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Biological Assessment for the Norton Powerline Pole Replacement

Fiscal Year 1996 Replacements

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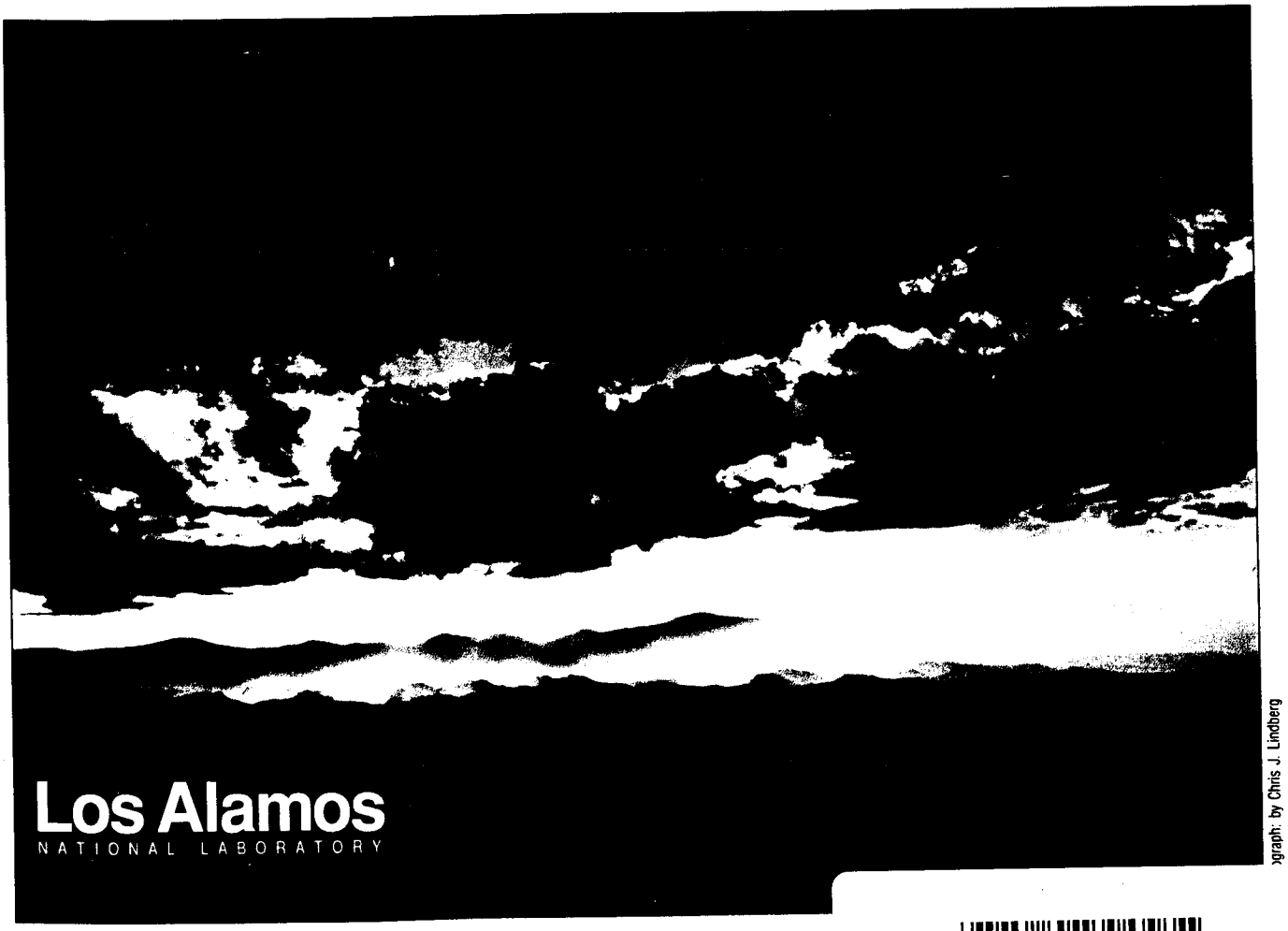

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Biological Assessment for the Norton Powerline Pole Replacement

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SUMMARY

Los Alamos National Laboratory (LANL) proposes to replace antiquated 115 kV powerline poles in the Norton Powerline on LANL, U. S. Forest Service, and Bureau of Land Management land. These structures were originally constructed in 1957. Trucks and heavy equipment will obtain access by using previously established or approved access routes; and minimal environmental damage should result. The proposed pole replacement is in an area of 75% to 100% prior disturbance from the utility corridor. There are biological concerns with four structures located in Pajarito Wetland and along Pajarito Creek. If mitigations are followed and BRET is on site in the critical habitat areas, minimal habitat disturbance should occur.

The LANL Biological Resources Evaluation Team (BRET) performed a Presence and Absence Study for vegetation and wildlife species, including threatened, endangered, and sensitive (TES) species, and to determine if habitat along the powerline could potentially support TES species. This study was done specifically to address the impacts of the Norton Powerline pole replacement. Other incidental purposes of this project are to determine if sensitive habitats are present and to gather baseline data for future studies on plant and wildlife species in the area. During field surveys, BRET also documented all wetlands, floodplains, and riparian areas near the Norton Powerline.

1 INTRODUCTION

1.1 Proposed Action

Beginning 3 April 1995, LANL proposes to replace antiquated 115 kV powerline structures (poles) in the Norton Powerline on LANL, U. S. Forest Service, and Bureau of Land Management lands. Trucks and heavy equipment will obtain access by using previously established access roads or BRET approved access routes and minimal environmental damage should occur. The current project will replace 8 structures on LANL property to the west of San Ildefonso Sacred Area. An additional 5 structures are also scheduled to be replaced east of the Rio Grande on U. S. Forest Service and Bureau of Land Management land. Currently, no Norton Powerline structures on San Ildefonso property are scheduled to be replaced. If LANL receives permission to replace the Norton Powerpoles on San Ildefonso land, a separate Biological Assessment will be produced.

2 AFFECTED ENVIRONMENT

2.1 General Setting

The Laboratory and the communities of Los Alamos and White Rock are situated in Los Alamos County north-central New Mexico. This region is located approximately 100 km (60 mi) north-northeast of Albuquerque and 40 km (25 mi) northwest of Santa Fe. Most of Los Alamos County is on the eastern slope of the Jemez Mountains on the Pajarito Plateau.

Sloping gently downward to the east-southeast for more than 24 km (15 mi) and ending in a scarp dropp to the Rio Grande, the Pajarito Plateau is composed of numerous alternating narrow mesas and canyons that extend from the base of the Jemez Mountains. The upper reaches of the Plateau are approximately 2,380 m (7,800 ft) above sea level, and its lower edge, on the rim of White Rock Canyon, is 1,890 m (6,200 ft) in elevation. Plateau canyons are 46 to 91 m (150 to 300 ft) deep and 91 to 183 m (300 to 60(wide.

2.2 Project Area

The project area is situated in the eastern part of LANL property, north of White Rock and on non-LAN property east of the Rio Grande (**See attached maps with structure number, Appendix A.**). structures scheduled for replacement are located in an eight-mile segment of the Norton Powerline. The Norton Powerline structures are next to Pajarito Road (structures 38, 39, 43, 44, 45, 46, and 48), State Route 4 (structure 51), and the old Buckman Road (structures 76, 79, 89, 94, and 105), east of the Rio Grande. The current proposed work will not occur on San Ildefonso land, and a separate Biological Assessment will be produced describing any such work. The pole replacements take place in a variety c habitats and several structures are in, or near, streams and wetlands (structures 39, 43, 44, and 45). Structures in wetlands (structures 44 and 45) will require special mitigations including having a biologi on site during the replacement of these structures. The poles currently proposed for replacement near th Rio Grande (structures 76, 79, 89, 94, and 105) start approximately 1 mile east of the river and proceed east.

2.3 Floodplains and Wetlands

2.3.1 Wetlands

In 1990, the US Fish and Wildlife Service (USFWS) mapped wetlands at LANL using the methodolog outlined by Cowardin (1979) according to the National Wetlands Inventory (NWI) standards. The met employs a hierarchical classification system based solely on aerial photography, and it may no ct s

wetlands or those in deep canyons. The USFWS survey did identify wetlands in the project area. Structures 44 and 45 are located in Pajarito Wetlands and special precautions must be followed to access these areas. Structures 39 and 43 are next to the intermittent stream in lower Pajarito Canyon and will also need special attention.

2.3.2 Floodplains

Floodplains are located throughout LANL property and along the Rio Grande. The floodplain guide for LANL is not complete at this time, and a map of existing floodplains is unavailable (McLin 1992). The poles near the Rio Grande may fall within the Rio Grande watershed and floodplain, and mitigations must be followed when working near the river.

3 FLORA and FAUNA

3.1 Nonsensitive Species

3.1.1 Vegetation

The vegetation in the project area is dominated by piñon pine (*Pinus edulis*), one-seed juniper (*Juniperus monosperma*), Rocky Mountain juniper (*Juniperus scopulorum*), narrow leaf cottonwood (*Populus angustifolia*), coyote willow (*Salix exigua*), Russian olive (*Elaeagnus angustifolia*), and scattered ponderosa pine (*Pinus ponderosa*). The project area has varying shrub layers of wormwood (*Artemesia ludoviciana*), big sagebrush (*Artemesia tridentata*), tarragon (*Artemesia dracunculus*), antelope sage (*Eriogonum jamesii*), mullein (*Verbascum thapsus*), narrow-leaf cattail (*Typha angustifolia*), chamisa (*Chrysothamnus nauseosus*), oak (*Quercus* spp.), Apache plume (*Fallugia paradoxa*), snakeweed (*Gutierrezia sarothrae*), yucca (*Yucca* spp.), strawberry cactus (*Echinocereus fendleri*) prickly pear cactus (*Opuntia polyacantha*), cane cholla cactus (*Opuntia imbricata*), and Russian thistle (*Salsola kali*). Dominant understory species include blue grama (*Bouteloua gracilis*), little bluestem (*Andropogon scoparius*), inland rush (*Juncus interior*), three-awn (*Aristida* spp), sand dropseed (*Sporobolus cryptandrus*), side-oats grama (*Bouteloua curtipendula*), mountain muhly (*Muhlenbergia montana*) and black grama (*Bouteloua eriopoda*). For specific plant species associated with each structure see Appendix B.

3.1 2 Wildlife

A variety of wildlife, including large mammals such as deer and elk, associated with piñon-juniper woodlands, shrublands, grasslands, and riparian zones use the general project area. BRET observed sig (sight, tracks, scat, etc.) of several wildlife species during the survey (Appendix C).

3.2 Threatened, Endangered, and Sensitive Species

The survey did not reveal the presence of listed TES plant or wildlife species in the project area. Howe due to the season of the survey and based on BRET's TES species database, several listed plant and wildlife species could inhabit the project area, and were just not observed (Table 1). TES species in BRET's TES database are included due to the existence of suitable habitat within some portion of the proposed project area. Of these, there is a moderate potential for three species to use the area: bald eag (*Haliaeetus leucocephalus*), whooping crane (*Grus americana*), and the southwestern willow flycatche (*Empidonax trailii extimus*).

3.2.1 Vegetation

The thirteen moderate potential plant species were not encountered in the surveys and are very ely be found in these previously disturbed areas.

3.2.2 Wildlife

There is a moderate potential for three species to use the area: bald eagle (*Haliaeetus leucocephalus*), whooping crane (*Grus americana*), and the southwestern willow flycatcher (*Empidonax trailii extimus*)

Also, many bird species use the Rio Grande as a migratory route. All the proposed replacement structu are well away from the Rio Grande. Disturbance to the bald eagle and the whooping crane should be minimal due to the distance from the river.

To date, surveys have not revealed any nesting bald eagles near the Norton Powerline. However, they known to inhabit riparian zones, which occur within the Norton Powerline corridor. Also, potential roosting areas have been identified on LANL property near the Rio Grande in White Rock Canyon, anc Mortandad Canyon has some suitable roosting areas.

Whooping cranes inhabit areas with rivers and streams. They migrate into New Mexico in autumn a winter in the central Rio Grande Valley. They have not been known to remain on LANL property (Ne Mexico Department of Game and Fish 1988) during their migration, but they may stop at sand n o near the Rio Grande.

Southwestern willow flycatchers inhabit areas near water with 4- to 7-m (13- to 23-ft) high thickets of willow (*Salix* spp.), buttonbush (*Cephalanthus occidentalis* var. *pubescens*), seepwillow (*Baccharis glutinosa*), and tamarisk (*Tamarix pentandra*) (Tibbitts *et al.* 1994). There is occasionally a sparse overstory of cottonwoods (Populus spp.) associated with this species. This species has not previously been found on LANL property. Areas in lower Pajarito Canyon near the Wetlands contain marginal southwestern willow flycatcher habitat.

Table 1: Threatened, Endangered, and Sensitive (TES) Species Potentially Occurring in the Project Area

SCIENTIFIC NAME	COMMON NAME	STATUS *	HABITAT	POTENTIAL FOR OCCURRENCE ‡
Wildlife				
Buteogallus anthracinus	Common black hawk	SPG2	Riparian areas	Low
Haliaeetus leucocephalus	Bald eagle	SPG2/FE	Riparian areas	Moderate
Ictinia mississippiensis	Mississippi kite	SPG2	Riparian areas, shelter belts, and golf courses	Low
Ammodramus bairdii	Baird's sparrow	SPG2	Juniper-grasslands, prairies, and mountain meadows up to 3600 m	Low
Grus americana	Whooping crane	SPG2/FE	Valley pastures, sandbars in the Rio Grande	Moderate
Sterna antillarum	Least tern	SPG1	Rivers and streams, sandbars and alkali flats	Low
Cyanthus latirostris	Broad-billed hummingbird	SPG2	Riparian woodlands, low to moderate elevations	Low
Vireo vicinior	Gray vireo	SPG2	Open woodlands dominated by juniper and oaks in southern range	Low

Table 1 (Cont.)

SCIENTIFIC NAME	COMMON NAME	STATUS *	HABITAT	POTENTIAL FOR OCCURRENCE ‡
Empidonax trailii extimus	Southwestern Willow flycatcher	SPG2/FE	Riparian woodlands dominated by cottonwoods	Moderate
Hybognathus amarus	Rio Grande silvery minnow	SPG2	Rio Grande Drainage, confined to perennial reaches of river from Santo Domingo Pueblo to Socorro	Low
Notropis simus	Bluntnose shiner	SPG1/FT	Rio Grande and Pecos River	Low
Euderma maculatum	Spotted bat	SPG2/ FCC2	Riparian, Piñon-juniper, ponderosa, spruce-fir areas, in cliffs or rock crevices near water	Low
Myotis lucifigus occultus	Occult little brown bat	SPG2/FCC2	Riparian, Piñon-juniper, ponderosa, spruce-fir areas, in cliffs or rock crevices near water	Low
Vegetation				
Mammillaria wrightii	Wright fishhook cactus	SE2	Desert grassland to Piñon-juniper, gravelly and sandy hills or plains	Moderate
Opunita clavata	Dagger-thorn cholla	SS	Juniper-grassland	Moderate
Opunita viridiflora	Santa Fe cholla	FCC2	Piñon-juniper	Moderate
Toumeya papyracantha	Gramma grass cactus	FCC2/SPE2	Piñon-juniper, usually on basalt outcrops on sandy soil	Moderate

Table 1 (Cont.)

SCIENTIFIC NAME	COMMON NAME	STATUS *	HABITAT	POTENTIAL FOR OCCURRENCE ‡
Aletes sessiliflorus	Sessile-flowered false carrot	SS	Piñon-juniper, rocky canyons and slopes usually in basaltic or sandstone areas	Moderate
Tetradymia filifolia	Threadleaf horsebrush	SS	Piñon-juniper, limestone or highly gypseous soils	Moderate
Silene plankii	Plank's catchfly	FC/SS	Piñon-juniper mountains along the Rio Grande	Moderate
Astragalus cyaneus	Cyanic milkvetch	SS	Piñon-juniper, sandy or gravelly hillsides	Moderate
Astragalus feenis	Santa Fe milkvetch	SS	Piñon-Juniper, dry slopes	Moderate
Astragalus kentrophyta	Spiny-leaf milkvetch	SS	Juniper-grassland, gullied bluffs, badlands, dunes, and roadsides	Moderate
Astragalus mollissimus	Matthew's woolly milkvetch	SS	Piñon-juniper, open slopes and ridges, sometimes in canyons	Moderate
Astragalus puniceus	Taos milkvetch	SS	Piñon-juniper, open, loose soil	Moderate
Dalea scariosa	La Jolla prairie clover	FEC3	Desert grasslands or juniper, sandy clay banks and bluffs, open sandy areas and roadsides	Moderate
Epipactis gigantea	Helleborine orchid	SE2	Riparian areas, damp woods, seepage slopes, springs, and streams	Low

Table 1 (Cont.)

SCIENTIFIC NAME	COMMON NAME	STATUS *	HABITAT	POTENTIAL FOR OCCURRENCE ‡
Abronia bigelovii	Tufted sand verbena	FEC3	Piñon-juniper, restricted to todilto gypsum or the derivative thereof	Moderate

***CODES FOR LEGAL STATUS**

FE = Federally endangered
FT = Federally threatened
FTC1 = Federally threatened as a C1
FCC2 = Federal candidate as a C2
FEC3 = Federally endangered as a C3
SE2 = State protected, rare across its entire range with such limited distribution and population size that unregulated collection could jeopardize its survival in New Mexico
SPE2 = State protected as a Group 2 (endangered)
SPG1 = State protected as a Group 1 species (endangered)
SPG2 = State protected as a Group 2 species (threatened)
SS = State sensitive

‡CODES FOR OCCURRENCE POTENTIAL

Low = Habitat is present in the area, but field survey found no individuals. Furthermore, no individuals are known to occur in the general area

Moderate = Species is known to inhabit similar habitat found in the TA or the general area

High = Species observed during field surveys or populations are known to inhabit areas near the TA

4 IMPACTS

4.1 Nonsensitive Species

4.1.1 Vegetation

Heavy machinery could alter topographic features and drainage patterns in the project area by removing and/or disturbing vegetative cover. This could increase erosion or alter natural drainage patterns, both within the canyon bottoms and along the canyon slopes.

4.1.2 Wildlife

The habitat in the project area is a travel corridor for raptors and other migratory birds, and is suitable for nesting, foraging, and perching for a variety of bird species, large mammals, and other wildlife species.

Excessive disturbance or disturbance during critical periods (March – August) could result in one or more of the following:

- direct removal of nesting, perching, cover, and similar foraging habitats along canyon slopes and mesas;
- nest abandonment by birds, which could result in nest failure;
- an interference with critical periods, such as the breeding period;
- contamination of wildlife water sources from fuel spills or leaks from vehicles and machinery; and
- electrocution or collision with powerlines.

4.2 Threatened, Endangered, and Sensitive Species

4.2.1 Vegetation

Unnecessary traffic off pre-established roads in piñon-juniper habitat could eliminate endangered plants if they are present.

The helleborine orchid could be affected if sites present along streams and slope seepages within riparian areas are disturbed by any soil placed in the stream bed.

4.2.2 Wildlife

The bald eagle could be affected by the proposed action through collisions with the powerline or by electrocution. Stream disturbance and degradation could cause negative impacts to potential feeding or perching areas. Construction during the nesting and fledgling periods could disturb this species.

Any alterations to rivers and streams could affect the whooping crane. Cranes may rest on sandbars in White Rock Canyon when migrating in winter. Presence of the powerline could result in collisions, causing injury or possible mortality to the cranes.

The southwest willow flycatcher could be disturbed due to the intense construction activity near Pajarito Wetlands. There is a small area of marginal habitat (small area of willows) near structure 45.

4.3 Floodplains

Impacts may be associated with disturbances from trucks and heavy equipment and from placement and presence of powerlines. If disturbances occur within or near a floodplain, the following impacts could result:

- disturbance to the stream channel or smaller drainages leading into the stream channel could result in an alteration of wetlands outside of the project area, which could cause partial or complete loss of those wetlands;
- excessive disturbance to the vegetation and soil surface could result in an alteration of the water flow or a widening of drainage channels;
- disturbance along drainages and steep slopes could initiate or increase soil erosion; this could also cause localized alterations in the floodplain or wetlands; and
- hazardous fuel spills or leaks from vehicles could degrade water quality in the riparian zone and could result in negative changes to vegetation.

5 MITIGATION

Structures 39, 43, 44, and 45 are located in sensitive habitats and special measures have to be considered during their replacement.

5.1 Nonsensitive Species

5.1.1 Vegetation

Reseeding of vegetation will minimize new or increased erosion in any newly disturbed areas. Survey results indicate that a mixture of native grasses, forbs, and other herbaceous plants could be used for revegetation. Consultation with BRET can help determine more specific species.

Additional mitigation measures include the following:

- Avoid unnecessary disturbance (i.e., excessive parking areas or equipment storage areas and off-road travel) to and removal of vegetation along riparian areas, drainage systems, stream channels, and canyon slopes.
- Do not blade a new right-of-way; use existing dirt roads for access.
- Do not blade more area than a tenth of an acre surrounding the structure. The least amount of vegetation disturbed is best for limiting erosion.

- Replace the structures in Pajarito Wetlands as soon as possible in the project. Winter or early spring replacement will minimize any vegetation disturbance.
- Vehicle access to marsh and stream areas should be done on ¾-inch plywood mats. This method is a nationally recognized procedure for minimizing soil and plant disturbances in a wetland or riparian area (Lewis Clark, Regulatory Branch of the United States Army Corps of Engineers, Albuquerque, New Mexico Branch 1995). The ¾-inch plywood mats should not stay in place for longer than seven days.
- Special care should be taken not to place soil in creek beds. Any soil pushed into a stream bed during construction must be removed.

5.1.2 Wildlife

No adverse impacts to wildlife are expected. However, because heavy machinery is to be used, the following mitigation measures will reduce any impacts:

- Avoid crossing drainages where there is water; use existing roads or cross level areas that are dry. Vehicle access to and across stream areas should be done on ¾-inch plywood mats. This method is a nationally recognized procedure for minimizing soil and plant disturbances in a wetland or riparian area (Lewis Clark, Regulatory Branch of the United States Army Corps of Engineers, Albuquerque, New Mexico Branch 1995). The ¾-inch plywood mats should not stay in place for longer than seven days.
- Special care should be taken not to place soil in creek beds. Any soil pushed into a stream bed during construction will need to be removed.
- Replace the structures in Pajarito Wetlands as soon as possible in the project. Winter or early spring replacement will minimize any wildlife disturbance.
- Avoid construction activities later in the bird-breeding season.
- Reseed disturbed areas to LANL's Engineering Facilities Design Group (ENG-3) and San Ildefonso standards.

5.2 Threatened, Endangered, and Sensitive Species

There is a low potential for impacts to listed TES species; if the following mitigations are followed, adverse impacts should be avoided or minimized.

5.2.1 Vegetation

Mitigation measures include the following:

- Avoid unnecessary disturbance (i.e., excessive parking areas or equipment storage areas and off-road travel) to and removal of vegetation along riparian areas, drainage streams, stream channels, and canyon slopes.
- Do not blade a new right-of-way; use existing dirt roads for access.
- Do not blade more area than one-tenth of an acre surrounding the structure. The least amount of vegetation disturbed is best for limiting erosion.
- Any area over one-tenth of an acre that is disturbed will require a species specific survey for TES plant species.
- Vehicle access to marsh and stream areas should be done on ¾-inch plywood mats. This method is a nationally recognized procedure for minimizing soil and plant disturbances in a wetland or riparian area (Lewis Clark, Regulatory Branch of the United States Army Corps of Engineers, Albuquerque, New Mexico Branch 1995). The ¾-inch plywood mats should not stay in place for longer than seven days.
- Replace the structures in Pajarito Wetlands as soon as possible in the project. Winter or early spring replacement will minimize any vegetation disturbance.
- Special care should be taken not to place soil in creek beds. Any soil pushed into a stream bed during construction will need to be removed.

5.2.2 Wildlife

Replacement of poles near the Rio Grande should take place between March 1 and September 30 to avoid affecting the bald eagle and other birds during migration. If disturbances are to occur outside these dates, a field survey will be conducted by BRET to check for the presence of any TES bird species before work can continue. If no eagles or whooping cranes are present, work can continue. If BRET discovers any TES bird species are present or if presence is suspected, a determination of whether work can continue will be made based on the location of the species and the type and location of the work. The proposed work will occur outside of the November 1 to February 31 restricted time and as a result wintering eagles should suffer minimal impact. The closest replacement structure to the Rio Grande will be approximately 1 mile away.

Work must be conducted in Pajarito Wetlands between August 1 and April 30 or a southwestern willow flycatcher survey will be required. If no southwestern willow flycatchers are present, work can continue.

If BRET discovers the flycatchers are present or if presence is suspected, a determination of whether work can continue will be made based on the location of the southwestern willow flycatcher and the type and location of the work. BRET will conduct a southwestern willow flycatcher survey in all of lower Pajarito Canyon during the 1995 breeding season regardless of the timing of the proposed structure replacement.

Other precautions include:

- A biologist must be present during pole replacement in critical habitat, such as wetlands, and BRET must be notified 72 hours in advance before construction begins.
- Replace the structures in Pajarito Wetlands between August 1 and April 30.

5.3 Floodplains

Although there is an exemption for powerline maintenance in floodplains, care should be taken when working near floodplains. The following mitigations must be followed:

- Avoid disturbances that could produce or initiate erosion along the drainages and steeper slopes.
- Minimize excessive off-road travel that may disturb vegetation and cause erosion.
- Avoid hazardous fuel spills or leaks from vehicles or sampling machinery.
- Vehicle access to marsh and stream areas should be done on ¾-inch plywood mats. This method is a nationally recognized procedure for minimizing soil and plant disturbances in a wetland or riparian area (Lewis Clark, Regulatory Branch of the United States Army Corps of Engineers, Albuquerque, New Mexico Branch 1995). The ¾-inch plywood mats should not stay in place for more than seven days.
- Special care should be taken not to place soil in creek beds. Any soil pushed into a stream bed during construction will need to be removed.

5.4 Access Routes and Specific Precautions at Each Fiscal Year 1996 Structure

- **Pole 38.** This two-pole structure is on the south cliff edge within 10 feet of the fence surrounding Area G, TA-54. The vegetation around this structure is mostly shrubs with several trees. A gate in the southwest fence corner provides the best access to this pole. A road along the inside of the fence provides the best access to the gate. The pole is located at the most southern point of the fence line next to the cliff edge north of Pajarito Road.

- **Pole 39:** This is a three-pole structure at the base of the mesa to the south of Area G. The vegetation around this structure is characterized by a small cleared area with grass and forbs surrounded by medium to small trees. This structure is directly north of the stream bed of an intermittent stream. Cross the stream bed on plywood (3/4-inch) mats. Disturb this area as little as possible and do not leave any of the stream channel blocked following the replacement of the structure. Limit plant removal near the stream to minimize erosion. The best access to this pole lies to the southwest of the pole along a previously disturbed area directly next to Pajarito Road. The fence will require cutting for direct access to the structure. The structure is at the eastern edge of a disturbed area and additional disturbance of the location must be avoided. A biologist from BRET, ESH-20, will mark the access route to the structure and 72-hour advance notice is required.

- **Pole 43:** This two-pole structure is located south of Pajarito Road next to the barbed wire fence. Medium to low shrubs with a few trees underlie this structure. The best access to this structure is directly north to Pajarito Road. Limit damage to the stream and the surrounding area during the alteration of several small mounds near the stream. Avoid damaging the stream bed, north of the structure. Cross the stream bed on plywood (3/4-inch) mats. Remove mats after seven days in one location. Remove any blockage to the stream bed following the structure replacement and minimize plant disturbance to avoid erosion.

- **Pole 44:** This two-pole structure is located in Pajarito Wetlands and is surrounded by the marsh. The structure is on an artificial burm with medium to small trees and shrubs. The best access to this structure is to drive along the southern perimeter of the wetland from the east and access this structure from the south. Damage to the site of the pole placement should be limited as much as possible in the areas of the wetlands. Disturbances in this area will affect many plants and animals. Crossing the stream channel is necessary to gain access to the southern edge of the wetland. A biologist from BRET must monitor access to this structure and BRET requires 72-hour advance notice.

- **Pole 45:** This two-pole structure is located in the middle of a marsh. This pole removal and replacement will require the greatest care of all the poles removed to not unduly disturb the marsh. The structure is near the north edge of a marsh surrounded by sedges and cattails and there are medium to large trees on the north edge of the pond. This pole is to the right of the entrance to Pajarito Wetlands. Entrance to this marsh will need to be at the closest point to the edge of the marsh and minimal disturbance at the site is required. Undue damage will require restoration. Access to the edge of the marsh is best from the northwest where other vehicles have entered into the wetland. Cut the Pajarito Road fence to access the area. The path to the marsh should disturb as little vegetation as possible. Restoration may be required following the replacement of this structure. A dredge and fill

permit will be required if an artificial burm or fill is needed for access to this structure. Access the area by applying 3/4-inch plywood mats across the marsh. These mats will allow access to the marsh, while minimizing damage to the moist soils and plants. Remove mats after use and do not use for longer than seven days. A biologist from BRET must monitor the access to the structure and BRET requires 72-hour advance notice.

- **Pole 46:** This two-pole structure is located to the east of the wetlands. This structure is by several low shrubs and a few small trees. Access to this structure is best through the Pajarito Wetland's gate maintained by DX-11. The gate to Pajarito Wetlands is approximately 1/4 mile from the junction of Pajarito Road and State Route 4. This structure is to the left of the entrance and along an access path made during the construction of a water monitoring station along the stream. This pole is very close to the access path. There should be as little destruction of vegetation as possible during the replacement of this pole. Use previously disturbed areas while driving to this structure.

- **Pole 48:** This two-pole structure with guide wires is located on the Norton Powerline at the intersection of Pajarito Road and State Route 4. This structure is located directly west of the road leading to Cañada del Buey and the meteorological tower at TA-54. This structure is in a low grass and forb area near medium to large trees. Access to this structure can be gained along the utility corridor from the TA-54 meteorological tower gate. Most of the area under the powerline is disturbed, but avoid any unnecessary removal of surface plants. All trees should be avoided while gaining access to this structure.

- **Pole 51:** This two-pole structure is located on the Norton Powerline across from White Rock. This structure is by a low grass and forb area near medium to large trees. Access the structure by a gate across from Sherwood Road, in White Rock, on the north side of State Route 4. The road on the north side of State Route 4 curves to the west and enters the Norton Powerline between poles 51 and 52. Structure 51 is to the west of this road. Access to this structure can also be gained along the utility corridor from the TA-54 meteorological tower gate. Most of the area under the powerline is heavily disturbed, but avoid any unnecessary removal of surface plants.

- **Pole 76:** This two-pole structure is located directly off Buckman Road near the Rio Grande. A low grass forb area with small to medium trees surrounds this structure. Access this structure by turning east off Buckman Road along the utility corridor. Pole 76 is the closest pole on the east side of the road. Avoid the small erosion trench along the south edge of the utility corridor. The access road under the structures has heavily disturbed the area. Limit all unnecessary removal of surface plants during the replacement of this structure.

- **Pole 79:** This two-pole structure is located approximately 500 yds north of Buckman Road. This structure is also located 500 yds west of an access road that crosses the Norton Powerline access corridor. The best access to this structure is along the utility corridor from the east. This structure is located in a heavily overgrazed pasture with scattered one-seed junipers near the intersection of Buckman Road and the road leading to State Highway 502 near Buckman Mesa. There will be minimal impact due to the poor condition of the site surrounding this structure. However, a minimal amount of surface plants should be removed and trees should be avoided while accessing this structure.

- **Pole 89:** This three-pole structure with guide wires is located directly north of Buckman Road along Cañada Ancha. Access the Norton Powerline by a second road that runs parallel to Buckman Road south of the structure. This structure is on a small ridge surrounded by small hills. It will be difficult to reach this pole because of the hilly terrain. We marked two possible access paths with colored flagging to the structure. One path is west of the structure and the second path is east of the structure. Previous work on this structure has disturbed the area under the pole. Limit all unnecessary removal of surface plants during the replacement of this structure.

- **Pole 94:** This two-pole structure is located directly north of Buckman Road near two access roads that run parallel to the main road. The two access road can be reached by an intersecting road leading to structure number 92. This structure is in a low grass and forb area near medium to large trees. The best access to this structure is directly off the nearest access road to this structure. This area is relatively undisturbed near the structure but the area is heavily used. This area is grazed by cattle. However, a minimal amount of surface plants should be removed and trees should be avoided while accessing and replacing this structure.

- **Pole 105:** This two-pole structure is located directly to the south of Buckman Road along Cañada Ancha. This structure is in a floodplain between two shallow arroyos. There is a large dry arroyo to the east of this structure and a small arroyo to the west. Avoid the small arroyo during the replacement of this structure. Cattle have heavily used the area under this structure. Limit all unnecessary removal of surface plants during the replacement of this structure. There are two possible access ways to this structure: (1) drive off Buckman Road between the arroyos north of the structure, (2) drive south in the wide shallow arroyo and then west along the utility corridor.

6.0 CONCLUSIONS

In light of the fact that a majority of the activities will occur in previously disturbed areas, the replacement of the current structures should cause no ecological concerns if the mitigations in this document are followed. The construction activity near the Rio Grande is approximately 1,600 m (1 mi) from the river and in marginal habitat for riparian-associated species. The pole replacement near the river should have minimal impact to TES bird species because of the distance to the river. Likewise, the pole replacement in Pajarito Wetlands should have minimal impact to southwestern willow flycatchers due to the early construction date and the marginal nature of the flycatcher habitat. Based on BRET's conclusions all TES plant species should suffer minimal impact. During the replacement of structures in critical areas, a biologist will mark the access route and visit the site during construction to insure that minimal damage occurs during the structure replacement.

7.0 REFERENCES

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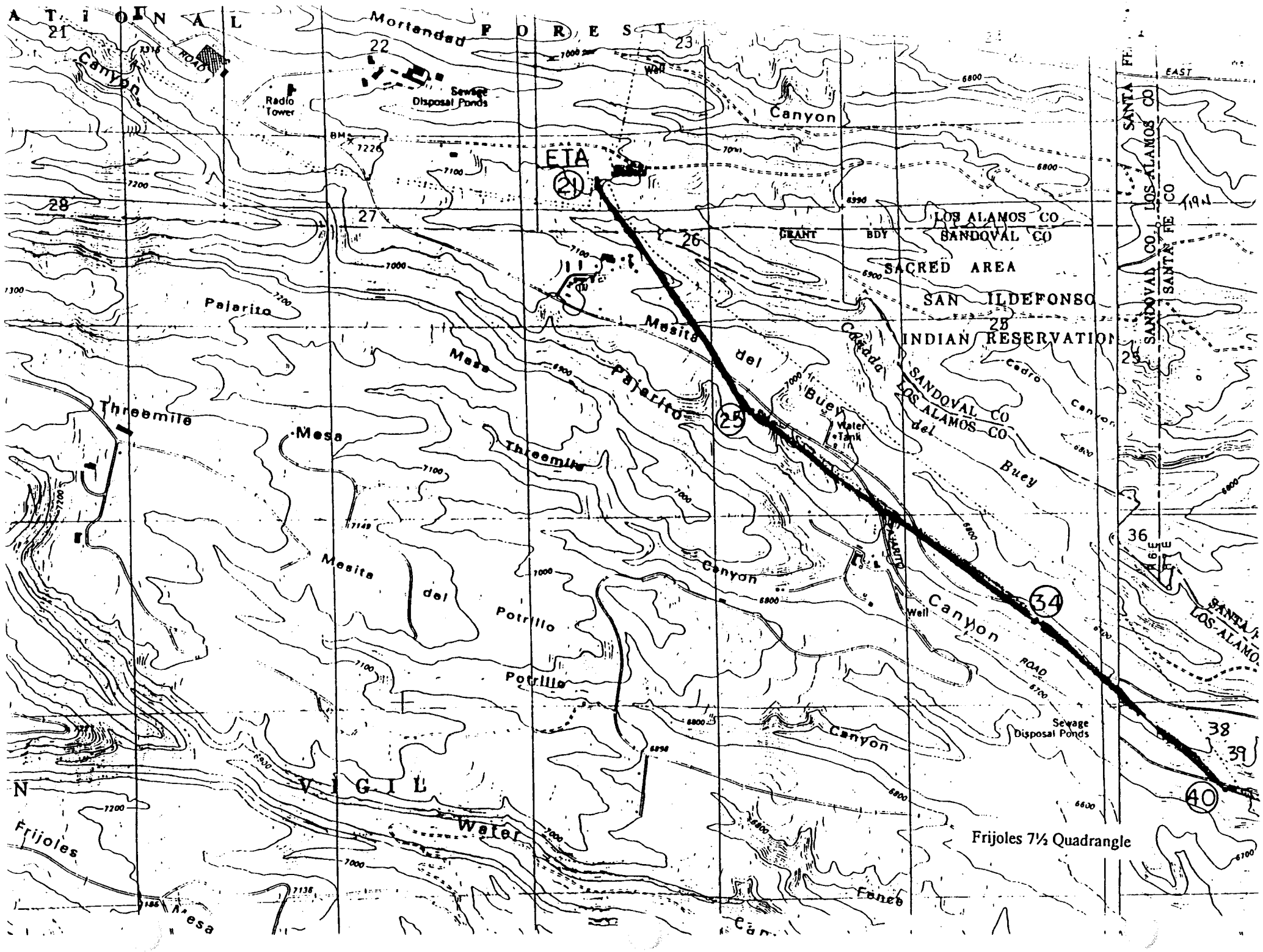
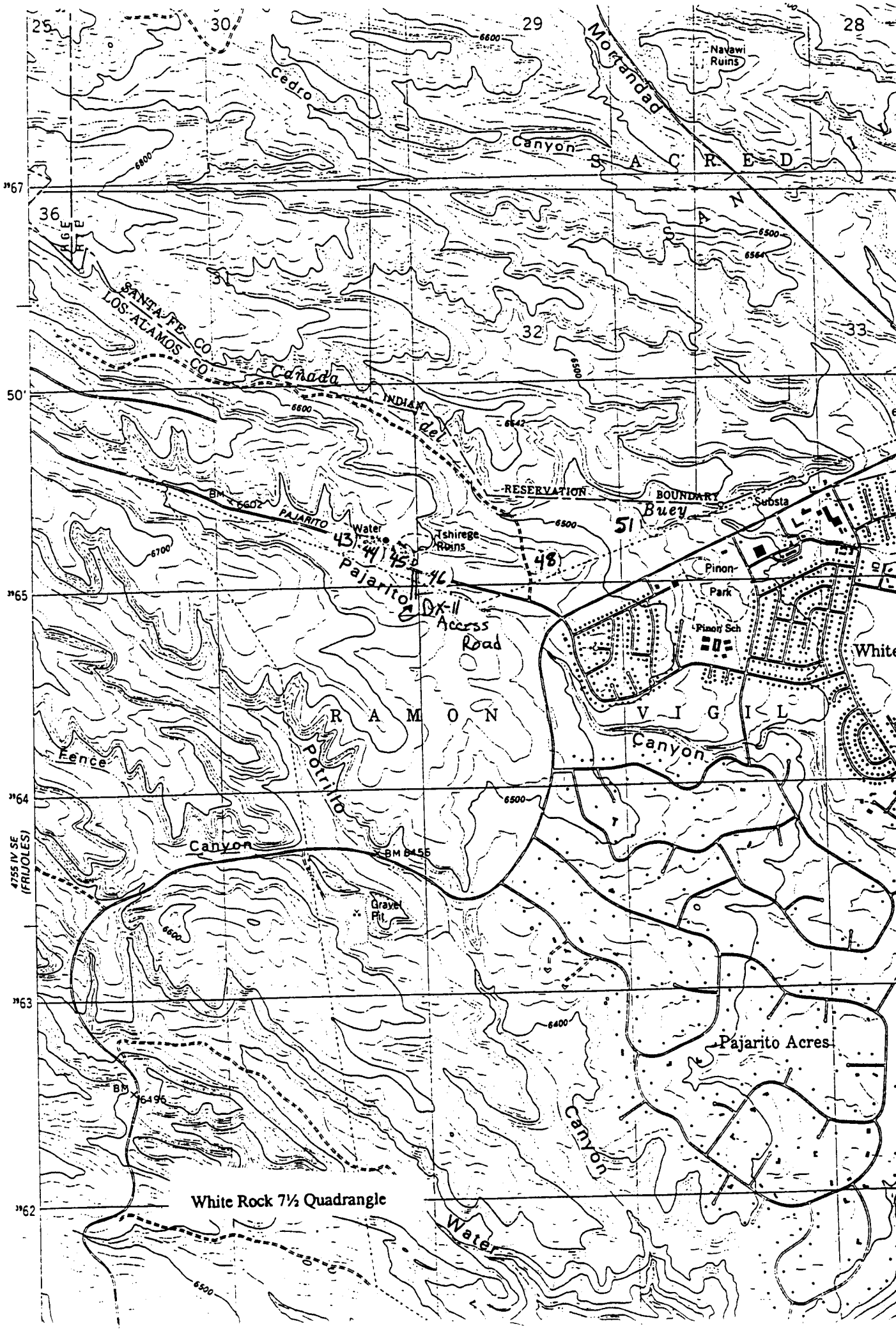
APPENDIX A

MAPS OF STRUCTURE LOCATION FOR

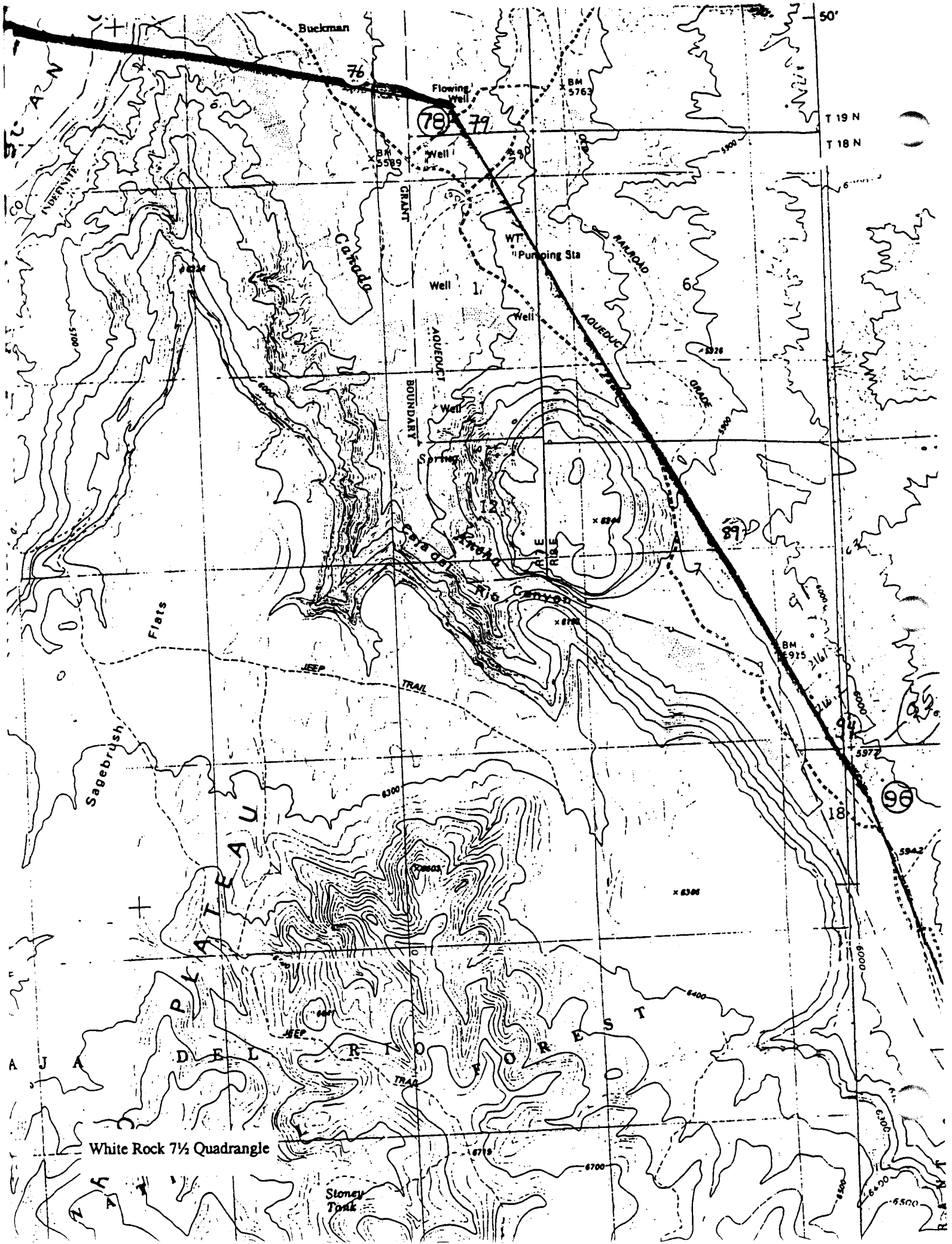
THE NORTON POWERLINE



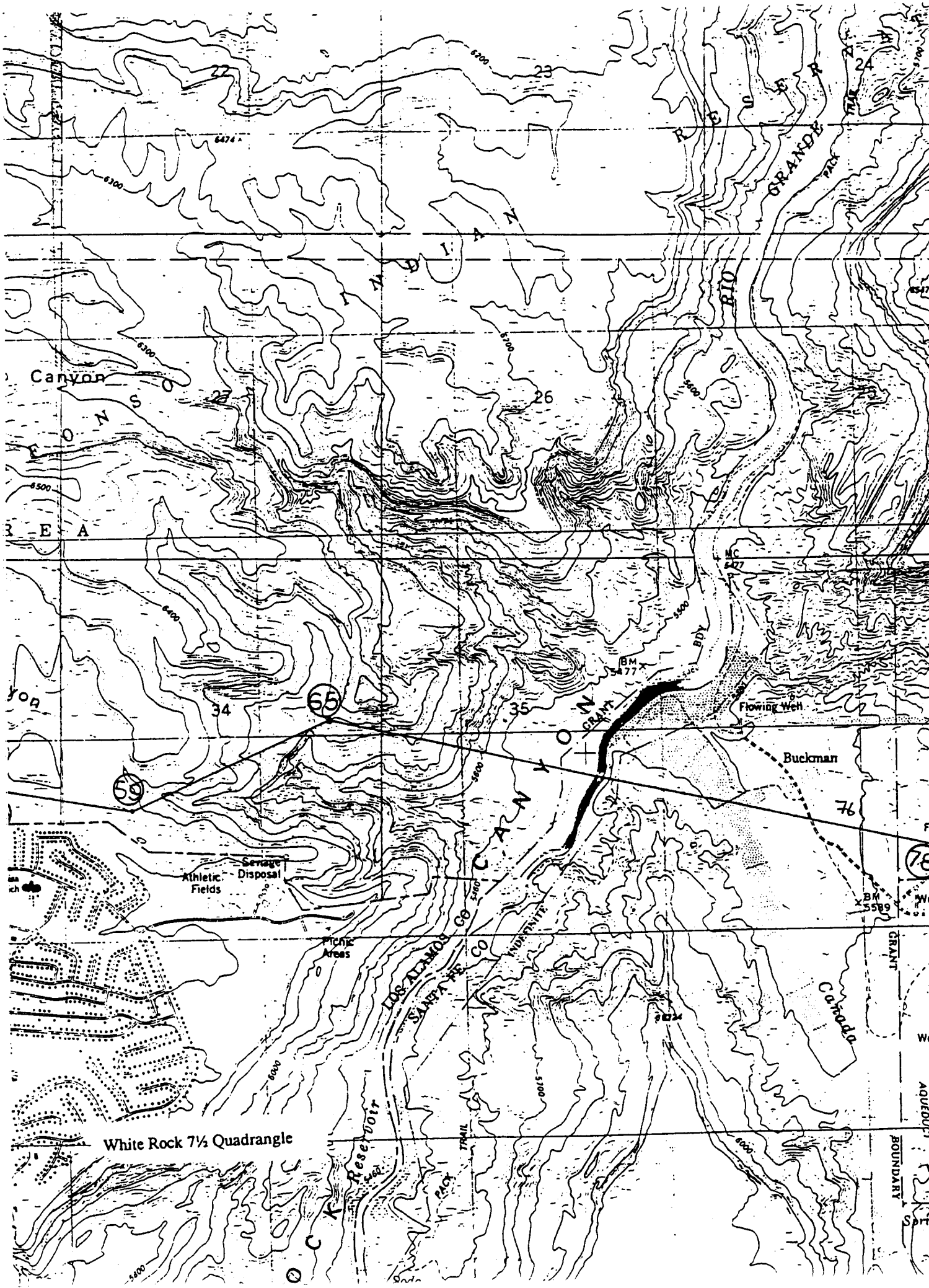
ATIONAL FOREST
Mortandad
Canyon
Radio Tower
Sewage Disposal Ponds
ETA
21
22
23
26
27
28
25
34
36
38
39
40
LOS ALAMOS CO
SANDOVAL CO
GRANT BDY
SACRED AREA
SAN ILDEFONSO
INDIAN RESERVATION
SANTA FE CO
SANDOVAL CO
LOS ALAMOS CO
Pajarito
Mesa
Threemile
Mesita del Buey
Cañada del Buey
Cedro Canyon
Water Tank
Mesita del Potrillo
Potrillo
Canyon
Well
Sewage Disposal Ponds
VIGIL
Water
Frijoles
Mesa
Fence
Frijoles 7½ Quadrangle



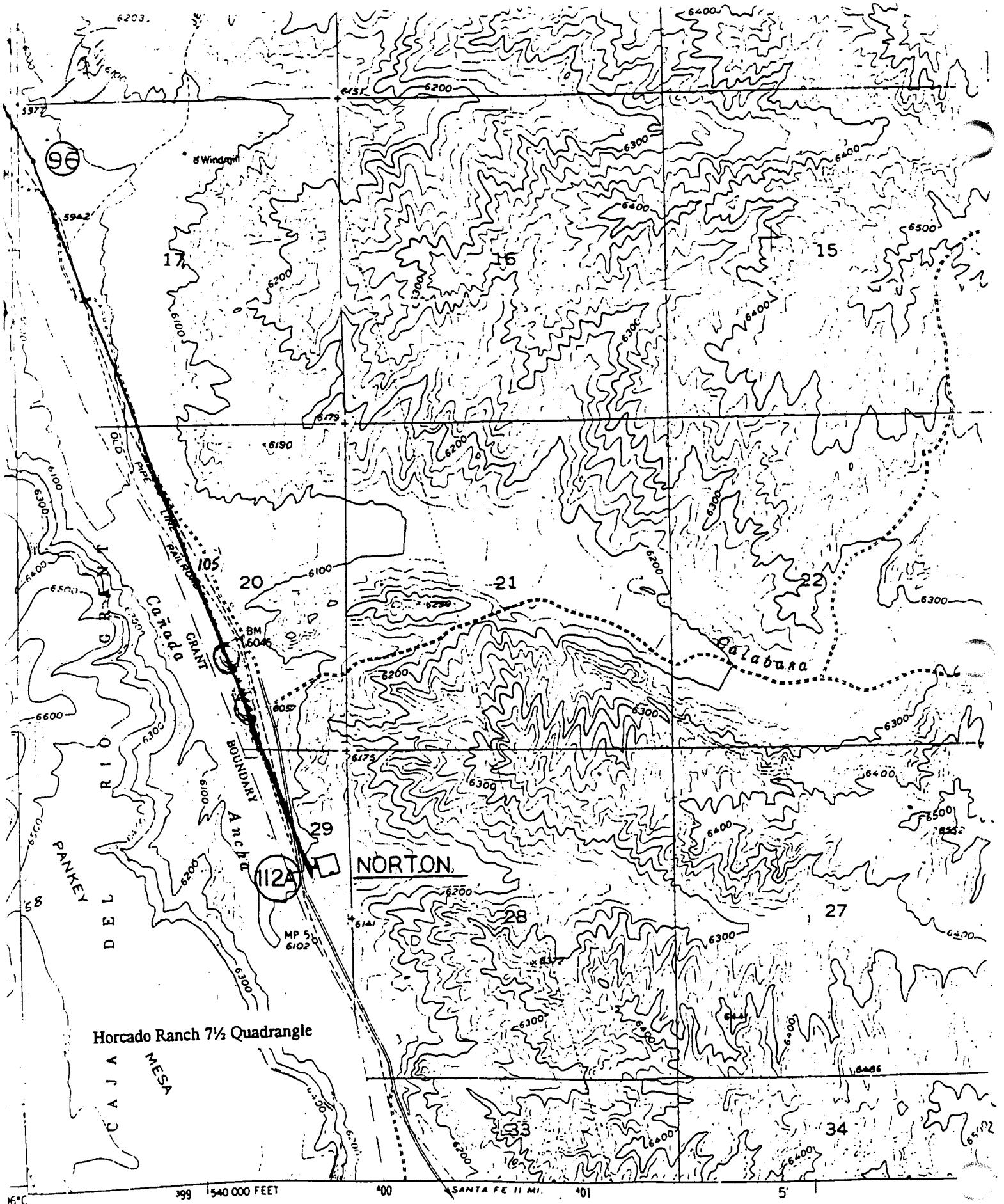
25
30
29
28
Navawi Ruins
Mortandad
Cedro
Canyon
S A C R E D
36
31
32
33
SANTA FE CO
LOS ALAMOS CO
Cañada
INDIAN
del
RESERVATION
BOUNDARY
Buey
Substa
51
BM 6602
PAJARITO
Water
Tshirege Ruins
43
44
45
46
48
Pajarito
DX-11 Access Road
Pinon Park
Pinon Sch
White
R A M O N
V I G I L
Canyon
Fence
Potrillo
Canyon
BM 6455
Gravel Pit
4755 IV SE (FRIJOLES)
Pajarito Acres
BM 6496
Canyon
White Rock 7½ Quadrangle
Water
6600
6800
6500
6564
6642
6700
6400



Buckman
Flowing Well
BM 5763
BM 5589
Well
T 19 N
T 18 N
50'
GRANT
Cañada
WT
Pumping Sta
RAILROAD
AQUEDUCT
GRADE
BOUNDARY
Spring
Caja del Rio Canyon
Flats
JEEP
TRAIL
Sagebrush
PLATEAU
DEL RIO FOREST
Stoney Tank
White Rock 7½ Quadrangle



Canyon
FONSO
INDIAN
RESERVATION
RIO GRANDE
PACK TRAIL
22
23
24
26
27
34
35
65
59
76
78
BM 5477
BM 5589
Flowing Well
Buckman
Sewage Disposal
Athletic Fields
Picnic Areas
LOS ALAMOS CO
SANTA FE CO
INDEFINITE
GRANT
BDY
Cañada
Reservoir
PACK TRAIL
White Rock 7½ Quadrangle
AQUEDUCT
BOUNDARY



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography from aerial photographs by multiplex methods

Aerial photographs taken 1951. Field check 1953

Polyconic projection. 1927 North American datum

APPENDIX B

VEGETATION AT EACH STRUCTURE FOR THE NORTON POWERLINE

Pole 38.

Trees:

Piñon pine (*Pinus edulis*).

One-seed Juniper (*Juniperus monosperma*)

Shrubs:

Wavyleaf oak (*Quercus undulata*)

Grasses:

Little bluestem (*Andropogon scoparius*)

Mountain Muhly (*Muhlenbergia montana*)

Forbs:

Mullein (*Verbascum thapsus*)

Snakeweed (*Gutierrezia sarothrae*)

Antelope sage (*Eriogonum jamesii*)

Cactus:

Strawberry cactus (*Echinocereus fendleri*)

Prickly pear (*Opuntia polyacantha*)

Moss:

Trace.

Lichen:

On many of the rocks under the poles.

Pole 39:

Trees:

Piñon pine (*Pinus edulis*).

One-seed Juniper (*Juniperus monosperma*)

Ponderosa pine (*Pinus ponderosa*)

Rocky mountain juniper (*Juniperus scopulorum*)

Narrow leaf Cottonwood (*Populus angustifolia*)

Shrubs:

Big Sage (*Artemisia tridentata*)

Apache plume (*Fallugia paridoxa*)

Skunk bush sumac (*Rhus trilobata*)

New Mexico Olive (*Forestiera neomexicana*)

Grasses:

Silver beardgrass (*Andropogon saccharoides*)

Blue grama (*Bouteloua gracilis*)

Forbs:

Mullein (*Verbascum thapsus*)

Tarragon (*Artemisia dracunculus*)

Tansy Aster (*Machaeranthera tanacetifolia*)

Lichen:

On the scattered rocks under the poles.

Pole 43:

Trees:

Piñon pine (*Pinus edulis*).

One-seed Juniper (*Juniperus monosperma*)

Coyote willow (*Salix exigua*)

Shrubs:

Apache plume (*Fallugia paridoxa*)

Skunk bush sumac (*Rhus trilobata*)

Rabbitbrush (*Chrysothamnus nauseosus*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Sand dropseed (*Sporobolus cryptandrus*)

Forbs:

Mullein (*Verbascum thapsus*)

Tarragon (*Artemisia dracunculus*)

Prairie Sunflower (*Helianthus petiolaris*)

Pole 44:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Narrow leaf Cottonwood (*Populus angustifolia*)

Coyote willow (*Salix exigua*)

Russian Olive (*Elaeagnus angustifolia*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Sand dropseed (*Sporobolus cryptandrus*)

Rush (*Juncus interior*)

Forbs:

Mullein (*Verbascum thapsus*)

Tarragon (*Artemisia dracunculus*)

Coreopsis (*Coreopsis cardaminefolia*)

Mosses:

Traces in the soil.

Pole 45:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Narrow leaf Cottonwood (*Populus angustifolia*)

Coyote willow (*Salix exigua*)

Russian Olive (*Elaeagnus angustifolia*)

Piñon pine (*Pinus edulis*).

Shrubs:

Apache plume (*Fallugia paridoxa*)

Rabbitbrush (*Chrysothamnus nauseosus*)

Big Sage (*Artemisia tridentata*)

Grasses:

Rush (*Juncus interior*)

Forbs:

Mullein (*Verbascum thapsus*)

Tarragon (*Artemisia dracunculus*)

Narrow-leafed cattail (*Typha angustifolia*)

Pole 46:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Ponderosa pine (*Pinus ponderosa*)

Shrubs:

Rabbitbrush (*Chrysothamnus nauseosus*)

Big Sage (*Artemisia tridentata*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Sand dropseed (*Sporobolus cryptandrus*)

Squirreltail (*Sitanion hystrix*)

Forbs:

Tarragon (*Artemisia dracunculus*)

Coreopsis (*Coreopsis cardaminefolia*)

Snakeweed (*Gutierrezia sarothrae*)

Pole 48:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Shrubs:

Big Sage (*Artemisia tridentata*)

Rabbitbrush (*Chrysothamnus nauseosus*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Hairy grama (*Bouteloua hirsuta*)

Poverty three-awn (*Aristida divaricata*)

Ring Muhly (*Muhlenbergia torreyi*)

Forbs:

Tarragon (*Artemisia dracunculus*)

Snakeweed (*Gutierrezia sarothrae*)

Bitterweed (*Hymenoxys richardsonii*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Pole 51:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Shrubs:

Big Sage (*Artemisia tridentata*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Galleta (*Hilaria jamesii*)

Red three-awn (*Aristida longiseta*)

Poverty three-awn (*Aristida divaricata*)

Forbs:

Tarragon (*Artemisia dracunculus*)

Coreopsis (*Coreopsis cardaminefolia*)

Snakeweed (*Gutierrezia sarothrae*)

Southwestern paintbrush (*Castilleja integra*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Pole 76:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Shrubs:

Rabbitbrush (*Chrysothamnus nauseosus*)

Narrowleaf yucca (*Yucca angustissima*)

Apache plume (*Fallugia paridoxa*)

Grasses:

Black grama (*Bouteloua eriopda*)

Hairy grama (*Bouteloua hirsuta*)

Red three-awn (*Aristida longiseta*)

Poverty three-awn (*Aristida divaricata*)

Forbs:

Snakeweed (*Gutierrezia sarothrae*)

Threadleaf groundsel (*Senecio douglasii*)

Wavyleaf thistle (*Cirsium undulatum*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Cane Cholla (*Opuntia imbricata*)

Mosses:

Traces in the soil.

Pole 79:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Shrubs:

Rabbitbrush (*Chrysothamnus nauseosus*)

Narrowleaf yucca (*Yucca angustissima*)

Apache plume (*Fallugia paridoxa*)

Grasses:

Black grama (*Bouteloua eriopda*)

Poverty three-awn (*Aristida divaricata*)

Downy chess (*Bromus tectorum*)

Forbs:

Snakeweed (*Gutierrezia sarothrae*)

Silverleaf Nightshade (*Solanum elaeagnifolium*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Cane Cholla (*Opuntia imbricata*)

Mosses:

Traces in the soil.

Pole 89:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Shrubs:

Rabbitbrush (*Chrysothamnus nauseosus*)

Narrowleaf yucca (*Yucca angustissima*)

Mountain mahogany (*Cercocarpus montanus*)

Apache plume (*Fallugia paridoxa*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Black grama (*Bouteloua eriopda*)

Hairy grama (*Bouteloua hirsuta*)

Red three-awn (*Aristida longiseta*)

Forbs:

Snakeweed (*Gutierrezia sarothrae*)

Threadleaf groundsel (*Senecio douglasii*)

Wavyleaf thistle (*Cirsium undulatum*)

Bitterweed (*Hymenoxys richardsonii*)

Penstemon (*Penstemon* spp.)

Sinking milkvetch (*Astragalus praelongus*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Soil Crust:

Traces on the soil.

Pole 94:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Piñon pine (*Pinus edulis*).

Shrubs:

Rabbitbrush (*Chrysothamnus nauseosus*)

Narrowleaf yucca (*Yucca angustissima*)

Apache plume (*Fallugia paridoxa*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Black grama (*Bouteloua eriopda*)

Hairy grama (*Bouteloua hirsuta*)

Forbs:

Snakeweed (*Gutierrezia sarothrae*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Cane Cholla (*Opuntia imbricata*)

Soil Crust:

Traces on the soil.

Pole 105:

Trees:

One-seed Juniper (*Juniperus monosperma*)

Shrubs:

Rabbitbrush (*Chrysothamnus nauseosus*)

Grasses:

Blue grama (*Bouteloua gracilis*)

Sand dropseed (*Sporobolus cryptandrus*)

Indian ricegrass (*Oryzopsis hymenoides*)

Forbs:

Snakeweed (*Gutierrezia sarothrae*)

Tarragon (*Artemisia dracunculus*)

Cactus:

Prickly pear (*Opuntia polyacantha*)

Soil crust:

Traces on the soil.

APPENDIX C

WILDLIFE OBSERVATIONS AT THE NORTON POWERLINE

Wildlife Observations at the Norton Powerline

Species	Vegetation Type
Cottontail (*Sylvilagus* spp.)	Piñon-juniper woodland, Riparian
Bobcat (*Lynx rufus*)	Piñon-juniper woodland, Riparian
Mule deer (*Odocoileus hemionus*)	Piñon-juniper woodland, Riparian
Elk (*Cervus canadensis*)	Piñon-juniper woodland, Riparian
Blacktail Jackrabbit (*Lepus californicus*)	Piñon-juniper woodland
Red-tailed Hawk (*Buteo jamaicensis*)	Piñon-juniper woodland, Riparian
Violet-green Swallow (*Tachycineta thalassina)*	Piñon-juniper woodland, Riparian
Barn swallow (*Riparia riparia*)	Piñon-juniper woodland, Riparian
Piñon jay (*Gymnorhinus cyanocephalus*)	Piñon-juniper woodland
Townsend's Solitaire (*Myadestes townsendi*)	Piñon-juniper woodland
American Robin (*Turdus migratorius*)	Piñon-juniper woodland
Scrub jay (*Gymnorhinus cyanocephalus*)	Piñon-juniper woodland, Riparian
American kestrel (*Falco sparverius*)	Piñon-juniper woodland, Riparian
Chipmunk (*Eutamius minimus*)	Piñon-juniper woodland
Dark-eyed Junco (*Junco hyemalis*)	Piñon-juniper woodland
Morning dove (*Zenaida macroura*)	Piñon-juniper woodland, Riparian

Species	Vegetation Type
Gray Flycatcher (*Empidonax wrightii*)	Piñon-juniper woodland, Riparian
Coyote (*Canis latrans*)	Piñon-juniper woodland, Riparian
Gray Fox (*Urocyon cinereoargenteus*)	Piñon-juniper woodland, Riparian
Ash-throated Flycatcher (*Myiarchus cinerascens*)	Piñon-juniper woodland
Solitary vireo (*Vireonidae solitarius*)	Piñon-juniper woodland
Raccoon (Procyon lotor)	Riparian
Northern Flicker *(Colaptes auratus.)*	Piñon-juniper woodland, Riparian