sources of seventy watts or less. Use of other light sources, such as low-pressure sodium lamps, has proven to be very effective.

4.0 Environmental Consequences

4.1 Introduction

The proposed alternatives will have impacts on the existing environment. All resource impacts for an alternative have been grouped together. These impacts include direct, indirect, and cumulative effects for the actions described in each alternative. These effects have been accepted assuming that all BMPs discussed during the description of actions will be followed. Failure to follow BMPs could result in environmental effects not identified during this environmental assessment.

4.2 Impacts of Alternative A on all Resources

4.2.1 Natural Resources

There are multiple environmental effects for the area within BEAR Base. Direct impacts will be continued expansion of noxious weed plants and seeds in disturbed soil areas. Continued ponding of water within the compound could attract wildlife species to the area and cause potential mission and wildlife/natural resource conflicts. The open areas between the current heavy parking spaces will continue to have high populations of African rue which can harbor pebbles and present FOD issues, which may potentially cause aircraft damage and/or safety concerns. This unpaved area is also a potential introduction site for new, harmful, invasive noxious weed species, via the return of personnel and equipment from overseas locations.

In the approximately 92 acre area proposed expansion by BEAR Base, impacts will be restricted to the status quo. Direct impacts will be that the area remains at status quo. Saltcedar continues to expand its range in the area, as well as providing seed source to downwind areas. African rue will continue to exist in disturbed areas, and will likely continue to spread. There are no indirect effects identified for the no action alternative. Cumulative effects for this alternative include the continued expansion of

noxious weeds into the area. Although there will remain wildlife habitat and native vegetation resources within the area, there may be potential for “mission creep” outside the current compound, thereby potentially compacting soils, increasing erosion, increasing the spread of noxious weeds, and increasing loss of habitat and wildlife resources.

4.2.2 Water Quality

Implementation of this alternative would maintain the current conditions at BEAR Base. All storm water run off and erosion control measures currently in place are adequate.

4.2.3 Air Quality

Alternative A will have some negative impacts on air quality due to the traffic over unpaved areas and emissions of particulate from windblown dust caused by failure to pave areas of bare soil. This alternative would preserve the status quo impact on air quality from existing facilities and operations.

4.2.4 Cultural and Historical Sites

There will be no impact to cultural or historical sites as a result of taking no action on this proposal.

4.2.5 Environmental Restoration Project Sites

There will be no impact to ERP sites as a result of taking no action on this proposal.

4.2.6 Lighting Effects

There will be no impact to the night sky as a result of taking no action on this proposal.

4.3 Impacts of Alternative B on all Resources

4.3.1 Natural Resources

Within the existing BEAR Base, the direct impacts of the alternative will be a reduction of bare soil, due to the paving of multiple areas, and a resulting reduction in noxious weed plant and seed sources. There are no indirect impacts within the compound at this time. Cumulative impacts of the paving projects will also serve to improve drainage, encouraging water flow off-site and minimizing attractiveness of the area to wildlife species.

This would minimize potential mission and wildlife/natural resource conflicts.

Impacts to the proposed expansion area will include the loss of vegetation in the 92 acres proposed for land clearing. The expansion of the compound in this area will remove the vegetative crowns of both native and non-native plants. Removal of weed crowns can temporarily reduce the number of seeds being spread down-wind. Following grading, there will likely be a dramatic increase in infestation of African rue, which may be minimized if a pre-emergent herbicide is applied to the area. Saltcedar will continue to sprout from the root-crowns if they are not removed (whole) to a depth of approximately 16-18". Seeds will likely continue to move into the area from adjacent infestations, and seedlings will have to be controlled. The entire area will require continuing control efforts for both saltcedar and African rue (using mechanical and/or chemical methods). There will be permanent loss of habitat for avian species. Clearing of this area must take place outside the breeding season, primarily between mid-October and early February. There are no indirect impacts identified at this time. Cumulative impacts for the area include the permanent loss of vegetation, wildlife habitat, and other natural resources. The land clearing action will be an irreversible commitment of resources.

4.3.2 Water Quality

Construction project impacts to storm water quality can range from minor to severe. For this project, impacts are anticipated to be moderate if BMPs are adequately applied. In the desert southwest, whenever vegetative cover and soils are disturbed, violent storm events become even more erosive. The limited natural cover in place provides some protection and retention capacity for the highly erosive silty loam soils at Holloman AFB. Erosive impacts are caused by widespread devegetation (clearing and grubbing), clearing on long, steep slopes, clearing in highly erosive soils, and clearing/earthwork during storm seasons. Even with the shallow topography, broad erosive features can develop in a single summer storm. These events cause depleted water quality at ephemeral stream junctions and nearby monitored outfalls for the MSGP. High turbidity, suspended solids, and decreased cross section due to deposition can violate storm water quality benchmarks and result in a Notice of Violation for storm water quality permits.

Beside erosive impacts, construction period activities can cause much more severe water quality impacts. Improper fuel, oil, and chemical storage, conveyance, and loading/unloading can readily contaminate receiving waters in a single event. These are potentially short duration but

high impact events, typically categorized as accidental spills. Controls must be in place to avoid these impacts.

Long-term impacts of the completed projects in the BEAR Base development to water quality are direct, indirect and mild to moderate. Additional assets to be stored and mobilized (bringing with it additional mobilization effort/traffic patterns), additional area for training, and additional impervious surfaces (e.g. building roofs, parking, pavement, gravel over 92 acres, etc) can have a cumulative impact on the area water quality. Engineered controls must be implemented as part of these projects to avoid additive impacts. Small detention/retention ponds, directed drainage patterns with engineered erosion controls, vegetated or other buffer strips, mild slope cuts, and erosion control/site stabilization practices in a variety of configurations can be effective. Vegetated strips are not typically successful in the desert southwest. All impacts as discussed may be significantly reduced by implementation of proper BMPs.

4.3.3 Air Quality

Alternative B will have some negative impacts on air quality due to construction emissions, noxious weed control and employee vehicle commuting emissions. The positive impact on air quality will be the paving of several bare soil areas that are a source of particulate emissions. These temporary emissions from construction and new employee vehicle emissions will not cause or contribute to a violation of the NAAQS and will not impair visibility in Class I Areas.

Alternative B does not include the construction of any facilities that will house air emission sources subject to air quality permitting requirements. Air quality emissions will result from construction activities such as open burning for noxious weed control, grading, digging and construction vehicle emissions that are transient or temporary emissions. EPA guidance for assessing air quality impact allows for the exclusion of temporary construction emissions from evaluation of impact area and conducting the subsequent air quality analysis. Cumulative impact of these construction activities will be limited in duration and limited locally on base because of the previously discussed BMPs employed. Impact of open burning of noxious weed will be visible emissions and air pollutants released from burning of vegetation. Cumulative impact of open burning of noxious weeds in the construction area will be minimized by employing the BMPs in the NMED's Smoke Management Program.

Indirect impact on air quality in addition to transient emissions from construction activities will be private vehicle emissions from 20 new

employees. The commuting emissions from these vehicles will not have a significant impact on air quality.

4.3.4 Cultural and Historical Sites

The area of the proposed BEAR Base Expansion and the vicinity, have been completely surveyed for cultural resources. No cultural resources are in the area to be directly affected by the expansion. Cultural resources on record in the vicinity have been thoroughly recorded, and are considered not potentially eligible for nomination to the NRHP. The expansion is reasonably expected to cause no affect to cultural resources.

4.3.5 Environmental Restoration Project Sites

There are three ERP sites within or near the area of proposed action. Any activities that occur on ERP sites should be coordinated with the 49th Environmental Flight (49 CES/CEV) before the site is disturbed.

ERP site SD-25 will suffer no significant impacts from the projects described under this alternative.

LF-22, the West Area Landfill No. 1, could be impacted by the proposed expansion of BEAR Base. The site is near the proposed 92 acre expansion and could be impacted by the security fence. However, the site is located outside of the 10' construction buffer of the fence line, and no activity directly on the site is anticipated. No significant impacts have been identified.

LF-23, the MOBSS Landfill, could be impacted by the proposed expansion of BEAR Base. The northern most portion is located within the proposed 92 acre expansion. See Figure 5 for more details. This site would be impacted by leveling of the area. Security fencing and leveling should be placed around the ERP site. If activity directly on LF-23 is avoided, there will be no significant impact to the site.

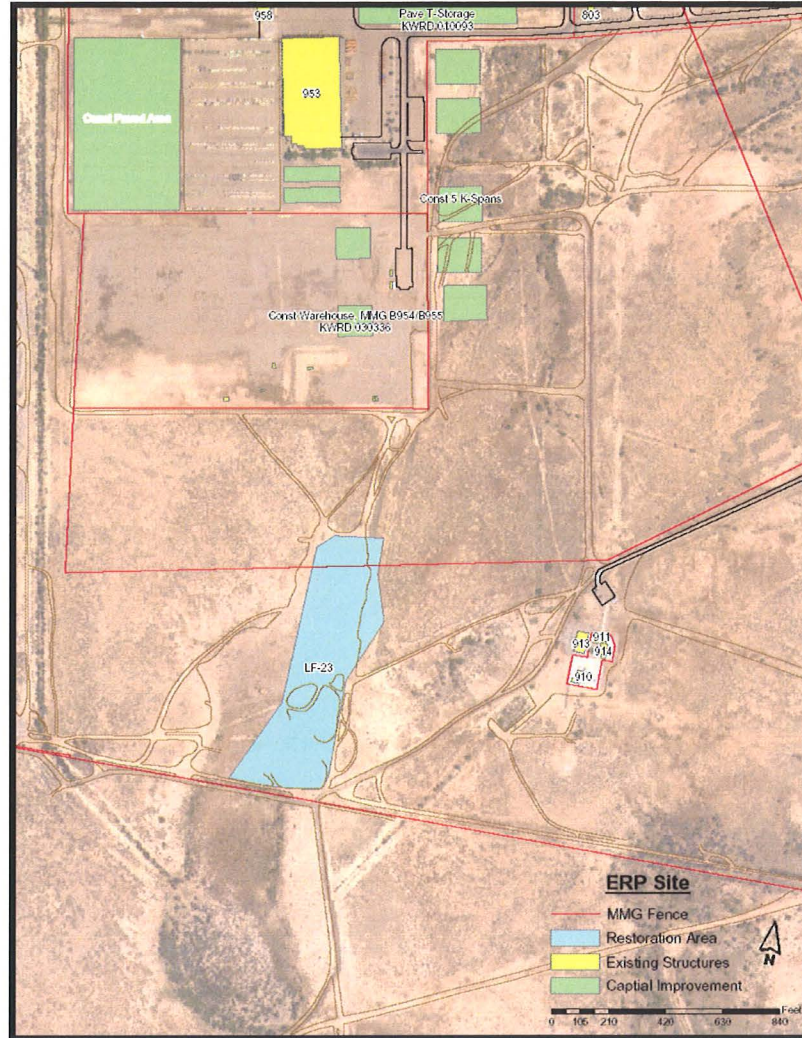


Figure 5 ERP Site LF-23

4.3.6 Lighting Effects

The addition of a large amount of security lighting could have an impact on the dark night time sky of the Tularosa Basin. However, by following the requirements of the New Mexico Night Sky Protection Act, these affects should be minimal. Failure to follow the guidelines presented in the Night Sky Protection Act may result in warnings and/or fines from the State of New Mexico, and breaches of agreements with local observatories.

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