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The following file is part of the

Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 11/26/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: ATLAS MINE

ALTERNATE NAMES:
BS AND K MINES

PIMA COUNTY MILS NUMBER: 267

LOCATION: TOWNSHIP 11 S RANGE 8 E SECTION 32 QUARTER NE
LATITUDE: N 32DEG 25MIN 49SEC LONGITUDE: W 111DEG 32MIN 49SEC
TOPO MAP NAME: VACA HILLS - 15 MIN

CURRENT STATUS: PAST PRODUCER

COMMODITY:
COPPER SULFIDE
COPPER OXIDE
ZINC
SILVER
GOLD LODE
LEAD

BIBLIOGRAPHY:
KEITH, S.B., AZBM BULL. 189, 1974, P. 143
ADMMR ATLAS MINE FILE
AGENBROAD,L.D.,1952,GEOLOGY OF THE ATLAS MINE AREA,PIMA COUNTY,ARIZONA U of A MS THESIS

ATLAS MINE AND MILL

PIMA COUNTY
SILVER BELL DIST.
T11S R8E Sec. 29,32

Mining World July 1961 p. 41
Mining World Sept.1962 p. 64
Mining World Apr. 1963 p. 77

Metal Mining & Processing June 1964 p. 24
Metal Mining & Processing Nov. 1964 p. 39

World Mining Nov. 1964 p. 69

Atlas Exploration (file)

Geology Report - Geoexplorers, International Vol 1

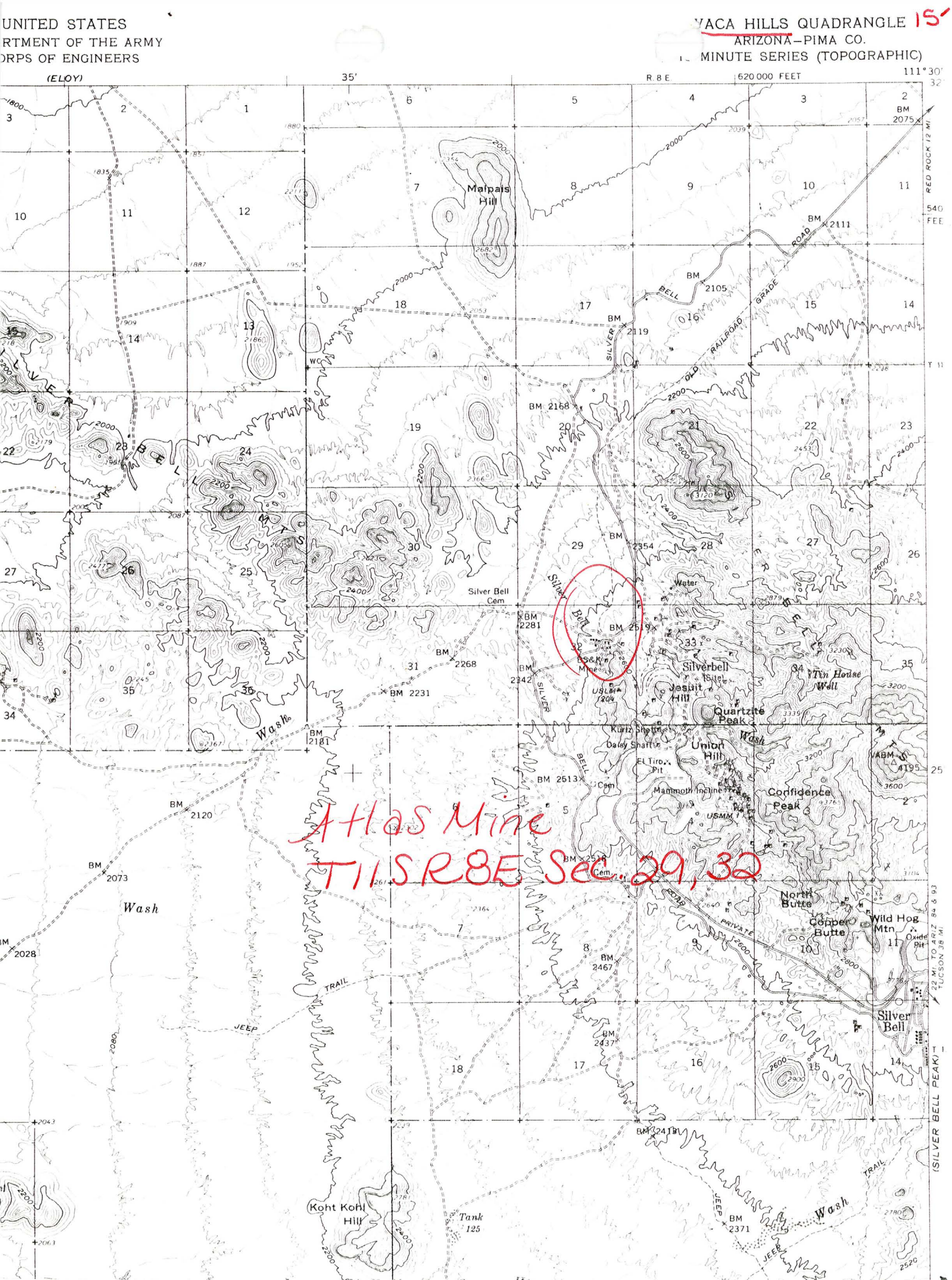
Pima County MILS Index #267

ABM 189, p. 143

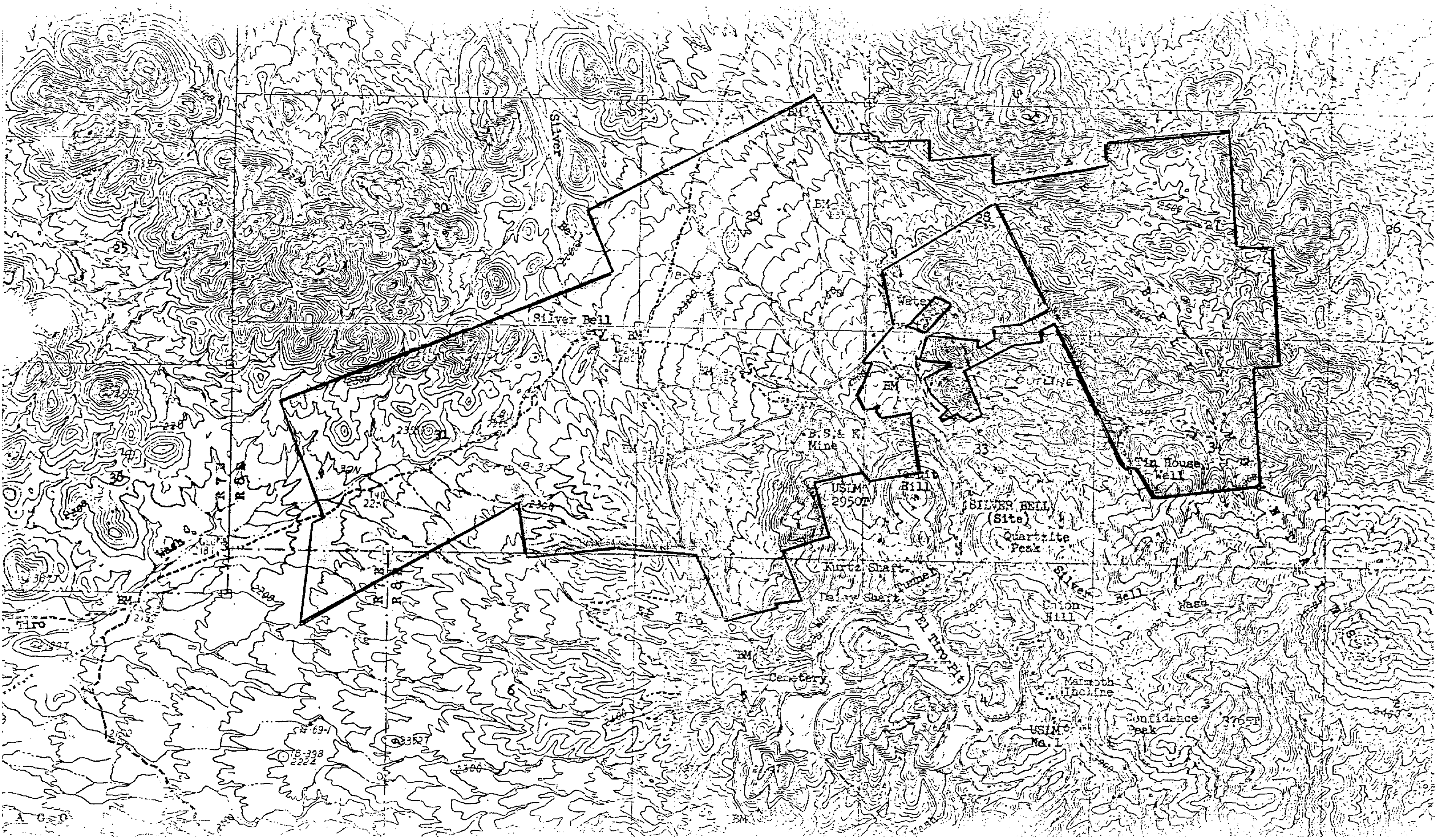
Vaca Hills, AZ 7.5' Topo (included in file)

UNITED STATES
RTMENT OF THE ARMY
ORPS OF ENGINEERS

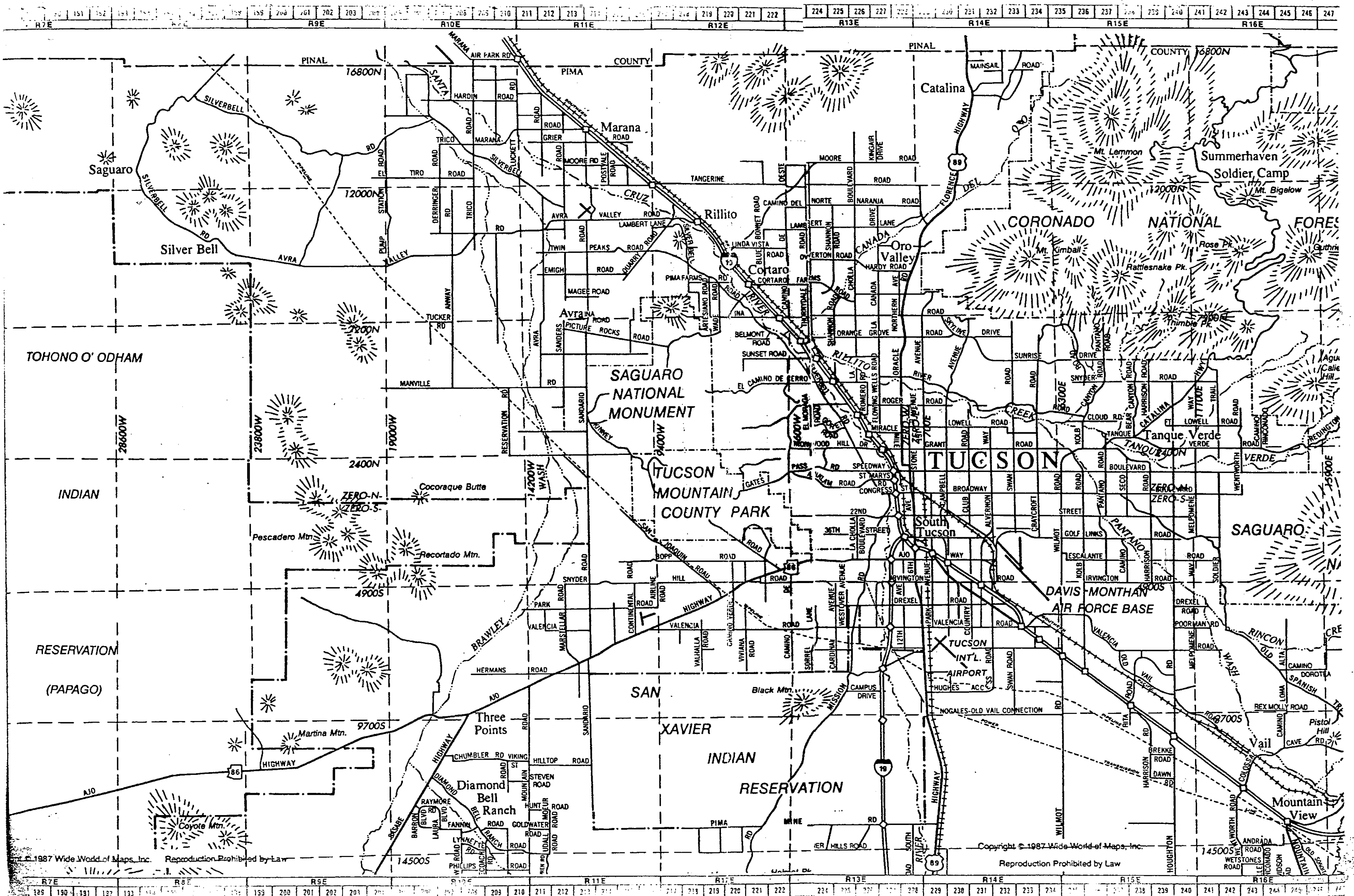
VACA HILLS QUADRANGLE 15'
ARIZONA—PIMA CO.
MINUTE SERIES (TOPOGRAPHIC)



Atlas Mine
T11S R8E Sec. 29, 32



Silver Bell
Cemetery
Silver
B.S.& K.
Mine
USLM
2950T
Hill
SILVER BELL
(Site)
Quartzite
Peak
Kurtz Shaft
Daisy Shaft
Tunnel
El Tiro Pit
Union
Hill
Silver Bell Wash
Cemetery
Mammoth
Incline
Confidence
Peak
USLM
No.1
Tin House
Well
Tiro
R 7 E
R 8 E



PINAL COUNTY
PIMA
16800N
12000N
7200N
2400N
ZERO-N-
ZERO-S-
4900S
9700S
14500S
28600W
23800W
19000W
14200W
9400W
4600W
TOHONO O' ODHAM
INDIAN
RESERVATION
(PAPAGO)
Saguaro
Silver Bell
Marana
Rillito
Cortaro
Avra
Catalina
Oro Valley
Summerhaven
Soldier Camp
Mt. Lemmon
Mt. Bigelow
CORONADO NATIONAL FOREST
Mt. Kimball
Rose Pk.
Rattlesnake Pk.
Thimble Pk.
SAGUARO NATIONAL MONUMENT
TUCSON MOUNTAIN COUNTY PARK
TUCSON
South Tucson
Tanque Verde
DAVIS-MONTHAN AIR FORCE BASE
TUCSON INT'L. AIRPORT
SAN XAVIER INDIAN RESERVATION
Three Points
Diamond Bell Ranch
Cocoraque Butte
Pescadero Mtn.
Recortado Mtn.
Martina Mtn.
Coyote Mtn.
Black Mtn.
Vail
Mountain View
Pistol Hill
SAGUARO
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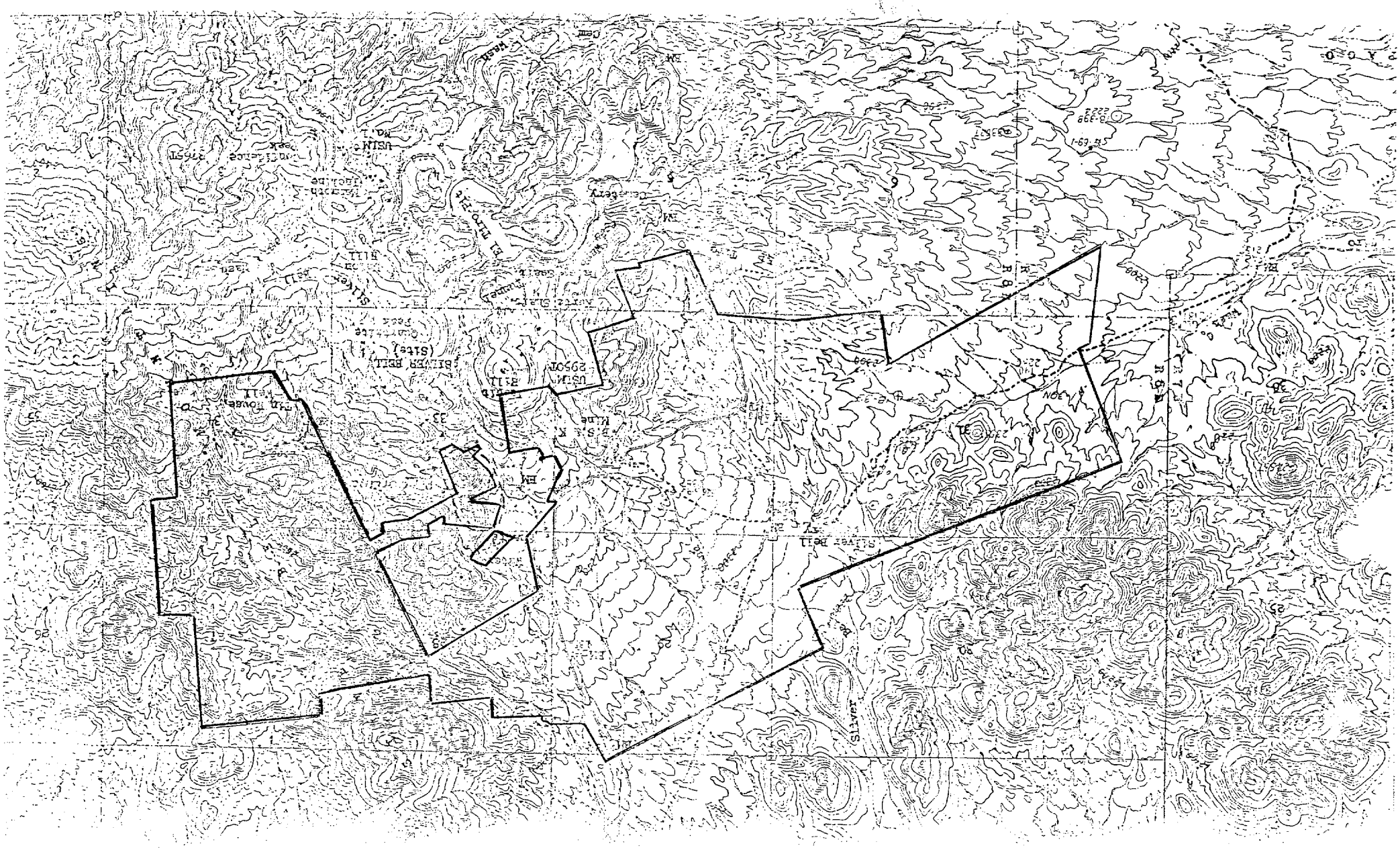


Information from MINE INSPECTOR'S OFFICE - August 15, 1957

B.S.& K. MINE (ATLAS) Silver Bell Dist., PIMA CO. 2-5-57

B.S.& K. MINING CO., 1st Nat. Bank Bldg., Phoenix
Pres. A. M. Kalaf)
Sec. Miss Lee Newson) " " "
Supt. A. M. Kalaf)

<u>CU - ZINC</u> 1500 tons per mo. Room & Pillar Stopes 29 men

L.A.S.

B. S + K Mng Co
PO Box 4434
242 S 1st Ave
Phx
Pres + Gen Mgr A.M. Kalaf
VP Geo Kalaf
Sec Treas Lee Newson

(4s 60 } 55
8s 100 } 56 SMI
7.56 AM 6-57
MW 56)

Atlas Mine Cu-Zn
Box 18 Silver Bell Ariz
19 mi SW Redrock

ARIZ
Pima

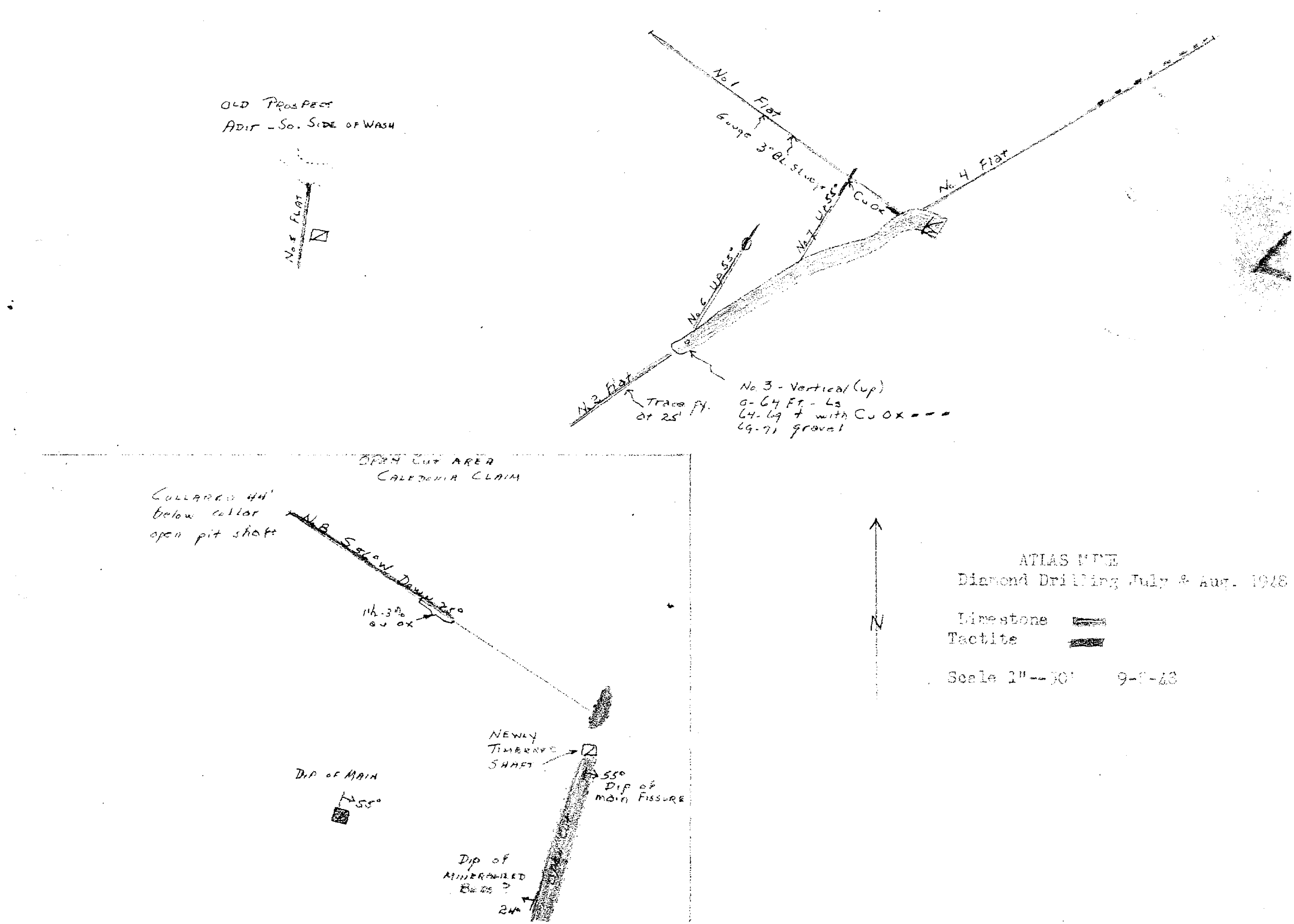
7/1/57

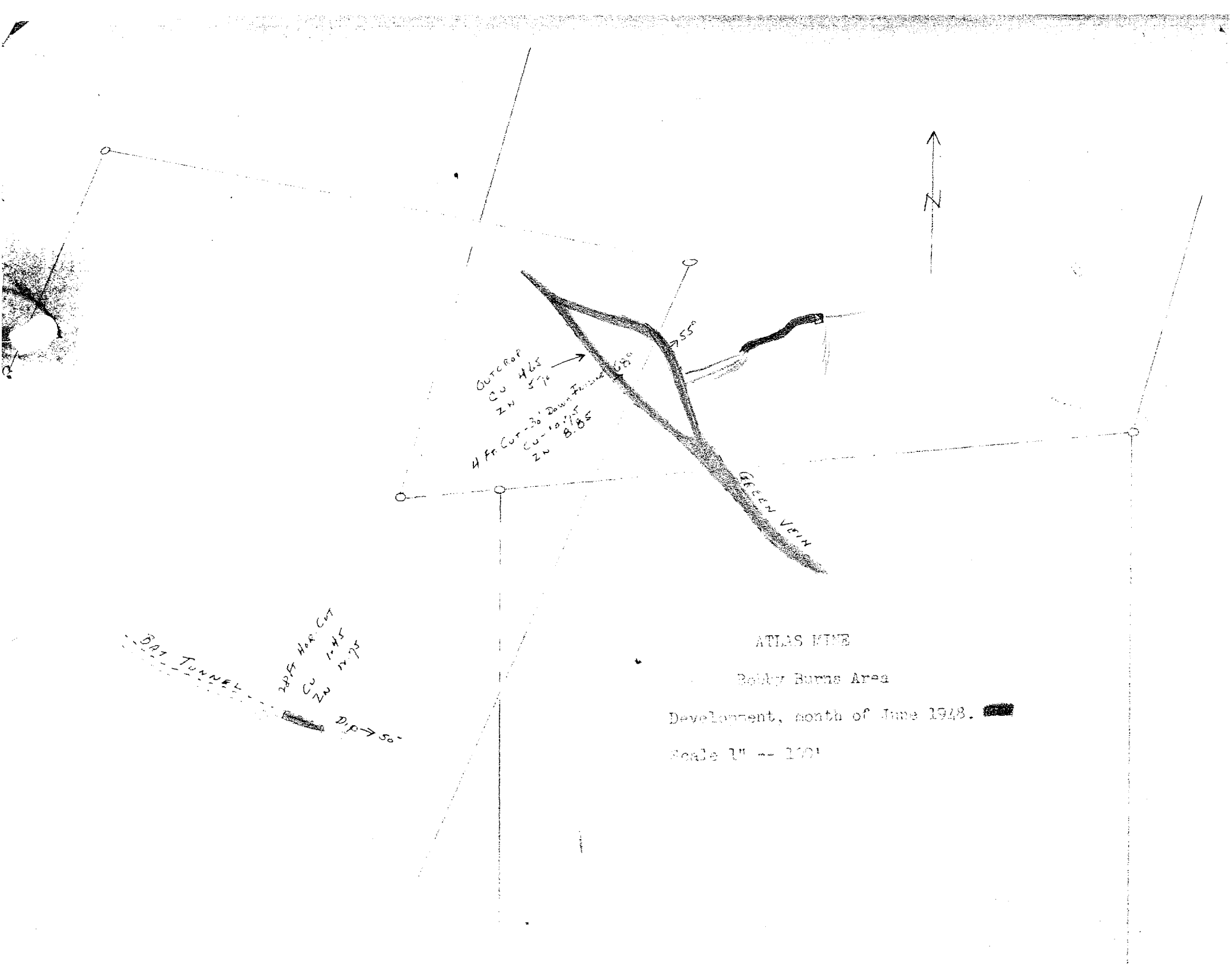
MAILING ADDRESS FOR B. S. & K. MINING COMPANY
242 S. 1st Avenue (P.O.Box 4434)
Phoenix, Arizona

or

P. O. Box 6,
Red Rock, Arizona

9-29-54


ATLAS MINE
Diamond Drilling July & Aug. 1928
Limestone
Tactite
Scale 1" -- 30'
9-8-48
N
OLD PROSPECT
ADIT - SO. SIDE OF WASH
No. 5 FLAT
No. 1 Flat
Gouge 3" Bl. sludge
No. 7 U.55°
Cu Ox
No. 4 Flat
No. 6 U.55°
No. 2 Flat
Trace py. at 25'
No. 3 - Vertical (up)
0-64 Ft. - Ls
64-69 + with Cu Ox
69-71 gravel
OPEN CUT AREA
CALEDONIA CLAIM
Collared 44' below collar open pit shaft
No. 8 S.60°W Down 25°
NEWLY TIMBERED SHAFT
55° Dip of main Fissure
DIP OF MAIN
55°
Dip of MINERALIZED BEDS ?
24°



ATLAS MINE

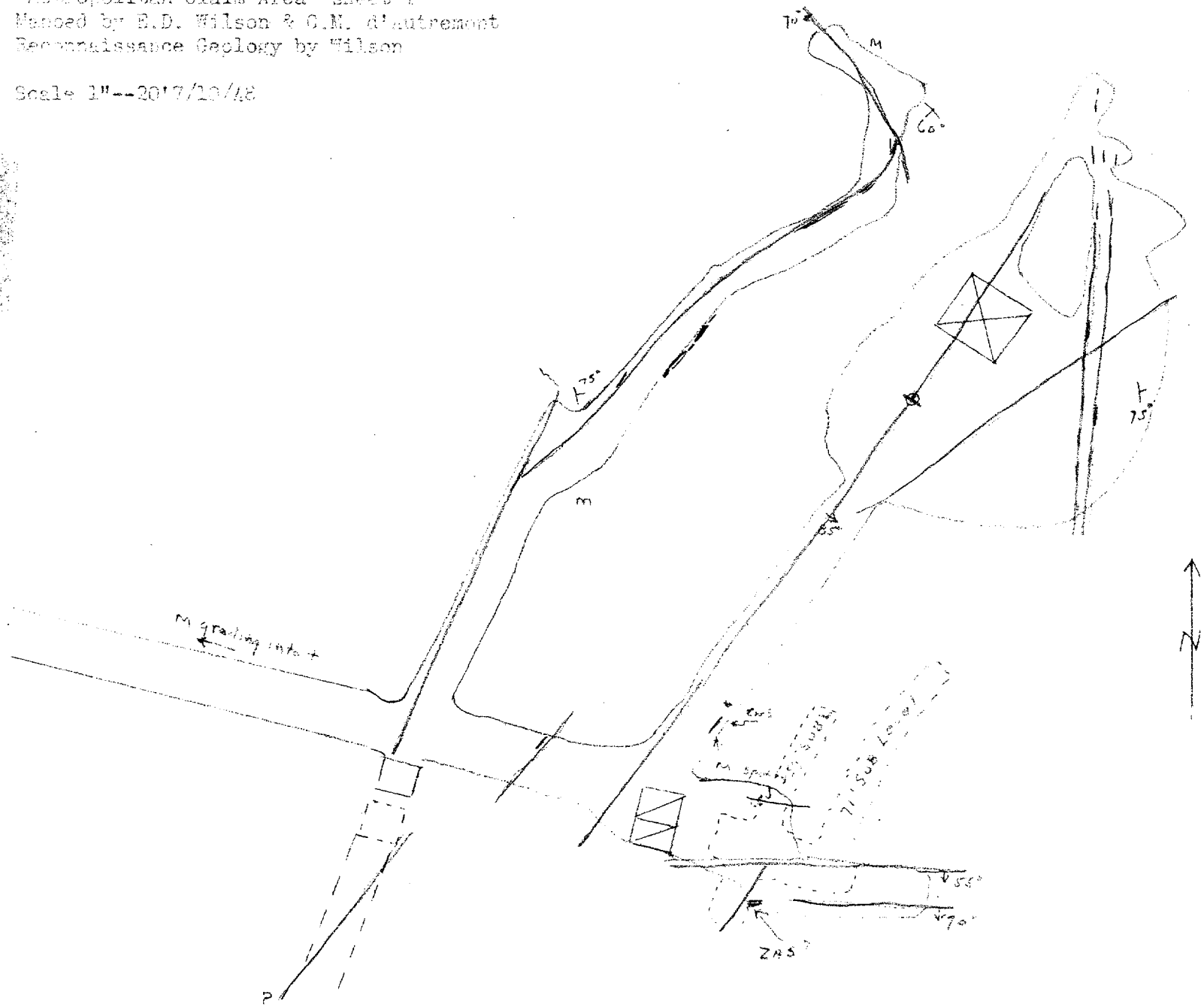
Bobby Burns Area

Development, month of June 1948.

Scale 1" = 20'

ATLAS MINE
Metropolitan Claim Area- sheet 1
Mapped by E.D. Wilson & C.M. d'Autremont
Reconnaissance Geology by Wilson

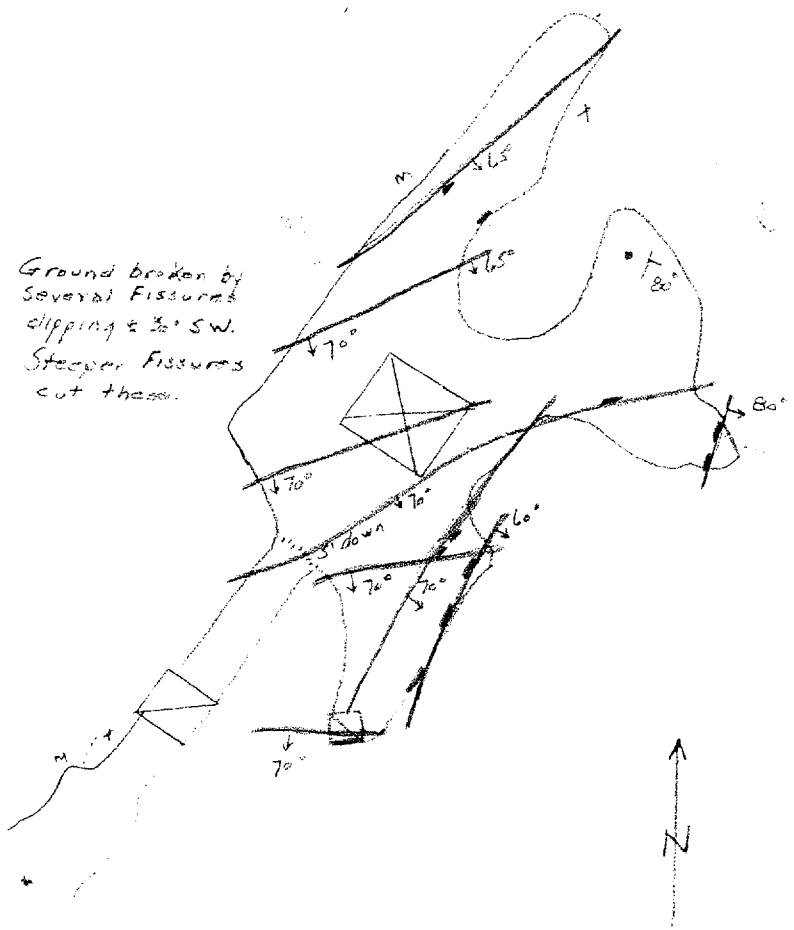
Scale 1"=20'7/20/48



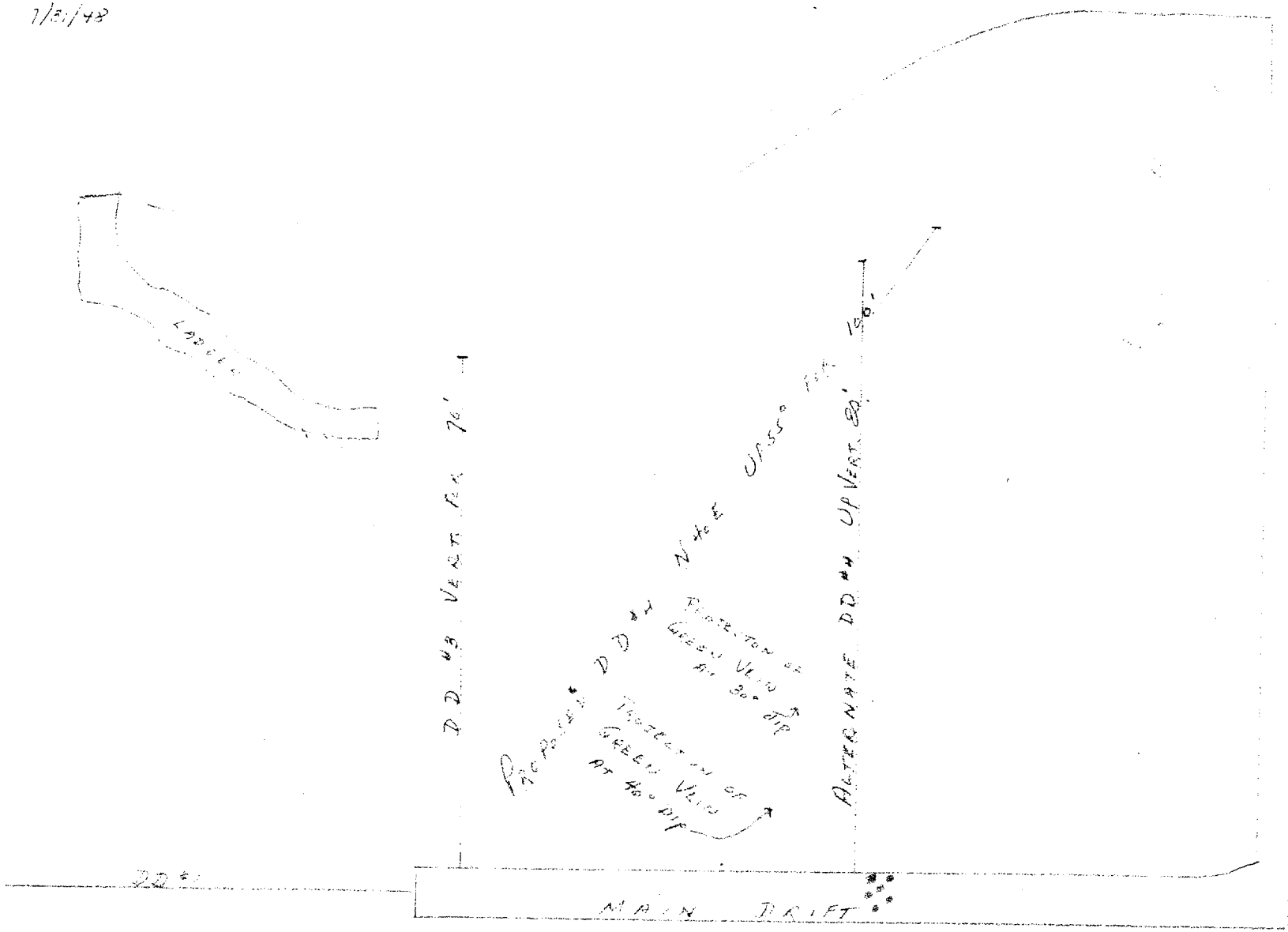
ATLAS MINE

Metropolitan Claim Area- sheet 2- upper workings

Scale 1"-- 20' 7/10/45

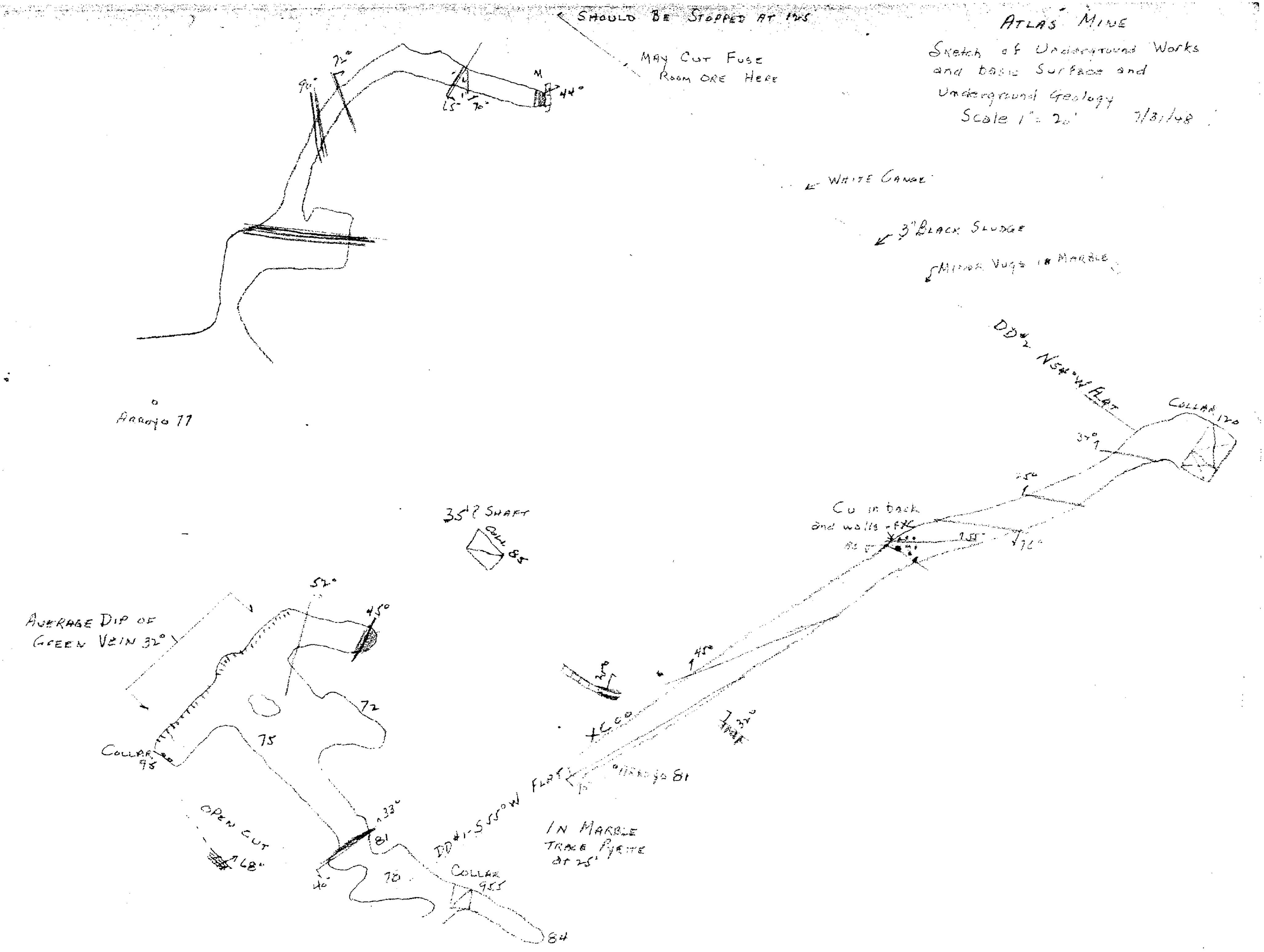


ATLAS MINE
VERTICAL PROJECTION THRU
MAIN GREEN VEIN WORKINGS
LOOKING N45W
Scale 1" = 20' 7/31/43



Atlas Mine

Sketch of Underground Works
and basic Surface and
Underground Geology
Scale 1" = 20'   7/31/48



			Au.		Ag		Zn		Cu		Combined	Deduct Premiums		Total	
			Oz.	Value	Oz.	Value	%	Value	%	Value	Value	Zn	Cu	Deductions	Net
1.	21'	Tunnel North of Main Canyon	0.01	.35	None	None	1.5	$ 4.95	3.6	19.80	(25.10	1.91	6.56	8,47	(16.63
2.	15'	Workings in Canyon	0.01	.35	1.4	1.26	5.25	17.32	4.9	26.95	(45.88	3.50	8.92	12.42	(33.46
3.	15'	" " "	0.01	.35	3.2	2.88	3.4	11.22	5.2	28.60	(43.05	4.33	9.47	13.80	(29.25
4.	15'	" " "	0.01	.35	0.6	.54	1.95	6.44	8.1	44.55	(51.88	2.48	14.75	17.23	(34.65
5.	15'	" " "	0.01	.35	3.0	2.70	2.35	7.76	5.8	31.90	(42.71	2.99	10.45	13.55	(29.16
6.	15'	" " "	0.04	1.40	6.4	5.76	2.6	8.58	8.45	46.47	(62.21	3.31	15.39	18.70	(43.51
7.	15'	" " "	0.01	.35	1.2	1.08	2.7	8.91	8.4	46.20	(56.54	3.43	15.30	18;73	(37.81
8.	15'	" " "	0.01	.35	1.4	1.26	10.85	35.81	6.75	37.13	(74.55	13.80	12.29	26.09	(48.46
9.		Stope in Main Workings	0.01	.35	2.2	1.98	4.55	15.02	6.25	34.37	51.72	5.79	11.38	17.17	34.55
10.		North Face of Winze	0.01	.35	0.4	.36	10.2	33.66	None	None	34.37	12.98	-	12.98	21.39
11.		Muck Pile in Winze	0.01	.35	0.2	.18	3.6	11.88	None	None	12.41	4.58	-	4.58	7.83
12.	South	Face in Winze	0.01	.35	0.2	.18	8.3	27.37	0.55	3.02	30.94	10.56	1.00	11.56	19.38
13.	17'	XCut East of Collar of Winze	0.01	.35	0.4	.36	5.7	18.81	0.35	1.92	31.44	7.25	.64	7.89	13.55
14.	15'	15' on Toward Winze	0.01	.35	1.2	1.08	7.8	25.74	0.30	1.65	28.82	9.92	.55	10.47	18.35
15.	5'	First Showing in Tunnel	0.01	.35	1.8	1.62	2.05	5.77	3.2	17.60	30.12	2.61	5.83	8.44	21.68
16.		Grab Sample on Ore Bin	0.01	.35	1.4	1.26	4.9	16.17	4.8	26.40	44.18	6.23	8.74	14.97	29.21
17.	20'	Bat Tunnel	0.01	.35	0.2	.18	9.05	29.87	None	None	30.40	11.51	-	11.51	18.89
18.	20'	" "	Trace	None	None	None	11.05	36.47	None	None	36.47	14.05	-	14.05	22.42
19.	20'	" "	Trace	None	None	None	11.55	38.12	None	None	38.12	14.15	-	14.15	23.97
20.	20'	" "	Trace	None	None	None	9.7	32.01	None	None	32.01	12.34	-	12.34	19.67
21.		Dump on Bat Tunnel	0.01	.35	0.8	.72	16.35	53.96	None	None	55.03	21.43	-	21.43	33.60
22.		Copper on Open Cut	0.01	.35	2.8	2.52	None	None	13.25	75.00	77.87	None	24.13	24.13	53.74
23.		Dump on Open Cut	0.01	.35	2.0	1.8	None	None	2.45	13.47	15.62	None	4.46	4.46	11.16
24.		Slag Dump	0.01	.35	0.6	.54	1.55	5.12	2.05	11.28	17.29	1.97	3.73	5.70	11.59
100.		Grab from Ore Bin	Not Run	Blank	1.4	1.26	1.05	3.46	2.85	15.68	20.40	1.30	4.28	5.58	14.82
101.	7'6"	Main Workings-First Showing	"	"	0.2	.18	1.2	3.96	2.3	12.65	16.79	1.53	4.19	5.72	11.07
102.	2'6"	Copper Carbonate Outcrop	"	"	0.2	.18	0.55	1.82	0.65	3.57	5.57	.70	1.18	1.88	3.69
103.		Grab of Muck Pile-ne Drift	"	"	1.0	.90	9.55	31.52	0.90	4.95	37.37	12.15	1.64	13.79	23.58
104.	19'	Across ne Face Glory Hole	"	"	None	None	19.0	62.70	2.0	11.00	73.70	24.17	3.64	27.81	45.89
105.		High Grade Streak-ne Glory Hole	"	"	1.6	1.44	18.1	59.73	15.95	87.73	148.90	23.03	29.04	52.07	96.83
106.	6"	Stope-Main Workings	"	"	2.0	1.80	6.55	21.62	5.7	31.35	54.77	8.33	10.38	18.71	36.06
107.	7'6"	Bottom 10' Shaft at Open Cut	"	"	0.6	.54	0.3	.99	2.35	12.92	14.45	.38	4.28	4.36	10.09
108.	8'0"	Pillar in Open Cut	"	"	1.0	.90	2.2	7.26	3.9	21.45	29.61	2.80	7.10	9.90	19.71
109.	6'6"	Open Cut So East End	"	"	2.2	1.98	0.2	.66	5.3	18.15	20.79	.25	6.00	6.25	14.54
110.	6'0"	Bottom Open Cut-30' down	"	"	0.8	.72	0.3	.99	4.4	24.20	25.91	.38	8.01	8.39	17.52
111.	28'0"	Bat Tunnel	"	"	0.6	.54	12.75	42.08	1.45	7.98	50.60	15.90	2.64	18.54	32.06
112.		Grab Sample of Cars from Stope	"	"	0.8	.72	1.7	5.61	4.2	23.10	29.43	2.16	7.65	9.81	19.62
113.		Grab Sample NE drift in winze	"	"	0.4	.36	10.6	34.98	1.55	8.53	43.87	13.48	2.82	16.30	27.57
114.	30'	Green Vein 30' wide-outcrop	"	"	1.0	.90	5.7	18.81	4.65	25.57	45.28	7.25	8.47	15.72	29.56
115.	3-3/4'	30' down dip on Green Vein	"	"	3.2	2.88	8.85	29.21	10.75	59.12	91.21	11.26	19.58	30.84	60.37

Average 50.24

Average 34.12

T-1	.42	10.2	over 82 ft. strike length
T-1	5.0		minimum 5 ft. mining width
T-7	9.5	2..	
T-6A	.6	1.19	over 12 ft. strike length
T-6	4.3	.17	over 13 ft. strike length

STRIKE LAKE TRENCH RESULTS - Nick DeMare, a director of Treasure Island Resources, reported that resampling and mapping of old trenches resulted in high grade assays on three out of 16 trenches in the Joon main zone on the Strike Lake property, 80 km east of Yellowknife, N.W.T. On the Monte 6 claim, 1km west of the Joon claim, one trench returned 0.092 oz. gold/t across 7 feet and the other 0.522 oz. gold/t across 14 feet. A diamond drill program is underway on the Joon claims to identify mineralization to depth, and other work continues. Treasure Island can earn 40% interest in the claims.

FOR THE RECORD

ALLIANCE RESOURCES LTD.(ALE-V) has terminated negotiations toward possible acquisition of Performance Conepts, Inc., since the vendors are unable to supply the necessary funding. T. J. Malcolm Powell, president has reported the company has not been in default in financial statement filings

ALLURE RESOURCES CORPORATION(ARU-V) reports that a finders fee will not be paid in connection with a private placement of 1,000,000 units at 35¢ per unit, which will be taken up by Kaiser Resources Ltd. ATLAS (P)

AMERICAN PACIFIC MINING COMPANY INC.(APA-V) reported the B.S. & K Project, Arizona, 45 miles west of Tuscon, Arizona, on which some 15,000,000 tons of oxide and sulphide copper ore is contained, is to be purchased by the company for $2,800,000 U.S., payable on closing, and not $28,000,000 U.S. as was reported in GCNL 32(88)p.3.

BARCAN COMMUNICATIONS INC.(BNC.A-V) has reported the daily business show, "The National Business Report" aired on various television stations across Canada, will be temporarily taken off the air on 19Feb88 while management makes a determination to proceed with either the existing daily business program format or change to a weekly business program format.

CANSIA INDUSTRIES CORPORATION has purchased 6 mineral claims located in the Fort Steele Mining Division, British Columbia, for 50,000 Canasia shares.

COMOX RESOURCES LTD.(CXO-V) has completed the purchase of 61.1% of the issued capital of Samurai Resources Inc., a non-reporting company that operates and has earned a 45% working interest on two Comox owned gold properties in the La Ronge area, Saskatchewan. A purchasing group of Comox directors acquired a further 18.8% of Samaurai's shares and were appointed Samauri directors. Samaurai intends to apply for a VSE listing.

EMS SYSTEMS LTD.(EMS-V,EMSIF-Nasdaq) reported an agreement to buy all the issued shares of ACS International, a private company manufacturing computer CPU boards in Dallas, Texas, for 600,000 EMS shares.

when earned. Athlone has the right to purchase th
N.S.R. f... $250,000 prior to 31Dec89 or $500,000 p
to 31D... Lemming continues to hold a 100% inte
in the Bap claims, located northwest of the Soup clai

MERRITECH DEVELOPMENT CORPORATION(MDX-V) reports
Greydoun Hadad and Monsour Motamedi resigned
directors. Nominees to fill the vacancies will
presented at the forthcoming annual meeting.

MODATECH SYSTEMS INC.(MOD-V) signed a formal agre
with Grid Systems Corp. to jointly market Modat
field automation and networking software systems for
apparel and shoe industries. Grid Systems manufac
portable computers.

MORENGO RESOURCES INC.(MNS-V) reports that an agreem
has been reached with a purchasing group who
acquire 750,000 escrow shares and 1,487,500 free tr
shares from company directors and others. This
result in a change in control of the company, subje
regulatory and shareholder approval.

NU CROWN RESOURCES INC. and GETCHELL RESO
INCORPORATED(GHS-V) reported an agreement to acqu
minimum of 70% interest in the 8,800 acre Kusk
mineral claims, 70 miles east of Williams Lake,
from NIRVANA INDUSTRIES LTD.(NVN-V). The proper
adjacent to and along strike of the Frazergold prope

RIGELYN SECURITY SYSTEMS INC.(RSY-V) reported tha
has been awarded a $537,000 contract to provi
centralized security monitoring system for va
Federal Depart.of National Defence offices. Wor
scheduled to start March 1 with completion set for
1988.

TERRACAMP DEVELOPMENTS LTD.(TPD-V) staked five
blocks, 73 units, in the Bralorne-Goldbridge area, B

CORRECTION: the article on INTERNATIONAL PETI
CORPORATION(IRP-V) appearing in GCNL No.34 18
stated that the total depth of the Saleh 7 wel
reached on Feb.12, 1988 and should have said January

NEW DIMENSIONS TECHNOLOGIES LIMITED(NDT-V) common s
were conditionally listed 17Feb88 on VSE. The shs.
not be called for trading until the Exchange has ev
of satisfactory distribution of the following offer
By 13Jan88 prospectus registered 17Feb88 with B.C.S
of Brokers, New Dimensions are offering 2,500,00
at 80¢ per sh. on VSE thru McDermid St. Lawrence Lt
agent on a day selected by the agent by 15Aug88
the agent guaranteeing the offering, McDermid will
granted non-transferable warrants to buy 625,000 sh
at 85¢ per sh. for 365 days from the date the shs.
called for trading on VSE.

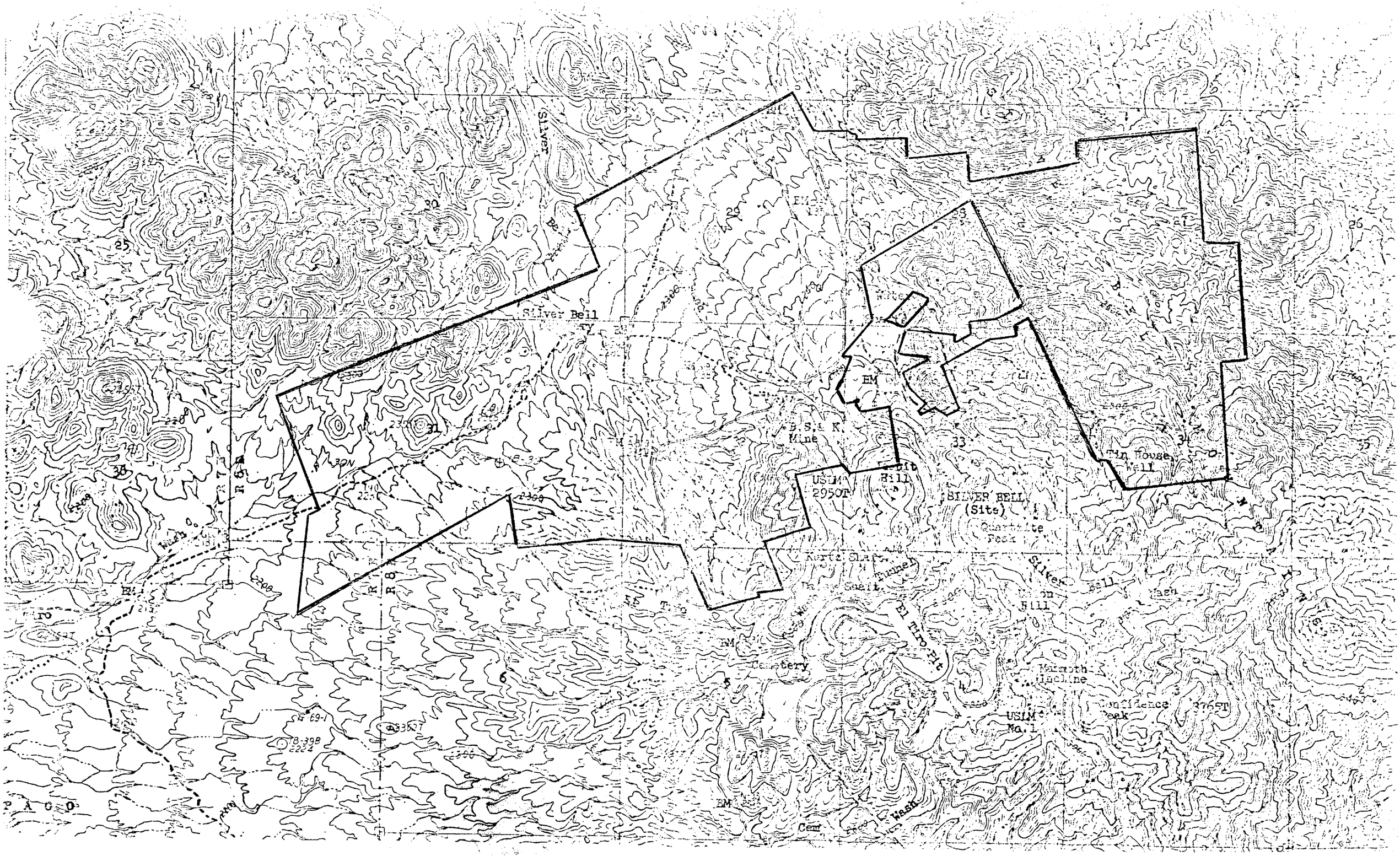
U.S. LONG DISTANCE CORP.(USL-V) has agreed to
debts of $49,953.53 by the issuance of 69,380 sha
72¢ each.

WESTERN CANADA WATER ENTERPRISES INC. reports t
has concluded that due to legal impediments it w
unable to proceed with its previously announced p
to offer a substitute security to the holders
outstanding Series "A" warrants, due to expire 23F

1-1916

Mining Deal Near Tucson

The Atlas group of claims near Silverbell, which has produced considerable shipping ore in the past, has been bonded by Mrs. Geneau of Cincinnati to D. M. Gaillord. The consideration is said to be $200,000.


Silver
Silver Bell
S.S. & K. Mine
USLM 2950T
SILVER BELL (Site)
Quartzite Peak
Tin House Hill
North Shaft
Tunnel
El Tiro Pit
Cemetery
Mammoth Incline
Confidence Peak
3765T
USLM No. 1
Wash
Cem
R 8 E
R 9 E
T 15 S
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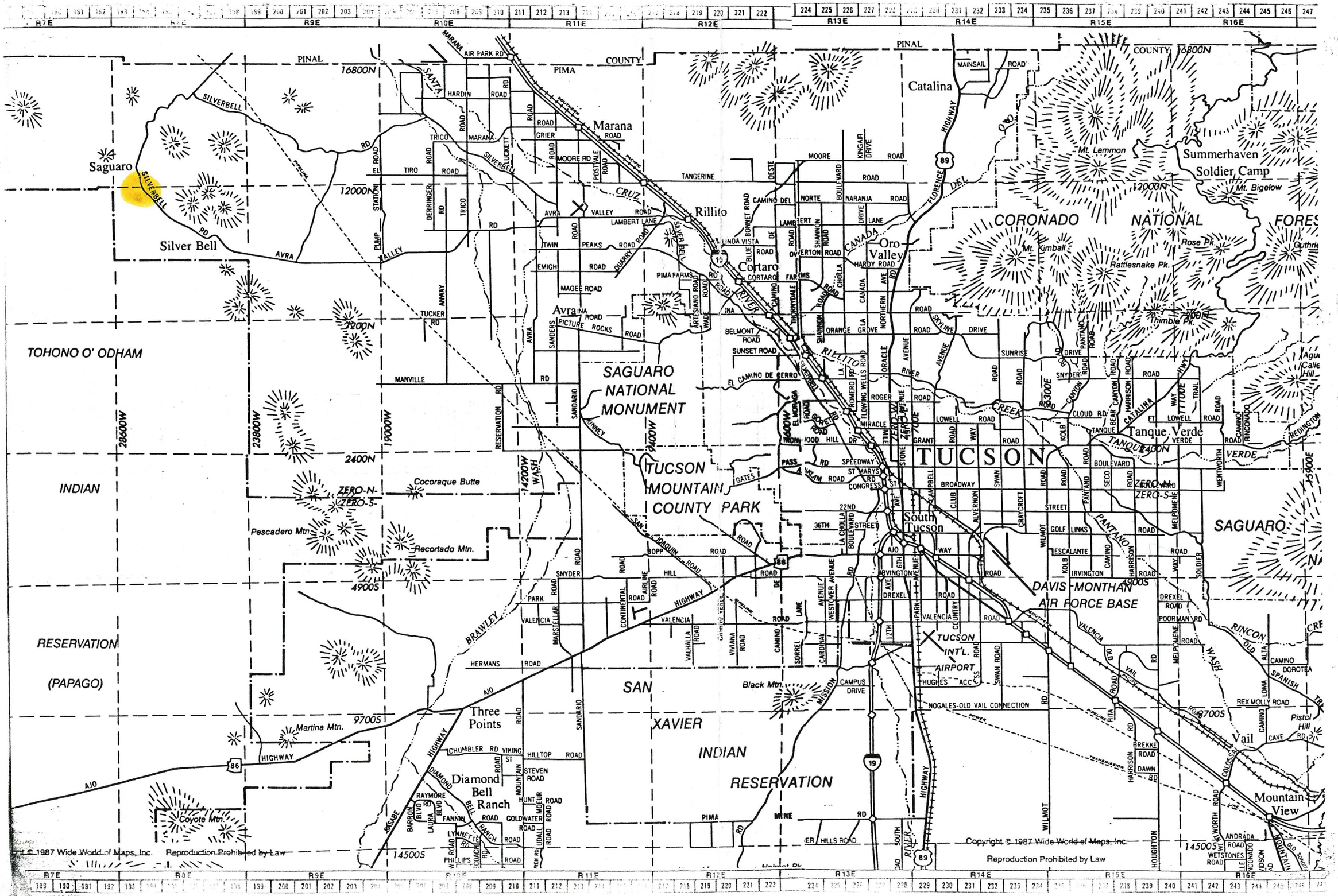

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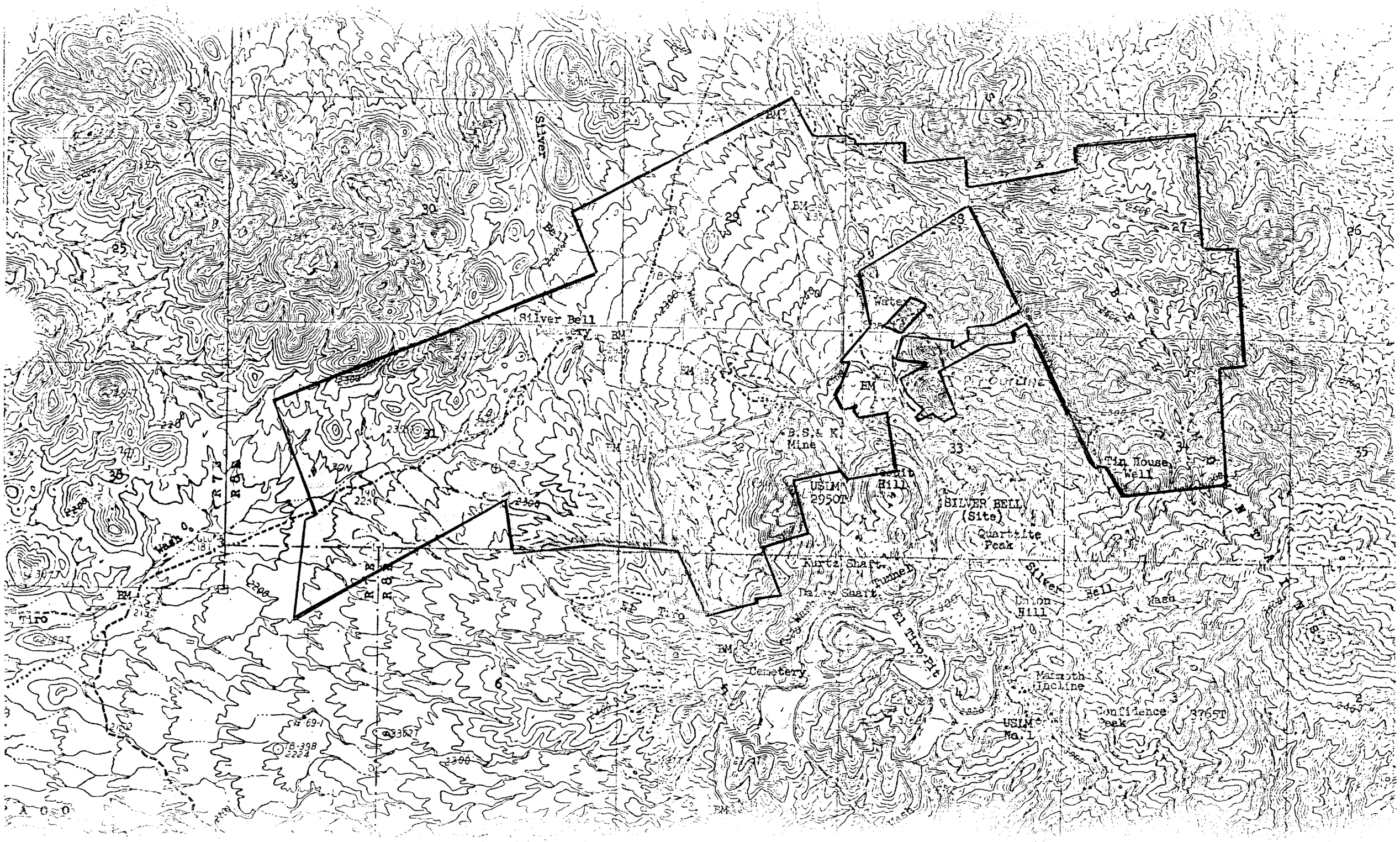
Silver Bell
Silver Bell
B.S. & K. Mine
USLM 2950T
Tin House Well
SILVER BELL (Site)
Quartzite Peak
Kurtz Shaft
Daisy Shaft
Tunnel
Union Hill
Silver Bell Wash
El Tiro Pit
Cemetery
Mammoth Incline
USLM No. 1
Confidence Peak
3765T
Tiro
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Wash
Water
Pit Outline
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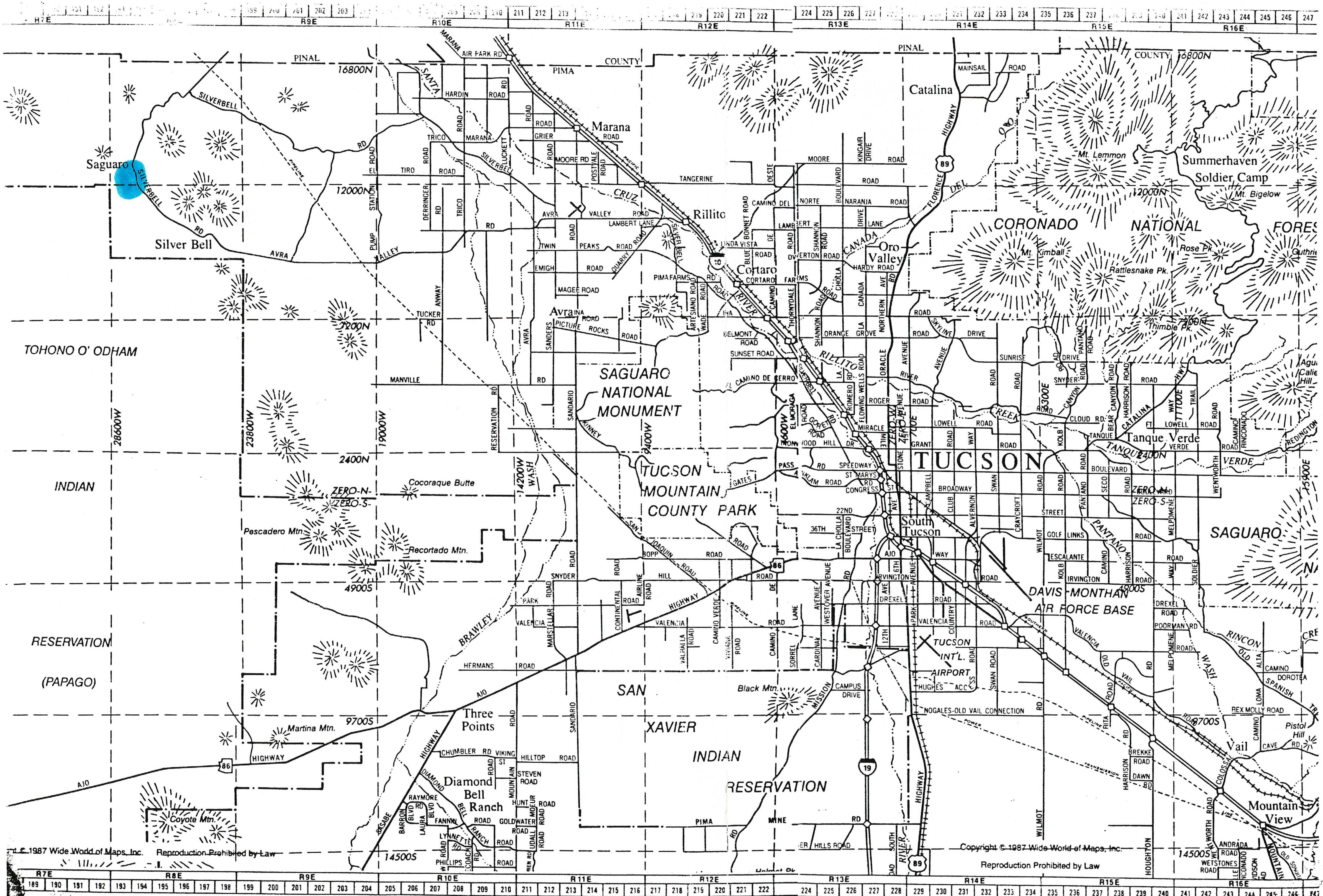

PINAL
COUNTY
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16800N
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Saguaro
Silver Bell
SILVERBELL RD
AVRA VALLEY RD
Marana
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Cortaro
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Catalina
TANGERINE
Avra
TOHONO O' ODHAM
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(PAPAGO)
SAGUARO NATIONAL MONUMENT
TUCSON MOUNTAIN COUNTY PARK
TUCSON
South Tucson
Tanque Verde
CORONADO NATIONAL FOREST
Mt. Lemmon
Summerhaven
Soldier Camp
Mt. Bigelow
Mt. Kimball
Rattlesnake Pk.
Rose Pk.
Thimble Pk.
DAVIS-MONTHAN AIR FORCE BASE
TUCSON INT'L. AIRPORT
SAN XAVIER INDIAN RESERVATION
SAGUARO
Three Points
Diamond Bell Ranch
Vail
Mountain View
Pistol Hill
Cocoraque Butte
Pescadero Mtn.
Recortado Mtn.
Martina Mtn.
Coyote Mtn.
Black Mtn.
MANVILLE
AJO HIGHWAY
BRAWLEY
HERMANS ROAD
SASABE HIGHWAY
ZERO-N-
ZERO-S-
28600W
23800W
19000W
14200W
9400W
1600W
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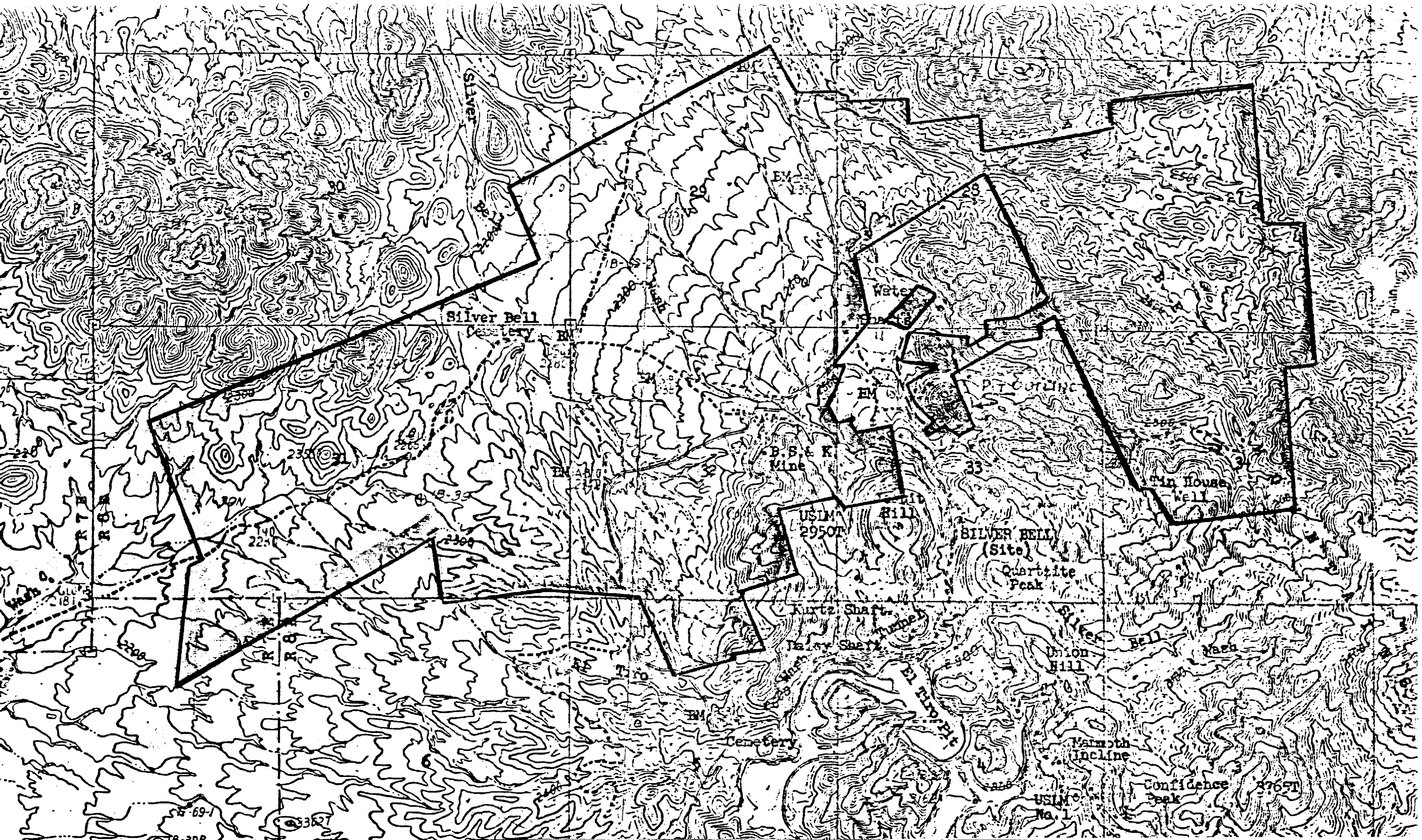

Silver Bell
Silver Bell Cemetery
BM
B.S.&K Mine
USLM 2950T
Hill
SILVER BELL (Site)
Quartzite Peak
Tin House Well
Water
Kurtz Shaft
Daisy Shaft
Tunnel
Union Hill
Silver Bell Wash
El Tiro Pit
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Cemetery
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Confidence Peak
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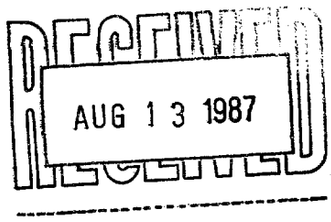
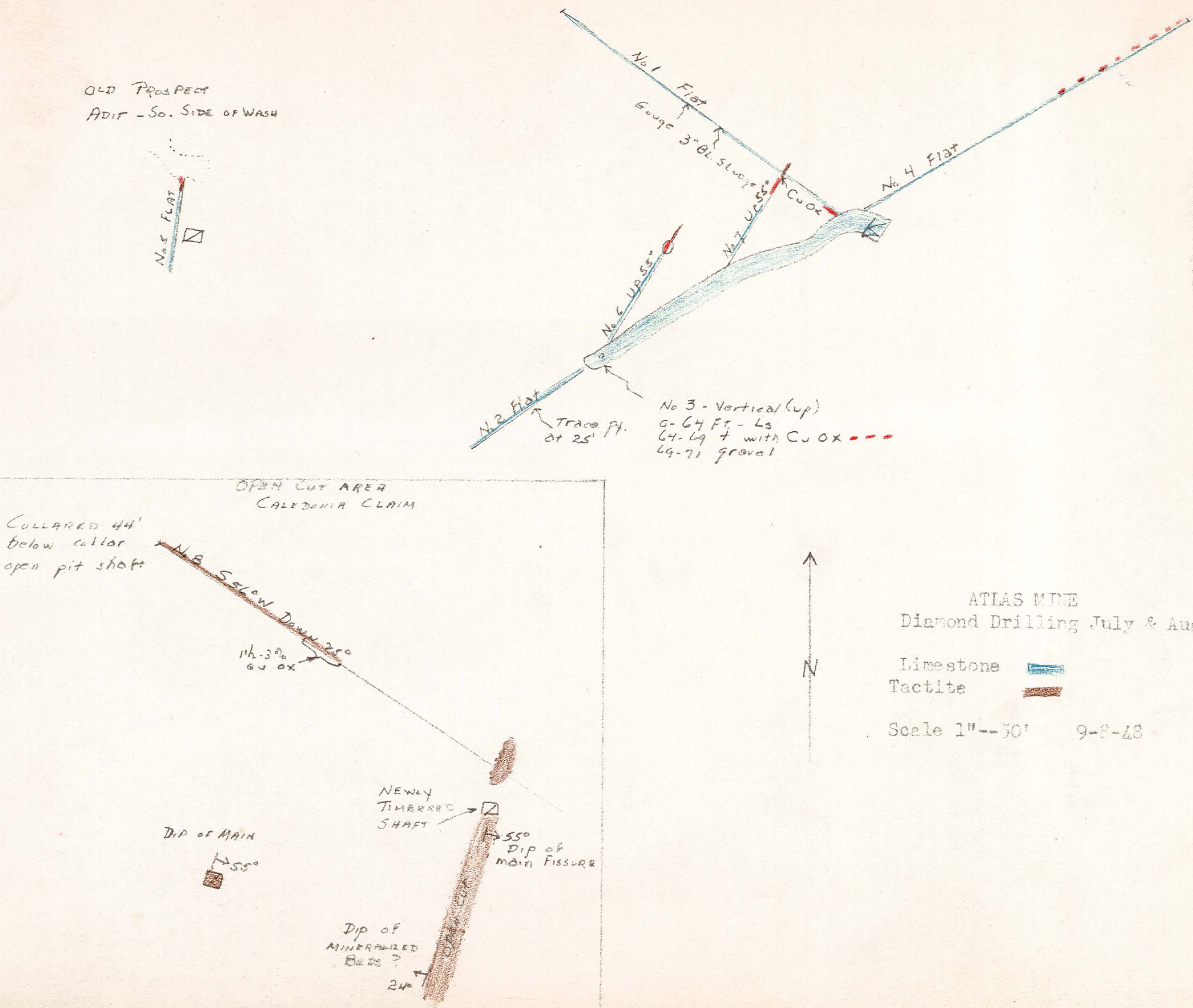


Atlas mine
B.S. & K. property
Pima Co.

ARIZONA DEPT. OF MINES & MINERAL RESOURCES
STATE OFFICE BUILDING
416 W. CONGRESS, ROOM 161
TUCSON, ARIZONA 85701

ARIZONA DEPT. OF MINES & MINERAL RESOURCES
STATE OFFICE BUILDING
416 W. CONGRESS, ROOM 161
TUCSON, ARIZONA 85701



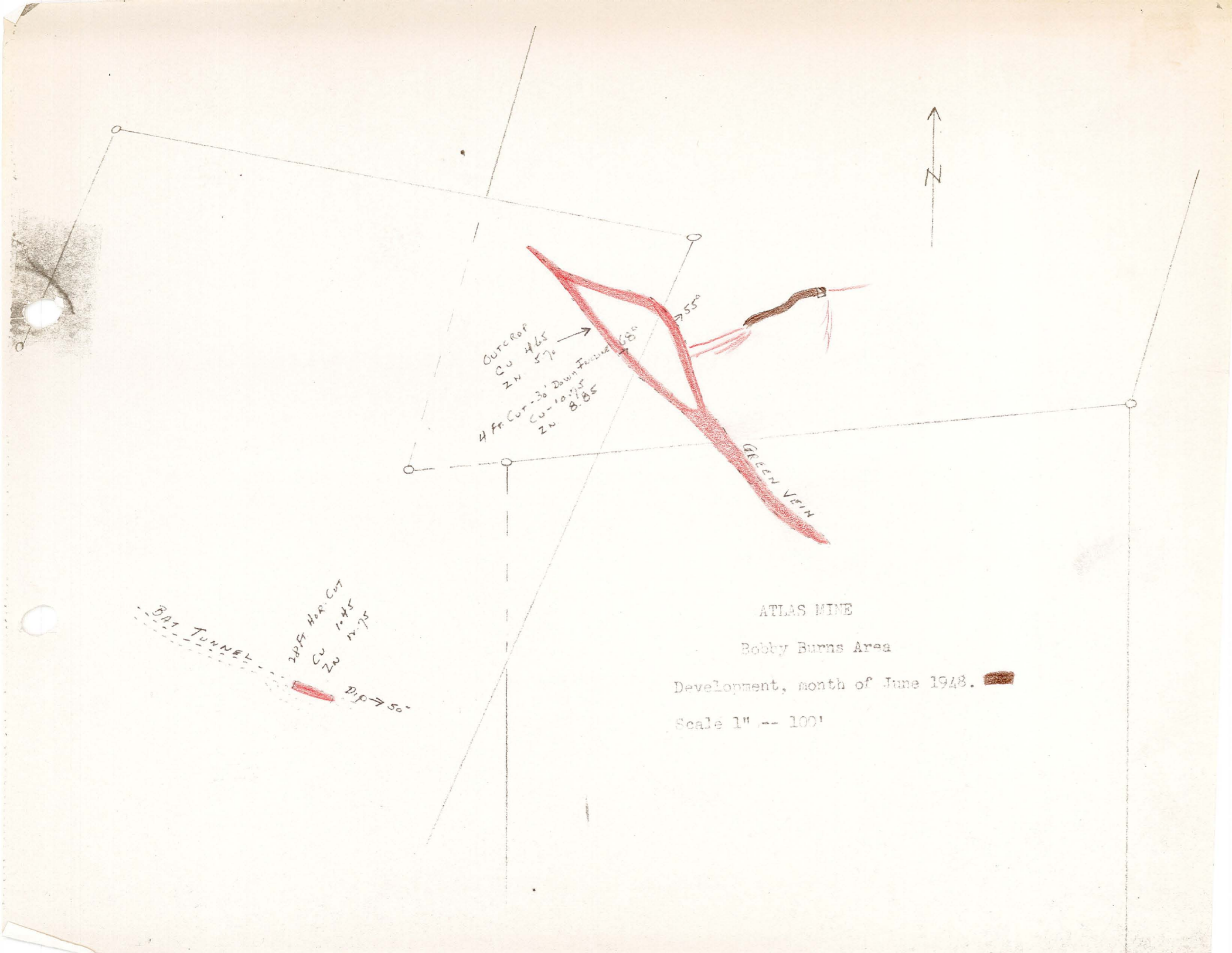
ATLAS MINE

Diamond Drilling July & Aug. 1948

Limestone

Tactite

Scale 1"--30'   9-8-48



ATLAS MINE

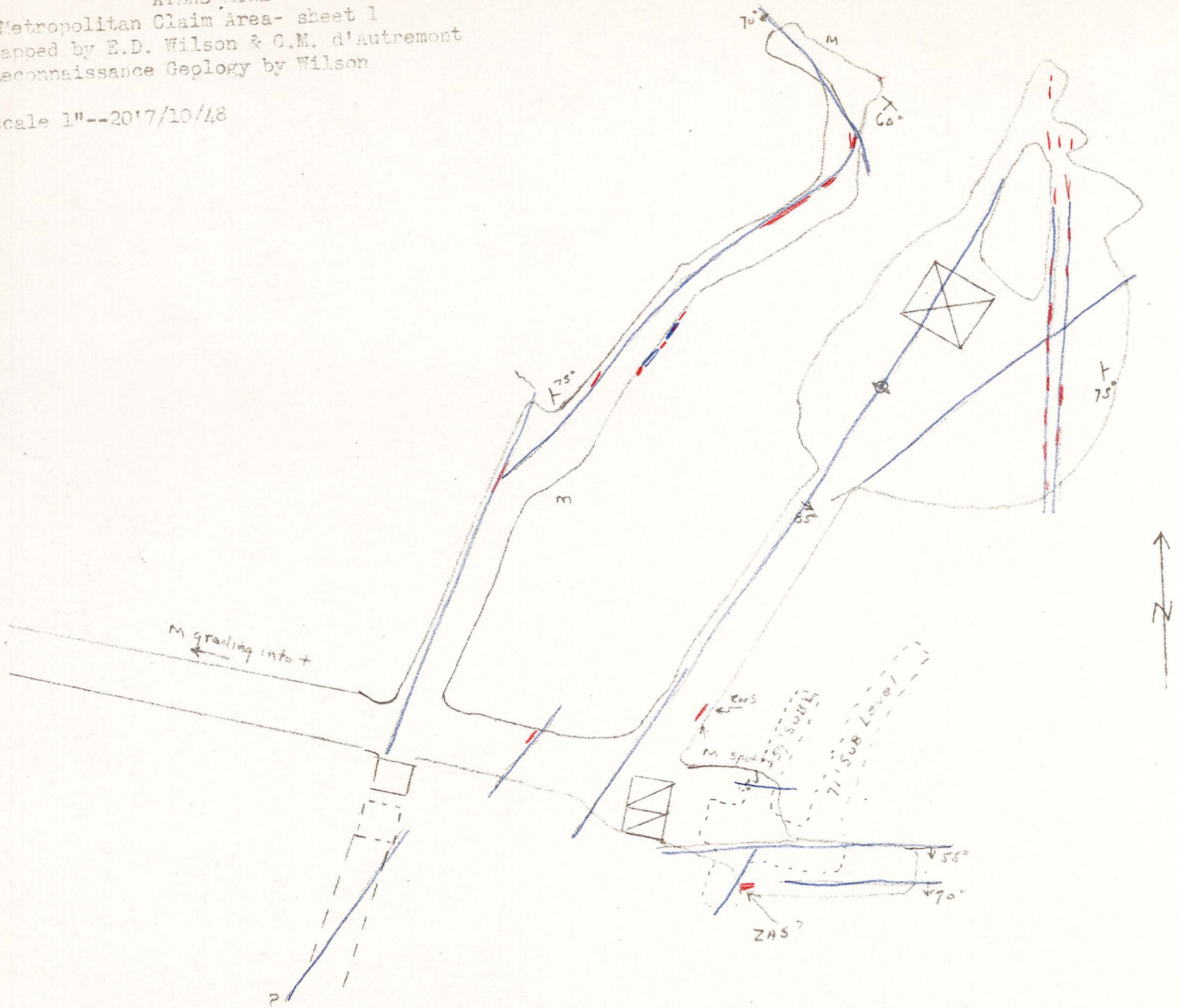
Bobby Burns Area

Development, month of June 1948.

Scale 1" -- 100'

ATLAS MINE
Metropolitan Claim Area- sheet 1
Mapped by E.D. Wilson & C.M. d'Autremont
Reconnaissance Geology by Wilson

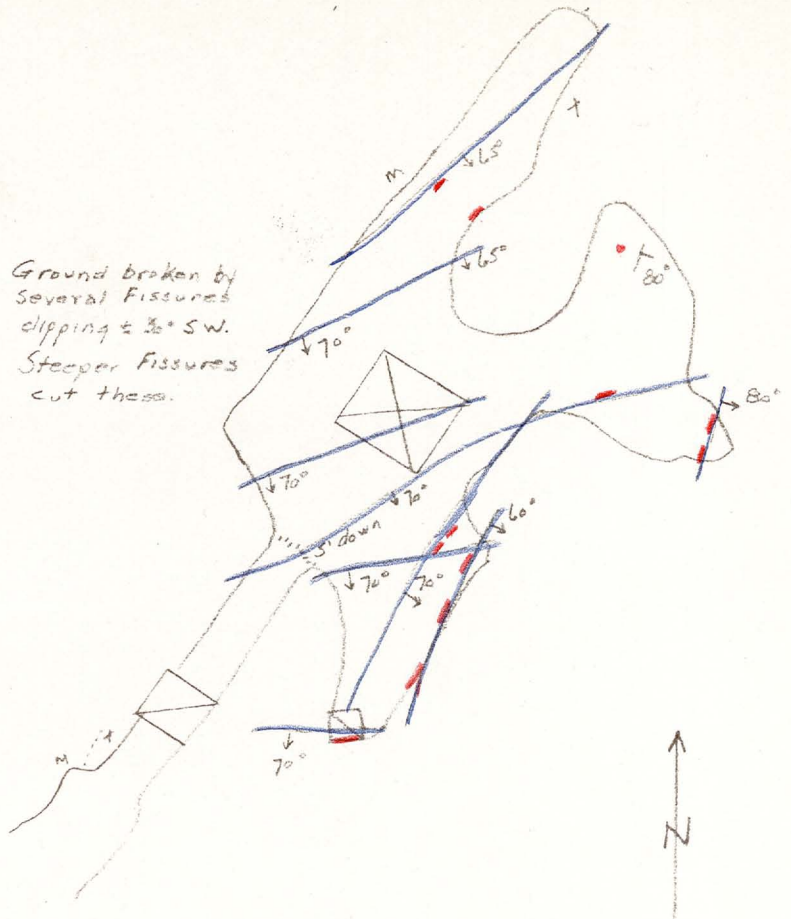
Scale 1"--20' 7/10/48



ATLAS MINE

Metropolitan Claim Area- sheet 2- upper workings

Scale 1"-- 20' 7/10/43

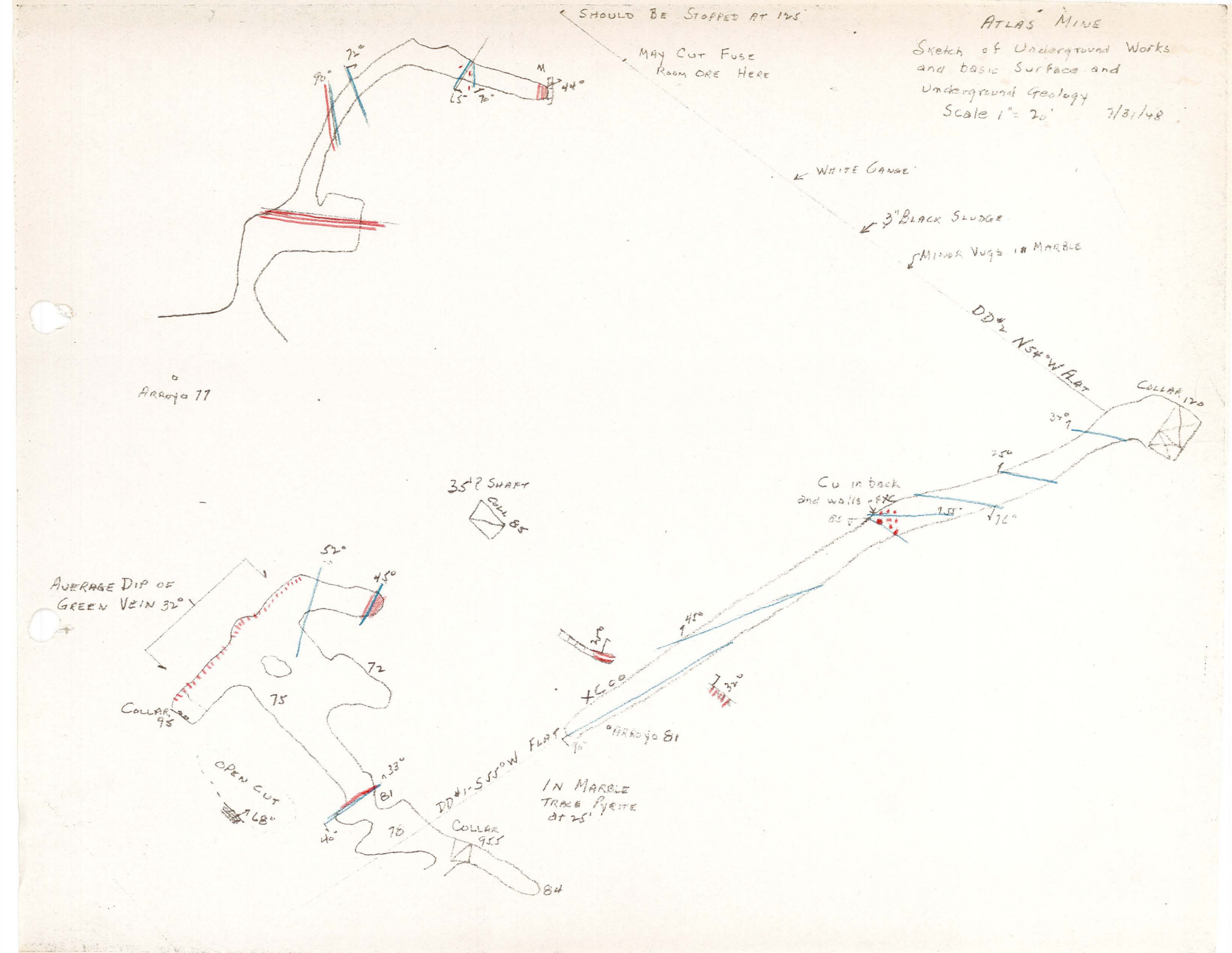


ATLAS MINE
VERTICAL PROJECTION THRU
MAIN GREEN VEIN WORKINGS
LOOKING N45W
Scale 1" = 20' 7/31/48

ATLAS MINE

Sketch of Underground Works and basic Surface and Underground Geology

Scale 1" = 20' 7/31/48



			Au.		Ag		Zn		Cu			Deduct Premiums			
			Oz.	Value	Oz.	Value	%	Value	%	Value	Combined Value	Zn	Cu	Total Deductions	Net
1.	21'	Tunnel North of Main Canyon	0.01	.35	None	None	1.5	$ 4.95	3.6	19.80	(25.10	1.91	6.56	8,47	(16.63
2.	15'	Workings in Canyon	0.01	.35	1.4	1.26	5.25	17.32	4.9	26.95	(45.88	3.50	8.92	12.42	(33.46
3.	15'	" " "	0.01	.35	3.2	2.88	3.4	11.22	5.2	28.60	(43.05	4.33	9.47	13.80	(29.25
4.	15'	" " "	0.01	.35	0.6	.54	1.95	6.44	8.1	44.55	(51.88	2.48	14.75	17.23	(34.65
5.	15'	" " "	0.01	.35	3.0	2.70	2.35	7.76	5.8	31.90	(42.71	2.99	10.55	13.55	(29.16
6.	15'	" " "	0.04	1.40	6.4	5.76	2.6	8.58	8.45	46.47	(62.21	3.31	15.39	18.70	(43.51
7.	15'	" " "	0.01	.35	1.2	1.08	2.7	8.91	8.4	46.20	(56.54	3.43	15.30	18;73	(37.81
8.	15'	" " "	0.01	.35	1.4	1.26	10.85	35.81	6.75	37.13	(74.53	13.80	12.29	26.09	(48.46
9.		Stope in Main Workings	0.01	.35	2.2	1.98	4.55	15.02	6.25	34.37	51.72	5.79	11.38	17.17	34.55
10.		North Face of Winze	0.01	.35	0.4	.36	10.2	33.66	None	None	34.37	12.98	-	12.98	21.39
11.		Muck Pile in Winze	0.01	.35	0.2	.18	3.6	11.88	None	None	12.41	4.58	-	4.58	7.83
12.		South Face in Winze	0.01	.35	0.2	.18	8.3	27.37	0.55	3.02	30.94	10.56	1.00	11.56	19.38
13.	17'	XCut East of Collar of Winze	0.01	.35	0.4	.36	5.7	18.81	0.35	1.92	31.44	7.25	.64	7.89	13.55
14.	15'	15' on Toward Winze	0.01	.35	1.2	1.08	7.8	25.74	0.30	1.65	28.82	9.92	.55	10.47	18.35
15.	5'	First Showing in Tunnel	0.01	.35	1.8	1.62	2.05	6.77	3.2	17.60	30.12	2.61	5.83	8.44	21.68
16.		Grab Sample on Ore Bin	0.01	.35	1.4	1.26	4.9	16.17	4.8	26.40	44.18	6.23	8.74	14.97	29.21
17.	20'	Bat Tunnel	0.01	.35	0.2	.18	9.05	29.87	None	None	30.40	11.51	-	11.51	18.89
18.	20'	" "	Trace	None	None	None	11.05	36.47	None	None	36.47	14.05	-	14.05	22.42
19.	20'	" "	Trace	None	None	None	11.55	38.12	None	None	38.12	14.15	-	14.15	23.97
20.	20'	" "	Trace	None	None	None	9.7	32.01	None	None	32.01	12.34	-	12.34	19.67
21.		Dump on Bat Tunnel	0.01	.35	0.8	.72	16.35	53.96	None	None	55.03	21.43	-	21.43	33.60
22.		Copper on Open Cut	0.01	.35	2.8	2.52	None	None	13.25	75.00	77.87	None	24.13	24.13	53.74
23.		Dump on Open Cut	0.01	.35	2.0	1.8	None	None	2.45	13.47	15.62	None	4.46	4.46	11.16
24.		Slag Dump	0.01	.35	0.6	.54	1.55	5.12	2.05	11.28	17.29	1.97	3.73	5.70	11.59
100.		Grab from Ore Bin	Not Run	Blank	1.4	1.26	1.05	3.46	2.85	15.68	20.40	1.30	4.28	5.58	14.82
101.	7'6"	Main Workings-First Showing	"	"	0.2	.18	1.2	3.96	2.3	12.65	16.79	1.53	4.19	5.72	11.07
102.	2'6"	Copper Carbonate Outcrop	"	"	0.2	.18	0.55	1.82	0.65	3.57	5.57	.70	1.18	1.88	3.69
103.		Grab of Muck Pile-ne Drift	"	"	1.0	.90	9.55	31.52	0.90	4.95	37.37	12.15	1.64	13.79	23.58
104.	19'	Across ne Face Glory Hole	"	"	None	None	19.0	62.70	2.0	11.00	73.70	24.17	3.64	27.81	45.89
105.	8'	High Grade Streak-ne Glory Hole	"	"	1.6	1.44	18.1	59.73	15.95	87.73	148.90	23.03	29.04	52.07	96.83
106.	8'6"	Stope-Main Workings	"	"	2.0	1.80	6.55	21.62	5.7	31.35	54.77	8.33	10.38	18.71	36.06
107.	7'6"	Bottom 10' Shaft at Open Cut	"	"	0.6	.54	0.3	.99	2.35	12.92	14.45	.38	4.28	4.36	10.09
108.	8'0"	Pillar in Open Cut	"	"	1.0	.90	2.2	7.26	3.9	21.45	29.61	2.80	7.10	9.90	19.71
109.	6'6"	Open Cut So East End	"	"	2.2	1.98	0.2	.66	3.3	18.15	20.79	.25	6.00	6.25	14.54
110.	6'0"	Bottom Open Cut-30' down	"	"	0.8	.72	0.3	.99	4.4	24.20	25.91	.38	8.01	8.39	17.52
111.	28'0"	Bat Tunnel	"	"	0.6	.54	12.75	42.08	1.45	7.98	50.60	15.90	2.64	18.54	32.06
112.		Grab Sample of Cars from Stope	"	"	0.8	.72	1.7	5.61	4.2	23.10	29.43	2.16	7.65	9.81	19.62
113.		Grab Sample NE drift in winze	"	"	0.4	.36	10.6	34.98	1.55	8.53	43.87	13.48	2.82	16.30	27.57
114.	30'	Green Vein 30' wide-outcrop	"	"	1.0	.90	5.7	18.81	4.65	25.57	45.28	7.25	8.47	15.72	29.56
115.	3-3/4'	30' down dip on Green Vein	"	"	3.2	2.88	8.85	29.21	10.75	59.12	91.21	11.25	19.58	30.84	60.37

Average 50.24

Average 34.

ATLAS MINE PIMA COUNTY

NJN WR 4/24/87: Graham Sutton (card) reported he visited the Atlas Mine (file) Pima County. He observed the mineralization to be chalcopyrite and minor galena in recrystalized limestone. The limestone is now a white to grey marble.

KAP WR 9/18/87: Received a letter from Ed Persellin, Sulivan Realtors, 4441 East Fifth Street, Tucson, Arizona 85721, phone 795-6910 that they are trying to sell a large land position near the Silver Bell Mine in Pima County. The land holding includes the BS and K Mine (Atlas Mine - file). Along with the letter are some copies of reports for our files. The copper property should be added to our 4 sale list. It was suggested he obtain a copy of our soon to be released directory of exploration companies for some additional leads.

KAP WR 10/16/87: Attempted to reach the Atlas Mine, Pima County (also known as the B S & K Mine) to determine if sufficient wollastonite might be found to justify further evaluation. A gully buster rain prevented access to the property.

MG WR 6/17/88: Mr. Phil White has informed me that his company, American Pacific Mining Co. has purchased the Atlas Mine (file) Pima County.

MG WR 8/12/88: Spent about one hour with consultant, Dan White, discussing construction of heap-leach pad for copper. He is bidding for the job to design a pad for the Atlas Mine (file) Pima Countuy; American Pacific Mining expects to begin an operation there in the next several months.

ATLAS MINE

PIMA COUNTY

B.S.&K. Mining Co.
Box 5853
Tucson, Arizona 85703 (1966)

Informed that B.S.&K. office had been moved to mine. ALJ WR 4-6-64

Clarence Vezzetti, at Atlas Mine said that the mine closed down Aug. 1 and the mill, Aug. 15, 1964. ALJ WR 9-28-64

Visited Atlas Mine of B.S.&K. Could find no one on the property. GWI WR 6-19-65

Visited B.S.&K. Mine. Mr. Kalaf explained some of their drilling program north and east of the mine and the application for patent on seven claims that was contested by Asarco. GWI WR 12-3-66

Visited B.S.&K. mine - no one around - Duval drilling above and southeast of shaft. GWI WR 9-24-67

Visited B.S.&K. mine - no one around except watchman. GWI WR 1-27-68

B.S.&K. mine - optioned to Hanna Mining Co. GWI QR 9-1969

In the Silver Bell and Waterman Mountains, BS&K have been reported doing some drilling. GWI AR 73-74

WR MG 1/6/78 - Mr. Frank Buchella, Manager of Operations for Minerals Exploration Co., P. O. Box 54945, Los Angeles, California, 90054, phone 213-486-7798, says his company has an option on the Atlas Mine (Pima county) owned by the B. S. & K Co., and has drilled the property and drifted underground; a feasibility report is due in April. 2/17/78sef

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MG WR 1/7/83: The Atlas Mine, Pima County is inactive. During 1978-79(?) Union Minerals, a subsidiary of the Union Oil Co. of California, put in a decline and one(?) level on the property, to the northeast of the main workings. Considerable drilling, sampling and assaying was done. I do not believe Union has an interest in the property now. ASARCO has a rotary drilling program on its claims adjacent to the Atlas property. ASARCO engineers told me that the exploration holes will be 100 to 200 feet deep.

FIRST TIME OFFERED!!

TUCSON-AREA COPPER MINE

HUGE ORE RESERVES ----- 105± PATENTED ACRES, PLUS 3000± ACRES UN-PATENTED LODE CLAIMS/FEDERAL LEASED LAND ----- INCLUDING VARIOUS GEOLOGICAL, GEOPHYSICAL AND FEASIBILITY STUDIES, FINANCIAL ANALYSIS, ETC.

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Tucson, AZ 85711
Off: (602) 795-6910
Res: (602) 885-3177

B. S. & K. PROPERTY

PIMA COUNTY, ARIZONA

LOCATION

The B. S. & K. properties comprise 4,000 acres, including patented lode claims, unpatented lode claims and state leases, approximately 105 acres are patented. Included in this area are the B. S. & K. chalcocite blanket and the Atlas copper-zinc limestone replacement deposit. The property is located in the Silver Bell Mining District, Pima County, Arizona, approximately 45 miles west-northwest of Tucson, Arizona. From the town of Silver Bell, a county maintained dirt road provides access 6.5 miles to the property. The Silver Bell Unit of American Smelting and Refining Company (ASARCO) has two open pit copper mines in the district. The northernmost one is 6,000 feet south of the B. S. & K. deposit.

HISTORY

The B. S. & K. Mining Company operated the Atlas Mine from 1953 to 1964 producing zinc and copper from a small replacement orebody. Drilling on the adjacent secondary enrichment deposit began in 1955 by ASARCO. During the period from 1955 to 1978, 150 drill holes were completed on and adjacent to the B. S. & K. claims by various companies to delineate the secondary enrichment copper deposit, explore for additional reserves and condemnation of plant and dump site areas.

In 1973, the consulting firm of Pincock, Allen and Holt prepared a feasibility study for B. S. & K. based on the data developed from Duval, B. S. & K. and ASARCO drilling.

During 1977 and 1978, Minerals Exploration Company conducted a complete and comprehensive study on the B. S. & K. property. In addition to geologic studies, this work included additional drilling on the chalcocite deposit, exploration drilling for new ore bodies, condemnation drilling, a pilot mine, geophysical surveys, ore reserves and mine designs, metallurgical testing and a complete feasibility study and financial analysis.

ORE RESERVES

The ore reserves have been calculated using a .40% Cu, flotation cutoff and a .20% Cu. leach cutoff.

The summary of the reserves are as follows:

	B. S. & K.
Ore, Grade % Cu.	5,380,000 tons @ 0.64
Leach, Grade % Cu.	4,870,000 tons @ 0.37
Waste	8,590,000 tons
Combined (ore & leach)	10,250,000 tons
Recovery - Percent	
Flotation	76.5
Leach	60
Copper Recovered	
Flotation - lbs.	41,318,400
Leach - lbs.	21,622,800
Combined - lbs.	62,941,200

These reserves are part of a much larger reserve shared with ASARCO.

ANCILLARY FACILITIES

Trico Electric Supply services the area of the B. S. & K. site via a 14.4 KVA line which passes through the plant site. Power demand for the solvent extraction and electrowinning plant would be 2,000 KW, which could be provided with the existing line. Portions of the Trico line and portions of a Tucson Power Company line will have to be relocated.

Telephone service would be brought into the project from Silver Bell.

Water supply for domestic and metallurgical processes is available at the site by pumping from wells. Hydrologic testing would be required for efficient well sizing and development.

On May 1, 1973, an agreement was reached between B. S. & K. and ASARCO which allows either party to mine their ore and strip material on the adjacent ground. Under the agreement, either party may extend its backslope onto the adjacent or surrounding properties. Access across and use of adjacent property is also allowed. The terms of the agreement are transferable with property rights and effective for 30 years.

A large house is located on the patented property that can be used for offices or residential.

REPORT ON THE

B. S. & K. PROJECT

PIMA COUNTY, ARIZONA

SUPPLEMENT TO

OCTOBER 1980 REPORT

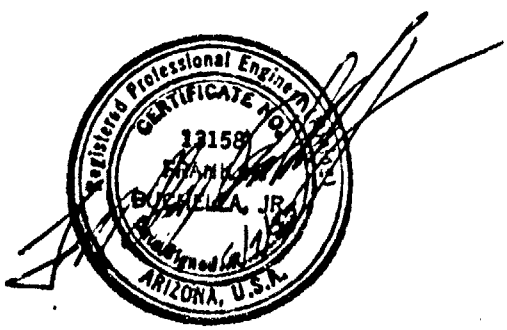
JUNE 1983

FRANK H. BUCHELLA, JR. P.E.

MINING CONSULTANT

4312 E. BLANTON RD.

TUCSON, ARIZONA 85712



B. S. & K. PROPERTY

PIMA COUNTY, ARIZONA

LOCATION

The B. S. & K. properties comprise 4,000 acres, including patented lode claims, unpatented lode claims and state leases, approximately 105 acres are patented. Included in this area are the B. S. & K. chalcocite blanket and the Atlas copper-zinc limestone replacement deposit. The property is located in the Silver Bell Mining District, Pima County, Arizona, approximately 45 miles west-northwest of Tucson, Arizona. From the town of Silver Bell, a county maintained dirt road provides access 6.5 miles to the property. The Silver Bell Unit of American Smelting and Refining Company (ASARCO) has two open pit copper mines in the district. The northernmost one is 6,000 feet south of the B. S. & K. deposit.

HISTORY

The B. S. & K. Mining Company operated the Atlas Mine from 1953 to 1964 producing zinc and copper from a small replacement orebody. Drilling on the adjacent secondary enrichment deposit began in 1955 by ASARCO. During the period from 1955 to 1978, 150 drill holes were completed on and adjacent to the B. S. & K. claims by various companies to delineate the secondary enrichment copper deposit, explore for additional reserves and condemnation of plant and dump site areas.

INTRODUCTION

This report is a supplement to the study prepared October 1980. Only Case III - vat leach, solvent extraction, electro-winning and the ASARCO - B. S. & K. joint venture with vat leach and Silver Bell Mill options are considered as these cases are the only ones feasible. Ore reserves, cutoff grades and costs have been updated using all new drilling information and todays costs.

ORE RESERVES

The ore reserves have been redone using ASARCO's computer models with a .40% Cu. flotation cutoff and a .20% Cu. leach cutoff. ASARCO drilled 39 new holes on their ground surrounding the B. S. & K. Property.

The summary of the new reserves provided by ASARCO are as follows:

*(Tons x 10^6)	B. S. & K.	Combined
Ore, Grade % Cu.	*5.38 @ 0.64	*24.31 @ 0.66
Leach, Grade % Cu.	*4.87 @ 0.37	*16.93 @ 0.38
Waste	*8.59	*44.12
Combined (ore & leach)	*10.25 @ 0.512	*41.24 @ 0.545
Recovery - Percent		
Flotation	76.5	76.5
Leach	60	60
Copper Recoverd		
Flotation - lb.'s	*41.3184	*192.5352
Leach - lb.'s	*21.6228	*77.2008
Combined - lb.'s	*62.9412	*269.7360

Case III - Vat Leach, Solvent Extraction, Electrowinning

Description: Case III for the B. S. & K. feasibility study considers the recovery of copper through a heap leach-solvent extraction-electrowinning process where the mine run material is crushed to minus ½ inch before being placed on the dump. All secondary sulfide and oxide mineralization will be placed in heaps for leaching by sulfuric acid solutions. Recovery of copper through the solvent extraction-electrowinning system will result in a directly saleable product. Mining is designed for open pit methods employing front-end loaders and truck haulage.

Operating Data

Operating days per year		
Mill	365	
Mine	250	
Mine production		
Ore and Waste	3,660,000	tons per year
	14,640	tons per day
Ore	2,000,000	tons per year
	8,000	tons per day
	12,221,600	lb.'s rec. per year
Operation life	5.15	years

Mining: Development of the B. S. & K. enrichment deposit involves the design, development and operation of an open pit mine. The mining of oxide and secondary sulfide copper mineralization results in the development of a shallow open pit. Production rates are not limited by mill feed requirements and optimum use of front-end loaders and truck haulage is possible.

Consideration was given to purchasing new and rebuilt equipment, leasing equipment, or contract mining. Production for owner operated equipment was established at 8,000 tons per day going to the heaps with three months allowed for preproduction development.

Dump areas were selected west and southwest of the pit. The leach dump will overlie a natural drainage basin with primarily hard rock bottom. The waste dump is located due west of the pit area over level valley fill. Both dumps are sequenced to coincide with the pit reserves.

The mine operation is scheduled to work 10, 8 hour shifts per week, 50 weeks per year. Shift productivity is estimated at 7,320 tons. With an overall estimated waste to leach ratio of 0.84:1 the mine will produce over 2.00 million tons of leach ore and 1.66 million tons of waste annually. Mine production will continue for about 5.15 years, allowing for the removal of over 18.8 million tons of total material.

The open pit operation will utilize one 15 YD^3 front-end loader and three 85 ton haul trucks as the principle equipment for both waste removal and mining of the copper ore. Benches 25 feet high will be drilled and charged with ANFO providing the necessary fragmentation to facilitate loading. The need for secondary breakage should be insignificant. Haulage distances going one way to B. S. & K.'s leach, waste and ore facilities average about 3,000 feet, while the distance to ASARCO's leach and ore dump is approximately 3 miles one way. Pit ramps are

are relatively short in duration and designed at a maximum grade of 8%. Maintenance of the mining equipment will be in a shop facility located at the plant site. A mine pump and pit sumps are recommended for dewatering any wet mine areas.

Primary blast hole drilling will be performed by one rotary rubber-tire truck drill. Over 135 holes spaced on an 18 x 18 x 30 foot pattern will be bulk loaded with ANFO and shot each week. This will require only seven 9 hour shifts of drilling per week and will not require the purchase of a standby drill. Bulk loading and dewatering of blast holes will be performed by an outside contractor.

The purchase of used mining equipment has been considered as an option for the leach operation. Scheduled operating hours for much of the mining equipment is less than half the expected machine life. The condition of this equipment and subsequent capital expenditure is based upon the required project use and the production dependency of each unit. Most of the used equipment is low hour and/or reconditioned, and will therefore have operating and availability figures similar to that of new equipment.

Used mine equipment includes 3 haul trucks, a track dozer, motorgrader, blast hole drill and water truck. The only service vehicle which merits purchasing used is the rough terrain crane. The remainder of the mine and general service vehicles are to be purchased new.

Mine run material will be hauled to the leach area and dumped into a portable three stage crusher. The crushing unit will reduce the material to minus ½ inch. The crushing unit will be moved

in a manner so that the leach dump can be built on a continuing basis with feed from the crushing plant.

Processing: The selected heap area site is in a natural basin with a rocky bottom. The leaching pad surface will be prepared by clearing and grubbing the vegetation, followed by moderate contouring and compaction with mechanized equipment, making use of whatever material is available on the site. A pregnant solution dam will be prepared at the narrow part of the lower basin, keyed onto the rock bottom with concrete is possible. If not, an earth and clay dam lined with Hypalon (or similar material) will be constructed. Monitoring wells will be drilled below the dam to permit routine checks for leaks during operations.

The leach dumps will be built in 25-foot lifts. After leaching is completed in 60 to 90 days, a new lift will be placed on top of the old one.

Leaching solution at 2,500 gallons per minute, coming from the solvent extraction plant raffinate storage, will be pumped to the leaching area. At a rate of 8,000 tons per day, five days per week, each heap of 240,000 tons will be built in six weeks and will have a nominal leaching cycle of 12 weeks. It will measure about 150 feet by 1,250 feet by 25 feet deep. The makeup water is estimated at 200 gallons per minute.

Solutions from the leach dump are fed through a solvent extraction plant at 2,300 gallons per minute. This is combined with 2,300 gallons per minute of organic so that the aqueous to organic ratio is maintained at a 1:1 ratio. The loaded organic is fed to

the two stages of solvent stripping at a rate of 2,300 gallons per minute. Pregnant electrolyte from the solvent stripper is fed to electrowinning.

Costs: Mine capital costs are based on current preliminary budget quotations from manufacturers and dealers. Mobile equipment costs include freight charges to minesite and erection costs when applicable. Capital costs for the maintenance shop (5,130 sq. ft.), mine warehousing (1,710 sq. ft.) and the changehouse (1,000 sq. ft.) include construction material and labor and all related tooling and equipment. Mobile equipment, buildings and facilities have all been costed new.

Mine operating costs are a function of an hourly operating cost per unit applied over the scheduled operating hours. The equipment operating costs reflect parts and supplies and all maintenance and operating wages. Hourly wages include a mine payroll burden of 40 percent.

Leaching, solvent extraction and electrowinning costs are based on 1979 leaching tests conducted by Mountain States Mineral Enterprises, Inc.

Crushing costs were based on a quotation from Rexnard for capital and industry costs for operating.

Capital Costs

Ancillary	$1,068,125
Environmental	158,750
Mine	
Equipment	2,908,250
Preproduction Operation	662,750
Haul Road Construction	546,125
Crushing plant (portable)	2,560,125

Plant

Engineering and design	$ 873,125
SX-EW construction	8,743,750
Total	$17,521,000
Cost/lb.	$ 0.278

Operating Costs

	Annual	$/lb. Cu.
Mine	$4,217,125	$0.345
Mill	3,054,625	0.250
G & A	1,428,750	0.117
Total	$8,700,500	0.712

Personnel:

Mine	41
Leach	22
G & A	12
Total	75

Financial Analysis: Copper price = $1.20/lb.

Cost to produce = 0.99/lb.

Production

Cu - 62,941,600 @ $1.20/lb. = $75,529,920

Revenue

Capital cost	17,521,000
Mine revenue	58,008,920
Operating cost @ $0.712/lb. =	44,814,419
Net mine profit	$13,194,501
Net annual profit	$ 2,562,039

SULLIVAN
REALTORS

W. D. Sullivan,
Broker

4441 East Fifth Street - Tucson, Arizona 85711

ED PERSELLIN
LAND & INCOME PROPERTIES
Res. (602) 885-3177
Bus. (602) 795-6910

BS+K MINE (Pima)
Atlas Mine (file)

October 1st, 1987

Mr. Ken A. Phillips, Chief Engineer
Department of Mines & Mineral resources
State of Arizona
Phoenix, AZ 85007

Dear Mr. Phillips:

Thank you for the assistance provided by your letter to me of September 22nd. I am enclosing a copy of the sales brochure we are using to merchandise the BS&K mine, and anything you can do to pass along this information to firms would be appreciated.

Again, thanks for your help.

Sincerely,

ED PERSELLIN
REALTOR Associate

B. S. & K. PROPERTY

PIMA COUNTY, ARIZONA

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A large house is located on the patented property that can be used for offices or residential.

LEAD-ZINC QUESTIONNAIRE

October 5th 1957.

Do you approve of the Emergency Lead-Zinc Committee's seeking relief for the lead-zinc industry and has it your authorization to speak for you? YES

What Arizona Mines and Mills in the lead-zinc class do you control?

(1) Atlas Mine

(2) Atlas Mill

Which ones are operating? (1) none (2) none

If not operating, when shut down? (1) June 23, 1957 (2) May 10 1957

Number employed, prior to shut-down, in mine, mill or sections thereof producing lead or zinc ores? (1) 24 (2) 8

Number so employed on January 1, 1957? (1) 20 (2) 7

Number so employed on October 1, 1957? (1) 0 (2) 0

Remarks There is little chance of opening up again on this price.

B S & K MINING CO.
First National Bank Building
411 North Central Avenue
Phoenix, Arizona

Company

By: Lee Newsom
Signature Sec.-Treas.

Please fill in NOW, tear off, and mail to:

Arizona Department of Mineral Resources
Mineral Building, Fairgrounds
Phoenix, Arizona

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX 7, ARIZONA

April 21, 1965

MEMORANDUM

To: Frank P. Knight, Director

From: Axel L. Johnson, Field Engineer

Reg: Atlas Mine and exploration by Duval Corp. Information by A.M. Kalaf on April 21, 1965

On April 1, 1965 Duval Corporation terminated their lease with option to purchase the Atlas Mine consisting of 110 claims from the B.S. & K. Mining Co., P.O. Box 5853, Tucson, Arizona - A.M. Kalaf, President.

A.M. Kalaf stated that no plans have been made to date for resuming mining operations at the Atlas Mine.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine: Atlas Mine & Mill — Date: August 28, 1964

District: Silver Bell District - Pima County — Engineer: Axel L. Johnson

Subject: Field Engineer's Report. Information from Victor F. Hollister, Duval Corp. Exploration Dept.

References: Report of April 3, 1964; Feb. 14, 1963; & previous reports.

Owners: B. S. & K. Mining Co., P.O. Box 5853, Tucson - A. M. Kalaf, Pres.

Lessees: Duval Corporation, Box 38, Sahuarita, Charles H. Curtis, Res. Mgr.
Lease with option to purchase under date of May 1, 1964.

Terms of Lease: Minimum royalty payments to start one year after date of lease issuance, or May 1, 1965.
B. S. & K. Mining Co. is also permitted to mine for one year or until May 1, 1965.

Number of Claims: A total of 110 claims, viz: -
(a) 11 patented claims
(b) 85 additional Federal claims, not patented
(c) 14 claims on State land, covered by State leases.

Principal Minerals: Zinc & copper

Present Mining Activity: Mine is closed down.
Mill is still operating on stockpile ore.

Review of Recent Operations:
(1) Mine closed down on August 1. According to Mr. Hollister, the reason for closing down the mining operations were (a) lack of immediate ore reserves and (b) insufficient time to develop additional reserves before May 1, 1965, which, according to the lease with Duval Corp., is the time limit set for any mining operations by B.S.&K. Mining Co., unless the lease is dropped before that time.
(2) The mill is still operating, but it is estimated that the ore stockpiles will be used up by about Oct. 1 - at which time the mill will be forced to close also.

Proposed Plans: In the event that Duval Corp. drops their lease with option to purchase, B.S.&K. Mining Co. expects to reopen the mine and mill doing exploratory work in the mine to develop additional ore reserves, according to statement by Mr. Hollister.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine and Mill Date April 3, 1964

District Silver Bell District, Pima Co. Engineer Axel L. Johnson

Subject: Mine Visit. Information from Walter Whitlow, Mine Foreman & Clarence Vezzetti, Mill Foreman

References: Report of Feb. 14, 1963 & previous reports.

Present Mining Activity: Mining and milling zinc ores, containing a small amount of copper and lead. The mine works 1 shift - 12 days on and 2 days off, and the mill works 3 shifts for about 10 days every two week period.

A total of 11 men are working for the company, 7 of these working in the mine, and 4 in the mill. The mine foreman is Walter Whitlow, and the mill foreman is Clarence Vezzetti. A.M. Kalaf is President and General Manager.

The average ore production is about 75 tons of ore per day, except when doing long hole drilling. About 90 tons per day is run thru the mill.

At the present time long hole drilling is being done on the 5th level (534' below the collar).

Ore Values: The mill heads run from 11% to 16% zinc, with an average of 13 to 14% with a small amount of copper (0 to 0.4%) and a few pockets of lead.

Mine Development - Current: The company is now doing long hole drilling on the 5th level, drilling the 3rd hole on this level. Each hole is drilled almost horizontal to a depth of 50 ft. and the sludge is sampled. A Copco with a jack leg and 7/8" steel is used.

Development of the 5th level was started about Aug. 1, 1963. Since then about 300 ft. of drifting has been done, and two raises have been put up, connecting the 5th and 4th levels. Ore production has come mostly from the raises.

Milling & Marketing: The concentrates are hauled to Red Rock in the company trucks for shipment to the smelters, the zinc concentrates being shipped to Blackwell Zinc Co., Inc., subsidiary of American Metal Climax, Inc. at Blackwell, Okla., and the lead-copper concentrates to the A.S. & R. smelter at El Paso, Texas.

Mine Workings:

(1) Old 71 ft. Level (111 ft. below collar of new shaft) - mined out.
(2) 1st Level - (192 ft. below collar) - mined out.
(3) 2nd Level - (273 ft. " ") - " "
(4) 3rd Level - (364 ft. " ") - " "
(5) 4th Level - (454 ft. " ") - practically all mined out.
(6) 5th Level - (534 ft. " ") - developed by drifts and raises. Some ore production from a stope above the 5th level.
(7) Bottom of shaft - (554 ft. below collar)

Remarks: Any mining below the 5th level would necessitate sinking of the shaft an additional 90 or 180 ft. No plans for such shaft extension was reported to the field engineer.

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX 7, ARIZONA

February 21, 1963

Mr. Jack W. Still
P.O. Box 1512
Prescott, Arizona

COPY

Dear Mr. Still:

The following is some information in regard to the Atlas Mine as per your request to Frank P. Knight, Director, Dept. of Mineral Resources.

The Atlas claims are located in Sections 29 and 32 - T. 11 S., R. 8 E. in the Silver Bell District, Pima County, Arizona. To reach the mine, drive west from Red Rock on the Sasco Road for a distance of about 20 miles. An alternate route is to drive past the Silver Bell mill and shops and continue north to the mine.

The Atlas group consists of 96 Federal claims of which 11 are patented, plus an additional 14 State claims covered by State leases.

The owners are B. S. & K. Mining Co., 1st National Bank Bldg., Phoenix 4, Arizona (a closed corporation). A.M. Kalaf is President and General Manager, and George Kalaf is Vice President.

The company is now mining zinc ore, containing a small amount of lead and copper, and milling it in a 100 ton capacity flotation mill located at the mine site, producing a zinc concentrate and lead-copper concentrate. The concentrates are hauled to Red Rock for shipment, the zinc concentrates being shipped to the American Metal Climax smelter at Blackwell, Okla., and the lead-copper concentrates to the A.S. & R. smelter at El Paso, Texas.

B.S. & K. Mining Co. received a Small Business Administration loan in the amount of $100,000 about two years ago. This was a 5 year loan, and about one-half has already been paid back. The loan was used to assist the company to finance the sinking of the new 554' vertical shaft and the purchase of about $80,000 worth of new equipment. The company was not able to qualify for the Government Lead-Zinc Subsidy, on account of too high production for one calendar year.

Up to the time of the completion of the new vertical shaft in August 1961, the mine workings consisted of

(1) One main adit, used as a haulage level - 100 ft. long.
(2) One 75 deg. incline winze, used for hoisting the ore to the haulage level - 185 ft. deep.

(3) About 300 ft. of drifting on the 71 ft. level.
(4) About 500 ft. of drifting on the 151 ft. level.

At the present time, the mine workings in addition to the above, consist of

(1) One vertical shaft - 554' deep finished Aug. 1961.
(2) About 60' additional drifting on the 1st level (192' below the collar) tying into the old 151' ft. level.
(3) About 400' of drifts on the 2nd level (273' below collar).
(4) About 350' of drifts on the 3rd level (364' below collar).
(5) About 500' of drifts on the 4th level (454' below collar).

At the present time, the mine is working one shift and the mill 3 shifts, 10 men working in the mine and 5 in the mill. The mining operations were reduced from 2 shifts to 1 shift recently as available working areas were not large enough to support a 2 shift operation. The company plans to revert to 2 shifts in a few months after the 5th level has been developed. The 5th level will be 544' below the shaft collar.

The average production, at present, is about 80 tons of ore per day. This compares with a production of 60 tons per day on March 1, 1962 with 2 shifts and 18 men working. However, at the present time, the mine work is limited to stoping only with no mine development being carried on. In about 60 days, the company plans to start drifting on the 5th level, and also to resume underground diamond drilling.

The mill heads now run about 14% zinc, with from 0 to 0.4% copper and a few pockets of lead. There has been a steady reduction in both zinc and copper values during the past four years. In April 1959, the mill heads averaged about 25.5% zinc and 0.8% copper; in July 1960, they averaged 22.5% zinc and 0.5% copper; in March 1961, the average was 17.5% zinc and 0.6% copper; and in March 1962, it was 17.0% zinc and 0 to 0.4% copper. Now the mill heads are down to 14% zinc. Mr. Kalaf reports shipments of 4,774 tons of zinc concentrates and 264 tons of lead-copper concentrates during 1962.

The ores in the Atlas Mine are replacement deposits in limestone. The dacite porphyry (or quartz monzonite porphyry) intrusions in the vicinity furnish the mineralizing solutions for the limestone replacement. The ores are found in the limestone near the dacite porphyry contact up to as much as 200 ft. away from the contact.

The ore shoots are quite large and pitch from 40 to 80 degrees in a direction parallel to the contact (S 10° W). On the upper levels (above 192 ft.), 7 stopes averaged 18' x 25' in cross section and 65' in depth. Further down, between the 2nd and 4th levels (273' to 454' below the shaft collar), one stope was 30' wide, 70' long and 120' in depth, and another stope was in the shape of a mushroom, about 8' x 8' in cross section at the bottom and 100' x 100' at the top and over 100' in depth. The ore shoots are very irregular

in outline, with narrow stringers projecting on all sides. From 1 to 100 feet of barren rock separate the individual ore shoots.

The writer has not seen or been informed of any estimate of "ore in sight" or "probable ore". Since exploration and development work is done only a relatively short time ahead of the actual stoping, the "ore in sight" at any one time is not great. In the words of one eminent geologist, the ore reserves of the Atlas Mine may be said to be potentially large, but the amount and extent unknown.

In the mining operations, the ore, after blasting, slides down to the haulage level below by gravity, and is there loaded into ore cars with mucking machines and trammed to the ore skip at the shaft by means of compressed air locomotives. No timber is required in any of the stopes, no chutes are used, and no back fill is needed. The mined out stopes are left open, except as they are used for the dumping of waste rock from the drifts and crosscuts required in the mine development.

The Atlas Mine has been able to continue operating in spite of the low price of zinc and high labor and material costs on account of a number of favorable natural conditions, as follows: -

(1) No timbering required to support the underground workings. Not one piece of timber has been used except in the shaft and drill stagings.

(2) Very little water to pump. Only 6 gal. per min. of water is pumped for 8 hours each day.

(3) Large ore shoots, as mentioned previously.

(4) Ore shoots pitching down at slopes which permit the ore to slide down to haulage level below by gravity.

(5) Good natural ventilation. Openings to the surface through some of the old mined out stopes provide good ventilation, and the working places in the mine are cool and comfortable.

(6) Easy milling ore. About 98½% recovery is obtained on the zinc ore, and fairly good recovery in the lead and copper.

In addition to these favorable natural conditions, the management of the company has been able to secure and benefit by other favorable factors, as follows:

(1) Good labor relations. The mine employees are well satisfied and do not belong to a labor union. Housing is provided at the mine camp for those employees who wish to live at the mine. All except two employees have availed themselves of this opportunity.

(2) Good technical advice. The management has consulted able geologists and consulting engineers in regard to the mine exploration and development.

(3) Good mining equipment. The management is using modern equipment and machinery in their mining operations.

Hoping that the above information on the Atlas Mine may be of some value to you, I am

Very sincerely,

Axel L. Johnson, Field Engineer
P.O. 5047
Tucson, Arizona

ALJ/H

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine and Mill Date February 14, 1963

District Silver Bell District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from A.M. Kalaf & personal visit

Present Mining Activity: Mining and milling zinc ores, containing a small amount of copper and lead. The mine now works 1 shift - 12 days on and 2 days off while the mill works 3 shifts - 12 days on and 2 days off. Mining and milling operations are closed down for two days on alternate Saturdays and Sundays. The mining operations were reduced from 2 shifts to 1 shift, because there is not enough working area, at present, to support a 2 shift operation. Company plans to go back to 2 shifts some time in the near future after the 5th level is developed.

A total of 15 men are working for the company, 10 of these working in the mine and 5 in the mill. The mine foreman is Walter Whitlow, and the mill foreman is Clarence Vezzetti. A.M. Kalaf is President and General Manager.

The average production is about 80 tons of ore per day. (A year ago, on March 1, 1962, the mine production was only about 60 tons per day on account of the extensive mine development done.)

Ore Values: The mill heads run about 14% Zinc, with from 0 to 0.4% Copper and a few pockets of Lead.

There has been a steady reduction in both Zinc and Copper values during the past four years, as shown below:

April 30, 1959 - 25.5% Zinc & 0.8% Copper
July 28, 1960 - 22.5% Zinc & 0.5% Copper
Mar. 11, 1961 - 17.5% Zinc & 0.6% Copper
Mar. 1, 1962 - 17.0% Zinc & 0 to 0.4% Copper
Now - 14.0% Zinc & 0 to 0.4% Copper

Mine Development: At present no drifting, long hole drilling or diamond drilling is being done. Company expects to start drifting on the 5th level (90 ft. below the 4th level & 544 ft. below the shaft collar) in about 60 days.

Mr. Kalaf reported that the long hole drilling which was being done last year (see report of Mar. 1, 1962) provided only approximate information. He states that the holes were deflected from their original setting to such an extent that they could not be plotted with any degree of accuracy and also that the sludge samples taken from the holes gave too low assays. Consequently, the area drilled by the long hole drilling had to be checked later with diamond drilling.

Mining Operations: Most of the mine production now comes from one large stope between the 3rd and 4th levels, with a lesser amount from a stope above the 2nd level.

Milling and Marketing: The concentrates are hauled to Red Rock in company trucks for shipment to the smelters, the zinc concentrates being shipped to the American Metal Climax smelter at Blackwell, Okla., and the lead-copper concentrates to the A.S. & R. smelter at El Paso, Texas. Mr. Kalaf reports shipments of 4,774 tons of zinc concentrates and 264 tons of lead-copper concentrates during 1962.

Financing: B.S. & K. Mining Co. received an SBA loan in the amount of $100,000 about 2 years ago. This was used to assist the company to finance the sinking of the new 554 ft. vertical shaft and the purchase of about $80,000 worth of new equipment. This was a 5

Atlas Mine and Mill (continued)

year loan and Mr. Kalaf reports that about one-half of the loan is now repaid.

Lead-Zinc Subsidy: Mr. Kalaf reports that B.S. & K Mining Co. could not qualify on the government lead-zinc subsidy program, because, in one calendar year, their production was a little less than 300 tons above the minimum. He states that his company actually lost a great deal by this subsidy law, as they had to sell the ore to smelters in the Tri-State area in competition with ores shipped by the small producers in that area receiving the government subsidy.

Active Mine List Oct. 1963 - 15 men working

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine and Mill Date March 1, 1962

District Silver Bell District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from A. M. Kalaf & personal visit

Number of Claims 96 Federal claims, of which 11 are patented. Also 14 State claims, covered by State leases. Company expects to apply for patent on more Federal claims soon.

Present Mining Activity Mining and milling zinc ores, containing a small amount of copper and lead. The mine works 2 shifts --- 12 days on and 2 days off. The mill works 3 shifts --- 12 days on and 2 days off (working on alternate Saturdays and Sundays)

A total of 23 men are working for the company, 18 men working in the mine and 5 men at the mill. Mine foremen are Walter Whitlow and Milton Reeves, and the mill foreman is Clarence Vezzetti. A. M. Kalaf is President and General Manager.

The average production is about 60 tons per day.

Ore Values The mill heads now run about 17 % zinc, with from 0 to 0.4 % copper, and a few pockets of lead. There was a slight reduction of zinc and copper values the past yr.

Mine Development -- Past Year The shaft sinking was finished last Aug. 7, the shaft being sunk to a depth of 554 ft. 4 mine levels were developed during and subsequent to the sinking of the shaft, viz:

1st level -- 192 ft.	below the collar.	60 ft. of drifting tying into old 151'L.
2nd level -- 273 ft.	below the collar.	400 ft. of drifting.
3rd level -- 364 ft.	below the collar.	310 ft. of drifting.
4th level -- 454 ft.	below the collar.	410 ft. of drifting.

This drifting was mostly in rock, with some in ore.

Mine Development -- Current The company is now doing long hole drilling from previously prepared drill stations, 9 drill stations having been excavated, 3 on the 2 nd level, 3 on the 3rd level, and 3 on the 4th level. A Gardner Denver 4 1/2 " - JD 123 Model wagon drill is used. The holes drilled are generally 168 ft. in depth, and are from 2 1/2 " to 2 3/4" in dia. Drilling from one of the stations on the 4th level has now been completed. A total of 18 holes were drilled from one set up, spacing the holes at 10 degree horizontal intervals around a 180 degree half circle. 17 of the holes were drilled at a + 6 deg. angle to a depth of 168 ft. each, and one hole was drilled at a + 20 deg. angle to a depth of 80 ft. Sludge samples were taken every 8 ft., and assayed/ Approximately the same pattern of drilling will be followed at the remaining 8 stations. Various brands of rock bits are being tried out (Copco, Ingersoll Rand, etc). Mr. Kalaf states that the life of a rock bit is generally from 800 to 1,000 ft. of drilling.

Mining Operations For the past few months, most of the mine production has come from one large stope, between the 2nd and 3rd levels. A minor amount has also been obtained from cleaning-up operations above the 1st level, which will continue for another 2 weeks. Raising will be started soon from the 4th to the 3rd level in order to open up new stopes. The location of the raises will be determined, to a large extent, from the results of the long hole drilling.

Milling and Marketing 15,000 tons of ore was milled the past year, the mill heads running 17 % zinc, with from 0 to 0.4 % copper. A few pockets of lead were also mined and milled. The concentrates are hauled to Red Rock in the company trucks for shipment to the smelters, the zinc concentrates being shipped to the Eagle Picher Co. of Galena, Kansas, and the lead and copper concentrates being shipped to the A. S. & R. smelter at El Paso, Texas. 50 tons of copper conc. and 150 tons of lead conc. were shipped the past year.

ATLAS MINE

PIMA COUNTY, Silver Bell Dist.

The B.S. and K. Mining Company is working three shifts daily in sinking its new vertical shaft at the ATLAS mine in the Silver Bell district of Pima County, Arizona. Present plans call for sinking the shaft - six feet by nine feet inside measurements - to a depth of 500 to 600 feet. Regular mining and milling of zinc-copper ores continues with the mine on one shift daily and the mill three shifts. The Co. employs 29 men; 15 in the mine, five in the mill, and nine on shaft sinking. Milton Reeves is in charge of shaft sinking and also serves as mill superintendent. A. M. Kalaf of Phoenix is company president.

Taken from MINING WORLD, July 1961, p 41

Active Oct. 1961

Active Mine List Feb. 1962 - 23 men working
Active Mine List Oct. 1962 - 23 men working

Regular production is continuing at the Atlas mine and mill of the B.S. & K. Mining Company in the Silver Bell district of Pima County, Arizona. Mine work is on a two-shift daily basis, six days a week, while the mill operates three shifts daily. Present rate of production (60 tons daily) calls for a crew of 23 men with 18 working in the mine and 5 in the mill. The company completed its shaft sinking programs last August, the shaft being sunk to a depth of 554 feet. Since then four levels have been established and about 1,200 feet of drifting accomplished, mostly in rock. Currently the company is doing long-hole drilling from previously prepared drill stations on the second, third and fourth levels. Ore at the Atlas is primarily zinc, with a small copper content, and occasionaly some lead. The concentrates are trucked to Red Rock for rail shipment to the smelters, the zinc going to Eagl Picher Company at Galena, Kansas, and the lead and copper to ASARCo at El Paso, Texas. A.M. Kalaf of Phoenix, is company president. Mine foremen are Walter Whitlow and Milton Reeves, and mill forman is Clarence Vezzetti.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine and Mill Date March 11, 1961

District Silver Bell District, Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Personal visit & information from A. M. Kalaf.

References Reports of Feb. 24, 1961, July 28, 1960 and previous reports.

Present Mining Activity Mining and milling zinc and copper ores. Also sinking a new shaft. The mine works 1 shift --- 12 days on and 2 days off. The mill works 3 shifts-- 12 days on and 2 days off. The shaft sinking operations are carried on with 3 shifts -- 12 days on and 2 days off. (working every second Sat. and Sun.)

A total of 27 men are working at the mine and mill, 13 men working in the mine, 5 in the mill, and 9 on the shaft sinking operations.

Shaft sinking operations The shaft is vertical, being 5' x 8' inside dimensions. The hoisting compartment is 5' x 4'-6", and the manway compartment is 5' x 3'-0".

The surface equipment at the shaft are as follows:

(1) 60 ft. steel headframe, manufactured by Mayo Tunnel and Equipment Co., Lancaster, Pa.

(2) Single drum, 135 H. P. Coeur D'Alene hoist.

(3) 880 c. f. m. Air Compressor -- Atlas Copco AR 4 .

Ground was broken for the shaft work during the last part of Sept. 1960, and actual shaft sinking operations were started on Jan. 2, 1961.

The shaft is now down to a depth of 267 ft., with a station cut at 192 ft. below the collar, and a connection made at that elevation with the old mine workings, formerly called the 151 ft. mine level.

9 men are working on the shaft sinking operations --- 3 on each shift. The normal shaft progress is about 6 ft. per day, and averages about 5 1/2 ft. per day including delays.

The shaft drilling round consists of 45 holes, each 7 ft. deep, breaking to a depth of slightly over 6 ft.. The drilling is done with a Thor Model 330 push feed drill, with a retractable feed leg. A Cryderman mucking machine is used for mucking.

The explosive used is a 65 % Ammonium Nitrate, manufactured by American Cyanamid Co. Electric blasting is used, and one stick of gelatin dynamite per hole is used as a primer.

The shaft was lined with concrete for the first 18 ft. below the collar. Below this point, 6" x 6" shaft timbers have been used. This timber is obtained from Ed Holderness Supply Co., Tucson, Ariz.

Following is the approximate time consumed in each operation:

Drilling time per round - - - - - - - - - - 4 1/2 to 6 hr.
Loading & blasting time per round - - - - 1 1/2 to 2 hr.
Mucking time * - - - - - - - - - - - - - - - 8 hr.
Timbering, piping and general - - - - - - - 8 hr.

Mining Operations Mining operations are carried on with 13 men working in the mine -- 1 shift, 12 days on and 2 days off. Two stopes are now being worked, both being just above the old 151 ft. level---- now to be called the 192 ft. level. Also one diamond drill is working on the 151 ft. level exploring the ore body. This is a Chicago Pneumatic diamond drill, drilling an EX core. 2 men are used to operate the drill.

Milling and Marketing The mill works 3 shifts --- 12 days on and 2 days off. The mill heads run from 17 % to 18 % zinc, and about 0.6 % copper. The zinc concentrates are shipped to the Eagle Picher Co. smelter at Galena, Kans., and the copper concentrates are shipped to the American Smelting & Refining Co. smelter at El Paso, Texas.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Atlas Mine & Mill Date Feb. 24, 1961

District Silver Bell District, Pima Co. Engineer Axel L. Johnson

Subject: Present Status. Information from A. M. Kalaf & Milton Reeves & Personal Visit.

References Report of July 28, 1960.

Present Activity Mining and milling zinc and copper ores. Also in the process of sinking a new shaft. Mine working 1 shift --- 12 days on and 2 days off. Mill working 3 shifts --- 12 days on and 2 days off. Shaft sinking operations working 3 shifts --- 12 days on and 2 days off. (working every second Sat. & Sun.)

A total of 29 men working ----- 15 men working in the mine, 5 in the mill, and 9 on shaft sinking operations.

Shaft Sinking Operations Shaft is a vertical shaft, 6' x 9' inside. The depth of the shaft is now 225 ft. It is planned to sink to a depth of between 500 and 600 ft. The progress is about 6 ft. per day. 9 men working on the shaft sinking operations. Milton Reeves is in charge of the shaft sinking, as well as being the mill superintendent.

Note When I visited the property, A. M. Kalaf, George Kalaf, and Milton Reeves were ready to leave for Tucson on urgent business. A. M. Kalaf, therefore, asked me to come back some time later, preferably on a Saturday, in order to examine the mine workings and the shaft sinking operations together with him and Mr. Reeves. An appointment was made to visit the property again on Saturday, March 11.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine and Mill Date July 28, 1960

District Silver Bell District, Pima Co. Engineer Axel L. Johnson

Subject: Present Status. Personal visit & information from Walter Whitlow, Mine Mgr.

References Reports of April 30, 1959, Nov. 13, 1958, and previous reports.

Present Mining Activity Mining and milling zinc and copper ores. Ore production from 80 to 85 tons per day, or about 2,100 tons per month. Total of 21 men working, 15 men in the mine, and 6 men in the mill. The mine works 2 shifts perday, working 12 days on and 2 days off. The mill works 3 shifts per day, also working 12 days on and 2 days off, except when necessary to close down for repairs.

Ore Values Mr. Whitlow reports that the ore runs from 20 to 25 % zinc, and about 0.5 % copper.

Milling and Marketing Facilities The milling operations are the same as shown in my last report, except for the fact that power is now obtained from the Trico Electric Co. The concentrates are hauled by truck to the loading ramp at Red Rock. The zinc concentrates are now shipped (since Jan. 1, 1960) to the Eagle Picher zinc smelter at Henryetta, Okla., and the copper concentrates are shipped to the A. S. & R. smelter at El Paso, Texas. The zinc concentrates run from 60 to 61.5 % in zinc. From 600 to 650 tons of zinc concentrates are shipped every month.

Present Mining Operations Two stopes are being worked, both being slightly above the elevation of the 71 ft. level. The ore from both stopes drops to the 71 ft. level, where it is loaded with a mucking machine into ore cars, and trammed to the shaft by means of a compressed air locomotive. Some of the ore spillage from these stopes also drops down to the 151 ft. level, and is loaded into ore cars on this level by means of a mucking machine and trammed to the shaft. At the shaft, the ore is dumped into ore skips from both levels and hoisted up to the main adit, where it is transferred into ore cars and trammed about 200 ft. to the surface ore bin by means of compressed air locomotives. The skip has a capacity of 1 ton, the ore cars on the 71 ft. and 151 ft. levels are 1 ton, and the ore cars on the main adit are 2 ton cars.

At the surface ore bin, the ore drops on the ground, from where it is loaded by means of a TD 9 loader into a dump truck, which hauls it to the mill, a distance of about 4000 ft.

Mine Workings The main workings consist of about 800 ft. of drifts on the 71 ft/ level, about 300 ft. of which has been done the past year; and about 400 ft. of drifts on the 151 ft. level.

Exploration Activities Diamond drilling is being carried on continuously on the 151 ft. level with a Chicago Pneumatic diamond drill, using an EX core --- 2 men working.

Future Plans The company plans to sink a new shaft in the near future, and Mr. Whitlow states that this may be started some time this fall. The location of the shaft has not, as yet, been determined. It is planned to drill a number of diamond drill holes from the surface, which will determine the location of the new shaft. Some of the underground diamond drilling may also give information regarding the location of this shaft. Mr. Allen M. Rugg, mining engineer, Tucson, and Prof. W. C. Lacy, geologist, Univ. of Arizona are doing consulting work on the project.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine & Mill Date April 30, 1959

District Silver Bell District, Pima County Engineer Axel L. Johnson

Subject: Present Status. Personal visit & information from A. M. Kalaf, President.

References Report of Nov. 13, 1958 and previous reports.

Present Mining Activity Mining and milling zinc and copper ores. Ore production about 44 tons per day, or about 1100 tons per month. Total of 17 men working, 12 in the mine and 5 in the mill. Mine works 12 days on and 2 days off, with 12 men working. Mill works 15 to 18 days per month -- 3 shifts, according to the supply of ore, with 5 men working in the mill, and doing repair work when the mill is shut down.

Ore Values Mr. Kalaf reports that the ore runs from 23 to 29 % zinc, with an average of about 25.5 %, and about 0.8 % copper.

Milling & Marketing Facilities Zinc concentrates are shipped to the A. S. & R. smelter at Amarillo, Texas. Copper concentrates are shipped to the A. S. & R. smelter at El Paso, Texas. Mr. Kalaf reports 98 to 99 % recovery in the milling operations. He states that the zinc concentrates run about 60.9 % and the copper concentrates about 26.0 %, and that the tailings run about 0.3 % in zinc, and about 0.03 in copper. The mine produced about 5,000 tons of zinc concentrates last year, and, this year they expect to better this amount by a substantial margin, perhaps about 6,000 tons.

Present Mining Operations Two stopes are being worked at present. Both these stopes are at or slightly above the 71 ft. level. The ore is dropped to the 151 ft. level, where it is loaded into cars with a car loader (mucking machine). Ore ~~cars are~~ trammed to the shaft, dumped into the ore skip and hoisted to the main adit, where it is again transferred into ore cars and trammed to the surface ore bin. (See report of Aug. 27, 1954 under "Mining Operations")

Exploration Activities Exploration work is being done by means of long hole drilling, drilling 50 to 60 ft. holes, using sectional steel. Mr. Kalaf states that he expects to start a diamond drill program soon.

(A)

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Atlas Mine & Mill Date Nov. 13, 1958

District Silver Bell District, Pima County Engineer Axel L. Johnson

Subject: Present Status. Personal visit & information from A. M. Kalaf, Pres.

Owners & Operators: B. S. & K. Mining Co., Suite 702, 1st National Bank Bldg., Phoenix, Arizona
A. M. Kalaf, Pres.
George Kalaf, V. Pres.
Lee Newsom, Sec'y. - Treas.
Walter Whitlow, Mine Manager, Box 18, Silver Bell, Ariz.

Principal Minerals: Zinc and copper (ore in the form of sulphides)

Present Mining Activity: Mining and milling ore. Ore production about 50 tons per day or 1100 tons per month. Number of men working 16 to 17. Mine works day shift -- 10 days on and 4 days off with 10 men working. Mill works 3 shifts about 14 days per month according to the supply of ore with 5 men working in the mill doing repair and miscellaneous work when the mill is not running.

Ore Values: Mr. Kalaf reports that the ore produced averages from 20% to 30% zinc and about 0.8% copper.

Milling & Marketing Facilities: Zinc concentrates are shipped to the A. S. & R. Smelter at Amarillo, Texas. The copper concentrates are shipped to the A.S. & R. Smelter at El Paso, Texas.

Present Mining Operations: All the ore is stoped from the 151 and 71 ft. levels of the mine. There has been no exploration or development activities recently, on account of the low prices for the metals.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Atlas

Date September 16, 1958

District Silver Bell District, Pima County

Engineer Axel L. Johnson

Subject: Present Status. Information from Lee Newsom

Owners: B. S. & K. Mining Co.

Present Mining Activity: Ore production on a partial basis, working part time only. 12 men working -- 9 in mine -- 3 in mill. Could not get an estimate of average ore production per day or week.

Past History:
(1) Curtailed operations on May 10, 1957.
(2) Closed down completely on June 23, 1957.
(3) Started operations in Jan. 1958.
(4) Shut down for a while in April, 1958.
(5) Resumed operations again in May, 1958.
(6) Shut down for vacations in July, 1958.
(7) Resumed operations in August, 1958.

Remarks:
(1) May have to shut down again unless prices improve.
(2) Roads flooded. Has been very difficult to get to the property.
(3) Check with the Phoenix office before going out to find out if the property is operating and the condition of the roads.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine **Atlas Mine** Date **March 30, 1957**

District **Silver Bell District, Pima Co.** Engineer **Axel L. Johnson**

Subject: **Present Status. Personal Visit and information from A. M. Kalaf, Pres.**

Location Sec. 29 or 32 -- T 11 S -- R 8 E. Drive west from Red Rock for a distance of 18 miles to the mine. This road may be flooded in wet weather.
Alternate Route ---- Drive past the Silver Bell mill and shops and continue north to the mine.

Number of Claims 51 ---- 11 patented and 40 unpatented.

Owners B. S. & K. Mining Co., 242 S. 1st Ave., Phoenix, Ariz. AL 4-9973
Operators A. M. Kalaf, Pres. --- Lee Newsom, Sec. Address as above.
Walter Whitlow, Mine Manager, Box 6, Red Rock, Ariz.

Principal Minerals Zinc and Copper (ore in the form of sulphides)

Present Mining Activity Ore Production.
Number of men working ----22 17 men underground (2 shifts) & 5 men at the mill
Working mine 12 days on and 2 days off. Mill works intermittently acc to ore supp
Production about 50 tons per day when producing ore. Averages about 625 tons per month, and from 7,000 to 8,000 tons per year.

Geology & Mineralization Limestone replacements in limestone near a dacite porphyry intrusion. See report of June 30, 1955. Copper ore body on the south side of the intrusion, described in the June 30-55 report was worked out in June 1956. Production now comes from the zinc ore bodies on the north side of the intrusion. Allan M. Rugg, 5202 E. 16th St., Tucson, Ariz. is the geologist employed by the company.

Ore Values Mr. Kalaf reports that the ore produced averages from 20 % to 30 % Zinc, and about 0.8 % Copper.

Ore in Sight and Probable Extensive exploration work in last six months of 1956 failed to disclose any additional copper ore bodies. Since Jan. 1, 1957, one ore body (Zn) has been developed, about 25 ft. x 40 ft. x 80 ft. in length, with a tonnage of 8,000 to 10,000 tons. Exploration is being continued in search of additional zinc ore bodies.

Milling and Marketing Facilities See report of Aug. 27, 1954 with flow sheet. Since that time, a small gyratory crusher has been added and used as a secondary crusher, and several improvements in ore handling has been made. No change in the flow sheet.

Mine Workings See report of Sept. 20, 1954. Additions since that time are viz:
45 deg. incl. winze (it.2) now 181 ft. deep.
one drift (new) 156 ft. long on the 151 ft. level.
One drift 125 ft. long going S 25 E across the intrusion to the copper stope, which is now worked out. (Also on the 151 ft. level)
One drift (new) 140 ft. long on the 151 ft. level. (To be extended 50 ft. more)

Present Mining Operations Copper ore was mined from date of last report (June 30, 1955) to June 1956, at which time the copper ore body was depleted. Exploration work was done exclusively during the last 6 months of 1956, with no ore shipped. Company failed to find additional copper ore bodies. Zinc ore mining was started on Jan. 15, ~~1956~~ 1957 adjacent and below the old zinc ore stopes that were mined prior to 1955. Two mucking machines are in use. Mine works 2 shifts. Ore is hoisted as shown on report of 8/27/54/
Proposed Plans To diamond drill from underground levels and also from the surface.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine Date June 30, 1955

District Silver Bell Dist., Pima County. Engineer

Subject: Present Status. Personal Visit and information from A. M. Kalaf, President.

Location See my report of Aug. 27, 1954.

Number of Claims 51 ----- 11 patented and 40 unpatented . Of these, 7 have been located recently.

Owners and Operators See my report of Aug. 27, 1954.

Principal Minerals Copper ore is now mined exclusively.

Number of Men Employed 10 men at the mine, including the foreman.
5 men at the mill (working 2 shifts.

Production Rate Production averages about 40 tons per day, when ore is stoped and hoisted. Stoping being done most of the time at present, with some drifting and raising being done when necessary. 10 or 11 carloads of concentrates have been shipped since February.

Geology A body of good grade copper ore was found as a limestone replacement on the south side of the mine, on the south side of the dacite porphyry intrusion, and opposite to the zinc ore bodies, which have been worked on the north side of the dacite porphyry. This body of copper ore is about 135 ft. in length, sloping about 43 degrees, varies in width from 18 to 30 ft., and it is estimated that it is about 30 ft. in depth. (upper 15 to 20 ft. has been stoped out, and lower 10 to 15 ft. remains to be stoped.) Allan M. Rugg, 5202 E. 16th St., Tucson, Ariz. is the geologist employed by the company.

Ore Values The mill heads average about 6 % of Copper, with 1/2 to 1 1/2 % of Zinc, which is allowed to go to waste.
The concentrates from the mill average about 28 to 32 % of copper (all sulphides), and also contain from 8 to 14 oz. of silver, and 1/10 oz. of gold.

Ore in Sight and Probable It has been determined by means of drill holes, etc., that there is from 10 to 15 ft. of good grade copper ore remaing in the stope, which the company now is mining. Diamond drilling, as yet, has not developed any other copper ore bodies, except that one drill hole passed through 56 ft. of copper ore, running about 1 1/2 % copper. Additional drill holes will be put down, approximately at right angles to this one in order to get more information on this ore showing.

Milling Operations See my report of Aug. 27, 1954. Since that time, several improvements have been made at the mill, including larger crushing equipment.

Marketing See my report of Aug. 27, 1954.

Mine Workings See my report of Sept. 20, 1954. Since then, the 75 degree inclined winze, used for hoisting the ore, has been extended to 185 ft. (an additional depth of 34 ft.), and the drift on the 151 ft. level was driven ahead an additional 45 ft., intersecting the body of copper ore now being mined.

Present Operations Stoping of copper ore from the newly developed stope described above. Diamond drilling from the 151 ft. level, using a Longyear Prospector drill and an EX 7/8 in. bit. Hole now being drilled is 115 ft. long at an angle of 1 degree

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine Date June 30, 1955

District Silver Bell District, Pima County. Engineer Axel L. Johnson

Subject: Present Status. Personal Visit and information from A. M. Kalaf, Pres.

(continued from page 1)

up, and operators expect to drill an additional 85 ft. in this hole.

Proposed Plans The operators expect to drill 7 or 8 additional drill holes from this set up, drilling the holes at various angles, so that the holes will be about 25 ft. apart at a distance of 100 ft. in. This will be done in order to determine the extension of the copper stope now being worked. [illegible] Additional diamond drill holes will also be put down underground, approximately at right angles to the drill hole which passed through 56 ft. of copper ore, averaging about 1 1/2 %, mentioned on page. 1 .

Operators have no plans,at present, for diamond or churn drilling from the surface.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT
Page 1

Mine Atlas Mine Date Aug. 27, 1954

District Silver Bell District --- Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Inf. from Walter Whitlow, Mine Mgr. and Personal Visit.

Location Sec. 29 or 32 -- T 11 S -- R 8 E (approx)
Usual route in dry weather. Drive west from Red Rock along old railroad grade for a distance of 18 miles to the mine. This road now flooded and impassable.
Alternate route. Turn in on Marana Air Base road. Turn left at Air Base gate. Follow Silver Bell Mine signs until you come to the old Silver Bell road. Follow the old Silver Bell road the balance of the way to the mine. Distance from highway 84 - about 28 mi.

Owners B. S. & K. Mining Co., 242 S. 1st Ave., Phoenix, Ariz. Tel. Alpine 4-9973
A. M. Kalaf, Pres. Address as above.
Lee Newsom, Sec. " " "

Operators Same as above.
Walter Whitlow, Mine Manager, Box 6, Red Rock, Ariz.
Melton Reeves, Mill Manager, " " " "

Principal Minerals Zinc and Copper (ore in form of sulphides)

Number of Men Employed 7 men at mine (1 shift only)
4 men at mill (2 on each shift) Doing miscell. surface work when mill is not operating.

Production Rate 50 tons per day when stoping (1/2 time)
Stoping with ore production for 2 weeks, while mill is running.
Development and exploration for 2 weeks, while mill is shut down.

Geology and Ore Values Limestone replacement. Mined ore runs about 20 to 25 % in Zinc, and from 1 to 3 % in Copper.

Mine Workings See page 4.
(1) A main adit, used as a haulage level ----- about 100 ft. long.
(2) A 75 deg incl. winze --- 180 ft. deep. 151'
(3) 110 feet of drifting from the winze on the 100 ft. level. 71'
(4) 30 ft. of drifting from the winze on the 180 ft. level. 151'

See page 4

Mining Operations The mine is operated one shift, with a crew of 7 men. Stoping is carried on for 2 weeks, while the mill is operating. Development, mainly in the form of drifting and raising is done for 2 weeks, while the mill is closed down.
The ore is hoisted in a skip from the lower levels through the 75 deg. incl. winze. Skip dumps into a 15 ton ore chute in the adit. Ore is drawn from this ore chute into ore cars, and cars are trammed into a 100 ton mine ore bin, and then ore is transported by trucks from the mine ore bin to the mill ore bin. Production about 50 tons per day when stoping.

Milling Operations Rated capacity of the mill is 100 tons per 24 hr. Mill consists of a 20 ton ore bin, jaw crusher, conveyor belt, 120 ton fine ore bin, a 100 ton Ball Mill, Classifier, 6 copper flotation cells, 6 Zinc flotation cells, a copper settling tank, a zinc settling tank, a copper filter, a zinc filter, and concentrate loading bins.
See flow sheet on page 2.

Mine Atlas Mine Date Aug. 27, 1954.

District Silver Bell District ---- Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Inf. from Walter Whitlow, Mine Mgr., and Personal Visit.

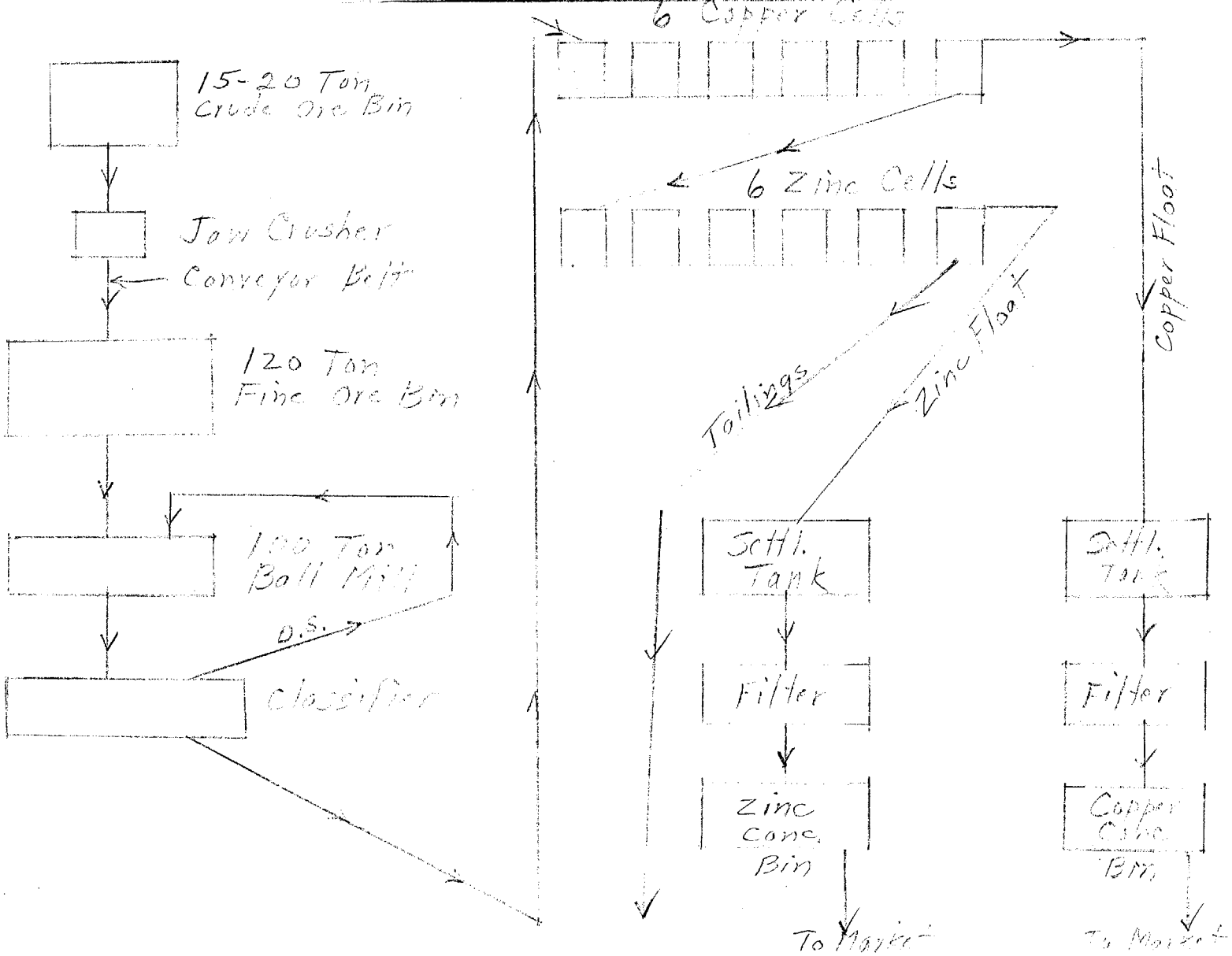
Milling Opera tions (continued Mill feed runs from 20 to 25 % in Zinc, and from 1 to 3 % in Copper values. The mill is operated for 2 weeks, while the mine is producing ore, and shut down for 2 weeks, while development and exploration work is done at the mine.

The mill is run 2 shifts or a total of 16 hrs, per day ---crushing for 4 hrs. and milling the remaining 12 hrs. About 4 tons per hr. or a total of 50 tons per day is milled. The resulting Zinc concentrate runs about 58 % Zinc, and the Copper concentrate runs about 29 % in Copper. Mr. Whitlow reports very good mill recovery.

Marketing The zinc concentrates are shipped to A. S. & R. smelter at ~~El Paso~~ Amarillo, and the copper concentrates are shipped to the A. S. & R. smelter at El Paso.

The concentrates are trucked to a loading ramp 8 miles south of Red Rock, a distance of 26 miles when the Red Rock road is passable, and about 5 miles further by detour.

MILL FLOW SHEET



DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Atlas Mine Date Sept. 7, 1954

District Silver Bell District -----Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Inf. from Walter Whitlow, Mine Mgr., and Personal Visit.

Geology (additional) The ores mined in the Atlas Mine are found as replacement deposits in limestone. According to Prof. Eldred Wilson, the quartz monzonite porphyry intrusions in the vicinity, furnish the mineralizing solutions for the limestone replacement.

Following is from an article in the E. & M. J., July 1954, page 72; in regard to the Geology of the Silver Bell area: "The ore body lies in a northwesterly trending hydrothermal zone about 7 miles long, lying along a major regional fault. Intrusions of monzonite and related dikes with development of cross fractures provided the mineralization."

Ore in Sight There is very little ore in sight, as the exploration and development work required is done only a short time ahead of the actual stoping. Development and exploration is carried on for two weeks, then stoping is carried on for two weeks, and the two operations are performed alternately.

Probable Ore Since this ore body is a limestone replacement, apt to be very irregular in shape and outline as most limestone replacement deposits are; and, since, to my knowledge, it has not been delimited as to length or depth, and varies greatly in width ------ I am not able, at this time, to form any accurate conclusions as to the amount of 'probable ore'. An estimate of this kind should be substantiated by some diamond drill holes, or other exploration work in the ore body.

As far as I can determine, from the present information I have obtained, the Ore Reserves of the Atlas Mine may be said to be potentially large, but the amount and extent unknown.

I understood that there had been some diamond drill holes put down at the mine some time ago. The mine manager, Mr. Whitlow, did not have any information as to the findings in these drill holes, and did not have any estimates of the amount of 'probable ore'. He, kindly, referred me to the Phoenix office of the company for any such information.

Mine Atlas Mine Date Sept. 20, 1954

District Silver Bell District -----Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Inf. from A. M. Kalaf, President, and Personal Visit.

I examined the mine again on Sept. 20, 1954 in company with A. M. Kalaf, Pres., and gathered the following additional information:

Number of Claims 44 ----- 11 patented and 33 unpatented.

Ore Values Ore stoped averages about 20 % Zinc, and 2 1/2 % Copper ----all sulphides.

Ore in Sight Very little ore of commercial grade in sight. About 70 tons of ore is left on the 0 level to protedt the shaft and main adit. This may average 10 % zinc and 2 1/2 % copper. Mr. A. M. Kalaf, President reports ''no proven ore reserves''.

Probable Ore I am not able to make, any, even approximate estimate, of the amount of 'probable ore', since I have not been able to obtain any information in regard to the findings on several drill holes that have been put down on the property. Mr. A. M. Kalaf promised to send me an estimate of the amount of 'probable ore', made by Seton Williams, formerly retained as geologist and engineer for the company, and evidently based on the results of these drill holes. So far, I have not received this report from Mr. Kalaf. I will send it as a supplement to this report, if I receive it later.

Mine Workings -----Adits, Winzes, Drifts and Cross Cuts

(1) One main adit, used as a haulage level -----about 100 ft. long.
(2) One 75 deg. incline winze, used for hoisting the ore ----151 ft.deep.
(3) One 15 ft.winze (vertical) from 0 level.
(4) One drift,110 ft. long,on the 71 ft. level (not used).
(5) One drift,170 ft.long on the 71 ft. level (in use).
(6) One diamond drill station on the 121 ft. level.
(7) One drift, 40 ft. long, on the 151 ft. level. This is being driven now,at a bearing of S 25 E, to hit a diamond drill hole approximately 100 ft. from the breast.
(8) One cross cut, 10 ft. long, on the 151 ft. level.

Mine Workings ----- Stopes

There are 7 worked out stopes, all standing, and an additional stope being worked now. The largest of these stopes measures approximately 20 x 20 x 150 ft. (60,000 cu. ft.), and the smallest stope measures about 12 x 12 x 30 ft. (4,320 cu. ft.) The average for the 7 stopes is about 18 x 25 x 65 ft. (29,250 cu. ft.) The stopes are very irregular in outline with variable widths and heights and with narrow stringers projecting from the sides of the stopes. Some of the stopes have a few fringes of ore remaining on the sides of same, others have some low grade ore (minus 10 % Zinc) remaining, and still others have no ore showings remaining. These stopes plunge, with some variations, at about a 30 degree dip, occasionally increasing to almost 40 degrees, with about a S 10 W strike, and represents the size, dip and character of the ore shoots in the ore body. Barren rock separates these stopes, at various widths of from 1 foot to 50 ft. or more, and in two or three cases the stopes are connected with a narrow stringer connecting same.

Mine Atlas Mine Date Sept. 20, 1954

District Silver Bell District ---- Pima Co. Engineer Axel L. Johnson

Subject: Field Engineers Report. Inf. from A. M. Kalaf, President, and Personal Visit.

Mine Workings ---- Stopes (con't)

The sizes and locations of these stopes are as follows:

(1) 1 stope above the 0 level (level of the main adit) --- 12 x 12 x 30 ft.

(2) 1 stope above the 0 level ---- 30 x 40 x 50 ft. Has ore in the back, running about 5 % zinc and 0.75 % copper.

(3) 1 stope above the 0 level, and 10 ft. above the back of stope (2) ---- 15 x 30 x 30 ft.

(4) 1 stope, 6 to 10 ft. wide, 25 ft. high, and 25 ft. long above the 0 level.

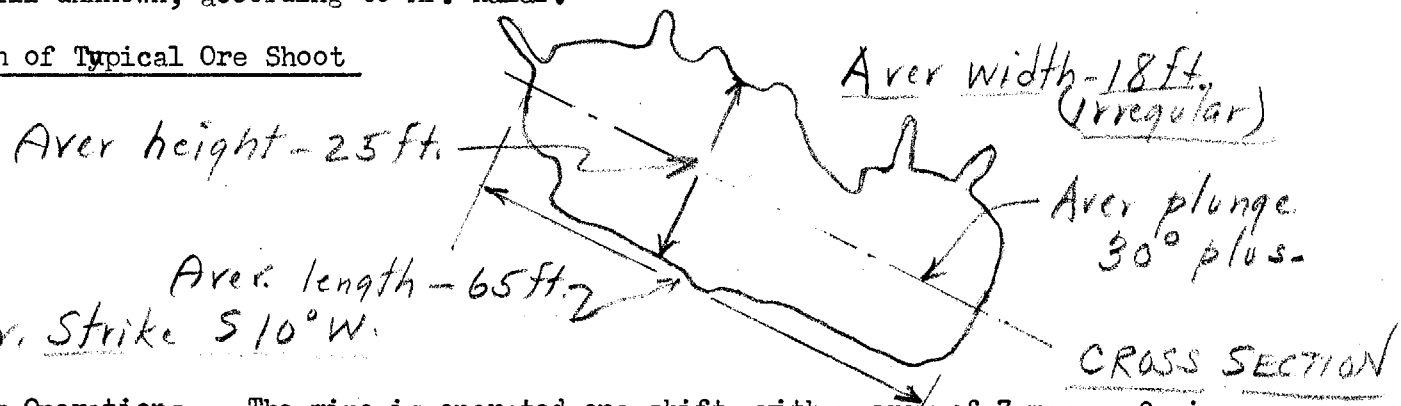
(5) 1 stope, above and below the 0 level, 9 to 15 ft. in width, 12 to 30 ft. in height, and about 100 ft. long. An ore pillar about 9 x 12 x 10 was left on the 0 level to protect the shaft and main adit. This may run about 10 % zinc and 2 1/2 % copper. This stope extends down to the 71 ft. level, with some ore remaining in the bottom of the 71 ft. level.

(6) Big stope between the 0 and 71 ft. levels. This plunges 30 degrees and strikes S 10 W. It is 10 to 30 ft. wide, 10 to 30 ft. high, and is 150 ft. long. It is very irregular, with a few fringes of ore remaining on the sides of the stope.

(7) 1 stope above the 71 ft. level. This is 30 ft. wide, 20 ft. high, and 60 ft. long. This also extends down to the 71 ft. level, Mr. Kalaf estimating about 15ft. of ore below this level.

(8) Stope being mined at present above the 71 ft. level. The working face is now about 30 ft. above the 71 ft. level, and is 12 ft. wide and 8 ft. high. The bottom is rock and the back is ore. The right side is quartz monzonite porphyry, and the left side is ore. The bottom slopes about 30 degrees. Height and width of this ore shoot is still unknown, according to Mr. Kalaf.

Sketch of Typical Ore Shoot



Mining Operations The mine is operated one shift, with a crew of 7 men----2 miners, 3 muckers, 1 hoistman, and the foreman. The miners drill alternately in the stope above the 71 ft. level, and in the development drift on the 151 ft. level, as required.

For two weeks, while the mill is running, the ore is being mucked from the stope with a mucking machine on the 71 ft. level, and hoisted (see page 1 of this report).

For the next two weeks, while the mill is closed down, the waste from the development work is hoisted and track and pipes are laid.

The drift on the 151 ft. level has to go about 100 ft. more at a bearing of S 25 E to hit a diamond drill hole put down the first part of the year, and, apparently showing ore.

Future Plans Operators expect to sink the shaft deeper, and put in a diamond drill station on the 181 ft. level.

B S & K MINING CO.
INCORPORATED
242 SOUTH FIRST AVENUE
PHOENIX, ARIZONA

October 7, 1954

Mr. Axel L. Johnson
Box 1333
Tucson, Arizona

Dear Mr. Johnson,

The following information is in reply to your letter of September 21st. I am sorry not to have answered sooner, but have been out of the office.

Mr. Seton S. Williams' estimate of "Probable Ore" at the Atlas mine as of January, 1954 is as follows:

....."Probable Ore. In January of 1954 probable additional ore was indicated by development and diamond drilling as follows:

South stope:	
A face of ore exposed but left behind during 1953 operations suggests minimum of	100 tons
Main stope area:	
Exploration stope at south east end of level indicates minimum of	500 tons
Exploration stope out of easterly stub drift suggests minimum of	200 tons
Eleven feet of ore cored in DD Hole 71-6 considered with sixteen feet of ore cored in DD Hole 71-10 suggests presence of	775 tons
Ore exposed in back of main stope in south ore drift area suggests an additional	200 tons
Estimated tonnage of probable ore exposed above the 71 level:	1775 tons".

In addition to the above information, you also stated that you would like information on tonnage mined, with average analyses of mill heads and concentrates. The following figures represent production during the year 1953.

7058 Wet — Tons Milling Ore mined, averaging 0.0 % Lead, 24.44 % Zinc and 1.49 % Copper.

2544 Dry — Tons Zinc Concentrate averaging 57.2 % Zinc, 0.0 % Lead, 1.71 % Copper, 0.01 oz. Gold and 0.69 oz. Silver.

178 Dry — Tons Copper Concentrate averaging 0.0 % Lead, 6.44 % Zinc, 28.68 % Copper, 0.02 oz. Gold and 3.7 oz. Silver.

0 — Lbs. Lead Produced

2,931,867 — Lbs. Zinc Produced

188,964 — Lbs. Copper Produced

24 — Oz. Gold Produced

18,242 — Oz. Silver Produced.

Very truly yours,
B. S. & K. MINING CO.

A. M. Kalaf

amk:ln

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine 'Atlas Exploration — Date August 28, 1964

District Silver Bell District, Pima Co. — Engineer Axel L. Johnson

Subject: Field Engineers Report. Information from Victor F. Hollister, Duval Corp., Exploration Dept.

References: Reports of Atlas Mine - April 3, 1964, Feb. 14, 1963 and previous reports.

Location: Secs. 29 & 32 - T. 11 S. - R. 8 E. - about 5 miles NW of Silver Bell, Ariz.

Owners: 'B.S. & K. Mining Co., P.O. Box 5853, Tucson - A.M. Kalaf, Pres.

Lessees: 'Duval Corporation, Box 38, Sahuarita, Charles H. Curtis, Res. Mgr.
Lease with option to purchase under date of May 1, 1964

Terms of Lease: Minimum royalty payments to start one year after date of lease issuance, or May 1, 1965.
'B.S. & K. Mining Co. is also permitted to mine for one year or until May 1, 1965.

Number of Claims: A total of 110 claims, viz: -
(a) 11 patented claims
(b) 85 additional Federal claims, not patented
(c) 14 claims on State land, covered by State leases.

Principal Minerals: Copper and zinc.

Present Mining Activity: Diamond drilling on contract by 'Empire Drilling Co., Phoenix, Arizona - 1 drill rig working.

Past History & Production: See reports of Atlas mine.

Old Mine Workings: See reports of Atlas mine.

Review of Recent Operations:
(a) Geophysical work was started by Heinrichs Geoexploration Co. about June 1st and completed July 20th. Mr. Hollister reports that induced polarization and magnetic methods were used.
(b) Diamond drilling was started shortly after June 1st. 3 holes are now finished and the 4th hole is now being drilled.
(c) Diamond drill logs were obtained from B. S. & K. Mining on their surface and underground drilling and these have been mapped and studied.

Proposed Plans:
Company hopes to find sufficient ore of suitable grade to warrant an open pit operation.

STATUS OF DORMANT MINES

MINE NAME: Atlas

LOCATION: Pima County, Arizona - Silver Bell District

OWNER AND/OR LEASEE: B.S.+K. Mining Co.,

ADDRESS: 3009 N. 39th St., Phoenix, Arizona.

APPROXIMATE PRODUCTION (Year of ~~1945~~ 1947):

COPPER 100,000 Lbs. LEAD _____ Lbs.

ZINC 350,000 Lbs. (OTHER) _____

CHECK THE CHIEF CAUSE OF YOUR DISCONTINUED PRODUCTION:

(A) Easily available ore worked out.
✓ (B) Increased costs, but have quantity similar to past grade of ore.
✓ (C) Too close a margin to develop more ore.
(D) Need Mill on property

If you have ore ready to mine please give your estimate of the amount of metal (name each metal) that you could produce in one year (after allowing 60 days to get started) if there were premiums above present market prices. Name amount with a low premium, and amount at a high premium; such as:

Copper at 22½¢ plus 5¢ premium..... 1,000,000 Lbs.
Copper at 22½¢ plus 10¢ premium..... 1,500,000 Lbs.

With 5¢ Premium - 350,000# Copper - 1,000,000# Zinc.
" 10¢ " - 1,000,000# " - 3,000,000# Zinc.

If you do not have ore ready to mine please discuss the following:

(A) Do you think a reasonable development program would produce a justified tonnage of commercial ore at above mine?

(B) With a premium price (guaranteed for one year) could you carry out such a development program yourself? What premium?

(C) If you could not do this yourself, would a quick drilling program by some government agency (at government expense) be sufficient?

(D) Or would you prefer a loan plan similar to the arrangements during World War II?

How about a combination plan in two stages such as follows?

Stage 1: Government engineers review project and, if a little drilling appears to be justified and a preliminary key to the situation, such drilling program to be agreed upon by owner and government engineer, paid for by the government, but let by contract.

Stage 2: If results of drilling (or without drilling) justify underground development and/or production equipment, same to be obtainable via a mortgage loan on property.

Please discuss the above: We have the mine in operation with a large tonnage of ore in sight that will average probably 1½% Copper and 8% Zinc, and figure we could keep a 200 ton mill busy. We need a loan to build the mill and enough money to continue developing the mine while the mill is under construction.

SUGGESTIONS:

While a premium on metals would help a lot at the present time we believe the mine will pay it's own way with a mill on it.

DATE Sept 7th, 1950 SIGNATURE A.A. Barr, Mgr.

SULLIVAN
REALTORS
Broker
4441 East Fifth Street - Tucson, Arizona 85711

ED PERSELLIN
LAND & INCOME PROPERTIES
Res. (602) 885-3177 Bus. (602) 795-6910

BS+K MINE (Pima)
Atlas Mine (file)

October 1st, 1987

Mr. Ken A. Phillips, Chief Engineer
Department of Mines & Mineral resources
State of Arizona
Phoenix, AZ 85007

Dear Mr. Phillips:

Thank you for the assistance provided by your letter to me of September 22nd. I am enclosing a copy of the sales brochure we are using to merchandise the BS&K mine, and anything you can do to pass along this information to firms would be appreciated.

Again, thanks for your help.

Sincerely,

ED PERSELLIN
REALTOR Associate

Atlas mine
Pima Co.

REPORT ON THE
B. S. & K. PROJECT
PIMA COUNTY, ARIZONA

SUPPLEMENT TO
OCTOBER 1980 REPORT

JUNE 1983

FRANK H. BUCHELLA, JR. P.E.
MINING CONSULTANT
4312 E. BLANTON RD.
TUCSON, ARIZONA 85712

INTRODUCTION

This report is a supplement to the study prepared October 1980. Only Case III - vat leach, solvent extraction, electrowinning and the ASARCO - B. S. & K. joint venture with vat leach and Silver Bell Mill options are considered as these cases are the only ones feasible. Ore reserves, cutoff grades and costs have been updated using all new drilling information and todays costs.

ORE RESERVES

The ore reserves have been redone using ASARCO's computer models with a .40% Cu. flotation cutoff and a .20% Cu. leach cutoff. ASARCO drilled 39 new holes on their ground surrounding the B. S. & K. Property.

The summary of the new reserves provided by ASARCO are as follows:

*(Tons x 10^6)	B. S. & K.	Combined
Ore, Grade % Cu.	*5.38 @ 0.64	*24.31 @ 0.66
Leach, Grade % Cu.	*4.87 @ 0.37	*16.93 @ 0.38
Waste	*8.59	*44.12
Combined (ore & leach)	*10.25 @ 0.512	*41.24 @ 0.545
Recovery - Percent		
Flotation	76.5	76.5
Leach	60	60
Copper Recoverd		
Flotation - lb.'s	*41.3184	*192.5352
Leach - lb.'s	*21.6228	*77.2008
Combined - lb.'s	*62.9412	*269.7360

Case III - Vat Leach, Solvent Extraction, Electrowinning

Description: Case III for the B. S. & K. feasibility study considers the recovery of copper through a heap leach-solvent extraction-electrowinning process where the mine run material is crushed to minus ½ inch before being placed on the dump. All secondary sulfide and oxide mineralization will be placed in heaps for leaching by sulfuric acid solutions. Recovery of copper through the solvent extraction-electrowinning system will result in a directly saleable product. Mining is designed for open pit methods employing front-end loaders and truck haulage.

Operating Data

Operating days per year		
Mill	365	
Mine	250	
Mine production		
Ore and Waste	3,660,000	tons per year
	14,640	tons per day
Ore	2,000,000	tons per year
	8,000	tons per day
	12,221,600	lb.'s rec. per year
Operation life	5.15	years

Mining: Development of the B. S. & K. enrichment deposit involves the design, development and operation of an open pit mine. The mining of oxide and secondary sulfide copper mineralization results in the development of a shallow open pit. Production rates are not limited by mill feed requirements and optimum use of front-end loaders and truck haulage is possible.

Consideration was given to purchasing new and rebuilt equipment, leasing equipment, or contract mining. Production for owner operated equipment was established at 8,000 tons per day going to the heaps with three months allowed for preproduction development.

Dump areas were selected west and southwest of the pit. The leach dump will overlie a natural drainage basin with primarily hard rock bottom. The waste dump is located due west of the pit area over level valley fill. Both dumps are sequenced to coincide with the pit reserves.

The mine operation is scheduled to work 10, 8 hour shifts per week, 50 weeks per year. Shift productivity is estimated at 7,320 tons. With an overall estimated waste to leach ratio of 0.84:1 the mine will produce over 2.00 million tons of leach ore and 1.66 million tons of waste annually. Mine production will continue for about 5.15 years, allowing for the removal of over 18.8 million tons of total material.

The open pit operation will utilize one 15 YD^3 front-end loader and three 85 ton haul trucks as the principle equipment for both waste removal and mining of the copper ore. Benches 25 feet high will be drilled and charged with ANFO providing the necessary fragmentation to facilitate loading. The need for secondary breakage should be insignificant. Haulage distances going one way to B. S. & K.'s leach, waste and ore facilities average about 3,000 feet, while the distance to ASARCO's leach and ore dump is approximately 3 miles one way. Pit ramps

are relatively short in duration and designed at a maximum grade of 8%. Maintenance of the mining equipment will be in a shop facility located at the plant site. A mine pump and pit sumps are recommended for dewatering any wet mine areas.

Primary blast hole drilling will be performed by one rotary rubber-tire truck drill. Over 135 holes spaced on an 18 x 18 x 30 foot pattern will be bulk loaded with ANFO and shot each week. This will require only seven 9 hour shifts of drilling per week and will not require the purchase of a standby drill. Bulk loading and dewatering of blast holes will be performed by an outside contractor.

The purchase of used mining equipment has been considered as an option for the leach operation. Scheduled operating hours for much of the mining equipment is less than half the expected machine life. The condition of this equipment and subsequent capital expenditure is based upon the required project use and the production dependency of each unit. Most of the used equipment is low hour and/or reconditioned, and will therefore have operating and availability figures similar to that of new equipment.

Used mine equipment includes 3 haul trucks, a track dozer, motorgrader, blast hole drill and water truck. The only service vehicle which merits purchasing used is the rough terrain crane. The remainder of the mine and general service vehicles are to be purchased new.

Mine run material will be hauled to the leach area and dumped into a portable three stage crusher. The crushing unit will reduce the material to minus ½ inch. The crushing unit will be moved

in a manner so that the leach dump can be built on a continuing basis with feed from the crushing plant.

Processing: The selected heap area site is in a natural basin with a rocky bottom. The leaching pad surface will be prepared by clearing and grubbing the vegetation, followed by moderate contouring and compaction with mechanized equipment, making use of whatever material is available on the site. A pregnant solution dam will be prepared at the narrow part of the lower basin, keyed onto the rock bottom with concrete is possible. If not, an earth and clay dam lined with Hypalon (or similar material) will be constructed. Monitoring wells will be drilled below the dam to permit routine checks for leaks during operations.

The leach dumps will be built in 25-foot lifts. After leaching is completed in 60 to 90 days, a new lift will be placed on top of the old one.

Leaching solution at 2,500 gallons per minute, coming from the solvent extraction plant raffinate storage, will be pumped to the leaching area. At a rate of 8,000 tons per day, five days per week, each heap of 240,000 tons will be built in six weeks and will have a nominal leaching cycle of 12 weeks. It will measure about 150 feet by 1,250 feet by 25 feet deep. The makeup water is estimated at 200 gallons per minute.

Solutions from the leach dump are fed through a solvent extraction plant at 2,300 gallons per minute. This is combined with 2,300 gallons per minute of organic so that the aqueous to organic ratio is maintained at a 1:1 ratio. The loaded organic is fed to

the two stages of solvent stripping at a rate of 2,300 gallons per minute. Pregnant electrolyte from the solvent stripper is fed to electrowinning.

Costs: Mine capital costs are based on current preliminary budget quotations from manufacturers and dealers. Mobile equipment costs include freight charges to minesite and erection costs when applicable. Capital costs for the maintenance shop (5,130 sq. ft.), mine warehousing (1,710 sq. ft.) and the changehouse (1,000 sq. ft.) include construction material and labor and all related tooling and equipment. Mobile equipment, buildings and facilities have all been costed new.

Mine operating costs are a function of an hourly operating cost per unit applied over the scheduled operating hours. The equipment operating costs reflect parts and supplies and all maintenance and operating wages. Hourly wages include a mine payroll burden of 40 percent.

Leaching, solvent extraction and electrowinning costs are based on 1979 leaching tests conducted by Mountain States Mineral Enterprises, Inc.

Crushing costs were based on a quotation from Rexnard for capital and industry costs for operating.

Capital Costs

Ancillary	$1,068,125
Environmental	158,750
Mine	
Equipment	2,908,250
Preproduction Operation	662,750
Haul Road Construction	546,125
Crushing plant (portable)	2,560,125

Plant

Engineering and design	$ 873,125
SX-EW construction	8,743,750
Total	$17,521,000
Cost/lb.	$ 0.278

Operating Costs

	Annual	$/lb. Cu.
Mine	$4,217,125	$0.345
Mill	3,054,625	0.250
G & A	1,428,750	0.117
Total	$8,700,500	0.712

Personnel:

Mine	41
Leach	22
G & A	12
Total	75

Financial Analysis: Copper price = $1.20/lb.

Cost to produce = 0.99/lb.

Production

Cu - 62,941,600 @ $1.20/lb. = $75,529,920

Revenue

Capital cost	17,521,000
Mine revenue	58,008,920
Operating cost @ $0.712/lb. =	44,814,419
Net mine profit	$13,194,501
Net annual profit	$ 2,562,039

Atlas mine
Pima Co.

FIRST TIME OFFERED!!

TUCSON-AREA COPPER MINE

HUGE ORE RESERVES ----- 105± PATENTED ACRES, PLUS 3000± ACRES UN-PATENTED LODE CLAIMS/FEDERAL LEASED LAND ----- INCLUDING VARIOUS GEOLOGICAL, GEOPHYSICAL AND FEASIBILITY STUDIES, FINANCIAL ANALYSIS, ETC.

AT SILVERBELL, ADJOINING ASARCO

CORPORATE SELLER

PRICE - $2,800,000
TERMS - Submit

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ED PERSELLIN
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4441 E. 5th Street
Tucson, AZ 85711
Off: (602) 795-6910
Res: (602) 885-3177

B. S. & K. PROPERTY

PIMA COUNTY, ARIZONA

LOCATION

The B. S. & K. properties comprise 4,000 acres, including patented lode claims, unpatented lode claims and state leases, approximately 105 acres are patented. Included in this area are the B. S. & K. chalcocite blanket and the Atlas copper-zinc limestone replacement deposit. The property is located in the Silver Bell Mining District, Pima County, Arizona, approximately 45 miles west-northwest of Tucson, Arizona. From the town of Silver Bell, a county maintained dirt road provides access 6.5 miles to the property. The Silver Bell Unit of American Smelting and Refining Company (ASARCO) has two open pit copper mines in the district. The northernmost one is 6,000 feet south of the B. S. & K. deposit.

HISTORY

The B. S. & K. Mining Company operated the Atlas Mine from 1953 to 1964 producing zinc and copper from a small replacement orebody. Drilling on the adjacent secondary enrichment deposit began in 1955 by ASARCO. During the period from 1955 to 1978, 150 drill holes were completed on and adjacent to the B. S. & K. claims by various companies to delineate the secondary enrichment copper deposit, explore for additional reserves and condemnation of plant and dump site areas.

In 1973, the consulting firm of Pincock, Allen and Holt prepared a feasibility study for B. S. & K. based on the data developed from Duval, B. S. & K. and ASARCO drilling.

During 1977 and 1978, Minerals Exploration Company conducted a complete and comprehensive study on the B. S. & K. property. In addition to geologic studies, this work included additional drilling on the chalcocite deposit, exploration drilling for new ore bodies, condemnation drilling, a pilot mine, geophysical surveys, ore reserves and mine designs, metallurgical testing and a complete feasibility study and financial analysis.

ORE RESERVES

The ore reserves have been calculated using a .40% Cu, flotation cutoff and a .20% Cu. leach cutoff.

The summary of the reserves are as follows:

	B. S. & K.
Ore, Grade % Cu.	5,380,000 tons @ 0.64
Leach, Grade % Cu.	4,870,000 tons @ 0.37
Waste	8,590,000 tons
Combined (ore & leach)	10,250,000 tons
Recovery - Percent	
Flotation	76.5
Leach	60
Copper Recovered	
Flotation - lbs.	41,318,400
Leach - lbs.	21,622,800
Combined - lbs.	62,941,200

These reserves are part of a much larger reserve shared with ASARCO.

ANCILLARY FACILITIES

Trico Electric Supply services the area of the B. S. & K. site via a 14.4 KVA line which passes through the plant site. Power demand for the solvent extraction and electrowinning plant would be 2,000 KW, which could be provided with the existing line. Portions of the Trico line and portions of a Tucson Power Company line will have to be relocated.

Telephone service would be brought into the project from Silver Bell.

Water supply for domestic and metallurgical processes is available at the site by pumping from wells. Hydrologic testing would be required for efficient well sizing and development.

On May 1, 1973, an agreement was reached between B. S. & K. and ASARCO which allows either party to mine their ore and strip material on the adjacent ground. Under the agreement, either party may extend its backslope onto the adjacent or surrounding properties. Access across and use of adjacent property is also allowed. The terms of the agreement are transferable with property rights and effective for 30 years.

A large house is located on the patented property that can be used for offices or residential.

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX 7, ARIZONA

February 21, 1963

Mr. Jack W. Still
P.O. Box 1512
Prescott, Arizona

COPY

Dear Mr. Still:

The following is some information in regard to the Atlas Mine as per your request to Frank P. Knight, Director, Dept. of Mineral Resources.

The Atlas claims are located in Sections 29 and 32 - T. 11 S., R. 8 E. in the Silver Bell District, Pima County, Arizona. To reach the mine, drive west from Red Rock on the Sasco Road for a distance of about 20 miles. An alternate route is to drive past the Silver Bell mill and shops and continue north to the mine.

The Atlas group consists of 96 Federal claims of which 11 are patented, plus an additional 14 State claims covered by State leases.

The owners are B. S. & K. Mining Co., 1st National Bank Bldg., Phoenix 4, Arizona (a closed corporation). A.M. Kalaf is President and General Manager, and George Kalaf is Vice President.

The company is now mining zinc ore, containing a small amount of lead and copper, and milling it in a 100 ton capacity flotation mill located at the mine site, producing a zinc concentrate and lead-copper concentrate. The concentrates are hauled to Red Rock for shipment, the zinc concentrates being shipped to the American Metal Climax smelter at Blackwell, Okla., and the lead-copper concentrates to the A.S. & R. smelter at El Paso, Texas.

B.S. & K. Mining Co. received a Small Business Administration loan in the amount of $100,000 about two years ago. This was a 5 year loan, and about one-half has already been paid back. The loan was used to assist the company to finance the sinking of the new 554' vertical shaft and the purchase of about $80,000 worth of new equipment. The company was not able to qualify for the Government Lead-Zinc Subsidy, on account of too high production for one calendar year.

Up to the time of the completion of the new vertical shaft in August 1961, the mine workings consisted of

(1) One main adit, used as a haulage level - 100 ft. long.
(2) One 75 deg. incline winze, used for hoisting the ore to the haulage level - 185 ft. deep.

(3) About 300 ft. of drifting on the 71 ft. level.
(4) About 500 ft. of drifting on the 151 ft. level.

At the present time, the mine workings in addition to the above, consist of

(1) One vertical shaft - 554' deep finished Aug. 1961.
(2) About 60' additional drifting on the 1st level (192' below the collar) tying into the old 151' ft. level.
(3) About 400' of drifts on the 2nd level (273' below collar).
(4) About 350' of drifts on the 3rd level (364' below collar).
(5) About 500' of drifts on the 4th level (454' below collar).

At the present time, the mine is working one shift and the mill 3 shifts, 10 men working in the mine and 5 in the mill. The mining operations were reduced from 2 shifts to 1 shift recently as available working areas were not large enough to support a 2 shift operation. The company plans to revert to 2 shifts in a few months after the 5th level has been developed. The 5th level will be 544' below the shaft collar.

The average production, at present, is about 80 tons of ore per day. This compares with a production of 60 tons per day on March 1, 1962 with 2 shifts and 18 men working. However, at the present time, the mine work is limited to stoping only with no mine development being carried on. In about 60 days, the company plans to start drifting on the 5th level, and also to resume underground diamond drilling.

The mill heads now run about 14% zinc, with from 0 to 0.4% copper and a few pockets of lead. There has been a steady reduction in both zinc and copper values during the past four years. In April 1959, the mill heads averaged about 25.5% zinc and 0.8% copper; in July 1960, they averaged 22.5% zinc and 0.5% copper; in March 1961, the average was 17.5% zinc and 0.6% copper; and in March 1962, it was 17.0% zinc and 0 to 0.4% copper. Now the mill heads are down to 14% zinc. Mr. Kalaf reports shipments of 4,774 tons of zinc concentrates and 264 tons of lead-copper concentrates during 1962.

The ores in the Atlas Mine are replacement deposits in limestone. The dacite porphyry (or quartz monzonite porphyry) intrusions in the vicinity furnish the mineralizing solutions for the limestone replacement. The ores are found in the limestone near the dacite porphyry contact up to as much as 200 ft. away from the contact.

The ore shoots are quite large and pitch from 40 to 80 degrees in a direction parallel to the contact (S 10° W). On the upper levels (above 192 ft.), 7 stopes averaged 18' x 25' in cross section and 65' in depth. Further down, between the 2nd and 4th levels (273' to 454' below the shaft collar), one stope was 30' wide, 70' long and 120' in depth, and another stope was in the shape of a mushroom, about 8' x 8' in cross section at the bottom and 100' x 100' at the top and over 100' in depth. The ore shoots are very irregular

in outline, with narrow stringers projecting on all sides. From 1 to 100 feet of barren rock separate the individual ore shoots.

The writer has not seen or been informed of any estimate of "ore in sight" or "probable ore". Since exploration and development work is done only a relatively short time ahead of the actual stoping, the "ore in sight" at any one time is not great. In the words of one eminent geologist, the ore reserves of the Atlas Mine may be said to be potentially large, but the amount and extent unknown.

In the mining operations, the ore, after blasting, slides down to the haulage level below by gravity, and is there loaded into ore cars with mucking machines and trammed to the ore skip at the shaft by means of compressed air locomotives. No timber is required in any of the stopes, no chutes are used, and no back fill is needed. The mined out stopes are left open, except as they are used for the dumping of waste rock from the drifts and crosscuts required in the mine development.

The Atlas Mine has been able to continue operating in spite of the low price of zinc and high labor and material costs on account of a number of favorable natural conditions, as follows: -

(1) No timbering required to support the underground workings. Not one piece of timber has been used except in the shaft and drill stagings.

(2) Very little water to pump. Only 6 gal. per min. of water is pumped for 8 hours each day.

(3) Large ore shoots, as mentioned previously.

(4) Ore shoots pitching down at slopes which permit the ore to slide down to haulage level below by gravity.

(5) Good natural ventilation. Openings to the surface through some of the old mined out stopes provide good ventilation, and the working places in the mine are cool and comfortable.

(6) Easy milling ore. About 98½% recovery is obtained on the zinc ore, and fairly good recovery in the lead and copper.

In addition to these favorable natural conditions, the management of the company has been able to secure and benefit by other favorable factors, as follows:

(1) Good labor relations. The mine employees are well satisfied and do not belong to a labor union. Housing is provided at the mine camp for those employees who wish to live at the mine. All except two employees have availed themselves of this opportunity.

(2) Good technical advice. The management has consulted able geologists and consulting engineers in regard to the mine exploration and development.

(3) Good mining equipment. The management is using modern equipment and machinery in their mining operations.

Hoping that the above information on the Atlas Mine may be of some value to you, I am

Very sincerely,

Axel L. Johnson

Axel L. Johnson, Field Engineer
P.O. 5047
Tucson, Arizona

ALJ/H

STATUS OF DORMANT MINES

MINE NAME: Atlas

LOCATION: Pima County, Arizona – Silver Bell District

OWNER AND/OR LEASEE: B.S+K. Mining Co.,

ADDRESS: 3009 N. 39th St., Phoenix, Arizona.

APPROXIMATE PRODUCTION (Year of ~~1945~~ 1947):

COPPER 100,000 Lbs. LEAD _____ Lbs.

ZINC 350,000 Lbs. (OTHER) _____

CHECK THE CHIEF CAUSE OF YOUR DISCONTINUED PRODUCTION:

(A) Easily available ore worked out.
✓ (B) Increased costs, but have quantity similar to past grade of ore.
✓ (C) Too close a margin to develop more ore.
(D) Need Mill on property

If you have ore ready to mine please give your estimate of the amount of metal (name each metal) that you could produce in one year (after allowing 60 days to get started) if there were premiums above present market prices. Name amount with a low premium, and amount at a high premium; such as:

Copper at 22½¢ plus 5¢ premium..... 1,000,000 Lbs.
Copper at 22½¢ plus 10¢ premium..... 1,500,000 Lbs.

With 5¢ Premium – 350,000# Copper – 1,000,000# Zinc.
" 10¢ " – 1,000,000# " – 3,000,000# Zinc.

If you do not have ore ready to mine please discuss the following:

(A) Do you think a reasonable development program would produce a justified tonnage of commercial ore at above mine?

(B) With a premium price (guaranteed for one year) could you carry out such a development program yourself? What premium?

(C) If you could not do this yourself, would a quick drilling program by some government agency (at government expense) be sufficient?

(D) Or would you prefer a loan plan similar to the arrangements during World War II?

How about a combination plan in two stages such as follows?

Stage 1: Government engineers review project and, if a little drilling appears to be justified and a preliminary key to the situation, such drilling program to be agreed upon by owner and government engineer, paid for by the government, but let by contract.

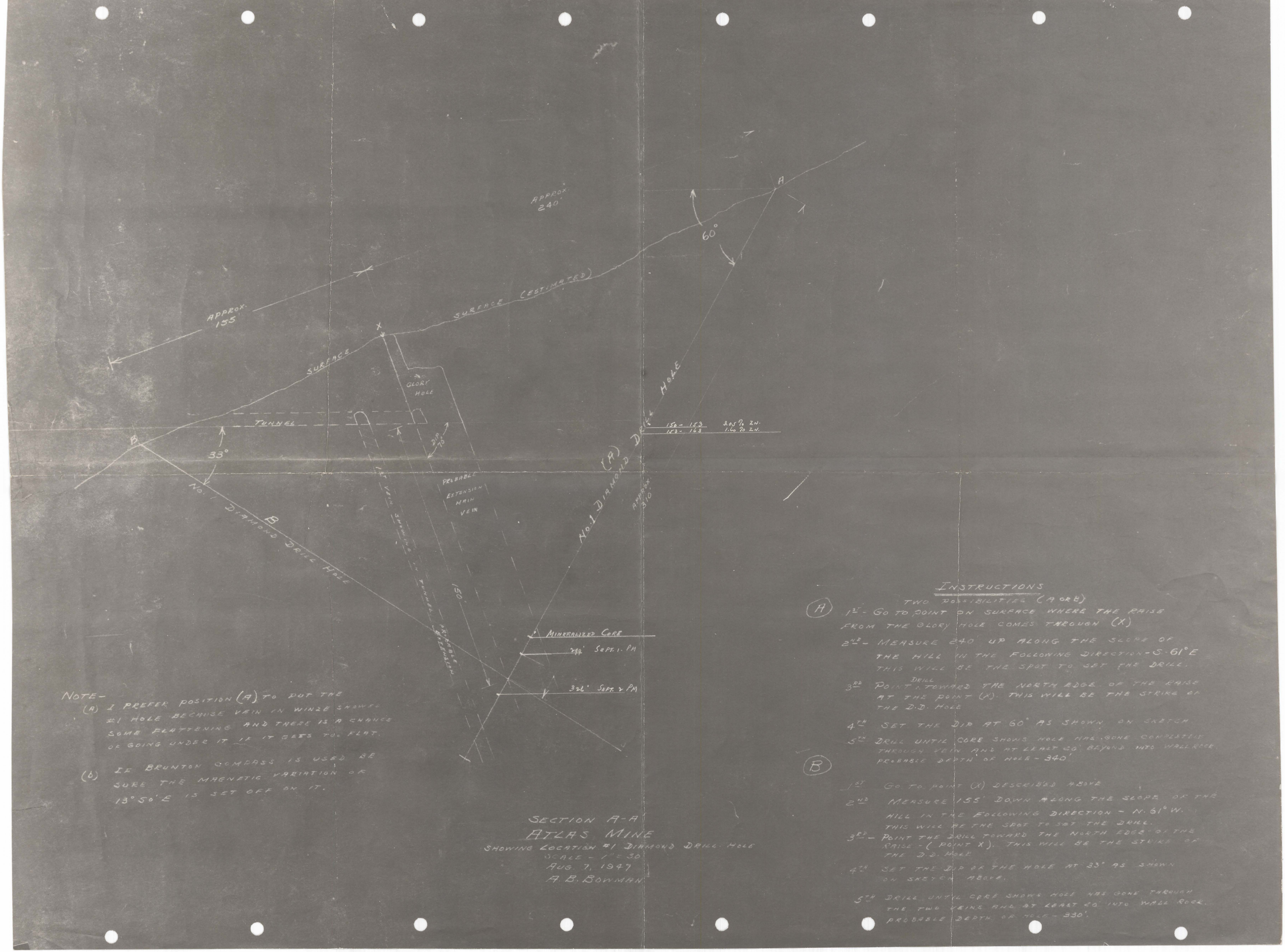
Stage 2: If results of drilling (or without drilling) justify underground development and/or production equipment, same to be obtainable via a mortgage loan on property.

Please discuss the above: We have the mine in operation with a large tonnage of ore in sight that will average probably 1½% Copper and 8% Zinc, and figure we could keep a 200 ton mill busy. We need a loan to build the mill and enough money to continue developing the mine while the mill is under construction

SUGGESTIONS:

While a premium on metals would help a lot at the present time we believe the mine will pay it's own way with a mill on it.

DATE Sept. 7th, 1950 SIGNATURE A.C. Barr, Mgr.



NOTE-

(A) I PREFER POSITION (A) TO PUT THE #1 HOLE BECAUSE VEIN IN WINZE SHOWED SOME FLATTENING AND THERE IS A CHANCE OF GOING UNDER IT IF IT GETS TOO FLAT.

(b) IF BRUNTON COMPASS IS USED BE SURE THE MAGNETIC VARIATION OF 13° 50' E IS SET OFF ON IT.

SECTION A-A
ATLAS MINE
SHOWING LOCATION #1 DIAMOND DRILL HOLE
SCALE - 1" = 30'
AUG. 7, 1947
A. B. BOWMAN

INSTRUCTIONS

TWO POSSIBILITIES (A OR B)

(A)

1ST - GO TO POINT ON SURFACE WHERE THE RAISE FROM THE GLORY HOLE COMES THROUGH (X)

2ND - MEASURE 240' UP ALONG THE SLOPE OF THE HILL IN THE FOLLOWING DIRECTION - S. 61° E THIS WILL BE THE SPOT TO SET THE DRILL.

3RD - POINT DRILL TOWARD THE NORTH EDGE OF THE RAISE AT THE POINT (X). THIS WILL BE THE STRIKE OF THE D.D. HOLE

4TH - SET THE DIP AT 60° AS SHOWN ON SKETCH

5TH - DRILL UNTIL CORE SHOWS HOLE HAS GONE COMPLETELY THROUGH VEIN AND AT LEAST 20' BEYOND INTO WALL ROCK. PROBABLE DEPTH OF HOLE - 340'

(B)

1ST - GO TO POINT (X) DESCRIBED ABOVE

2ND - MEASURE 155' DOWN ALONG THE SLOPE OF THE HILL IN THE FOLLOWING DIRECTION - N. 61° W. THIS WILL BE THE SPOT TO SET THE DRILL.

3RD - POINT THE DRILL TOWARD THE NORTH EDGE OF THE RAISE - (POINT X). THIS WILL BE THE STRIKE OF THE D.D. HOLE

4TH - SET THE DIP OF THE HOLE AT 33° AS SHOWN ON SKETCH ABOVE.

5TH - DRILL UNTIL CORE SHOWS HOLE HAS GONE THROUGH THE TWO VEINS AND AT LEAST 20' INTO WALL ROCK. PROBABLE DEPTH OF HOLE - 330'.