DRAFT FINAL

ENVIRONMENTAL ASSESSMENT

FOR THE

AUXILIARY AIRFIELD

U.S. AIR FORCE

FEBRUARY 18, 1993

47th FLYING TRAINING WING

Laughlin Air Force Base, Texas

Air Force
Environmental Planning Division
(HQ USAF/CEVP)

Room 5B269
1260 Air Force Pentagon
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16 JUL 93

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Responsible Agency: United States Air Force
Air Training Command

Proposed Action: Construction of Auxiliary Airfield
Laughlin Air Force Base, Texas

Responsible Individual: Mr. Ed Cullins
United States Air Force
Air Training Command
Laughlin Air Force Base, Texas
(512) 652-3240

Designation: Draft EA

Abstract: The need for an auxiliary airfield to fulfill the Laughlin Air Force Base mission is established. The EA presents the problems associated with the existing auxiliary airfield and describes the parameters associated with site selection process and evaluates alternative actions. This EA also identifies differential impacts to cultural resources, vegetation, wildlife, water resources and socioeconomics.

Date which comments must be received: _____

SUMMARY SHEET FOR DRAFT ENVIRONMENTAL ASSESSMENT

AUXILIARY AIRFIELD, LAUGHLIN AIR FORCE BASE, TEXAS

(X) Draft ( ) Final

1. Purpose and Need

A new auxiliary landing field, crucial to the training mission of Laughlin Air Force Base, Del Rio, Texas, has been proposed. The field would be located in Kinney County, Texas, approximately five miles south of Spofford, Texas, adjacent to State Highway 131. The field would be used for training student pilots using T-37 jet aircraft. A severe bird strike hazard, increasing civilian aircraft traffic and runway maintenance at the present leased airfield near Eagle Pass, Texas are the primary problems which contribute to the need for a new government owned and controlled airfield. Pilots, on training sorties, would use the proposed airfield only during daylight hours weather permitting.

2. Summary of Alternatives

Five alternatives of the proposed action were considered:

- o The no action alternative would force a continuation of the existing bird strike hazard, civilian air traffic, commercial use of the area/facilities and a lack of runway maintenance.
- o Purchasing the existing airfield would allow the Air Force to

perform necessary maintenance but the bird strike hazard and conflicts with civilian aircraft would remain.

- o Purchasing the existing airfield and removing/relocating the waste products from the neighboring meat packing feedlot and landfill operations would reduce the bird strike hazard; however, joint use problems would still exist.
- o Purchasing and removing the meat packing operation and county landfill would minimize or remove the bird strike hazard. However, there would still be the possibility of joint military/civilian aircraft conflicts. Additionally, this alternative involves adverse socioeconomic impacts related to loss of 200-250 jobs.
- o Construction of a new auxiliary airfield would eliminate the bird strike hazard and would eliminate any maintenance problem or joint use conflicts with civilian aircraft. In addition, more efficient use of fuel would result from operating at an auxiliary airstrip closer to Laughlin AFB. Maverick County could retain the existing airfield for its own development plans and the meat packing and landfill operation could remain in place. Four alternative locations have been considered.

3. Summary of Environmental Impacts

Direct, adverse environmental impacts would include fugitive dust and noise during construction activities; removal of approximately 580 acres of mesquite-grassland habitat; and increased aircraft noise in the immediate area. Minimal impacts to ambient air quality or existing water supplies are

predicted. Indirect effects could occur from accidental fires or spills of fuel or chemicals. Reductions of available rodent and other types of prey could directly affect predators. Beneficial effects would include increased training flight safety/economy and some potential socioeconomic benefit from the construction project.

4. Conclusions

Results of the mission impact assessment indicate the need for a new government owned and controlled auxiliary airfield to permit Laughlin Air Force Base to carry out its mission. Culturally and environmentally the candidate sites are generally similar. The Newman site is preferred operationally and from a construction standpoint for the proposed auxiliary airfield. It is also preferable environmentally from a cultural, noise and biological standpoint.

5. Areas of Controversy

Most of the controversy associated with the EA is related to noise impacts to adjacent property. Absentee landowners have expressed a concern that property values could decrease as a result of impacts on cattle ranching and hunting. However, Air Force experience at Laughlin and other Air Force bases does not support the prediction of significant noise impacts to wildlife or domestic animals.

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I. PURPOSE AND NEED

A. Introduction

The 47th Flying Training Wing at Laughlin Air Force Base (AFB) near Del Rio, Texas (Figure I-1) is responsible for undergraduate training of pilots for the United States Air Force (USAF). Training at Laughlin is contingent on the availability and use of an auxiliary landing strip for T-37 practice landings. Such a landing strip is currently under lease from Maverick County. It is known as Laughlin AFB auxiliary airfield number 1 and is located approximately 12 miles northwest of Eagle Pass near the intersection of Highway 277 and Highway 131. However, there are several operational, economic and environmental problems associated with the continued use of this facility. This Environmental Document will evaluate alternative solutions to these problems with respect to any socioeconomic and environmental consequences that might result.

B. History

Laughlin AFB, honoring 1st Lt. Jack T. Laughlin (a Del Rio native), came into existence in 1942. It has consistently been used as a training base for B-26 bombers, F-84 fighters, T-33 trainers and U-2 reconnaissance planes during both war and peace time. Laughlin AFB remains a significant contributor to national aeronautical progress with the initial introduction of parasailing into pilot training and employment of state of the art flight simulators with computer generated imagery.

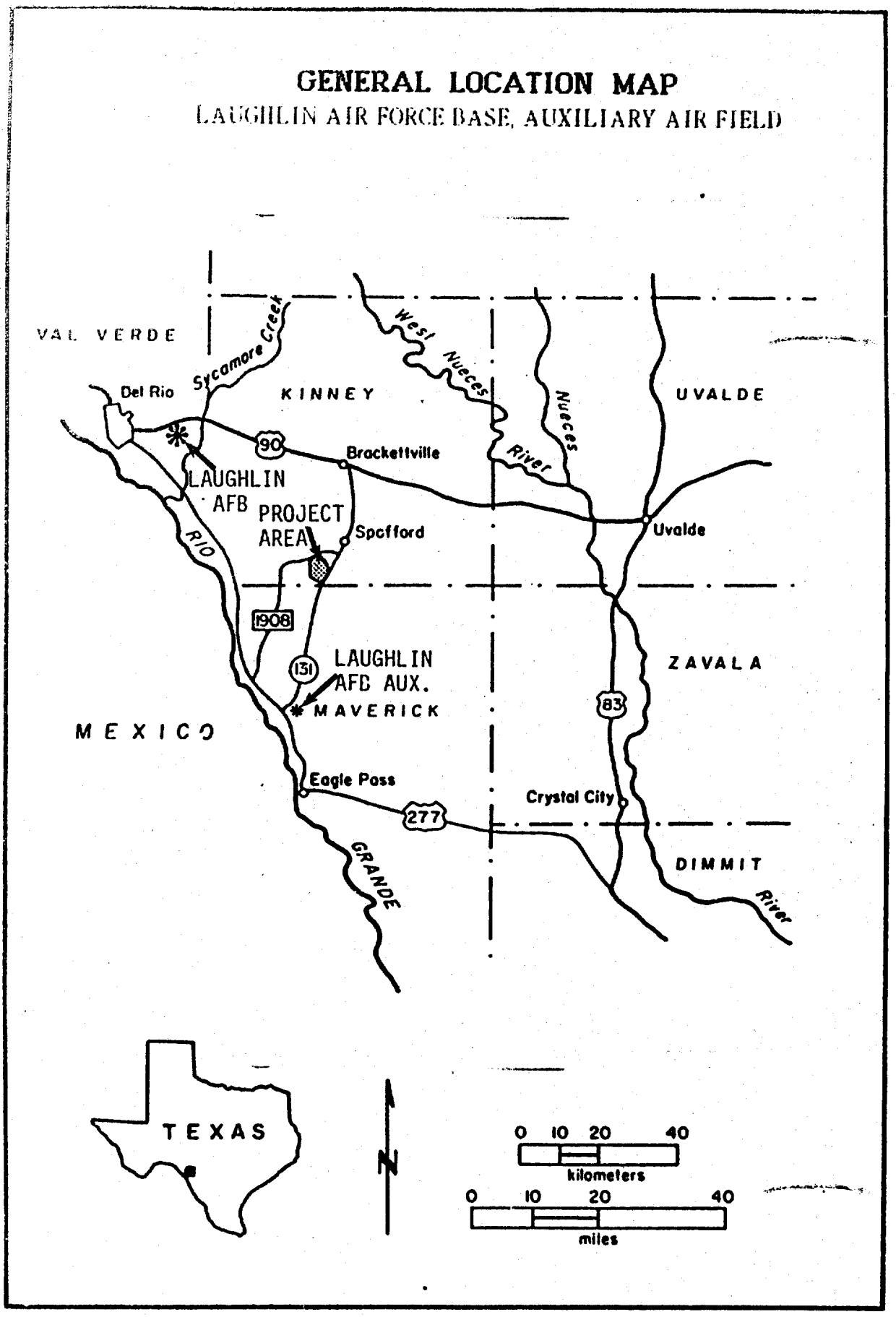


Figure I-1. General location map.
Source: Prewitt and Associates, Inc.(1)

C. Current Mission

The current mission at Laughlin AFB is to provide undergraduate pilot training by the 47th Flying Training Wing of the Air Training Command. It also provides normal base support for operation and maintenance of assigned/attached unit organizations. This includes support activities of administration, personnel, transportation, security, finance, communications, supply, maintenance, medicine and services.

The 47th Flying Training Wing is responsible for the undergraduate training program which consists of 81 hours of T-37 jet aircraft flying time and 108 hours of T-38 jet aircraft flying time per pilot. The wing produces an average of 390 pilots a year with approximately 400 pilots in training at any given time who log about 70,000 flying hours annually. The training program is 52 weeks long.

Major tenants at Laughlin AFB and their missions include:

- The Detachment 20, 24th Weather Squadron - provides meteorological aerospace environmental staff and operational support services required by local flying wings/squadrons and other U.S. Government agencies.
- Area Defense Counsel - provides a completely independent defense council, free from any command influence, to those military personnel involved in any military justice problem.
- 2108 Communications Squadron - operates and maintains all Laughlin AFB

communications including voice and message services, air traffic control, air navigation aids and support data automation.

- o 3114 Management Engineering Detachment - operates as an extension of headquarters Air Training Command (ATC) under operational control of the Director of Manpower and Organization to provide management consultant services to base operating officials.
- o Field Training Detachment - provides job oriented system, associate and aircrew familiarization training on specific aircraft systems and associated aerospace ground equipment.
- o AF Office of Special Investigations - investigates matters that fall within its overall mission including: providing criminal, counter terrorism, internal security and special investigative services; personal protective services and operations; and information pertinent to base security and resource protection.
- o Defense Reutilization and Marketing Office - receives excess, surplus and scrap property and prepares this property for redistribution/utilization, transfer, donation, sale or destruction.
- o Defense Investigative Services - conducts, directs, and controls all personnel security investigations and performs all other investigative functions as directed by the District Commander.

D. Purpose

The mission of the 47th Flying Training Wing requires an auxiliary airfield because of Laughlin AFB's high volume of traffic and the need to fly both left and righthand patterns in the T-37. The side by side seating in the T-37 gives a different visual picture for left and righthand final turns, requiring

practice in both directions for flight proficiency. The T-37 patterns at Laughlin AFB are always toward the southwest side of the runway to avoid other runway traffic patterns. The patterns at the current auxiliary airfield are toward the northeast. Whatever the wind direction and subsequent pattern at Laughlin AFB, both right and lefthand complementary flight patterns are available at the auxiliary airstrip. For the current training program, approximately 30 percent of all T-37 patterns are flown at Laughlin auxiliary airfield. This decreases congestion at Laughlin AFB, creates a safer and more productive training environment and allows accomplishment of both right and lefthand patterns.

E. Need

It has become progressively more difficult to effectively operate and maintain the current auxiliary airfield 12 miles northwest of Eagle Pass. Specific hazards and/or conflicts are discussed below.

1. Bird Strike Problem

The second of two Bird/Aircraft Strike Hazard (BASH)(2) surveys was conducted at the Laughlin auxiliary airfield on 18-20 March 1985. The number of bird strikes had increased coincidental to the re-opening of the Alta Verde Beef Packing Plant adjacent to the runway. A bird strike is defined as a collision between a bird in flight and an aircraft also in flight. Between 1981 and 1985, 20 bird strikes were reported at Laughlin auxiliary airfield. Most recently, 14 were reported in the 18 months prior to the BASH study. Among

its findings and recommendations the BASH study identified these primary sources of bird attraction:

- o A paunch field west of the auxiliary airfield runway where animal matter and stomach contents are plowed under attracting vultures
- o Oxidation/settling ponds within 1,000 feet of the northwest end of the runway where highly organic wastewater and smaller waste is contained attracting waterfowl, particularly sandhill cranes
- o Irrigated fields located next to the west end of runway 12 which provide a source of food for small birds and water fowl
- o Stockyards/feedlot about two miles northwest of the approach to runway 12 provides food source for numerous bird species
- o Maverick County landfill located 4,000 feet from the end of runway 12 and directly under a right base turn for this runway attracts a variety of bird species

During 1986, birds caused restrictions (delays and cancellations) to flying on 44% of the available flying days at the auxiliary airfield, versus 2.8% at Laughlin AFB. During one two month period, there were restrictions (delays and cancellations) 71% of the days at the auxiliary field, versus 7% at Laughlin AFB. Maverick County and Eagle Pass have applied to expand the existing landfill operation, bringing the landfill to within 1,000 feet of the runway centerline, increasing the bird hazard.

2. Joint Use Conflicts

There is continuing pressure for increased joint use which permits private civilian aircraft landing rights at the auxiliary airfield. These civilian flights constitute a safety problem and training delay. Traffic counts of private civilian flights into the auxiliary airfield during training operations were 47 in 1986 with expectation of increase in the future. Each civilian flight into Laughlin auxiliary airfield requires all training flights to hold for a minimum of five minutes, which is approximately half the time a training sortie would normally spend at the auxiliary airfield. No training can be accomplished during this period, and this can result in having to re-fly an entire sortie.

There is an approved and established procedure (Appendix A) for civilian aircraft to land at Laughlin auxiliary airfield according to the USAF/Maverick County lease agreement (Appendix B). However, in 1986, 36% of the aircraft which landed there were not on the approved list and 72% did not give the required advance notice.

Although the General Accounting Office (GAO)(3) generally found joint use of military airfields by civilians was feasible, the unique requirements of each airfield must be evaluated. Mixing dissimilar aircraft types in a dense student training environment is not a situation conducive to joint use. During military operations, a Runway Supervisor Unit (RSU) controls military aircraft, but cannot control civilian traffic. Traffic "advisories" (location and number, but not instructions) may be issued to civilian aircraft on Very High Frequency (VHF) radio. T-37s are only equipped with Ultra High Frequency

(UHF) radios. Therefore, neither type aircraft can hear advisories or instructions issued to the other aircraft. This is further complicated by some civilian aircraft not contacting the RSU.

3. Commercial Use

Over the past few years Maverick County officials have indicated their intent to develop the existing auxiliary airfield area into an industrial complex. Driven by a 30 to 40 percent unemployment rate, the county has been seeking ways to boost the local economy and "enhance the quality of life of its citizens". The Middle Rio Grande Development Council reviewed the socioeconomic aspects of Laughlin AFB buying the auxiliary airfield from Maverick County and deemed the sale unfavorable for county development. Small to moderate industries are developing along the Texas/Mexico border taking advantage of the high unemployment among residents of both sides. The availability of an existing airfield with commercial potential could make the Laughlin auxiliary airfield site more attractive to prospective industry.

4. Maintenance

Since Laughlin AFB does not own the auxiliary airfield, Laughlin AFB is limited in the funds available to maintain the airfield runway. According to the Pavement Repair and Economy Act of 1932, permanent repairs to leased property cannot exceed 25 percent of the annual lease fee without waiver from the Secretary of the Air Force.

In March 1982 an engineering team from the Air Force Engineering and Services Center conducted an investigation of the existing auxiliary airfield. The findings were that the strength values for runway, parking apron, and taxiways were quite low and early signs of pavement failure were noted. It was recommended that only light aircraft be supported (nothing larger than eight-passenger propeller-driven civilian aircraft) and that small business jets be excluded.

F. Proposed Action

The proposed action is to purchase a 600 acre tract of land approximately 25 miles southeast of Laughlin AFB and construct an auxiliary airfield. The preferred tract would be within a 3,995 acre area northwest of Highway 131 approximately five miles southwest of Spofford, Texas (see Figure I-1). Historical land use is cattle grazing and hunting leases.

A runway 6,000 feet long by 150 feet wide with 1,000 feet overrun on each end would be constructed. Its orientation would be northwest/southeast and virtually parallel to the primary runways at Laughlin AFB. In addition to the runway, the other facilities required would include an access road from Highway 131, a ramp area, a small fire station building, two runway supervisory units, electrical and telephone connections and a water supply. The entire airfield would be fenced with an 8-foot chainlink fence with 3-strand barb wire to restrict movement of animals associated with agriculture and ranching.

II. COMPARISON OF ALTERNATIVES

A. Description of Alternatives

Pilot training is currently affected in an adverse fashion because of a number of problems at the existing auxiliary airfield. These existing conditions, discussed in detail in the previous chapter, include: (1) a hazardous bird strike problem, (2) continuing pressure for more joint use of the airstrip by civilian aircraft, and (3) adverse public relations resulting from Maverick County's desire to convert the auxiliary airstrip to a commercial airstrip to promote increased utilization of the adjacent industrial park.

To address these problems, five alternative courses of action have been formulated and evaluated by the Air Force. Each addresses the need for a T-37 auxiliary training field differently, with varying degrees of emphasis on individual facets of the total problem. These alternatives, discussed in detail in the following paragraphs, are briefly:

- No action (continue operations under existing conditions);
- Purchase and repair the existing airstrip;
- Purchase and repair the existing airstrip with removal of bird strike hazard through waste disposal management;
- Purchase and repair the existing airstrip and purchase the packing plant for closure to remove bird strike hazard;
- Construction of new auxiliary airstrip devoid of serious bird strike hazard.

B. Formulation of Alternatives

1. No Action (Continue Existing Operations)

Continuing to lease the present auxiliary airfield without remedial action addresses none of the training impediments previously discussed. The bird strike hazard would remain at "unsafe and intolerable" levels (2), risking the lives of student and instructor pilots whenever the meat packing plant is in operation. The runway surface would remain in its current sub-standard condition since the Air Force is limited under the provisions of the National Economy Act (40 USC 278A and paragraph 28 AFR 87-1) in the amount of Federal dollars spent on maintenance of facilities under short-term lease (25 percent of annual lease fee). Although under special circumstances maintenance funding could be approved by waiver from the Secretary of the Air Force. Finally, the "No Action" alternative continues to frustrate Maverick County's expressed desire to convert the auxiliary airstrip to commercial use to help support development of the adjacent industrial park. The present joint use program results in an increasing number of interruptions to Air Force training and in less than satisfactory civilian use, satisfying neither party. (This may result in difficulty in negotiating another lease upon expiration of the current one (30 June 1989), possibly requiring condemnation litigation).

Costs of the "No Action" alternative include $23,000.00 per year in leasing fees and $1,500,000 in necessary runway/facility repairs to continue operation. This continues a substantial loss of both training time and quality, and a risk to human life.

2. Purchase Existing Airstrip (Purchase Only)

The Air Force could, either through a willing-seller agreement or condemnation proceedings, purchase the auxiliary airstrip. The estimated cost of purchase is $3.7 million for land acquisition and $1.5 million for needed runway re-surfacing (1986 dollars). Authorization to purchase the auxiliary field was unsuccessfully sought until fiscal year (FY) 1984; however, the action approved at that time was cancelled. Again in fiscal year (FY) 1987, the Air Force obtained purchase authorization; however, during the intervening period and before the purchase could be concluded, the problem of the bird strike hazard had reached alarming levels.

Because a "Purchase Only" alternative addresses only the joint use conflict and maintenance problems, and ignores both the bird strike hazard and need for the commercial/civilian airstrip, the Air Force determined that "Purchase Only" was no longer a viable alternative and considered several other actions.

3. Purchase Existing Field and Remove Bird Strike Hazard (Purchase/Remove)

In addition to the actions described in the "Purchase Only" alternative, there are specific actions which could be attempted by the Air Force to minimize or eliminate the bird strike hazard. This alternative would in some way require elimination of bird attractant by relocation of the sources, by an easement to restrict activities contributing to the source or by halting all industrial and disposal operations which contribute to this hazard.

The blood oxidation ponds and paunch fields of the plant are the primary attractant for vultures. The County open pit dump (adjacent to the runway), the nearby cattle feed lot and irrigated fields also encourage large flocks of birds to establish permanent habitation in the area.

There are a number of difficulties associated with the relocations which would be necessary to remove the bird strike hazard. The sheer volume of waste material involved is the biggest problem. The packing plant operation appears to be in compliance with current EPA and State regulations for solid waste management, and the County has held that is not financially able to relocate the facility. Availability of an alternative disposal site and associated logistical considerations, etc., are some of the other potential difficulties.

Agreements with the Alta Verde Beef Packing Company would have to be reached which would allow the government to manage waste disposal. Essentially a new waste disposal site would have to be located and permitted at a cost of approximately $4.3 million (1986). This brings the total cost of the "Purchase/Remove" alternative to approximately $9.5 million. This alternative, however, addresses all the project constraints except desire for civilian use of the airstrip. It also places the Air Force in the unfamiliar waste management business which is unacceptable.

4. Purchase Existing Airstrip and Packing Plant (Purchase/Purchase)

As an alternative to some of the costly relocations identified for the "Purchase/Remove" alternative, the Air Force investigated purchase and closure

of the packing plant. An easement could then be purchased which would restrict activities within the industrial complex detrimental to aviation. An appraisal of this expanded project including purchase of the 787 acre airstrip, relocation of the county landfill, purchase of the meat packing plant, needed runway repair and acquisition of safety easements produced a total estimated cost for the "Purchase/Purchase" alternative of approximately $13.5 million. It should be noted that this cost is for abandonment and relocation only of the existing county landfill. It does not include costs for unearthing and removing the existing landfill material.

In addition to the high cost, an additional adverse impact associated with the "Purchase/Purchase" alternative is that complete removal of the packing plant operation would eliminate 200-250 local jobs in an already-depressed economy with high levels of unemployment. Like the "Purchase/Remove" alternative, the "Purchase/Purchase" alternative ignores Maverick County's desire to use the auxiliary field as a civilian airstrip.

5. Construction of a New Auxiliary Airstrip

In light of the problems associated with all of the alternatives discussed to this point, one alternative for provision of a safe and acceptable auxiliary field stands out. Construction of a new field has the potential to eliminate the site-specific bird strike hazard associated with an airstrip located adjacent to a meat packing plant and open landfill. It would also eliminate the maintenance problem, since the Air Force would own the property, and would allow Maverick County to fulfill its desire for a civilian airstrip. It would terminate the existing $23,000 per year lease fee which the county is willing

to relinquish under the circumstances. Preliminary estimates indicated that, because of the relatively simple design requirements, construction of a new airstrip could be competitive with the other alternatives on a cost basis ($5,078,532.00).

A number of locational considerations exist, however, which restrict the siting of a new auxiliary airfield. These include distance from Laughlin AFB, available airspace and access corridors, reasonably level terrain and sparse population (4). The site identification task proved more difficult than originally anticipated because the airspace in this section of Texas is congested. Figure II-1 illustrates many of the airspace restrictions discussed in detail in the following paragraphs.

Locations to the west and south of Laughlin AFB (beyond the Rio Grande River) are not usable due to being in Mexico. T-38 aircraft use the airspace north of Laughlin, from the Rio Grande to a line from Laughlin to Rocksprings, Texas, and out to 90 NM. T-38s require approximately twice as much airspace as T-37s due to their faster speed, and this volume of airspace is available only to the north. This precludes moving T-37 operations to the north and placing the auxiliary field there, since there would be no place for the T-38s to operate. The area from the Rocksprings/Laughlin line south toward Highway 90 is used to allow civilian traffic to get to and from Del Rio without flying through the Laughlin MOAs, as a corridor for the Laughlin high altitude instrument approaches and by T-37s for instrument training. Instrument training consists of practicing various maneuvers in the training areas and flying simulated instrument approaches. The only facility available for T-37s to practice instrument approaches locally other than at Laughlin is at

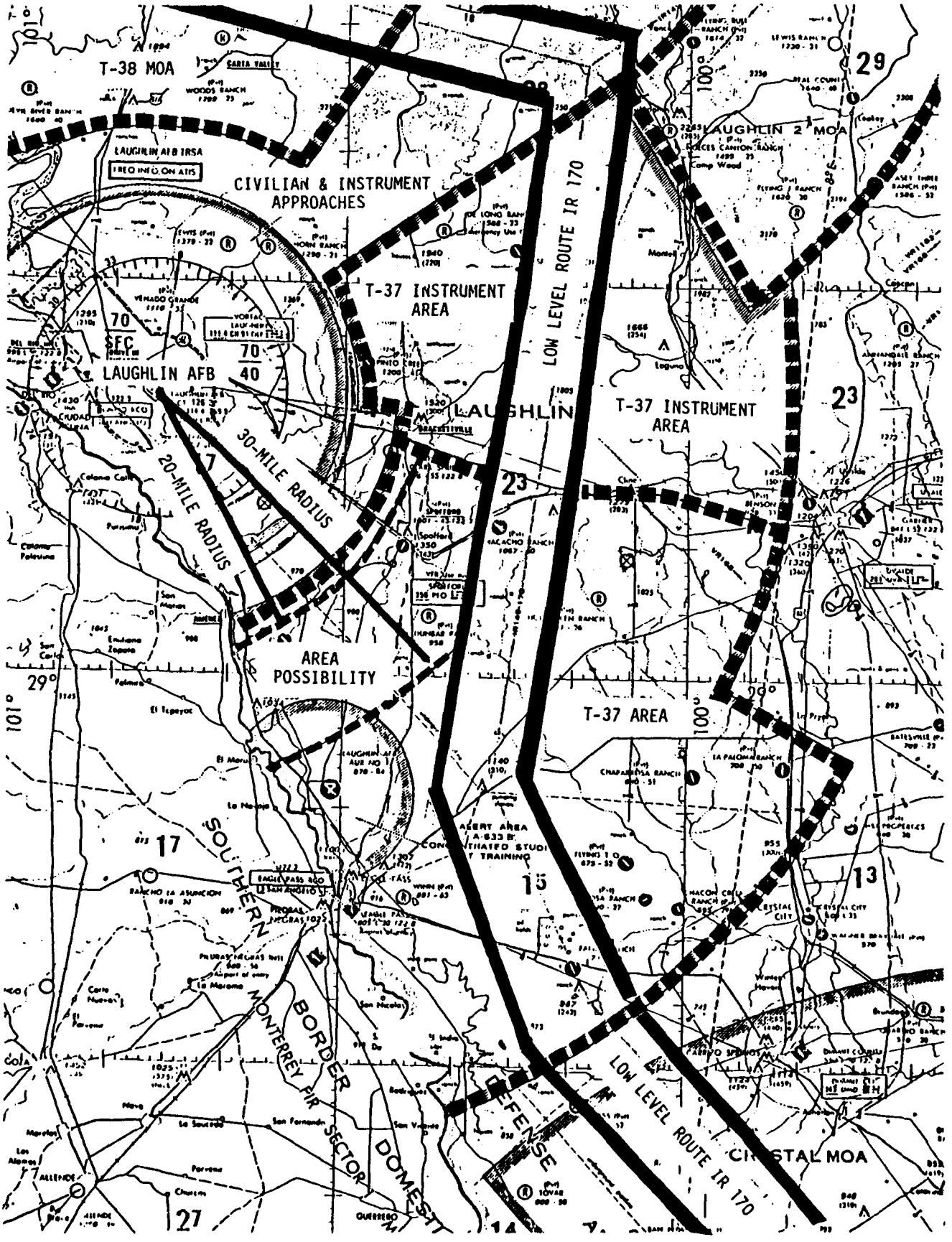


Figure II-1. Airspace restrictions near Laughlin Air Force Base.

Rocksprings. For fuel efficiency and optimum training, instrument training sorties must use the portion of the MOA north of Highway 90. This provides the most direct and efficient access to both Rocksprings and Laughlin upon completion of the required area work. Instrument sorties do not need access to the auxiliary airfield. Use of the areas south of Highway 90 for instrument training results in less efficient training due to more time spent "droning" to and from the area. Therefore, locating the auxiliary airfield north of Highway 90 would result in very inefficient operations.

The area south of Highway 90 is used primarily for T-37 contract sorties. The contact phase compromises approximately 50 percent of the T-37 training sorties. During these sorties the student is learning to land the aircraft, as well as basic flying skills in the areas such as stalls, spins and basic aerobatics. These are the sorties which must use the auxiliary airfield. They must have easy, efficient access to the field both from Laughlin and from the MOA in order to allow flexibility in mission profiles and to maximize training. The present auxiliary airfield, besides its other problems, is located on the edge of the MOA. This provides for very inefficient access to some of the available airspace, with resulting inefficiency and wasted fuel. The auxiliary airfield, therefore, should optimally be located close to the center of the areas used for contact training. This would be a location approximately half way between the Rio Grande and Highway 90, southeast of Laughlin. If the field is located too close to Laughlin, the departures and recoveries to each field will interfere with each other, possibly limiting the number of sorties we could fly or creating hazardous situations. This precludes locations within approximately 20 NM of Laughlin. The maximum distance the field can be from Laughlin is limited by two factors. First,

there is an existing low level training route (IR 170) which passes just to the east of the town of Spofford on a roughly north/south heading. The arrivals and departures to the auxiliary airfield, as well as the traffic patterns, must be clear of the low level route. The further north the auxiliary airfield is placed, the closer to Laughlin the field must be in order to avoid the low level route, until at approximately Highway 90 the closest we can safely operate to the low level approaches the closest we can operate to Laughlin at 20 NM out. This route is required by Laughlin T-38 aircraft and other types from other bases. Moving the route would interfere with civilian airports and could cause loss of the route. Second, placing the field too far from Laughlin would be fuel inefficient. Although most sorties using the auxiliary airfield will also use the MOA, some contact sorties are flown in the traffic pattern only, using Laughlin and the auxiliary airfield. Placing the auxiliary airfield further from Laughlin would be very inefficient for those sorties. Also if the auxiliary airfield were further away, sorties which use the areas closest to Laughlin in the MOA would have to drive further away from Laughlin to use the auxiliary airfield, wasting fuel. This precludes placement beyond approximately 30 NM from Laughlin, depending on the exact location.

Other reasons for placing the field south of Highway 90 include the departures and recoveries from Laughlin to the field and the areas. Due to the runway layout and limited airspace available for T-37 recoveries from the areas/auxiliary airfield must be made primarily by flying down the Rio Grande River. This precludes moving the auxiliary airfield further to the north and maintaining fuel efficiency.

Formation sorties (2 aircraft flying together) can utilize all of the areas within the T-37 MOA. They do not use the auxiliary airfield and area assignments are based on the type of recovery (instrument or visual) required for student training.

Within the described areas, civilian airfields and towns must be avoided to the maximum extent possible. Residences must also be considered. The terrain is also not suitable in all the area. This restricts the location of the auxiliary airfield even within the selected area.

All of these constraints combined with unavailability of the land in the Burr Estate, which composes a large portion of the area which is operationally acceptable, forced the location into a small area just north of the Maverick/Kinney County line along Highway 131. The preferred alternative is purchase and construction of a new airstrip in this general area.

B. Site Identification

Based on the engineering requirements for construction which include 600 acres of reasonably level, well drained land, and on ideal operational considerations, a 4 mile x 7 mile target area was initially identified. Unfortunately, this "target" area was totally within the boundaries of a 100,000 acre single owner ranch. The landowner adamantly refused to sign or allow Government right-of-entry onto her ranch for further investigation.

Because other tracts of land (which also appeared to be operationally feasible, and which were identified as having willing sellers) were available

within the general siting constraints, the focus of the study shifted elsewhere. Three separate tracts in Kinney County located just north of the Maverick/Kinney County border were identified to be both acceptable from an operational and from a construction viewpoint. These tracts are shown in perspective in Figure II-2 and form the basis of further siting investigations.

C. Site Comparison

Of the three prospective areas, the Newman tract is one of the farthest from the homes of Spofford residents, provides the most efficient arrivals and departures and presents minimal conflicts with the existing small airstrip south of Spofford. This site affects the fewest number of dwellings in terms of noise impacts. The Plaza site is slightly more rugged and similar to Newman in distance to Spofford, but contains dwellings in the western end of the tract. The Plaza site has a further operational constraint in that it is the closest of the sites under consideration to the Fort Clark Springs airstrip in Brackettville, Texas (see Figure II-2).

From a constructional standpoint, the Plaza site is least desirable. Plaza site terrain is more undulating, increasing the cost for grading and construction. The Newman site is best suited in this respect.

A number of operational constraints affect the Ward site. It is adjacent to the Spofford airfield and is within 2 miles of the town of Spofford (see Figure II-2). The Ward site would also require designing an auxiliary field

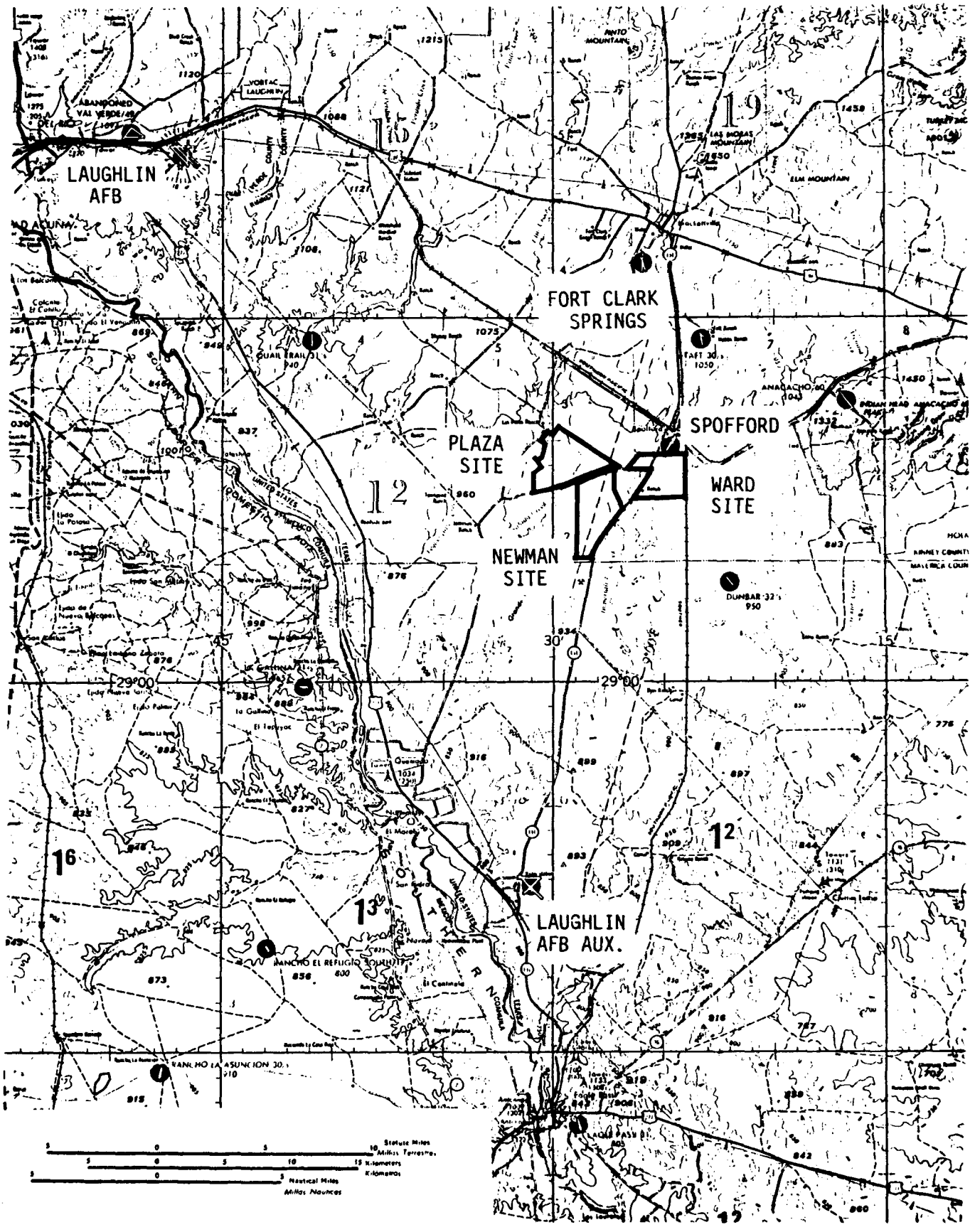


Figure II-2. Location of three prospective auxiliary airfield sites.

around the many improvements to the property including a house and a large stock tank as well as being difficult to fit between the railroad and highway.

From an environmental standpoint, the three sites appear to be very homogeneous. Based on field reconnaissance, general topography, soils and vegetation types are similar at all three sites. A detailed comparison of the environmental impacts associated with construction at each site is included in Chapter IV, Environmental Consequences. Because the Newman site is superior to the others from an operational and engineering standpoint, and because there is little consequential environmental or cultural difference, the Newman site is the preferred location for a new auxiliary airfield. This comparison is shown in tabular form in Table II-1. The estimated cost of construction at this site is $4,804,526.00 million dollars (1987 dollars). The current working estimate (CWE) is $5,078,532.00.

D. Summary

Table II-2 presents a simplistic matrix for the five alternatives and four major considerations which indicates the optimum choice of the construction of a new field.

Transient bird activity is normal at any of the sites evaluated in detail for construction of a new auxiliary airstrip. However, there was a pond on the Ward site which attracted limited numbers of waterfowl and other birds. This entire portion of South Texas provides a winter home for large migratory birds such as sandhill cranes and any area within Laughlin's designated airspace which contains habitat for these birds will have bird activity during winter

Table II-1

Environmental Matrix, Newman, Plaza and Ward Sites

RESOURCE	NEWMAN	PLAZA	WARD
CLIMATE	Δ	Δ	Δ
GEOLOGY	Δ	Δ	Δ
SOILS	Δ	Δ	Δ
AIR QUALITY	Δ	Δ	Δ
CONSTRUCTION NOISE	#	#	#
OPERATIONS NOISE	#	#	•
CULTURAL	Δ	#	#
FLORA	#	#	#
FAUNA	#	#	#
BIRD STRIKE	Δ	Δ	Δ
GROUND WATER	Δ	Δ	Δ
SURFACE WATER	Δ	Δ	Δ
SOCIO-ECONOMICS	*	*	*
ENERGY RESOURCES	Δ	Δ	Δ

Δ No appreciable impact

\# Minor negative impact

• Major negative impact

* Minor positive impact

Table II-2

Operational/Engineering Matrix

	Bird Strike	Maintenance	Joint Use	Maverick County Development
No Action		X		
Purchase Only		X		
Purchase/Remove	X	X		
Purchase/Purchase	X	X	X	
Construct New Field	X	X	X	X

X = signifies mitigation of problem

months. (This question is discussed in detail in Chapter IV.) However, the additional bird problems which currently pose such a hazard at the existing auxiliary field will not occur at the new site because the special contributing conditions are absent.

Joint use with civilian and commercial aircraft would not be a factor at any of the sites because of the availability of other airstrips. Additionally, the proposed location would not be desirable for non-military use of the site, in contrast to the existing airstrip since the project area is removed from commercial/industrial sites. Relocation would also save approximately 80 pounds of jet fuel, per individual mission, in getting to and from the auxiliary airfield. Since the average number of missions per day is 60, approximately 4,800 pounds of fuel per training day could be used to increase training efficiency rather than to "drone" to and from the auxiliary airfield.

Maverick County would retain the existing airfield for its development plans. The Alta Verde Beef Packing Company could continue to operate without interference, and the county landfill could remain in its present location and be expanded as planned to accommodate future needs. The only negative aspect of moving the auxiliary airfield, as far as Maverick County is concerned, would be the annual loss of a $23,000.00 lease fee. The only negative aspects of relocating the airfield to Kinney County would be the removal of 580 acres from the tax base and an increase in air traffic, the effect of which is minimized by the selection of the Newman tract.

III. AFFECTED ENVIRONMENT

A. Climate

1. General

The proposed project area (defined to include all three potential project sites: Plaza, Newman and Ward) is located on the Rio Grande Plain in southwest Texas and has a semiarid, continental type climate. Rapid changes in temperature, marked extremes, and large diurnal and annual fluctuations are characteristic of continental type climates. The data describing climate are taken from the National Oceanographic and Atmospheric Administration (NOAA) report "Local Climatological Data, Del Rio, Texas (1983)"(5) and the Base Comprehensive Plan for 47th Flying Training Wing Laughlin Air Force Base, Texas (1987)(6). Mild winters and warm summers are indicated by temperatures which range from a low mean of 51.4° F in January to a high mean of 85.2° F in July. Lowest and highest recorded temperatures at Del Rio are 11° F (February 1951) and 111° F (July 1960). Freezing temperatures occur an average of 19 days per year.

2. Wind

From April to October prevailing winds are southeasterly. Northwesterly winds, however, from November through March, often occur and can result in abrupt day to day temperature changes. Average wind speed is highest at 11.5 mph in July. The highest wind speed recorded was 62 mph in March of 1935.

3. Precipitation

Average annual rainfall at Del Rio is 18.38 inches (about 21 inches at the project area). Approximately two-thirds falls from April through October. The heaviest one day rainfall during the period of record is 8.8 inches recorded in June 1935. Thunderstorms average about 34 days a year and have been recorded in every month of the year. May and September provide the greatest amounts of rainfall. Sleet or snow occurs about once a year, typically melts as it falls, and once in every four or five years accumulates on the ground. Hail occurs about once a year, with severity about once every five years.

4. Cloud Cover

Clear to partly cloudy skies predominate in this area. August is the month of maximum sunshine, averaging 80 percent. May is typically the month containing the greatest number of cloudy days, averaging 52 percent.

5. Visibility

Visibility in the area is generally unlimited, and no specific visibility problems have been encountered (7).

6. Dust

Dust is rarely encountered to any measurable degree (7). Noticeable levels of dust due to drought conditions may occur from time to time.

7. Relative Humidity

The average relative humidity in midafternoon averages about 54 percent. Humidity is highest at night. The average at dawn is about 79 percent.

B. Geology

1. Physiography

The proposed project area lies in an area generally defined as the Maverick Basin, a sub-basin in the northeastern part of the Rio Grande Embayment (Figure III-1)(8). The Maverick Basin is bounded on the north by the Balcones Fault Zone and Edwards Plateau, on the northwest by the Devils River Uplift, on the west by the Salado Arch (Serrania del Burro Mountains) and on the east by the San Marcos Arch. Several smaller or minor features lie within the area of concern; the Chittim Anticline (Arch) and the Zavala Syncline being the most important.

2. Regional Geology

During the Cretaceous period, much of the North American continent was covered by advancing epiric (shallow) seas. The Gulf sea advanced from the southeast, covering most of Texas and the western interior of the United States. By the end of the Cretaceous period, the sea had retreated gulfwards, marking the end of the last great epiric marine invasion. During the period of marine advancement and retreat, distinct features of the Cretaceous period (seacoasts) were formed including coastal river valley, seashore and lagoon

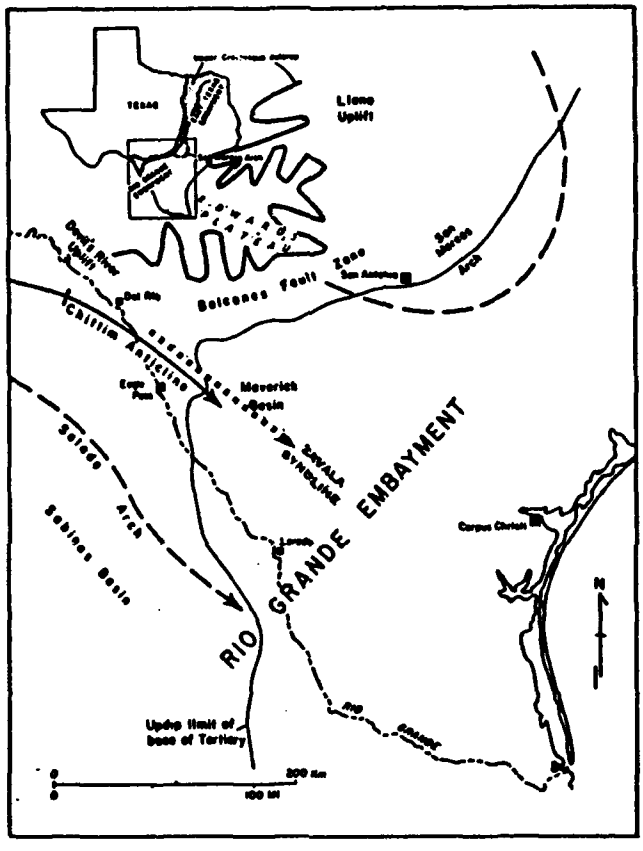


Figure III-1. Physiography of the Maverick Basin.
Source: McBride, 1987(8)

deposits, etc. The embayment had become a distinct, structurally negative area receiving marginal basin sediments typical of a broad marine shelf. Carbonate deposition dominated until near the end of the Cretaceous period when clastic (older rock fragments) sediments from positive tectonically active areas to the west and northwest came flooding into the basin. By the late Eocene period the embayment was filled.

3. Site Geology

The known subsurface section of this area consists of rocks of Jurassic, Comanchean and Gulfian age (Mesoic era). Sections of Comanchean and younger rocks are thicker in the Rio Grande embayment than in adjacent areas, indicating the basining of lower Cretaceous time. The Olmos formation in the area is essentially non-marine or deltaic in origin indicating that the basin had been virtually filled by that time. A generalized stratigraphic section typical to the area is presented in Figure III-2.

4. Seismic Considerations

Seismic waves (earthquakes) are normally generated by abrupt slippages along fault lines in the earth's crust and/or mantle. Risk of seismically caused damage is usually expressed in zonal areas, numbered to show the degree of risk. Figure III-3 illustrates the risk zones within the United States. The project area is located within a zone 0 implying no reasonable expectancy of damage. The zones are defined by the modified Mercalli intensities obtained from historical records.

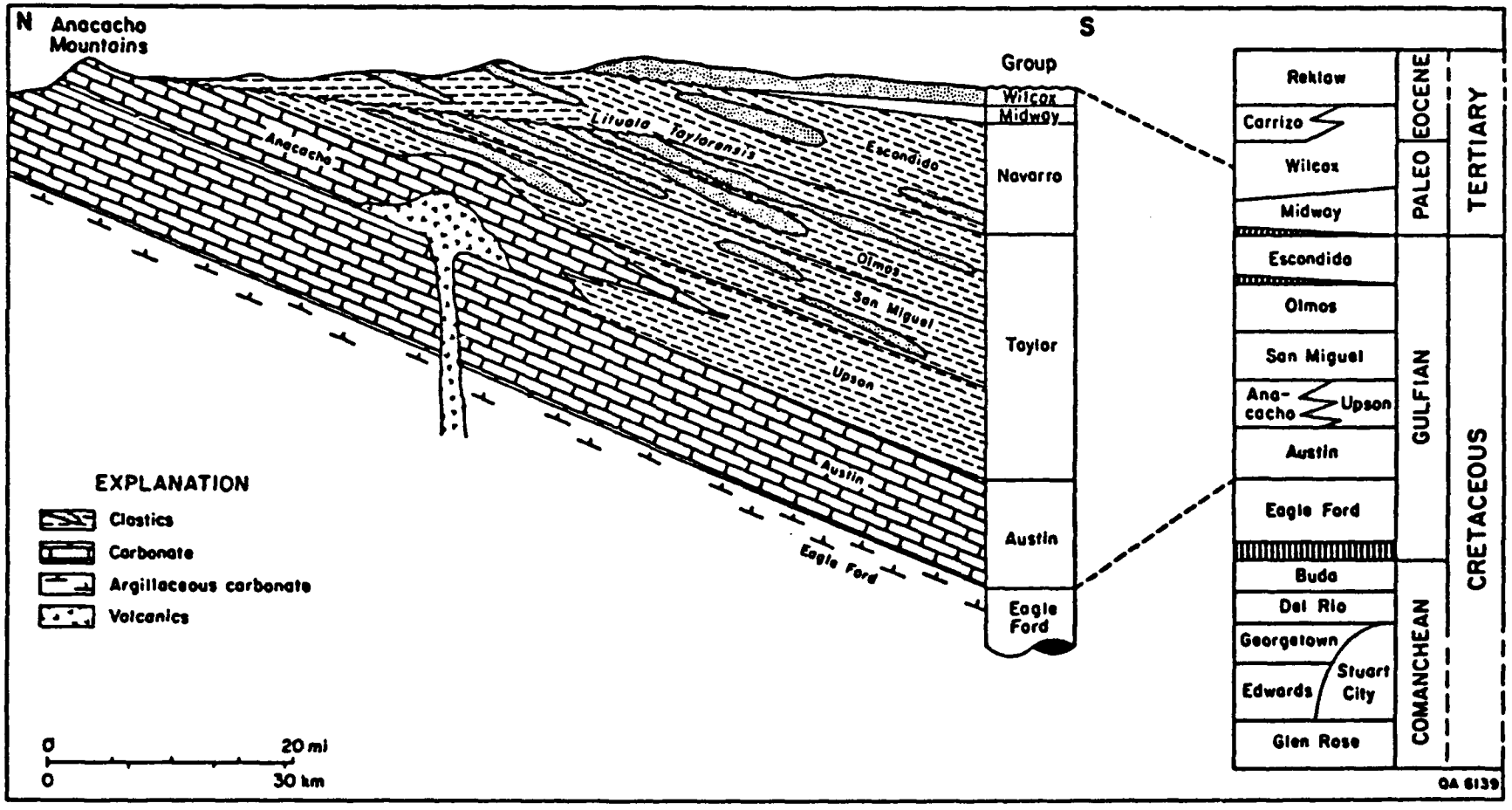


Figure III-2. General stratigraphic cross section of the Maverick Basin.
Source: McBride, 1987(8)

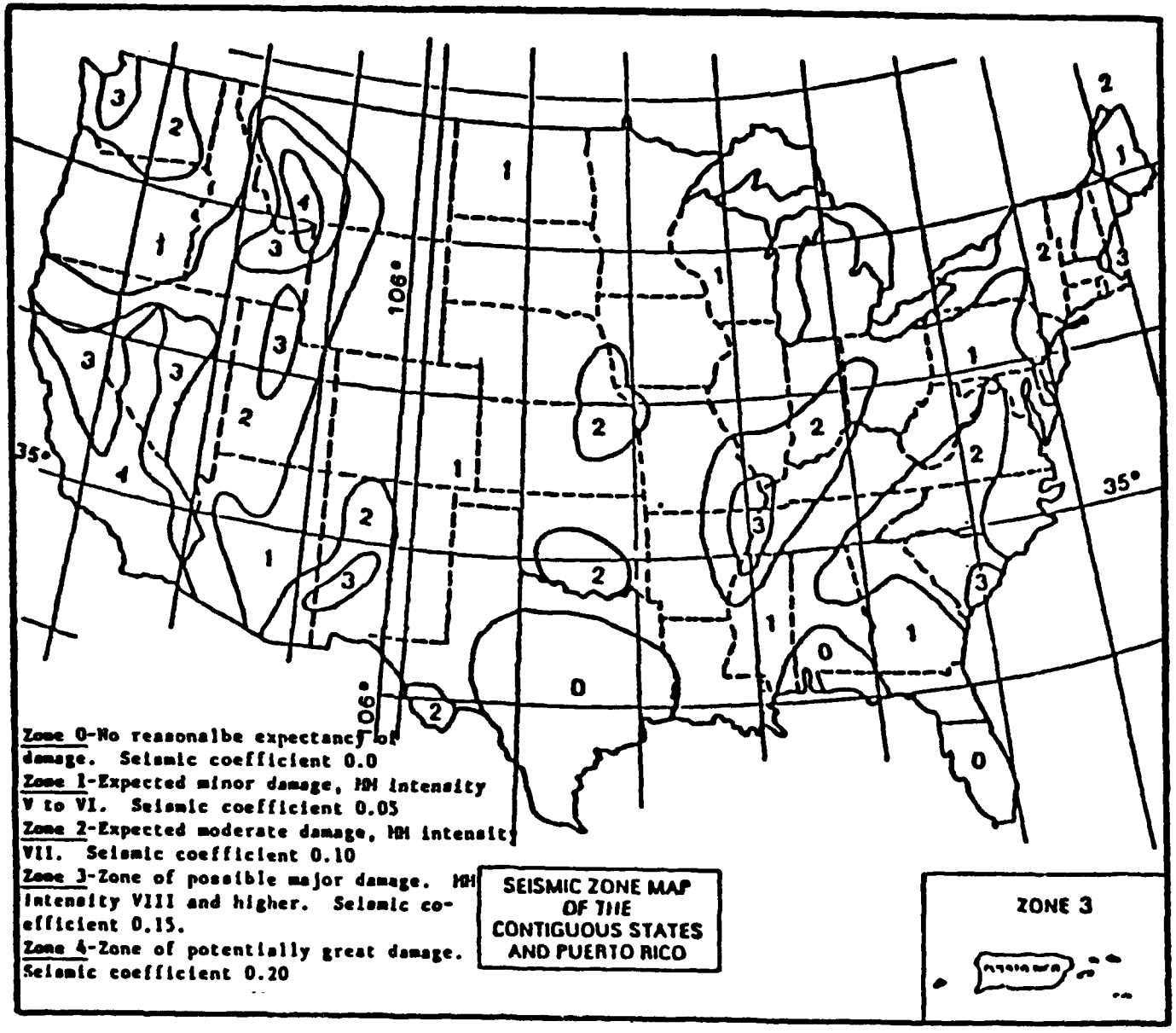


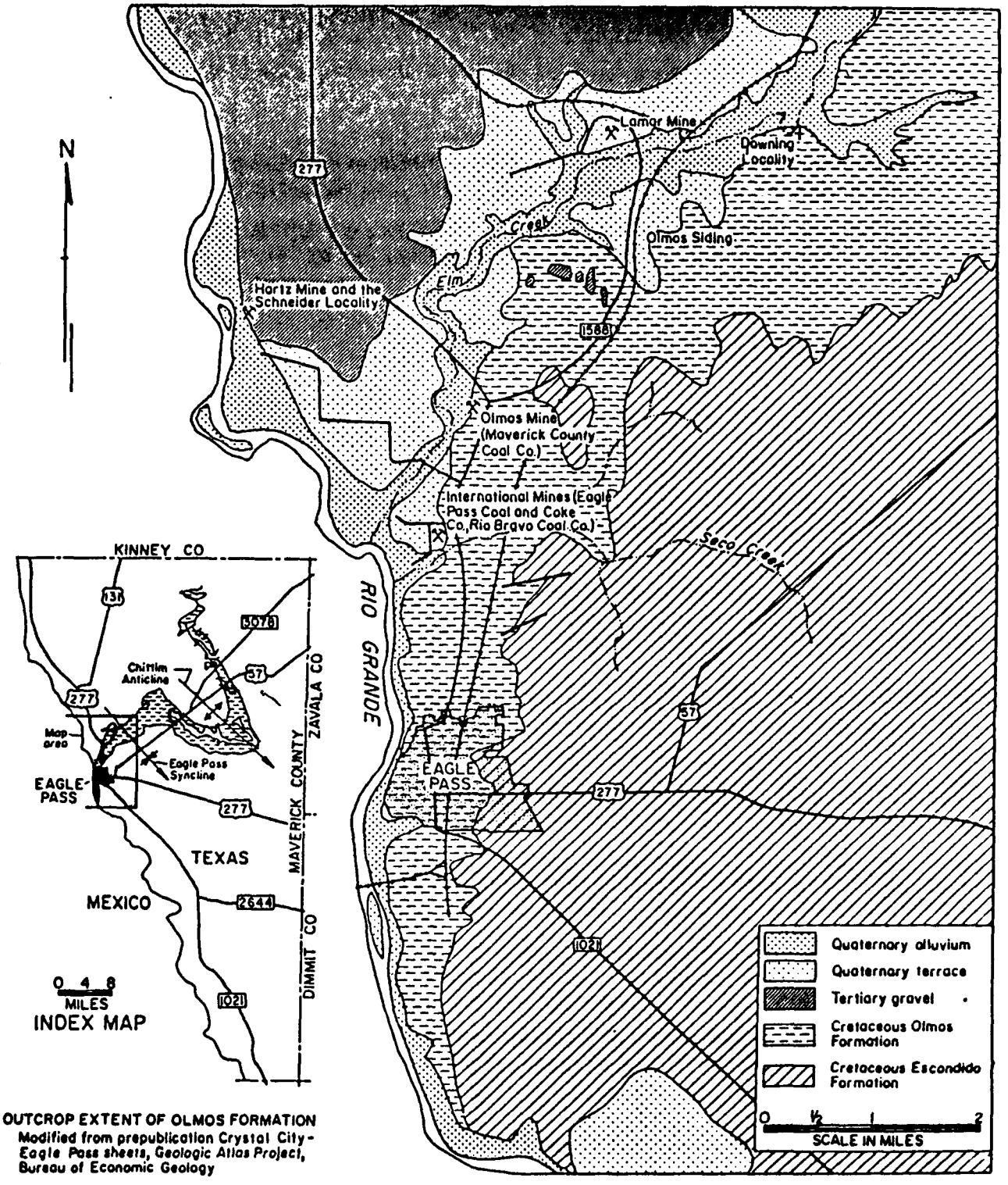
Figure III-3. United States seismic risk zonal areas.
Source: U.S. Geological Survey, 1976(9)

Another parameter of seismic evaluation is the horizontal component of acceleration caused by earthquakes expressed as a percent of the acceleration due to gravity. The project area rates less than 4.0 with a small area west of Del Rio rating a 6.0. Highly seismic areas of California rank in the 80.0's. All indications are that there is no significant concern regarding seismic activity for an auxiliary airfield facility near the Kinney/Maverick County line.

5. Economic Geology

The commodities of primary importance in the area are sand/gravel, coal and oil/gas. These industries are relatively unimportant in the overall economy of the two counties, employing an estimated 1 to 2 percent of the available work force.

Bituminous coal deposits outcrop from the Olmos formation in northern Maverick County. Figure III-4 shows the coal seam location and the location of mines in the area. The outcrop is shown exclusively in Maverick County but the buried sea could conceivably extend to southern Kinney County and into the project area. Oil production is limited in the area. Although the geologic cross section in Figure III-2 indicates several strata known for oil production elsewhere, the only known local producer is the Olmos horizon. Oil and gas production in Kinney County is almost non-existent with less than 500 barrels of crude oil ever recorded (10,11). Maverick County, containing 54 gas and oil fields, produced 2,758,443 million cubic feet of gas and 1,289,607 barrels of crude oil in 1985 (11).



OUTCROP EXTENT OF OLMOS FORMATION
Modified from prepublication Crystal City-Eagle Pass sheets, Geologic Atlas Project, Bureau of Economic Geology

Figure III-4. Coal seam location and location of mines in the area. Source: McBride, 1987(8)

C. Soils

1. General

According to the U.S. Department of Agriculture (USDA) Kinney County Soil Survey (12), the primary association encountered in south central Kinney County is the Uvalde-Montell association but the Kimbrough-Ector-Uvalde association encroaches into the eastern edge of the project area. The former association consists of deep, nearly level, loamy and clayey soils, moderately to slowly permeable while the latter is dominantly very shallow, gravelly and stony, loamy soil in nearly level to undulating areas (Figure III-5). The proposed Newman site lies exclusively in the Montell series. The Plaza site is mostly Montell series with minor exposure of Uvalde and Pintas series (5-10%) each along the northwest border. The Kimbrough series joins the Uvalde-Montell series at the Ward site but is restricted to the eastern half of the property. About 50% of the Ward site is Montell series with 25% each for the Uvalde and Kimbrough series.

2. Dominant Types

The specific soil types encountered at and near the proposed project area are: Montell Clay (MC) and Montell Clay, Low (Mo). The predominant type at the Newman site is Montell clay (MC). Uvalde (Uv) and Kimbrough (Kh) types are also present in the area but to a much lesser extent.

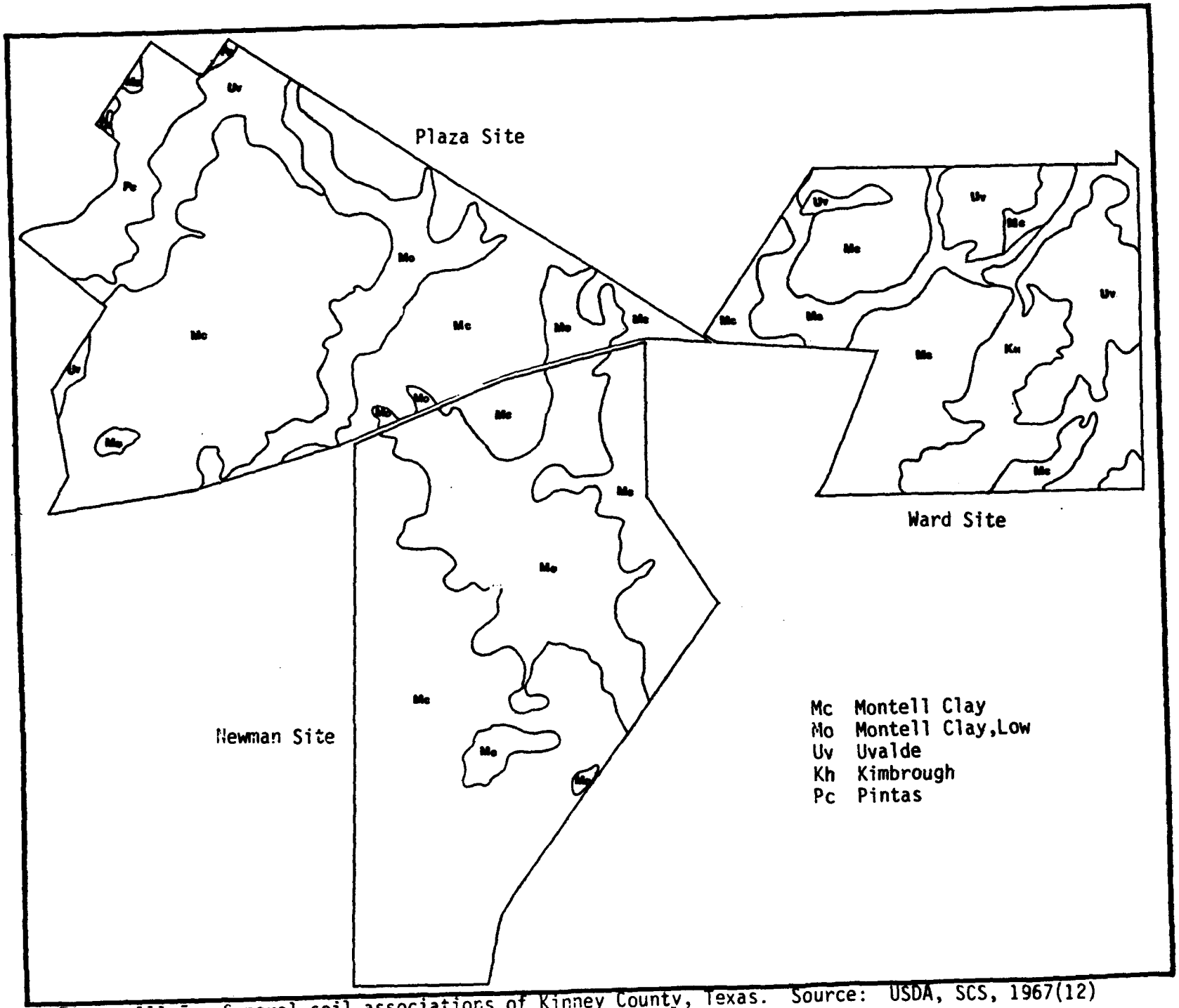


Figure III-5. General soil associations of Kinney County, Texas. Source: USDA, SCS, 1967(12)

3. Soil Characteristics

The following descriptions of these soils are derived from the Kinney County, Texas, Soil Survey published by the USDA (12).

a. Montell Clay

Montell clay (0 to 1 percent slopes) (Mc) is deep, grayish, and calcareous. It occurs in broad, smooth, nearly level areas, mainly in the southern part of the county. Most slopes are less than one-half percent.

The surface layer, about 30 inches thick, is gray clay that is very firm when moist and very hard when dry. The upper one-third of this layer has weak blocky structure, and the lower two-thirds has moderate, medium blocky structure. When dry, the uppermost 1 inch of soil forms a mulch of very hard, very fine, angular aggregates. The subsoil, about 15 inches thick, is grayish-brown clay that has weak to moderate medium, blocky structure.

It is very firm when moist and very hard when dry. In some places, it is moderately saline. The underlying material is pale-brown, calcareous clay outwash that contains gypsum crystals and perhaps other salts. It is moderately saline to strongly saline. In some places, it is gravelly below a depth of five feet.

When this soil dries, it shrinks and cracks, and when it is wet, it swells and heaves. Because of this shrinking and swelling, the surface of this soil has high and low spots that give it a dimpled appearance. Both the high and the

low spots occur within a distance of 10 to 30 feet. The high areas are two to six inches above the low areas. Within short distances, the thickness of the surface layer ranges from as little as 15 inches in the high areas to as much as 35 inches in the low areas. The thickness of the subsoil ranges from 10 to 20 inches.

Montell clay is moderately well drained but has very slow runoff. Internal drainage and permeability are slow to very slow. Natural fertility and available water capacity are high. Erosion is not a problem.

b. Montell Clay, Low

Montell clay, low (0 to 1 percent slope) (Mo) is deep, dense, firm, dark gray, and calcareous. It is slightly saline to strongly saline. Most areas occur along flat, shallow drainageways and are several miles long and less than one-fourth mile wide. These drainageways do not have well-defined stream channels. In the southern part of the county, the drainageways are one to six feet below the surrounding plain.

The surface layer, about 20 inches thick, is dark-gray clay that is firm when moist and extremely hard when dry. It has weak to moderate, medium and fine, blocky structure that, when the soil is wet, appears to be massive. The upper one-third of the surface layer is less dense and less saline than the lower part. When dry, the uppermost one inch of soil forms a mulch of very hard, very fine, angular aggregates. The surface layer is generally slightly saline, but it is strongly saline in about 10 percent of the acreage. The subsoil, about 10 inches thick, is gray, strongly saline clay that has weak

blocky structure. It is firm when moist and very hard when dry. This layer contains threads and pockets of carbonates, gypsum, and other salts. The underlying material is light-gray to white calcareous and gypsiferous clay outwash that is strongly saline and is saturated with water most of the time. In some places it is gravelly.

This soil shrinks and cracks when it dries, and it swells and heaves when it is wet. Because of this shrinking and swelling, the surface of this soil as high and low spots that give it a dimpled appearance. Both high and low spots are within a distance of 10 to 30 feet. The high areas are 2 to 10 inches above the low areas. Within short distances, the thickness of the surface layer ranges from as little as 10 inches in the high areas to as much as 30 inches in the low areas. The thickness of the subsoil ranges from 6 to 15 inches.

Included in areas mapped as this soil are small areas of Montell clay and some small enclosed depressions, or natural lakes, that hold water for a few days after heavy rains.

Montell clay, low, is imperfectly drained or moderately well drained. Internal drainage and permeability are very slow. Runoff is very slow, and erosion is not a problem. Natural fertility is moderate to high, and available water capacity is high. Because this soil is saline, only salt-tolerant plants can use water from below a depth of two feet.

Montell clay, low, is too dry for dryfarming, and it is not suitable for irrigation in the strongly saline areas. It is used for range and supports a

good cover of curly mesquite, tobosa, giant sacaton, and plains bristlegrass. Alkali sacaton is the main grass in some of the more saline areas. Mesquite brush is the main invader in overgrazed areas.

c. Uvalde

Uvalde silty clay loam (0 to 1 percent slope)(Uv) is deep, friable, dark colored and calcareous. It occupies broad, smooth, nearly level to gently sloping areas in the uplands mainly in the southern two-thirds of the county. Slopes are generally less than one percent but range up to three percent.

The surface layer is dark grayish-brown silty clay loam about 17 inches thick. The upper part of this layer has weak and moderate, fine and medium, granular structure but in the lower part structure is slightly more distinct. in some places structure is subangular blocky in the lower part of the surface layer. This layer is darker and thicker in the more nearly level areas than it is in the more sloping areas. Grayish-brown to pale-brown silty clay loam underlies the surface layer and extends to a depth of 27 inches. This layer has weak subangular blocky to granular structure. It has a higher content of lime than the surface layer but a lower content of organic matter. The underlying material is calcareous, light-brown, silty or loamy outwash that is limy. The upper 6 to 18 inches of this material is rich in lime and is pale brown in color.

This Uvalde soil is well drained. Runoff is slow, and internal drainage is medium. Permeability is moderate. Natural fertility and available water capacity are high. This soil is slightly susceptible to water erosion.

Nearly all of this soil is in rangeland, which supports a good stand of grasses and brush.

The Uvalde soil series possesses a moderate shrink swell potential with a pH ranging from 7.8 to 8.2. It possesses no unfavorable features for road and highway construction and is an excellent soil for irrigated crops.

d. Kimbrough

Kimbrough soils (0 to 2 percent slope)(Kh) are grayish brown, calcareous, gravelly and very shallow over caliche. These gravelly soils occur in broad, nearly level to gently sloping areas, mainly in the southern part of the county. Many of these areas, hundreds of acres in size, are nearly flat divides between creeks. Slopes are generally less than 1 percent.

The surface layer, about 5 inches thick, is friable loam or light clay loam. It has weak granular structure. About 40 to 50% of this layer, by volume, consists of caliche and limestone fragments less than 3 inches in size. The underlying material is a bed of white caliche several feet thick. The upper 2 to 10 inches of this bed is very hard and is broken into plates 1/2 to 3 inches thick and as much as 12 inches across. Between these plates is a small amount of soil material. Below this hard, broken layer, the caliche becomes massive, somewhat softer and nodular as depth increases.

Kimbrough soils are well drained. Runoff is slow to rapid, and internal drainage is rapid. Permeability is moderate in the surface layer and subsoil but is moderately slow in the underlying material. Natural fertility is

medium. Because these soils are very shallow, they have low available water capacity. They are slightly susceptible or moderately susceptible to water erosion.

A low shrink swell potential and permeability ranging from 0.1-0.15 inches per hour are characteristic of this soil type. It has a pH generally between 7.8 and 8.2. It is not considered suitable for crops but is good for roadfill and road subgrade.

e. Pintas

Pintas silty clay loam (0 to 1 percent slopes)(Pc) is moderately deep, friable, dark colored and calcareous. It is in bands 100 to 400 yards wide on smooth, nearly level to gently sloping flood plains along streams. The streams, including Las Moras, Pinto and Mud Creeks, have a constant flow. Because these streams are not wide or deep enough for carrying large amounts of runoff, this soil is flooded after heavy rains. A water table occurs within 3 to 10 feet of the surface. Slopes are generally less than 1 percent.

The surface layer is about 16 inches thick and, in most places, is very dark gray to black silty clay loam that has weak to moderate, fine, granular structure. At the surface in some areas is a thin, platy layer of recently deposited alluvium. The subsoil, about 14 inches thick, resembles the surface layer but is gray, grayish brown, or light brownish gray. The underlying material is thick, white layer of calcium carbonate that apparently was deposited by ground water from the underlying waterbearing gravel.

Included in areas mapped as this soil are areas of Pintas soils that have a clay, silty clay, or clay surface layer.

The Pintas soil is moderately well drained. Internal drainage is medium, and permeability is moderate. A fluctuating water table subirrigates this soil. Natural fertility and available water capacity are high, but flooding restricts use.

This soil is in range on which there are tall live oak and pecan trees and tall and mid grasses.

D. Air Quality

There is no Federal or state agency monitoring of air quality within Maverick or Kinney County at the present time (13). The attainment status of the area with regard to air quality for contaminants with National Ambient Air Quality Standards (NAAQS) is:

Sulfur Dioxide (SO_2) - Attainment (meets or better than NAAQS)
Carbon Monoxide (CO) - Attainment
Nitrogen Dioxide (NO_2) - Attainment
Total suspended particulate (TSP) - Attainment
Ozone (O_3) - Unclassifiable

Attainment means that pollutants do not exceed designated air quality standards. Primary and secondary standards are defined in Table III-1. Historical data, used to determine attainment status, are presented in Table III-2. There are no known serious air quality hazards in the area (14).

Table III-1

Ambient Air Quality Standards

National Standards	Primary1	Secondary2
Carbon Monoxide (CO)	35 ppm* (40 mg/m3**) hourly average, not to be exceeded more than once a year	Same as primary
	9 ppm (10 mg/m3) eight-hour average, not to be exceeded more than once a year	Same as primary
Nitrogen Dioxide (NO_2)	0.05 ppm (100 ug/m3***) annual average	Same as primary
Ozone (O_3)	0.12 ppm (40,000 mg/m3) hourly average, not to be exceeded for an average of more than one day for a three year period	Same as primary
Sulfur Dioxide (SO2)	0.14 ppm (365 ug/m3) 24-hour average, not to be exceeded more than once a year	0.5 ppm (1,300 ug/m3) three-hour average, not to be exceeded more than once a year
	0.03 ppm (80 ug/m3) annual average	
Total Suspended Particulate (TSP) Matter once a year	260 ug/m3 24-hour average not to be exceeded more than once a year	150 ug/m3 24-hour than be exceeded more than once a year
	75 ug/m3 annual geometric mean	60 ug/m3 annual geometric mean

1 Primary standards define levels of air quality which the U.S. Environmental Protection Agency's Administrator judges necessary to protect the public health with an adequate margin of safety.

2 Secondary standards define levels of air quality which the EPA Administrator judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

* ppm — parts per million

** mg/m3 — milligrams per cubic meter

*** ug/m3 — micrograms per cubic meter

Source: Larry Butts, 1987 (13)

Table III-2

Suspended Particulate Matter (ug/m3) for Eagle Pass, Maverick County, Texas

Location	Year	Number of Obs.	Maximum 24-hours	Obs.> 150	Mean	Geometric Mean
Quarry & Madison	74	53	193	5	103	97
Quarry & Madison	75	51	320	13	132	123
Quarry & Madison	76	32	207	4	106?	99?
Quarry & Madison	77	16	244	3	117?	110?
Municipal Bldg.	83	31	125	0	69	65
Municipal Bldg.	84	20	211	2	92	83

Source: Larry Butts, 1987 (13); Ricardo Saucedo, 1987 (14)

E. Noise

There are no significant noise sources at the prospective sites. Present land uses (range and wildlife habitat) produce no noise levels harmful to human or animal populations.

Noise contours at the existing Laughlin auxiliary airfield at Eagle Pass are illustrated in Figure III-6. Contours around the proposed project airfield are expected to be similar since aircraft activity should be the same. Studies on residential areas and aircraft noise compatibility recommend no residential uses in areas above Day-Night Average Sound Level (LDN) 75 (15). Below LDN 65, no restrictions are recommended. The Air Force discourages residential use between 65-70 LDN and strongly disapproves use between 70-75 LDN. Industrial/manufacturing and transportation/communications/utilities industries have a high noise level compatibility, while commercial/retail trade and service businesses are generally compatible up to LDN 70. Noise levels above LDN 75 limit recreational uses (15). Exclusive of sensitive species or agricultural practices, use in the resource production, extraction, and open space category are compatible almost without restriction.

The current operation at the existing auxiliary airstrip has been compatible with the primarily industrial activities southwest of the airstrip. The benefits of substantial noise reduction by relocation of the auxiliary airstrip would be a positive factor in conducting existing industrial operations and in enticing development of new industries to the location.

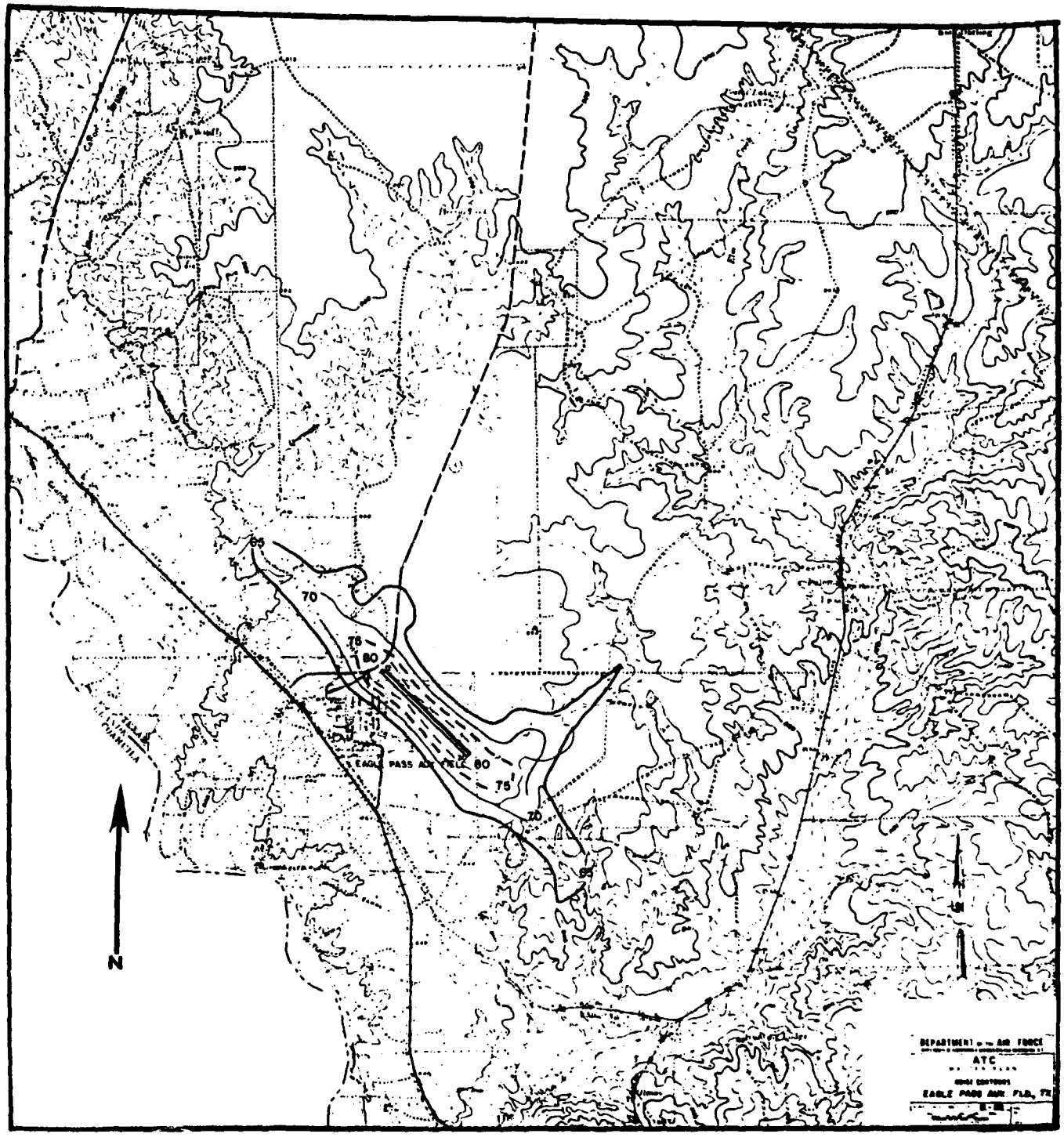


Figure III-6. Noise contours at Eagle Pass auxiliary airfield.
Source: USAF, 1985 (15)

F. Biological Resources

The project area in Kinney County, Texas, is part of the Tamaulipan biotic province (16) which has been more recently remapped and described in Texas by Blair (17). Its floristic affiliations are reported by Bray (18) to be with the Lower Sonoran Zone. Bogusch (19) has associated its plant life with the Sonoran desert type, though in fact it is more closely affiliated vegetatively and geographically with the Chihuahuan desert to the west (20). Kuchler (21) describes the potential natural vegetation of the area as mesquite savanna, "potential natural vegetation" referring to the vegetation that would exist if man were removed from the scene and the resulting plant succession telescoped into a single moment.

The Tamaulipan Biotic Province corresponds geographically in Texas with the vegetational area called by Gould (22) the Rio Grande Plain. The semi-arid, subtropical vegetation zone has been variously referred to in the literature as "desert grassland" (23), "mesquite brush" (24), "mesquite-chaparral" (25), and "plains" (22). Recently this area has been mapped as "mesquite-blackbrush brush" by McMahan et al. (26). The reason for the apparent discrepancy in the literature concerning the appearance of the vegetation in this region is that its historical aspect was quite different than its present nature. Biological resources were evaluated using agency contacts and field evaluation (Appendix C and D).

1. Flora

Almost 90 percent of the land area in the Rio Grande Plain is classified by the U.S. Soil Conservation Service (SCS) as rangeland, where forage production depends upon native plants or introduced perennials not requiring repeated cultivation (27). The present day rangeland vegetation, except where cleared, is a moderate dense cover of small trees and shrubs (28). The aspect of this vegetation has been described as brush (22,29), thorny brush (17), chaparral (25) or microphyllus deciduous thorn shrub savanna (30), but the region is know locally as "brush country".

The principal overstory species throughout the Rio Grande Plain is mesquite (Prosopis glandulosa) (27,19). The project area is found in the mesquite-deep loams and clays (27). These sites, with topsoils usually more than 20 inches deep, normally have a higher productivity than other types in this geographic area. A mature mesquite forest is the predominant growth form with a variable understory species composition.

2. Fauna

Literature sources describing faunal variety of the Rio Grande Plain are few. Blair (17) describes the fauna of the Rio Grande Plain as "Tamaulipan", and notes that it includes a considerable number of species characteristic of the North American tropics, a large number of grassland species characteristic of more northerly areas, and representative of both eastern forested areas and desert areas to the west. As a transition zone between tropical and

temperate, mesic and xeric, its fauna reflects diverse zoogeographic affiliations. Peripheral species are common.

3. History

Human impacts upon natural systems in South Texas have existed since at least the late Pleistocene, more than 10,000 years ago. The aboriginal populations of South Texas persisted for several thousand years with a hunting and foraging culture (31). The impacts of aborigines upon the native flora and fauna were probably small. With the coming of Europeans, mans impact on the biota increased; however, the most extensive changes in the ecosystem structure in the Rio Grande Plain have been during the past 200 years. Published accounts indicate that the vegetation and populations of at least the larger species of vertebrates have been drastically modified since the days of early exploration by white man.

That the Rio Grande Plain has experienced an invasion and/or increase in woody plant species in recent times has been well documented (18,19,25,28,29,32). This brush invasion of what was originally primarily grassland is not particularly unique to this area (23), but changes in vegetative aspect have been relatively drastic compared to many other areas.

Although earlier reports imply that many woody species have invaded the area by extending their ranges northward (19,33), recent investigations indicate otherwise. Evidence suggests that stands of woody vegetation, sometimes quite dense, were always present (23,25,29). Certain topographic and edaphic types (e.g., arroyos, breaks near streams, claiche ridges, gravelly soils)

originally supported brush communities of similar composition and cover to those more widely distributed at present (25,28,32).

A concise summary of vegetative changes in the Rio Grande Plain during the past 300 years is presented by Inglis (28). From the earliest dates of Spanish exploration, early 1700's to the mid-1800's, the area was described by observers as "level" or as "plains" with occasional comments that there were no trees. However, most reports imply that upland areas with and without mesquite (and live oak) were interspersed with one another. Wooded uplands were described as having "some mesquite", "sparse" stands of mesquite, or "open mesquite woods". Most drainages had mesquite and often dense thickets of brush with there were live oak, hackberry, elm, and ash trees usually along stream banks.

By the middle of the 19th century, brush had begun to creep from localized stand onto the plains. Thin to moderate brush were found on most of the uplands. Invasion of the plains had commenced.

Throughout the rest of the 19th century and to the mid-1900's the rate of brush invasion was greatly accelerated. Increases in brush density were earlier and more rapid near population centers, and apparently more rapid on clays, loams, and sandy loams than on deep sands.

Many brush communities in the Rio Grande Plain have apparently reached a point of stabilization or near-stabilization (29). Land-clearing or other forms of brush control modify vast acreages annually (32,33), and periodic droughts may

act to open up the canopy (29), but these areas progress toward brush communities if left without husbandry.

Animal communities have also changed historically. Such changes have apparently been caused largely by habitat modifications as discussed above.

As might be expected, species adapted to open grasslands or savannas have dwindled in numbers or disappeared, as have those unadapted to fence range or intense competition with livestock. Prairie chickens (Tympanuchus cupido), pronghorns (Antilocapra americana), bison (Bison bison), and black bears (Urus americanus), once common have vanished or have been preserved only in semi-domestication or in small relict populations. Feral horses and cattle, introduced by the early Spanish explorers, once occurred in large numbers. They have been replaced by domestic livestock. Whitetailed deer (Odocoileus virginianus), and wild turkeys (Meleagris gallopavo) have held their own, and present-day populations are probably not drastically different from those of 200-300 years ago. Collared peccaries (Dicotyles tagacu), now abundant, have possibly increased in recent years; few of the early travelers reported encountering them.

Early reports of less conspicuous vertebrates are lacking. However, it can probably be assumed that those adapted to native grasslands decreased in numbers or disappeared with the great increase in brush, while those preferring brushy habitats may have increased.

4. Vegetation

A vegetation map of the proposed Newman site is shown in Figure III-7. The dominant land use of the region is agricultural with most of the area used as rangeland. The vegetation was a homogeneous stand of mesquite-grassland (526.8 acres). Small microsites without mesquite trees and with less grass cover were interspersed throughout the stand. Most of these were too small to be mapped (less than an acre). Two small areas characterized by wetland plants were also within the site. Both of these two sites contained wetland plants; one had scattered mesquite trees, while the other was open. The open wetland site was 17.5 acres and the wetland with mesquite was 6.7 acres.

In the mesquite-grassland community, mesquite was the dominant tree with a variable canopy closure. Only one other tree species, a specimen of hackberry (Celtis laevigata), was encountered in this community type. Shrubs were not abundant but occurred in sporadic clumps throughout the stand. Whitebrush (Aloysia gratissima), Texas prickly pear (Opuntia lindheimeri), and tasajillo (Opuntia leptocaulis) were the most common shrubs. Associated species included guayacan (Porelieria angutifolia), agarita (Berberis trifoliolata), and brazil (Condalia hookeri). The herbaceous layer was dominated by the grass common curlymesquite (Hilaria berlangeri). Buffalograss (Buchloe dactyloides) was present in the more open mesquite-grasslands but was never very abundant. Bristlegrass (Setaria macrostachya) and kleingrass (Panicum coloratum), an introduced species, were present primarily along roads or in disturbed areas. Common herbaceous species included manzanilla silvestre (Coreopsis cardaminaefolia), sneezeweed (Helenium microcephalum), mexican hat

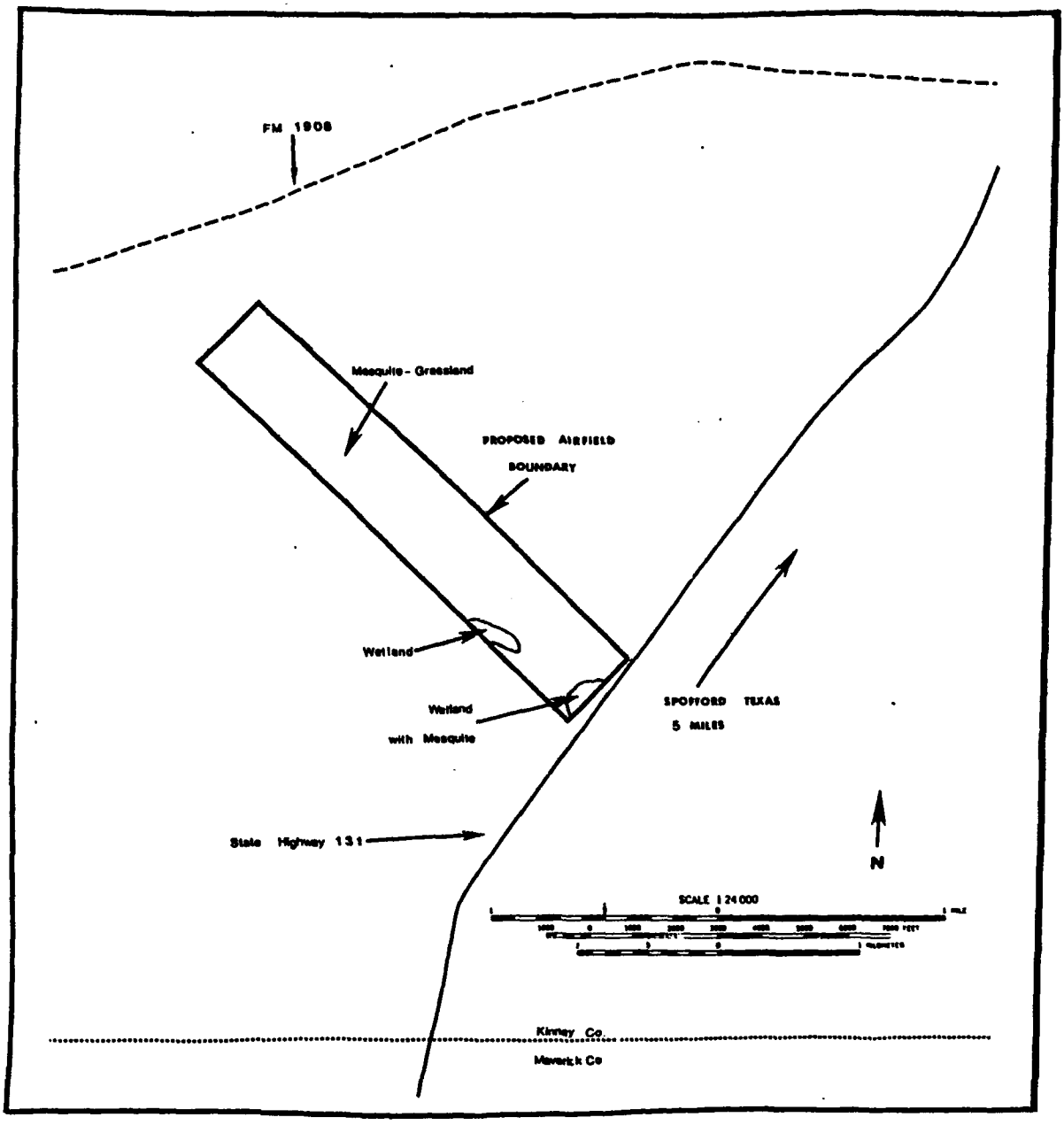


Figure III-7. Vegetation types at the proposed Laughlin auxiliary airfield.

(Ratibida columnaris), jicamilla (Jatropa carthartica) and rain-lilly (Zephryranthes pulchella). Additional species are listed in Table III-3.

The soils of the mesquite-grassland community are nearly level, deep, dense, gray, calcareous clays of the Montell series (12). This community type was originally a grassland on which mesquite is the principal woody invader following overgrazing. This site has been heavily grazed in the past as indicated by the presence of curlymesquite which increases with grazing. Currently, the site is in excellent condition and appears not to have been grazed for several years. Excellent sites such as this can, with favorable weather conditions, produce 3,400 pounds of air-dry herbage per acre per year. During less favorable years, yields are much less (1,500 pounds/acre/year).

There were a few small open microsites in the uplands which were dominated by forbs such as manzanilla silvestre, sneezeweed and mexican hat. Grasses were less common with bristlegrass and kleingrass most abundant.

Depressional wetland sites were dominated by flatsedge (Cyperus sp.) and spikerush (Eleocharis sp.) with several common herbaceous species (see Table III-3). Common herbs included water clover (Marsilea mucronata), duck-potato (Sagittaria latifolia), rain-lilly, and tooth-cup (Ammannia coccinea). These depression wetlands are also of the Montell soil series (12). The size of the wetland and the depth of the water is dependent on the prevailing rainfall conditions. The site of these areas is variable but they are persistent as indicated by the plant species present. This year was wetter than normal, therefore the size of these depression wetlands was larger than usual. Standing water was present on the border of the mesquite-grasslands

Table III-3

Checklist of Plants Found on the Runway
at Newman Site in Kinney County, Texas

Scientific Name	Common Name	Occurrence M-G	Occurrence W
MARSILEACEAE			
Marsilea mucronata	Water Clover		x
ALISMATACEAE			
Sagittaria latifolia	Duck-potato		x
GRAMINEAE			
Buchloe dactyloides	Buffalograss	x	
Hilaria berlangeri	Common curlymesquite	x	
Panicum coloratum	Kleingrass	x	
Setaria macrostachya	Bristlegrass	x	
CYPERACEAE			
Cyperus sp.	Flatsedge		x
Eleocharis sp.	Spikerush		x
PONTEDERIACEAE			
Eurystemon mexicanum	-		x
LILLACEAE			
Yucca treculeana	Spanish dagger	x	
AMARYLLIDACEAE			
Zephryranthes pulchella	Rain-lilly	x	x
ULMACEAE			
Celtis laevigata	Hackberry	x	
LORANTHACEAE			
Phoradendron tomentosum	Injerto, Mistletoe	x	
POLYGONACEAE			
Rumex crispus	Yellow dock	x	x
CHENOPODIACEAE			
Chenopodium album	Pigweed	x	
AMARANTHACEAE			
Amaranthus hybridus	Green amaranth	x	
RANUNCULACEAE			
Clematis Drummondii	Texas Virgin's Bower	x	

Table III-3 (cont'd)

Checklist of Plants Found on the Runway
at Newman Site in Kinney County, Texas

Scientific Name	Common Name	Occurrence M-G	Occurrence W
BERBERIDACEAE			
Berber trifoliolata	Agarita	x	
LEGUMINOSAE			
Prosopis glandulosa	Honey Mesquite	x	
OXALIDACEAE			
Oxalis dellenii	Wood Sorrel	x	
ZYGOPHYLLACEAE			
Porelieria angustifolia	Guayacan	x	
EUPHORBIACEAE			
Jatropha carthartica	Jicamilla	x	
Croton torreyanus	Vara Blanca	x	
RHAMNACEAE			
Condalia Hookeri	Brazil	x	
VITACEAE			
Cissus incisa	Marine-ivy	x	x
MALVACEAE			
Abutilon incanum	Pelatazo	x	
Sida rhombifolia	Axocatzin	x	
CACTACEAE			
Echinocactus texensis	Horse crippler	x	
Opuntia lindheimeri	Texas Prickly Pear	x	
Opuntia leptocaulis	Tasajillo	x	
LYTHRACEAE			
Lythrum californicum	Hierba del Cancer	x	
GENTIANACEAE			
Centaurium calycosum var. calycosum	Rosita	x	
Eustoma exaltatum	Catchfly-gentain	x	
CONVOLVULACEAE			
Convolvulus arvensis	Bindweed	x	

Table III-3 (cont'd)

Checklist of Plants Found on the Runway
at Newman Site in Kinney County, Texas

Scientific Name	Common Name	Occurrence M-G	Occurrence W
VERBENACEAE			
Aloysia gratissima	Whitebrush	x	
Verbena bipinnatifida	Dakota Vervain	x	
SOLANACEAE			
Solanum elaeagnifolium	Silver-leaf Nightshade	x	
SCROPHULARIACEAE			
Ammannia coccinea	Tooth-cup		x
Stemodia Schottii	-		x
MARTYNIACEAE			
Proboscidea louisianica	Unicorn Plant	x	
ACANTHACEAE			
Ruellia sp.	-	x	
PLANTAGINACEAE			
Plantago rhodosperma	Red-seeded Plantain	x	
COMPOSITAE			
Coreopsis cardaminaefolia	-	x	
Helenuim microcephalum	Sneezeweed	x	
Ratibida columnaris	Mexican Hat	x	
Eupatorium sp.	-	x	

M-G = Mesquite-Grassland species
W = Wetland species

surrounding these wetlands. The mesquite and cactus bordering the wetlands exhibited stress due to the prolonged standing water.

The dominant vegetation, mesquite-grassland, on the Plaza and Ward sites is similar to that described for the Newman site. The Plaza site is drained by Salado Creek, an ephemeral stream, and bordered by Las Moras Creek on the western side of the site. While not verified, vegetation at these specific locations should not be expected to differ from that described for the Newman site.

5. Vertebrates

a. Reptiles and Amphibians

Because of limited surface water in the proposed project area, amphibian populations are low and usually associated with stock tanks or depression wetlands. Five amphibians were observed on the site (Table III-4). Couch's spadefoot (Scaphiopus couchi) was found to be widely scattered over the project area during rainy periods during the site visit. Blanchard's cricket frog (Acris crepitans blanchardi) was observed in the depression wetlands. Texas and Gulf Coast toads (Bufo speciosus and B. valliceps) were observed throughout the project area. The Rio Grande leopard frog (Rana berlandieri) was found in all community types. It was trapped on one occasion in a mammal trap.

Reptiles were common but not very abundant (Appendix E). This may have been due to the dense grass which made observation difficult. The most abundant

Table III-4

Amphibian and Reptile Species Observed
on the Newman Site, Kinney County, Texas

Common Name	Scientific Name
AMPHIBIA	
Couch's spadefoot	*Scaphiopus couchi*
Blanchard's Cricket Frog	*Acris crepitans blachardi*
Texas toad	*Bufo speciosus*
Gulf Coast toad	*Bufo valliceps*
Rio Grande Leopard Frog	*Rana berlandieri*
REPTILIA	
Red-eared slider	*Trachemys scripta elegans*
Texas tortoise	*Gopherus berlandieri*
Smooth softshell	*Trionyx muticus*
Texas spotted whiptail	*Cnemidophorus gularis*
Texas horned lizard	*Phrynosoma cornutum*
Ribbon snake	*Thamnophis proximus*
Bullsnake	*Pituophis melanoleucus ruthveni*

reptiles were Texas horned lizard (Phrynosoma cornutum) and Texas tortoise (Gopherus berlandieri)(Table III-4). These two species were found throughout the mesquite-grasslands. Only a couple of Texas spotted whiptail lizards (Cnemidophorus gularis) were observed along dirt roads. A smooth softshell turtle (Trionyx muticus) was observed traveling between wetland sites. Only two snakes were observed. The ribbon snake (Thamnophis proximus) was found around wetlands and stock tanks and a dead bull snake (Pituophis melanoleucus ruthveni) was observed on the highway adjacent to the site.

b. Fishes

No fish habitat is present on the Newman site except stock tanks. None of these stock tanks are in the proposed project boundaries. Las Moras Creek and the pond near Highway 131 on the Ward site may provide habitat for fishes.

c. Birds

The low habitat diversity on the proposed project area does not produce a large variety of birds. Thirty-four species were recorded on or near the area during the field work in July 1987 (Table III-5) and 44 species were recorded during November 1987 (Table III-6). The most common species in the mesquite-grassland were bobwhite (Colinus virginianus), mourning dove (Zenaida macroura), scissor-tailed flycatcher (Muscivora forficata), great crested flycatcher (Myiarchus crinitus), mockingbird (Mimus polyglottos), pyrrhuloxia (Pyrrhuloxia sinuata), and white-crowned sparrow (Zonotrichia leucophrys). All of these are residents and were nesting or had already reared young. Several eastern turkeys were observed on the Newman site.

Table III-5

Bird Species Observed On or Near
the Proposed Site During July 1987

Common Name	Scientific Name
Great blue heron	Ardea herodias
Black-bellied tree duck	Dendrocygna autumnalis
Blue-winged teal	Anas discors
Black vulture	Coragyps atratus
Turkey vulture	Cathartes aura
Red-tailed	Buteo jamaicensis
Swainson's hawk	B. swainsoni
Northern harrier	Circus cyaneus
Bobwhite	Colinus virginianus
Eastern turkey	Meleagris gallopavo
Common moorhen (Common galinule)	Gallinula chloropus
American coot	Fulica americana
Killdeer	C. vociferus
Mourning dove	Zenaida macroura
Ground dove	Columbina passerina
Roadrunner	Geococcyx californianus
Chuck-will's-widow	Caprimulgus carolinensis
Chimney swift	Chaetura pelagica
Ruby-throated hummingbird	Archilochus colubris
Common flicker	Colaptes auratus
Eastern kingbird	Tyrannus tyrannus
Great crested flycatcher	Myiarchus crinitus
Scissor-tailed flycatcher	Muscivora forficata
Barn swallow	Hirundo rustica
American crow	Coryus brachrhynchos
Bewick's wren	Thryomanes bewickii
Mockingbird	Mimus polyglottos
Bullock's oriole	Icterus galbula bullockii
Red-winged blackbird	Agelaus phoeniceus
Great-tailed grackle	Quiscalus mexicanus
Brown-headed cowbird	Molothrus ater
Pyrrhuloxia	Pyrrhuloxia sinuata
Lark Sparrow	Chondestes gammacus
White-crowned sparrow	Zonotrichia leucophrys

Table III-6

Bird Species Observed On or Near the Proposed Site During November 1987

Common Name	Scientific Name
Great Blue Heron	Ardea herodias
Great Yellowlegs	Totanus melanoleucus
Long-billed dowitcher	Limnodromus scolopaceus
Killdeer	Choradrius vociferus
Snowy Egret	Leucophoyx thula
White-faced Ibis	Plegadis chihi
Sandhill crane	Grus canadensis
Road Runner	Geococcyx californianus
Mockingbird	Mimus polyglottos
Vermilion flycatcher	Pyrocephalus rubinus
Red-winged blackbird	Agelaus phoeniceus
Pyrrhuloxia	Pyrrhuloxia sinuata
Cardinal	Richmondena cardinalis
White-crowned sparrow	Zonotrichia leucaphrys
Say's phoebe	Sayornis saya
Boat-tailed grackle	Cassidix mexicanus
Loggerhead shrike	Lanius ludovicianus
Western meadowlark	Sturnella neglecta
Common Flicker	Colaptes auratus
Belted kingfisher	Megaceryle alcyon
Common raven	Corvus corax
Mourning dove	Zenaidura macroura
Bobwhite	Colinus virginianus
Scaled quail	Callipepla squamata
Eastern turkey	Meleagris gallopavo
Great horned owl	Bubo virginianus
Black vulture	Coragyps atratus
Red-tailed hawk	Buteo jamaicensis
Swainson's hawk	Buteo swainsoni
Harris' hawk	Parabuteo unicinctus
Sharp-skinned hawk	Accipiter striatus
Northern harrier	Circus cyaneus
American kestrel	Falco sparverius
Cinnamon teal	Anas cyanoptera
Green-winged teal	Anas carolinensis
Blue-winged teal	Anas discors
Redhead	Aythya americana
Pintail	Anas acuta
Gadwall	Anas strepera
Black-bellied tree duck	Dendrocygna autumnalis
American widgeon	Moreca americana
Bufflehead	Bucephala albeola
Red-bellied grebe	Podilymbus podiceps
American coot	Fulica americana

The depression wetlands were utilized by several bird species for feeding with the most common being the red-winged blackbirds (Agelaus phoeniceus). Black-bellied tree ducks (Dendrocygna autumnalis) were nesting either in or adjacent to the wetlands. Barn swallows (Hirundo rustica) and Chuck-will's-widows (Caprimulgus carolinensis) were observed utilizing the wetlands for feeding grounds.

Kinney County is located in the Western Plains migration corridor of the Central Flyway (Bellrose, 1968)(34). Dabbling ducks that use this corridor include mallards (Anas platyrhynchos), pintails (Anas acuta), widgeons (Mareca americana), green-winged teal (Anas carolinensis), gadwalls (Anas strepesa) and shovelors (Spatula clypoata) in order of decreasing numbers in the corridor. Diving ducks that migrate in the Western Plains corridor include lesser scoups (Aythya affinis), redheads (Aythya americana) and canvasbacks (Aythya valisineria) in order of decreasing numbers in the corridor. Geese, in general, do not migrate in large numbers in southwest Texas and would not be frequently encountered in Kinney County. The corridors frequented by the Canada goose (Branta canadensis), blue goose (Chen caerulescens) and snow goose (Chen hyperborea) are located in east Texas and areas near the Texas Gulf Coast.

Two ponds containing identified waterfowl were observed. One is located just north of the Maverick-Kinney County line, to the east of Highway 131. This pond was consistently utilized by a group of 25 to 30 green winged teal and 2 black-bellied tree ducks. The second pond, located east of Highway 131 on the Ward site, attracted the following species of waterfowl:

- Cinnamon teal
- Green winged teal
- Blue winged teal
- Redhead
- Pintail
- Gadwall
- American widgeon
- Bufflehead
- Pied-billed grebe

A group of 10 pintail and 5 gadwall were the largest concentrations of birds observed at this pond. Typically, solitary birds were recorded at the site. Feeding and resting behaviors were noted.

Northern harrier and Harris hawks were frequently observed in small groups of two or three birds. These raptors were noted at least once over each of the prospective sites. Three flocks of sandhill cranes were observed on 20 November. A large flock of 200-300 birds was concentrated on grain and cornfields approximately 9 miles northwest of Spofford. Two other flocks, one of approximately 200 birds and one of approximately 75 birds, were observed in flight to this area. On 22 November a flock of approximately 100 sandhill cranes was encountered in mesquite-grassland habitat 7 miles west of Spofford, near the area where Farm Road 1908 crosses Las Moras Creek. The flocks of sandhill cranes represented the largest concentrations of migratory birds observed during the field work. The small pond on the Newman site, while containing water, did not attract birds during the field work. One great blue heron was recorded at this location.

Coveys of quail were very common in areas alongside the highways that had been graded. Near Las Moras Creek, just below the railroad, a concentration of 20-25 turkey were observed twice, feeding upon pecan nuts. Meadowlarks,

pyrrhuloxia, shrikes and mockingbirds, while very common and abundant throughout the area of the transects, occurred as individuals.

d. Mammals

Eight species of mammals were observed during the July and November 1987 field work, three were trapped and three were known to utilize the Newman site since their scat or tracks were observed (Table III-7). The most important game mammal observed in the area is the white-tailed deer. Deer utilize all of the habitats on the site. The density of the mesquite-grassland is favorable to deer in providing suitable cover and food requirements, but the wetlands are a favored feeding site. Deer trails were very abundant in the area, nearly all of which lead toward the wetland sites.

Small mammal trapping was conducted for three consecutive nights (Table III-8). A total of 72 rodents were captured representing three species. Two trap lines were in mesquite-grasslands, none were run in the wetland because of standing water. Trap line 2 had a dense mesquite canopy while trap line 1 had sparse mesquite over most of the trap line. Hispid cotton rats (Sigmodon hispidus) were the most abundant species on both trap lines. The white-footed mouse (Peromyscus leucopus) was trapped only three times. Southern plains woodrats (Neotoma micropus) were trapped on trap line 2 only. This is expected since this species builds a large nest out of dead twigs, branches and cactus pads; these building materials were scarce at this site. Trap line 1 produced fewer rodents primarily due to less structural complexity in the community (i.e., there was less dead wood and burrow sites and more openness favoring predators).

Table III-7

Mammal Species Observed (or Their Sign) During the Site Visits During July 1987 and November 1987

Common Name	Scientific Name
Common Opossum	*Didelphis marsupialis*
Raccoon	*Procyon lotor*
Eastern spotted skunk	*Spilogale putorius*
Coyote	*Canis latrans*
Mexican ground squirrel	*Citellus mexicanus*
White-footed mouse	*Peromyscus leucopus*
Hispid cotton rat	*Sigmodon hispidus*
Southern plains woodrat	*Neotoma micropus*
Eastern cottontail	*Sylvilagus floridanus*
Black-tailed jackrabbit	*Lepus californicus*
White-tailed deer	*Odocoileus virginianus*
Collared Peccary	*Dicotyles tajaca*
Nine-banded armadillo	*Dasypus novemcinctus*
Bobcat	*Felis rufus*

Table III-8

Small Mammals Live-Trapped on the Newman Site
During Three Nights

Species	Trap-line 1						Trap-line 2					
	July 16		July 17		July 18		July 16		July 17		July 18	
	m[1]	e[2]	m	e	m	total	m	e	m	e	m	total
Hispid cotton rat	2	0	5	5	14	26	1	2	13	7	17	40
White-footed mouse	0	0	1	0	1	2	0	0	0	0	1	1
Southern plains woodrat	0	0	0	0	0	0	0	0	1	0	2	3
Total captures	2	0	6	5	15	28	1	2	14	7	20	44

[1] morning
[2] evening

6. Threatened or Endangered Species

No Federally listed threatened or endangered species occur within the proposed project area (Appendix C). There are, however, five plant species of concern listed by the Texas Natural Heritage Program (1987)(35) and Texas Organization for Endangered Species (1983)(36) which do occur within the county but are not protected by law. These species are Texas trumpets (Acleisanthes crassifolia), silvery wild mercury (Argythamnia argyraea), broadpod rushpea (Caesalpinia brachycarpa), Mimosa wherryana, and Buckley tridents (Tridens buckleyanus). Based on distribution records and habitat data, these species are not anticipated to occur on the present proposed project area.

Two of the reptiles found on the project area are listed by the Texas Organization for Endangered Species (1984)(37) and Texas Natural Heritage Program (1987)(38). These are Texas tortoise and Texas horned lizard. Both of these species have limited distributions and need protection due to over collecting, habitat destruction, and commercial exploitation. The white-faced ibis, Plegadis chihi, was observed at the pond near Highway 131 on the Ward site during the November 1987 fieldwork.

7. Unique or Environmentally Sensitive Resources

The depression wetlands are an important habitat providing nesting, feeding and watering sites for several wildlife species. In addition to their heavy use by deer, they are used by wading birds and migratory water fowl. They are unique sites in the south Texas brush country and should be given special consideration.

G. Historical/Cultural Resources

Archeological studies in Kinney County and the surrounding region (39,40) suggest a complex cultural history due to the interaction of peoples from three archeologically defined regions -- Central Texas, South Texas and the Lower Pecos. Tomka et al. (39) document the past archeological research within the region according to three temporal periods: the Paleoindian, Archaic and Late Prehistoric. Although this regional perspective documents the presence of man within the Kinney County region from the Paleoindian period to the time of European contact, most of the archeological research in Kinney County has been focused on the Balcones Escarpment and the Edwards Plateau country rather than on the Rio Grande Plain where the project area is located. Consequently, the variety of burned rock midden sites (41), rock shelters (42,43), and terrace sites (44) presently known are not the types of sites which should be necessarily expected within the immediate project area. In an attempt to model prehistoric land use patterns within the project area, Tomka et al. (39) examined the prior archeological work in several surrounding counties (Val Verde, Edwards, Uvalde, Zavala, Dimmit, Maverick). Only three studies, the Chaparrosa Archeological Project in Zavala and Dimmit Counties (45), the Maverick County Coal Project (46), and Saunders' study of the Blue Hills area (47) are particularly relevant to the project area which is located in a similar upland interior environment.

Hester's study (45) of Chaparrosa Ranch revealed that most sites are located in the floodplain or terrace microenvironments. Such sites are usually extensive base camps with a wide range of cultural debris. Short-term foraging camps or lithic procurement localities are found on gravel terraces

which rim the stream valleys and on the open, sandy upland country. Such a pattern is consistent for both the Archaic and Late Prehistoric periods, for Late Prehistoric sites are also concentrated within the floodplain-riparian ecotone (48).

The survey of Elm Creek north of Eagle Pass in Maverick County by Espey, Huston and Associates, Inc. (46) revealed a similar concentration of sites within the floodplain environment. Four site types were recognized: large campsites, small campsites, expediency sites, and lithic procurement sites. Except for lithic procurement activities, the inhabitants of this area apparently spent most of their time within the floodplain environment. Only the lithic procurement sites are primarily found in the uplands where upland lag gravel deposits are ubiquitous. Denney (46) notes that limited evidence of the use of the upland gravels is present throughout the uplands; however, only concentrated clusters of debris were defined as sites.

Saunders' studies (47) at Hinds Ranch and Blue Hills were designed to examine the nature of the prehistoric use of the interior uplands as opposed to the upland areas along canyon rims. Although both areas were used throughout prehistory, the intensity and type of use differed significantly between the two areas. For example, burned rock middens and formal features were characteristic of the Hinds Ranch sites but were absent within the Blue Hills area. The less varied and less dense assemblages of the Blue Hills area indicate a less intensive use of the interior uplands. Activities were necessarily focused within those environmental zones which provided the major subsistence resources for the prehistoric inhabitants.

As Tomka et al. (39) note, a review of the archeological literature for the region surrounding the project area indicates that prehistoric settlement-subsistence patterns focused on the resource rich areas adjacent to the major streams. As the streams get smaller or as one moves onto the interior upland, the variety and density of easily exploited resources decreases; consequently, specialized activity sites are expected within such areas. Tool kits are therefore very limited in variety and burned rock accumulations will be relatively sparse. If raw materials suitable for the production of stone tools are available, the lithic debris derived from the initial stages of core reduction may be present. On the interior uplands, archeological remains will likely represent the result of encounter hunting or lithic procurement activities conducted as a part of the normal hunting and gathering routines (49). Short term encampments for groups moving to new resource areas may also be expected.

Given man's need for water, one might expect that the historic use of the interior upland would be similarly sparse unless the presence of a valuable resource would prompt the development of technology to overcome such problems. Given the present isolation of the project area from major towns, transportation routes, and waterways, the project area likely served as a part of larger ranches with access to reliable water supplies. Any homestead within the project area would have faced a precarious existence and would have been eventually incorporated into a larger ranch. As Howard et al. (50) point out, Kinney County was settled relatively late due to the presence of hostile Indians and its isolation from major transportation routes. Other than the initial attempt to establish Villa de Dolores on Las Moras Creek in 1834, the county remained unsettled until 1852 when Ft. Clark and the town of Brackett

were established. The influx of settlers, however, was not significant until after the Civil War when the construction of railroads and the development of irrigation systems along major streams spurred the development of the ranching industry (50).

As Howard et al. (50) note, the surveys or sections which comprise the project area were either parts of ranches whose headquarters were located elsewhere or individual sections held by speculators who lived elsewhere in Texas or in other states. The state owned surveys (Surveys 6, 12, 18, and 554) in the project area were not purchased by settlers seeking a homestead or additional range land until 1909 when W. I. Clark initiated a three year period of occupancy on Surveys 18 and 555. Two years later, C. H. Neely began his residency period on Survey 12. Although there is documentary evidence that Clark actually lived on Survey 18, Neely's occupation of Survey 12 (both its location and duration) is not documented (50).

Historically, the project area has been an isolated portion of Kinney County. Development of the area was affected by the lack of reliable surface water resources. The area functioned primarily as a part of larger ranches which had access to water resources elsewhere. Consequently, ranch headquarters should not be located within the project area; rather, the historic sites which may be expected within the project area are isolated occurrences, such as corrals, or short term homestead sites.

An assessment of the cultural resources within the preferred runway alignment for the relocation of the Laughlin auxiliary airstrip was accomplished through archival research and two pedestrian surveys (50,39). The initial survey (50)

involved a 10 percent survey of 3100 acres within the Newman Ranch. The survey area was divided into three strata, each 1200 ft wide, which follow the alignment of the three potential runway sites within the 3100 acres (Figure III-8). Fifty percent of the survey effort was expended within Stratum 2 which was regarded as the most likely position for the runway. Three archeological sites were discovered by this initial survey effort. Stratum 1 contained two prehistoric sites (41KY36, 41KY37) and Stratum 3 contained one prehistoric site (41KY35). Each site yielded only four artifacts. Such sites represent diffuse lithic procurement sites which are restricted to a surface context. Since such sites do not promise to yield additional information important to the study of regional prehistory, they were judged to be not eligible for listing on the National Register of Historic Places (50).

Even though the initial survey indicated that Stratum 2 had a low potential for archeological sites, a subsequent 100 percent survey within Stratum 2 was conducted to ensure that no significant cultural resources would be affected by the preferred runway site. This survey located an additional prehistoric site (41KY41), a modern corral, and 16 temporary mesquite shelters or jacals which were built by recent transients. The prehistoric site (41KY41), like the others, represents lithic procurement activities in an upland context which offers widely dispersed lithic resources. Like the previously discovered prehistoric sites, it was judged to be ineligible for nomination to the National Register of Historic Places (39).

The modern corral and the recent jacal structures were similarly judged to be ineligible for nomination to the National Register of Historic Places. Archival research (50), however, revealed that potential homestead sites might

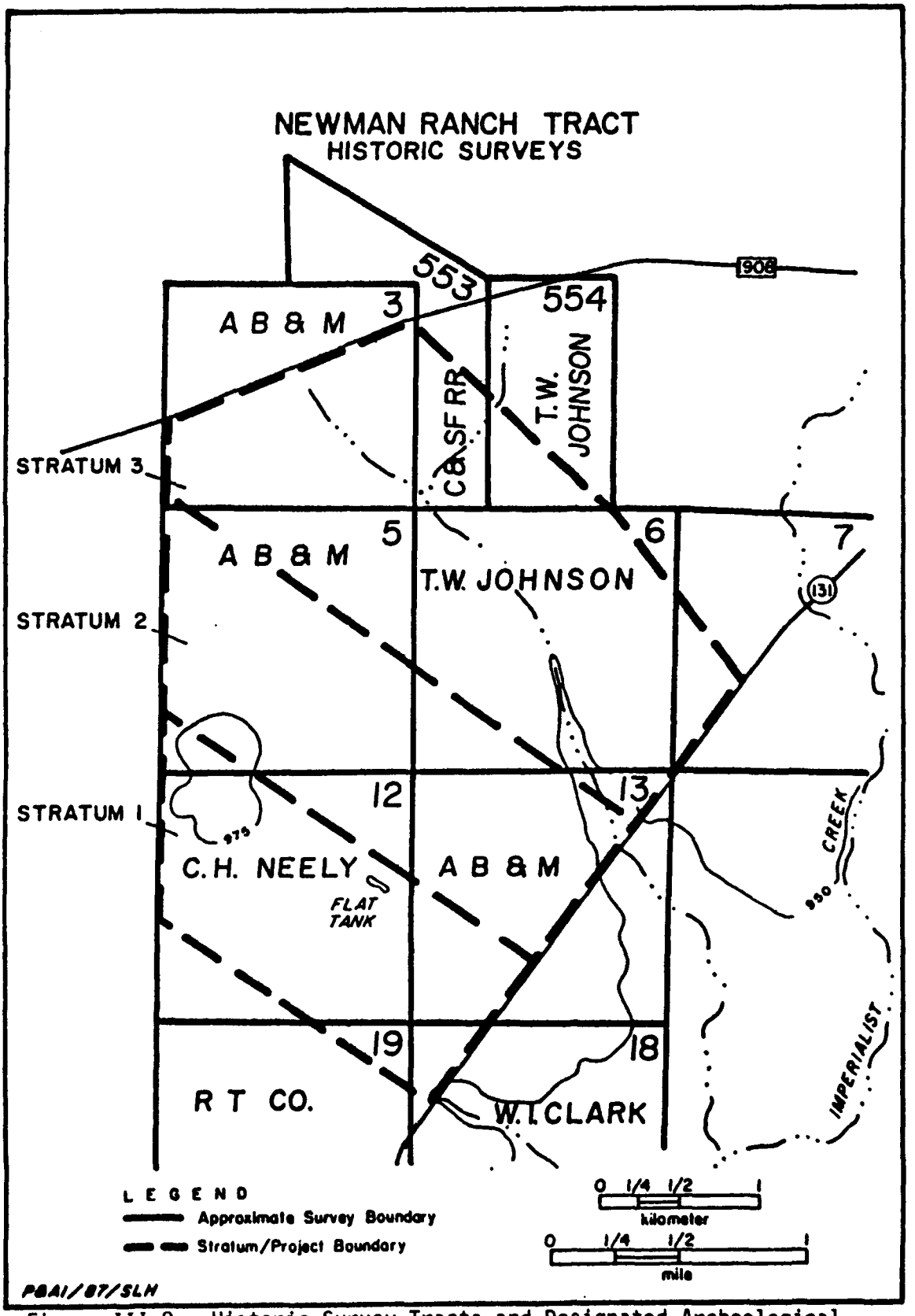


Figure III-8. Historic Survey Tracts and Designated Archeological Survey Strata within the Newman Ranch Tract. Figure is from Howard et al. (1987)(50).

be present within the project area. Most of the tract on which the C. H. Neely homestead (1911) is presumably located is within the project area in Stratum 1. Although the tract extends into Stratum 2, no archeological evidence of the Neely homestead was found. The W. I. Clark homestead (1909) is also located near the project area, but only a small portion of the tract on which the Clark homestead is located is included in the southeast corner of Stratum 1. Therefore, it is unlikely that the Clark homestead is within the project area (50).

H. Socioeconomic Resources

1. Project Area Definition

The proposed project would be located in southern Kinney County, Texas on Highway 131 between Spofford, Texas and the Maverick/Kinney County line. The closest cities/towns to the proposed project area are Eagle Pass and Quemado in Maverick County and Brackettville and Spofford in Kinney County. These cities represent the major concentrations of population, commerce and industry in the immediate project area. Maverick County socioeconomic interests are also presented due to its proximity to the project area and since socioeconomic impacts of the proposed action would have effect in Maverick County which contains the existing Laughlin auxiliary airfield.

The Middle Rio Grande Development Council (51,52) has been the source for all socioeconomic data in this document. Their 1985 estimates and projections are considered the most reliable data since the 1980 census. Eagle Pass (population 22,750) and Brackettville (population 1,967) are the Maverick and

Kinney County seats, respectively. Quemado has an estimated population of 2,250 and Spofford is estimated at 71.

2. Economic Development

Both Maverick and Kinney Counties were explored by early Spanish explorers in the 16th and 17th centuries. A 16th Century trade route, the old San Antonio Road, crossed the Rio Grande River, just south of what is now Eagle Pass, Texas at the San Juan Bautista Mission. This was the first of a chain of Spanish missions in Texas. The first permanent settlement by Anglo-Americans in Kinney County did not occur until 1834. The townsite of Villa de Dolores on Las Moras Creek, however, ended within two years due to drought, Comanche raids and fear of the Mexican Army (53). Permanent settlement of the region did not occur until the U.S. Army established Fort Clark at Las Moras Springs in 1852 and Fort Duncan at Eagle Pass in 1849. A significant civilian population did not immigrate into the area, however, until after the Civil War when grants of land to railroads and their subsequent sale to private investors resulted in the creation of large ranches and speculative real estate interests. Construction of the Galveston, Harrisburg and San Antonio Railroad in 1883 stimulated the growth of the ranching industry by providing markets for cattle and wool. The development of irrigation systems along major streams further stimulated the economy of the county.

A major portion of the project area was not privately owned until the 1870's when the state awarded alternate sections to companies to compensate them for the construction of railroad track or other county improvements. The companies typically sold their sections to investors who probably never saw

their land before selling it to large cattle companies such as Woodhull Brothers or Mair and Driver. Although Surveys 3, 5, 7, 13, 19 and 553 (see Figure III-8) passed into private ownership by the early 1880's, the alternate surveys (Surveys 6, 12, 18 and 554) owned by the state were not purchased by individuals until after 1900. Some surveys were leased by livestock companies for range land, but no settlers purchased the property for homesteading or additional range land for a nearby homestead until 1909. With the exception of Surveys 12, 554 and 3, the tracts of land within the project area were frequently sold until the late 1920's when they became part of two large ranches. Ranching remains as an important sector in the economy of Kinney County.

The economic base in Maverick County has historically been tied to agricultural production. Farming in the fertile valleys of the Rio Grande, cattle ranching and feedlot activity, remains a major economic sector which produces an average annual income of $39.3 million. International trade with Mexico and manufacturing are two rapidly growing sectors of Maverick County's economy. Eagle Pass's strategic location as a major rail and highway entry point into Mexico has led to its development as a trade center. Manufacturing accounts for an annual payroll of $7.6 million while producing $65.5 million worth of products. The Maquiladora "Twin Plant" manufacturing concept has been very successful in Eagle Pass and Piedras Negras, Coahiula. In essence, this concept, under U.S. Customs Regulations 806 or 807, gives special tariff considerations for goods which are manufactured partially in the United States and partly in Mexico.

Tourism has been important to the Kinney County economy. Fort Clark has been restored and converted into a popular resort-living community. Alamo Village, a movie western town, offers daily attractions: old west gunfights, stagecoach rides, music and dancing. Many historic frontier structures in Brackettville have been restored into residences and commercial businesses. A growing number of art and antique shops have added to this flavor. Las Moras Creek and Fort Clark Springs not only supply the community's water needs, but also feed the largest swimming pool in Texas.

3. Population

Population history since 1970 is presented in Table III-9. Included are data from Kinney and Maverick County and the cities of Brackettville and Eagle Pass. Data is projected through the year 2000.

From the year 1985 to the year 2000 Maverick County is expected to grow faster than Eagle Pass, with growth rates of 1.74 and 1.32, respectively. Kinney County is predicted to grow slower than Brackettville with rates of 1.20 and 1.29, respectively. This implies a tendency toward living in smaller communities and rural property in Maverick County, but away from such tendencies in Kinney County.

4. Age and Sex Distribution

Population distribution by age and sex is given for both Maverick and Kinney Counties in Table III-10. In both Kinney and Maverick Counties, the population declines after high school. Apparently this is due to departure

Table III-9

Historical and Projected Populations by County/City

City/County	1960	1970	1980	1985	1990	1995	2000
Kinney	2,452	2,006	2,279	2,487	2,716	2,842	2,975
Brackettville	1,662	1,539	1,676	1,776	2,061	2,164	2,293
Maverick	14,508	18,093	31,398	40,125	51,278	59,836	69,823
Eagle Pass	13,094	15,364	21,407	22,750	23,523	26,328	30,119

Source: Middle Rio Grande Development Council, 1986 (51,52); U.S. Bureau of the Census, 1980 (54); Texas Department of Water Resources, 1984 (55)

Table III-10

Population Distribution by Age and Sex

	Maverick County				Kinney County			
Age group	Male	Female	Total	%	Male	Female	Total	%
0-9	3,528	3,490	7,018	22	185	174	359	16
10-14	1,894	1,876	3,770	12	129	97	226	10
15-19	1,812	1,843	3,655	12	120	100	220	10
20-24	1,161	1,408	2,569	8	54	75	129	5
25-44	3,421	4,055	7,476	24	227	222	449	20
45-59	1,835	2,062	3,897	12	204	228	432	19
60+	1,397	1,616	3,013	10	220	244	464	20
Total	15,048	16,350	31,398		1,139	1,140	2,279	
Median	21.1	23.4	22		30.9	33.4	32	

Source: Middle Rio Grande Development Council, 1986 (51,52)

for advanced education and/or employment. This is particularly true of males as would be expected with reduced employment opportunities. About 39 percent of the Kinney County population is over 45 years of age, while in Maverick County it is 22 percent. The average age in Kinney County is 10 years older than Maverick (32 compared to 22). This is probably due to the agriculturally oriented economy of Kinney County which was the economic cornerstone of the older generation.

5. Available Housing Units

The average housing units available in Kinney and Maverick Counties are listed in Table III-11. Prices and construction cost estimates are included.

6. Labor Force

The portion of the population included in a labor force is normally people 16-64 years of age and available for work. There were 13,055 people in Maverick County in the work force in October 1986, including 9,142 employed and 3,913 unemployed. This is equivalent to 30 percent unemployment. In Kinney County, the labor force was 1105. There were 1015 persons employed and 90 unemployed, an unemployment rate of 8.1 percent in Kinney County.

7. Employment

The largest category of employment in Maverick County is the non-manufacturing sector, consisting of trades, services, construction, and government workers.

Table III-11

Housing Availability and Cost

	Maverick Co.		Kinney Co.	
	Units	Price	Units	Price
Homes (sale)	65-80(2-3 Br)	$48,000	15 (3 Br)	$30,000-$50,000
Homes (rent)	270	$250-Up	5 (3 Br)	$350/Mo.
Apartments (rent)	270	$250-UP	10	$225-$600/Mo.
Building Cost	2000 Sq.Ft.	$30/Sq.Ft.	2000-2500 Sq.Ft.	$35/Sq. Ft.
Lots (sale)	40'x140'	$10,000	110'x160'	$5,000-Up

Source: Middle Rio Grande Development Council, 1986 (51,52)

The state, local, and Federal governments combined are the largest employers. Kinney County is primarily agribusiness, retail trade and services (51,52).

8. Income

Income by household averaged $13,863 for Maverick County from a total number of 9,500 households. Kinney County household income averaged $15,821 from 800 households (51,52). Table III-12 details this information.

9. Transportation System

a. Highways

Major highways in the area are U.S. Highway 277, State Highway 131 and International Highway 57 (see Figure I-1). The closest major city to the proposed project is San Antonio, Texas, about 150 miles away.

b. Rail

The area is served by Southern Pacific Railroad, class one service, averaging two trains per day. Switching and piggyback services are available. There is an international rail line into Mexico.

c. Air

Private air service is available from Maverick International Airport and Fort Clark Airport (private). The closest commercial airport offering full airline

Table III-12

Household Income in 1985 for Maverick & Kinney Counties

Effective Buying Income	Percent of households Maverick County %	Kinney County %
$10,000-$19,999	33.9	32.9
$20,000-$34,999	23.3	23.1
$35,000-$49,999	6.0	9.6
Over $50,000	2.4	3.1

Source: Middle Rio Grande Development Council, 1986 (51,52)

service is San Antonio International, although there is limited service available at Del Rio International Airport.

d. Bus

The area is served by Painter Bus Lines and Greyhound Bus line. Terminal points are San Antonio and Kerrville. There are four stops a day.

10. Public Services and Social Institutions

One hospital, with 77 beds and all services, is located in Eagle Pass. There are three ambulance services available. The proposed project is in Congressional District 23 with 12,495 voters registered in both counties. The law officer/population ratio is 1:246 in Maverick and 1:67 in Kinney County In the Eagle Pass Independent School District, there are nine elementary schools, two middle schools, and one high school. Student teacher ratio is 20:1 and 8,956 students are enrolled. Kinney County has one school, grades K-12 with a student teacher ratio of 15:1 and an enrollment of 630. There are two private schools in Maverick County. The nearest college campus is in Uvalde. Sul-Ross State University serves Eagle Pass with a satellite campus. There are two commercial banks and several savings and loans in Eagle Pass.

Central Power and Light Company supplies power to the Kinney/Maverick County area. Power is available to rural sites. Eagle Pass produces about 4.5 million gallons of water per day from the Rio Grande River. Wells from the Edwards Aquifer supply 650,000 gallons daily to the city of Brackettville. Many rural wells do not have access to this aquifer and are generally of low

yield. Southwestern Bell furnishes telephone services to cities. Rural access is more costly and complicated. Sewage and solid waste facilities are available in the cities for nominal fees. Natural gas is supplied to Brackettville and Eagle Pass while butane and propane are provided throughout the project area.

I. Water Supply and Quality

1. Surface

The project area for the auxiliary airfield is located on the eastern edge of the middle Rio Grande drainage basin about 12 miles northwest of the Rio Grande River. Average annual rainfall is about 21 inches in an area which is generally flat. Storm runoff is slow with every depression and catch basin retaining water. The dominant soil association in this area is Uvalde-Montell classified as deep, nearly level, loamy and clayey, moderately permeable to slowly permeable. Farm tanks/ponds and pools in the local creeks (Salado and Imperialist) are the major sources of surface water, but these tend to dry up during the hot summers.

The closest major supply of surface water in the area is the Rio Grande River. According to Texas Department of Water Resources (1984)(55), the discharge of the Rio Grande River at the gaging station in El Paso, Texas is indicative of the amount of Rio Grande water available to Texas. The 1941-1970 annual flow there averaged 375,400 acre-feet, dropping from 699,600 acre-feet during the period 1890-1940.

The water quality of the Rio Grande River basin varies widely from season to season and place to place, because of the range of climatic and geologic conditions. Upstream of Amistad Lake (Del Rio), tributaries of the Rio Grande make important contributions to water quality (Figure III-9). The Pecos River flow is highly saline, but improves in periods of high runoff. Conversely, the Devils River quality is excellent. Naturally occurring detectable concentrations of mercury, originating in the Terlingua Creek drainage area, are periodically found through the Big Bend region of the river. Sulfate concentrations are found from Amistad to Falcon Reservoir. The Conchos River has been identified as a source of pesticides to the Rio Grande. Due to municipal effluents the Rio Grande downstream of El Paso has depressed levels of dissolved oxygen and elevated nutrients and fecal coliform. The City of Eagle Pass processes 4.5 million gallons per day of Rio Grande River water for public consumption.

2. Ground Water

There are no major or minor aquifers in the central/western portion of Maverick County or in the southern third of Kinney County. The project area appears to be very near the western edge of the Edwards Aquifer and southern edge of the Trinity Aquifer.

The Edwards-Trinity (Plateau) Aquifer underlies a large area in the middle part of the Rio Grande Basin. The thickness of the limestone section ranges up to 1,000 feet. The sand is usually less than 100 feet thick. Well yields range up to 3,000 gallons per minute (gpm). Water quality ranges from fresh to slightly saline.

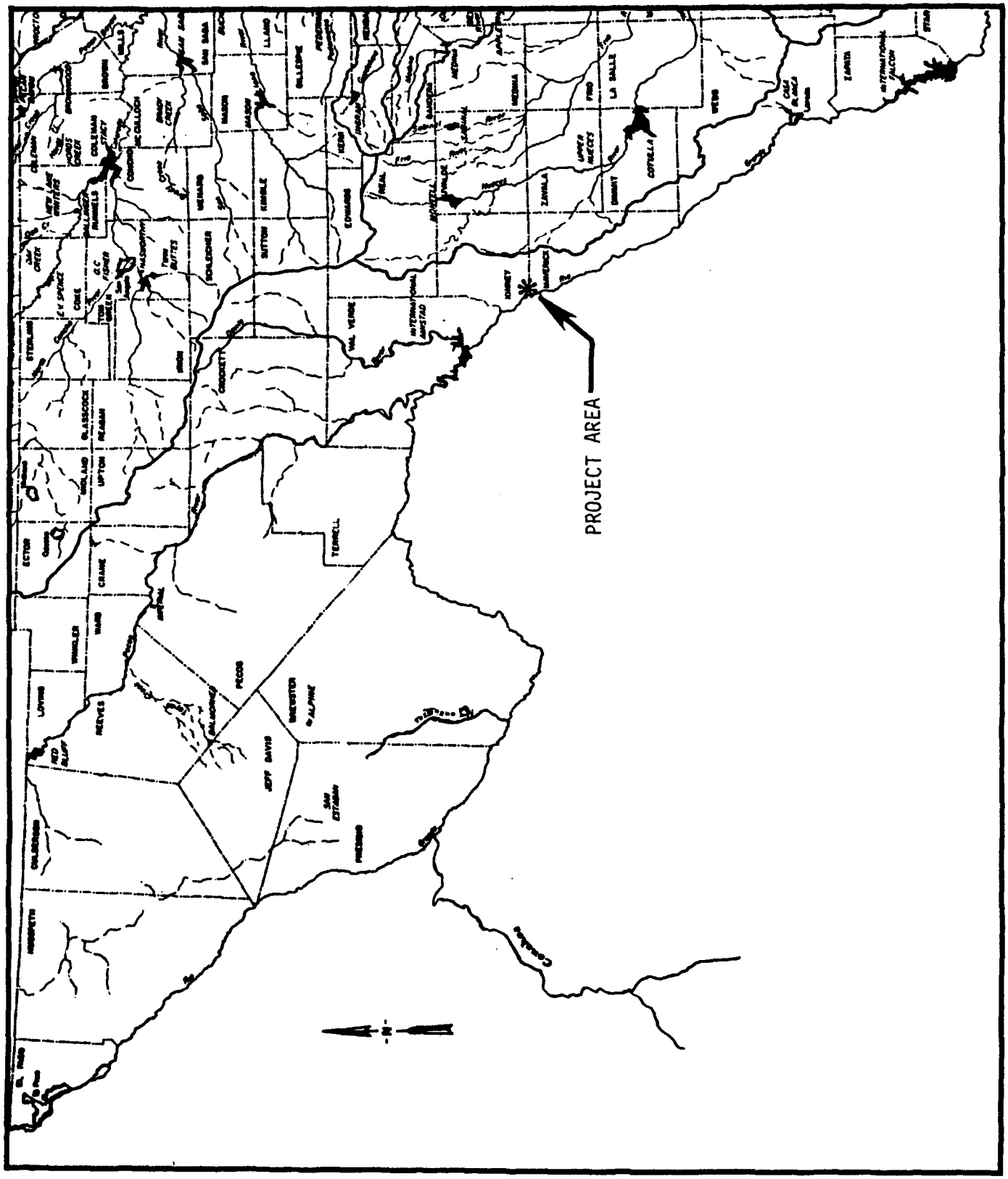


Figure III-9. Important water quality contributions to the Rio Grande River.

North of the project area (14 miles), the cities of Brackettville and Fort Clark have water production from the Edwards Aquifer. The Brackettville average daily consumption is 650,000 gallons while Fort Clark averages 749,000 gallons daily.

J. Air Access

Laughlin AFB's location away from major population centers on the border of Mexico near the city of Del Rio, Texas is well suited for the installation's primary mission: Undergraduate Pilot Training (UPT). Both the immediate airspace environs of Laughlin AFB and its three primary Military Operations Areas (MOA's) are free of significant civilian air operation and other military aviation activity. For example, there are no designated Federal Airways transiting either the installation or the MOA's.

Recognizing that the United States border with Mexico establishes a western boundary to usable airspace, there is a three level hierarchy of control over aircraft activity in the vicinity of Laughlin AFB. Aircraft operating in the immediate proximity of the installation, under either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR), are under direction of the air traffic controllers in the Laughlin AFB tower. Beyond the limits of the tower's jurisdiction, VFR aircraft requesting assistance and all IFR aircraft are managed by the controllers within the Radar Approach Control (RAPCON) facility. Located on Laughlin AFB, the RAPCON utilizes surveillance radar to provide approach control services to aircraft arriving, departing or transiting its service area which extends generally out a distance of approximately 60 nautical miles (nm).

Beyond the RAPCON service area, VFR aircraft requesting assistance and all IFR aircraft are managed by controllers in the Houston Air Route Traffic Control Center (ARTCC). The ARTCC is primarily intended to provide services to aircraft in the enroute phase of flight.

In the immediate area of the installation, several airspace control features have been established. First, a Control Zone has been established from ground level to 7,000 feet Mean Sea Level (MSL) in an area generally five miles in radius of the base. From the limits of the Control Zone to a distance approximately 15 miles from the installation, a Terminal Radar Service Area (TRSA) has been established. The TRSA covers levels between 4,000 and 7,000 feet MSL. Finally, an Alert Area covering both the Control Zone and TRSA has been established covering altitudes from ground level to 7,000 feet MSL.

Approximately 10 miles west of the installation is Del Rio International Airport which features a 5,100 feet by 75 feet asphalt runway with medium intensity runway lighting. While the runway can handle corporate jet traffic, it is primarily a low activity, general aviation airport. The facility has non-precision and IFR approaches. The airport is reported to have approximately 50 single engine or light twin aircraft based at the facility. The facility has commuter airline service to San Antonio.

The limits of the Laughlin AFB TRSA have been designed to exclude Del Rio International Airport and to provide adequate airspace to the north and south to allow VFR activity to and from the airport. Within the TRSA and Control Zone, a flight corridor has been established between 3,500 and 4,500 feet MSL which allows VFR aircraft to transit over Laughlin AFB enroute to or departing

from Del Rio International Airport. The corridor generally follows the U.S. Highway 90 alignment.

The installation has access to three primary MOA's. Laughlin MOA 1 is located generally north of the facility and extends from 20 nm to between 75 and 90 nm from the installation. It is used for T-38 training activity. The T-37 training could occur if no T-38 aircraft were airborne but this is very inefficient. The MOA covers altitudes from 9,000 to 22,000 feet MSL.

MOA 2 is located northeast of Laughlin AFB and is a smaller area. It covers altitudes from 9,000 to 22,000 feet MSL.

MOA 3 is generally east and south of Laughlin AFB. It ranges from 15 to 18 nm out from the installation to 37 to 60 nm. This area is used for T-37 training. It could be used by T-38 aircraft if no T-37 aircraft were airborne. The MOA covers altitudes from 7,000 to 22,000 feet MSL.

Two additional Alert Areas have been established to support pilot training activities. Alert Area A-633B is centered over the Rocksprings VORTAC (collocated VOR and TACAN navigational facilities), northeast of Laughlin AFB. Encompassing an area within a 15 nm radius of the VORTAC, the Alert Area includes altitudes from 4,000 feet MSL up to, but not including 18,000 feet MSL. Alert Area A633C in centered on Laughlin AFB auxiliary airfield located near Eagle Pass southeast of Del Rio.

A television transmission tower, located west of the installation in Del Rio, is the controlling man-made structure which determines minimum descent

altitudes for instrument procedures at Laughlin AFB. It is reported at 1,426 feet MSL resulting in a circling flying pattern minimum of 1,640 feet MSL.

K. Recreational Resources

1. Hunting, Fishing etc.

Primary hunting activity in the immediate project area is for whitetail deer, quail and dove (51). Birdwatching is popular as many migratory species overwinter in or near the area. Hunting for white-tailed deer is a valuable recreational activity in Kinney County, as well as a source of income to the area. Deer hunting statistics from Kinney County are presented below for the years 1982-1986 (56).

Year	Hunters	Hunter Success %	Hunters per 1000 Acres
1982	4,805	68	8.05
1983	5,625	59	9.42
1984	5,808	67	9.73
1985	5,580	61	9.35
1986	4,652	64	7.79

2. Outdoor Recreation

Kinney County lies within region 24, middle Rio Grande, of the Texas Outdoor Recreation Plan (TORP)(57). The Rio Grande River has been determined to be a recreational stream for fishing and floating uses in Maverick County. The west Nueces River in northeastern Kinney County may provide some limited recreation.

Brackettville and Fort Clark Springs Resort together have three public parks, eight tennis courts, two swimming pools, a rodeo arena, youth center, amphitheater productions, 600 volume library and an 18 hole golf course. The community offers many civic and church organizations.

Eagle Pass is known as a tourist's "Gateway to Mexico" because of the good highways linking it with Torreon and Monterrey. Birdwatching is a favorite past time for many tourists and local residents. Maverick County is the winter home for many migratory species including the bald eagle. Six public parks, 17 tennis courts, a swimming pool, a golf course, and a fishing lake are among the recreation facilities offered in Eagle Pass. Several church and civic organizations add to Eagle Pass's amenities.

L. Land Usage

Spot satellite (20 m, 3-band) imagery was used to establish land usage/vegetation types within Kinney County. The results of this study, conducted by the U.S. COE in Ft. Worth in 1987, are presented in Tables III-13 through III-15. The study reflects vegetation patterns at the time of recorded imagery (October 1987). Seasonal variations and changes due to fluctuating rainfall do occur. Table III-13 distributes land into nine different land use/vegetation categories by percentage. The total county covers approximately 844,000 acres about 94% of which is mesquite range and cut grass/grassy range suitable for cattle ranching.

Table III-14 shows land use breakdown in acres for each of the alternative auxiliary airfield sites (Newman, Ward and Plaza). The area restricted for

Table III-13

County Land Usage/Vegetation
(%)

	Water	Crop Land	Mesquite Range	Riparian/ Wooded	Cut Grass/ Grassy Range	Barren Disturbed	Wetlands	Roads	Urban/ Dwellings
Kinney Co. Wide	0.23	1.[illegible]	79.27	2.99	14.65	1.29	0.07	0.35	0.08

Source: Morgan, 1987 (58)

Table III-14

Site Land Usage/Vegetation
(acres)

	Water	Crop Land	Mesquite Range	Riparian/ Wooded	Cut Grass/ Grassy Range	Barren Disturbed	Wetlands	Roads	Urban/ Dwellings
Newman runway			40.3		0.1				
Newman fenced			341.3		8.2		4.5		
Ward runway			36.0		4.1				
Ward fenced			313.1		41.7				
Plaza runway			37.0		2.3	0.4			
Plaza fenced			341.5		13.8	0.1	0.2		

Source: Morgan, 1987 (58)

Table III-15

Land Usage/Vegetation with Radial Distance
(acres)

Distance (m)	Water	Crop Land	Mesquite Range	Riparian/ Wooded	Cut Grass/ Grassy Range	Barren Disturbed	Wetlands	Roads	Urban/ Dwellings
					NEWMAN				
0- 500			647.6		2.0		20.4		
500-1000	0.8		1008.0		22.5	0.1	35.8	3.4	
1000-1500	0.3		133.5		71.2	2.7	43.1	9.2	
1500-2000	0.4	4.0	1767.9	0.1	80.3	0.7	4.7	14.5	
2000-2500	1.5	163.6	1986.8	0.1	70.0	3.4	33.2	13.4	0.1
2500-3000	1.7	145.6	2323.4	0.1	136.2	9.8	26.4	11.8	
3000-3500	0.3	214.1	2424.7	70.7	7.5	30.4	9.4		
					WARD				
0- 500			604.5		73.2				
500-1000	2.5	9.5	798.6	0.3	253.5	3.0	1.9	8.8	0.2
1000-1500		54.5	969.3	0.1	381.2			7.4	
1500-2000	1.5	101.0	1599.4		191.4	22.2	4.9	15.2	
2000-2500	1.6	165.3	1842.9	2.8	99.8	29.2	5.7	16.3	0.1
2500-3000		198.4	2274.3	1.4	229.1	23.6	4.3	44.3	3.5
3000-3500		243.9	2517.2	2.4	251.6	28.4	5.8	29.3	2.5
					PLAZA				
0- 500			626.5	5.8	38.5	0.2	1.0	0.1	
500-1000			854.8	52.6	83.0	1.4	6.0	7.2	
1000-1500			1366.8	41.2	80.8	2.2	4.2	17.1	
1500-2000	0.4		1667.5	23.4	153.6	1.5	3.9	15.6	
2000-2500	2.3		1995.2	30.5	180.7	3.5	37.1	16.1	
2500-3000	1.1		2365.0	36.6	180.0	8.0	42.6	15.5	0.5
3000-3500			2791.8	31.4	198.7	9.2	18.2	17.5	

Source: Morgan, 1987 (58)

Air Force usage is 395 acres buffered by 185 acres along its border (totaling 580 acres). For analysis purposes the 40± acres proposed for runway was analyzed separately from the remaining 355± acres within the fence. Table III-14 indicates that 99 to 100% of the land at these sites is mesquite range and cut grass/grassy range. About 1% of the Newman site is wetlands. This is not proposed for runway but would be within the fenced or restricted area.

Land usage was established for property surrounding each of the candidate sites in increments of 500 meters from the runway out to 3500 meters (see Table III-15). This table shows the type of land use/vegetation affected as a function of distance from the three potential sites.

IV. ENVIRONMENTAL CONSEQUENCES

There are four alternatives to construction of a new auxiliary airfield. Environmental consequences associated with each alternative are discussed prior to consideration of the consequences associated with a new government owned and operated airfield.

a). No Action (Continue Existing Operations)

There are no additional environmental impacts associated with this alternative. The bird strike hazard remains and Maverick County is denied the opportunity of converting the existing airfield to commercial use.

b). Purchase Existing Airstrip (Purchase Only)

This alternative does not reduce the bird strike hazard. The civilian need for the airstrip is not addressed. With maintenance on the airfield, safety could be improved.

c). Purchase Existing Field and Remove Bird Strike Hazard (Purchase/Remove)

This alternative reduces or eliminates the bird strike hazard. Removal of wastes from the meat packing plant and the construction and permitting of a waste disposal site would require separate

environmental assessment and documentation. Civilian desire for use of the airfield is still not addressed.

d). Purchase Existing Airstrip and Packing Plant (Purchase/Purchase)

This alternative removes the bird strike hazard and allows maintenance to be completed. Removing the packing plant and eliminating employment opportunities in a depressed economy would be an adverse impact. Again, Maverick County's desire to utilize the airfield is ignored.

With the exception of the purchase/remove alternative, no significant construction impacts could occur as the Air Force would continue to utilize an existing field and facilities. The environmental attributes that are site specific of climate, geology, soil, air quality, noise, historical/cultural resources and water resources are not impacted by the above alternatives. By removing or reducing the bird strike hazard, biological resources are impacted beneficially. That is, less birds would be disturbed, injured or killed if the training operations were moved. Without additional development in the area, the socioeconomic impacts of continuing to utilize the existing airfield are adverse.

Construction of a new field eliminates the site specific bird strike hazard, eliminates maintenance difficulties and would allow Maverick County to develop the existing auxiliary airfield for its own purposes. Three separate tracts, Plaza, Newman and Ward have been identified as acceptable from operational and construction viewpoints. These three prospective sites are evaluated

environmentally by resource category. The three sites are similar in general topography, soils and vegetation types and appear very homogeneous.

A. Climate

Construction and operation of the Laughlin AFB auxiliary airfield at any site would have no measurable impact on the local climate. The climate is not expected to be a concern since the overall region was selected for its meteorological conditions which are conducive to flying. There is no difference in impact between sites.

B. Geology

The project would not impact, to any measurable extent, the geology of the area or of any of the three prospective sites. The construction could have minor local effects on the soils and drainage systems. Seismic activity, not considered significant, would have little impact on the proposed structures (runways and small buildings).

There are known deposits of bituminous coal in the area, but there are no current mining activities near the prospective sites. Sand and gravel production is intermittent along the Rio Grande River. There is a gravel quarry about 1.3 miles south of the county line, which should not be affected by the proposed project. Any type of mining activity would be prohibited from the selected site. There is no difference in geologic impacts between sites.

C. Soil

Construction of the auxiliary airfield and associated facilities would require some leveling and/or scraping of soils at the sites. Only a small percentage (about 10 percent) of the 580 acres required for the site would be directly involved. Dust and affected soils could be transported by wind and rain during construction activities. Spraying mist water may be needed to settle dust if the situation becomes sensitive. Recovery of the vegetation after construction can be a problem, particularly with regard to natural grasses. Provisions for temporary watering may be needed although no seeding/sodding or watering is planned.

Although the terrain is nearly flat, some leveling may be required which could modify drainage patterns. This would be an engineering factor to be considered when the actual layout of the runways is finalized.

D. Air Quality

Laughlin AFB has been operating since 1942 and currently ranks as the third most active military airfield in the U.S. with a total of 493,514 traffic operations in 1985. Nonetheless, the air quality at Laughlin, as well as in Maverick and Kinney Counties, is in total compliance with State standards. The lack of large cities with heavy industry and massive automobile traffic is the primary reason. The existing auxiliary airfield has had no significant impact on air quality and the Texas Air Control Board expects minimal effects on air quality at the proposed sites (13).

E. Noise

The prospective sites are located in an area comprised of rangeland dotted with an occasional ranch house or hunting lodge. The city of Spofford, Texas is about 5 miles to the east of the proposed runway location on the Newman and Plaza sites but within 2 miles of the Ward site (Figure IV-1).

Figure IV-1 displays the three candidate sites with their proposed runway location and orientation. Superimposed on each runway are the noise contours for planning purposes established at the Laughlin Auxiliary Airfield (15). Studies recommend no residential use in areas above day-night average sound level (LDN) 75. There is no residential use currently above this level at any of the three sites but all three sites do show LDN 75 contours in proximity to local roads and highways (1908 and 131). The City of Spofford is within one mile of the estimated LDN 65 contour at the Ward site. While Spofford residents would undoubtedly be aware of the operation at the Ward site, noise levels would not be significant. There is a current dwelling about one-quarter mile east of Highway 131 between LDN 65 and LDN 70. The Plaza site contains a cluster of six buildings/dwellings about one-half mile northeast of the northwest end of the proposed runway. These dwellings are within one-quarter mile of the LDN 65 contour. There are no dwellings located on the Newman site.

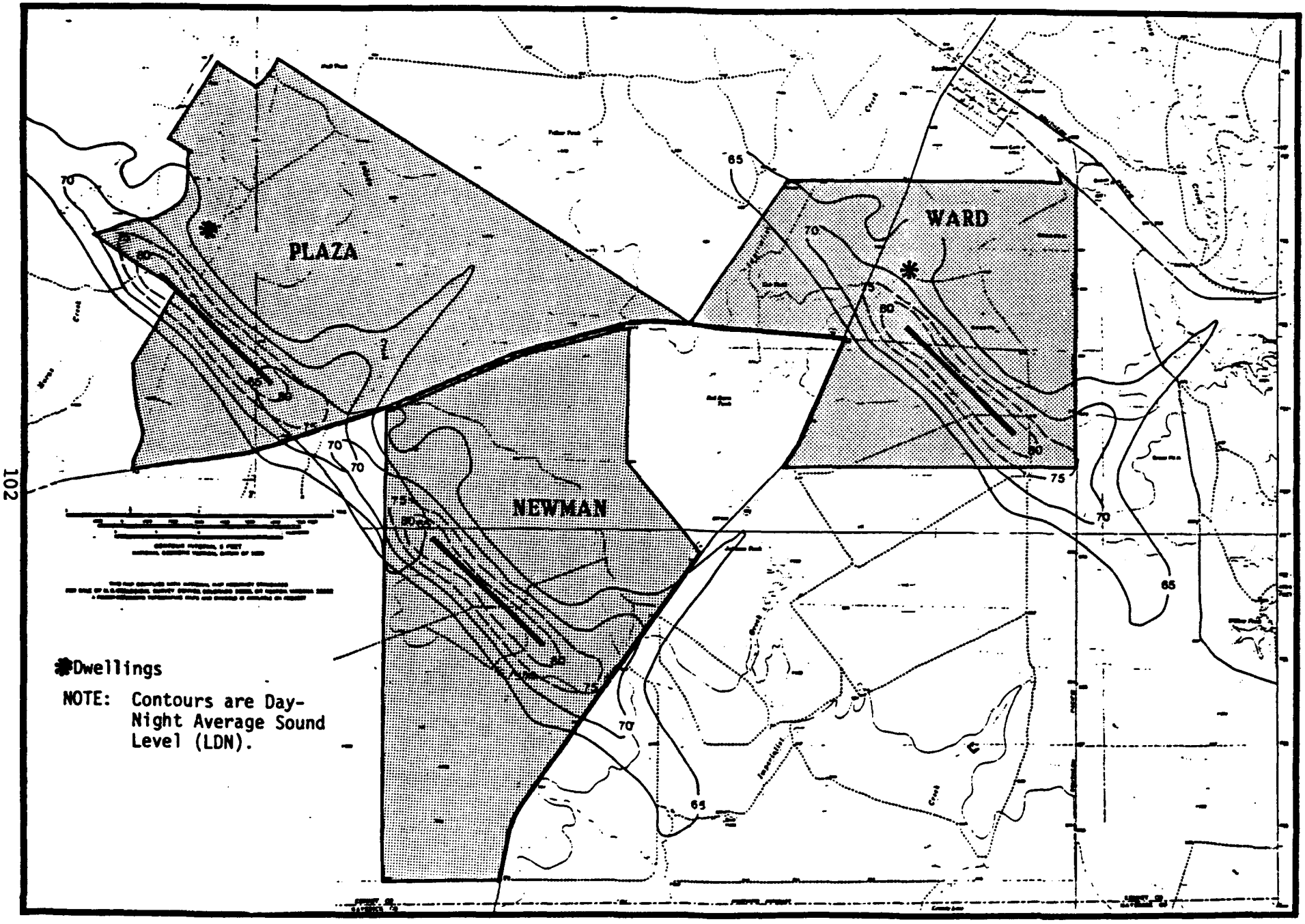


Figure IV-1. Noise contours and runway orientation.

1. Construction

Construction noise would be minor, no more than that associated with construction of small buildings or roads. Heavy equipment for grading and leveling would be used temporarily.

2. Operation

Operational noise at any proposed site would be similar to that at the existing auxiliary airfield since the runway configuration, orientation and flight patterns/procedures would be nearly identical. Laughlin AFB prepared an "Air Installation Compatible Use Zone" (AICUZ) report for the auxiliary airfield in June 1985 (15). This report summarized the findings of investigations concerning the need for compatible land use planning between the community and the "Eagle Pass Auxiliary Airfield" (Laughlin Auxiliary Airfield). It also developed a noise contour plot which would generally apply at any of the proposed sites (see Figure III-6).

A staff of seven including fire department and runway supervisory personnel, would be required to operate the ground facilities. The personnel would commute to the site from Laughlin AFB daily. Operations would be conducted on weekdays, during daylight hours, weather permitting. The ground operations would be less noticeable to wildlife than ranch or range work since it is normally indoors. The flight operations involve 300 traffic movements (landings and takeoffs) daily in the form of "touch-and-go" maneuvers. These activities could occasionally frighten larger animals. Normally these animals become accustomed to the aircraft and associated noise. It is quite common to

find deer grazing at the edges of runways and on gunnery ranges. The protective security fence helps restrict proximity to the runway to about one quarter mile.

F. Historical/Cultural Resources

Of the three alternative sites (Newman, Ward and Plaza), the Newman site tract exhibits the least likelihood of containing significant archeological sites. The Ward and Plaza sites follow with an increasing potential for containing archeological sites. This differential potential for containing archeological sites is related to the presence of water and the availability of raw material for the production of stone tools. The lack of suitable raw material and permanent water resources within the Newman site tract indicate that the potential for either significant prehistoric or historic sites is extremely low. The Plaza site tract, on the other hand, contains sections of both the Salado and Las Moras Creek drainages. The potential for the presence of cultural resources is consequently much higher. The Ward site tract with minimal lithic material resources and a moderate availability of water is intermediate in relation to the other tracts in its potential for containing significant cultural resources.

Two archeological surveys of the Newman site tract (39,50), the preferred construction locality, revealed the presence of four (4) prehistoric sites, a modern corral and sixteen temporary mesquite or jacal structures. None of these sites were judged to be eligible for nomination to the National Register of Historic Places. The Texas State Historic Preservation Officer concurs that these sites do not meet the standards for significance as stated in

36CFR60.4, National Register of Historic Places - Criteria For Evaluation (Appendix C). Of the three survey strata within the Newman site tract, Stratum 2 exhibited the least potential for containing significant cultural resources. Only one short term, prehistoric lithic procurement site is present; no significant historic sites are present. Stratum 1, on the other hand, exhibits the greatest potential to contain significant historic sites (the Neely homestead) and the second greatest potential for prehistoric sites (2 known sites). Stratum 3 which contains a drainage exhibits the greatest potential for containing a significant prehistoric site. The scarcity and low research potential of the cultural resources in the preferred construction location, Stratum 2, therefore indicates that construction activities will not impact resources significant to the prehistory or early history of the region.

G. Biological Resources

Construction of the proposed auxiliary airfield and construction of staging areas, if needed, would remove present vegetation and result in a direct loss of these habitats. It is assumed that the runway and ancillary facilities area would be cleared and graded. This would eliminate available habitat for some wildlife species, in particular large mammals. The amount of mesquite-grassland habitat removed would be 526.8 acres. The open wetland site (17.5 acres) and wetland with mesquite (6.7 acres) on the Newman site would be within the fences, but should not be disturbed by runway construction. These wetland areas have not been determined to be jurisdictional wetlands with official wetland status. Normal operation of the auxiliary airfield would have no significant impact upon vegetation outside the fenced area. Ingress and egress to the field would be restricted to existing/newly constructed

roads. Any accidental fires or chemical spills would have a detrimental effect to vegetation at the site.

During the construction phase of the auxiliary airfield, vegetation in the project area would be destroyed or disrupted, resulting in wildlife habitats being reduced, disrupted or destroyed. Direct wildlife losses would occur during construction as small, burrowing, or less motile animals are crushed. Displacement from cover and feeding habitats would also occur. Diurnal mitigation routes of species that utilize different habitats would be disrupted or destroyed. Nesting, mating or rearing, and other wildlife behavior patterns would be altered or disrupted.

Noises generated by construction equipment and power generators would adversely affect some wildlife species. Wildlife in the immediate vicinity would be affected by disruption of courtship/nesting behaviors, possible physiological damage and range reductions. The magnitude of noise impacts to wildlife, from construction and operation, would vary from slight to moderate during different seasons and times of the day. Typical impacts associated with the construction and operation of airfields/airports are summarized in Table IV-1.

The potential bird-aircraft strike hazard that could be encountered at the proposed site locations is highest among the three at the Ward site. The single pond on this site contained the greatest diversity of birds that was encountered during the field work. A pond, located on the Newman site, while holding water, did not attract waterfowl, or other types of birds to it. No

Table IV-1

Impacts upon Biological Resources

Construction Phase

1. Vegetation destroyed or disturbed.
2. Wildlife habitat reduced and broken up.
3. Wildlife destroyed or displaced.
4. Migration routes for wildlife disrupted or destroyed.
5. Nesting, mating and other wildlife behavior patterns disrupted.

Operational Phase

1. Bird and other wildlife migrations disrupted.
2. Wildlife displaced.
3. Animal behavior disrupted or altered by aircraft noise and flight support activity.

standing water was observed on the Plaza site. However, a small creek crosses the potential runway configuration.

Sandhill cranes were observed utilizing agricultural areas and mesquite-grassland habitat. Both observations were over five miles from the proposed sites, however, the birds could be encountered at or near any of the prospective sites. An area on the Williams' Ranch, centermost between all three prospective sites, contained young winter wheat during the November 1987 field work. Despite repeated observations, no birds were noted in this area. As this crop matures and is harvested, it could attract birds.

Any manmade structures or natural features that retain water should be expected to attract migratory and resident birds as well as other wildlife. The amount of water available is dependent upon rainfall. In years with significant precipitation, there would be a greater number and diversity of migratory birds in the area as reflected by the increase in habitats containing water. The bird-aircraft strike hazard is significantly less at any of the prospective sites than at the present auxiliary airfield where large numbers of birds are attracted by the meat packing operation, agricultural and feed lot operations, and a county landfill.

H. Water Resources

Potable water requirements, which will be minimal, will be met by trucking water to the auxiliary airfield, thus generating no impacts to water resources at the site. The proposed source of fire-fighting water is local groundwater. Groundwater aquifers may be deep and moderate to highly saline; however, the

water is expected to suitable for fire-fighting. The local water table ranges from surface to 20 feet and might supply a limited quantity. A reserve storage tank would be periodically filled from a well, if one can be emplaced. Continuous pumping would not be required once the reserve supply for fire-fighting has been obtained. Adverse impacts to water resources of the prospective sites are negligible.

I. Socioeconomics

Socioeconomic impacts are essentially beneficial. If the Air Force lease on the present auxiliary airfield expires, income ($23,000 per year) would be lost to Maverick County. This is not of concern to the county since they would have unrestricted use of the airstrip. The county would, however, be able to develop the field for its own interest. Any conflicts with local businesses near the existing airfield and the county landfill operation would be alleviated. Joint use (civilian-military aircraft) conflicts would be avoided, as the proposed new auxiliary airfield would serve military aircraft only.

Military personnel would not be permanently located at the site. During flight operations, fire fighting and control personnel from Laughlin AFB, Del Rio, Texas, would be present. During operation of the auxiliary airfield firefighting personnel would be restricted from leaving thereby preventing firefighting support to surrounding communities. The construction phase would have a beneficial socioeconomic impact, to the extent that local construction contractors, contractor supplies and labor would be used. Local businesses that provide food, lodging, and related services would benefit economically

from any minor influx of temporary workers (25 to 30) involved with construction.

Residences have been identified on both the Ward and Plaza sites. No residences have been identified on the Newman site. Aircraft noise would be an adverse impact to residents within the town. Although never defined as a major problem at Eagle Pass auxiliary airstrip, noise would be reduced drastically if the training operation was relocated.

J. Energy Resources

Commercial power would be utilized at the airfield. Generator capability would be present at the airfield to provide emergency backup power at each runway supervisory unit and the fire station. Electrical power would be brought overhead to the fire station, and then placed underground to supply ancillary facilities. Heating of facilities would require a propane system. Two above ground fuel tanks (1 MOGAS and 1 diesel) would be emplaced adjacent to the fire station. Operations of these storage tanks would be subject to aforementioned Air Force and state policies/regulations. There would be no significant increase in demand on energy resources of the area due to the proposed auxiliary airfield.

K. Land Usage

Local land use in the project area is predominantly range use and hunting (see Table III-13). All three potential sites are virtually similar in terms of usage and none should have significant permanent impact from the project.

Although the Newman site is categorized about 1% wetlands, the runway configuration and orientation is designed such as to avoid any impact to these areas.

Table III-15 which presents usage and vegetation (October 1987) with distance from the proposed runway at each site shows numerous pluses and minuses for each site -none of which has any definitive consequences: (1) the Plaza site has the least amount of available surface water (ponds and creeks) and none within 1500 meters; (2) the Newman site is devoid of influence on riparian/wooded areas (breeding/nesting habitat) until 3000 meters while the Plaza site would influence these areas significantly and immediately; (3) the Ward site has the least amount of wetlands and then mostly over 1500 meters away with the Newman and Plaza sites much more involved; and (4) the Ward site is the most urbanized with virtually no such effect at Newman or at Plaza until 2500 meters. Other observations can be made from these data but none are considered of significant consequence in qualifying one site over the other.

There are no crop lands within 3500 meters of the Plaza site and 1500 meters of the Newman site. The area within 3000 meters the Newman site is virtually void of riparian/wooded habitat, while the Plaza site is heavily involved at all ranges. These land uses/vegetation areas are attractive areas for birds and large mammals which could impact operation of the airfield. The Newman site is favorable in this respect.

L. Conclusions

Over and above operation and construction, any impacts to the environmental attributes are considered generally similar at each site. There is an expected variation in density of cultural resources at the three sites, with the Newman site being the lowest and Plaza the highest. The Newman site was surveyed for cultural effects and found acceptable for the project with a determination of no impact (50). The Ward site contains a small pond that was used by several species of waterfowl during the November 1987 migratory bird survey. The Newman site also contains a small pond that was very nearly dry during the same survey and did not attract more than one or two individual birds. Although crossed by Salado Creek (intermittent), no standing water bodies were observed on the Plaza site. The Plaza site is bordered to the west by Las Moras Creek. The riparian areas associated with the creek would be expected to support a greater variety of vegetation and wildlife species than that encountered in mesquite-grassland habitat. These few differences indicate that the Newman site is preferred environmentally. The differences in impact occurrence and severity between the three prospective sites can be compared in Table II-2. The City of Spofford and a local dwelling on site detract from ideal conditions at the Ward site regarding noise impacts. There are also dwellings in the vicinity of the Plaza site. The Newman site, however, has no potential residential conflict with noise. Land usage/vegetation impacts are varied from site to site but generally insignificant with the exception of these urban/noise conflicts.

V. MITIGATION MEASURES

A. General

This section describes measures that may be implemented at the proposed site to ameliorate any potential adverse consequences resulting from construction and operation of the proposed auxiliary airfield. Existing disturbed areas would be used to the extent possible to prevent unnecessary disturbance. Any fires, chemical spills or other mishaps where environmental damage is possible would be reported to the Commander, Laughlin AFB.

B. Soils and Geology

During construction, disturbance of topsoils would be kept to a minimum. If required, the use of borrow pits and/or spoil sites would be held to a minimum. Upon completion of construction, any pits or spoil sites would be properly restored by grading and drainage to prevent ponding or erosion and allowed to revegetate.

C. Air Quality

Construction areas would be watered to control dust during construction.

D. Water Resources

Wastewaters from the auxiliary airstrip operation and construction would be disposed of in a septic tank system located at the auxiliary airfield.

Construction, maintenance and operation of this facility would be in accordance with any pertinent State of Texas and EPA regulations and guidelines (Laughlin AFB Plan 708, Plan 705, Plan 211). Any required fuel tanks, or chemical storage, would be above ground with containment.

E. Solid Waste

Solid waste from construction activities, i.e., waste lumber or concrete, would be buried on site or collected and disposed of by approved and licensed contractors. All toxic or hazardous materials would be disposed by a licensed contractor. Solid waste associated with operation of the proposed airfield, would be collected and disposed of by approved and licensed contractors.

F. Biological Resources

During construction, impacts to vegetation would be minimized by utilizing disturbed areas to the extent practical. Any construction staging areas, transmission line right-of-ways or other disturbances would be returned to normal as soon as possible to prevent erosion. The small wetland areas would be avoided by construction crews and activities.

On site power lines would be buried underground. Any cross country power transmission lines would be adequately spaced to prevent raptor entanglement or electrocution. Fences would be routinely inspected to insure that no large mammals have entered the project area. To prevent attracting migratory and resident wildlife, no water retaining structures will be constructed. If birds are attracted to the cropped area between the three prospective sites,

an agricultural easement could be considered to preclude an increased bird strike hazard.

G. Cultural Resources

The presently known sites within the preferred construction location are not considered to meet the criteria of significance for nomination to the National Register of Historic Places (39,50). The State Historic Preservation Officer has concurred with this determination (Appendix C). These sites, therefore, do not require any mitigation, for construction activities will not significantly impact the prehistoric or historic cultural resources of the region. However, the accidental discovery of previously undocumented cultural resources during construction will be reported immediately and construction will halt until a subsequent inspection and course of action for a determination of significance has been completed by a professional archeologist.

H. Socioeconomics

If construction contractors utilize local workers and suppliers, demands upon local utilities, schools and recreational facilities would be minimized. If not, the expected work force at any time is anticipated to be less than thirty.

I. Health and Safety

Flying would occur during daylight hours only and only during good weather. Flights would not normally be scheduled during weekends or holidays. Any housing areas, in particular the residences of Spofford, Texas, would be avoided to the maximum extent possible. With the cessation of conflict with civilian traffic and elimination of the present severe bird strike hazard, flying into and out of the proposed auxiliary airfield would actually become safer, reducing the risk of aircraft accidents. In case of aircraft crash and/or fire, the on-site team at the auxiliary airfield will receive needed support from Laughlin AFB.

VI. LIST OF PREPARERS

The persons listed below have had primary responsibility for the preparation of this document. Prewitt and Associates, Inc. completed the cultural resources surveys and provided the data for the cultural resources evaluation.

Name	Experience	Area of Responsibility
Mr. Ruben G. Garza	13 yrs environmental studies, Geo-Marine, Inc.	climate, air quality
Mr. John J. Hoffmann, P.E.	10 yrs environmental studies, Geo-Marine, Inc.	geology/soils, project description, noise, water resources
Mr. Rick M. Billings	6 yrs environmental assessments and studies, Geo-Marine, Inc.	biological resources, socioeconomics, mitigation
Mr. Duane Peter	15 yrs cultural/ historical assess-ments and research efforts, Geo-Marine, Inc.	cultural resources
Dr. Dan Wilkerson	13 yrs environmental assessments and studies, Biological Consulting Services	biological resources, vegetation

VII. PUBLIC INVOLVEMENT

A public meeting was held at Eagle Pass, Texas in Maverick County on 20 April 1987. Twenty persons were in attendance. One media representative was present. One county elected official was present. Four individuals were identified as property owners in the project area, and six statements were made at the meeting.

Issues identified at the meeting were property owner objections to selling the property involved and concerns about potential impacts to cattle grazing and wildlife. Noise contour overlays were prepared during the assessment and no significant wildlife habitats or residential areas were identified as subject to severe impacts at the Newman site. The potential bird strike problem is significantly less at the Newman site than at the present auxiliary airfield.

Seventeen media representatives, six Federal officials, three state officials and sixteen local officials and facilities will receive a copy of the EA. In addition, ten private persons and corporations and seven conservation organizations have requested copies.

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IX. ACRONYMS

AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
ARTCC	Air Route Traffic Control Center
ATC	Air Training Command
BASH	Bird/Aircraft Strike Hazard
EPA	Environmental Protection Agency
FY	Fiscal Year
GAO	General Accounting Office
GPM	Gallons Per Minute
IFR	Instrument Flight Rules
LDN	Day-Night Average Sound Level
MOA	Military Operations Area
MOGAS	Motor Gas
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NM	Nautical Miles
NOAA	National Oceanographic and Atmospheric Administration
RAPCON	Radar Approach Control
RSU	Runway Supervisor Unit
TORP	Texas Outdoor Recreation Plan
TRSA	Terminal Radar Service Area
TSP	Total Suspended Particulate
UHF	Ultra High Frequency
UPT	Undergraduate Pilot Training
USAF	United States Air Force
USDA	United States Department of Agriculture
VFR	Visual Flight Rules
VHF	Very High Frequency
VORTAC	Collocated Very High Frequency Omni-Range Station and Ultra High Frequency Tactical Air Navigational Aid

APPENDIX A

PROCEDURES FOR OBTAINING LANDING RIGHTS AND/OR ARRIVING/DEPARTING LAUGHLIN AFB, EAGLE PASS AUXILIARY AIRFIELD

APPENDIX A

PROCEDURES FOR OBTAINING LANDING RIGHTS AND/OR ARRIVING/DEPARTING LAUGHLIN AFB, EAGLE PASS AUXILIARY AIRFIELD

1. The United States Air Force is the sole user of Laughlin AFB Eagle Pass Auxiliary except for specific civil aircraft which have been granted landing rights in accordance with the terms of a lease between the U.S. Government and Maverick County, Texas. Operators of civil aircraft desiring landing rights must contact Ramon Saucedo, Jr., County Judge, Maverick County, Eagle Pass, Texas, 78552, (512) 773-3824.

2. Terms of the lease release the U.S., its officers, agents and employees from all claims for loss, damage, or injury arising out of or connected with the use of the airfield facilities at Eagle Pass Auxiliary Airfield by civil aircraft.

3. The following will aid the user in arriving and departing Laughlin AFB Eagle Pass Auxiliary Airfield:

   a. Contact Del Rio Approach Control on 119.6 or 259.1 as soon as feasible. Del Rio Approach Control will coordinate and affect a handoff to Poorboy, if necessary.

   b. During periods of military operation, a runway supervisory unit (RSU) controls military aircraft. The RSU operates under the call sign "Wizard". Traffic advisories will be issued on VHF or by standard traffic light signals and by relay through Del Rio Approach Control.

   c. Avoid the area within 5 NM of the airfield at or below 3,500 MSL until advised by RAPCON or Poorboy that the field is clear for landing.

   d. The runway supervisory unit (Poorboy) will be the coordinating agency for all civilian aircraft takeoffs and landings when the airfield is in use by Air Force aircraft (normally, daylight to dusk, weekdays). At all other times, the field is uncontrolled.

   e. During civil aircraft arrivals and departures, Air Force traffic will maintain 2,900 MSL (2,000 ft AGL) in an east traffic pattern. The RSU will provide traffic advisories. On departure, remain below 2,900 MSL until 5 NM from the airfield. Avoid the traffic pattern routes shown on the attached map.

   f. Touch-and-go landings or low approaches will not be approved during Air Force periods of operation.

   g. Civil aircraft desiring takeoff will approach the active runway only after pre-takeoff procedures have been completed in the predesignated run-up location. Referenced aircraft should face the RSU on the taxiway leading to the active runway. The RSU Controller

will then restrict all Air Force traffic at 2,000' AGL and indicate that the runway is clear by flashing a green light or making a radio call. Taxi onto the active runway only after properly clearing the aircraft and determining that the runway is clear.

h. The Air Force uses and maintains only the NW-SE runway. Taxiways and ramps are not maintained. Parking and taxiing is not monitored.

i. There is no fuel or maintenance available. No aviation interests are located at the airfield.

j. There is concentrated student jet training conducted from 7,000 to FL 235, days, Monday through Friday, in A-633A. Refer to the San Antonio Sectional Aeronautical Chart and the Airman's Information Manual, Part IV, Laughlin AFB, Texas, Terminal Area Graphic Notice.

k. Inform Laughlin AFB Base Operations (512-298-5308 or 5971) at least 24 hours in advance of intended landing at Eagle Pass auxiliary airfield.

APPENDIX B

JOINT USE OPERATING AGREEMENT FOR USE OF MAVERICK COUNTY/LAUGHLIN AIR FORCE BASE EAGLE PASS AUXILIARY AIRFIELD

Joint Use Operating Agreement for Use of
Maverick County/Laughlin Air Force Base
Eagle Pass Auxiliary Airfield

EFFECTIVE: 1 JUL 84

1. PURPOSE: This letter outlines operating procedures/restrictions, determined by mutual agreement, to be followed when civil aircraft and USAF aircraft are operating simultaneously at the Eagle Pass Auxiliary Airfield.

2. GENERAL: The USAF is the sole user of Eagle Pass Auxiliary except for specific civil aircraft who have been granted landing rights in accordance with the terms of the lease between the United States Government and Maverick County covering the use of Eagle Pass Auxiliary Airfield.

3. RESPONSIBILITIES:

a. 47 Flying Training Wing: The Commander will insure that:

(1) Traffic pattern diagrams and entry/exit procedures for Air Force aircraft are provided to the appropriate authorities of Maverick County, Texas.

(2) A VHF radio is provided for the purpose of civil advisory service.

(3) All pilots assigned to the 47 Flying Training Wing and runway supervisors who conduct or control Air Force operations at Eagle Pass Auxiliary are knowledgeable of, and conform to, the provisions of this letter.

b. Maverick County, Texas: The officials of Maverick County will insure that:

(1) The operating procedures/restrictions to be followed when Air Force aircraft are operating in the Eagle Pass Auxiliary traffic pattern are available to operators of civil aircraft granted the right to operate into and out of Eagle Pass Auxiliary Airfield.

(2) All provisions of this letter are met. In cases where provisions are not discharged or are violated, take necessary and adequate measures to prevent recurrence.

4. PROCEDURES/RESTRICTIONS:

a. All civil aircraft operators desiring landing rights must contact the County Judge, Maverick County, Eagle Pass, Texas 78852 (Phone: 512-773-3824), to obtain approval. Aircraft operators will sign a hold harmless agreement with the County of Maverick before landing at Eagle Pass Auxiliary Airfield.

b. Civil aircraft operators having obtained landing rights must inform Laughlin Base Operations (Phone: 512-298-5308) at least 24 hours in advance of their intended landing at Eagle Pass Auxiliary Airfield.

c. Civil aircraft will contact Del Rio Approach Control for radar advisories and they will contact the Eagle Pass RSU for VFR landing advisories.

d. Civil aircraft departing Eagle Pass will give the RSU at least 30 minutes notice prior to their intended time of leaving (Also see para 4l).

e. Fixed Base Operators will not be allowed to operate from the airfield. The same applies to the selling of aviation fuel, parts, or the performing of aircraft maintenance. During periods of Air Force operations, no civil instructional or test flights will be allowed into the airfield.

f. Civil traffic will not perform touch-and-go landings or low approaches during Air Force periods of operations. Additionally, civil traffic will avoid the area within 5 NM of the airfield at or below 3,500 MSL during periods of Air Force operation, until advised the field is clear for landing.

g. No parachuting, parasailing, sail planing, or other aeroseport activities will be conducted within 5NM of the airfield during periods of Air Force operation.

h. No sports car rallies, gymkhanas, drag races, go-kart races, or other vehicular activity will be conducted on any of the airport's active runways, taxiways, or ramps at any time.

i. No aircraft shall be allowed to park on or near the runway without prior Air Force permission.

j. The Runway Supervisory Unit (RSU), when in operation, will control all vehicular traffic and workmen crossing the active runway or working in the vicinity thereof, either by light gun, radio, or other acceptable means.

k. The RSU will be the coordinating agency for all civilian aircraft takeoffs and landings on the runway while said runway is in use by Air Force aircraft. Except in cases of Air Force aircraft emergency, civilian aircraft arrival/departure will receive acknowledgment for landing/takeoff as expeditiously as practicable (Also see para 4n(1)).

l. The RSU will control all Air Force aircraft assigned to the 47 FTW using Eagle Pass Auxiliary Airfield in accordance with ATCM 60-1, as further clarified by provisions of this letter.

m. To assist RSU Controller in effecting coordination of runway use, civil aircraft desiring takeoff will approach the active runway only after pre-takeoff procedures have been completed in the predesignated run-up location. Referenced aircraft should face the RSU on the taxiway leading to the active runway. The RSU Controller will then restrict all Air Force traffic at 2,000ft AGL and indicate that the runway is clear by flashing a green light or making a radio call. Pilots will taxi onto the active runway only after properly clearing their aircraft and determining that the runway is clear (See note below).

n. Civil aircraft desiring to land will approach the airfield as mutually agreed. Civil pilots will monitor the RSU for an advisory. The senior RSU Supervisor will maintain all Air Force aircraft at 2,000ft AGL and provide advisory information to the civil aircraft. A radio call from the RSU will indicate that the runway is clear (See note below).

NOTE: 47 FTW personnel (RSU Supervisors) will provide:

(1) A preventive control service, as described in ATCM 60-1 to Laughlin aircraft only.

(2) Advisory service only for civil aircraft. The RSU Controllers will take positive action to cause 47 FTW aircraft to remain clear of civil aircraft while the civil aircraft are transitioning for a landing or from a takeoff.

n. During periods when Eagle Pass Auxiliary airfield is being used by 47 FTW aircraft:

(1) Civil aircraft will enjoy priority for full stop landings, take-offs, and departures at all times, except in cases of emergencies.

(2) Civil aircraft will exercise extreme caution when operating within a 5 NM radius of the airfield.

5. This letter of agreement will remain in effect for the term of the lease governing the Joint Use of Eagle Pass Auxiliary Airfield unless changes are agreed to by both parties.

ALBERT A. GAGLIARDI, [illegible] Colonel, USAF
Commander, 47th Flying Training Wing
Laughlin AFB, Texas

RUDY BOWLES
County Judge
Maverick County, Texas

COUNTY CLERK

APPENDIX C

CORRESPONDENCE

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
c/o CCSU, Campus Box 338
6300 Ocean Drive
Corpus Christi, Texas 78412

SE/ES

July 7, 1987

Consultation No. 2-11-87-I-69

Michael J. Mocek, P.E.
Chief, Planning Division
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Dear Mr. Mocek:

This is in response to your letter dated June 10, 1987 regarding the effects of an airplane runway to wildlife species Federally listed or proposed for listing as threatened or endangered and on wetlands. Your area of interest is approximately four miles southwest of Spofford in Kinney County, Texas.

An over-flight was made on April 1, 1987 by a Fish and Wildlife Service (Service) biologist in the same general area as the proposed runway site. In general, the area along the Kinney/Maverick County border is not highly developed. The dominant habitat in this climatically semi-arid area is characterized by varying densities of low mesquite brush in a flat sandy terrain. Randomly scattered throughout the mesquite habitat were roundish shaped areas in which vegetation rapidly transformed to a grass like flora. This habitat type appeared to be depressional in nature.

Our data indicates no listed species would be affected by runway construction, however, the grassy depressions offer an additional habitat which could be very valuable to indigenous wildlife for nesting and foraging purposes. Because this relatively scarce habitat gives more complexity to an otherwise homogenous mesquite habitat, the Service recommends the runway be oriented in such a fashion as to least impact this valuable habitat.

Although it is not known if any jurisdictional wetlands are located on the project site, the Service believes this habitat type should not be altered as it provides a valuable niche for migratory waterfowl and a reliable water supply for other forms of wildlife.

If we can be of further assistance, please call our office at 512-888-3346 or FTS 529-3346.

Sincerely yours,

ROGELIO PEREZ
Field Supervisor

RP:JG:pl

cc:
Director, U.S. Fish & Wildlife Service, Washington, D.C. (SE)
Regional Director, U.S. Fish & Wildlife Service, Albuquerque, NM (AWE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
c/o CCSU, Campus Box 338
6300 Ocean Drive
Corpus Christi, Texas 78412

SE/ES

July 16, 1987

Consultation No. 2-11-87-I-69

Rick M. Billings
Senior Biologist
Geo-Marine, Inc.
Engineering and Environmental Services
1316 Fourteenth Street
Plano, Texas 75074

Dear Mr. Billings:

This is in response to your letter dated July 2, 1987 regarding the effects of an airplane runway to wildlife species Federally listed or proposed for listing as threatened or endangered. Your area of interest is approximately four miles southwest of Spofford in Kinney County, Texas.

Our data indicate no listed species would be affected by the proposed action.

As per your request through telephone conversation on July 13, 1987, with John Gourley of this office, a copy of the letter responding to the Corps of Engineers endangered species/wetland inquiry for this project is enclosed.

If we can be of further assistance, please call our office at 512-888-3346 or FTS 529-3346.

Sincerely yours,

ROGELIO PEREZ
Field Supervisor

Enclosure

cc:
Director, U.S. Fish & Wildlife Service, Washington, D.C. (SE)
Regional Director, U.S. Fish & Wildlife Service, Albuquerque, NM (AWE)

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 Smith School Road Austin, Texas 78744

April 07, 1987

Mr. Rick M. Billings
Geo-Marine, Incorporated
1316 Fourteenth Street
Plano, Texas 75074

Dear Mr. Billings:

This is in response to your recent request for information regarding endangered and/or threatened species.

Enclosed is a list annotated as to the estimated chances of encountering specific animal and plant taxa in MAVERICK County.

Although this list should prove useful to you as background material, it is not intended as a substitute for comprehensive onsite evaluations made by competent biologists. Determination of the actual presence of a species in a given area depends on a number of variables such as seasonal and daily activity cycles, environmental activity cues, preferred habitat, transiency, and population density (both wildlife and human). Absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations taking into account all of the variable factors contributing to the lack of observability.

Please let us know if we may be of further help.

Sincerely,

Floyd E. Potter, Jr.

Floyd E. Potter, Jr.
Wildlife Biologist

Enclosures

04/07/87

COUNTY: **Maverick**

ENDANGERED SPECIES

***OCELOT (*Felis pardalis*)
***BEAR, BLACK (*Ursus americanus*)
***COATI (*Nasua nasua*)
*JAGUARUNDI (*Felis yagouaroundi*)
**EAGLE, BALD (*Haliaeetus leucocephalus*)
*TERN, LEAST, INTERIOR (*Sterna antillarum athalassos*)
***SIREN, LESSER, RIO GRANDE (*Siren intermedia texana*)
*PHANTOM SHINER (*Notropis orca*)

THREATENED SPECIES

***HAWK, BLACK-, COMMON (*Buteogallus anthracinus*)
***HAWK, GRAY (*Buteo nitidus*)
***STORK, WOOD (*Mycteria americana*)
***IBIS, WHITE-FACED (*Plegadis chihi*)
**HAWK, ZONE-TAILED (*Buteo albonotatus*)
*WARBLER, GOLDEN-CHEEKED (*Dendroica chrysoparia*)
*FALCON, PEREGRINE, ARCTIC (*Falco peregrinus tundrius*)
*VIREO, BLACK-CAPPED (*Vireo atricapillus*)
***TORTOISE, TEXAS (*Gopherus berlandieri*)
***LIZARD, COLLARED, RETICULATE (*Crotaphytus reticulatus*)
***LIZARD, HORNED, TEXAS (*Phrynosoma cornutum*)
***SNAKE, INDIGO, TEXAS (*Drymarchon corais erebennus*)
**BLUE SUCKER (*Cycleptus elongatus*)
*RIO GRANDE DARTER (*Etheostoma grahami*)

***Confirmed species - verified recent occurrence
**Probable species - unconfirmed, but within general distribution pattern of the species
*Possible species - unconfirmed, but at periphery of known distribution of the species

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 Smith School Road Austin, Texas 78744

CHARLES D. TRAVIS
Executive Director

June 09, 1987

Mr. Rick Billings
Geo-marine, Incorporated
1316 14th Street
Plano, Texas 75074

Dear Mr. Billings:

This is in response to your recent request for information regarding endangered and/or threatened species.

Enclosed is a list annotated as to the estimated chances of encountering specific animal and plant taxa in KINNEY County.

Although this list should prove useful to you as background material, it is not intended as a substitute for comprehensive onsite evaluations made by competent biologists. Determination of the actual presence of a species in a given area depends on a number of variables such as seasonal and daily activity cycles, environmental activity cues, preferred habitat, transiency, and population density (both wildlife and human). Absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations taking into account all of the variable factors contributing to the lack of observability.

Please let us know if we may be of further help.

Sincerely,

Floyd E. Potter, Jr.
Wildlife Biologist

Enclosures

COUNTY: **Kinney**

ENDANGERED SPECIES

**OCELOT (*Felis pardalis*)
**BEAR, BLACK (*Ursus americanus*)
**COATI (*Nasua nasua*)
***EAGLE, BALD (*Haliaeetus leucocephalus*)
*SIREN, LESSER, RIO GRANDE (*Siren intermedia texana*)

THREATENED SPECIES

***HAWK, BLACK-, COMMON (*Buteogallus anthracinus*)
***WARBLER, GOLDEN-CHEEKED (*Dendroica chrysoparia*)
**HAWK, GRAY (*Buteo nitidus*)
**HAWK, ZONE-TAILED (*Buteo albonotatus*)
**IBIS, WHITE-FACED (*Plegadis chihi*)
**STORK, WOOD (*Mycteria americana*)
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**VIREO, BLACK-CAPPED (*Vireo atricapillus*)
***TORTOISE, TEXAS (*Gopherus berlandieri*)
***LIZARD, HORNED, TEXAS (*Phrynosoma cornutum*)
***SNAKE, INDIGO, TEXAS (*Drymarchon corais erebennus*)
*LIZARD, COLLARED, RETICULATE (*Crotaphytus reticulatus*)
***RIO GRANDE DARTER (*Etheostoma grahami*)
**BLUE SUCKER (*Cycleptus elongatus*)
*PROSERPINE SHINER (*Notropis proserpinus*)

***Confirmed species - verified recent occurrence
**Probable species - unconfirmed, but within general distribution pattern of the species
*Possible species - unconfirmed, but at periphery of known distribution of the species

THE STATE OF TEXAS

CURTIS TUNNELL
EXECUTIVE DIRECTOR

TEXAS HISTORICAL COMMISSION

P.O. BOX 12276 AUSTIN, TEXAS 78711 (512) 463-6100

April 22, 1987

Mark W. Squire
Major, CE
Assistant Commander
Department of the Army
Ft. Worth District, Corps of Engineers
Post Office Box 17300
Fort Worth, Texas 76102-0300

Re: Environmental Assessment
Proposed Auxiliary Air Field
for Laughlin Air Force Base,
Eagle Pass, Texas (All)

Dear Major Squire:

Thank you for the opportunity to review the project referenced above. You should be that advised that as of October 1, 1986, a revised version of 36 CFR 800 was implemented. Under the revised regulations the Federal agency will make the preliminary assessment. As a courtesy our office has continued to make a few assessments. Unfortunately we cannot do so in this case because project boundaries were not provided. In order to facilitate your request we have included a copy of the new regulations and a listing of references and institutions which may have information pertinent to the project area, and which will be helpful in making an assessment under 800.4(a)(ii). Our office will be pleased to help qualified professionals under contract to your office with assessing the information from our files.

Also included is a listing of cultural resources which have been listed or determined eligible to the National Register of historic Places, State Archeological Landmarks (SAL) and National Historical Landmarks (NHL) currently listed in the county(ies) of your proposed project. Please be aware that this is a constantly evolving list. It does not contain those resources in the process of evaluation or those where additional information is necessary to begin the evaluation process.

A summary report of findings as a result of any activities described in 800.4(i) and (iii) would be helpful in determining what further work should be done (800.4(ii)).

We look forward to further coordination with you on this project.

Sincerely,

LaVerne Herrington

LaVerne Herrington, Ph.D.
Deputy
State Historic Preservation
Officer

WSB/LH/mesjr

MAVERICK COUNTY

Listed National Register Site(s)
*Fort Duncan (41MV2)
*Maverick County Courthouse

Site(s) Determined Eligible to the National Register
No Sites

* = Also indicates State Archeological Landmark designation.

THE STATE OF TEXAS

CURTIS TUNNELL
EXECUTIVE DIRECTOR

TEXAS HISTORICAL COMMISSION

P.O. BOX 12276 AUSTIN, TEXAS 78711 (512) 463-6100

July 29, 1987

Mr. Stephen C. Helfert, Chief
Environmental Resources Branch
Department of the Army
Ft. Worth District, Corps of Engineers
Post Office Box 17300
Fort Worth, Texas 76102-0300

Attn: Paul McGuff

Re: Laughlin Auxiliary Air Field Survey
(COE-FWD, A5)

Dear Mr. Helfert:

Thank you for the opportunity to review the scope of work for the archeological portion of the environmental assessment of the above referenced project. The scope is well-written and adequately covers all aspects of the survey.

We will continue to review the project upon receipt of the survey report. If you have any questions or comments, please contact Dan Prikryl of my staff at 512/463-6096.

Sincerely,

Nancy Adele Kennedy for

Curtis Tunnell
State Historic Preservation
Officer

DP/CT/mesjr

August 5, 1987

Planning Division

Curtis Tunnel, Ph.D.
State Historic Preservation Officer
Texas Historical Commission
Attention: Resource Conservation Division
Post Office Box 12276, Capitol Station
Austin, Texas 78711

Dear Dr. Tunnell:

Enclosed please find one draft copy of the results of a 10 percent stratified transect archeological survey of the 3100 acre proposed Newman Ranch siting for the Laughlin Air Force Base Auxiliary Air Strip (COE-FWD, A5). This work was covered under the scope of work in the Corps' delivery order No. 9 (modification), a copy of which was provided to your staff previously.

Three low density scatters of artifacts were discovered during the survey (site forms and site summaries are also enclosed). These scatters of artifacts do not meet criteria for significance.

The preferred location for the airstrip has been tentatively identified. It happens to be within Stratum 2, which is the most intensively surveyed stratum on the Newman Ranch. Stratum 2 is the least likely of 3 strata to contain important archeological sites and the Prewitt and Associates report (see attached draft) recommends no further survey work in this area. Because the Army Engineers wants to be absolutely certain that no archeological sites are present that may affect the tightly framed construction schedule, and, because the preferred alignment passes within 250 meters of recorded sites 41KY 36 and 37, a decision has been made to proceed with 100 percent survey coverage of the 600 acre preferred siting for the airstrip. The scope of work for that survey appears within Delivery Order #11 (option/phase 3), a document provided to your staff previously.

Comments are needed on the draft letter report within 30 days. Contact Paul McGuff of my staff with any comments or questions about that report or other topics covered by this correspondence. Thank you for your assistance.

Sincerely,

Stephen C. Helfert
Chief, Environmental Resources
Branch

Enclosures

McGuff/vm/4-2095
HELFERT CESWP-PL-R
MAIL

THE STATE OF TEXAS
CURTIS TUNNELL
EXECUTIVE DIRECTOR

TEXAS HISTORICAL COMMISSION
P.O. BOX 12276 AUSTIN, TEXAS 78711 (512)463-6100

September 21, 1987

Mr. Stephen C. Helfert
Chief, Environmental Resources Branch
Department of the Army
Fort Worth District, Corps of Engineers
Post Office Box 17300
Fort Worth, Texas 76102

Re: Laughlin Air Force Base - Auxiliary
Air Strip (Newman Ranch) Kinney County
(AIRFORCE, A5, A6)

Dear Mr. Helfert:

We are in receipt of a report entitled, "An Archeological Survey of a Proposed Location for Construction of an Air Strip for Laughlin Air Force Base on the Newman Ranch, Kinney County, Texas", and have completed our review of said document. In the opinion of the SHPO this report has fulfilled its stated intent, to complete a sample survey of a 3,100 acre tract in the Newman Ranch and provide assessments regarding probable site distributions and significance. Furthermore, the SHPO concurs that site 41KY35, 36, and 37 do not meet the standards for significance as stated in 36CFR60.4, National Register of Historic Places - Criteria For Evaluation.

Additional archeological reconnaissance of Strata 2 as stated in the report has very low probability of yielding additional cultural materials. However, we applaud the decision made by Army Engineers to proceed with a 100 percent survey of Strata 2, the preferred locale for the proposed airstrip.

We look forward to reviewing the final report on this project. If we may be of further service please contact Wayne Bartholomew of my staff at 512/463-6096.

Sincerely,

Nancy Adele Kenmotsu for

Curtis Tunnell
State Historic Preservation
Officer

WB/CT/lft

The State Agency for Historic Preservation

APPENDIX D

FIELD METHODOLOGY - BIOLOGICAL SURVEYS
LAUGHLIN AIR FORCE BASE AUXILIARY AIRFIELD
KINNEY COUNTY, TEXAS

The investigation of the proposed site involved an on-site reconnaissance, small mammal trapping, literature reviews and contacts with the Texas Heritage Commission. An initial on-site reconnaissance was conducted on 8-10 July 1987. During this investigation much of the proposed Newman site was walked and plant communities were mapped. Occurrence of common animal species were recorded while walking or driving and plants were identified or collected for later identification.

Another four days (15-18 July) were spent on the proposed Newman site conducting a small mammal census using Sherman live-traps to determine the abundant kinds of rodents. Trap lines were established in two sections of the mesquite-grasslands; one trap site had a sparse mesquite overstory while the other site had a denser mesquite canopy. Trap lines were run for three days with traps checked in the morning and checked and rebaited each evening. Fifty traps were used at each site. Traps were approximately 33 feet distance from adjacent traps on each line. Trap lines on grid 1 were 66 feet apart and were 33 feet apart on grid 2. Trap bait was a mixture of rolled oats and peanut butter. Each rodent caught was identified and released. Dead rodents were retained for voucher specimens. All voucher specimens are on deposit in the Department of Wildlife and Fisheries Science at Texas A&M University.

This description of biological resources of the area, and the Newman site in particular, is based on personal observation from the field work, trap line data, published studies on flora and fauna of the area, maps and aerial photographs, and consultation with state and federal agency biologists (Appendix C).

A ground and road survey for migratory birds was conducted on and near the Newman, Ward and Plaza prospective sites for the proposed auxiliary airfield. Road transects were traversed twice a day for three days and once a day for two days (18 November - 22 November 1987). Counts of birds were made at ponds and other habitat types where birds were encountered. A list of 44 species was compiled during November compared to 34 species listed during July 1987.

The road transect began at the intersection of U.S. Highway 277 and State Highway 131. Observers travelled north on Highway 131 to the intersection of Highway 131 and Farm Road 1908, then travelled west until crossing Las Moras Creek, turned north on a county road and travelled north until intersecting with the Southern Pacific Railroad, turned east and followed the county road to Spofford and intersected with State Highway 131.

APPENDIX E

AMPHIBIANS AND REPTILES OF KINNEY COUNTY, TEXAS

APPENDIX E

Amphibians and Reptiles of Kinney County, Texas

Scaphiopus couchi, Couch's spadefoot
Syrrhopus mornocki, Cliff chirping frog
Acris crepitans blanchardi, Blanchard's cricket frog
Bufo debilis debilis, Eastern green toad
Bufo punctatus, Red-spotted toad
Bufo speciosus, Texas toad
Bufo valliceps valliceps, Gulf coast toad
Rana berlandieri, Rio Grande leopard frog
Gastrophryne olivacea, Great Plains narrowmouth toad
Kinosternan flavescens flavescens, Yellow mud turtle
Pseudemys concinna gorzugi, Zug's river cooter
Trachemys scripta elegans, Red-eared slider
Gopherus berlandieri, Texas tortoise
Triomyx spiniferus emoryi, Texas spiny softshell
Sceloporus cyanogenys, Blue spiny lizard
Coleoryx brevis, Texas banded Gecko
Cophosaurus texanus texanus, Texas earless lizard
Crotaphytus collaris collaris, Eastern collared lizard
Holbrookia lacerata subcaudalis, Southern eared lizard
Phrynosoma cornutum, Texas horned lizard
Phrynosoma modestum, Roundtail horned lizard
Sceloporus olivaceus, Texas spiny lizard
Sceloporus poinsetti poinsetti, Crevice spiny lizard
Sceloporus undulatus consobrinus, Southern prairie lizard
Sceloporus variabilis marmoratus, Rosebell lizard
Urosanrus ornatus ornatus, Eastern tree lizard
Eumeces obsoletus, Great Plains skink
Eumeces tetragrammus brevilineatus, Short-lined skink
Scincella lateralis, Ground skink
Cnemidophorus gularis gularis, Texas spotted whiptail
Cnemidophorus inornatus heptagrammus, Trans Pecos striped whiptail
Cnemidophorus sexlineatus sexlineatus, Six-lined socerunner
Leptotyphlops dulcis dulcis, Plains blind snake
Leptotyphlops humilis segregus, Trans Pecos blind snake
Arizona elegans arenicola, Texas glossy snake
Drymarchon curais erebennus, Texas indigo snake
Elaphe bairdi, Baird's rat snake
Elaphe guttata emoryi, Great Plains rat snake
Hypsiglena torguata jani, Texas night snake
Masticophis flagellum testaceus, Western coachwhip
Masticophis taeniatus girardi, Central Texas whipsnake
Merodia erythrogaster transversa, Blotched water snake
Merodia rhombifera rhombifera, Diamondback water snake
Opheodrys aestivus majalis, Western rough green snake
Pituophis melanoleucus sayi, Bullsnake
Rhinocheilus lecontei tessellatus, Texas longnose snake
Salvadora grahamiae lineata, Texas patchnose snake
Sonora semiannulata semiannulata, Ground snake
Sonora semiannulata taylori, Taylor's ground snake
Tantilla gracilis, Flathead snake

Tantilla hobartsmithi, Southwestern blackhead snake
Tantilla nigriceps fumiceps, Texas blackhead snake
Thamnophis marcianus marcianus, Checkered garter snake
Thamnophis proximus rubrilineatus, Redstripe ribbon snake
Micrurus fulvius tenere, Texas coral snake
Agkistrodon contortrix laticinctus, Broad-banded copperhead
Crotalus atrox, Western diamondback rattlesnake

Source: J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press. College Station. 434 p.