Original

ENVIRONMENTAL ASSESSMENT

FOR THE

Tula Peak Road Intersection

PREPARED BY

US AIR FORCE 49th FIGHTER WING

49th CIVIL ENGINEER SQUADRON

ASSET MANAGEMENT FLIGHT

for the

846th TEST SQUADRON

July 2009

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

20 July 2009

MEMORANDUM FOR 49 FW/CC

FROM: 49 FW/JA

SUBJECT: Review of Environmental Assessment (EA) and Proposed Finding of No Significant Impact (FONSI) for Tula Peak Road Intersection

1. I have reviewed the proposed FONSI prepared for 49 FW/CC signature and find it legally sufficient for approval pursuant to 32 CFR 989.

2. Specifically, the proposed FONSI and EA reflect that reasonable alternatives have been identified and appropriately defined, including the no action alternative; the environmental impacts of the alternatives have been analyzed for significance as fully as the proposed action; and no impacts are significant, or impacts will be mitigated to insignificance. The EA reflects that potentially interested agencies, state and local governments, tribal governments, and the public have been afforded opportunity to participate in the preparation of the EA. Pursuant to 32 CFR 989.4(c), you should ensure that all environmental documents, including comments and responses received, are made available to you as decision maker prior to approval of the FONSI.

3. Of particular concern in this action is the essential habitat of the White Sands Pupfish, listed as a Threatened Species under the New Mexico Wildlife Conservation Act and Species of Special Concern by the U.S. Fish and Wildlife Service. Both agencies have been engaged in the EA process and their guidance incorporated in this FONSI. Further, the repairs to the existing road and intersection will not cause disturbance or other development within the floodplain elevation as outlined in the FONSI.

4. I concur that the proposed FONSI is supported by the EA so long as the measures recommended by the New Mexico Department of Game and Fish are followed as outlined in the FONSI and EA.

GERALD D. LAVER, YA-02, DAF
Attorney-Advisor (General)

Concur.

DAWN D. HANKINS, Lt Col, USAF
Staff Judge Advocate

TULA PEAK INTERSECTION AND BY-PASS ROAD PROJECT

HOLLOMAN AIR FORCE BASE, NEW MEXICO.

FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF PROPOSED ACTION

Tula Peak Intersection and By-Pass Road Project, Holloman Air Force Base (Holloman AFB), New Mexico. This Environmental Assessment is to bring the Tula Peak (range road 9 & 10 intersection) by-pass project to the correct level of environmental compliance in regard to the encroachment of the project into the Lost River drainage and the essential habitat of the White Sands Pupfish, a New Mexico Species of Special Concern, and protected in accordance with the *Sikes Act* and Air Force Instruction 32-7064, *Integrated Natural Resources Management Program.*

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Preferred Alternative: The proposed action is to complete the paving of the ramp in the riparian area of the Lost River. The surface will be hot asphalted per New Mexico Department of Transportation (NMDOT) and Department of Defense (DoD) standards. The disturbed area (road embankment) has erosion controls put in place both to protect the Lost River from sediment and to preserve the earth work. The measures taken will be as recommended by New Mexico Department of Game and Fish (NMDGF) to work outside of the essential habitat and as outlined in the Storm Water Pollution Prevention Plan (SWPPP). Long term monitoring will be conducted until the soil is stabilized. A combination of stabilization methods/alternatives may be employed.

No-Action Alternative: As construction (earth movement) has already taken place, the no action alternative becomes a no further action alternative. To take no further action at the Tula Peak intersection will leave the dirt-work already completed as exposed erodable soil with steep slopes. Natural revegetation will occur after the winter rain starting with African Rue, grasses and weeds.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The Preferred Alternative would not result in significant adverse impacts to human health or the natural environment. The recent action of disturbing soil will increase the probability of significant runoff of sediments. In this case the sediment will directly impact the Lost River and the White Sands Pupfish living in it. The immediate action of placing silt barriers (24 November 08) is intended to mitigate this most immediate concern.

The pupfish is listed as Threatened under the New Mexico Wildlife Conservation Act, and is listed as a Species of Special Concern with the U. S. Fish and Wildlife Service (USFWS).

Holloman AFB is signatory to an interagency agreement (Cooperative Agreement for Protection and Maintenance of White Sands Pupfish between U.S. Army - White Sands Missile Range, U.S. Air Force - Holloman Air Force Base, National Park Service - White Sands National Monument, U.S. Fish and Wildlife Service, and the New Mexico Department of Game and Fish) that requires the protection of pupfish and their habitat. Soil stabilization of the construction site is essential to ensuring the survival of the species. The area of eight (8) square meters inside the Essential Habitat will not be paved as there will be significant potential of allowing runoff of petrochemicals from the roadway into the Essential Habitat. Construction will be completed to concur with the recommendations of the NMDGF letter of 3/19/09, which reads: "*A portion of the South end of the construction ramp will need to be abandoned (seeded or left to natural revegetation) as it is within the 100 meter Essential Habitat buffer area of the Lost River. It is not recommended that the abandoned area be worked, removed, compacted or graded as it will have achieved some level of stability by the time any action could be taken. Some additional action must be taken to ensure the side slope is stabilized.*"

The existing repairs to the intersection of Tula Peak Road will not cause disturbance within a floodplain/wetlands area. As the road-bed being worked/re-worked is elevated approximately 20-25 feet above the arroyo on a previous very disturbed area, there will be no disturbance in the elevation of the floodplain – it will be above the floodplain elevation and will be an improvement to the existing road. The wetland area is located approximately 1,000 yards to the SW of the road being repaired and will not be impacted by the road repair work.

4.0 CONCLUSIONS

Based on the analysis in the EA, which is attached, no significant impact is anticipated from the implementation of the Proposed Action, or the No Further Action Alternative. Therefore, issuance of a Finding of No Significant Impact (FONSI) is warranted, and an Environmental Impact Statement is not required. The project will be reviewed by the 49 Civil Engineer Squadron, Asset Management Flight (49 CES/CEA) prior to implementation to ensure that there has not been a substantial change in project scope, significant new circumstances or information relevant to environmental conditions/regulations warranting reevaluation of potential environmental consequences. Should there be a substantive change in scope, conditions, or regulations, the base will pursue additional environmental analysis of potential impacts. Pursuant to Executive Order (EO) 11988, the authority delegated in the Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the proposed action includes all practicable alternatives to minimize harm to the environment.

12 Aug 2009

JEFFREY L. HARRIGIAN
Colonel, USAF
Commander

EXECUTIVE SUMMARY

This Environmental Assessment (EA) is to bring the Tula Peak (range road 9 & 10 intersection) by-pass project to the correct level of environmental compliance in regard to the encroachment of the project into the Lost River drainage and the essential habitat of the White Sands Pupfish. This EA is prepared in accordance with the National Environmental Policy Act , 1969 (NEPA, 42 United States Code [USC] 4321-4347), the Council of Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations (CFR) 1500-1508), and Air Force Environmental Impact Analysis Process (EIAP) as promulgated in 32 CFR 989.

In this case, the proposed project was initiated prior to the recognition for the need of an EA. This breach of policy happened because multiple work orders were evaluated and found that in themselves did not constitute more than minor road extension/repair. Efforts to engineer a solution were taken after the environmental review and went beyond the evaluated impact. The actual breach of policy was not discovered until a routine storm water inspection questioned the inadequacy of a site SWPPP.

Test track road (RR10) intersection with Tula Peak Road (RR9) has been recognized as a hazardous intersection by 49th Fighter Wing Safety office. Accidents and incidents have been reported at this site raising the level of concern to find an engineered solution.

As funds for this type of project are limited, the 846th Test Squadron volunteered to fund a small road repair as this is their main access to the High Speed Test Track.

The result was a SABER project to modify the existing intersection. The proposed project (see map pg 3 and EPF 20080004 in appendices) was to add a short straight section between the existing Y intersection, remove the curve, remove the small portion to the north that was bypassed and remove a small hill obstructing the view east of RR10. The terrain at this point includes a rise and slight curve in the road that left this as an unsatisfactory conclusion as visibility was still restricted. The environmental review noted that the "project must stay within the bounds of the paved triangle at intersection for removal of soil. Area is adjacent to/within the boundary of pupfish habitat. HAFB must not create erosion runoff issues in Lost River Drainage per White Sands Pupfish Agreement." As the scope of this project was presented as staying within the bounds, it received environmental clearance under 32 CFR 989.13.

A second SABER project (see map on pg 3 and appendices EPF 20080433) took a more aggressive approach to remove the remaining visual obstacle to the east of RR9 and remove the curve from Tula Peak road to test track road and the remaining abandoned asphalt.

It was found that the curve from Tula Peak to Test Track road was very popular with Test Track workers and the section of the road was requested to be left in place. The project no longer was to convert the Y intersection to a T, but to make the Y intersection safe.

The actual construction was modified to improve traffic safety by extending the shoulder area south approximately 300 feet to accommodate leaving the curve from Tula Peak to Test Track road in place. No environmental clearance was sought for the change. The error was discovered as part of a routine inspection and work was halted as the disturbed area appeared to impact on New Mexico Department of Game and Fish listed "species of concern" White Sands Pupfish Essential Habitat without appropriate clearance.

The work to be completed includes an evaluation of the damage to the sensitive soils in the flood plain of the Lost River, the impacts on the White Sands Pupfish, and measures to be taken to ensure no further damage occurs. The project is to be completed only after the Environmental Assessment is concluded.

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Purpose and Need for Action:

The Tula Peak Road (RR9) intersection with Test Track Road (RR10) is located on the North bank of the Lost River. The site is steeply sloped with a natural high bank that builds up significantly blocking the view to the north of approaching traffic and the view South of traffic turning left to the test track. The visual obstruction was recognized as causing a significant traffic hazard.

Several solutions were examined. The first action was taken under an AF Form 813, Request for Environmental Impact Analysis (EIAP) for a Categorical Exclusion (CATEX) (see EPF20080004 appendix B). Pavement was to be laid within the boundaries of the existing triangle of roads for less than 50 feet. A visually obstructing natural dirt pile in the center of the triangle was to be leveled (See map pg 3). 846th Test Group, a tenant organization at Holloman AFB, agreed to pay for the project as they are the main organization to operate in the area. The project was unsuccessful as it did not achieve good visibility in either direction.

During the construction phase of this very limited project, the size of the disturbed area increased to four acres. As the evaluated project called for disturbing less than one acre, no SWPPP was originally called for. Upon inspection by the Holloman AFB Storm Water manager, the error was discovered. A SWPPP was immediately put in place and carried out by 846th Test Group.

The next phase of the project was a re-scope of the design of the project, creating sufficient concern that the NEPA manager insisted on a new AF 332 and AF 813 (work order request and Environmental Assessment request) (see EPF20080433 appendix C). Working closely with the design engineer, the concerns of working within the bounds of CATEX were discussed. Areas of concern for the project included:

- Proximity to the Lost River riparian and flood plain area.
- Proximity to "Essential Habitat" for New Mexico Department of Game and Fish listed Species of Concern (White Sands Pupfish) 100 meters to either side of the center of Lost River as outlined in agreement (see appendix D).
- Erosivity of the desert soil once disturbed (SWPPP at appendix E)
- The need to keep costs within the budget of the proponent; 846th Test Group

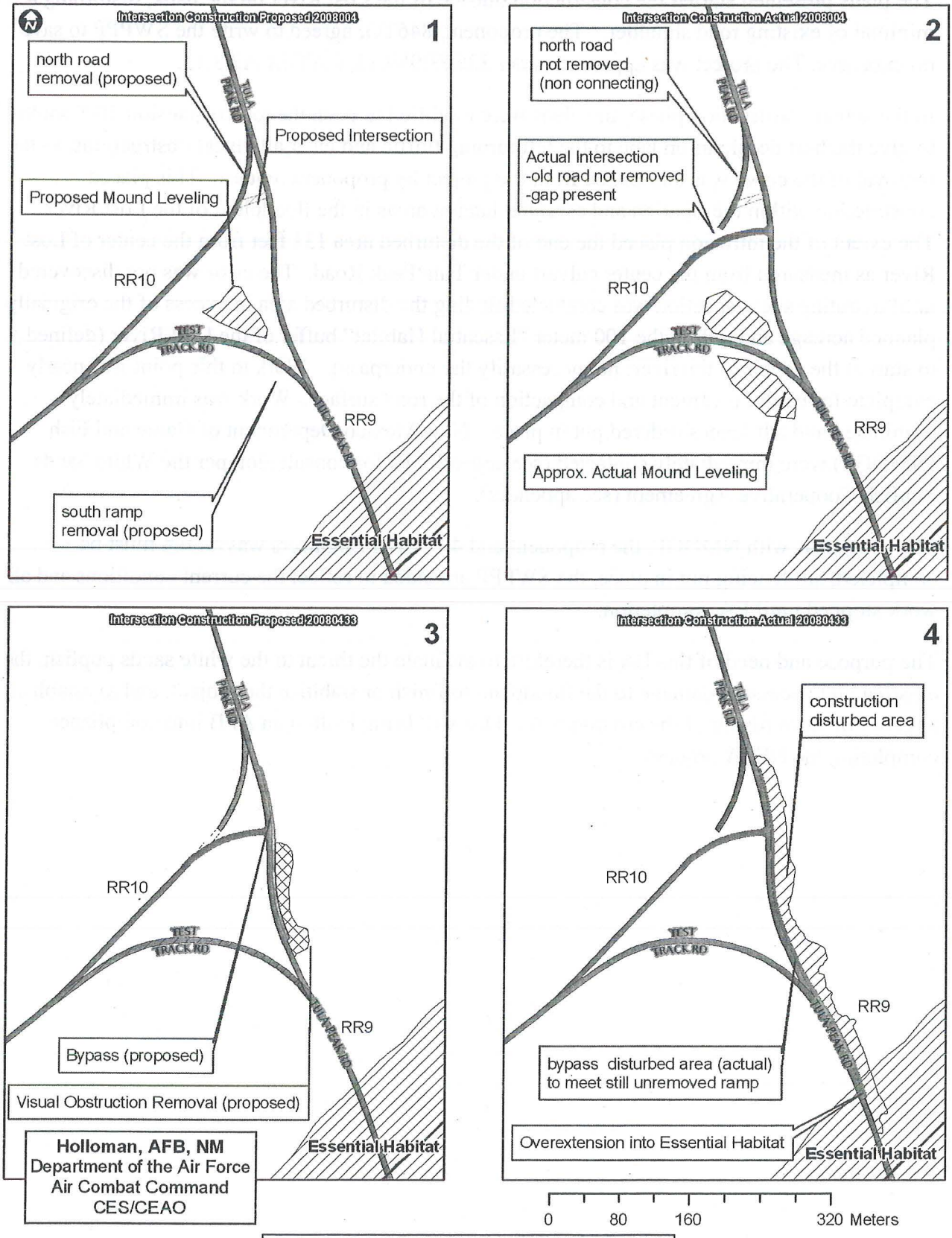
The engineer designed what he felt was the best solution from the alternatives presented. The project was a widening of the road at the T intersection to allow for north bound traffic to have a thru way and for left turning traffic to come to a safe full stop. The Y intersection south curve was to be removed leaving a simple T intersection (see map pg 3).

The plans presented started the construction outside of the Lost River on the bank, disturbing a minimal of existing road shoulder. The proponent, 846TG, agreed to write the SWPPP to save on expenses. The project was approved under 32CFR989.13, CATEX A2.3.11.

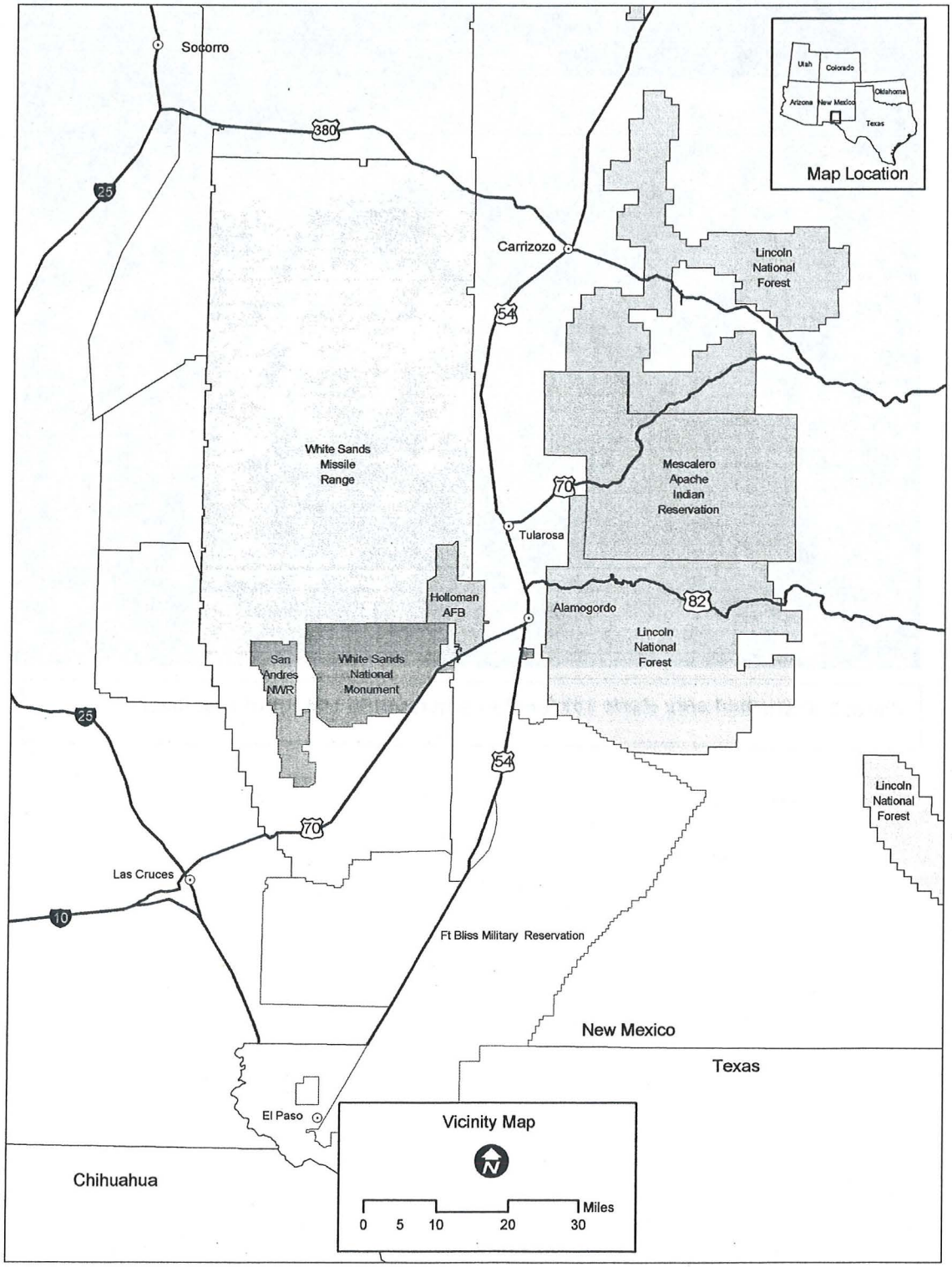
In the actual construction phase, the plans were modified to push the road expansion 300' south to give the best deceleration lane to the left turning traffic and clear all visual obstructions, as the removal of the curve was eliminated from the project by proponent request. This placed construction within the riparian and essential habitat areas in the floodplain of the Lost River. The extent of the intrusion placed the end of the disturbed area 131 feet from the center of Lost River as measured from the center culvert under Tula Peak Road. The error was not discovered until a routine site inspection was conducted finding the disturbed area in excess of the originally planned acreage and within the 100 meter "Essential Habitat" buffer of the Lost River (defined to start at the center of the river; not necessarily the underpass). Work to this point was nearly complete for earth movement and compaction of the road surface. Work was immediately terminated and silt fences ordered put in place. New Mexico Department of Game and Fish (NMDGF) were immediately contacted (see appendix E) for consultation per the White Sands Pupfish Cooperative Agreement (see appendix).

The consensus with NMDGF, the proponent and 49th Civil Engineers was an EA must be completed, silt fencing put in place, the SWPPP amended to reflect the current conditions and all work stopped until EA completion.

The purpose and need of this EA is therefore to evaluate the threat to the white sands pupfish, the existing and necessary damage to the floodplain to finish or stabilize the project, and to establish a record of stewardship of the environment. This will bring Holloman AFB into compliance completing the NEPA process.



Maps 1 - 4. By-Pass development sequence



Map 5 Location of Holloman AFB NM

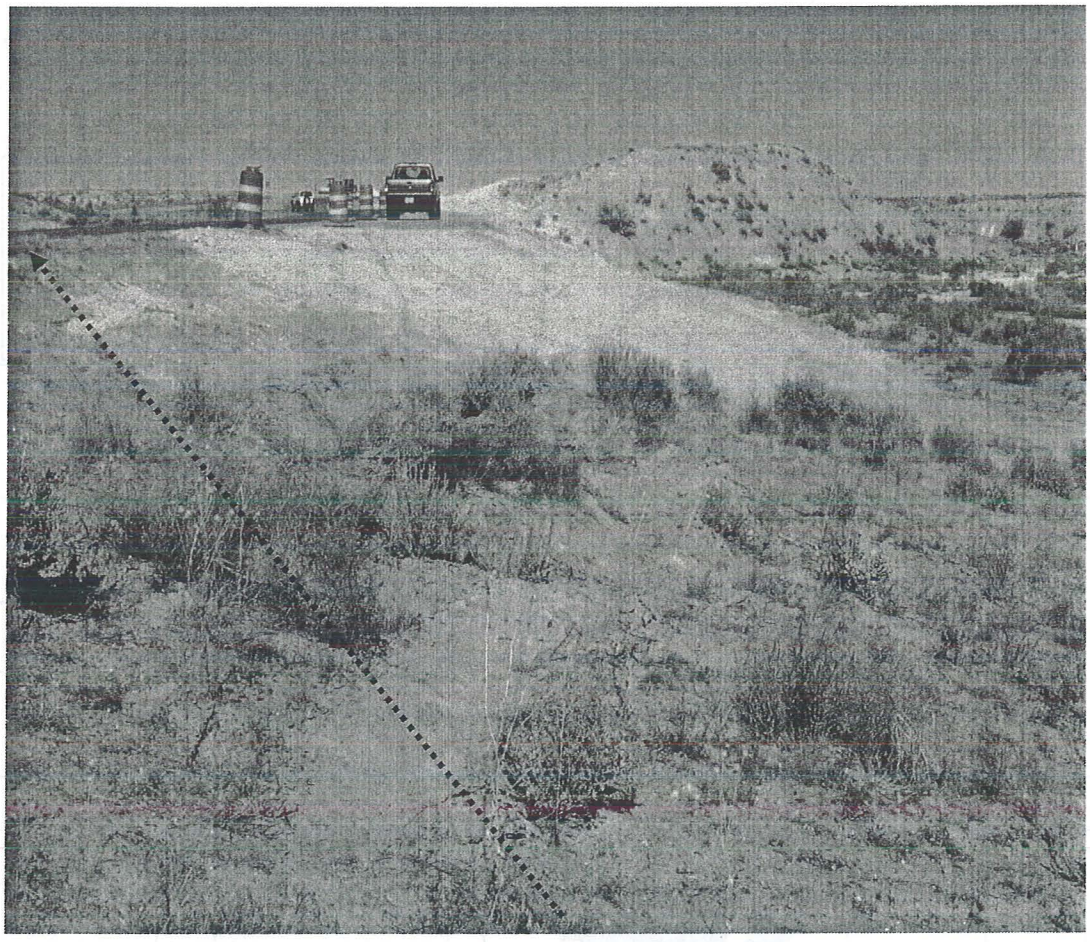


Photo 1. Disturbed area starts 131 feet (39.9m) from the center of Lost River.

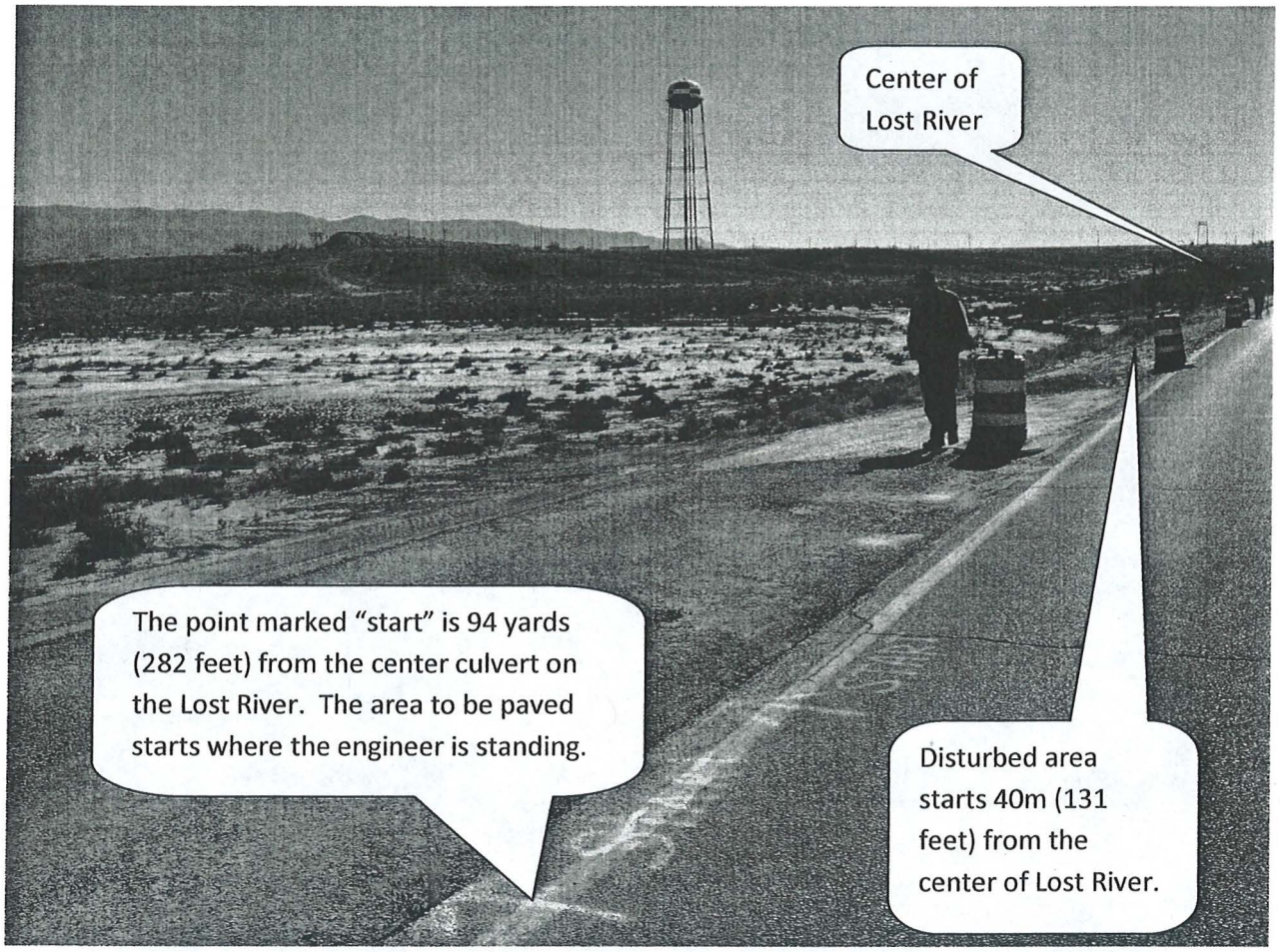


Photo 2. View south, points of reference given.

Photo 3. Lost River East of Tula Peak

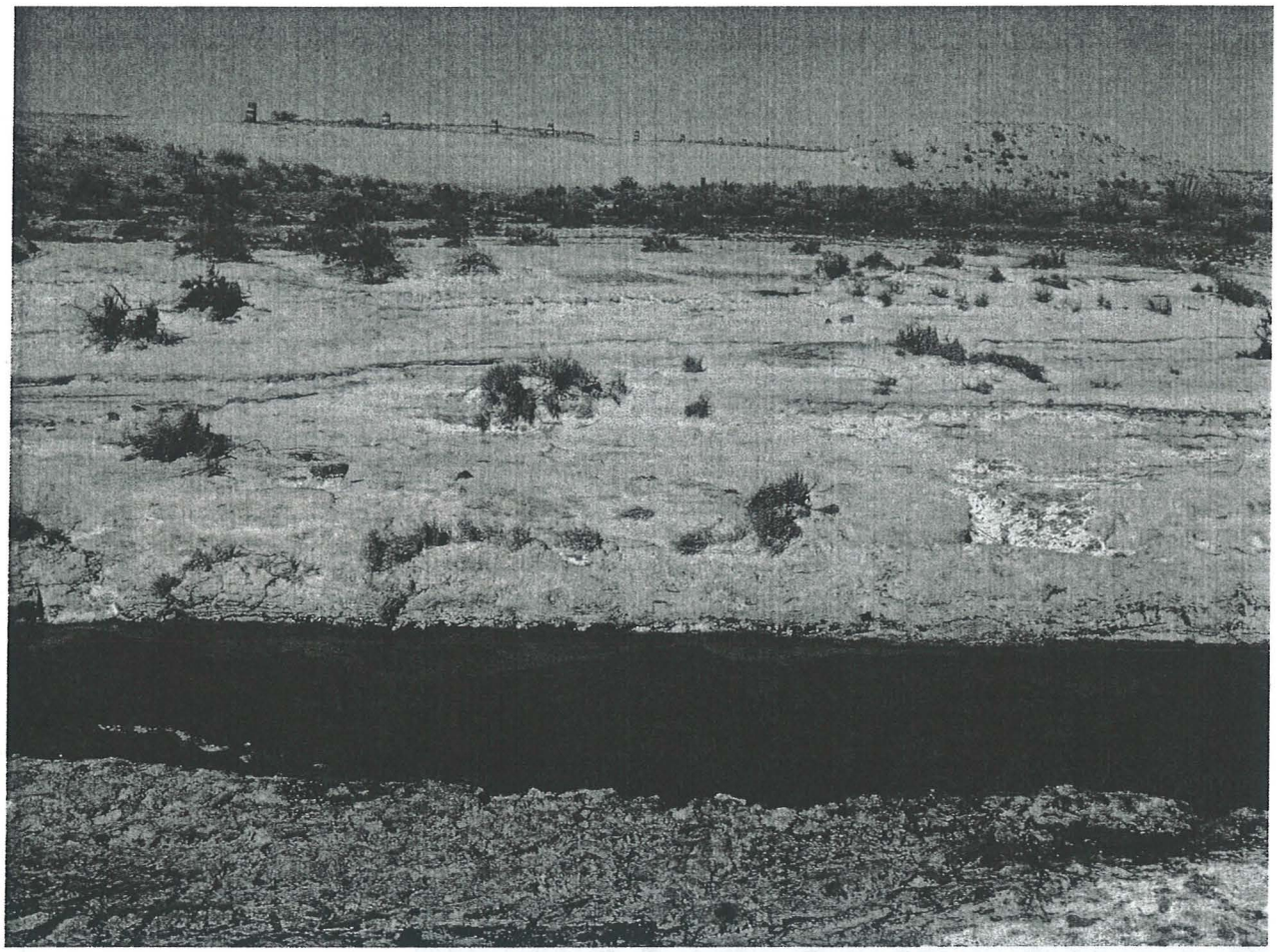


Photo 4.

Lost River (foreground) with the bypass to the North West. Silt fence was installed after photo was taken.

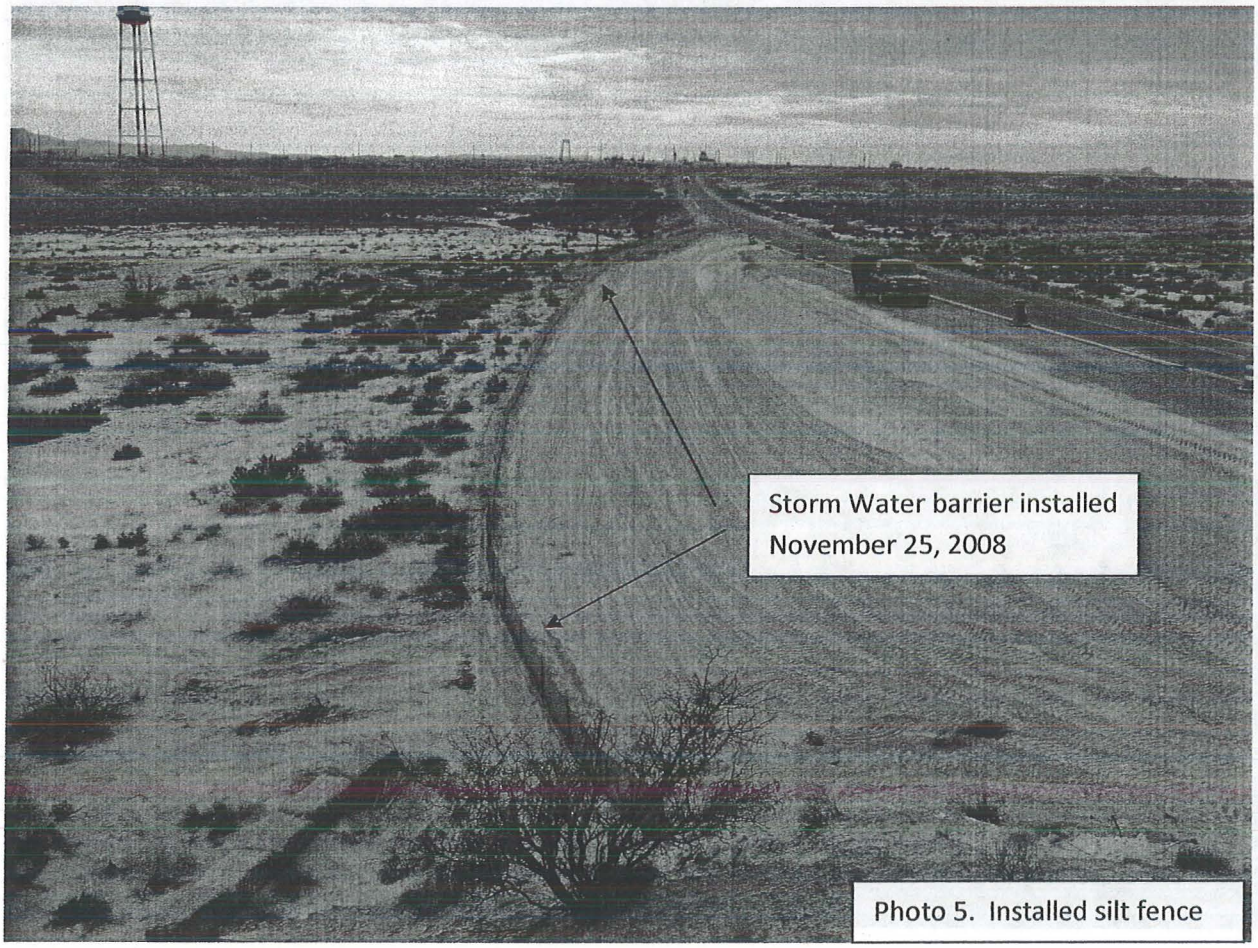


Photo 5. Installed silt fence

Alternatives Including the Proposed Action:

Proposed Action:

The proposed action is the completion of the ramp in the riparian area of the Lost River after the conclusion of the Environmental Assessment. Starting at a location *outside* of the Essential Habitat: the ramp will be re-graded and re-compacted as required. The intended road surface will be capped with 2-inches of Hot Mixed Asphalt (HMAC), in accordance with the New Mexico Department of Transportation (NMDOT), standards. A prime coat will not be used anywhere on this project. The remaining disturbed areas (constructed road embankment) will have erosion controls put in place both to protect the Lost River from sediment and to protect the earth work. The measures taken will be as recommended by the NMDOT, NMDFG, and as outlined in the SWPPP. Long term monitoring will be conducted by 46TG until the soil is stabilized. A combination of stabilization methods/alternatives may be employed.

Alternative Action: Gravel (aka: xeriscape / riprap)

The placing of gravel (2" minus) on the sides of the earth work, on the disturbed flood plain, and possibly (¾" minus) on the compacted surface to slow erosion and help stabilize the soil.

Netting under the gravel on the slopes may be used if recommended by NMDOT. The application of gravel will require further use of construction equipment potentially damaging work already completed and increasing the footprint of the damage in the floodplain. The application of a gravel surface will leave the surface erodable, and may increase traffic risk as the bypass surface will have reduced traction for maneuvering and increased braking distances. It will also cause a hazard of flying gravel for oncoming traffic.

Alternative Action: Crushed Concrete

Crushed concrete is readily available at HAFB as a by-product of construction and demolition. As in the alternative above, the application would be similar with similar results. A problem with crushed concrete is the riparian affects. The product is full of fines (concrete dust) that could complicate the erosion runoff by raising the ph of the water and adding suspended material to the water choking the pupfish. Crushed concrete also potentially has other contaminants such as lead, heavy metals, petroleum or other chemicals depending on the source. As HAFB maintains no data on material crushed, Lonnie Britton, our wildlife biologist, objects to the use of crushed concrete.

An additional action would still need to be accomplished to prevent the road surface from breaking down and eroding.

Alternative Action: wood mulch/chips/compost

NMDOT allows for the use of wood mulch/chips (3"minus) for the control of erosion on slopes for highway projects. The use of filter socks filled with straw, wood or semi-composted wood (mulch) is also allowed. Such an application would not be suitable as a road surface but it will reduce flood plain and slope erosion and promote native plant growth. Due to the steep angle of the embankment, compost is not recommended as it will contribute to the nutrient loading of the Lost River causing oxygen depletion. Large wood chips (3"minus) would be the most suited for stabilization of the steep slopes and the flood plain. This would need to be used in conjunction with filter socks and silt fencing to prevent wood chips from entering the Lost River.

An additional action would still need to be accomplished to prevent the road surface from breaking down and eroding.

Alternative Action: Seeding with Native Plants

Seeding with native grasses and other plants will stabilize the soil and reduce erosion. The soil must be lightly worked to effectively allow for germination, water needs to be provided long enough to ensure successful establishment of plants the root systems. Seeding will not be effective until early spring (March or later) and some other action must be done to arrest wind

and rain erosion during the interim. Native plants do not grow close together and provide only limited erosion control.

An additional action would still need to be accomplished to prevent the road surface from breaking down and eroding.

Alternative Action: Apply matting

NMDOT allows for the use of matting (nets, burlap, or woven natural straw) on slopes as a method of reseeding and to hold fine soil. This is an expensive and labor intensive method of very effectively preventing the type of sediment loading of streams presented by this situation. The use of such devices in the Tularosa Basin has been limited by the man-hours required to maintain, expense and the length of time required to successfully re-vegetate using mats.

There are several different types and manufactures available to choose from. Desirable characteristics of the chosen material include: biodegradable, ease of seeding, maintenance and repair, retention of fines, and compatibility with NMDOT standards.

An additional action would still need to be accomplished to prevent the road surface from breaking down and eroding.

Alternative Action: Apply Sealant (Data provided by the project engineer)

Apply a water-based prime coat emulsion over the surface of the road bed.

Advantages: Applying a prime coat will help to seal the surface of the road bed. This will allow the road bed to resist water penetration that could weaken it and cause it to slough off or sag. A prime coat is a standard construction procedure used for asphalt paving.

Disadvantages:

1. A prime coat is generally intended to last only a few days until paving operations can begin. Over a 90 day period, it will have to be reapplied several times.
2. A prime coat is not intended to be waterproof. Some water will still be able to penetrate into the road bed. This could cause some damage to the road bed, which would result in more earthwork being performed.

No Further Action Alternative:

As construction (earth movement) has already taken place, the no action alternative becomes a no further action alternative. To take no further action at the Tula Peak intersection will leave the dirt-work already completed as exposed erodable soil with steep slopes. The gravel and dirt

compacted surface that was prepared for asphalt application will loosen and allow for water penetration, wind and water erosion.

Natural revegetation will occur after the winter rain (if any) starting with African Rue, grasses and weeds. In the desert climate it may take 3 to 10 years to achieve a sufficient plant growth to reduce erosion if it ever does get established at all. Compacted desert soils can stay bare for decades. Over a period of years the soil will stabilize, the desert micro-crust will reestablish itself and limit further erosion. Flood (monsoon) events will reach the new construction if of sufficient depth to wet the base at the new construction line. Monsoon floods in the spring of 2008 were of sufficient depth to wash the area. No damage to the existing road or drainage was noted. A spring 2009 monsoon event on the uncovered dirt works would reasonably cause erosion, sedimentation of the Lost River if the silt fencing fails, and the formation of gullies in the face of the dirt work. The depth and significance of such gullies will depend on the behavior of the now altered drainage off Tula Peak Road.

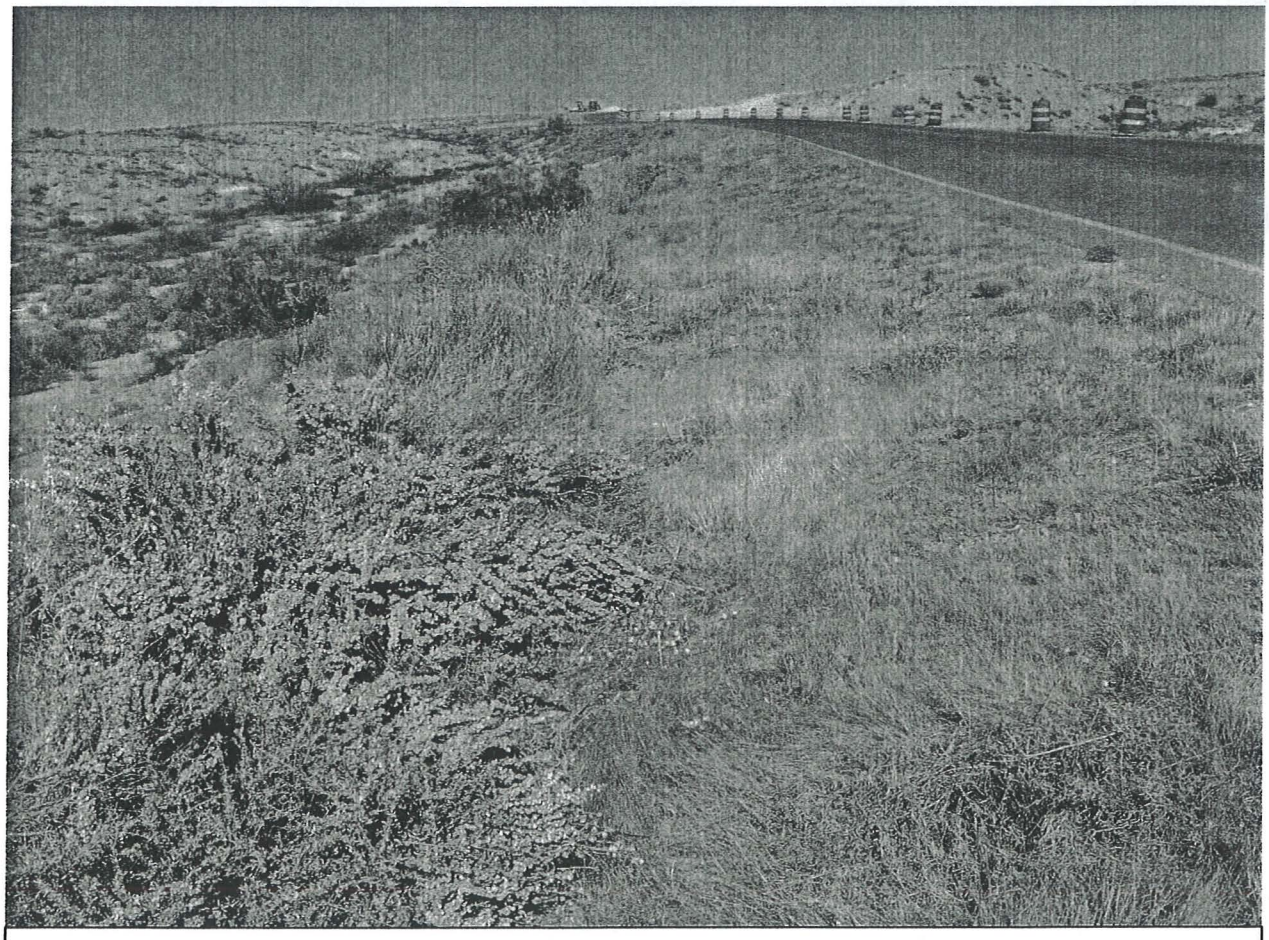


Photo 6. West side of the bypass. This is an example of a mature fully stabilized slope with native vegetation. It is unknown if the area was seeded or naturally self vegetated.

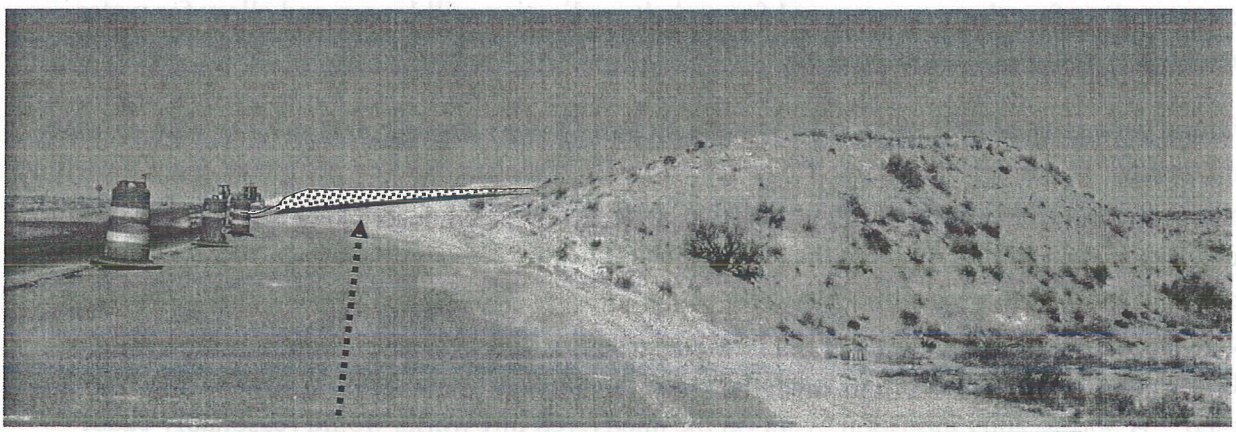


Photo 7a. Shaded area is representation of removed visual obstruction.

Photo 7b. Area with obstruction removed is now clear to the intersection.

Affected Environment

HAFB General Description

HAFB is located in south central New Mexico approximately 90 miles north of El Paso, Texas, and 7 miles west of Alamogordo, New Mexico. This is high Chihuahuan desert, in the east side of the Tularosa Basin and the southeast end of the Basin and Range Province of the western United States. The basin floor has very low relief over very large distances, with elevations from 3900 feet (1190m) at Lake Lucero 18 miles southwest of HAFB, to 4,265 ft (1300m) at 40 miles north of HAFB, and 4000 ft (1220m) at 40 miles south of HAFB. The average on-base elevation is 4,070 feet (1240m) above mean sea level (MSL). White Sands National Monument (WSNM) immediately west of HAFB contains 220 square miles of the approximate total of 450 square miles of gypsum dunes, playas and flats that are the prime features of the Tularosa Basin floor. The Oscura, San Andres and Organ Mountains on the west rise above 8000 ft. The Sacramento Mountains on the east rise above 9000 ft, and Sierra Blanca to the northeast tops at 12,005 feet. Surface runoff from these mountains is often heavy and dramatic, flooding the lower parts of the basin floor. Ground water runoff is relatively continuous and keeps the basin aquifers and Lake Holloman well charged, although salts in the formations cause much of the basin ground water to be nonpotable and beyond regulatory control. Ground water is only a few feet below ground surface throughout HAFB.

Soil & Subsoil

Soils in the area of the alternatives include those of the Holloman series and the Mead series and due to periodic flooding and poor drainage, the area is high in salts concentration. The Holloman series, predominant throughout HAFB and within the corridors of all of the alternatives, consists of well drained soils that formed in gypsiferous sediment of eolian and alluvial origin and are shallow over gypsum with 0 to 5 percent slopes. This soil has a thin surface layer that has sparse vegetation and is friable. Holloman series soil has a moderate compatibility for road construction due to low strength, depth to bedrock, high salinity, and high corrosion potential.

Desert Soil (bare dirt areas)

Cryptobiotic soil crusts, which normally consist of soil cyanobacteria, lichens and mosses, play an important ecological role in the arid Southwest. On the project sites, these crusts were well-developed, but only represented a minor percentage of the living ground cover. Cryptobiotic soil crusts increase the stability of otherwise easily eroded soils, increase water infiltration in regions that receive little precipitation, and increase fertility in soils often limited in essential nutrients such as nitrogen and carbon. Cryptobiotic soil crusts are highly susceptible to soil-surface disturbance such as trampling by hooves or feet, or driving of off-road vehicles, especially in soils with low aggregate stability such as areas of sand dunes and sheets. When crusts in sandy

areas are broken in dry periods, previously stable areas can become moving sand dunes in a matter of only a few years.

Lost River

Lost River, and Rita's and Malone Draws for about two miles above their confluence into Lost River, are delineated Section 404 Waters of the US (U. S. Army Corps of Engineers (USACE), 1996). Tula Peak Road crosses both flood plain and delineated Waters of the US. This requires Clean Water Act Section 401-404 consultation with the USACE prior to any construction that affects the drainage. These drainages are also designated Essential Habitat for the white sands pupfish and that increases the potential for construction effects or accidental spills to become environmentally catastrophic.

Surface water does not consistently flow in Lost River, but monsoon rains result in sudden flooding and residual flow. Adequate surface water persists in Lost River to support a resident population of white sands pupfish even during extended dry spells. This is designated Essential Habitat for the White Sands Pupfish, which is listed as Threatened under the New Mexico Wildlife Conservation Act, and is a US Fish and Wildlife Service Species of Concern. Holloman is signatory to an interagency agreement that requires the protection of pupfish and their habitat.

A WSMR risk assessment clearly identified the protection of the pupfish and pupfish habitat as critical to the Federal status of the species and critical for continued flexibility in military uses of the joint AF-Army-Navy range.

Weather

The location of all of the alternatives is within the Chihuahuan desert ecoregion that has a semi-arid to arid, subtropical desert climate characterized by low rainfall, relatively low humidity, hot summers, moderate winters, wide temperate variations, and an abundance of sunshine throughout the year. Winds in the region are relatively low, averaging 5 miles per hour but can be strong and gusting in the vicinity of thunderstorms that often develop during the June, July, August monsoon season and in advance of northerly cold fronts. The prevailing wind direction is from the west, but more southerly winds are common during the warmer months. The atmosphere in the region is generally well mixed. The average annual mixing heights vary from 400 meters in the morning to 4,000 meters in the afternoon. The morning mixing heights are usually low, due to nighttime heat losses from the ground that produce surface-based temperature inversions. After sunrise these inversions dissipate and solar heating of the earth's surface results in good vertical mixing in the lower layers of the atmosphere. Dust is frequently entrained in the atmosphere due to afternoon surface heating and gusting winds over barren soils, particularly in the white gypsum dune fields west of HAFB. Most seasonal dust storms occur in March and April, when wind speeds are higher.

Historical weather records indicate an average annual precipitation of 8.92 inches between the years 1939 to 2003, with a record low of 2.80 inches and a record high of 20.89 inches. Over half of the annual precipitation occurs in the monsoon season. Brief heavy rainstorms cause localized flooding during these months. A small percentage of annual precipitation falls in the form of snow. It is not uncommon for periods of zero precipitation to last for months.

Temperatures are generally warm with highs around 55 degrees Fahrenheit (°F) during the winter and ranging to highs in the summer exceeding 90 °F. The annual average temperature is 59.7 °F, with a record low of -25 °F and a record high of 111 °F. Daytime humidity is generally low, ranging from 10 to 14 percent. Due to the mountainous terrain nearby the low lying basin there are large diurnal and regional variations in humidity and temperature.

The annual evaporative rate is more than ten times the annual precipitation rate due to high temperatures, low relative humidity, lots of sunshine, and relatively continuous winds. The annual pan evaporative rate measured by the National Oceanic and Atmospheric Administration (NOAA) from shallow pans is about 105 inches per year, while the average evaporation rate from surface waters in the region ranges from approximately 72 to 80 inches per year.

Regional Wildlife

Wildlife species are associated with specific habitats defined by the vegetation composition, some species are obligate to certain habitats, while other species are generalist and do not require one specific habitat type. The habitats encompassed by the alternative routes support a variety of birds, reptiles and mammals common to the area. The survey conducted allowed for sightings of the Western Kingbird (*Tyrannus verticalis*), Chihuahuan Spotted Whiptail (*Aspidoscelis exsanguis*) and black-tailed jackrabbit (*Lepus californicus*). Also, coyotes (*Canis latrans*) were heard at a distance on the southeastern portion of the Alternative B route during the survey. Recent wildlife management plans have identified sensitive species that occur or may potentially occur within the areas of proposed route construction such as the Western Burrowing Owl (*Athene cunicularia hypugea*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), and the White Sands Pupfish (*Cyprinodon Tularosa*). Additional species of concern found in areas of proposed routes or within the region but not listed in management plans include the Mottled Rock Snake (*Crotalus lepidus klauberi*), Swift fox (*Vulpes velox*), and the Desert Pocket Gopher (*Geomys arenarius*).

Threatened and Endangered Species

The biological field survey of existing plant and animal communities conducted for this EA was conducted to determine the potential presence of threatened or endangered species. Species of concern that are known to occur in the region include the Grama Grass Cactus (*Sclerocactus papyracanthus*), Cracked lichen (*Acarospora clauzadeana*), Western Burrowing Owl (*Athene cunicularia hypugea*), Western Snowy Plover (*Charadrius alexandrinus nivosus*) and the White

Sands Pupfish (*Cyprinodon Tularosa*). HAFB is signatory to a multi-agency agreement to protect the pupfish and it's habitat.

Surface Water

The Tularosa Basin is one of two large closed central basins within New Mexico and encompasses approximately 6,500 square miles. It includes parts of Dona Ana, Sierra, Otero, and Lincoln counties. By definition, no surface water flows out of its boundaries. Three Rivers and Tularosa Creek are the main perennial streams feeding the basin, aided by La Luz Creek, Fresnal Creek, Alamo Canyon and Dog Canyon. The basin surface displays deposits of gypsum, alluvial and eolian sands, gravels, clays and alkali flats of varying thickness, with basalt lava beds in the northern portion of the valley.

Groundwater

The Tularosa Basin was formed by Middle to Late Cenozoic graben faulting that exposed Precambrian through Tertiary age igneous and sedimentary rocks along the horst faces that bound the basin. Some of the Paleozoic and Mesozoic rocks exposed in the faces are known to yield small quantities of water to wells in adjacent areas but are not considered to be major aquifers. The deep basin fill includes very early Rio Grande stream load under later sand, gravels and clay deposited from alluvial fans along the Basin margins, with finer alluvial particles, extensive lake sediments and evaporite deposits in the central Basin. The Tularosa Basin is contiguous with the northern Hueco Bolson, and groundwater flow between the basins is generally thought to be south from New Mexico to Texas. The Tularosa Basin contains the largest aquifer in eastern Dona Ana and Sierra and western Lincoln and Otero Counties.

There are two overall classes of groundwater in the Tularosa Basin. The largest is the Central Basin aquifer, which consists of nonpotable water in tight, well sorted colluvial deposits. The most important are the potable aquifers in the loose, poorly sorted sands and gravels at the footslope of the mountains and near the mouths of the major canyons along the valley perimeter.

The peripheral aquifers are the significant groundwater resources that provide the majority of the water used by the people of the region. The main groundwater quality problem in the basin is high concentration of naturally occurring dissolved solids, followed by contamination by petroleum products and nitrates.

The potable aquifers consist of coarse to medium grained sediments in a series of coalescing alluvial fans of detritus derived from sources in the bordering mountains. The thickness of alluvial fan deposits ranges from less than one hundred feet on the higher step-faulted blocks adjacent to the Sacramento escarpment, to about 4,000 feet in the San Andres Canyon area of the Dona Ana Range-North Training Area 50 miles southwest of HAFB.

The Boles Wells Water System Annex (BWWSA) is a primary source for potable ground water for HAFB. The BWWSA field is located south of Alamogordo off of HAFB, on the piedmont of

the Sacramento Mountains. The base has water development jurisdiction over 6,922.7 acres of this area of potable, footslope alluvia aquifer. This includes 2,735 acres of fee purchase and condemnation tracts, and congressionally defined interests to protect and develop the underground water supply on 4,187 acres of public land withdrawn under Public Land Orders 3434 and 4627. Management for all other resources on these public lands lies with the BLM. The other primary source of potable water for HAFB is Bonito Lake near Sierra Blanca, which HAFB shares with the City of Alamogordo.

Storm Water, Floodplains and Wetlands

Although rainfall is sparse in the region, storm water runoff, floodplains, and wetlands are important resources that have been somewhat consolidated within the ROI to provide benefits to natural systems while minimizing damaging effects to the HAFB infrastructure. The hydrology of the southern portion of the installation is dominated by several manmade and natural features that form a connected hydrologic system. Designated flood plains cover extensive areas east of the base along the Sacramento Mountains piedmont, and extend toward base in major drainages. Rita's Draw, Malone Draw and Lost River contain a FEMA 100 year flood zone that extends coterminal with the Waters of the US delineation. The Lost River flood plain on either side of the Tula Peak road are recorded as wetlands in the study by U.S. Army Corps of Engineers: *Delineation of Jurisdictional Waters of the United States and Wetlands on Holloman Air Force Base, New Mexico, USAF September 1996*

Jurisdictional wetlands are a subcategory of waters of the US and have been defined by the U.S. Army Corps of Engineers as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support evidence of a prevalent vegetation typically adapted for life in saturated soil conditions. There are approximately 119 acres of jurisdictional wetlands on the main base, the majority of which are located south of the WWTP near Lagoon G and Lake Holloman (79 acres). The remaining 40 acres of wetlands are scattered throughout the installation.

Air Quality

The proposed and completed to date project will have no net affect on air quality. Traffic is not expected to change from present levels. There will be a small and temporary increase in wind erosion/blowing dust due to the area disturbed (1.7acres) and left exposed. The proposed road surface has already been graveled and compacted and is not expected to contribute to windblown dust.

Health Safety and Security

General health, safety, and security protocols for personnel and contractors working on WSMR and HAFB are addressed in various Federal, State, Air Force, and Army guidelines, rules and regulations.

Communications & Utilities

Communications cables are marked as buried on the east side of the Tula Peak road. The cables will not be covered by the new or proposed construction. No other utilities are known to be in the immediate area.

Economic Impacts

There is no significant long term economic cost or gain under all alternatives.

Based on year 2000 census data, in Otero County 41.5 percent of the total population are White non-Hispanic, 32.2 percent are Hispanic, 3.9 percent are Black or African American, 5.8 percent are American Indian or Alaskan Native, 1.2 percent are Asian, 0.1 percent are Native Hawaiian or Pacific Islander, 11.7 percent are described within the Census categories as "some other race", and 3.6 percent are individuals with two or more ethnicities. The characteristics of the Alamogordo population are similar to the Otero County population. Both Otero County and Alamogordo have lower rates of Hispanic ethnicity than New Mexico overall, which had 42.1 percent. The 2000 average household size in Otero County was 2.66 persons, which is slightly higher than the Alamogordo average of 2.57 persons. Statewide the figure was similar with an average 2.63 people per household. The 2000 median household income in Otero County was $30,861 and in Alamogordo it was slightly higher at $30,928. These figures are somewhat lower than the statewide median of $34,133. Households receiving public assistance comprised 4.4 percent of all households in the County, slightly lower than the statewide rate of 4.7 percent. The rate for public assistance in Alamogordo was 4.1 percent. The poverty rate for families in 1999 was 15.6 percent in Otero County and 13.2 percent in Alamogordo. The statewide poverty rate was between these two rates at 14.5 percent. (*Otero County Comprehensive Plan*, 2005)

The majority of HAFB personnel reside on the installation and in the City of Alamogordo. Others reside in adjacent communities in Otero County (such as Tularosa, La Luz, Cloudcroft, or High Rolls) or commute from Las Cruces or El Paso. According to the Economic Impact Statement issued by the HAFB Public Affairs Office (PAO) for fiscal year 2003 (FY03), a total of 20,800 persons are employed at HAFB. The PAO reports that 540 individuals employed at HAFB are contractors that work on the installation. Of those currently employed at HAFB, approximately 2,213 are civilians from local areas designated as the Economic Impact Region (EIR) which includes all areas encompassed in a 50-mile radius from the center of HAFB. Communities located in the EIR include Alamogordo, Tularosa, and Ruidoso.

Social Impacts

The affected human population is completely within the bounds of HAFB, WSMR and White Sands National Monument. Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, directs federal

agencies to address environmental and human health conditions in minority and low income communities. The nearest low income or minority populations are beyond the region of influence of the proposed action No social justice issue exists.

The human health and safety improvement is essentially complete as oncoming traffic visibility is improved in all alternatives including the no action alternative as the blind hill has been removed.

Environmental Consequences

Environmental consequences describe each action proposed and how it is expected to affect critical habitat and the human environment. Subject experts weighed in on each proposed action with their expert viewpoint.

Biological Resources (relevant to all alternatives)

Potential impacts to biological resources are considered major if the project sites would:

- Affect a threatened or endangered species;
- Substantially diminish habitat for a plant or animal species;
- Substantially diminish a regionally or locally important plant for animal species;
- Interfere substantially with wildlife movement or reproductive behavior; or
- Result in a substantial infusion of exotic plant or animal species.

Threatened or Endangered Species

Recent wildlife management plans have identified sensitive species that occur or may potentially occur within the areas of proposed route construction such as the Western Burrowing Owl (*Athene cunicularia hypugea*), Western Snowy Plover (*Charadrius alexandrinus nivosus),* and the White Sands Pupfish (*Cyprinodon Tularosa*). Additional species of concern that may be found in areas of the proposed routes or within the region but not listed in management plans include the Mottled Rock Snake (*Crotalus lepidus klauberi),* Swift fox (*Vulpes velox)*, and the Desert Pocket Gopher (*Geomys arenarius)*. Noxious and invasive plant control will be an issue.

Habitat

Rita's Draw in the area which is designated Essential Habitat for the White Sands Pupfish. The pupfish is listed as Threatened under the New Mexico Wildlife Conservation Act, and is a US Fish and Wildlife Service Species of Concern. Holloman is signatory to an interagency agreement that requires the protection of pupfish and their habitat. Both the New Mexico Department of Game and Fish and the US Fish and Wildlife Service have a record of objecting

to actions in this watershed as not meeting HAFB's obligation under the agreement, and as possibly endangering the survival of the Lost River pupfish population.

Noise (relevant to all alternatives)

Ground Vehicle traffic patterns will not change under any of the proposals compared to historic travel and use of the area. Construction and related noise is of relatively brief duration and will take place in the winter of 2009. No species of concern will be affected. The area is remote and noise generated is not of concern to the human environment.

Consequences as related to each proposed action:

Proposed Action: Asphalt to complete by-pass

The proposed action will have some environmental impacts of a typical road construction project. The recent action of disturbing soil will increase the probability of significant runoff of sediments. In this case the sediment will directly impact the Lost River and the White Sands Pupfish living in it. The immediate action of placing silt barriers (24 November 08) is intended to mitigate this most immediate concern.

Sealing the prepared by-pass surface with asphalt will help reduce the exposed soil and will add structural support to the by-pass preventing water intrusion and weakening of the slope (see project engineers comments pg 10). The application of sealant (MSDS in Appendix E) is not recommended in sensitive habitat. The new asphalt will add some material to the runoff, but it is not expected to pose a significant threat significantly above what the existing road already contributes.

Completion of the project will require additional dirt work to re-compact the surface to ensure adhesion of the asphalt and to prevent early asphalt failure from sub surface compaction failure. A portion of the south end of the constructed ramp will need to be abandoned (seeded or left to natural revegetation) as it is within the 100 meter Essential Habitat buffer area of the Lost River. It is not recommended that the abandoned area be worked, removed, compacted or graded as it will have achieved some level of stability by the time any action could be taken. All actions will reflect the New Mexico Game and Fish recommendations. See NMDGF letter 3/19/09.

Some additional option must be taken to ensure the side slope is stabilized. (geo-textile, hay bales, seeding and silt fencing are currently put in place as of the revision date.)

Alternative: Gravel

The application of course gravel or large rock (rip rap) has been used with mixed success for years. Correctly engineered and installed, gravel (with or without a net or liner under it) can significantly reduce the impact of wind erosion, as well as slow and direct storm water. Rock

sizing is critical as small rock (3/4 minus) will do a good job of retaining dust but can wash out. Medium rock (3' minus) will stay in place for most normal to heavy rains, but is difficult to place, tends to roll on slopes, and doesn't catch fine material well. Large rock (3' plus or rip rap) is very labor intensive to place, stays in place except in heavy or prolonged rain, and can help establish native plants by sheltering them. Large rock also can accelerate gullies and erosion as it concentrates water flow to the base of the individual rock. In fine soil areas such as the Lost River area, netting of some type is recommended in conjunction with the use of rocks.

This method may be suitable for select areas of the project, or all of the exposed areas. It may be most effective if engineered with other alternatives.

Alternative: Crushed Concrete

Crushed concrete can be used as a substitute for rock and gravel in many applications. The restrictions for application and engineering are the same as for gravel (see Alternative: Gravel). Crushed concrete is available on HAFB but suitable material may require sorting for size and to eliminate fines and dust. The use of crushed concrete in a riparian area is controversial as the concrete may have heavy metals, oils, chemicals or other contaminants. Without testing of the material or other approval from NMDFG or NMDOT, it is not recommended for use.

Alternative: Seeding

Seeding can be accomplished with broadcast seeding, hydro mulch or other methods compatible with the short term erosion controls employed. Seeding should not include invasive species, noxious weeds, or non-native grasses. Contact the Natural Resources Manager for seed mix information. Natural seeding will occur as the west side of the road is fully vegetated and the direction of the prevailing winds will carry some seed across the road. Natural seeding will result in slow stabilization of well adapted plants. Artificial seeding will reduce short term erosion and help stabilize the soil for other pants.

Seeded areas should be watered weekly depending on spring temperature and rainfall. Seeding for spring growth should take place in late February and March. Winter growth is negligible with most desirable plants being dormant through the winter.

Alternative: Matting/Blankets/Geotextile

Straw, coconut, coco, excelsior, burlap and poly material blankets are commercially available for use. All are similar in application, the main difference will be in how quickly they will break down under the sun in the desert (12-36 months). Mats and blankets are intended as an interim method of stabilizing soil until vegetation can take over. Therefore this is a method that must be used in conjunction with some re-vegetation plan. It should also be noted that staples or stakes must be used to hold the material in place. Steel is considered a pollutant in the Tularosa Basin

and is not allowed for ground contact. Wood stakes/staples/ anchor pins or other natural material would need to be used.

Government installation guides:

http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/ge.pdf

http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/chetn-ii-50.pdf

http://www.seattle.gov/DPD/Landslide/Study/Vol_1_Figures/W-7992-01%20Fig%202-17.pdf

ftp://ftp.odot.state.or.us/techserv/roadway/web_drawings/roadway/rev_14/pdf/rd1040.pdf

Suppliers:

http://www.strawblanket.com/?OVRAW=erosion%20blanket&OVKEY=erosion%20blanket&OVMTC=standard&OVADID=2405805021&OVKWID=22902090021

http://www.factorydirectlandscape.com/?OVRAW=erosion%20blanket&OVKEY=erosion%20control%20product&OVMTC=advanced&OVADID=3408633021&OVKWID=33883104021

Alternative: Sealant

Application of Anionic Saphalt Emulsion, Heavy manufactured by Holly Chemical Corp to the area prepared for asphalt on the by-pass. The action is favored by the project engineer as a method of ensuring proper adhesion to the soil and sealing the soil from erosive effects.

With respect to the MSDS, surfactants and emulsifiers are oxygen binders and depleaters. The sealant needs to stay away from the Lost River as it only takes a little (of the active sealant) to do a lot of damage (to the water and pupfish). Our water manager (a petroleum engineer) noted that the emulsion only remains soluble for a very short duration. Once it is bound to the soil it is unlikely to migrate. Hydrogen Sulfide is a natural by-product of petroleum and may be present in the emulsion but the quantities present should not cause concern as long as it is kept out of the water.

HAFB Biologist has decreed: PEP/ANIONIC ASPHALT EMULSION, HEAVY will not be used to stabilize disturb ground adjacent to Lost River. This product is composed mainly of petroleum products and as such has a high probability of containing hydrogen sulfide. There is no data concerning ecotoxicological effects, but the product is known to contain one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Please contact Lonnie Britton, Natural Resources Planner, (575) 572-3931 with questions/concerns.

Alternative: No Action

Abandoning the work on the by-pass at this stage with no further action will prolong the time needed to stabilize the newly exposed soil. Depending entirely on the rainfall in 2009-2019, natural revegetation will occur significantly stabilizing the site within 2-10 years. The site will experience significant erosion from wind and rain events. Silt fencing is to be maintained reducing the impact on the Lost River, however the time the fencing will be required will be protracted by the slow natural recovery process.

The Human environment will have a positive impact as the visual impediment of the small rise has been removed. Also the exposed dirt shoulder will allow traffic some relief as a by-pass, but at significantly reduced speeds.

Pup Fish population below (to the west) the by-pass may suffer crushing depopulation from sedimentation from the exposed bypass in storm events. The pupfish are however very resilient and quick breeders. Their recovery from such an event is fully expected either from survivors or from upstream surviving populations.

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The list is limited to the signatories of the Pupfish Agreement and affected parties. If you feel this list omits a directly affected party, contact Mr Mike Jago, 49CES/CEAO 55 Tabosa Avenue HAFB 88310 575-572-3931 NLT January 30, 2009.

Other Related Documents:

Holloman AFB has completed extensive analysis on the environmental, natural, cultural and socioeconomic impacts of similar construction, operations and proposed operations. The specific documents referenced are:

Air Installation Compatible Use Zone (AICUZ) Holloman Air Force Base, NM rev2004/1994

Wing Infrastructure Development Outlook (WINDO) EA, May 2004

Construction of an Alternate Route for Commercial Traffic EA, August 2006 (draft)

HAFB General Plan 1998

Programmatic Environmental Assessment High Speed Test Track (HSTT) Operations, October 2007

Intergraded Natural Resource Management Plan, October 2008

Transformation of the 49th Fighter Wing EA, 2005

SWPPP (Storm Water Pollution Prevention Plan) revised 2009 AKA: United States Environmental Protection Agency (USEPA) National Pollutant Discharge Elimination System (NPDES) Multi-sector General Permit (MSGP) for Storm Water Discharge Associated with Industrial Activity

HAFB Hazardous Waste Management Plan 2004

Delineation of Jurisdictional Waters of the United States and Wetlands on Holloman Air Force Base, New Mexico, USAF September 1996

Otero County Comprehensive Plan, 2005

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

Storm Water Pollution Prevention Plan; Repair/Alter intersection Tula Peak Road and Test Track Road Holloman Air Force Base, Otero County, New Mexico September 2008

ACRONYMS

ACES	Automated Civil Engineer System
AICUZ	Air Installation Compatibility Use Zone
AFB	Air Force Base
AFI	Air Force Instruction
BMPs	Best Management Practices
CE	Civil Engineers
CES	Civil Engineering Squadron
CFR	Code of Federal Regulation
CEQ	Council on Environmental Quality
DOPAA	Description of Proposed Action/Alternatives
EA	Environmental Assessment
EMIS	Environmental Management Information System
HAFB	Holloman Air Force Base
HSTT	High Speed Test Track
M	meter
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act (of 1970)
NMDGF	New Mexico Department of Game and Fish
Sq ft	square feet
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered (listed species)
US	United States (of America, federal institution)
USEPA	United States Environmental Protection Agency
WINDO	Wing Infrastructure Development Outlook
WSMR	White Sands Missile Range

Appendices

A – Memo For Record from phone conversation RE: stop action of construction with NMDGF

B- EPF 20080004

C- EPF 20080433

D- Cooperative Agreement for Protection and Maintenance of White Sands Pupfish between U.S. Army - White Sands Missile Range, U.S. Air Force - Holloman Air Force Base, National Park Service - White Sands National Monument, U.S. Fish and Wildlife Service, New Mexico Department of Game and Fish

E – MSDS for Asphalt Emulsion

F- Comments and CEAO response

G- SWPPP appendix G

H –Management Action Plan

APPENDIX A

HAFB Road Construction near Lost River
White Sands Pupfish Conservation Team - Conference Call
19 November 2008, 9 am

Participants
Wes Westphal, HAFB
Lonnie Britton, HAFB
Marilyn Myers, USFWS
Steve Davenport, USFWS
Bobby Myers, WSMR
Stephanie Carman, NMDGF

Intent of Call – road improvement project by proponent (Test Track) has expanded beyond the boundaries of the environmental review, including into Essential Habitat designated for White Sands pupfish under the 2006 White Sands Pupfish Conservation Agreement. Construction is currently halted until a new assessment is completed. HAFB needs input from the White Sands Pupfish Conservation Team to include in the revised EA and contractor Management Action Plan.
Test Track – tenant of HAFB – wrote proposal for project
SABER – manages projects on HAFB, contractor.
HAFB Environmental – review projects, advise proponents of what they can/cannot do.

White Sands Pupfish Conservation Team Recommendations
- install silt fences to be maintained regularly, especially after rain events, with maintenance continuing past construction until vegetation is established.
- Use seed mix to encourage revegetation
- Install erosion controls like coconut matting, geocells, or concrete

Details of Discussion
NMDGF: What is the current status?

HAFB: The construction was nearly completed, need to finish road surfacing near Lost River, approximately 180 ft away. Silt fences have been installed.

FWS: how did construction expand beyond what was approved? Where did the process fail? How can we stop this from occurring again?

HAFB: work was contracted to SABER from the Test Track (HAFB Tenant). HAFB is looking into why inspections did not notice and how to get better direct communication with the contractor. Expansion into Essential Habitat was noted by Lonnie Britton, HAFB, during routine work in the area, and immediately follow-up.

FWS – make sure contractors are aware of pupfish populations and habitats from the beginning and keeping their distance. Did the contractor change project?

HAFB – contractor went beyond original scope, instead of just improving existing road, putting in passing lane. Purpose was to improve safety, straighten dangerous, blind curve.
FWS – Will it now be paved?

HAFB – always been paved. Currently the only thing left to be done is resurfacing. Soil movement has already occurred.

FWS – Because of lack of vegetation in the area, erosion controls will need to be maintained into the future. Set schedule to maintain silt fences regularly, especially after rain events.

HAFB - Will Desmire, Storm Water program for HAFB, is tackling this problem.

FWS – what is the revegetation plan?

HAFB – use native plant mix in seed. Could try transplanting, but success is unlikely. Not a very productive area.

FWS – could try netting or mesh to hold soil?

HAFB – thinking about riprap, concrete rock.

FWS – suggest coconut matting, better protection for fine sediment.

HAFB – agrees that matting would provide better coverage and assist seed germination.

FWS – what about geocell – plastic material with cells to hold material in place? More expensive, but very effective.

HAFB – Have worked with it in Florida and Alaska, lasted a long time, but conditions are different here. Not sure how it will work. Will recommend to the contractor to use these materials, included in rewrite of EA and management plan. There are some financial constraints.

FWS - Coconut matting may be cheapest, less moving, carrying costs than concrete.

HAFB – the local soil holds in place well, crusts quickly. Has soil compaction been this figured into plan? Can wetting soil to help form crust be used?

NMDGF – could be part of erosion control plan, but not alone.

HAFB – summary: as long as they follow prudent actions, stepping up inspection, including drafting a management action plan, continue project after EA is completed.

FWS – who will take on inspection/maintenance after?

HAFB - Those signatory to the SWPP – Test Track will be responsible. During construction, SABER will monitor, after will Test Track. Construction should be completed by Feb 2009.

FWS – is this a regular fish monitoring site?

NMDGF – yes, will check on fish, habitat in future years.

HAFB – will send EA for review, comment, coordination. Mike Jago is working on draft.

APPENDIX B

09/08/2008 03:39 5055723571 CES SABER PAGE 01

BASE CIVIL ENGINEER WORK REQUEST TK050-07
(See Reverse for Instructions)

Form Approved
OMB No. 0704-0138

Public reporting burden for this collection of information is estimated to average .3 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project 0704-0138, Washington DC 20503. Please DO NOT RETURN your form to either of these addresses. Send your completed form to HQ AFESC/DEMG.

SECTION I - TO BE COMPLETED BY REQUESTER

1. FROM *(Organization)*	2. OFFICE SYMBOL	3. DATE OF REQUEST	4. WORK REQUEST NO. *(For BCE Use)*
846th Test Squadron	TGTOC	26-Oct-07	24257
5. NAME AND PHONE NO. OF REQUESTER Jeff Whiteside 679-2183 FAX 572-1396		6. REQUIRED COMPLETION DATE 15-Jan-08	7. BUILDING, FACILITY OR STREET ADDRESS WHERE WORK IS TO BE ACCOMPLISHED 85115 inge Rd. 9 & Range Rd.

8. DESCRIPTION OF WORK TO BE ACCOMPLISHED *(Include Sketch or Plan, when appropriate)*

Track would like to have the curve taken out where Range Rd. 9 meets Range Rd. 10. this would include a new stop sign on Range Rd. 10 where it meets Range Rd. 9.Please see attached map. Add To TAke Down Berm on East side of Range 10 outlined in Yellow For a Better Line of sight.

RECEIVED 31 Oct 2007

9. BRIEF JUSTIFICATION FOR WORK TO BE ACCOMPLISHED *(Not required for maintenance and repair)*

This is a very dangerous intersection and the C.E. Commander recommended we turn in a 332 to have it fixed. Please see attached E-Mail.

10. DONATED RESOURCES

FUNDS	LABOR	MATERIAL	CONTRACT BY REQUESTER	X NONE

11. NAME OF REQUESTER	12. GRADE OF REQUESTER	13. SIGNATURE OF REQUESTER *(See Reverse of Form)*
Jeff Whiteside	WS-16	[signature]

14. COORDINATION

846TS/TGTO 30-Oct-07	46TG/XPX 30 Oct 07	46TG/SEG 30 OCT 07	49CE/CEF 31 Oct 07

SECTION II - FOR BASE CIVIL ENGINEER USE

15. WORK ORDER *(Place an "X" in the appropriate box.)*

IN-SERVICE	SELF-HELP	/ CONTRACT	SABER

16. DIRECT SCHEDULED WORK *(Place an "X" in the appropriate box.)*

EMERGENCY	URGENT	ROUTINE	SELF-HELP	M/C

17. SELF-HELP *(Place an "X" in the appropriate box.)*

BRIEFING REQUIRED	ADEQUATE COORDINATION	INSPECTION REQUIRED

SECTION III - COMPLETE ONLY IF WORK IS TO BE ACCOMPLISHED BY WORK ORDER

18. WORK CLASS	19. PRIORITY	20. ESTIMATED HOURS	21. ESTIMATED FUNDED COST	22. ESTIMATED TOTAL COST
R	4			$50,361

X 23. THERE IS NO NEED FOR AN ENVIRONMENTAL ASSESSMENT (AFI 19-2)	24. A WRITTEN ASSESSMENT IS BEING/HAS BEEN PROCESSED	/ 25. APPROVED	26. DISAPPROVED

27. REMARKS ENVIRONMENTAL CLEARANCE GRANTED
Marie Barrera 7 Jan 2008 EPF# 2008 0004 SEE AMS 2006 0741 / 2007 0098

SECTION IV - APPROVING AUTHORITY

28. NAME AND GRADE *(Please Type or Print)*	29. SIGNATURE	30. DATE
Michael E. Zanelli, WS-15 DAF Supervisor, Operations Flight	[signature]	26 Feb 08

AF FORM 332, 19910101 *(EF-V3)* PREVIOUS EDITION IS OBSOLETE. MASTER FILE COPY


WSMR-Bound Route 9
Holloman AFB
© 2008 Europa Technologies
© 2008 Tele Atlas
Image © 2008 DigitalGlobe
Google
Pointer 32°53'53.66" N 106°07'43.73" W elev 4084 ft
Streaming 100%
Eye alt 5926 ft

TNK 15 Oct 08

BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST

(See Instructions on Reverse)

DATE PREPARED

1. Clearance is requested to proceed with work at Extend Bypass, Lane Test Track on Work Order No. 61306, Contract No. FA4801-05-D-0003, involving excavation or utility disturbance per attached sketch. This area [X] has [ ] has not been staked or clearly marked.

2. TYPE OF FACILITY/WORK INVOLVED

- [X] A. PAVEMENTS
- [ ] B. DRAINAGE SYSTEMS
- [ ] C. RAILROAD TRACKS
- [ ] D. FIRE DETECTION & PROTECTION SYSTEMS
- [ ] E. UTILITY [ ] OVERHEAD [ ] UNDERGROUND
- [ ] F. COMM [ ] OVERHEAD [ ] UNDERGROUND
- [ ] G. AIRCRAFT OR VEHICULAR TRAFFIC FLOW
- [ ] H. SECURITY
- [ ] I. OTHER

3. DATE CLEARANCE REQUIRED

4. DATE OF CLEARANCE

5. SIGNATURE OF REQUESTING OFFICIAL: Son Huffman

6. TELEPHONE NO.: 430-5347

7. ORGANIZATION: R-Paw

ORGANIZATION	REMARKS *(Use Reverse for additional comments)*		REVIEWER'S NAME AND INITIALS
8. BASE CIVIL ENGINEERING — A. ELECTRICAL DISTRIBUTION	Bldg 54 (Ext Electric) x3781	ok	Print Name & Initial: TSG [signature] 14 OCT 08
B. GAS (STEAM) DISTRIBUTION	Bldg 58 (Utilities) x7080	Clear	Print Name & Initial: [signature]
C. WATER DISTRIBUTION	Bldg 58 (Utilities) x7080	Clear	Print Name & Initial: [signature]
D. POL DISTRIBUTION	Bldg 54 (Liquid Fuels) x7588	Clear	Print Name & Initial: [signature] LD
E. SEWER DISTRIBUTION	Bldg 58 (Utilities) x7080	Clear	Print Name & Initial: [signature]
F. ENVIRONMENTAL	Bldg 55 (CEV) x3931	2008-0423	Print Name & Initial: [signature]
G. PAVEMENTS/ GROUNDS	Bldg 56 (Horizontal) x5514		Print Name & Initial: OK TSgt Gonderson SDD 14 Oct 08
H. FIRE PROTECTION	Bldg 304 (Fire Protection) x3487/3488	OK	Print Name & Initial: N. Stevens [initials]
I. ZONE Alarms	Bldg 54 (Controls) x7043	ok	Print Name & Initial: [signature] TSG
J. OTHER *(Specify)* Cathodic Protection	Bldg 54-C (Cathodic) x3028		Print Name & Initial: [signature] 14 OCT 08
9. SECURITY POLICE	Bldg 35 (L.E. Desk) x7171	ok	Print Name & Initial: Underwood [initials]
10. SAFETY	Bldg 29 (49FW/SEG) x3793		Print Name & Initial: B Thompson B/T 15 Oct 08
11. COMMUNICATIONS	****************See Remarks Block 18*****************		Reverse For Signature
12. BASE OPERATIONS	Bldg 577 (49OSS/OSAA) x5410	OK	Print Name & Initial: Sean Brady 15 Oct 08
13. CABLE TV	****************See Remarks Block 18*****************		Reverse For Signature
14. COMMERCIAL UTILITY COMPANY [ ] TELEPHONE [ ] GAS [ ] ELECTRIC	****************See Remarks Block 18*****************		Reverse For Signature

15. OTHER *(Specify)* In Airfield: Radio Maint x3132 (Bldg 839) METNAV x7916 Radar x3395

16. REQUESTED CLEARANCE [ ] APPROVED [ ] DISAPPROVED

17. TYPED NAME AND SIGNATURE OF APPROVING OFFICER *(Chief of Operations Flight or Chief of Engineering Flight)*

17a. DATE SIGNED

INSTRUCTIONS

The BCE work clearance request is used for any work (contract or in-house) that may disrupt aircraft or vehicular traffic flow, base utility services, protection provided by fire and intrusion alarm system, or routine activities of the installation. This form is used to coordinate the required work with key base activities and keep customer inconvenience to a minimum. It is also used to identify potentially hazardous work conditions in an attempt to prevent accidents. The work clearance request is processed just prior to the start of work. If delays are encountered and the conditions at the job site change (or may have changed) this work clearance request must be reprocessed.

18. REMARKS. *(This section must describe specific precautionary measure to be taken before and during work accomplishment. Specific comments concerning the approved method of excavation, hand or powered equipment, should be included.)*

Updated 14 March 2008

ORGANIZATION	PRINT REVIEWER'S NAME AND INITIAL
NewCom Telephone Co. 572-2371 LOG 08-0247	will mark
ONE CALL (for Blue Stake/QWEST) 1-800-321-2537 From a cell phone call 811	
BAJA BROAD BAND (CABLE TV) 437-3101	
ARMY COMM 505-678-1793 Cell # 505-993-6114 OK per Skeeter	

ADDITIONAL INSTRUCTIONS

-WORK PERMIT MUST BE KEPT ON JOB SITE AT ALL TIMES; POSTED IF POSSIBLE. IF THE PERMIT IS NOT POSTED THE WORK SITE MAY BE SHUT DOWN.

-UTILITY DRAWINGS SUPPLIED WITH THE PERMIT MUST BE KEPT ON JOB AT ALL TIMES.

-PERMIT HOLDER IS RESPONSIBLE TO ENSURE EACH UTILITY AND COMMUNICATION SYSTEM HAS BEEN CHECKED AND MARKED WHEN PRESENT.

-MARKED UTILITIES MUST BE LOCATED BY HAND DIGGING OR WATER EXCAVATION BEFORE MECHANIZED EXCAVATION IS STARTED. IF THEY CANNOT BE LOCATED WITH A RESONABLE AMOUNT OF HAND DIGGING, PLEASE CONTACT THE APPROPRIATE POINT OF CONTACT FROM THE FRONT OF THE AF FROM 103.

-CONTACT CUSTOMER SERVICE AT 572-3223/3224 EACH DAY BEFORE DIGGING BEGINS.

BASE CIVIL ENGINEER WORK REQUEST
(See Reverse for Instructions)

"KO 11-07"

Form Approved OMB No. 0704-0188

SECTION I - TO BE COMPLETED BY REQUESTER

1. FROM	2. OFFICE SYMBOL	3. DATE OF REQUEST	4. WORK REQUEST NO.
846th Test Squadron	TGTOC	12-Feb-07	61306

5. NAME AND PHONE NO. OF REQUESTER	6. REQUIRED COMPLETION DATE	7. BUILDING, FACILITY OR STREET ADDRESS WHERE WORK IS TO BE ACCOMPLISHED
Dennis K. Belknap 679-2183 FAX 572-1396	12-Mar-07	nge Rd. 9 & Range Rd.

8. DESCRIPTION OF WORK TO BE ACCOMPLISHED *(Include Sketch or Plan when appropriate)*

Track would like to remove dirt at the Range Rd. 9 and Range Rd. 10 intersection. On the 8th of Dec. Track turned in a 332 work order # 23536 to inprove this intersection for safety reasons, it's a blind inter section and people run the stop sign coming from the North.

9. BRIEF JUSTIFICATION FOR WORK TO BE ACCOMPLISHED

Track would like to remove the dirt (SELF HELP) to make a better line of sight coming from the North.

10. DONATED RESOURCES

FUNDS	LABOR	MATERIAL	CONTRACT BY REQUESTER	NONE
	✓			

11. NAME OF REQUESTER	12. GRADE OF REQUESTER	13. SIGNATURE OF REQUESTER
Dennis K. Belknap	GS-9	Dennis K Belknap

14. COORDINATION

846TS/TGTO 12-Feb 07	46TG/XPX	46TG/SEG	49CE/CEF

SECTION II - FOR BASE CIVIL ENGINEER USE

15. WORK ORDER *(Place an "X" in the appropriate box)*

IN-SERVICE	SELF HELP	CONTRACT	SABER

16. DIRECT SCHEDULED WORK *(Place an "X" in the appropriate box)*

EMERGENCY	URGENT	ROUTINE	SELF-HELP	M&C

17. SELF-HELP *(Place an "X" in the appropriate box)*

BRIEFING REQUIRED	ADEQUATE COORDINATION	INSPECTION REQUIRED

SECTION III - COMPLETE ONLY IF WORK IS TO BE ACCOMPLISHED BY WORK ORDER

18. WORK CLASS	19. PRIORITY	20. ESTIMATED ...	21. ESTIMATED FUNDED COST	22. ESTIMATED TOTAL COST

THERE IS NO NEED FOR AN ENVIRONMENTAL ASSESSMENT (AFR 19-2)	A WRITTEN ASSESSMENT IS BEING PROCESSED	25. APPROVED	26. DISAPPROVED
	X		

27. REMARKS

ENVIRONMENTAL CLEARANCE GRANTED
Daniel Camacho 15 Feb '07

SECTION IV - APPROVING AUTHORITY

28. NAME AND GRADE *(Please Type or Print)*	29. SIGNATURE	30. DATE

AF FORM 332, 19910101 *(EF-V3)* PREVIOUS EDITION IS OBSOLETE. MASTER FILE COPY

DATE: ____________

FACILITY: __________

FROM: SELF-HELP CENTER/CEOMS

SUBJECT: ENVIRONMENTAL IMPACT ANALYSIS

TO: CEVP

Please review the attached AF Form 332/BCE Work Request __________ for potential environmental impact.

RETURN TO: SELF-HELP CENTER/CEOMS

COMMENTS: REQUIRE REMOVED FILL TO BE PLACED IN THE BORROW PIT AT CAC'S MOUND - AKG 15 FEB 07

REQUIRE DRAINAGE/RUNOFF COLLECTION SWALE TO HOLD RUNOFF FOR EVAPORATION/PERCOLATION - AKG 15 FEB 07

THERE SHOULD BE NO AFFECT ON CULTURAL RESOURCES. AKG 15 FEB 07

Project must stay within footprint of paved triangle at intersection for removal of soil. Area is adjacent to/within boundary of Essential Pupfish Habitat - HAFB must not create erosion-runoff issues in Lost River Drainage per White Sands Pupfish Cooperative Agreement.
CKD 15 Feb 07

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol RCS:

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent organization and functional address symbol)	2a. TELEPHONE NO.
49 CES/CEV	[illegible]	[illegible]

3. TITLE OF PROPOSED ACTION: [illegible]

4. PURPOSE AND NEED FOR ACTION (Identify deficiency to be made and need date): [illegible]

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.): [illegible]

6. PROPONENT APPROVAL (Name and Grade)	6a. SIGNATURE	6b. DATE
Connie K. Bell	Connie K. Bell	17 Feb 09

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY

(Check appropriate box and describe potential environmental effects (including cumulative effects). A = positive effect; B = no effect; C = adverse effect; D = unknown effect)

	A	B	C	D
7. AIR INSTALLATION COMPATIBLE USE ZONE (ACUZ) (Noise, accident potential, encroachment, etc.)		X		
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.) MINOR, TEMPORARY DUST		X		
9. WATER RESOURCES (Quality, quantity, source, etc.) SCALE FOR RUNOFF CONTROL		X		
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.) TRAFFIC VISIBILITY IMPROVEMENT	X			
11. HAZARDOUS MATERIAL/WASTE (Use/storage/generation, solid waste, etc.)		X		
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.) REMAIN INSIDE HAYING AT ENTRANCE-ENSURE NO EROSION IN DRAINAGE		X		
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.) NONE IN AREA OF AFFECT AS OF 15 FEB 09		X		
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.) REMOVED FILL GOES TO EXISTING BERM		X		
15. SOCIOECONOMIC (Environmental/population projections, school and local fiscal impacts, etc.) TO PREVENT ACCIDENTS	X			
16. OTHER (Potential impacts not addressed above.)				X

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

[ ] PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) _____ ; OR

[X] PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED

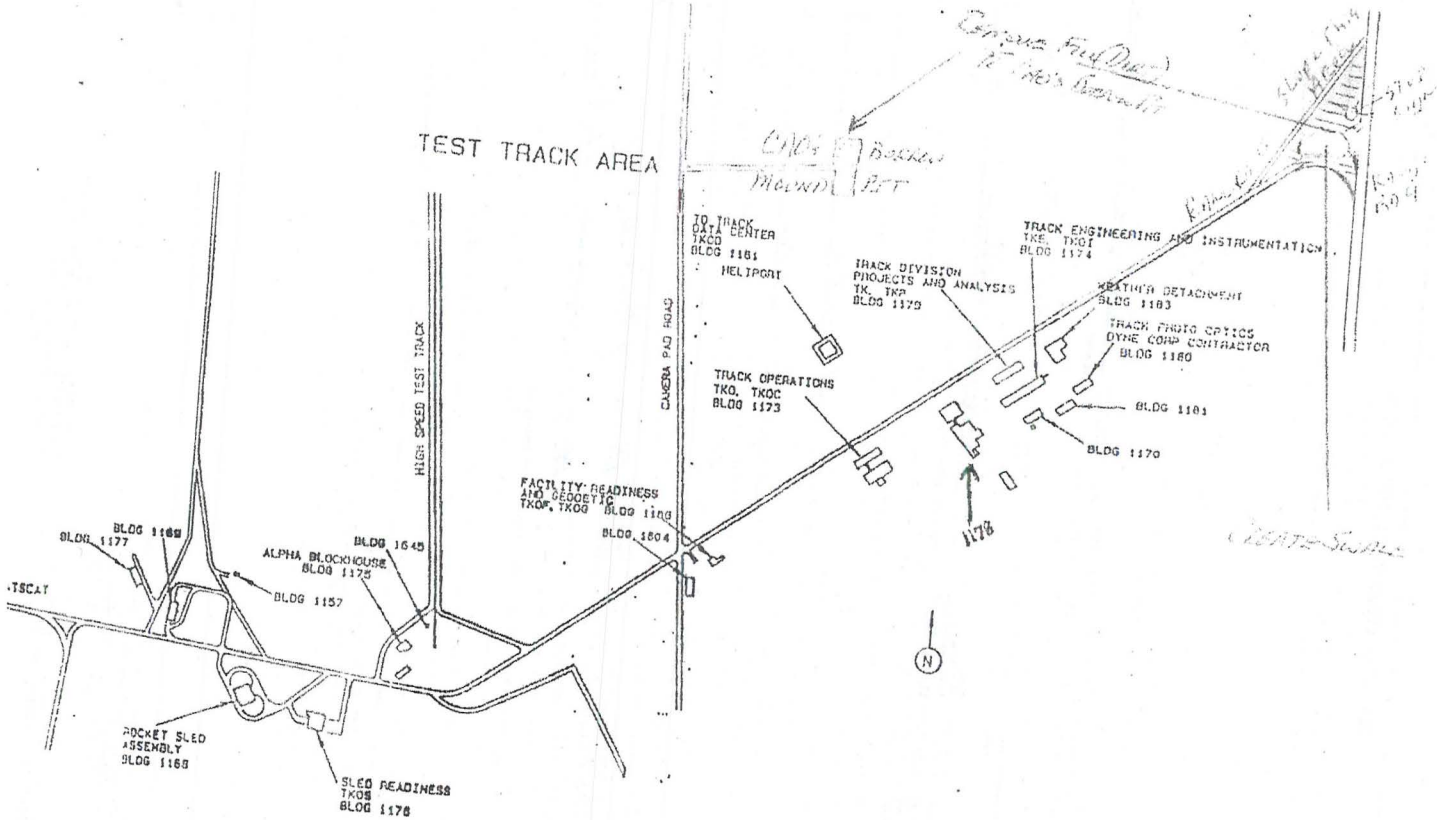
18. REMARKS AFB13 - MINOR ANALYSIS (ATTACHED REQUIREMENTS TO MINIMIZE AFFECTS) COMPLETED 15 FEB 09.

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) JOHN L. HARTELL Chief Environmental Flight	19a. SIGNATURE	19b. DATE 2/15/09 15 Feb 2009

AF FORM 813, 19990901 (EF-V1)

THIS FORM CONSOLIDATES AF FORMS 813 AND 814. PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE.

PAGE 1 OF PAGES


TEST TRACK AREA
HIGH SPEED TEST TRACK
CAMERA PAD ROAD
TO TRACK DATA CENTER TKCO BLDG 1161
HELIPORT
TRACK DIVISION PROJECTS AND ANALYSIS TK, TKP BLDG 1179
TRACK ENGINEERING AND INSTRUMENTATION TKE, TKOI BLDG 1174
WEATHER DETACHMENT BLDG 1183
TRACK PHOTO OPTICS DYNE CORP CONTRACTOR BLDG 1180
BLDG 1181
BLDG 1170
TRACK OPERATIONS TKO, TKOC BLDG 1173
FACILITY READINESS AND GEODETIC TKOF, TKOG BLDG 1176
BLDG 1804
1178
BLDG 1645
ALPHA BLOCKHOUSE BLDG 1175
BLDG 1157
BLDG 1177
BLDG 1160
TSCAT
ROCKET SLED ASSEMBLY BLDG 1168
SLED READINESS TKOS BLDG 1178
N

APPENDIX C

NEPA ROUTING & COMMENT SLIP rev 6.27.08

WO _____
EPF 20080433
KWRD _____

Please forward to the next manager.

___	Charlie Hester	
MM	Lonnie Britton	(Biologist)
XXX	vacant	(Biologist)
DG	David Griffin	(water)
___	Eric Carlson	(geo)
PJ	Patrick Jenkins	(ACES/Energy)
___	Mike Porto	(compliance)
___	Adam Kusmak	(Materials)
BA	Benito Avalos	(HZ Waste)
BH	Brent Hunt	(air)
___	David Scruggs	(Restoration)
BF	Bill Ford	(solid waste)
RAC	Ramon Acevedo-Cruz	(tanks)
___	Will Desmare	(storm water)
___	Wesley Westfall	(NEPA chief)
MJJ	Jr Gomolak	SHPO ~~NEPA~~
Return to :	Mike Jago	(NEPA analyist)
___	Debbie Hartell	(flt chief)

Comments: Please specify protocol and initial at the end.

This should be a new work order to complete a previously started project. (original WO 24257) The location of the project is over the pupfish habitat restricted area. Please direct all comments carefully as they will be key in the decisions about this project. Mjj

Once project is created the NEPA documentation & ACES can be updated. -pj

Concerns are address in '07 approval

No comments

No comments B.A.

No concerns B.H.

Concerns addressed in '07 Approval
No concerns.

No CR concerns.

EROSION must be controlled AS THIS is CRITICAL HABITAT.

All Environmental Flight Manager mandates shall be followed. Failure to do so may require the proponent to complete an Environmental Impact Statement or Environmental Assessment. Such an action will have impacts in project cost, completion time and will open the proponent to legal action under 42 USC 4321 section 102.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol RCS: 20080433

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO *(Environmental Planning Function)*	2. FROM *(Proponent organization and functional address symbol)*	2a. TELEPHONE NO.
49CES/CEV	49 CES/CECS John Hamann	572-3579

3. TITLE OF PROPOSED ACTION
Extend the bypass lane at the Test Track Intersection

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
Removal of obstruction/highway safety

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
See reverse.

6. PROPONENT APPROVAL *(Name and Grade)*	6a. SIGNATURE	6b. DATE
Michael Dawks YD-3	Michael Dawks	7/2/08

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. *(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U= unknown effect)*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*	☐	☒	☐	☐
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*	☐	☒	☐	☐
9. WATER RESOURCES *(Quality, quantity, source, etc.)* SWPPP MUST BE IMPLEMENTED & LONG TERM EROSION CONTROLS.	☐	☐	☒	☐
10. SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)* IMPROVED SAFETY	☒	☐	☐	☐
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*	☐	☒	☐	☐
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, threatened or endangered species, etc.)* PUP FISH HABITAT AREA	☐	☐	☐	☒
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*	☐	☒	☐	☐
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*	☐	☒	☐	☐
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*	☐	☒	☐	☐
16. OTHER *(Potential impacts not addressed above.)*	☐	☐	☐	☒

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. ☒ PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # A2.3.11 ; OR
☐ PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)*	19a. SIGNATURE	19b. DATE
DEBORAH J. HARTELL Chief, Environmental Flight	Deborah J Hartell	22 Jul 2008

AF IMT 813, 19990901, V1

THIS FORM CONSOLIDATES AF FORMS 813 AND 814. PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE.

5.0 Description of proposed action and alternatives

5.1 Action : To create a bypass lane or remove the visual obstruction of the east embankment at the intersection of Tula Peak Road and Test Track Roads. This would result in improving the limited sight distance when approaching the intersection from the south to decrease the risk of a traffic accident at the intersection.

5.2 Preferred Alternative: At the intersection of Test Track and Tula Peak Roads; extend the existing bypass lane 400' (300' to the south to ensure traffic safety at a blind intersection and 100' north to allow for safe traffic flow). To accomplish this, a new lane would be built on the east side of the road. The existing dirt embankment on the east side of the road would be cut back to as part of the project. This would create a safe visual distance and traffic flow at the intersection.

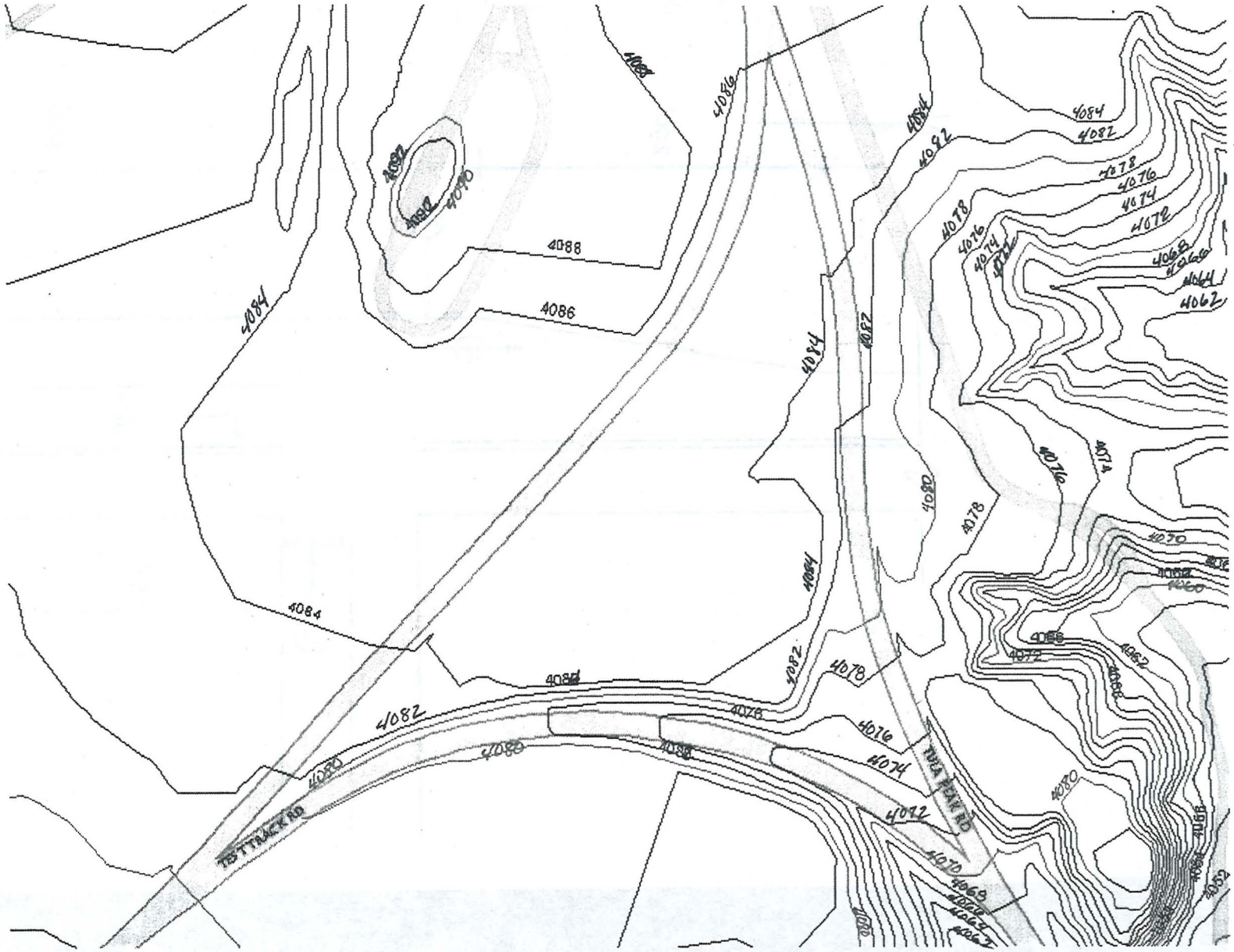
5.3 Alternative two: Redesign the intersection to move it north 500' to allow for clear and safe traffic flow.

5.4 No Action Alternative: taking no action will leave the intersection as a high hazard as it is blind from the south. The area is in the Pupfish impact area so any spilled fuel, oil, coolant or other materials could have a direct negative impact on a threatened species.

Any construction or other actions in this area will require a Storm Water Pollution Prevention Plan and careful attention to the Lost River habitat. Soil removed from the embankment must not be done in such a way as to increase direct sheet flow or other road drainage directly to the Pupfish habitat. Sediment controls must immediately be installed to mitigate impacts. Natural vegetation must be restored to ensure long term sedimentation controls.

RR 9/10 Intersection-2

COMMENTS:undefined


TESTTRACK RD
TULA PEAK RD
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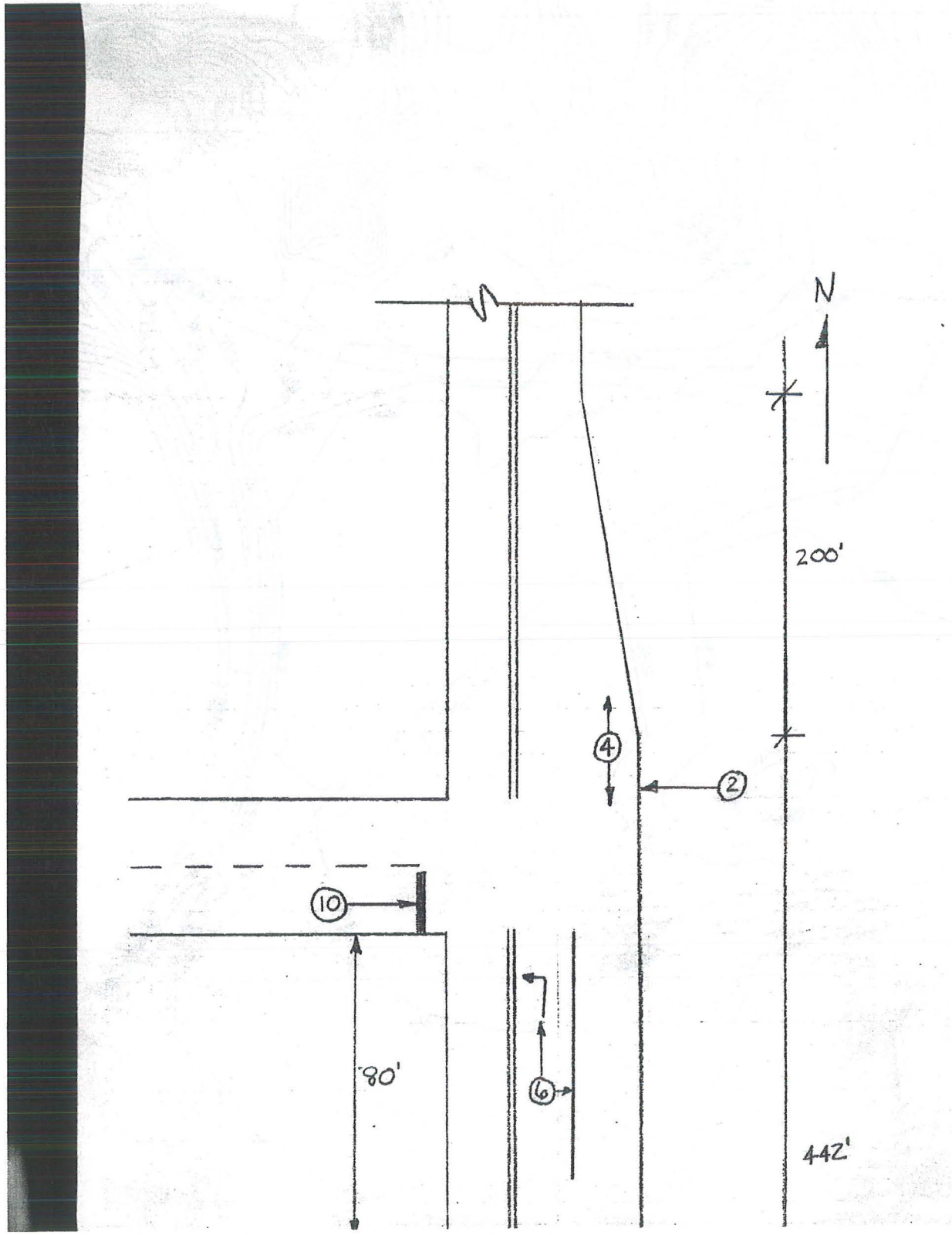
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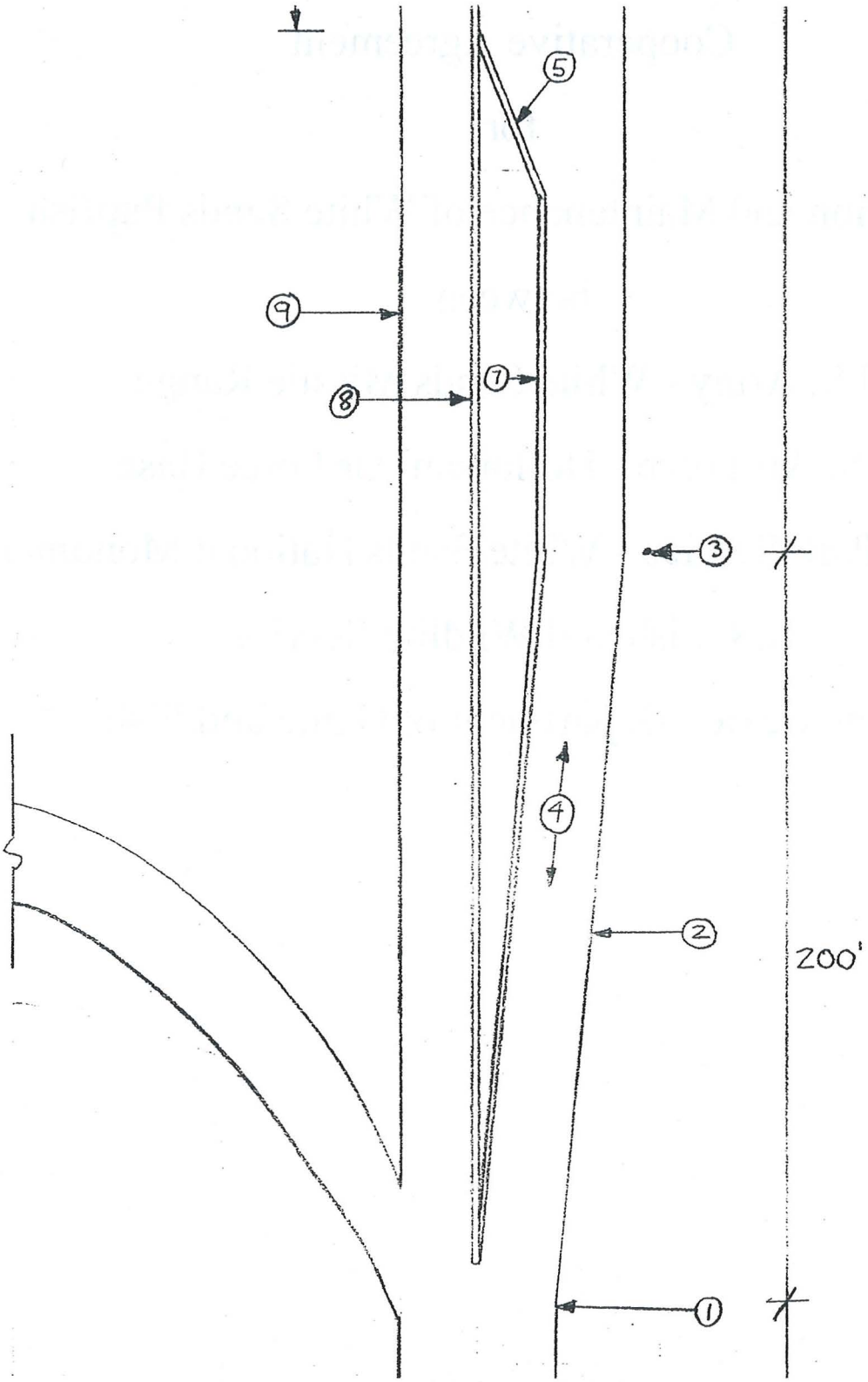
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APPENDIX D

Cooperative Agreement

for

Protection and Maintenance of White Sands Pupfish

between

U.S. Army - White Sands Missile Range

U.S. Air Force - Holloman Air Force Base

National Park Service - White Sands National Monument

U.S. Fish and Wildlife Service

New Mexico Department of Game and Fish

1 May 2006

Whereas, the White Sands pupfish is considered a Species of Concern by the U.S. Fish and Wildlife Service (USFWS), and is listed as a Threatened Species by the New Mexico Department of Game and Fish (NMDGF); and

Whereas, the White Sands pupfish occurs only in the Tularosa Basin, New Mexico, on public lands administered by the U.S. Army - White Sands Missile Range (WSMR), the U.S. Air Force - Holloman Air Force Base (HAFB), and the National Park Service - White Sands National Monument (WSNM); and

Whereas, NMDGF has the primary responsibility under the New Mexico Wildlife Conservation Act (WCA) as amended, to provide for the protection and perpetuation of this species; and

Whereas, the USFWS has the responsibility to review the status of species and determine the need to provide protection through the Endangered Species Act of 1973 (ESA), as amended; and,

Whereas, WSMR, HAFB and WSNM have the responsibility to carry out their respective military and land management missions with consideration to the mandates of the National Environmental Policy Act of 1969 (NEPA), ESA, and the Sikes Act, as amended; and

Whereas, WSMR and HAFB have the responsibility to manage hunting, fishing, and trapping in accordance with the Engle Act;

Therefore, the signatory parties to this document agree to cooperate in the management, protection, and conservation of present and future populations of White Sands pupfish and their habitats.

I. PURPOSE

This Cooperative Agreement (Agreement) delineates an effective and cooperative working relationship between its signatories in protecting and maintaining viable populations of the White Sands pupfish (Cyprinodon tularosa Miller and Echelle) in its habitats on White Sands Missile Range, Holloman Air Force Base, and White Sands National Monument.

II. AUTHORITIES

New Mexico Wildlife Conservation Act [17-2-37 through 17-2-46 NMSA 1978]

National Environmental Policy Act of 1969 [42 U.S.C. 4321 through 4370d]

Endangered Species Act of 1973, as amended [16 U.S.C. 1531 et seq.]

The Sikes Act [16 USC 670 et seq.]

The Engle Act [10 USC 2671]

III. OPERATIONS

A. DESCRIPTION OF THE AREA AND GENERAL INTENT

1. White Sands Pupfish is the only fish endemic to the endorheic Tularosa Basin of south-central New Mexico. It occurs in four disjunct locations on WSMR, HAFB, and WSNM: Salt Creek, Mound Spring, Malpais Spring, and Lost River. The extremely limited distribution and geographic range of White Sands pupfish makes it vulnerable to extinction from natural and anthropogenic causes. Consequently, it is of utmost importance for the signatories to work to protect these populations and habitat as follows.

2. Essential Habitat is aquatic habitat that is occupied by White Sands pupfish on a perennial or intermittent basis. Essential habitat must be protected from adverse anthropogenic disturbances and to ensure survival of the species. All non-emergency vehicular traffic shall be restricted within Essential Habitat with the exception of use of existing improved and unimproved roads. Likewise, all non-emergency activities shall be restricted within Essential Habitats, unless the responsible WMSR, HAFB, or WSNM official is consulted. In the case of emergency activities that may affect habitats of White Sands pupfish, such as chemical spills, debris recovery from military activities, or carrion removal, NMDGF and USFWS shall be notified and conferred with, as appropriate.

Essential Habitat shall consist of the following occupied or potential White Sands pupfish habitats:

a. Salt Creek, main channel, with ephemeral, intermittent, or perennial flow and perennial springs from Big Salt Lake south of Range Road 6 north to Range Road 8, including a corridor 200 meters (660 feet) wide, extending 100 meters (330 feet) from either side of the center of the main-stream channel and all land within 100 meters (330 feet) of any tributary spring and Big Salt Lake;

b. Mound Spring complex, including the area within 100 meters (330 feet) of the perimeter of the spring ponds;

c. Malpais Spring and Malpais Salt Marsh, including:

i. The area within 100 meters (330 feet) of the perimeter of the spring pond,

ii. Its outflow stream, including a corridor 200 meters (660 feet) wide, extending 100 meters (330 feet) from either side of the center of the stream channel; and

iii. The associated wetlands and playas that may be perennially or intermittently occupied by pupfish, including all land within 100 meters (330 feet) of the high-water boundary of the wetlands and playas associated with Malpais Spring;

d. All stream channels of Malone Draw and Lost River on HAFB, WSNM, and WSMR and a corridor 200 meters (660 feet) wide, extending 100 meters (330 feet) from either side of the center of the stream channel.

e. In addition to the delineations described above, Essential Habitat shall also include any other areas where White Sands pupfish are found or transplanted by mutual agreement of all signatories as well as a 100-meter (330-foot) buffer around said habitat as demonstrated in the previous delineations, with the exception of the experimental ponds on HAFB and any future exceptions mutual agreement with NMDGF, USFWS, and the party or parties seeking such exceptions.

3. Limited-Use Areas are lands adjacent to existing habitat where activities must be managed to ensure that degradation of Essential Habitat does not occur through direct or indirect effects such as contaminant

runoff and excessive soil erosion. All reasonable precautions shall be taken in coordination with USFWS and NMDGF, as appropriate, to avoid or minimize degradation of Essential Habitat due to activities on Limited-Use Areas.

4. Areas of Concern shall consist of all watersheds within the topographic drainage basin of Salt Creek, Malpais Spring, Malone Draw-Lost River, and Mound Springs complex, as described above (III.A.2.a, c, d and e). Activities in these Areas of Concern will be considered for their cumulative impacts on White Sands pupfish habitats.

B. AGENCY RESPONSIBILITIES

1. The signatory agencies jointly agree to:

a. Participate on the White Sands Pupfish Conservation Team, composed of knowledgeable personnel representing each of the cooperating agencies which shall:

i. Review activities, which might affect White Sands pupfish or its habitat.

ii. Make recommendations and provide advice and information to the concerned agencies regarding conservation of White Sands pupfish.

iii. Meet at least annually to discuss pertinent concerns regarding White Sands pupfish and its habitat, exclusive of all other activities.

b. Develop and maintain the White Sands Pupfish Conservation and Recovery Plan (Plan), which shall be the guiding document for White Sands pupfish conservation activities.

c. Provide logistical and financial resources necessary to carry out the responsibilities detailed in this Agreement and the Plan. Subject to the availability of funds, agencies will provide:

i. Personnel and equipment to at least semi-annually monitor habitats and populations of White Sands pupfish, exclusive of all other Agreement activities.

ii. Exchange of manpower, equipment, and funds to carry out activities pursuant to this Agreement, exclusive of semi-annual monitoring.

d. Develop and disseminate public information on White Sands pupfish.

e. Participate in professional meetings to apprise the scientific community of the status, biology, and ecology of White Sands pupfish.

2. WSMR, subject to the availability of funds, agrees to:

a. Take reasonable and prudent actions in coordination with the other signatories to protect, manage, and conserve White Sands pupfish habitat on WSMR. This includes, but is not limited to, continuing hydrologic monitoring of the Essential Habitats in regard to the characterization of natural events and the cumulative effects from military activities.

b. Restrict all non-emergency activities, including vehicular traffic, except on existing roads within Essential Habitats and Limited-Use Areas, unless the WSMR Natural Resource Manager is consulted. In the case of emergency activities that may affect habitats of White Sands pupfish, such as chemical spills, debris recovery from military activities, or carrion removal, NMDGF and USFWS shall be notified and conferred with, as appropriate.

c. Prohibit the transport and introduction of any live non-native aquatic organisms to WSMR-controlled aquatic habitats north of Highway 70. Furthermore, aquatic habitats within WSMR north of Highway 70 not currently inhabited by White Sands pupfish shall not be considered for establishment of non-native aquatic organisms and non-native terrestrial flora in the Essential and Limited Use habitats without prior conference and agreement with USFWS and NMDGF.

d. Cooperate with the signatory agencies, as appropriate, in the inventory and removal of non-native fauna in the Essential and Limited Use Habitats to prevent potential contamination of habitats or populations of White Sands pupfish.

e. Cooperate with the signatory agencies in White Sands pupfish recovery activities, including but not limited to the following activities:

i. Preparing and implementing the necessary documents and actions to create White Sands pupfish refugia with special emphasis on the Malpais Spring pupfish population; and

ii. Preparing and implementing the necessary documents and actions to remove existing obstacles that restrict movement of White Sands pupfish within Essential Habitats, including but not limited to, culverts at RR316 on Salt Creek and construction debris.

iii. Preparing and implementing the necessary documents and actions to remove, if appropriate, military testing debris.

f. Coordinate all military activities proposed for implementation within Essential Habitat with the signatory agencies, as appropriate, to avoid or mitigate negative impacts to White Sands pupfish or its habitat and review current project activities for potential impacts. Monitor all military activities within Essential Habitats and Limited-Use Areas on WSMR for potential impacts.

g. Develop and implement incident response programs for accidental chemical spills, impacts from debris due to military activities, vehicle accidents, and coordinate the resolution of any unforeseen perturbation to White Sands pupfish or its habitats with signatory agencies as soon as reasonably possible upon detection or advisement of such event(s).

h. Develop a customer orientation package to provide all WSMR mission customers and their agents with written procedures for ensuring their project activities are carried out in accordance with the Plan.

i. With reasonable advance notice and as military activities and applicable WSMR security policies allow, permit unescorted access to the area designated as Essential Habitat and Limited-Use Areas on WSMR (III.A.2.a, b, c and e; III.A.3), as appropriate, for representatives of the signatory agencies.

j. Provide in-briefing for non-WSMR Conservation Team personnel outlining

c. Provide WSMR and HAFB, through the respective sponsor, with written request for unescorted access to uprange areas for each of its Conservation Team personnel. Included in the request will be a listing of personal specifications for each individual. Changes in badged, visiting Conservation Team personnel shall also be implemented by written request and coordinated with WSMR and HAFB representatives.

d. Have USFWS Conservation Team representatives sign hold harmless agreements releasing WSMR and HAFB from liability in case of personal injury while on WSMR or HAFB property.

e. Provide enforcement, at WSMR's, HAFB's, or WSNM's request, of any violations of Federal fish and wildlife statutes (e.g. Lacey Act and Black Bass Act), as appropriate.

6. NMDGF agrees to:

a. Participate in protection, management, enhancement, research, and monitoring of habitats and populations of White Sands pupfish.

b. Coordinate with WSMR, HAFB, and WSNM on all activities that may impact habitats or populations of White Sands pupfish.

c. Coordinate the development and implementation of the White Sands Pupfish Conservation and Recovery Plan with the signatory agencies, in accordance with the WCA.

d. Provide WSMR and HAFB, through the respective sponsor, with written request for unescorted access to uprange areas for each of its Conservation Team personnel. Included in the request will be a listing of personal specifications for each individual. Changes in badged, visiting Conservation Team personnel shall also be implemented by written request and coordinated with WSMR and HAFB representatives.

e. Have NMDGF Conservation Team representatives sign hold-harmless agreements releasing WSMR and HAFB from liability in case of personal injury while on WSMR or HAFB property.

f. Provide enforcement of violations of the New Mexico Wildlife Conservation Act, as appropriate.

g. Coordinate and assemble an annual report summarizing the activities of the Conservation Team, White Sands pupfish monitoring program, and other projects concerning the species.

h. Issue State of New Mexico permits to signatories for research or management activities as necessary to support the conservation and recovery of White Sands pupfish.

C. OTHER PROVISIONS

1. Safety, Security, and Scheduling

To engage in Plan activities on WSMR, HAFB, and WSNM, Conservation Team members of the signatory agencies shall abide by the following stipulations:

a. All applicable military and National Park Service rules, policies, and regulations will be observed.

b. When entering WSMR, relevant rules and regulations will be presented to non-WSMR personnel during the in-briefing process. Conservation Team access may be suspended at any time by WSMR for military purposes.

c. Conservation Team personnel will obtain proper permits for entry into HAFB. All field activities will be scheduled with the Natural Resources Manager prior to entry to HAFB and HAFB Security will be notified of monitoring activities (505) 572-7171.

d. Conservation Team personnel will schedule all entries into WSNM with the Superintendent or his representative and will obtain proper permits to conduct work on WSNM.

i. Schedule requests will be submitted one week prior to proposed entry, or as soon as possible.

ii. All research and monitoring activities must be conducted under an approved National Park Service collection permit. No research, sampling or collecting will be initiated on WSNM without an approved permit.

iii. Various portions of WSNM are periodically subject to evacuation in support of WSMR operations. During evacuations, Conservation Team personnel will not be permitted access to effected areas.

iv. Conservation Team members will not be permitted to stay on WSNM property overnight without prior notification to, and approval from, the Superintendent or his representative.

e. Conservation Team personnel will schedule all entries into WSMR uprange areas with the appropriate WSMR offices and activities and the WSMR Conservation Team sponsor.

i. Schedule badge requests for new Team Personnel and renewal of expired badges at least 4 weeks prior to the proposed date of entry. The WSMR does not guarantee a minimum of 4 weeks, pending required by other WSMR offices beyond the control of the WSMR Team sponsor.

ii. Schedule requests for previously badged Team personnel will be submitted at least one week prior to proposed entry.

iii. Team members will advise the appropriate WSMR offices and activities up to the day before access of any required changes or cancellations. Conservation Team access may be suspended at any time by WSMR for military purposes.

f. For approved daily use of WSMR, Conservation Team personnel shall coordinate with the appropriate WSMR offices and activities and the WSMR Conservation Team sponsor prior to entry into, and upon exit from, WSMR land or airspace to:

i. Verify entry and ensure that no interference with military operations occurs.

ii. Provide the precise areas of operations and entry/exit points and times for all field activities.

iii. Advise when Conservation Team personnel depart WSMR property.

g. The Conservation Team will not be permitted to stay on WSMR property overnight without prior notification to the WSMR Conservation Team sponsor and approval from the appropriate WSMR offices

and activities and the Conservation Team sponsor. WSMR uprange facilities may be used by field personnel on an "as-needed" basis following coordination through the appropriate WSMR offices and activities and the WSMR Conservation Team sponsor, if available. Reservations and use may be suspended or changed by WSMR for military activity requirements.

h. Although the Conservation Team personnel may be issued WSMR and HAFB optics permits, all photography will pertain only to White Sands pupfish and its habitats. No other photographs will be permitted. All digital photographic media, slides, prints, and negatives must be declassified and cleared through the normal WSMR and HAFB Operations and Security process prior to public dissemination. Further rules and regulations on photography on WSMR and HAFB will be presented to non-WSMR and non-HAFB Conservation Team members during their in-briefing.

i. All military activities on WSMR and HAFB will take precedence over White Sands pupfish investigation activities, both on the ground and in the air, if conflicts arise that cannot be resolved through the scheduling process. Such determinations shall be at the sole discretion of WSMR and HAFB.

2. Progress Reports

Copies of all interim reports and an annual report will be provided to all signatories to this Agreement.

3. Conditions

a. This Agreement takes effect upon signature of the parties to this Agreement, and shall be reviewed at least every five years. Unless terminated as described below (3.b), this Agreement will continue indefinitely.

b. This Agreement may be terminated by any signatory agency upon 30 days of written notice to all signatory parties. Upon termination of this Agreement, the remaining parties are not bound by terms of the Agreement.

c. This instrument is neither a fiscal nor a funds obligation document. Nothing in this Agreement shall obligate any party to obligate or transfer any funds. Any endeavor involving reimbursement or contribution of funds between the parties to this instrument will be handled in accordance with applicable laws, regulations, and procedures, including those for applicable Government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by appropriate representatives of the parties and shall be independently authorized by appropriate statutory authority. This instrument does not provide such authority. Specifically, this instrument does not establish authority for noncompetitive award to any cooperators of any contract or other agreement. Any contract or agreement for training or other services must fully comply with all applicable requirements for competition.

d. This Agreement is not intended to, and does not create, any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the State of New Mexico or the United States, its agencies, its officers, or any person.

e. This Agreement in no way restricts the signatory parties from participating in similar activities or agreements with other public or private agencies, organizations, and individuals.

f. Any information provided to a Federal agency under this Agreement is subject to the Freedom of Information Act (5 U.S.C. 552) or the New Mexico Inspection of Public Records Act, unless otherwise provided by law or existing court order.

g. NMDGF will participate in the above Agreement to the extent authorized under New Mexico laws, particularly the New Mexico Wildlife Conservation Act. NMDGF will attempt to undertake only those actions within this Agreement that are in compliance within the laws and regulations of the State of New Mexico.

h. The terms of this Agreement are contingent upon sufficient appropriations being available to the signatory agencies for the performance of this Agreement. The signatory agencies' decision as whether sufficient appropriations are available shall be accepted by all signatory agencies in this Agreement, and shall be final.

APPENDIX E

HOLLY CORPORATION

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME(S)	PEP
CAS NUMBER	MIXTURE
SYNONYM(S)	ANIONIC ASPHALT EMULSION, HEAVY
MANUFACTURER/ SUPPLIER	Holly Asphalt Company P.O. Box 2209 Peoria, AZ 85380

TELEPHONE NUMBERS - 24 HOUR ASSISTANCE
EMERGENCY ASSISTANCE
Call Chemtrec: 800-424-9300

TELEPHONE NUMBERS - GENERAL ASSISTANCE
Product Information
call Manufacturer: 623-939-3311

For technical assistance regarding this product, contact your local Holly Asphalt Company representative.

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
PETROLEUM ASPHALT	8052-42-4	50-80%	Asphalt Fumes: 0.5 mg/m3 8-Hour TWA (ACGIH)
PETROLEUM BITUMEN	8052-42-4	50-80%	Asphalt Fumes: 0.5 mg/m3 8-Hour TWA (ACGIH)
WATER	7732-18-5	5-50%	ND
PETROLEUM DISTILLATES	PROPRIETARY	< 35 % **	ND
POLYMER MODIFIER	PROPRIETARY	0 - 25 %	ND
SURFACTANTS	MIXTURE	0-7%	ND
EMULSIFIER	PROPRIETARY	0 - 4 %	ND
ADDITIVES	PROPRIETARY	0 - 3.5 %	ND

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
THICKENER	PROPRIETARY	0 - 2 %	ND
VULCANIZING AGENT	PROPRIETARY	0 - 2 %	ND
STABILIZER	PROPRIETARY	0 - 1 %	ND
ANTI-STRIP	PROPRIETARY	0 - 1 %	ND
HYDROGEN SULFIDE	7783-06-4	< 1 %	20 ppm CEILING (OSHA) 10 ppm8-HourTWA(ACGIH) 15 ppm 15-Min STEL (ACGIH)

*Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

The specific identities of some of the components of this product are being withheld as trade secrets. However, all pertinent hazards are addressed in this MSDS.

Asphalt products can contain hydrogen sulfide, because it is naturally occurring in crude oil from which asphalt is derived. Hydrogen sulfide can also be present as a by-product of asphalt processing.

**Material may contain polycyclic aromatic hydrocarbons (PAHs).

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING!

HEALTH HAZARDS
MAY BE SEVERELY IRRITATING TO THE SKIN AND EYES
MAY BE IRRITATING TO THE RESPIRATORY TRACT
MAY BE HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN
FUMES FROM HEATED MATERIAL MAY BE IRRITATING AND HAZARDOUS
MAY CAUSE ALLERGIC SKIN REACTION
OVEREXPOSURE MAY CAUSE CNS DEPRESSION
ASPIRATION HAZARD IF SWALLOWED-CAN ENTER LUNGS AND CAUSE DAMAGE
POTENTIAL REPRODUCTIVE HAZARD
CONTAINS MATERIAL WHICH CAN CAUSE CANCER
SEE"TOXICOLOGICAL INFORMATION" (SECTION 1 1) FOR MORE INFORMATION

FLAMMABILITY HAZARDS
UNDEFINED (FLASH POINT > 200 F)
PER OSHA GUIDELINES, 29 CFR 1910.1200(c)

REACTIVITY HAZARDS
STABLE

POTENTIAL HEALTH EFFECTS, SKIN

SEVERELY IRRITATING. Contact may cause reddening, pain, itching, inflammation and possible tissue damage. Defatting agent.

Contains a component(s) that may cause allergic skin reactions in some individuals. May cause photoirritation in some individuals.

Absorption from prolonged or repeated skin contact may cause systemic toxicity.

Contact with heated material may cause thermal burns.

POTENTIAL HEALTH EFFECTS, EYE

SEVERELY IRRITATING. Exposure to vapors, fumes or mists may cause irritation. Direct contact may cause pain, tears, burns, sensitivity to light, swelling and possible corneal damage. Prolonged or repeated exposure may cause irritation and conjunctivitis.

Contact with heated material may cause thermal burns, destruction of eye tissue and possible permanent injury or blindness.

POTENTIAL HEALTH EFFECTS, INHALATION

Breathing of the mists, vapors or fumes may irritate the nose, throat and lungs. Symptoms may include sore throat, coughing, labored breathing, sneezing and burning sensation, depending on the concentration and duration of exposure. Fumes or vapors from the heated material may be irritating to the respiratory tract.

May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Components have been shown to be weak cardiac sensitizers which can result in cardiac arrhythmia and ventricular fibrillation.

May release hydrogen sulfide gas which is highly toxic. Hydrogen sulfide can cause respiratory paralysis and death, depending on the concentration and duration of exposure. Do not rely on ability to smell vapors, since odor fatigue rapidly occurs. Effects of overexposure include irritation of the nose and throat, nausea, vomiting, diarrhea, abdominal pain and signs of nervous system depression (e.g. headache, drowsiness, dizziness, loss of coordination and fatigue), irregular heartbeats, pulmonary edema, weakness and convulsions.

See Storage & Handling (Section 7) for more information.

Contains a component(s) which may cause allergic or asthma-like reactions in certain individuals.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 1 1).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 1 1).

POTENTIAL HEALTH EFFECTS, INGESTION

May cause severe irritation with intense burning of the mouth and throat followed by abdominal pain and distress, nausea, vomiting, and diarrhea. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see inhalation section).

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 1 1).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 1 1).

4 FIRST AID MEASURES

SKIN

For hot material, immerse or flush skin with large amounts of the coldest water possible. Cover with clean cotton sheeting or gauze. Remove clothing if not sticking to skin. DO NOT try to remove solidified material from the skin as the damaged flesh can be easily torn. DO NOT try to dissolve with solvents or thinners. GET IMMEDIATE MEDICAL ATTENTION.

For cold material, immediately wash skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation persists.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

EYE

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

Burns due to contact with heated material require immediate medical attention.

INHALATION

Safely remove the victim from exposure. DO NOT ATTEMPT TO RESCUE WITHOUT ADEQUATE PROTECTIVE GEAR AND **PROPER TRAINING.** Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION

Gastric lavage should be performed only by qualified medical personnel. If spontaneous vomiting occurs keep head below hips to prevent aspiration and monitor for breathing difficulty. Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

NOTES TO PHYSICIAN

Gastric lavage may be indicated if ingested.

Anemia may require the usual supportive measures. Medical evaluation of acute overexposure should include hematological determinations until stable. In severe acute and chronic poisoning, both renal and hepatic damage may occur and should be anticipated in such cases. Respiratory and pulmonary problems may require special attention. After severe acute symptoms have been alleviated, it may be advisable to consider periodic monitoring of the patient until such time as the likelihood of other adverse effects can be discounted.

Hydrogen sulfide is primarily a respiratory toxin inhibiting the cytochrome oxidase system; it is probably more potent than HCN. The lifetime of sulfide in oxygenated blood is short and sulfmethemoglobin is rapidly detoxified by red blood cells and the liver. If nitrites have been used for detoxification, check methemoglobin levels. Follow fluid and electrolyte balance carefully since metabolic acidosis may occur from increased anaerobic metabolism. Watch for pulmonary edema and aspiration pneumonia during convalescence.

For skin contact with hot asphalt material, do not peel the solidified material from the skin, or use solvents such as gasoline, kerosene, or paint thinner to remove. Cooled asphalt may adhere so tenaciously to the skin that attempted removal may cause severe distress to the patient. Covering the affected area using commercially available preparations containing the emulsifying agent polysorbate (Tween 80), or an antibiotic cream in a polysorbate base is the most effective method to dissolve the solidified asphalt. Asphalt can also be slowly dissolved with vegetable oil, baby oil or mineral oil.

If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hrs.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, hydrogen sulfide and irritating vapors.

EXTINGUISHING MEDIA

Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire.

BASIC FIRE FIGHTING PROCEDURES

Material will burn in a fire. Exercise extreme care when using water spray on asphalt tank fires. When water is mixed with hot asphalt, steam may rapidly develop resulting in violent asphalt foaming and possible tank eruptions from increased pressure.

Evacuate area and fight fire from a safe distance.

Use water spray to cool adjacent structures and to protect personnel. Shut off source of flow if possible. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Hydrogen Sulfide can react with the iron in an asphalt storage tank to form iron sulfide. Iron Sulfide is pyrophoric. When exposed to air, iron sulfide is capable of igniting spontaneously.

Flash Point	> 212 °F (>100 °C)
Autoignition Temperature	ND
Flammability Limits in Air, Lower, % by Volume	ND
Flammability Limits in Air, Upper, % by Volume	ND

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire. Evacuate area endangered by release as required. (See Exposure Control/Personal Protection - Section 8).

ENVIRONMENTAL PRECAUTIONS

If product is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released product. Notify local authorities and the National Response Center, if required.

SPILL OR LEAK PROCEDURE

Keep unnecessary people away. Isolate area for at least 50-100 meters (160-330 feet) to preserve public safety. For large spills, consider initial evacuation for at least 300 meters (1 000 feet).

Keep ignition sources out of area and shut off all ignition sources. For spills on land, dike ahead of spill to contain. Scrape up spilled material for disposal. To reclaim, mix with gravel, dirt or rock. For spills on water, contain as much as possible with booms and begin recovery as soon as possible. If material sinks or becomes dispersed, consult with local, state and regional authorities for approved clean up procedures. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE

HANDLING

Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

Do not heat to temperatures above the boiling point of water (approximately 212 F or 100 C).

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers. Empty containers may contain product residue. Do not reuse without adequate precautions.

Hydrogen sulfide can build up in the head space of storage vessels containing any type of asphalt product. Use appropriate respiratory protection to prevent exposure. See Exposure Controls/Personal Protection (Section 8).

When entering a storage vessel that has previously contained any type of asphalt product, it is recommended that the atmosphere be monitored for the presence of hydrogen sulfide. See Composition Information (Section 2) for exposure limits.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

Consult NIOSH (National Institute for Occupational Safety and Health) for more information on guidelines for engineering controls for asphalt pavers.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Keep away from eyes. Eye contact can be avoided by wearing a face shield and safety glasses with side shields, or a face shield and safety goggles.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Use appropriate chemical protective gloves when handling at room temperature Use gloves that protect against thermal burns when handling at high temperatures. At a minimum, wear long-sleeved cotton shirt buttoned at the collar and full-length cotton pants. Synthetic fibers tend to melt and adhere to the skin when heated. Do not fold back or roll up cuffs. Additional protection may be necessary to prevent skin contact including use of apron, armcovers, face shield, or boots.

Strict hygiene practices are essential.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Inhalation of mists and vapors should be avoided at all times.

A NIOSH/MSHA approved air purifying respirator with an appropriate cartridge, canister, and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. The use of air purifying respirators is not recommended where hydrogen sulfide levels may exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

9 PHYSICAL & CHEMICAL PROPERTIES

ODOR AND APPEARANCE

DARK BROWN WATER-BASED LIQUID WITH MUSTY ODOR

Boiling Point	212 °F (100 °C)
Specific Gravity	0.9-1.1
Melting Point	ND
Percent Volatile	ND
Vapor Pressure	23.76 mmHg AT 77 °F (25 °c) SAME AS WATER
Vapor Density	ND
Bulk Density	ND
Solubility in Water	DISPERSIBLE
Octanol/Water Partn	ND
Volatile Organic	ND
Pour Point	ND
pH Value	8-12
Freezing Point	< 32 °F (<0 °c)
Viscosity	10 - 700 SFS AT 77 °F (25 °c)
Evaporation Rate	ND
Molecular Formula	ND
Molecular Weight	ND
Chemical Family	ANIONIC ASPHALT EMULSION
Odor Threshold	ND

1 0 STABILITY& REACTIVITY

STABILITYIINCOMPATIBILITY

Incompatible with oxidizing agents. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, hydrogen sulfide and irritating vapors.

11 TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact.

TOXICOLOGICAL DATA

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: kidney, liver, skin, spleen, thymus, lymph nodes, blood elements, testes, bone marrow, respiratory and nervous systems.

Exposure to components of this material may cause the following specific symptoms, depending on the concentration and duration of exposure: anemia, pallor, fatigue, oil acne, melanosis, loss of appetite, and anxiety.

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage (sometimes referred to as solvent or painter's syndrome). Intentional misuse by deliberately concentrating and inhaling this product may be harmful or fatal.

Irritating and toxic hydrogen sulfide gas may be found in confined vapor space. WARNING - "rotten egg " odor of hydrogen sulfide is not a reliable indicator for warning of exposure since odor fatigue readily occurs. Odor sensation lost immediately at concentrations greater than 150 ppm. Avoid exposures to hydrogen sulfide gases. Hydrogen sulfide causes rapid death due to metabolic asphyxiation. Case reports suggest that toxic amounts can enter the body through a punctured eardrum, even while wearing some types of respiratory protective equipment.

CARCINOGENICITY

This material contains petroleum asphalt. IARC has determined that there is inadequate evidence that undiluted, air-refined asphalt is carcinogenic to experimental animals, and there is only limited evidence that undiluted steam-refined and cracking-residue asphalts are carcinogenic to animals. Additionally, IARC has concluded that there is inadequate evidence that asphalts alone are carcinogenic to humans.

In solution, solvent extracts of asphalts can produce skin cancer in animals following prolonged and repeated contact. IARC has concluded that there is sufficient evidence for the carcinogenicity of asphalt extracts in experimental animals. Therefore, asphalts that are diluted, dissolved, or liquefied in hydrocarbon solvents, may also be implicated as potentially carcinogenic. While brief or intermittent skin contact with this type of product is not expected to cause harm, those workers who do not practice good personal hygiene and who are exposed repeatedly via skin contact may be at risk. It is important that all precautionary measures outlined in this MSDS be followed.

Asphalt fumes from heated material may cause eye, respiratory tract and skin irritation, as well as nausea and headaches. These fumes may cause dermatitis and acne-like lesions as well as mild keratoses on prolonged and repeated exposure. Condensed asphalt fumes, which have been generated under laboratory conditions and which are chemically different from those found during typical asphalt operations, have been reported to cause bacterial mutations as well as cause skin tumors in animals following repeated, lifetime skin contact without washing. However, inhalation of asphalt fumes by laboratory animals, during controlled studies, did not produce lung cancer. Additionally, human studies to date have not established a link between asphalt fume exposure and lung cancer.

This material may contain trace amounts of polynuclear aromatic hydrocarbons (PAHs) as naturally occurring constituents of crude oils from which asphalt is derived. Repeated or prolonged exposure to some PAHs has been associated with effects to the liver, kidneys, immune system and skin with warty growths, skin burns, pigmentation of the bare skin and cornification of the surface layers. They have also been associated with anemia, photosensitivity, leukoplakia (white patches on the tongue, cheek or gums), edema of the eyelids, conjunctival hyperemia, lacrimation, photophobia, headache, loss of appetite, vital powers and strength, cough, bronchitis and nausea. Some PAHs have been shown to be carcinogenic after prolonged or repeated skin contact in laboratory animals.

This material may contain untreated or mildly treated mineral oils. This material may contain solvent extract oils. IARC has determined that there is sufficient evidence for the carcinogenicity of these oils in experimental animals.

Some of the components of this product are hazardous in the dust form. These components include crystalline silica, which is a suspected human carcinogen. However, because of the physical nature of this product, dust generation is not expected, so the health effects associated with the dusts are unlikely to occur.

TERATOGENICITY, MUTAGENICITY, OTHER REPRODUCTIVE EFFECTS

This product may contain components which may cause adverse reproductive and/or development effects.

Pregnant women may be at an increased risk from exposure. Consumption of alcoholic beverages may enhance toxic effects.

SENSITIZATION TO MATERIAL

The possibility of allergic sensitization should be considered.

PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing medical conditions which may be aggravated by exposure include disorders of the kidney, liver, skin, blood, respiratory and nervous system.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ND

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This product, as supplied, when discarded or disposed of, may be a hazardous waste according to Federal regulations (40 CFR 261). Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

14 TRANSPORT INFORMATION

BILL OF LADING - BULK (U. S. DOT)

ND

See Bill of Lading for proper shipping description, or consult 49 CFR 172.101 for specific shipping information.

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

A release of this product, as supplied, is exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321 (b)(3) and (5). Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to report may result in substantial civil and criminal penalties.

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

This product contains one or more substances listed as hazardous, toxic or flammable air pollutants under Section 1 1 2 of the Clean Air Act.

There may be specific regulations at the local, regional or state/provincial level that pertain to this product.

STATE REGULATIONS

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

SARA TITLE III RATINGS

Immediate Hazard:	X	Delayed Hazard:	X	Fire Hazard:	-	Pressure Hazard:	-
Reactivity Hazard:	-						

NFPA RATINGS

Health	1	Flammability	1	Reactivity	0	Special Hazards	0

HMIS RATINGS * - indicates chronic health hazard

Health	2*	Flammability	1	Reactivity	0

16 OTHER INFORMATION

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Current Revision Date: 16 February 2005 Replaces Sheet Dated: 2 August 2002

Appendix F

Comment and response.

Internal comments:

Mike,
I received your message this morning and have reviewed the document. I made some comments on pages 2, 3 and 4. Move your cursor over the yellow callouts to see the comments.
(taken from document attached PDF)

Pg 2 - Remove, delete. Curve will not be left in place. CE has committed to removal of pavement upon completion of left turn lane construction.

Pg- 3 Correction. No construction work has been accomplished on south side of curve.

Pg-4 Remove "to accommodate leaving the curve from Tula Peak to Test Track road in place.

Michael Davalos P.E. YD-02
Acquisition Management Engineer
1521 Test Track Road
Holloman AFB, NM 88330
Office (575) 679-2391
Fax (575) 679- 2906

CEAO RESPONSE

It was the original intent to remove the curve, but no engineering or other documents currently support the contention that the curve is to actually be removed. The removal of the curve will not have any adverse impact on the lost river and is not prohibited. Removal of the curve would have helped keep the by-pass lane at the agreed upon length.

The area to the south of the curve was disturbed by construction equipment abet lightly. It was not part of the agreed to disturbance under CATEX and it contributed to storm water concerns during the first phase of the operation. mjj

Mike,

After reading this document I found references that said 842 Test Group. This should be changed to say 846th Test Squadron. Also there was one area that is still not clear to me. In Appendix A the following is stated:

"FWS: how did construction expand beyond what was approved? Where did the process fail? How can we stop this from occurring again?

HAFB: work was contracted to SABER from Test Track (HAFB Tennant). HAFB is looking into why inspections did not notice and how to get better communication with the contractor. Expansion into Essential Habitat was noted by Lonnie Britton, HAFB, during routine work in area, and immediately follow-up."

The way this is written, it indicates that Test Track initiated the contract with SABER. To the best of my knowledge after speaking to Track personnel, the only thing that Test Track did was send money to accomplish the project after the Test Track commander's visit with CE.

Thanks
Art

CEAO RESPONSE

The typo for the 846th was noted by several respondents and is fixed throughout the text.

As to the questions posed, there is only one honest response: we messed up. This was a project taken on and funded outside of normal channels, responsibilities were accepted by the 846th that they didn't fully understand, and 49CE and SABER did not communicate effectively.

Mike,

Two things:

1. We must use the prime coat to build the road. That is part of standard road construction. Without it, the road may fail prematurely. The prime coat is applied to the dirt surface one day before the asphalt pavement. Once the asphalt is placed on top of it, there's no way it can wash away. The EA needs to include the application of the prime coat.

2. One of the clauses you highlighted from the agreement with the state says the following: "Restrict all non-emergency activities, including vehicular traffic, except on existing roads, with the exception of natural and cultural resource management, conservation and research (to include, but not be limited to pupfish monitoring, research and conservation activities), within Essential Habitat, with consultation of HAFB Natural Resource Managers."

What part of this clause prevents us from making repairs to the existing road that runs through the Essential Habitat? It says only that we must restrict traffic through the habitat. It doesn't say that we can't make repairs to the existing road. All traffic to the Test Track will still be restricted to the existing road, which is all that the agreement says. I don't see how the proposed road widening project violates this clause, especially considering that it will extend only 10 meters into the habitat.

John (John Hamann, project engineer, SABER 49CES/CEPM)

CEAO RESPONSE

First, the EA is a series of environmental impacts followed by expert opinion as to the expected consequences. The proponent (or engineer) must choose and address the consequence. The consequence may be mitigated, reduced, totally engineered out or eliminated by making another choice. Or the consequence may be fully embraced and the penalties paid. The proponent gets a choice.

Second, the disturbed area is 131 feet into the critical habitat. The proposed road surface is much less than 40 feet inside the critical habitat. The map on page 3 is to scale and on site measurements could reduce this to a bit less if you run the pavement hard up to the limits.

Third, putting a known toxic sealant on the ground within the critical habitat is asking for problems. Again, outside of that area, the concern is a flood plain. Is the binder absolutely necessary over this area? The original proposal was for the embankment and north. There is no objection to using the sealant there.

As to the Pupfish agreement, it is included in its entirety. I recommend reading it.

Mjj

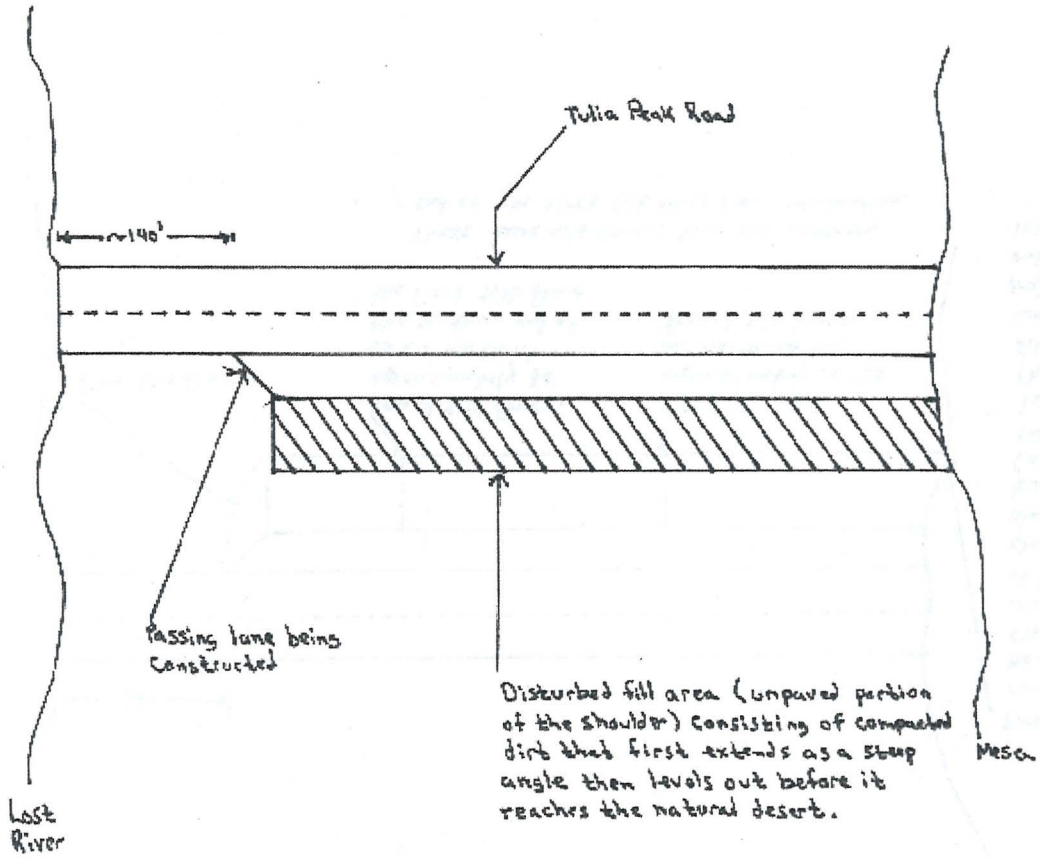
APPENDIX G

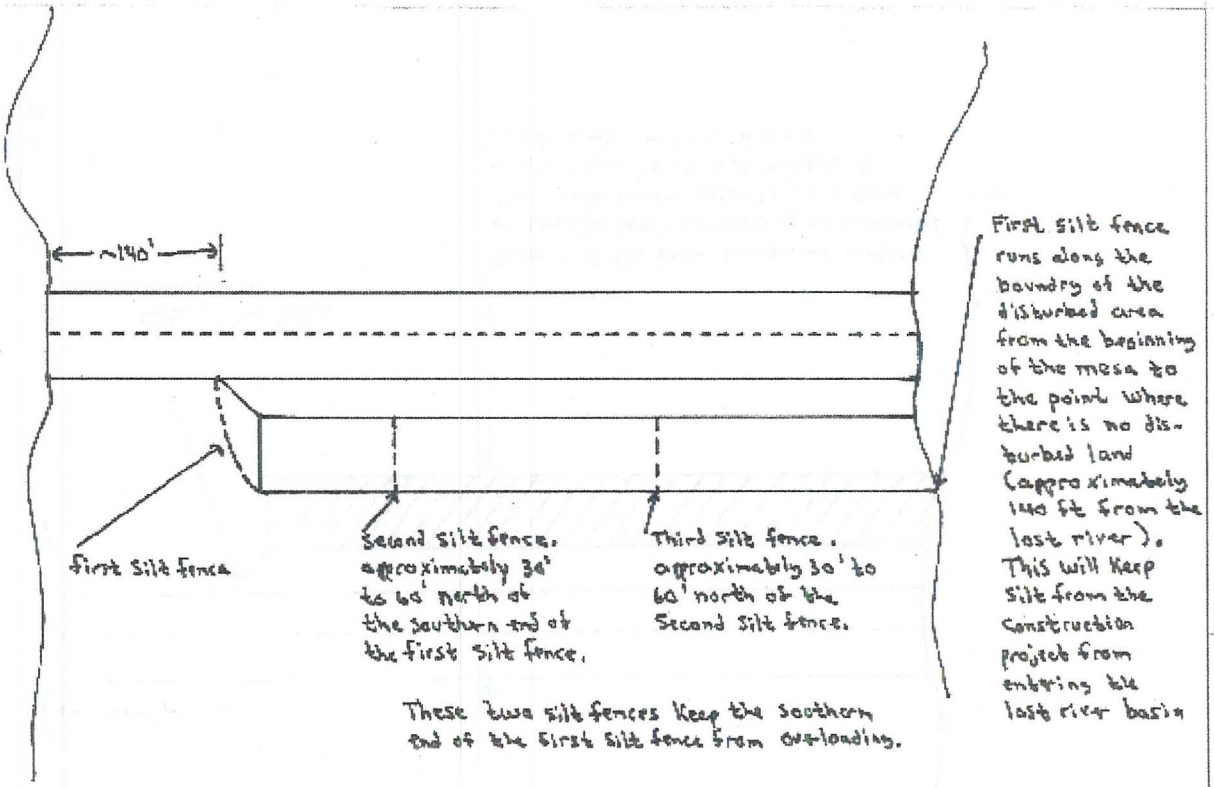
SWPPP REVISION LOG

Revision #1: On Monday, November 10, 2008, this project was shut down because Construction activities entered an exclusion Zone designed to protect Pupfish, a listed species of concern for the State of New Mexico. Construction activities entering the exclusion Zone also violated this SWPPP.

On Monday, November 24, 2008, three silt fences will be installed per the attached drawings and instructions. These silt fences will keep silt out of the Jack river as well as the Jack river basin.

Will Osmond 19 NOV 08


Tulia Peak Road
~140'
Passing lane being Constructed
Disturbed fill area (unpaved portion of the shoulder) consisting of compacted dirt that first extends as a steep angle then levels out before it reaches the natural desert.
Mesa
Lost River



APPENDIX G
SWPPP REVISION LOG

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On Monday, November 24, 2008, three silt fences will be installed per the attached drawings and instructions. These silt fences will keep silt out of the last river as well as the last river basin.

Will Dearmore 19 NOV 08

A silt fence should be erected in a continuous fashion from a single roll of fabric to eliminate unwanted gaps in the fence. If a continuous roll of fabric is not available, the fabric should overlap from both directions only at stakes or posts with a minimum overlap of 6 inches. A trench should be excavated to bury the bottom of the fabric fence at least 6 inches below the ground surface. This will help prevent gaps from forming near the ground surface that would render the fencing useless as a sediment barrier.

The height of the fence posts should be between 16 and 34 inches above the original ground surface. If standard strength fabric is used in combination with wire mesh, the posts should be spaced no more than 10 feet apart. If extra-strength fabric is used without wire mesh reinforcement, the support posts should be spaced no more than 6 feet apart (VDCR, 1995). The fence should be designed to withstand the runoff from a 10-year peak storm event, and once installed should remain in place until all areas up-slope have been permanently stabilized by vegetation or other means.

Limitations

Silt fences should not be installed along areas where rocks or other hard surfaces will prevent uniform anchoring of fence posts and entrenching of the filter fabric. This will greatly reduce the effectiveness of silt fencing and can create runoff channels leading off site. Silt fences are not suitable for areas where large amounts of concentrated runoff are likely. In addition, open areas where wind velocity is high may present a maintenance challenge, as high winds may accelerate deterioration of the filter fabric. Silt fences should not be installed across streams, ditches, or waterways (Smolen et al., 1988).

When the pores of the fence fabric become clogged with sediment, pools of water are likely to form on the uphill side of fence. Siting and design of the silt fence should account for this and care should be taken to avoid unnecessary divers on of storm water from these pools that might cause further erosion damage.

Maintenance Considerations

Silt fences should be inspected regularly and frequently as well as after each rainfall event to ensure that they are intact and that there are no gaps at the fence-ground interface or tears along the length of the fence. If gaps or tears are found, they should be repaired or the fabric should be replaced immediately. Accumulated sediments should be removed from the fence base when the sediment reaches one-third to one-half the height of the fence. Sediment removal should occur more frequently if accumulated sediment is creating noticeable strain on the fabric and there is the possibility of the fence failing from a sudden storm event. When the silt fence is removed, the accumulated sediment also should be removed.

Effectiveness

USEPA (1993) reports the following effectiveness ranges for silt fences constructed of filter fabric that are properly installed and well maintained: average total suspended solids removal of 70 percent, sand removal of 80 to 90 percent, silt-loam removal of 50 to 80 percent, and silt-clay-loam removal of 0 to 20 percent. Removal rates are highly dependent on local conditions and installation.

Cost Considerations

Installation costs for silt fences are approximately $6.00 per linear foot (USEPA, 1992). SWRPC estimates unit costs between $2.30 and $4.50 per linear foot (SWRPC, 1991).

Appendix H

Action Plan to
Repair/Alter Intersection of
Tula Peak & Test Track Roads

Overview

The construction project to modify the intersection between Tula Peak and Test Track Roads was put on hold in November 2008. The project was put on hold due to the contractor's encroachment into the Pupfish habitat area (Lost River).

In order to resume road construction an action plan had to be developed. The action plan is designed to minimize contaminants, and sediments from entering the Lost River. Responsible parties will be assigned to specific tasks with associated timelines.

Goals

The overall goal of this action plan is to develop procedures/actions that minimize/prevent contaminants, and sediment from entering the waters of Lost River.

Actions

- Hold meeting with Environmental, CE, 46TG, 846TS to discuss course of action to get the construction back on track while mitigating risks to the Pupfish habitat.
    - This meeting occurred on 17 Nov 2008.
- Hold site meeting with Environmental, CE, 46TG, 846TS to identify sources of silt contamination and potential best management practices (BMPs) to minimize contamination.
    - This meeting occurred on 20 Nov 2008
- Install Silt Fence
    - Silt Fence was installed on 24 Nov 2008. During installation it was noted that Filter Socks need to be used is certain locations where the fence could not be installed (due to steepness of grade).

- Install Filter Socks
    - Vendors contacted – Installed by 12 Feb 2009
- Develop inspection plan to ensure Silt Fence and Filter Socks are working properly, need to be replaced, and if additional fence or socks need to be installed in new areas of eroded ground.
    - This will be incorporated into the Storm Water Pollution Prevention Plan (SWPPP) Bi-Weekly inspections of the affected area (until natural vegetation is established
- Seed affected area with native vegetation.
    - Recommended Seed Mix (per acre) for the area: Sporobolus airoides - 1 lb/ac, Sporobolus cryptandrus - 1/2 lb/ac, Atriplex canescens -6 lb/ac, Sphaeralcea (species) - 1/4 lb/ac,
    - This will be done NLT March 1 09 or as directed by 49CES/CEAN staff Natural Resources Planner; Lonnie Britton. Progress will be annotated in the Bi-Weekly inspections as mentioned above.
    - For the disturbed area adjacent to the road, and near the pupfish habitat, ensure no perennial weeds exist. Pull all weeds that are present. For the area that is on the mesa above the lost river drainage area, no site preparation is required. Site preparation will be performed by the 46 Test Group.
    - At last inspection, there were less than ten that were noted. Loosen the top soil by raking the area. DATE_____
    - Even distribution of seed is essential for good turf establishment. This is best accomplished with a mechanical seeder. Apply half the seed mixture in a north-south direction, and the remainder in an east-west direction. After sowing the seed, ***lightly*** rake the seed into the soil to a depth of no more than one eighth inch. Seeding will be performed by the 46 Test Group.
    - For the area adjacent to the road, where there is a steep incline, cover the seeded area with a turf blanket in the manner prescribed by the manufacturer. For the area between the incline and the silt fence, use standard straw, in accordance with New Mexico Department of Transportation guidelines. Also use standard straw as cover for any disturbed land that is left over from construction activities on the mesa

above the lost river drainage area. Cover will be installed by the 46 Test Group.

- Soak the seeded area thoroughly, in the early morning, at first. If a newly seeded area is watered in the evening, there is a chance for the new seeds to rot. Watering in the morning allows enough of the water to evaporate to prevent seed rot. It should be noted that improper watering causes more failure of newly seeded lawns than any other single factor. Continue to water at intervals in order to keep the top layer of soil moist constantly for good germination. The intervals will depend upon the temperature and humidity at the time of seeding. Continue watering for approximately four to six weeks. Watering will be performed by the 46 Test Group under the supervision of the 49 CES/CEAO biologist.
- Germination of the grass/native shrub mix is expected to show in 2-4 weeks. Watering to assist in germination will be required and will be continued until the plants are established as verified by Britton. (Approximately 6 weeks total)
- By the fourth week of April, Britton will evaluate the area for 70% cover as prescribed by the SWPPP. If seeding is successful matting/straw and filter socks will be abandoned/left in place. Silt fence will be left in place and maintained through the 09 monsoon season and removed in September 09.
- Since this area is considered protected habitat, the success of stabilization will be determined collectively by the 46 Test Group, 49 Civil Engineering Squadron, The U.S. Fish & Wildlife Service, and the New Mexico Game & Fish.

- Reseeding will be required if initial seeding is not successful (<70% stabilization). Another round of seeding will be attempted in spring of 2010.
  - Silt fencing will be maintained until at least spring of 2010. Removal will be coordinated with Britton to ensure soil is stable enough to meet Pupfish agreement requirements.
- Other measures or abandonment will be agreed to and documented by 49CES/CEAN and 846 TS.
- After these stabilization steps have been achieved, and, approved by all parties, both the Test Group and Civil Engineering will submit Notice of

Terminations (NOT) to the EPA in accordance with NPDES regulations (2008 Construction General Permit, http://cfpub.epa.gov/npdes/stormwater/cpg.cfm).

- It should be noted that the silt fence can be removed any time after the NOT has been submitted to the EPA. However, as a safety factor, it should be left in place until at least the spring of 2010 (approximately march). 46 Test Group will remove the silt fence at the appropriate time.
- It should also be noted that during a severe drought, even if these actions are accomplished, there may be the appearance that stabilization was not attempted. However, two of the actions being implemented, will help mitigate the consequences of a severe drought. One of these is the installation of the turf blanket. This is a permanent installation with wooden stakes. This will help prevent erosion from occurring on the incline. The other is the installation of the silt fence. This should keep the straw and soil from the area between the incline and the silt fence from entering the lost river. In addition to these measures, continual watering of the seeds for approximately four to six weeks will help develop a root system for the grass and native vegetation that was planted. When the drought ends and rain does occur, the vegetation will grow.