


FINAL REPORT

MINERAL: Gold-Copper PROPERTY: Swallow Mine  
EXAMINATION DATE: November 1-2, 1975 MINING DISTRICT: Castle Creek  
EXAMINED FOR: Cyprus Bagdad Copper Company STATE: Arizona  
EXAMINED BY: Wilbur E. Sweet, Jr. COUNTY: Yavapai  
Ore Control Engineer, Cyprus Bagdad Copper Company, P. O. Box 245, Bagdad, Az.  
SECTION: 6, T 8N R 2W, Gila & Salt River Meridian

SUMMARY AND RECOMMENDATIONS

The Swallow Mine is a series of surface cuts and underground workings along a mineralized reverse fault striking @ N60W (Magnetic) and dipping 70-80 degrees to the north. The fault lies along a contact zone between the Bradshaw granites to the north and Granite gneiss with Yavapai schist xenoliths to the south. Primary mineralization was probably hematite with regional metamorphism converting the hematite to specularite. The gold-copper values in the ore zone are as a result of secondary brecciation followed by quartz-chalcopyrite mineralization in the Swallow Vein and along a series of at least seven complementary normal strike-slip faults displacing the vein. This gave the area an appearance of being large mineralized shear zone with several parallel veins until the structural displacement was determined. The fairly high gold values associated with the property occur principally within the oxidized zone as residual enrichment. Geochemical sampling conducted of the fault zones, granites, and gneisses did not reveal any significant widespread mineralization. No vein samples were taken as previous reports list extensive and inconclusive sampling.

It is recommended that Cyprus Bagdad Copper Company not consider this property for a detailed examination or acquisition. The property currently has limited value to the owners as a source of lapidary material under the direction of the owner's representative, Mr. Grover Rubash, and it is possible a small tonnage of oxidized gold ore may be shipped at a profit from existing stockpiled material at the mine. A courtesy copy of this report should be sent to the owners and Mr. Rubash.

  
\_\_\_\_\_  
Wilbur E. Sweet, Jr.

**CYPRUS**

## INTRODUCTION

### Purpose of Report

This report was made for Mr. Robert C. Bogart, General Manager, Cyprus Bagdad Copper Company, at the request of Mr. P. K. Medhi, Superintendent of Exploration-Development, Chief Geologist. The property was submitted by Mr. Grover Rubash of Yarnell, Arizona, acting as the owner's agent. Mr. Wilbur E. Sweet, Jr., Ore Control Engineer, examined the submitted material and, based on the recommendation that an investigation of the property be made to determine if a significant Cu-Su mineralized zone existed, examined the property on November 1 and 2, 1975.

### Source of Information

Inadequate base maps are available for the area, and no government reports were available. Several engineer's reports, maps, and smelter returns utilized were made available by Mr. Grover Rubash.

## ACCESS AND LOCATION

The Swallow Mine is located in Sections 6 and 7, T 8 N, R 2 W (G & SRM), Castle Creek Mining District, Yavapai County, Arizona, about eighteen miles by dirt road from Wickenburg, Arizona.

## CLIMATE AND TOPOGRAPHY

The mine is located in a typical semi-arid mountain desert environment on the southeast slope of Swallow Mountain. Topographic relief is about 600 feet northwest along the strike of the vein from the wash running east into the southeastward-flowing Castle Creek from the property, which dissects the district. Elevation ranges from 4000 to 2500 feet.

## FACILITIES

Supplies are brought in by vehicle from Wickenburg, and a small amount of water is available on the property. Power is provided by a small electric generator, and three small buildings are on the property in addition to the old blacksmith shop at the main tunnel. The property is littered with old, obsolete mining and milling equipment. No timber is available locally.

## HISTORY AND PRODUCTION

The Swallow Mine has produced approximately 8,300 tons of ore containing 2,640 ounces of gold and 3,800,000 pounds of copper between 1915-1916 and 1937-1939. Production was from the oxidized and residually enriched portions of the Swallow vein. The Castle Creek District had a total recorded production of \$350,000 in 1936, and Lindgren estimated that about \$500,000 was the maximum production (gold).

## OWNERSHIP

The property is owned by Mr. Stephen F. Wagner, 1637 East Turney, Phoenix, Arizona (265-9527) and Mr. Charles Brown (address unknown). There are two patented claims in the group, and reportedly several unpatented claims are held, although the validity of these is questionable as they have not been surveyed and the location and corner monuments are in disrepair or are nonexistent. The only valid lode claims are along the strike of the Swallow vein. No information is available on any outstanding liens or mortgages, leases, or previous contracts, litigation, etc.

## TERMS OF SUBMITTAL

No purchase or lease terms were discussed, as the property was examined to determine if any further interest or a complete follow up examination would be necessary.

## GENERAL GEOLOGY AND ORE DEPOSITS

From the Arizona Bureau of Mines Bulletin 137, revised 1967: "This region is made up mainly of Yavapai schist and Bradshaw granite, locally intruded by dikes of diorite and rhyolite-porphyry and largely mantled on the south by volcanic rocks. The ore deposits, which occur only in the Pre-Cambrian rocks, have been grouped by Lindgren as follows: Pre-Cambrian gold-quartz veins,

represented by the Golden Aster or Lehman Mine; post-Tertiary gold-copper veins, exemplified by the Swallow, Whipsaw, Jones, and Copperopolis properties; and lead veins."

The Swallow Mine is along a mineralized reverse fault zone striking N45W and dipping 70-80 degrees to the north. The fault lies along a contact zone between the Bradshaw granites to the north and Granite gneiss with xenoliths of Yavapai schist to the south. Primary mineralization was probably hematite with regional metamorphism converting the hematite to specularite. The gold-copper values were probably introduced during a period of subsequent faulting and brecciation of the Swallow vein. Subsequent complementary transverse faulting displaced the vein into at least seven or eight segments, giving the area the appearance of a large mineralized shear zone with several paralleling veins. Subsequent development and prospecting based on parallel veins resulted in the expenditure of considerable work by the mine owners. Fairly high gold values (0.25 oz/ton average) in the oxidized zone are as the result of residual enrichment. Ore at depth averages 0.09 oz/ton. Vein width rarely exceeds four feet, and along the vein, supergene copper has been noted to occur and resulted in considerable production.

#### DEVELOPMENT

Development of the Swallow Mine has been limited to an access tunnel on the 3800 foot level and numerous shafts and adits on the upper levels that were used to stope-out the oxidized ore that contained high grade gold values. The

attached map that accompanies this report was compiled from old reports and assays.

#### SAMPLING

The underground workings were sampled by previous engineers and the assays are noted on the mine map. A program of geochemical sampling was conducted to determine if any widespread mineralization was evident with negative results. The geochemical assays are listed in this report on page , and a sketch map shows the relative sample locations to the transverse faults that displaced the Swallow vein.

#### MAPPING

The available mine map is good, but a transit-stadia or plane table surface geology map would be invaluable for future development of the mine by a small operator. No small scale maps are available of the area. Difficulty was experienced during the examination due to the lack of a topographic base map.

#### ORE RESERVES

There are no proven or indicated ore reserves; however, possible reserves based on geologic inference may exist on the 3800 level northwesterly of the main shaft station. No tonnage or grade estimate can be made without a complete surface geology map keyed to the 3800 foot level.

## MINING METHODS

The property is currently being ineffectively prospected by open-cutting with the use of a gasoline powered slusher by the caretaker. If reopened, it would be necessary to extend a development drift under the old workings to the northwest on the 3800 foot level and mine the vein using a cut and fill method using gob or waste fill in the stopes. Previous development on the 3800 level was to the southwest and did not take into account the fault displacement on the vein.

## PROCESSING

The ore may be amenable to a modified cyanide leaching process, although the copper in the ore will interfere and retard the precipitation of the gold, and will have to be precipitated first. No milling and processing costs or a flow sheet indicating potential recovery is available. Typical mill recovery in 1938 was:

Concentrate	1.00, 1.08 oz Au/ton
Tails	0.03 oz Au/ton
Heads	0.10 oz Au/ton
Recovery	70% indicated

## ECONOMIC SITUATION

The market price for gold is currently about \$145.00/oz, but the high freight rates and lack of a nearby smelter make shipping ore uneconomic at this time.

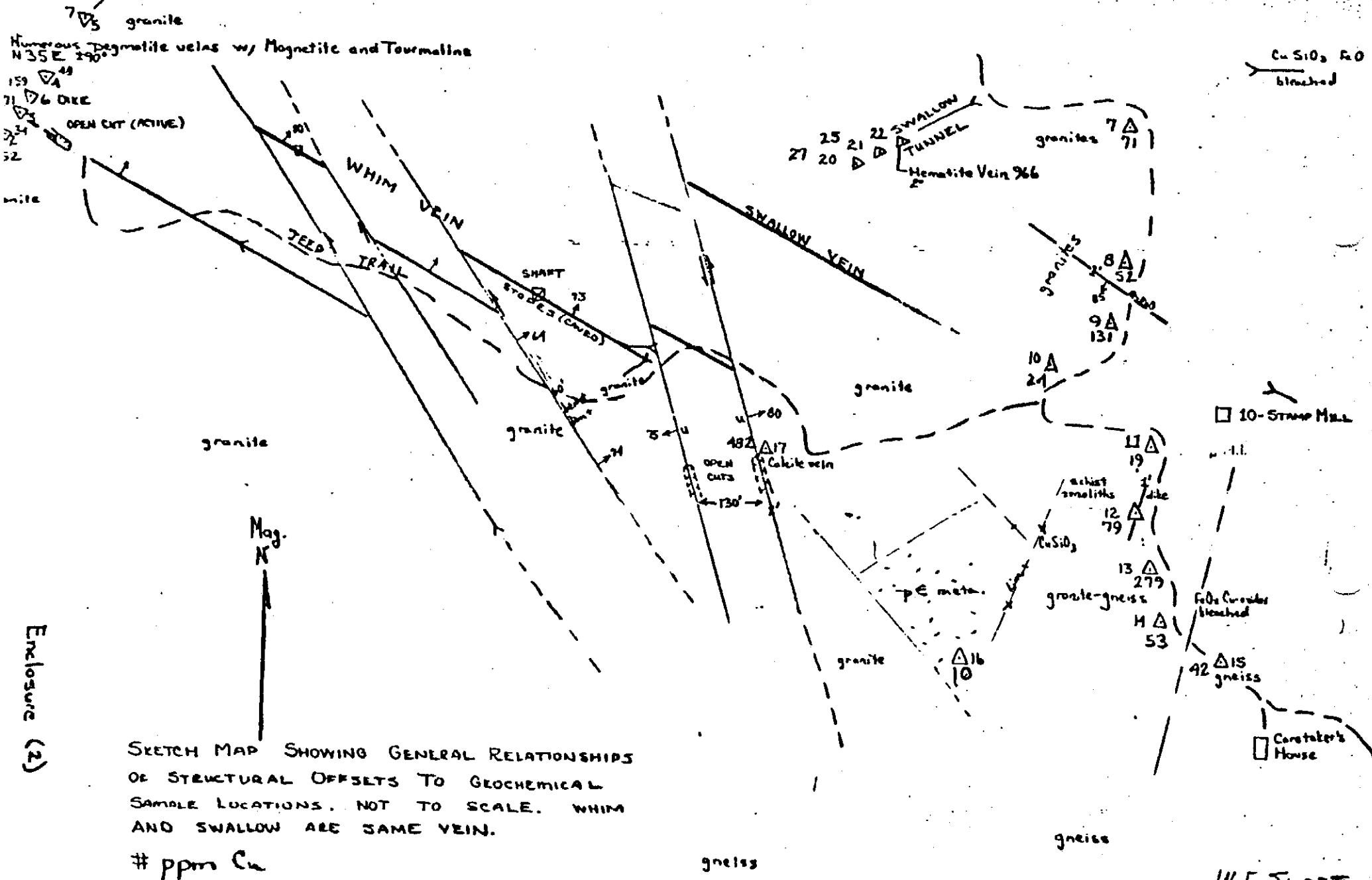
## APPENDIX

The following are attached to this report:

- (1) Underground Mine Map Showing Previous Assays
- (2) Geochemical Map
- (3) Geochemical Assay Sheet
- (4) Rough Location Map



Note: these samples taken @ 1/4 Mile NN of open cut.



SKETCH MAP SHOWING GENERAL RELATIONSHIPS OF STRUCTURAL OFFSETS TO GEOCHEMICAL SAMPLE LOCATIONS. NOT TO SCALE. WHIM AND SWALLOW ARE SAME VEIN.

# ppm Cu

Enclosure (2)

W.E. SWEET

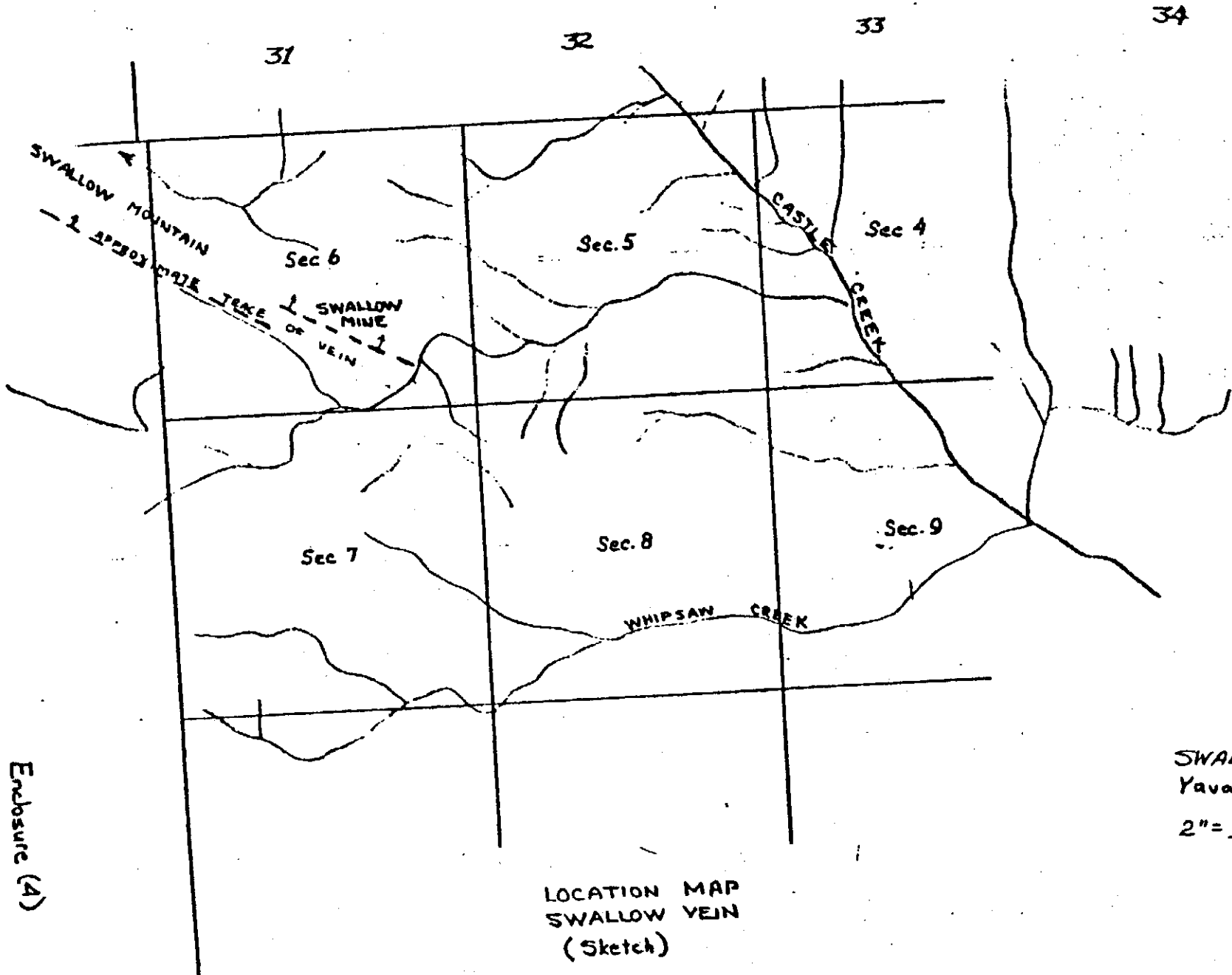
ASSAY SHEET

GEOCHEMICAL SURVEY - SWALLOW MINE

Sample No.	Values in p.p.m.					Rock Type
	Cu	Mol	Zn	Pb	Ag	
1	52	<2	24	7	<2	gr
2	34	<2	20	2	<2	gr
3	71	<2	6	3	<2	vein zone
4	48	<2	26	5	<2	gr
5	7	<2	28	4	<2	gr
6	159	<2	35	14	<2	mafic dike
7	71	<2	15	5	<2	gr
8	52	<2	14	3	<2	gr
9	131	<2	17	4	<2	gr
10	24	<2	24	5	<2	gr
11	19	<2	33	3	<2	gr-gn
12	79	<2	49	8	<2	mafic dike
13	279	<2	40	7	<2	gn
14	53	<2	10	3	<2	gn
15	42	<2	56	7	<2	gn
16	10	<2	12	4	<2	pc meta.
17	482	<2	21	36	2	Calcite vein
20	27	<2	18	4	<2	gr
21	25	<2	54	6	<2	gr
22	966	<2	15	8	6	FeO vein

Enclosure (3)

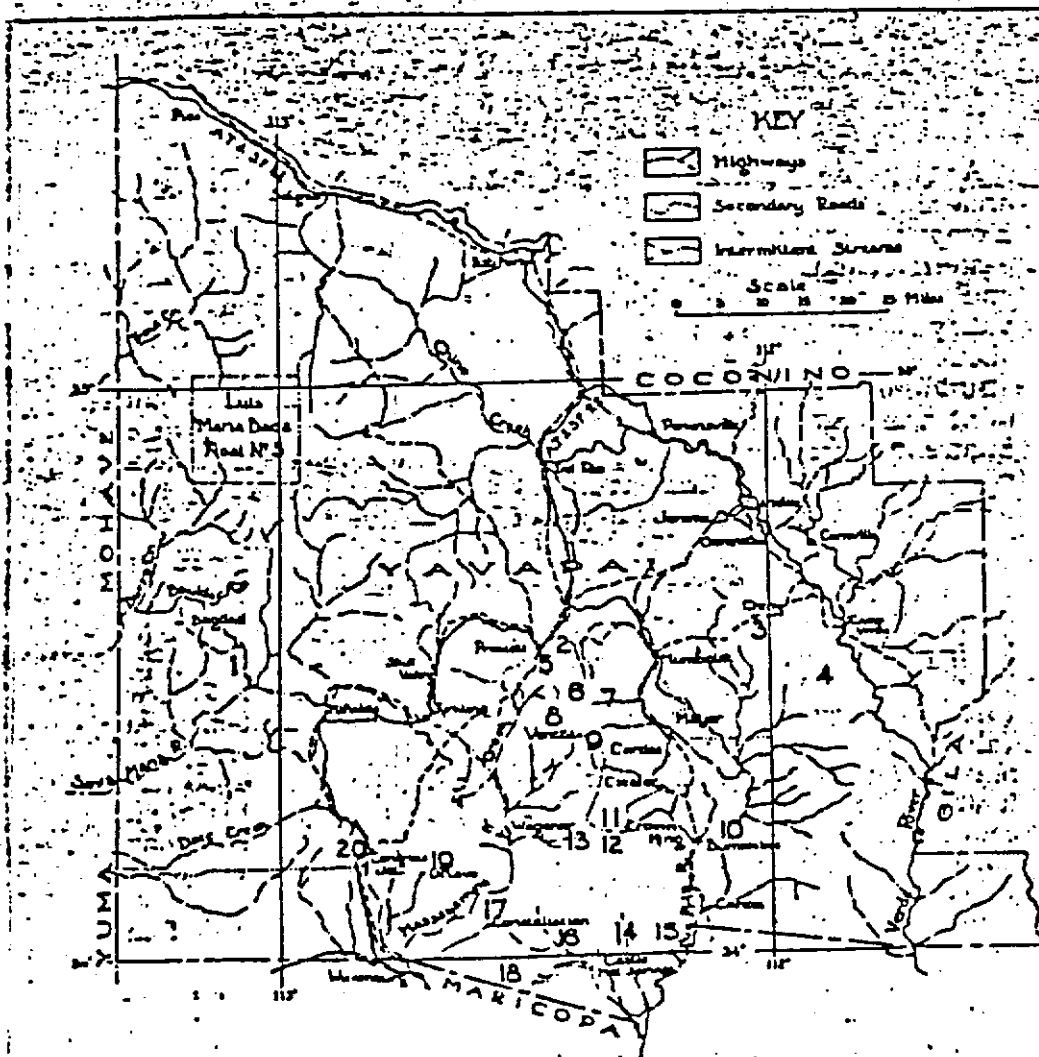
T. 8 N. R. 2 W.



Enclosure (A)

LOCATION MAP  
SWALLOW VEIN  
(Sketch)

SWALLOW MINE  
Yavapai County, Ar.  
2" = 1 MILE

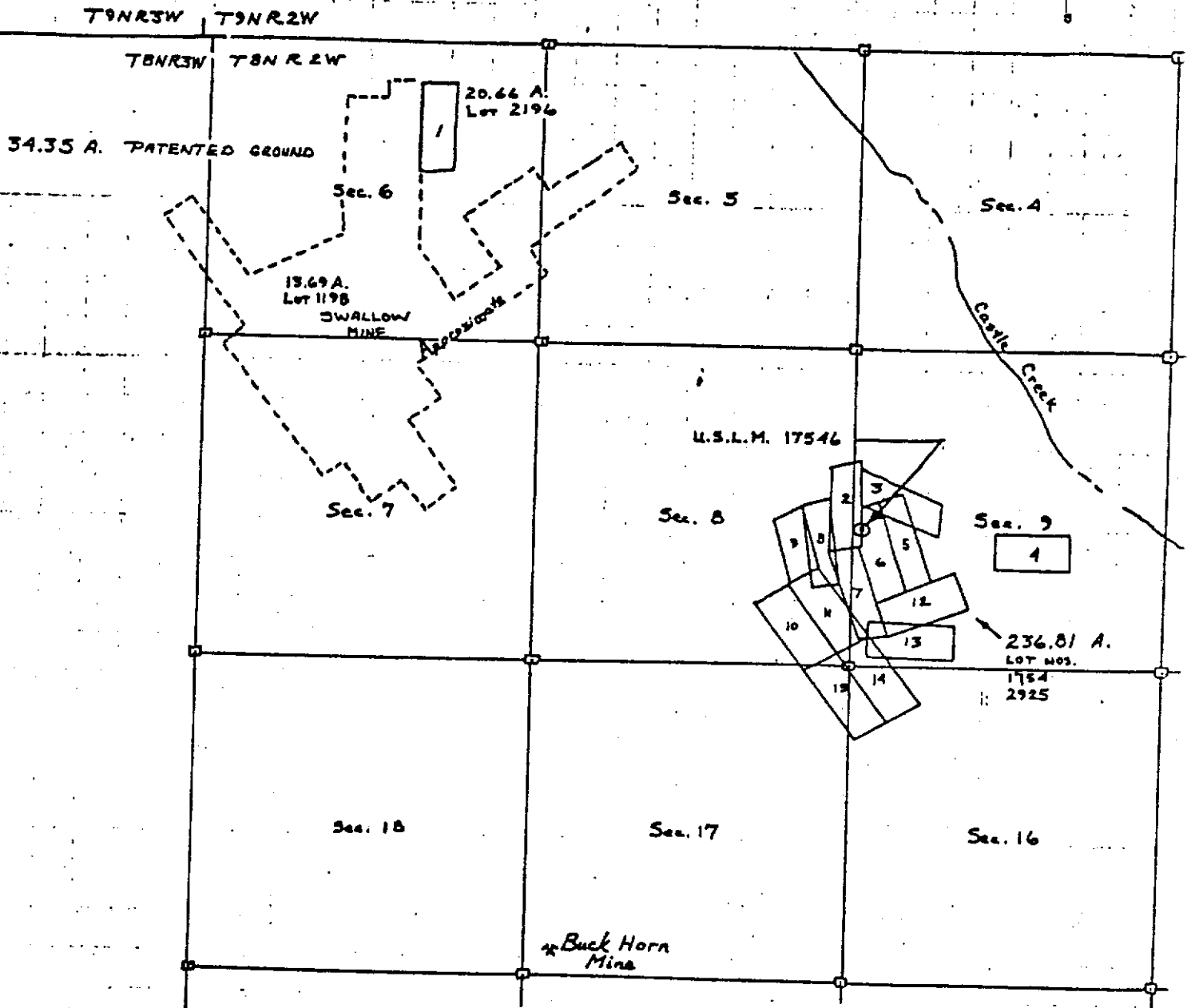


Map showing location of jode gold districts in Yavapai County.

- |                 |                      |
|-----------------|----------------------|
| 1 Eureka        | 11 Peck, Bradshaw    |
| 2 Prescott      | 12 Pine Grove, Tiger |
| 3 Cherry Creek  | 13 Minnehaha         |
| 4 Squaw Peak    | 14 Humbug            |
| 5 Groom Creek   | 15 Tip Top           |
| 6 Walker        | 16 Castle Creek      |
| 7 Bigbug        | 17 Black Rock        |
| 8 Hassayampa    | 18 White Picacho     |
| 9 Turkey Creek  | 19 Weaver            |
| 10 Black Canyon | 20 Martinez          |

TOWNSHIP N° 8 NORTH RANGE N° 2 WEST  
 GILA AND SALT RIVER MERIDIAN, ARIZONA  
 CASTLE CREEK MINING DISTRICT

SCALE 1" = 5280'  
 W E



Enclosure (2)

LOCATION MAP - SWALLOW MINE

- EXTENT OF TRAV. LOCATIONS
- PATENTED GROUND