



CONTACT INFORMATION  
Mining Records Curator  
Arizona Geological Survey  
3550 N. Central Ave, 2nd floor  
Phoenix, AZ, 85012  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

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HELVETIA-EMPIRE/CIENEGA

RANCH PROPERTIES

ANAMAX MINING COMPANY

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INTRODUCTION

AMAX Inc. and Atlantic Richfield Company, through Anamax Mining Company, an Arizona General Partnership, own certain mineral and surface lands comprising the Helvetia-Empire/Cienega Ranch properties in Pima and Santa Cruz Counties, Arizona. These holdings include an open pit copper mineralized reserve; a large underground water supply; 46,020 acres of fee land; 20,820 acres of unpatented mining claims; and, 38,575 acres of BLM and State grazing leases. The bulk of the real estate is situated in the high plateau country north and east of the crossroads community of Sonoita, some 35 miles southeast of Tucson, Arizona. Also included are some 22 small parcels scattered through various National Forests in Arizona.

The pages which follow are an attempt to highlight some of the more salient details of these holdings.

## REGIONAL OVERVIEW

### ARIZONA

While Arizona is a large state, covering a lot of land, consider these facts:

44.49% of all Arizona land is owned by the Federal Government and held as national parks and perpetual conservation areas. 27% of all the land in Arizona is preserved for Indian reservations.

13.20% of Arizona's land is state-owned, land that is maintained as parks, monuments and conservation areas. This leaves only 15.31% of the entire State of Arizona in private hand.

And, of dwindling, privately owned land areas, most are in productive use. For example, privately owned land includes the spreading cities of Phoenix and Tucson, the ranch land lands, the farm lands, the pecan groves - all land that is and will continue to be productively used. And, while privately owned land is at a premium, Arizona's population growth continues to lead the nation.

### METROPOLITAN TUCSON

Tucson, Arizona offers the best of two worlds. It is a modern, progressive city, one of the fastest growing communities in the nation, yet it retains the cultural flavor of the Old West.

The metropolitan area of Tucson covers over 450 square miles of a high desert valley surrounded by mountain ranges. Located at an average altitude of 2,400 feet above sea level, Tucson is blessed with what may be the finest year-round weather in America. Tucson has the distinction of having the most sunny days of any American city. Average temperatures range from a high of 82.2 degrees to a low of 52.5 degrees. This pleasant climate of warm, dry air and low relative humidity is very attractive to new and existing residents.

Tucson's growth structure is just as important as its climate and location. The city has grown as a single metropolitan unit, avoiding the problem of nearby incorporated suburbs which can cut off a city's tax base.

With a metroplitan area population of approximately 600,000 as of November 1983, and a projected population of nearly 700,000 by 1990, the Tucson standard metropolitan statistical area will experience an average annual growth rate of more than 2.5% over the next 10 years.

Population Growth

<u>Year</u>	<u>Tucson SMSA</u>	<u>U.S. (000)</u>
1960	265,660	179,323
1970	351,667	203,212
1975	449,544	213,600
1980	531,896	222,769
1990 proj.	655,500	243,000
2000 proj.	818,600	259,250

Sources: "Arizona Statistical Review," Valley National Bank of Arizona; Census of Population 1980, U.S. Bureau of the Census, Statistical Abstract of the U.S., 1980.

Tucson is projected to be one of the five fastest growing, medium sized cities in the nation during the 1980's. This projection of such rapid growth should make the city attractive to real estate investors, new businesses and industry, creating an expanding economy that will continue to produce active, healthy growth.

Tucson is Arizona's second largest city and has a young, vibrant population. The median age is 29.1 years in 196,000 households that average 2.76 persons per household. This includes over 110,000 retired persons attracted by Tucson's relaxed life style. There are also 20,000 winter visitors who reside in Tucson part of each year.

An estimated 2,500 new residents arrive each month. One out of ten households (about 20,000 persons) have lived here less than one year, and the typical newcomer household (about three persons per household with an income of approximately \$16,500) rents for the first two years before buying a home.

As the city enters an era of unprecedented growth, the area's climate, labor supply, location and ability to draw professional and technical personnel continue to attract new business. Build-up in the electronics industry has been exceptional during the last three years. New electronics firms include: International Business Machines (approximately 7,000 employees); National Semiconductor Corporation (400 new employees); Tucsonix, Incorporated (140 new employees); Veeco Instruments (150 new employees) and G.D. Searle, Incorporated (200 new employees). Existing firms which have expanded to meet growing product demands include Gates Learjet Corporation, Burr-Brown Corporation and Hughes Aircraft Company. This growth has impacted on retail sales volumes, housing demands, medial household income and other economic factors. The rate of employment growth in the Tucson area has increased at a 5.6% average annual rate since 1970 and is projected to a strong 7% annually during the 1980's. During the

1970's, total wage and salaried employment has grown over 65% in comparison to the 41% increase in population growth. The Tucson area's current 4.6% unemployment rate (as of May, 1984) is about 25% below the national unemployment rate.

Another strength is the diversity of Tucson's employment mix:

Share of Projected Employment Growth

1980-1990

Wholesale/Retail Trade	28.2%
Services	27.8%
Manufacturing	16.8%
Government	16.5%
Other	10.7%

Total retail sales for the Tucson area more than doubled between 1976 and 1983, growing from \$1.47 billion to \$3.05 billion. Projections for 1985 of \$4.5 billion show a growth of 88% over 1980.

This large increase in retail sales can be attributed to the rapid population growth, and a high average per capita income level. Continued increases in retail sales can be anticipated throughout the 1980's.

Median household income grew 14% from 1979 to 1981, with 60% of the area households having annual incomes of \$15,000 or higher. This upward trend in income levels is due to an increase in two-income families and the relatively healthy economic situation in the Tucson area. Tucson is ranked second by Chase Econometrics in household income growth projected for the 1980's.

With this growing economy and the continuing influx of new residents and businesses, all signs point to Tucson's becoming an important trade center in the decade ahead.

Tucson, today, has become one of the most desirable locations in the nation. It has become a mecca for both major corporations and individuals who can afford the privacy of Southern Arizona's unequalled environment and climate.

THE HELVETIA-EMPIRE/CIENEGA OPPORTUNITY



Looking westerly over Empire and Cienega Ranches.

East Helvetia Area at base of Santa Rita Range, in background.

THE HELVETIA-EMPIRE/CIENEGA OPPORTUNITYOverview:

Large tracts of private land, under a single ownership, adjacent to major metropolitan areas, are becoming more scarce each year. Many of those which do exist are absorbed by urban sprawl, being cut up and sold off in small parcels by short term, quick turnover developers. However, a few ownerships have the good fortune to be owned or acquired by more visionary entrepreneurial developers who can carefully plan for and develop the land to its best advantage. The Ken-Caryl Ranch southwest of Denver, the Irvine Ranch southeast of metropolitan Los Angeles, and the recently-announced Arvida/Chevron venture in Orange County, California, are illustrations of such undertakings.

It's perhaps a paradox that the original assemblers of the Empire Ranch, which culminated at one point in holdings of some 1,000 square miles, also owned, at the turn of the century, one hundred thousand acres in what now comprises greater Riverside, California. While the latter has now been developed, the opportunity for Anamax's Helvetia-Empire/Cienega holdings, one of Southern Arizona's last great private frontiers, lies just ahead.

Development Possibilities:

If one superimposes an outline of the Helvetia-Empire/Cienega Ranch ownerships on a map showing public lands in the area, it becomes apparent that Anamax's holdings provide a keystone position in the upper drainage of Cienega Creek. On the west, the neighbor is the Santa Rita Mountain segment of the Coronado National Forest and on the east is the Whetstone Mountain portion of the Forest.

In addition to its large size and single ownership, the Helvetia-Empire/Cienega land position offers a number of other extremely attractive features:

- . Climate - Temperatures 10 to 20 degrees cooler than metropolitan Tucson, and, moderate rainfall, at  $\pm 16$ " per year.
- . Historic Significance.
- . Very Substantial Water Reserves.
- . Agricultural Potential-  
Ranching, crop farming, vineyards, pecans, etc.

These attributes lend themselves to an opportunity to develop a complex comprising a destination resort with a ranching and recreation flavor (fast disappearing from the Tucson scene), commercial ranching, vineyards, grain crops, pecans, etc., large and

medium tract residential development focused upon facilities serving the daily needs of a satellite city population of several thousand residents.

It should be no surprise that these concepts were previously entertained more than ten years ago, when the bulk of the properties were acquired for just such purposes by GAC (Gulf American Corporation) as part of a long range real estate development program directed toward the area between Tucson and the Mexican border. GAC's other commitments precluded going forward with the scheme and the Empire Ranch was sold to Anamax in 1975.

Prior to its disposal, GAC had expended in excess of \$2,000,000 in planning, engineering and water development. Some 7,000 acres of the Empire Ranch were zoned, platted and filed, with 10,000 lots approved for immediate development. An additional 3,000 acres were earmarked for "ranchette" platting, for oversized homesites, with community recreation and shopping facilities. While the platting was subsequently withdrawn by Anamax, the layouts and other documentation remain available.

Needless to say, despite this bit of history, a fresh look would be in order, as improved developmental concepts may have evolved during the time which has elapsed.

#### Neighboring Land Development Activities:

Immediate neighbors of the Anamax holdings include people who own large ranches and spreads, including corporate executives, California film makers and movie and TV stars, attorneys and investors. Huge spreads for personal relaxation and as corporate resorts, for business meetings, conferences and business-oriented vacations and retreats. These private and corporate ranches compare in size and informal luxury with the many famed resorts that abound throughout the area.

Indicative of the increasing momentum of real estate development in the immediate vicinity is the December 1983 sale of the Empirita Ranch to a pair of local developers. This property abuts Interstate #10 on the north and Anamax's Empire/Cienega Ranches on the south. The Empirita comprises 27,066 acres of land, all but 3,911 acres of which is State grazing land. The purchase price is reported to have been \$2,500,000. While terms given are not known, it's significant that investor/developers are willing to make acquisitions of this magnitude this far from Downtown Tucson, and more specifically, in the immediate vicinity of the Anamax properties.

Also reflecting near-term potential are the properties being offered by developers on each side of Route #83, immediately to the south of the Empire/Cienega Ranches. Here, the asking prices are in the neighborhood of \$3,500-\$4,500 per acre for 40-acre parcels. Of course, large tracts would go for much less, due to development costs.

## SUBDIVISION LAWS

During the growth period of Arizona after World War II, a great deal of attention was focused on real estate investing. During the 1950's and 1960's, a large quantity of land was subdivided into various types and sizes of lots. Many of the subdivisions consisted of very small lots without utilities or legal access. Many of the lots were sold sight-unseen to out-of-state buyers. The problem was recognized and governmental agencies began to rectify the situation.

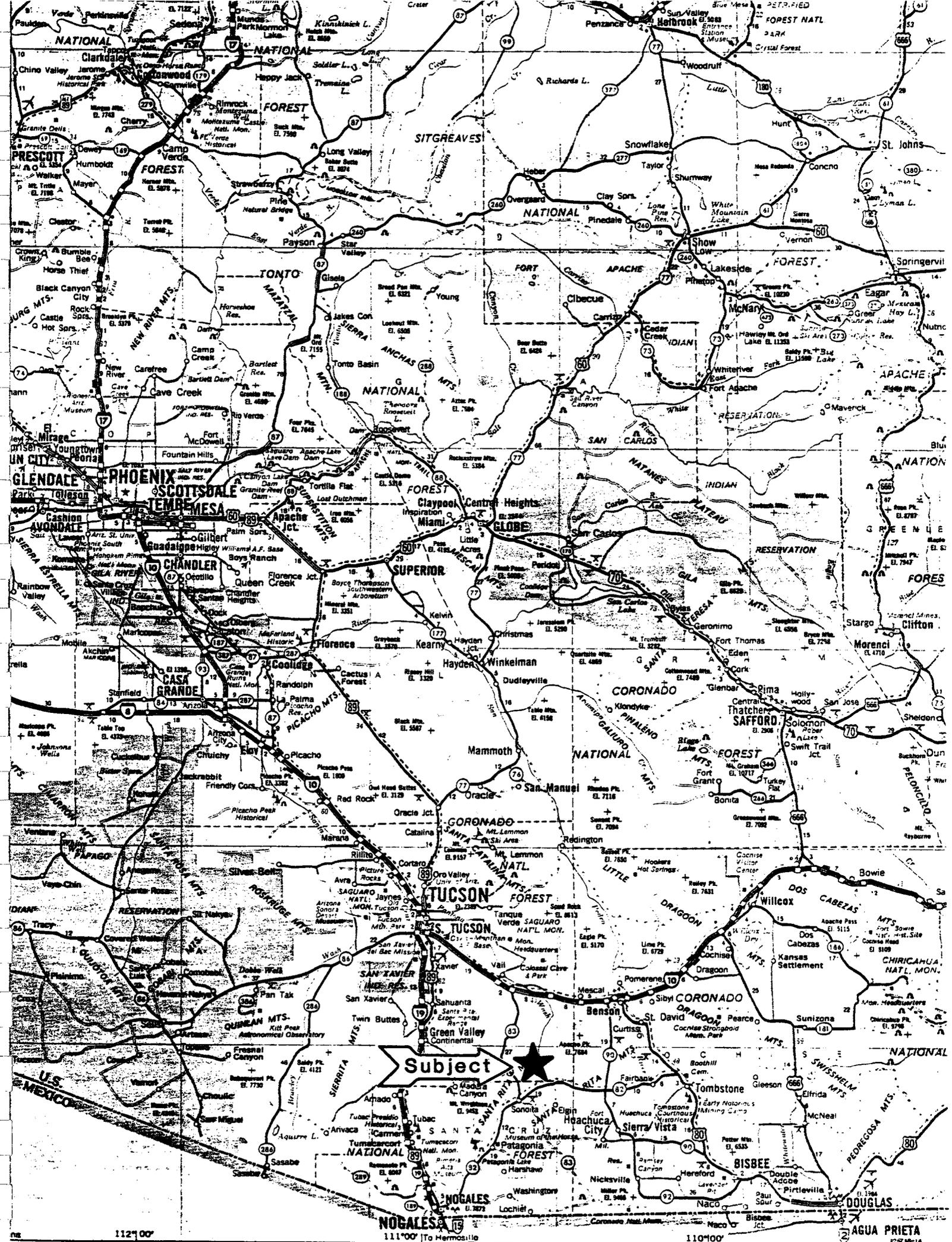
Currently in Pima and Santa Cruz Counties there are several governmental bodies which regulate land use in private ownership. These agencies include the Federal Government, the State of Arizona, Pima County and Santa Cruz County. The primary control of the Federal Government is in policing of interstate land sales, enforcing flood plain regulations, and restricting environmental damage.

The other layers of government are primarily county and state. In the early 1970's the state passed a stringent set of subdivision regulations. Concurrently, the counties also created new subdivision regulations. More stringent enforcement of regulations were also instituted. The result of the subdivision regulations has been a decrease in remote subdivision activity.

The subdivision regulations are fairly lengthy. In general, subdivisions consisting of lots smaller than 36 net acres must meet numerous minimum standards. Also, the review and approval procedures have been tightened and placed under additional scrutiny. The new subdivision regulations control almost all facets, including street location and arrangement, right-of-way widths, street names, drainage way design, street pavement, utilities, etc. However, subdivisions consisting of parcels of more than 36 acres are not covered by the regulations. Subdivisions containing parcels of more than 36 acres are exempted based on the following passage:

"The division of land into four (4) or more lots or parcels, each of which is thirty-six (36) acres or more in area provided that such division has first been reviewed and approved by the subdivision committee in order to assure that necessary access, extension of streets, alleys or easements in a manner consistent with the intent and spirit of these subdivision regulations is made. Said approval to be in written form and signed by the chairman of the subdivision committee. A record of survey prepared by a registered land surveyor or engineer licensed by the State of Arizona shall be filed with the county engineer, accurately establishing such divisions of land. All such lots or parcels shall be staked by an iron pin 1/2" x 15" within one (1) year."

PROPERTY DESCRIPTIONS



Subject



112°00'

111°00'

110°00'

AGUA PRIETA

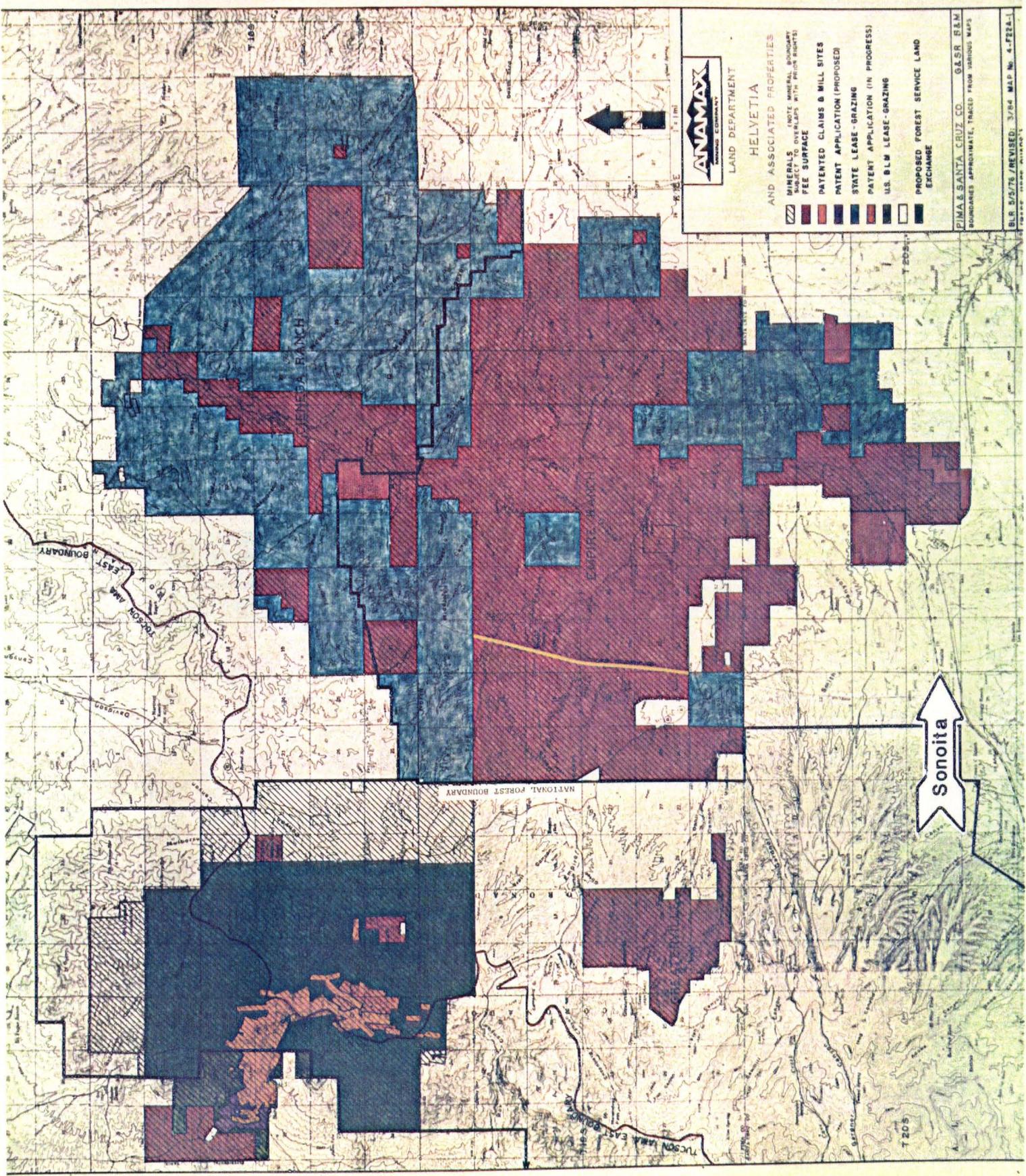
ACREAGE TABULATIONHELVETIA-EMPIRE/CIENEGA RANCH PROPERTIES  
(Approximate Acreages)

	<u>Fee</u>	<u>Patented</u>	<u>Unpatented</u>	<u>Leased</u>	<u>Total</u>
<u>Helvetia</u>					
Surface	1,289	1,671		1,114 (BLM)	4,074
Mineral	<u>818</u>	<u>1,671</u>	<u>20,820</u>	<u>-</u>	23,309
	1,289	1,671	20,820	1,114	
<u>Empire Ranch</u>					
Surface	32,144	-	-	15,314 (State)	47,458
Mineral	<u>30,551</u>	<u>-</u>	<u>-</u>	<u>-</u>	30,551
	32,144	-	-	15,314	
<u>Cienega Ranch</u>					
Surface	5,396	-	-	22,147 (State)	27,543
Mineral	<u>5,396</u>	<u>-</u>	<u>-</u>	<u>-</u>	5,396
	5,396	-	-	22,147	

SUMMARY

Helvetia	1,289	1,671	20,820	1,114
Empire/Cienega	37,540	-	-	37,461
Greaterville	3,057	-	-	-
22 Trade Parcels	<u>2,463</u>	<u>-</u>	<u>-</u>	<u>-</u>
	44,349	1,671	20,820	38,575

Helvetia Forest Exchange (Proposed)	±13,001 acres
Helvetia Patent Applications (Five in progress)	331 acres
Helvetia Patent Applications Proposed (Approved Mineral Surveys)	229 acres



LAND DEPARTMENT

HELVETIA

- AND ASSOCIATED PROPERTIES
- MINERALS (NOTE: MINERAL BOUNDARY SUBJECT TO OVERLAPS WITH PRIOR RIGHTS)
  - FEE SURFACE
  - PATENTED CLAIMS & MILL SITES
  - PATENT APPLICATION (PROPOSED)
  - STATE LEASE - GRAZING
  - PATENT APPLICATION (IN PROGRESS)
  - U.S. BLM LEASE - GRAZING
  - PROPOSED FOREST SERVICE LAND EXCHANGE

PIMA & SANTA CRUZ CO. G.A.S.R. B.M.  
 BOUNDARIES APPROXIMATE, TRACED FROM VARIOUS MAPS  
 B.L.M. 5/5/78 (REVISED) 3/84 MAP NO. 4-2724-1

Sonita

EMPIRE AND CIENEGA RANCHES:History

The 160 acre nucleus of what is now known as the Empire Ranch was acquired in 1870 by Edward Nye Fish, a prominent Tucson merchant. By August, 1876 title had transferred to Walter L. Vail and Herbert R. Hislop who came, respectively, from New Jersey and London, England. Very quickly the Empire grew under these two young men, with its holdings covering a region of a thousand square miles, reaching from the Rincon Mountains to the Mexican border, and spanning the country between the Santa Cruz and San Pedro Rivers, and the cattle herd had grown to 5,000 head. In 1876, Hislop sold out to Vail, and the latter subsequently had a series of partners but retained control throughout his life. The Empire was not the least of Vail's endeavors, for in time land was also acquired in southern California, including Catalina Island, which was used as pasture land, to fatten up cattle on the way to market. Other acquisitions included four Mexican land grants, in what's now Riverside County, making up a giant 103,000 acre ranch. When Vail died in 1906 his heirs took over management. The Empire was sold in 1928 to Henry, Frank and Charles Boice, who also had other Arizona ranch holdings. Gulf American Corporation acquired the Empire in 1960, as a prospective residential real estate development. GAC encountered rough financial seas and before any land sales were undertaken, sold out in 1974 to Anamax Mining Company. Subsequently, Anamax acquired the adjoining Cienega Ranch, which earlier had been part of the original Empire, assembled by Walter L. Vail.

The Cienega Ranch, which adjoins the Empire on the northeast and which straddles Cienega Creek, was acquired by Anamax on January 10, 1977 and since then has been ranched in conjunction with operations on the Empire.

Location:

The headquarters of the Empire Ranch is located approximately ten miles northeast of Sonoita, Arizona. The headquarters of the Cienega Ranch is located approximately five miles northeast of the Empire Ranch headquarters.

The Ranches are bounded generally by:

North: The Empire Mountains.  
East: The Whetstone Mountains.  
South: Arizona Highway 82.  
West: The foothills of the Santa Rita Mountains and Arizona Highway 83.

Size:

The Ranches have a mixture of land tenures which are divided as follows:

	<u>Acreage</u>		<u>Total</u>
	<u>Deeded</u>	<u>Leased</u>	
Empire Ranch	32,144	15,314	47,458
Cienega Ranch	5,396	22,147	27,543
Total Land Area:	<u>37,540</u>	<u>37,461</u>	<u>75,001</u>

Overall, the Ranches consist of about one-half deeded land and one-half leased land. The deeded and leased lands each comprise approximately 58 sections (square miles) and encompass a total land area of just over 117 sections.

Terrain:

The Empire/Cienega Ranches lie within a basin surrounded by topographic extremes. To the west are the rampart-like Santa Rita Mountains, rising to Mount Wrightson at an elevation of 9,453 feet. Cienega Creek drains northward between the Empire Mountains which reach an elevation of 5,378 feet in the northwest, and the Whetstone Mountains which rise to a height of 7,684 feet in the east. To the southeast are the Mustang Mountains, while to the south are the Canelo Hills and the Huachuca Mountains.

Within the boundaries of the Ranches elevations range from 4,300 feet to 5,400 feet above sea level. The highest elevations are found on the western and eastern extremes of the Ranches. The lowest elevations are located on Cienega Creek, in the northeastern limits of the Ranches. The elevation at the Empire Ranch headquarters is approximately 4,650 feet.

The Empire Ranch as well as most of Sonoita Valley comprise a high plateau, which has a predominate slope from south to north. The primary terrain features include the Empire Gulch, the Cienega Creek and Tres Canyon. These creeks and washes flow northerly into Cienega Creek which eventually flows into the Pantano Wash and the Rillito River running northwesterly, through the northern portion of Tucson.

The terrain on the south and west portions of the Ranch is typically gently rolling hills and plains. The land is unusual for the State of Arizona and is most similar to portions of the Great Plains. The east end of the Ranch becomes more hilly and typical of transitional land between mountain ranges and lower deserts. Most of the north end of the property is moderately rough desert land.

The lands of Empire/Cienega are lands of contrast and beauty. There are sloping grasslands, low hills, limestone slopes, steeper hills and ridges. They support grazing land vegetation and soils provide exceptionally good drainage.

#### Soils and Subsoils:

There is a wide variety of soils on the subject property. No actual soil tests were made, and the soil conditions are only estimated. The soils on most of the rolling grasslands at the south end of the property appear to be of a sandy loam consistency. The lower elevation portions of the Ranch on the north end have typically a more gravelly texture. The foothills of the Whetstone Mountains on the east side of the Ranch have soils that become more rocky and include rock outcroppings. It is believed there are no substantial adverse soil conditions which would materially affect either construction or maintenance of any improvements that would develop the property to its highest and best use.

#### Climate:

The climate of the Empire/Cienega Ranch area is characterized as being dry, clear, clean and sunny. The mean July temperature is about 80° Fahrenheit, while the mean January temperature ranges between 40° and 50° Fahrenheit. The area is one of very low humidity; annual precipitation averages approximately 15 inches and occurs in two distinct rainy seasons. The winter rains usually begin in November. The summer rains are concentrated in the months of July, August and September. It is these brief summer rains that provide most of the moisture for the growth of the hearty desert grasses.

The air is clean and clear. In fact, one of the reasons Kitt Peak Observatory was located in Southern Arizona was because it is one of the few places left where the air is relatively smog and pollution free.

#### Vegetation:

The subject property includes a wide variety of grasses and vegetation types. Most of the southwest segment of the Ranch is open grazing land covered with a mixed variety of gramma grasses. Other seasonal forage includes fillaree and sacaton grass. There are scattered mesquite and juniper trees. The eastern segment of the Ranch in the desert foothills area is covered with a mixture of primarily gamma grasses. This area has heavier stands of mesquite, and in some of the higher elevation areas, there are substantial stands of oak and juniper. The northern end of the Ranch is primarily desert land with perennial grasses and native desert plants and cacti.

The lower lands along Cienega Creek include a totally different variety of plant life. There are large stands of cottonwood and other deciduous trees along the banks of Cienega Creek. In the flood plains along the creek are broad stands of sacaton grass, which is the primary forage in the lowland areas.

Reportedly, there has been a steady invasion of mesquite over many years which has been extending from north to south through the Ranch, from the lower desert areas to the higher grasslands. There has been some mesquite eradication and other experimental controls attempted. Overall, careful management should be continued to control mesquite and other water consuming nondesirable vegetation.

#### Zoning:

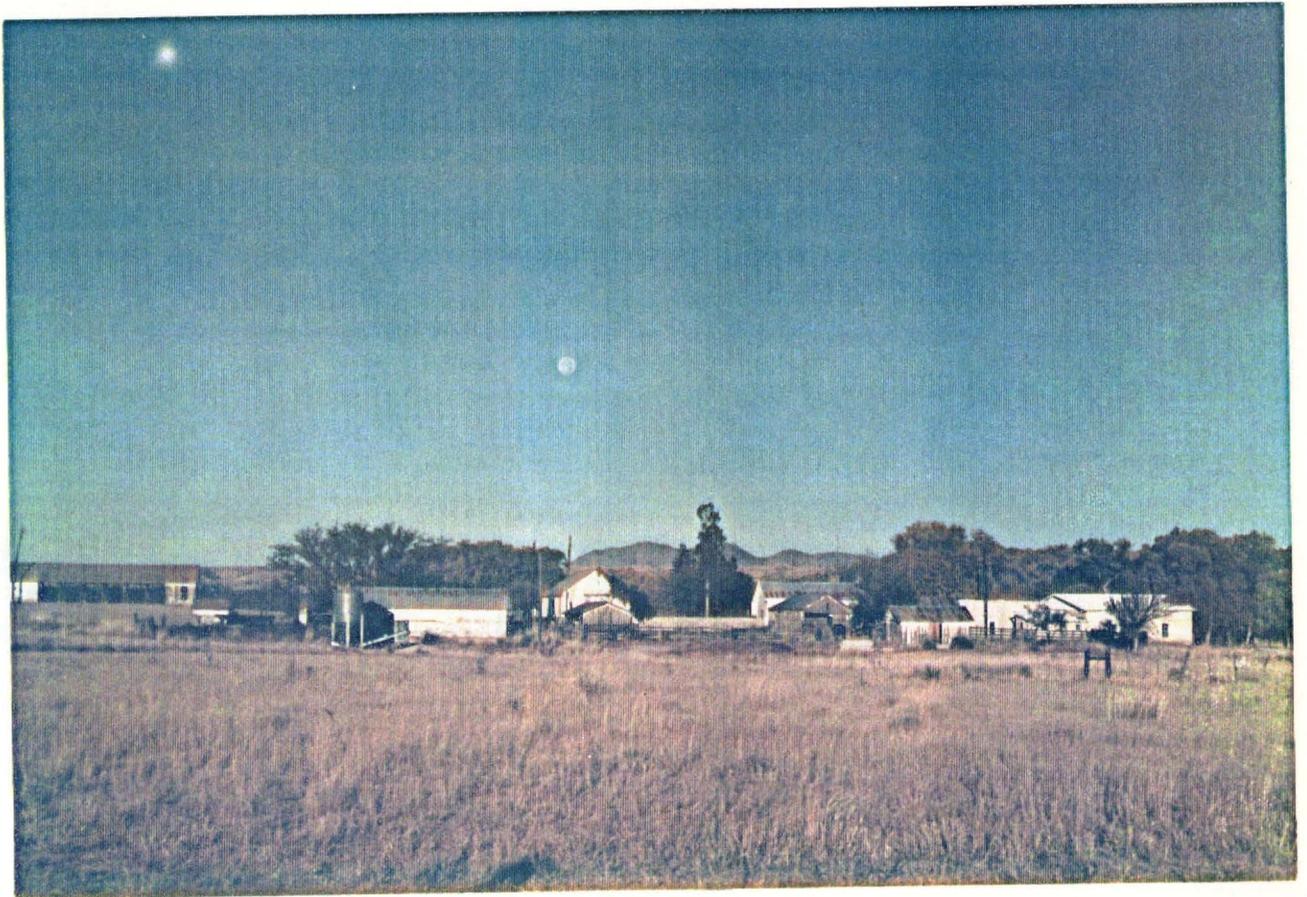
The subject property lies within the jurisdiction of Santa Cruz and Pima Counties. The Santa Cruz County Planning and Zoning Department has a zoning classification of GR over the subject property. This is a general rural zoning allowing general residential development on minimum lots of five acres. Guest ranches, stables, and other types of rural uses are allowed with certain restrictions. Basically, the Santa Cruz County GR zoning is designated for most types of rural agricultural uses.

The Pima County Planning and Zoning Department has an SR and GR zoning classification on the subject. When GAC filed subdivision plats on the Empire Ranch several years ago, the County Planning and Zoning Department allowed numerous zonings, including single family homes on small lots, multifamily residential, commercial and industrial zoning. Anamax withdrew the subdivision plats in 1980, and all of the lands which had previously been subdivided and zoned to higher densities were down zoned to SR. SR is a suburban ranch zoning which allows single family dwellings on minimum lots of 144,000 square feet (3.31 acres). Other uses, such as hospitals, athletic clubs, colleges and agricultural uses are allowed with certain restrictions.

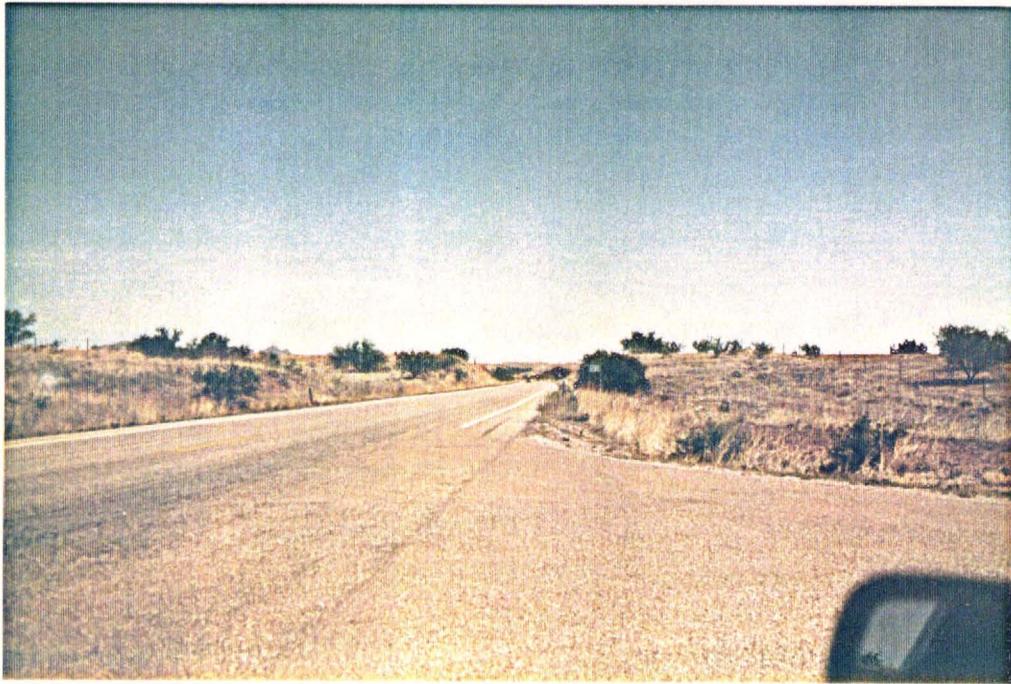
The balance of the Empire and Cienega Ranch properties are zoned GR by Pima County. The GR Zone is designated for general rural uses such as agriculture, crops, etc. The GR zone is considered an interim classification of land which can be rezoned to a higher density when the need occurs. Based on other portions of the Ranch, an SR zoning would probably be feasible to implement.

#### Utilities:

Electricity is available to the area from Citizens Utilities. Telephone service is provided by Mountain Bell. There is an El Paso Natural Gas Company transmission line through the property. For a major development, the line could possibly be tapped. Otherwise, there are no available distribution lines on the property.



Empire Ranch Headquarters  
Looking west



Entrance (right) to Empire Ranch,  
off Route #83 (looking north)



Route #82 (looking east toward Whetstone Mountains)  
Empire Ranch lands - both sides of road in middle ground

Water is available from wells for domestic use. Cattle water points are supplied by a combination of wells, dirt tanks and other storage devices. Sewage disposal is via septic tank. Intense development of the property would require a sanitary sewer system.

Access:

Both Arizona State Highways 82 and 83 are paved two-lane roads and are well maintained by the State of Arizona. All other access on the Ranch is via graded dirt roads. There are numerous roads on the property which were installed in the last few years for exploration drilling of test wells for water. Most of these roads are simple bladed roads and trails.

Water:

The Ranches were purchased by Anamax Mining Company primarily for the potential supply of underground water. Cienega Creek flows through the property year round and provides evidence of the amount of water below the ground surface. The year-around flow of the Creek is about 10 gallons per minute or better. Although this is not an enormous supply, it is substantial considering the location in arid southern Arizona. After the Empire Ranch was purchased, Anamax began drilling test wells for water on various portions of the property. The test holes indicate that there is a large underground aquifer at easily attainable depths. The supply appears to be more than adequate to support future urbanization of the property.

Improvements Description:

The Empire Ranch is improved with an old structure which is reportedly over 100 years old and is part of the original development of the Empire Ranch. The building is constructed of thick adobe walls with a beamed roof and a saguaro ribbed ceiling. The building was at one time the living quarters, kitchen, and sleeping quarters for the first owner. Currently, the house is being used for storage.

An addition was made to the building some time after the turn of the century, which consists of a modest two bedroom home with a living room and kitchen. The home has been well decorated and is habitable.

There is a foreman's residence near the old house at the Empire Ranch which contains approximately 1,500 square feet. It is also in good condition and was recently remodeled.

The most recent home built at the Empire Ranch, the previous owner's residence, is located north of the other buildings. It consists of a large, contemporary home which is not functionally well designed.



View looking easterly along main ranch road.



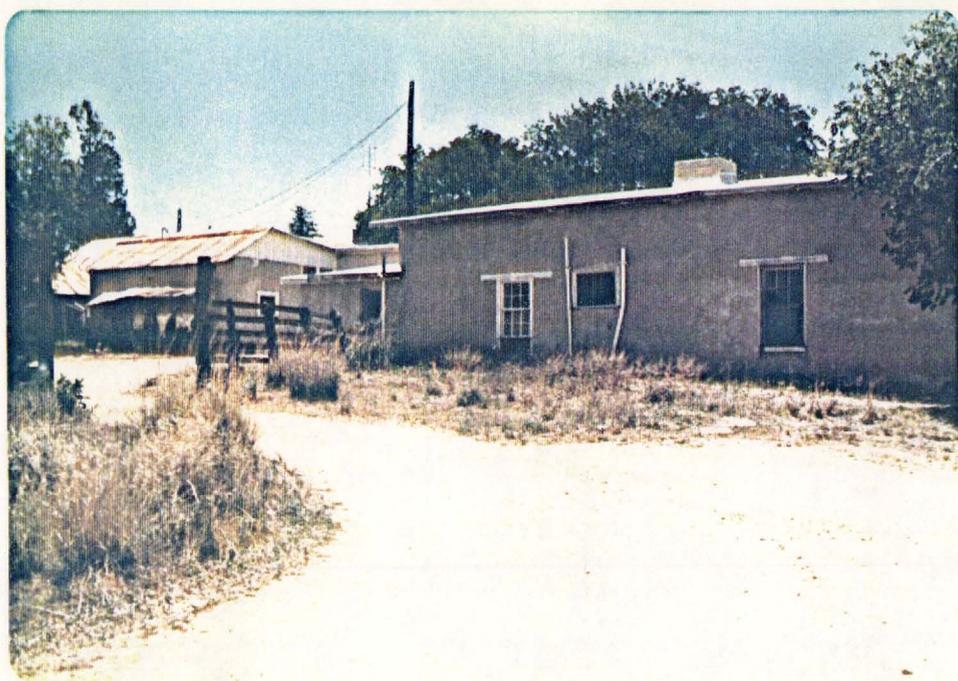
View looking northeasterly at tank and windmill located in lower Apache Canyon.



Entrance to living quarters, Empire Ranch



Entrance to original Empire Ranch stable



View of 100 year old headquarters on Empire Ranch.



View of new headquarters house on Empire Ranch.



Foreman's residence at Empire Ranch.

The Cienega Ranch headquarters include an old house, a mobile home, a barn and sheds. There is a modest masonry residence containing approximately 1,500 square feet on the east end of the headquarters.

Overall, the building improvements on the Empire and Cienega Ranches would be considered a nominal part of the value of the property.

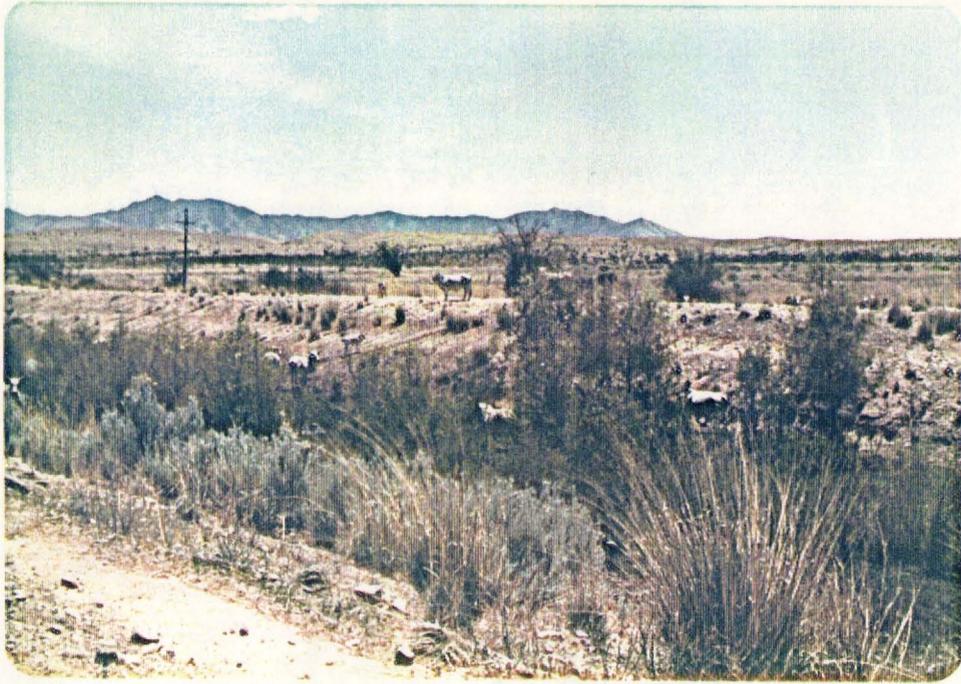
Several years ago, the previous owner attempted to farm approximately 200 acres near the headquarters of the Cienega Ranch. In order to accomplish this, he dredged a channel for Cienega Creek approximately one-half mile to the east of its original position. The Creek now has two branches at this point, running parallel for approximately one mile until they meet again north of the headquarters. The land was leveled, and partially farmed. The land development was never completed, and the land would not be considered a viable farm.



Cienega Ranch headquarters



Cienega Ranch sheds



View looking northeasterly over dredged area of Cienega Creek.



View of old improvements at headquarters of Cienega Ranch.

## GREATERVILLE

Gold was discovered near Greaterville in 1874. After a rush of miners into the area, a mining district was organized on March 17, 1875, but was never recorded. By 1881, gold had played out of the Greaterville mine and by 1886, the camp was deserted. Subsequent to that time the property has been grazed as part of larger cattle ranching operations.

### Location:

The subject property is located approximately six miles northwest of Sonoita, Arizona. The property is situated east of the old camp site of Greaterville, and is surrounded primarily by Coronado National Forest lands. There is a small amount of private ownership, consisting of a few modest homes on small acreage lots, on the west side of the property. These homes are on the original site of Greaterville. Adjoining the property to the north is the Singing Valley Ranch which was recently purchased by the Victorio Company of Phoenix. They have tentative plans for marketing portions of the property in 40 acre parcels at prices of several thousands dollars per acre.

### Size:

The total land area is over 3,057 acres.

### Terrain:

The subject property is situated in the foothills of the east slope of the Santa Rita Mountains. The land has a predominate slope from west to east. The land is cut by numerous ridge lines and valleys which run parallel to the slope of the land. The elevation of the highest point of the property, on the west side, is approximately 5,500 feet, and the lowest point near the southeast corner of the property is approximately 4,900 feet.

### Soils and Subsoils:

There is a wide variety of soils on the subject property. Since no actual soil tests have been made, the actual soil conditions can only be estimated. On most of the property, the soils are a sandy to gravelly loam. In many areas, the soil is more rocky, while some of the flatter areas have a higher sand content. It's assumed there are no substantial soil conditions on the property which would materially affect either construction or maintenance of improvements on the property.

### Zoning:

All of the subject property is zoned GR by Pima County. This is a general rural zoning which is intended as an interim classification of land until demand develops for a change of zoning. GR zoning allows most types of agricultural and agribusiness uses.



Aerial view looking easterly over Greaterville property.



View looking southeasterly at the Greaterville property.  
The northwest corner visible at right of photograph.



View looking southeasterly over the Greaterville property from the northwest corner.



View looking northeasterly over the Greaterville property from near the northwest corner.

Utilities:

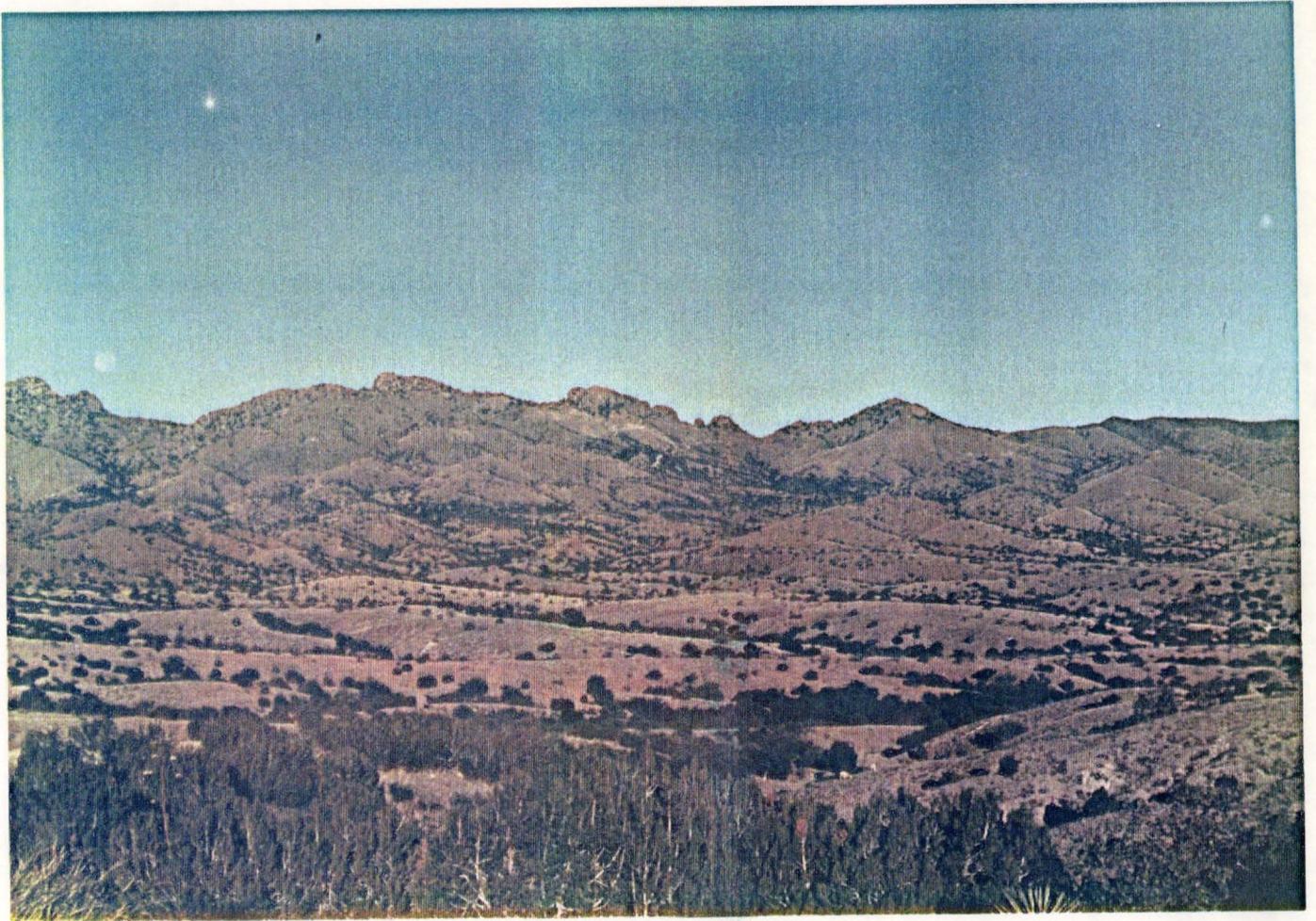
Telephone service in the area is provided by Mountain Bell. Electricity is in the franchise area of Citizens Utilities and is available near the subject property. Water for any development would be provided by underground wells. Sewage disposal would be via septic tank.

Access:

The subject property is accessible by Forest Service Road 62. This is a graded all-weather road which connects Arizona Highway 83 in the Sonoita Valley with Madera Canyon and Green Valley on the west slope of the Santa Ritas. Secondary access is available over Forest Service Roads 229, 162 and 163 which are secondary graded roads.

Improvements:

The subject property is close to an area of early mineral exploration and settlement. The land is vacant except for ranching improvements such as fencing. While it's possible there may be old improvements or ruins on the property, they would probably not contribute any value to the property. The land should be valued as if vacant.



Looking westerly toward Santa Rita Range.  
East Helvetia Area in middle ground.

HELVETIA:

The Helvetia area was reportedly first explored before the Civil War. In the late 1870's, several claims were located which were not open for development until 1881. In the early 1890's, most of the claims in the region were obtained by the Helvetia Copper Company of New Jersey, under whose operation the community of Helvetia took shape. The town existed until December, 1901. In late 1903, the Helvetia Copper Company of Arizona obtained the mines and operated them until 1911 when the economy closed the mines.

The Rosemont Springs parcel located east of the Helvetia claims was first mined in the 1870's and 1880's. The Rosemont Mining and Smelting Company was formed, which was subsequently sold in 1896 to the Lewisohn Brothers in New York City. The smelters were closed down at Rosemont in 1907 during an industrial depression, and never reopened.

Subsequent to the mining operations at the turn of the century, the land has remained mostly undeveloped. The land has been grazed as parts of larger ranching operations.

Location:

The west end of the Helvetia property extends about two miles west of the Santa Rita Mountains into the Santa Cruz River Valley. The remainder of the property is situated on the west slope of the Santa Ritas a distance of one to three miles west of Arizona Highway 83. The southeast corner of the property is approximately 10 miles northwest of Sonoita, and the west property boundary is approximately 10 miles east of Green Valley, Arizona.

Size:

The subject property consists of one large block of deeded land and patented mining claims. In addition, there are two parcels of deeded land which are not contiguous. These two parcels are known as the Hidden Valley Ranch property and the Rosemont Springs property. The total land area of the Helvetia property is:

Deeded land and patented mining claims:	2,620 acres
Rosemont Springs:	180 acres
Hidden Valley Ranch:	160 acres
Total land area:	<u>2,960 acres</u>

Terrain:

The subject property is located on the northern end of the Santa Rita Mountain range. The land slopes down on both sides of a ridge line. The highest point on the property is Helvetia Peak at an elevation of 6,175 feet. The land slopes southwest into the



View looking southerly down Santa Rita range. Mount Fagan in foreground, Mount Wrightson visible in background, Helvetia in-between.



View looking easterly over Helvetia property. Limestone Mine visible in foreground.



Looking west from Santa Rita Mountains across  
Santa Cruz Valley toward copper mines



Looking northwest along Santa Rita Mountains



View looking easterly over Helvetia property from ridge line of the Santa Rita Mountains. Sonoita Valley in background.



View looking westerly from ridge line on Helvetia property. Santa Cruz Valley and Green Valley visible in background.

Santa Cruz River Valley to the lowest point on the property which is approximately 3,600 feet. The slope to the east drops into the Sonoita Valley and the lowest point on the Hidden Valley Ranch at approximately 4,600 feet.

The Hidden Valley Ranch and Rosemont Springs parcels both consist of relatively flat to gently rolling land in small draws. The patented mining claims are located along the ridge line of the Santa Rita Mountains. This land is steep, rough and rocky. The most northwesterly portion of the property is the flattest. Sections 14 and 15 contain small hills which slope onto level land. Virtually all of Section 10 is level desert land with a slope to southeast to northwest.

#### Zoning:

All of the subject property is zoned GR by Pima County. This is a general rural zoning which is intended as an interim classification of land until demand develops for a change of zoning. GR zoning allows most types of agricultural and agribusiness uses.

#### Utilities:

Telephone service in the area is provided by Mountain Bell. Electricity is in the franchise area of Citizens Utilities and is available near the subject property. Water for any development would be provided by underground wells. Sewage disposal would be via septic tank.

#### Access:

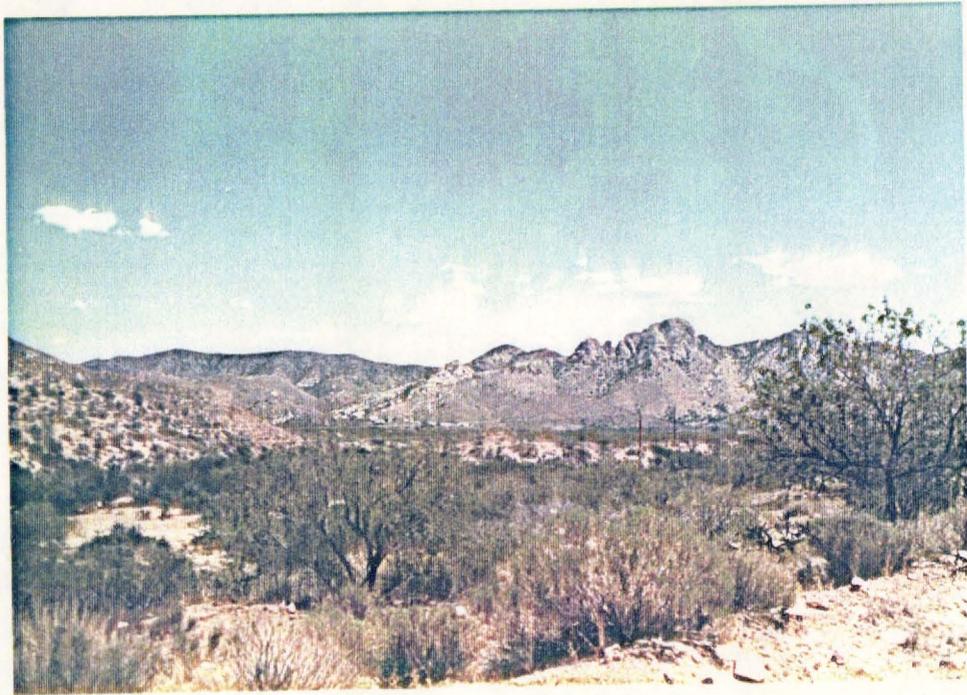
The subject property is accessible via dirt road. The road is known as the Helvetia Road and connects Arizona Highway 83 near Rosemont Springs with Interstate 19 at Sahuarita. The road is designated by the Forest Service as Road 505 and 231. East of the Santa Rita Mountains, the road is graded, but would not be considered accessible by conventional two-wheel drive automobile. The road is very steep, rocky and in many places very sandy. West of the Santa Rita Mountains, the road is also very steep and rocky. Further west, the road reaches the floor of the Santa Cruz River Valley, and the condition improves to an all-weather graded two-lane road.

#### Improvements:

There are scattered old improvements on parts of the Helvetia property. The improvements include old adobe ruins, old mines, etc. While the assessor's office indicates that there are nominal improvements on the property, all of the Helvetia mining district property should be valued as if vacant.

The Hidden Valley Ranch and Rosemont Springs parcels were at one time headquarters of small ranch operations. The Hidden

Valley Ranch is improved with a small two bedroom house, a barn, a shop and other outbuildings. The Rosemont Springs parcel is improved with two modest ranch houses, a barn, a shed, and similar outbuildings. Overall, the improvements on the properties are not considered to be significant, and the properties are valued as if vacant.



View looking easterly at ridge line of  
Santa Rita Mountains from Santa Rita Road.



View of residence on Hidden Valley Ranch.

DESCRIPTION OF GRAZING LEASES:

The Sonoita Valley holdings include grazing leases from the State of Arizona, United States Forest Service and the United States Bureau of Land Management. The lands leased from the State of Arizona are all part of the Empire and Cienega Ranches which were previously described. The Forest Service and BLM grazing lands are located near the Helvetia property.

Following is a summary of information pertaining to the grazing leases:

<u>Lessor</u>	<u>Grazing Lease</u>	<u>Size (Acres)</u>	<u>Carrying Capacity</u>
BLM	Twin Buttes #6001 (Partial	1,114.13	11 head
State of Az.	#G-1597	15,294.40	382 head
State of Az.	#G-1597-02	20.00	1 head
State of Az.	#G-1623	22,147.29	415 head
Forest Svce.	Rosemont Permit	8,750.00+/-	250 head
Forest Svce.	DeBaud Permit	3,750.00+/-	75 head
Total:		51,075.82+/-	1,134 head

The Rosemont and DeBaud Forest Service leases are situated in hilly to rough land in the foothills and peaks of the Santa Rita Mountains. A considerable amount of land is forested with juniper and oak. The grazing on most of the higher elevations of the Forest Service allotments is marginal. The lower elevations on the east side of the Rosemont allotment include some good quality grasslands with a variety of gramma grasses.

The Bureau of Land Management leases are located on the west slope of the Santa Rita Mountains on the north and south sides of the Helvetia mining district claims. This land is mostly rough desert land with marginal carrying capacity.

The best leased grazing land is the State leases on the south side of the Empire Ranch. This leased land consists mostly of open rolling grassland in very good condition. The leases on the north end of the ranch, comprising most of the Cienega Ranch holdings, are lower desert land with a lower desert capacity.

All of the leased lands are not contiguous. The largest holdings, however, include contiguous blocks on the Cienega Ranch and the north end of the Empire Ranch. These leases would have a considerable amount of value to a cattle rancher. Although the other lands are not contiguous to each other, they are adjacent to subject deeded parcels which would provide a buffer from any adverse development.

Most of the grazing allotments are fenced. The condition of fencing is in fair to good condition. Cattle water points are also located throughout the leased lands. The amount and quality of water are less than on adjoining deeded land; however, they are typical of leased land ranches.

#### CURRENT RANCHING ACTIVITIES

##### Helvetia:

The Manerd Gaylor family leases back the 160 acres of fee land and 744.34 acres of grazing land (Rosemont and DeBaud BLM permits) which they sold to Anamax Mining Company in 1975. Included is use of the "Hidden Springs" residence and the right to graze 250 and 75 head of cattle on the foraging permits. Anamax is reimbursed for grazing fees and real estate taxes, totalling \$368.00 in the latest year. No other consideration is provided the Company.

The ranching operation consists of dry land grazing with water sourced from local springs and drilled wells.

##### Empire/Cienega:

Since 1978 Anamax has leased the Empire and Cienega Ranches to Mr. John Donaldson. The current term of the lease runs until the end of 1992. The lease may be terminated by Anamax on 18 months notice, or, for payment default, with ten days notice. In addition to reimbursement of the State grazing fees, Donaldson is required to make capital improvements on the properties in the amount of \$20,000 per year and undertake erosion control measures and a planned range improvement program. For this, Donaldson is allowed to graze 18,000 A.U.M.'s of cattle, use the equipment on the property when acquired by Anamax, and, use the buildings not needed by Anamax.

Dry land grazing is the ranching method employed; no crops are raised.

22 TRADE PARCELS

As part of a prospective exchange of Coronado National Forest land overlying and adjacent to the East Helvetia ore deposit, Anamax Mining Company has acquired title to 22 parcels of private land scattered within various National Forests in Arizona. These parcels were identified as lands which the U.S. Forest Service wished to acquire for purposes of consolidating its holdings.

While individual descriptions of these parcels are available, the parcels are summarized as follows:

Parcel No.	Name Reference	Size/Acres*	County	Location
1	Mackenzie	520.00	Cochise-Pima	NW of Benson
2	Udall	115.00	Apache	South of Greer
3	Kidd	40.00	Navajo	NE of Lakeside
4	Kettenbach	40.00	Pima	SE of Green Valley
5	Brandis	115.00	Coconino	NE of Flagstaff
6	Luke	32.50	Gila	West of Young
7	Hull	189.72	Yavapai	NE of Black Canyon City
8	Le Sueur	420.00	Apache	SE of Springerville
9	O'Brien	20.00	Apache	NE of Nutrioso
10	Guyton	.05	Santa Cruz	Madera Canyon
11	Benson	16.68	Santa Cruz	Madera Canyon
12	Olander Jr.	1.30	Santa Cruz	Madera Canyon
13	Chapman	84.00	Gila	NE of Young
14	McGill	1.10	Cochise	W of Pearce
15	Schwarz	80.00	Coconino	NE of Flagstaff
16	Sipes	61.91	Yavapai-Maricopa	NE of Cave Creek
17	Woodruff	2.94	Santa Cruz	Madera Canyon
18	Mielke	.48	Santa Cruz	Madera Canyon
19	Cline	160.00	Gila	SE of Punkin Center
20	Jennings	70.00	Gila	SE of Punkin Center
21	Davis	120.00	Gila	SE of Punkin Center
22	Winkler	320.00	Cochise	E of Elfrida
		<u>2,410.68*</u>		

\*Approximate

Principal Holding Costs: Helvetia-Empire/Cienega Ranch Properties

<u>Taxes:</u>	<u>Fee Acres</u>	<u>1983 Taxes</u>
Empire/Cienega Ranches	37,540	\$ 16,845
Helvetia/Rosemont	2,960	1,737*
Greaterville	3,057	1,109
22 Exchange Parcels	<u>2,463</u>	<u>12,195</u>
	46,020	\$31,886

Grazing Fees:

Empire/Cienega (1984-85)	\$ 7,586
Helvetia (1983-84)	<u>149</u>
	\$ 7,735*

Miscellaneous:

Estimated water monitoring and administrative expenses	\$ 13,779
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Assessment Work, Unpatented Claims:

1,366 claims x \$100 per year	\$136,600
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\*Anamax receives reimbursement from the grazing leases of \$219 for taxes and \$7,735 for grazing fees.

HELVETIA MINERALIZATION

## HELVETIA MINERALIZATION

### SUMMARY

The Helvetia copper deposit, also referred to as Rosemont or East Helvetia, is located on the east slope of the Santa Rita Mountains in the Coronado National Forest, thirty-five miles southeast of Tucson, Arizona.

Surface drilling has delineated a copper mineralization containing over 300 million tons at an average grade of 0.58% copper. Molybdenum and silver values are also present.

Mining at a rate of 40,000 tons per day and mill recovery of 88% of the copper contained would produce an average of 69,000 tons of copper per year, after smelter losses, for twenty-two years.

The Helvetia District holds great promise of developing into a major copper producing area. In addition to the potential for finding more copper mineralization below the presently known reserves, there are other important exploration targets. Within the Anamax land holdings, geologists recognize the possibility of discovering other large deposits and are optimistic about finding smaller high grade zones.

### LOCATION

The Helvetia mineralized zone is located in the Helvetia Mining District which comprises an area of approximately 90 square miles within the Coronado National Forest in the north end of the Santa Rita Mountains, Pima County, Arizona. The deposit, which is on the east slope of the Santa Rita Mountains, is approximately 35 miles southeast of Tucson and 17 miles east of the Twin Buttes Mine. The property can be reached via Highway I-10 and State Route 83 (Sonoita Highway). Highway 83 divides the Helvetia land holdings, with the mineral property lying to the west and the Empire and Cienega Ranches east of the highway. The area is also accessible from Twin Buttes and Highway I-19 via an unimproved road which reaches an elevation of 5,700 feet as it crosses the Santa Rita Mountains in the vicinity of Gunsight Pass. This route is only recommended for four-wheel drive vehicles.

### TOPOGRAPHY

The area has a variety of terrain ranging from high rugged mountains to low valleys. The mountains are in excess of 6,300 feet in elevation with the uppermost mine stripping level planned at an elevation of 6,200 feet. The valley landscape east of the orebody consists of rolling grasslands interrupted by densely vegetated washes. The higher areas support a wider range of vegetation because rainfall, especially in the summer months, is more plentiful than in the lower desert valleys. Cienega Creek comprises the main drainage in the valley and it has water flow year round.

## LAND HOLDINGS

The primary mineralized areas, including the Helvetia ore-body, consist of 2,960 acres of patented mining claims and fee surface lands owned by Anamax. The area covered by the unpatented claims includes areas required for waste dumps, tailings, mill site, and other facilities. Anamax expects to acquire ownership of 13,001 acres of the unpatented mining claims from the Forest Service in exchange for 2,463 acres of privately owned parcels located within various National Forests throughout the state.

As is described elsewhere, Anamax acquired two Ranches, the Empire and Cienega, primarily for their water resources and also as potential tailings disposal sites. These Ranches have a combined area of 75,000 acres, half of which represents State Grazing Leases, the remainder being fee land.

Overall, Anamax controls some 105,000 acres of land related to the Helvetia-Empire/Cienega Ranch area.

## ENVIRONMENTAL IMPACT STATEMENT (EIS)

The U.S. Forest Service requires an Environmental Assessment Statement prior to entering into a land exchange. Various environmental studies were initiated several years ago and have been completed, with the exception of the Archeological Study. Appraisals of Forest Service Land have been completed as of October 1, 1984, and the lands to be traded by Anamax are now being appraised by the U.S.F.S. It is expected these appraisals will be completed early in 1985. When the above studies and appraisals have been completed, they will be forwarded to U.S.F.S. Region 3 Office in Albuquerque, New Mexico, for review and approval and then on to Washington, D.C. for approval by the Chief of the Forest Service.

## GEOLOGY

The major mineralized zones in the Helvetia District occur in favorable limestone formations in Paleozoic sediments and are associated with an intrusive porphyry. Folding and several premineralization and postmineralization faults make a complex structural setting in the District.

The Helvetia (Rosemont) deposit is developed in a thick sequence of Paleozoic sediments which strike north-south and dip approximately 45° east. Mineralization appears to be significantly controlled by structure and lithology. The top of the zone ranges from 100 feet to 700 feet below the surface (average 500 feet) and encompasses an area 3,400 feet in length along the strike and 3,200 feet wide. The vertical extent of well mineralized rock that has been drilled is 2,000 feet. Copper mineralization consists primarily of bornite and chalcopyrite, plus weak secondary chalcocite and copper oxides and carbonates. Molybdenum and silver values are also present.

Some 120 holes have been drilled to delineate the Rosemont orebody. Some 112 of these holes form the basis of the reserves developed to date. Fill-in drilling, being done on an annual basis, in conjunction with assessment work, continues to confirm the continuity of projected mineralized zones.

### GEOLOGIC POTENTIAL

Because of the complexity of the geological structure of the area, a lot of work (mapping, drilling, etc.) remains to be done before the full potential of the district is realized. It has been the consensus of most geologists familiar with the Helvetia deposit that there is a good possibility that additional mineralization will be encountered below the presently known zone. Most of the holes were drilled to what was assumed to be a minable depth by open pit methods. It is possible to project known mineralized sections and favorable limestone beds at depth.

In addition to drilling in the immediate vicinity of the main Helvetia zone, drilling has also been done on Broadtop Butte, a small tonnage, low grade deposit two miles to the north of the Rosemont zone. Another small deposit, the Peach-Elgin, is located on the west side of the Santa Rita Mountains. A 1970 open pit reserve estimate outlined 37.3 million tons of material averaging 0.592% total copper and 0.186% acid soluble copper at a 1.8:1 waste-to-ore ratio. The cutoff was 0.2% recoverable copper based upon 50% oxide copper recovery and 92% sulfide copper recovery. There has, however, been little exploration activity in this area in recent years.

Other important exploration targets exist at depth in the Helvetia District. An intensified exploration program could lead to the discovery of additional mineralized zones having the potential of developing into large tonnage, economically exploitable orebodies. Within the Anamax land holdings, geologists recognize the possibility of discovering other large zones of mineralization and are optimistic about finding smaller high grade zones.

### ORE RESERVES

The most recent mining reserves for East Helvetia (Rosemont) were prepared by Pincock, Allen & Holt in 1977. The reserves were based on a geologic model of the deposit developed by Anamax geologists. Pincock utilized computerized techniques in developing the new model. Reserves have been presented in both geologic and minable categories. The geologic reserves reflected total mineralized material in the computer block model at designated cutoff grades. Movable reserves are defined as the ore to be mined within open pit limits. The pit design was based on a 0.20 percent total copper cutoff as the primary criteria.

The latest geologic open pit (sulfide type) reserves at a 0.20 percent cutoff are summarized as follows:

Sulfide	- Tons	351,620,000
	- % Cu(T)	0.65
	- % Cu(AS)	0.07
	- % Mo	0.019
Stripping Ratio	- W/O	3.37

Sufficient drilling and exploration work have been done to enable a high degree of confidence to be placed on the presently defined reserves.

#### MINE PLANS

The sulfide reserves are sufficient for an open pit mine life of 22 years at a milling rate of 40,000 tons per day (14.4 million tons per year). Grades would vary between 0.68 percent total copper in the first year to 0.48 percent in the last year.

Preproduction stripping is estimated at 107.5 million tons to be removed over a two-year period. Annual stripping ratios are variable with a maximum of 5.2 in any given year and an average of 3.0, excluding preproduction stripping, over the life of the operation.

The deposit is amenable to mining by conventional open pit mining methods utilizing large drills, shovels, trucks and associated equipment.

#### METALLURGICAL

A conventional copper sulfide concentrator would treat 40,000 tons per day of sulfide material. Treatment of oxide material has not been considered because of its low grade and small tonnage. Mill design and operating data are based on Twin Buttes' experience. Concentrator recoveries are estimated at 88 percent for copper and 45 percent for molybdenum. Annual production of refined copper is estimated to average 69,000 tons. By-products produced on an annual basis include molybdenum at 2.3 million pounds, silver at 1.8 million ounces, and gold at 17,000 ounces per year.

Copper concentrates could be smelted and refined at custom facilities.

#### CONCLUSIONS

The Helvetia (Rosemont) deposit is one of the larger, accessible, undeveloped properties with proven reserves that can be readily developed without much difficulty. Present economics do not justify developing the property at this time; however, it should be viable when copper prices improve.

The area also holds the potential for the discovery of additional mineralization of the same magnitude as the presently known deposit.

WATER POTENTIAL



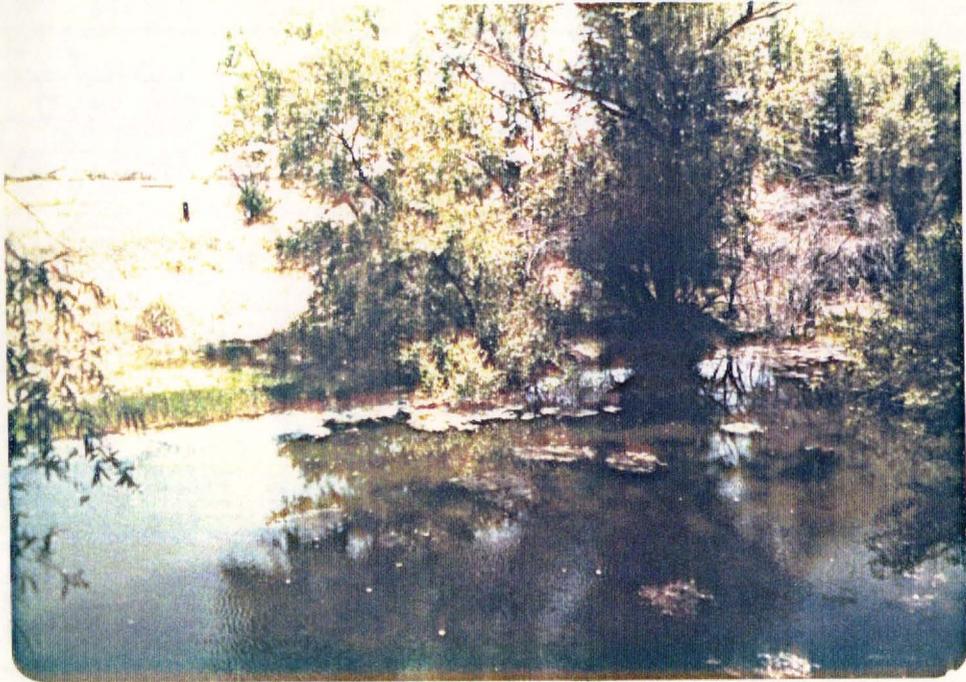
View looking southeasterly up Apache Canyon.



View looking southwesterly down Cienega Creek  
near the south end of the ranch.



Mesquite in Empire/Cienega drainage



Surface Water impoundment, Cienega Ranch

## WATER POTENTIAL

While water availability in the high, upland plateau country north of Sonoita, Arizona, has been "a given" ever since the area was first settled, the most recent in-depth assessments of its water potential were stimulated by GAC's real estate development scheme, and, by Anamax's identification of the East Helvetia mineral reserve, which, in turn, required an assured water supply for ore processing.

In 1975 Harshbarger and Associates reported on the Empire Ranch groundwater potential for Anamax. Since then, the Company has conducted a stream flow monitoring program on Cienega Creek, pending a decision to proceed with a comprehensive water development program.

Harshbarger reported that the Empire Basin is bordered on three sides by indurated sediments and/or igneous rocks which yield only small amounts of groundwater. The reservoir itself comprises a sequence of recent sand and gravels several tens of feet thick, and, basin-fill deposits which range from 250' to more than 1,500' thick. These latter materials comprise the major water-yielding sequence, although some groundwater also occurs in the underlying indurated sediments, where they have been fractured. The water table is generally near surface, particularly along Cienega Creek, and some wells (penetrating the basin-fill deposits) are quasi-artesian.

Pump tests on 13 exploratory wells indicate a water yield ranging from several hundred to about 40,000 gpd/ft. width of aquifer. The average appears to be about 30,000 gpd/ft.

A 24", 1,250' deep pilot production well was pumped for ten days, yielding roughly 1,241 gpm. The water level stabilized at about 520' below the surface.

Chemical analyses of samples collected during the tests indicate the water is of excellent chemical quality, with total dissolved solids of less than 400 ppm. and a hardness suitable for most domestic and industrial uses.

In summary, a substantial groundwater reservoir exists in the basin-fill deposits, in a zone about four miles by nine miles along the Cienega Creek drainage. Well yields in the order of 1,200 gpm are tenable.

More than 5,000 acre/ft. per year of groundwater underflow moves northward from the Empire Ranch and could be harvested. The volume of recoverable water within the Empire Ranch lands is estimated to be about 1.5 million acre feet. If the 5,000 ac. ft. of underflow were combined with another 5,000 ac. ft. of drawdown, 10,000 ac. ft. could be pumped each year for the next 300 years.

TUCSON WATER ECONOMICS:

Water availability in the more arid regions of the Nation is a matter of critical importance. In most areas, water shortages can be overcome, but at a cost. In the Tucson metropolitan area there may, or may not, be a water shortage, depending upon one's perspective. The comments which follow reflect gleanings from various sources relative to future water availability and costs in the greater Tucson area.

Groundbreaking ceremonies for the Tucson segment of the Central Arizona Water Aqueduct occurred on July 12, 1984. While estimates as to when the work will be completed appear to slip into the future as time goes along, Tucson's commitment to take 151,000 acre feet of water per year commences in 1992. At that time Tucson will be required to pay an "O&M" (Operating and Maintenance) charge of \$53.00 per acre foot, plus another \$5.00 capacity charge (presumably the latter represents debt amortization).

The capacity charge escalates to \$34.00 per acre foot by the year 2010. The entire project is scheduled to pay out within 50 years, or by 2042. Over and above the foregoing costs for delivery of the water to an elevation of 2,800' at Tucson, there is an added expense, estimated at \$20.00/a.f., to purify the C.A.P. water to potable standards. In summary, presuming the foregoing figures are reasonably valid, Tucson's C.A.P. water will cost the following:

Year:	<u>1992</u>	<u>2010</u>
O&M	\$53.00/a.ft.	\$ 53.00/a.ft.
Facility Charge	5.00 " "	34.00 " "
Purification	<u>20.00 " "</u>	<u>20.00 " "</u>
	\$78.00/a.ft.	\$107.00/a.ft.

Currently, Tucson's average cost for delivering water to its system is \$40.00/a. ft. Little, if any, purification is required. The average delivered cost of water to residential and other customers is currently in the neighborhood of \$400/a.ft. Distribution lines and pumping costs account for much of the huge incremental cost.

The State of Arizona is currently selling water from State lands at \$60.00-\$65.00/a.ft. and is offering additional water at \$100.00/a.ft.

Tucson has acquired and retired considerable farmland acreage in the Avra Valley, west of Town. Additional lands are being acquired. Average cost is in the neighborhood of \$1,900 per acre. While the Tucson Water Department's present policy is not to dispose of the farmlands it has acquired and retired, these lands may have some limited future use.

Sewage effluent is being treated and used for golf courses, public parks, and other similar purposes. The La Paloma Golf Course is using tertiary treated water on its course at a cost of \$325.00/a.ft.

The foregoing bits of information seem to substantiate the very real value of water in the Tucson area. This is of particular significance to Anamax's Empire/Cienega water reserve, which is of high quality, near surface and is both privately owned, and, outside the newly designated Active Management Areas.

The elevation of the Empire/Cienega water, some 2,000' above metropolitan Tucson, should allow for its distribution throughout greater Tucson without pumping expense, once it leaves the Ranch properties. This may even permit power generation during the water's travel to Tucson. We have no figure for actual distance from a prospective well-field on the Empire/Cienega properties to the nearest water transmission line, but it would seem that, with a reasonable flow rate, this water should be more than competitive with existing Tucson sources, even in today's terms.

WATER LAW

The primary target of the water law is not municipal and industrial users. Currently, 89% of water use in the state is for irrigation. As a result, the water law was aimed at agriculture. Existing agricultural uses with a history of continuous irrigation can continue. However, new agricultural uses in active management areas are prohibited. The law also provides for the transfer of water rights and physical transportation of water from agricultural uses to municipal or industrial users. This is allowed in hopes of retiring as much agricultural land as possible and converting it to municipal or industrial uses.

In active management areas, existing uses are grandfathered and can continue subject to the regulations and proper filing with the state. However, existing uses cannot be increased based on a grandfathered right.

There are two types of rights which are applicable to the subject property. These are Type I and Type II Non-Irrigation Rights. The Type I Rights are obtained by retiring irrigated land outside of the service area (not necessarily the certified area) of a city, town or private water company. The transferred water can be used for any purpose except for irrigation. The regulations limit the amount of transferred water to three acre feet per retired acre of irrigation land. The Type II Non-Irrigation Rights are those which are in existence when Active Management area is designated. The amount of irrigation right is based on a maximum amount withdrawn in any one of the preceding five years prior to 1980. Again, this water is available for any type of use except irrigation.

Inside Active Management Areas, in order to subdivide the land into parcels less than 160 acres, a certificate of an assured water supply is required. The certificate requires a hydraulic study by a qualified hydrologist that shows a guaranteed supply of water to the subdivision. According to Cella, Barr, and Associates, a reputable local engineering firm, there have been several certificates issued for assured water supply on new subdivisions. At least in practice, it appears that if the water supply is in fact adequate, a certificate can be issued for subdivision of lands within Active Management Areas.

It is significant that the subject property is mostly outside the active management areas. Thus, the subdivision potential of the subject property is not impaired to the extent it would be if subjected to the water law.

### DISCLAIMER

Certain opinions and facts stated herein relate to legal, hydrogologic, and other matters. All such statements are presented in good faith, but no person should rely on any statement of fact or opinion and should make an independent investigation as to any material aspects of any information contained herein.

Anamax, its officers and employees have conducted studies as to the availability of groundwater and surface water from the property in question; however, these studies were conducted solely for use by Anamax, and may not be useful to prospective purchasers. Any conclusions of such studies, and any opinions of Anamax and its officers and employees, are not to be relied on by prospective purchasers. Prospective purchasers are advised to independently study and research the availability of water from the property in question and to consult the Arizona Department of Water Resources to obtain documents of record with respect to water rights. Arizona has enacted statutes and regulations which govern the appropriation and use of groundwater and public waters; the interpretation and application of such laws and regulations will vary depending upon the circumstances of each case and the uses and withdrawals anticipated. Neither Anamax nor its officers or employees makes any representation or warranty whatsoever as to the extent of its water rights relating either to groundwater or appropriable public water of the State of Arizona, or as to the quality of such water.

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