9-11-92

PLATE 5

GEOLOGY MAP EXPLANATION

ROCK TYPES

CENOZOIC

TERTIARY QUATERNARY

- Qb — BASALT INTRUSIVE
- Qu — QUATERNARY UNDIVIDED
- Tr — RHYOLITE PLUG AND ASSOCIATED DIKES (AGE: 63 M.Y.)

MESOZOIC

CRETACEOUS

- Kha — HORNBLENDE ANDESITE PLUG AND ASSOCIATED DIKES
- Krd — RHYODACITE
- Kg — GRANOPHYRE
- Kut — UNCLE SAM TUFF; (AGE: 71.9 ± 2.4 M.Y.)
- Ksg — SCHIEFFELIN GRANODIORITE (AGE: 72 M.Y.)
- Kap — ANDESITE PORPHYRY DIKES

Unconformity

- Kb Undivided — BISBEE FORMATION
- Kbls — LIMESTONE — INCLUDES BLUE 12 FOOT AND G FOOT LIME OF LOCAL USAGE
- Kbn — NOVACULITE — SILICIFICATION CHARACTERIZES THIS UNIT (PROBABLY EQUIVALENT OF THE GLANCE CONGLOMERATE) AND RESULTS IN THE "NOVACULITE" TEXTURE

PALEOZOIC

PENNSYLVANIAN – PERMIAN

MACO GROUP

Unconformity

- Pcn — CONCHA LIMESTONE
- Ped — EPITAPH DOLOMITE
- Pc — COLINA LIMESTONE
- PPe — PERMIAN-PENNSYLVANIAN EARP LIMESTONE
- Ph — HORQUILLA LIMESTONE

MISSISSIPPIAN

Disconformity

- Me — ESCABROSA LIMESTONE

DEVONIAN

Disconformity

- Dm — MARTIN LIMESTONE

CAMBRIAN

Disconformity

- Ca — ABRIGO LIMESTONE
- Cb — BOLSA QUARTZITE

PRECAMBRIAN

Unconformity

- Pcg — GRANITE
- Pcp — PINAL SCHIST

HORNFELS

ALTERATION

SYMBOLS

a. ANTICLINE b. SYNCLINE
Showing trace of axial plane

CONTACT
Dashed where approximately located, dotted where concealed or interpreted

FAULT
Dashed where approximately located, dotted where concealed

VEINS
INCLUDES THE SO CALLED "FISSURES" OF LOCAL USAGE

STRIKE AND DIP
a. Bedding trends
b. Joint trends
(= vertical dip)

FLOW STRUCTURE
Indicating strike and dip
(= vertical dip)

UNDERGROUND WORKINGS

SHAFT

ADIT PORTAL

X
PROSPECT PIT

REFERENCES – GEOLOGY

Drewes, Harald, 1980, Tectonic Map of Southeast Arizona, U.S. Geological Survey Map I-1109.

Hewett, Rogger A., 1974, Exploration Geology and Geochemistry, of the Tombstone Mining District, Cochise County, Arizona, Plate IV, Stanford University Ph.D. Dissertation.

Unknown, Circa 1985? Probably a Newmont Mining Co. Geologic and Alteration map, with surface projection of underground mine workings. Plotted on U.S.G.S. 1:24,000 (1" = 2000') Tombstone and Fairbank quadrangles. Topography was reprinted from original 1:12,000 photos. From the files of the Tombstone Development Company, Inc.

CONTOUR INTERVAL 25 FEET

500 0 500 1000 Feet

Scale 1″=500′

PLATE 4 & 5

GEOLOGY AND LAND STATUS MAP

COUNTRY: U.S.A.
STATE: Arizona
COUNTY: Cochise
MOUNTAIN RANGE: Tombstone Hills
MINING DISTRICT: Tombstone

Tombstone Development Company Inc.

Prepared by James A. Briscoe Thomas E. Waldrip, Jr.

James A. Briscoe & Associates Tucson, Arizona

DATE: 8/11/92	REVISIONS					
DRAWN BY: M.L.R	DATE	NUMB.	BY	DATE	NUMB.	BY
APPROVED:						
D.N.	DRAWING NUMBER					
	R.	P.	F.	LOC.		

PLATE 4

PROPERTY MAP EXPLANATION

PATENTED PROPERTY OWNERSHIP

1	United States of America	11	Hodgson, Kenneth P. & Rita J.	28	Hudson, Norman G.	44	Deckerow, William	102	Madelle, Peter & Gloria	112	Blanford, John N. & Betty R.
2	Arizona, State of	12	Ingersoll Consolidated Mining Co.	29	Crist, R. B. & Evelyn	45	Hatsanaka, Elwyn G. & Evelyn J. Ward, Raymond E. & Beatrice A.	103	Hamlin, Katherine H.	113	Grey, John W. & Mary B.
3	Tombstone Townsite National Historical Monument	15	St. Louis University	30	Powell, Marie Remaertz	46	Hatlebaucher, James & Joyce	104	Wallingford, William L. & Claudia	114	Tobies, Harry (Family Trust)
4	Tombstone Development Company	17	Tombstone Restoration Commission	31	Escapule, Ernest H. et ux.	47	Independent Order of Odd Fellows, Tombstone Rebekah Ldg.	105	Fiedling, Ralph H. & Alice M.	115	Curtis, Earl V. & Mary E.
5	Escapule, Charles B. & Louis W.	18	Fotopoulos, Gus Geary, Eugene W. (Trustee)	32	Dallstrom, Warren E. (Trust) c/o Reido, J. Lutich	49	Randolph, Charles J. & Gloria L.	106	Scott, George J. & Laura B.	116	Johnson, Lottie & Doris Marie
6	Will, Douglas J. (estate) Wurth, Lee F.	20	Frankovich, Gerald J.	34	Valley National Bank of Phoenix	68	Pioneer Trust Company of Arizona	107	Opat, Gill	117	Bantson, Allen A. & Wilma C.
7	Lewis, Mary M. et al.*	21	Pass City Mining Co.	37	Winters, Wayne	77	Goss, Hortons E.	108	Miles, Barbara J.	118	Brown, John D. & Margaret E., Johnson, Theron R. & Palma, C.
8	Houston Mining Resources, Inc. et al.*	22	Wyrick, Daniel & Linda	39	San Diego Mining Co.	93	Tombstone, City of c/o City Clerk	109	Matcher, Charles & Edna	120	Austring, Bette G.
9	Escapule, Florence	23	Costello, John M. et al.*	40	Culpepper, Glen E., Hooley, Murray B. (Co.& Trustee)	95	West, Helen R.	110	Eaton, John S. & Barbara D.	121	Fry, Harold & Dorothy S.
10	Thomas, Tracy R.	25	Goode, Jack J. et ux.	42	Arizona Board of Regents	96	Madigavish, Sam V. et ux.	111	Spangler, Oscar D. & Patricia W.	129	Cochise Ranchland Association

297 Burnek, Tony J.

UNPATENTED PROPERTY OWNERSHIP

4	Tombstone Development Company	288	Akers, James Franks, Jack
11	Hodgson, Kenneth P. & Rita J.	289	International Mining & Rolex, Inc. et al.*
37	Winters, Wayne	291	Escapule, C. H. Escapule, F. B.
141	Tims, Steve	294	Clark, Adeline
277	Can-American Mining Company, Inc.		
279	Winters, Wayne Lewis, Scott		
280	Nuttall, Jean M. Burk, Matle H. et al.*		
281	Clark, Arthur		
282	DeWelday, Sue H.		
287	Chadwick, Paul		

EXPLANATORY NOTES

Property data are from Cochise County Courthouse records, U.S. Bureau of Land Management records, Tombstone Development Co., files researched by Thomas E. Waldrip, Jr. They have been plotted as closely as records would permit on the U.S.G.S. 7 1/2 minute quadrangles – see Plate 2. The data from Plate 3 were plotted on Tombstone, Tombstone E.E., Fairbank and Contention 7 1/2 minute quadrangles – see Plate 2. The data from Plate 3 were plotted directly from the 1:6000 vintage map noted in the acknowledgment of the Tombstone 7.5 minute topographic map, 1982, photo revision, 1990. The plate data was re-plotted and adjusted to the Tombstone 7.5 minute topographic map, 1982. Verification of this data has been done.

Location of mine shafts were taken from the 1906 U.S.G.S. 1" = 500' topographic map. Geology of the Tombstone Basin area has been plotted directly from the 1:6000 vintage map noted in the acknowledgment of the Tombstone 7.5 minute topographic map. Geology from the 1:6000 map was updated according to the more recent work by Hewett and Drewes, as interpreted by James A. Briscoe.

This map was prepared using the overlay drafting method. The Tombstone 7.5 minute topographic map, 1982, photo revision, 1990, was the basemap plates to 200, with the geology and mine shafts and workings are shown unscreened.

Plate 4, the property map, and Plate 5, the geologic map, are actually the same map, for presentation purposes. Plate 4 is screened to 30% to emphasize property lines, and Plate 5 is not screened, so the geology is colored to show the geologic relationships.

NOTE: NUMBER FOLLOWED BY LETTER INDICATES TYPE OF OWNERSHIP

- M — Mining Claim (unpatented)
- S — Surface Ownership Only
- W — Withdrawal—no mineral entry
- P — State Prospecting Permit
- L — State Mineral Lease
- A — State Prospecting Permit Application

*Note: For more complete ownership information, please see Numerical Owner Index List.

N

INSET #3 [SCALE: 1″ = 200′]

PLATE 5

GEOLOGY MAP EXPLANATION

ROCK TYPES

CENOZOIC

TERTIARY QUATERNARY

- Qb — BASALT INTRUSIVE
- Qu — QUATERNARY UNDIVIDED
- Tr — RHYOLITE PLUG AND ASSOCIATED DIKES (AGE: 63 M.Y.)

MESOZOIC — CRETACEOUS

- Khb — HORNBLENDE ANDESITE PLUG AND ASSOCIATED DIKES
- Krd — RHYODACITE
- Kg — GRANOPHYRE
- Kut — UNCLE SAM TUFF; (AGE: 71.9 ± 2.4 M.Y.)
- Ksg — SCHIEFFELIN GRANODIORITE (AGE: 72 M.Y.)
- Kap — ANDESITE PORPHYRY DIKES

Unconformity

- Kb (variable) — BISBEE FORMATION
- Kbls — LIMESTONE — INCLUDES BLUE 12 FOOT AND 6 FOOT LIME OF LOCAL USAGE
- Kbn — NOVACULITE — SILICIFICATION CHARACTERIZES THIS UNIT (PROBABLY EQUIVALENT OF THE GLANCE CONGLOMERATE) AND RESULTS IN THE "NOVACULITE" TEXTURE

PALEOZOIC

Unconformity

PENNSYLVANIAN — PERMIAN

NACO GROUP

- Pcn — CONCHA FORMATION
- Ped — EPITAPH DOLOMITE
- Pc — COLINA LIMESTONE
- PPe — PERMIAN-PENNSYLVANIAN EARP LIMESTONE
- Ph — HORQUILLA LIMESTONE

Disconformity

MISSISSIPPIAN

- Me — ESCABROSA LIMESTONE

Disconformity

DEVONIAN

- Dm — MARTIN LIMESTONE

Disconformity

CAMBRIAN

- Ca — ABRIGO LIMESTONE
- Cb — BOLSA QUARTZITE

Unconformity

PRECAMBRIAN

- Pcg — GRANITE
- Pep — PINAL SCHIST

HORNFELS

ALTERATION

SYMBOLS

a. ANTICLINE b. SYNCLINE
Showing trace of axial plane

CONTACT
Dashed where approximately located, dotted where concealed or interpreted

FAULT
Dashed where approximately located, dotted where concealed

VEINS
INCLUDES THE SO CALLED "FISSURES" OF LOCAL USAGE

STRIKE AND DIP
a. Bedding trends
b. Joint trends
(= vertical dip)

FLOW STRUCTURE
Indicating strike and dip
(= vertical dip)

UNDERGROUND WORKINGS

SHAFT

ADIT PORTAL

X PROSPECT PIT

REFERENCES — GEOLOGY

Drewes, Harald, 1980, Tectonic Map of Southeast Arizona, U.S. Geological Survey Map I-1109.

Hewett, Roger A., 1924, Exploration Geology and Geochemistry, of the Tombstone - Charleston Area, Cochise County, Arizona, Plate 2, Stanford University Ph.D. Dissertation.

Unknown, Circa 1950? Probably a Newmont Mining Co. Geologic and Alteration map, with a surface scale of 1"=500'; 1 sheet, Tombstone - Charleston Area, Cochise County, Arizona, reproduced 1960, Arizona and Stanley Projects, No. 1960, reproduced 1960, contour interval 10 feet. From the files of the Tombstone Development Company, Inc.

PLATE 4

PROPERTY MAP EXPLANATION

PATENTED PROPERTY OWNERSHIP

1	United States of America	11	Hodgson, Kenneth P. & Rita J.	28	Hudson, Norman G.	44	Deckerow, William	102	Hedelle, Peter & Gloria	112	Blanford, John N. & Betty R.
2	Arizona, State of	12	Ingersoll Consolidated Mining Co.	29	Grist, M. B. & Evelyn	45	Natsanek, Elwyn G. & Evelyn J.; Ward, Raymond G. & Bernice A.	103	Hamlin, Katherine H.	113	Grey, John W. & Mary B.
3	Tombstone Townsite National Historical Monument	15	St. Louis University	30	Powell, Marie Bernardi	46	Heidbuecher, James & Joyce	104	Wellingford, William L. & Claudia	114	Tobias, Harry (Family Trust)
4	Tombstone Development Company	17	Tombstone Restoration Commission	31	Escapule, Ernest M. et ux.	47	Independent Order of Odd Fellows, Tombstone Rebekah Ldg.	105	Findling, Ralph M. & Alida M.	115	Curtis, Earl V. & Mary E.
5	Escapule, Charles B. & Louis M.	18	Fotopoulos, Gus Deere, Eugene W. (Trustee)	32	Gallstrom, Warren E. (Trust) c/o Baldo, J. Lutich	49	Randolph, Charles J. & Gloria L.	106	Scott, George J. & Laura B.	116	Johnson, Leslie & Darla Marie
6	Will, Douglas J. (estate) Wurth, Leo F.	20	Frankovich, Gerald J.	34	Valley National Bank of Phoenix	68	Pioneer Trust Company of Arizona	107	Opat, Gilt	117	Samtson, Allen A. & Wilma C.
7	Lewis, Mary M. et al.*	21	Paus City Mining Co.	37	Winters, Wayne	77	Goos, Hartsens E.	108	Miles, Barbara J.	118	Brown, John D. & Margaret E.; Johnson, Theron R. & Palma, C.
8	Houston Mining Resources, Inc. et al.*	22	Wyrick, Daniel & Linda	39	San Diego Mining Co.	93	Tombstone, City of c/o City Clerk	109	Hatcher, Charles & Edna	120	Austring, Bette G.
9	Escapule, Florence	23	Costello, John H. et al.*	40	Culpepper, Dion E.; Hadley, Murray B. (Co.& Trustee)	95	West, Helen M.	110	Eaton, John S. & Barbara D.	121	Fry, Harold & Dorothy S.
10	Thomas, Tracy R.	25	Goode, Jack J. et ux.	41	Escapule, Charles B. et ux.	96	Hedgewich, Sam V. et ux.	111	Spangler, Oscar D. & Patricia W.	129	Cochise Ranchland Association

112	Blanford, John N. & Betty R.	297	Burnek, Tony J.				
113	Grey, John W. & Mary B.						
114	Tobias, Harry (Family Trust)						
115	Curtis, Earl V. & Mary E.						
116	Johnson, Leslie & Darla Marie						
117	Samtson, Allen A. & Wilma C.						
118	Brown, John D. & Margaret E.; Johnson, Theron R. & Palma, C.						
120	Austring, Bette G.						
121	Fry, Harold & Dorothy S.						
129	Cochise Ranchland Association						

UNPATENTED PROPERTY OWNERSHIP

4	Tombstone Development Company	288	Akers, James Franks, Jack
11	Hodgson, Kenneth P. & Rita J.	289	International Mining & Metals, Inc. et al.*
37	Winters, Wayne	291	Escapule, C. H. Escapule, P. B.
141	Tims, Steve	294	Clark, Adeline
277	Can-American Mining Company, Inc.		
279	Winters, Wayne Lewis, Scott		
280	Hustell, Jean M. Burk, Martin M. et al.*		
281	Clark, Arthur		
282	DeHaldey, Sue H.		
287	Chadwick, Paul		

EXPLANATORY NOTES

Property data are from Cochise County Courthouse records, U.S.B.L.M., records and files of Tombstone Gold Mines, Inc., and Hewett and Gross, as compiled by Thomas E. Wallis, Jr. They have been plotted as closely as records would permit on the U.S.G.S. 7½' topographic base. Ownership data is current as of January 1, 1982. Ownership boundaries on the Contention and Lewis Springs quads are Tombstone Gold Mines, Inc. See Plate 3, the data from Plate 4 were plotted on the Tombstone quad. Ownership boundaries on the Contention and Lewis Springs quads are U.S.G.S. topographic maps, 1:24,000 contour interval, 1970. The plate data was retplotted and adjusted where necessary to the records. No field checking of this data has been done.

Location of mine shafts were taken from the 1500 U.S.G.S. 1" = 500' topographic map, Tombstone Quadrangle. The Tombstone area has been mapped more than once. The 1957 strikes map noted in the bibliography as Plate 2, the 1957 strikes map noted in the reference on this map sheet. South of the Tombstone area, geology from the 1:6000 map was located according to the mine shafts as surveyed by Hewett and Gross, as compiled by James A. Briscoe.

This map was prepared using the overlay drafting method. The topographic base is scribed to 200, the unpatented claims to 400, the patented claims to 705, while the geology and mine shafts are shown undistorted.

Plate 4, the property map, and Plate 5, the geologic map, are identical in scale, 1" = 500', and contour interval, 25 feet. Plate 4 is colored to show the various property ownerships, while Plate 5, the geology is colored to show the geologic relationships.

NOTE: NUMBER FOLLOWED BY LETTER INDICATES TYPE OF OWNERSHIP

- M — Mining Claim (unpatented)
- S — Surface Ownership Only
- W — Withdrawal—no mineral entry
- P — State Prospecting Permit
- L — State Mineral Lease
- A — State Prospecting Permit Application

*Note: For more complete ownership information, please see Numerical Owner Index List.

CONTOUR INTERVAL 25 FEET

500 0 500 1000 Feet

Scale 1"=500'

PLATE 4 & 5

GEOLOGY AND LAND STATUS MAP

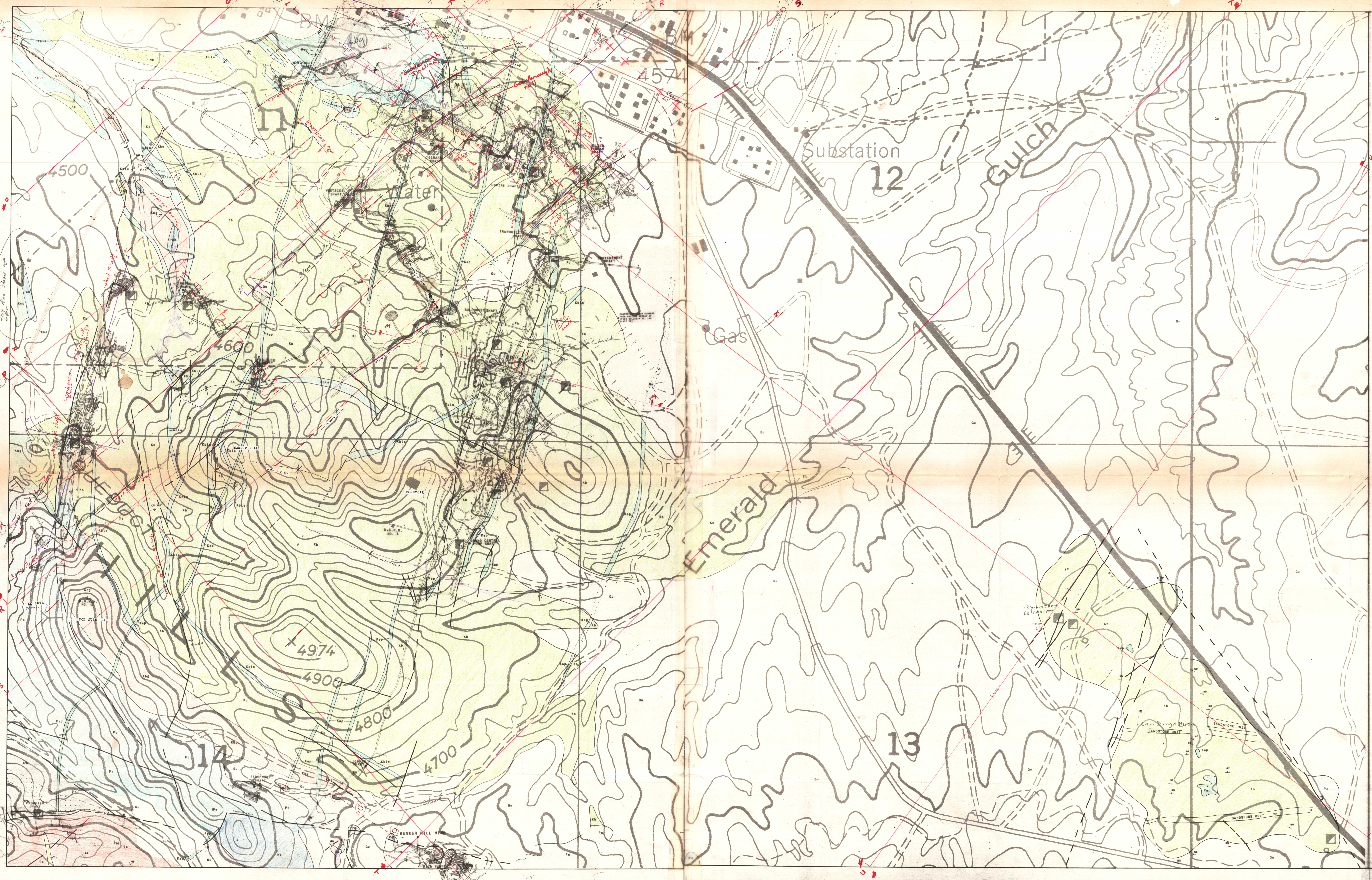
COUNTRY: U.S.A.
STATE: Arizona
COUNTY: Cochise
MOUNTAIN RANGE: Tombstone Hills
MINING DISTRICT: Tombstone

Tombstone Development Company Inc.

Prepared by James A. Briscoe & Thomas E. Wallis, Jr.

DATE: 8/11/82	REVISIONS					
DRAWN BY: M. Lis	DATE	NUMB.	BY	DATE	NUMB.	BY
APPROVED:						
	DRAWING NUMBER					
D.N.	R.	P.	F.	LOC.		

9-1-82



GEOLOGY MAP EXPLANATION

ROCK TYPES

CENOZOIC

TERTIARY QUATERNARY

- Qb — BASALT INTRUSIVE
- Qu — QUATERNARY UNDIVIDED
- Tr — RHYOLITE PLUG AND ASSOCIATED DIKES (AGE: 63 M.Y.)

MESOZOIC

CRETACEOUS

- Kha — HORNBLENDE ANDESITE PLUG AND ASSOCIATED DIKES
- Krd — RHYODACITE
- Kg — GRANOPHYRE
- Kut — UNCLE SAM TUFF; (AGE: 71.9 ± 2.4 M.Y.)
- Ksg — SCHIEFFELIN GRANODIORITE (AGE: 72 M.Y.)
- Kap — ANDESITE PORPHYRY DIKES

Unconformity

- Kb (undivided) — BISBEE FORMATION
- Kbls — LIMESTONE – INCLUDES BLUE, 12 FOOT, AND 6 FOOT LINE OF LOCAL USAGE
- Kbg — Glance Conglomerate – "Novaculite" of local usage – Ransome & Butler & Wilson. Characterized by intense silicification in mineralized zones.

PALEOZOIC

PENNSYLVANIAN – PERMIAN (NACO GROUP)

Unconformity

- Pcn — CONCHA LIMESTONE
- Ped — EPITAPH DOLOMITE
- Pc — COLINA LIMESTONE
- ℙPe — PERMIAN-PENNSYLVANIAN EARP LIMESTONE
- ℙh — HORQUILLA LIMESTONE

MISSISSIPPIAN

Disconformity

- Me — ESCABROSA LIMESTONE

DEVONIAN

Disconformity

- Dm — MARTIN LIMESTONE

CAMBRIAN

Disconformity

- Ꞓa — ABRIGO LIMESTONE
- Ꞓb — BOLSA QUARTZITE

PRECAMBRIAN

Unconformity

- pꞒg — GRANITE
- pꞒp — PINAL SCHIST

ALTERATION done

SYMBOLS

a. ANTICLINE b. SYNCLINE
Showing trace of axial plane

CONTACT
Dashed where approximately located, dotted where concealed or interpreted

FAULT
Dashed where approximately located, dotted where concealed

VEINS
Includes the so called "fissures" of local usage

STRIKE AND DIP
a. Bedding Trends
b. Joint Trends
(= vertical dip)

FLOW STRUCTURE
Indicating strike and dip
(= vertical dip)

UNDERGROUND WORKINGS

SHAFT
A. 1952 – 1978 U.S.G.S. 7 1/2 min. Tombstone quadrangle.
B. Transfered from 1908 U.S.G.S. Tombstone, Arizona & Vicinity map, scale 1 inch equals 500 feet; contour interval 10 feet.

ADIT PORTAL

PROSPECT PIT

RAILROAD
grade now dismantled

REFERENCES – GEOLOGY

Drewes, Harald, 1980, Tectonic Map of Southeast Arizona, U.S. Geological Survey Map I-1109.

Newell, Roger A., 1974, Exploration Geology and Geochemistry of the Tombstone – Charleston Area, Cochise County, Arizona, Plate 2, Stanford University Ph.D. Dissertation.

Unknown, Circa 1955? Probably a Newmont Mining Co. Geologic and Alteration map, with surface projection of underground mine workings. Plotted on U.S.G.S. 1:6,000 (1" = 500') Tombstone Arizona and Vicinity Topographic Map, 1908, reprinted 1948, contour interval 10 feet. From the files of the Tombstone Development Company, Inc.

EXPLANATORY NOTES

Property data are from Cochise County Courthouse records, U.S. B.L.M. records and private records of the Tombstone Development Co., Inc., researched by Thomas E. Waldrip, Jr. They have been plotted as closely as records would permit on the U.S.G.S. 7 1/2 minute maps covering the Tombstone area and its environs. These are Tombstone, Tombstone S.E., Fairbank and Lewis Springs 7 1/2 minute quadrangles – see Plate 3. The data from Plate 3 were enlarged photographically to 1" = 500 feet and superimposed on an enlargement of the Tombstone 7.5 minute topographic map, 1952, photo revision, 1978. The claim data was re-drafted and adjusted where necessary to conform to the records. No field checking of this data has been done.

Location of mine shafts were taken from the 1908 U.S.G.S. 1" = 500' topographic map. Geology of the Tombstone Basin area has been plotted directly from the 1955? vintage map noted in the references on this map sheet. South of the Prompter Fault, geology from the 1955? map was updated according to the more recent work by Newell and Drewes, as interpreted by James A. Briscoe.

This map was prepared using the overlay drafting method. The topographic base is screened to 30%, the unpatented claims to 50%, the patented claims to 70%, while the geology and mine shafts and workings are shown unscreened.

Plate 4, the property map, and Plate 5, the geologic map, are actually the same map. For presentation purposes, Plate 4 is colored to show the various property ownerships, while in Plate 5, the geology is colored to show the geologic relationships.

Done

9-11-82

12½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1980

CONTOUR INTERVAL 25 FEET

200 0 200 400 Feet

Scale 1" = 200'

INSET MAP #3
T.19S. R.22E. T.20S. R.22E.
GEOLOGY AND LAND STATUS MAP

DATE: 9/11/82	REVISIONS					
DRAWN BY: M.L.R.	DATE	NUMB.	BY	DATE	NUMB.	BY
APPROVED:						
DRAWING NUMBER						
D.N.	R.	P.	F.	LOC.		

COUNTRY: U.S.A. — TOMBSTONE DEVELOPMENT COMPANY, INC.
STATE: ARIZONA
COUNTY: COCHISE
MOUNTAIN RANGE: TOMBSTONE HILLS
MINING DISTRICT: TOMBSTONE

Prepared by James A. Briscoe
Thomas E. Waldrip, Jr.

James A. Briscoe and Associates
Tucson, Arizona

MAP 6 Part 1

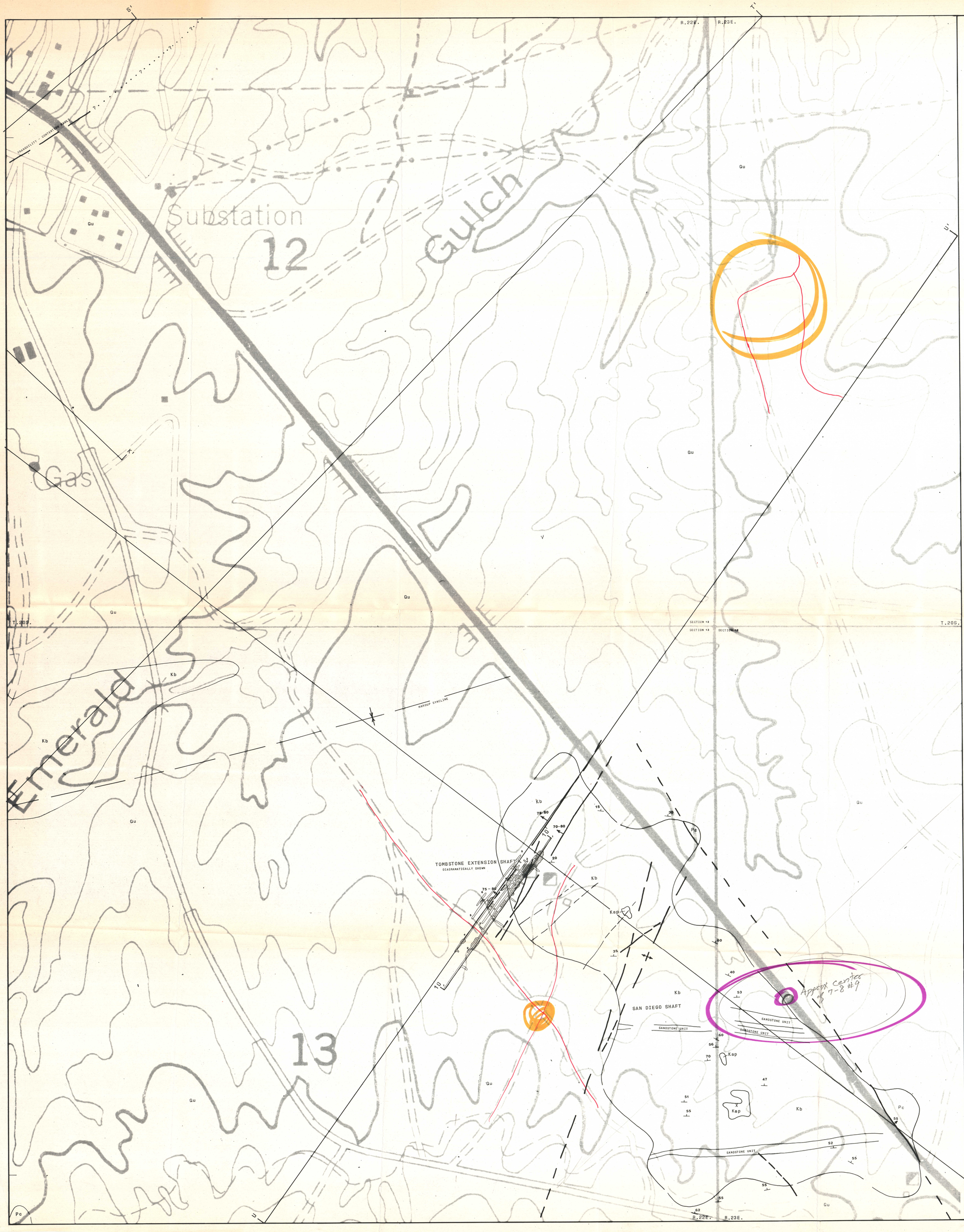


PLATE 12

GEOLOGY MAP EXPLANATION

ROCK TYPES

CENOZOIC

TERTIARY QUATERNARY

- Qb — BASALT INTRUSIVE
- Qu — QUATERNARY UNDIVIDED
- Tr — RHYOLITE PLUG AND ASSOCIATED DIKES (AGE: 63 M.Y.)

MESOZOIC

CRETACEOUS

- Kha — HORNBLENDE ANDESITE PLUG AND ASSOCIATED DIKES
- Krd — RHYODACITE
- Kg — GRANOPHYRE
- Kut — UNCLE SAM TUFF; (AGE: 71.9 ± 2.4 M.Y.)
- Ksg — SCHIEFFELIN GRANODIORITE (AGE: 72 M.Y.)
- Kap — ANDESITE PORPHYRY DIKES

Unconformity

- Kb Undivided — BISBEE FORMATION
- Kbls — LIMESTONE - INCLUDES BLUE, 12 FOOT, AND 6 FOOT LIME OF LOCAL USAGE
- Kbg — Glance Conglomerate — "Nuveculite" of local usage — Ransome & Butler & Wilson. Characterized by intense silicification in mineralized zones.

PALEOZOIC

PENNSYLVANIAN - PERMIAN

NACO GROUP

Unconformity

- Pcn — CONCHA LIMESTONE
- Ped — EPITAPH DOLOMITE
- Pc — COLINA LIMESTONE
- Pe — PERMIAN-PENNSYLVANIAN EARP LIMESTONE
- Ph — HORQUILLA LIMESTONE

MISSISSIPPIAN

Disconformity

- Me — ESCABROSA LIMESTONE

DEVONIAN

Disconformity

- Dm — MARTIN LIMESTONE

CAMBRIAN

Disconformity

- Cu — ABRIGO LIMESTONE
- Cb — BOLSA QUARTZITE

PRECAMBRIAN

Unconformity

- Pcg — GRANITE
- Pep — PINAL SCHIST

PLATE 13

ALTERATION AND MINERALIZATION

- HORNFELS
- SKARN
- SILICIFICATION-MASSIVE TO WEAK
- MARBLE, BLEACHING AND/OR PHYLLIC ALTERATION
- LIMONITE AFTER SULFIDES-MASSIVE TO DISSEMINATED
- MANGANESE-MASSIVE TO DISSEMINATED
- MINED ORE MINERALIZATION FROM HISTORIC DATA
- INFERRED MINERALIZATION SIMILAR TO THAT PREVIOUSLY MINED
- INFERRED DISSEMINATED GOLD AND SILVER MINERALIZATION

UNDERGROUND WORKINGS

- INCLINE
- STOPE

NUMBERS INDICATE UNDERGROUND MINE LEVEL FROM SHAFT COLLAR

- LEVEL 1
- LEVEL 2
- LEVEL 3
- LEVEL 4
- LEVEL 5
- LEVEL 6
- LEVEL 7
- LEVEL 8
- LEVEL 9
- LEVEL 10

Levels	Feet	Miles	Cum. Total	Cumulative Total
1	9,040	5.5	18.8	18.8
2	21,280	4.1	13.8	32.4
3	40,200	8.8	29.6	62.0
4	23,220	4.4	14.9	76.9
5	14,720	2.8	9.4	86.3
6	14,280	2.7	9.1	95.4
7	5660	1.1	3.6	99.0
8	800	.2	0.6	99.6
9	-	7	0.0	99.6
10	580	.1	0.4	100.0
	156,160	29.7	100.0	

SYMBOLS

SECTION LINES
a. Geologic cross sections from Butler - Wilson report
b. Geologic cross sections from this report

CONTACT
Dashed where approximately located, dotted where concealed or interpreted

FAULT
Dashed where approximately located, dotted where concealed

VEINS
Includes the so called "fissures" of local usage

STRIKE AND DIP
a. Bedding Trends
b. Joint Trends
(⊥ = vertical dip)

FLOW STRUCTURE
Indicating strike and dip
(⊥ = vertical dip)

a. These anticlines and synclines have been taken from old historic data.
b. These anticlines and synclines were interpreted from existing mapped geology by J. A. Briscoe.

SHAFT
A. 1952 - 1978 U.S.G.S. 7 1/2 min. Tombstone quadrangle.
B. Transfered from 1908 U.S.G.S. Tombstone, Arizona & Vicinity map, scale 1 inch equals 500 feet, contour interval 10 feet.

ADIT PORTAL

PROSPECT PIT

RAILROAD
grade now dismantled

REFERENCES - GEOLOGY

Drewes, Harald, 1980, Tectonic Map of Southeast Arizona, U.S. Geological Survey Map I-1109.

Hewett, Roger A., 1974, Exploration Geology and Geochemistry of the Tombstone - Charleston Area, Cochise County, Arizona, Plate 2, Stanford University Ph.D. Dissertation.

Unknown, Circa 1953? Probably a Newmont Mining Co. Geologic and Alteration map, with surface projection of mine workings, Plotted on U.S.G.S. Tombstone 7 1/2 min. topographic map, 1953, reprinted 1962, contour interval 10 feet. From the files of the Tombstone Development Company, Inc.

EXPLANATORY NOTES

Property data are from Cochise County Courthouse records, U.S. Bureau of Land Management records, and Tombstone Development Co., Inc., researched by Thomas E. Wolfrik, Jr. They have been plotted as closely as records would permit on the U.S.G.S. 7 1/2 minute topographic maps of the Tombstone and Fairbank, Arizona quadrangles - see Plate 1. The data from Plate 3 were plotted directly from the 1908 vintage map noted in the legend enlargement of Tombstone 7.5 minute topographic map, 1961, photo revision, 1978. The claim data was re-drafted and adjusted to conform with the above to the records. No field checking of this data has been done.

Location of mine shafts were taken from the 1908 U.S.G.S. 1" = 500' topographic map. Geology of the Tombstone South area has been plotted directly from the 1953 vintage map noted in the legend enlargement of Tombstone 7.5 minute topographic map, 1961, photo revision, 1978, and was updated according to the most recent work by Hewett and Drewes, as interpreted by James A. Briscoe.

This map was prepared using the overlay drafting method. The base map was prepared at a scale of 1" = 200' and reduced to 1" = 400' for publication sizes to fit, while the geology and mine shafts and workings are shown unscreened.

N

CONTOUR INTERVAL 25 FEET

200 0 200 400 Feet

Scale 1" = 200'

PLATE 11, 12 & 13

INSET MAP #3
T.19S., R.22E., T.20S., R.22E.
GEOLOGY AND LAND STATUS MAP

DATE	9/11/82
DRAWN BY	J.A.B.
APPROVED	

REVISIONS

DATE	NUMB	BY	DATE	NUMB	BY

DRAWING NUMBER

S.N.	B	P	F	LOC

COUNTRY U.S.A.
STATE ARIZONA
COUNTY COCHISE
MOUNTAIN RANGE TOMBSTONE HILLS
MINING DISTRICT TOMBSTONE

TOMBSTONE DEVELOPMENT COMPANY, INC.

Prepared by James A. Briscoe
Thomas E. Wolfrik Jr.

James A. Briscoe and Associates
Tucson, Arizona

1" = 200'

MAP 6 Part 1

7-1-82

PLATE 12

GEOLOGY MAP EXPLANATION

ROCK TYPES

CENOZOIC

TERTIARY QUATERNARY

- Qb — BASALT INTRUSIVE
- Qu — QUATERNARY UNDIVIDED
- Tr — RHYOLITE PLUG AND ASSOCIATED DIKES (AGE: 63 M.Y.)

MESOZOIC

CRETACEOUS

- Khe — HORNBLENDE ANDESITE PLUG AND ASSOCIATED DIKES
- Krd — RHYODACITE
- Kg — GRANOPHYRE
- Kut — UNCLE SAM TUFF; (AGE: 71.9 ± 2.4 M.Y.)
- Keg — SCHIEFFELIN GRANODIORITE (AGE: 72 M.Y.)
- Kap — ANDESITE PORPHYRY DIKES

Unconformity

- Kb (Undivided) — BISBEE FORMATION
- Kbls — LIMESTONE - INCLUDES BLUE, 12 FOOT, AND 6 FOOT LIME OF LOCAL USAGE
- Kbg — Glance Conglomerate — "Nuvocolite" of local usage - Ransome & Butler & Wilson. Characterized by intense silicification in mineralized zones.

PALEOZOIC

PENNSYLVANIAN – PERMIAN — **NACO GROUP**

Unconformity

- Pcn — CONCHA LIMESTONE
- Ped — EPITAPH DOLOMITE
- Pc — COLINA LIMESTONE
- PPe — PERMIAN-PENNSYLVANIAN EARP LIMESTONE
- PPh — HORQUILLA LIMESTONE

MISSISSIPPIAN

Disconformity

- Me — ESCABROSA LIMESTONE

DEVONIAN

Disconformity

- Dm — MARTIN LIMESTONE

CAMBRIAN

Disconformity

- €a — ABRIGO LIMESTONE
- €b — BOLSA QUARTZITE

PRECAMBRIAN

Unconformity

- Pcg — GRANITE
- Pep — PINAL SCHIST

PLATE 13

ALTERATION AND MINERALIZATION

- HORNFELS
- SKARN
- SILICIFICATION-MASSIVE TO WEAK
- MARBLE, BLEACHING AND/OR PHYLLIC ALTERATION
- LIMONITE AFTER SULFIDES-MASSIVE TO DISSEMINATED
- MANGANESE-MASSIVE TO DISSEMINATED
- MINED ORE MINERALIZATION FROM HISTORIC DATA
- INFERRED MINERALIZATION SIMILAR TO THAT PREVIOUSLY MINED
- INFERRED DISSEMINATED GOLD AND SILVER MINERALIZATION

UNDERGROUND WORKINGS

- INCLINE
- STOPE

NUMBERS INDICATE UNDERGROUND MINE LEVEL FROM SHAFT COLLAR

- LEVEL 1
- LEVEL 2
- LEVEL 3
- LEVEL 4
- LEVEL 5
- LEVEL 6
- LEVEL 7
- LEVEL 8
- LEVEL 9
- LEVEL 10

Levels	Feet	Miles	% of Total	Cumulative Total
1	9,040	5.5	18.8	18.8
2	21,580	4.1	13.8	32.4
3	46,200	8.8	29.6	62.0
4	23,200	4.4	14.9	76.9
5	14,720	2.8	9.4	86.2
6	14,280	2.7	9.1	95.4
7	3660	1.1	3.6	99.0
8	880	.3	0.8	99.8
9	–	?	0.0	99.8
10	560	.1	0.4	100.0
	156,160	29.7	100.0	

SYMBOLS

SECTION LINES
a. Geologic cross sections from Butler – Wilson report
b. Geologic cross sections from this report

CONTACT
Dashed where approximately located, dotted where concealed or interpreted

FAULT
Dashed where approximately located, dotted where concealed

VEINS
Includes the so called "fissures" of local usage

STRIKE AND DIP
a. Bedding Trends
b. Joint Trends
(= vertical dip)

FLOW STRUCTURE
Indicating strike and dip
(= vertical dip)

a. These anticlines and synclines have been taken from old historic data.
b. These anticlines and synclines were interpreted from existing mapped geology by J. A. Briscoe.

SHAFT
A. 1952 – 1978 U.S.G.S. 7 1/2 min. Tombstone quadrangle.
B. Transfered from 1908 U.S.G.S. Tombstone, Arizona & Vicinity map, scale 1 inch equals 500 feet; contour interval 10 feet.

ADIT PORTAL

PROSPECT PIT

RAILROAD
grade now dismantled

REFERENCES – GEOLOGY

Drewes, Harald, 1980, Tectonic Map of Southeast Arizona, U.S. Geological Survey Map I-1109.

Hewett, Roger A., 1974, Exploration Geology and Geochemistry of the Tombstone – Charleston Area, Cochise County, Arizona; Plate 2, Stanford University Ph.D. Dissertation.

Unknown, Circa 1957 Probably a Newmont Mining Co. Geologic and Alteration map, with surface projection of underground workings, plotted on U.S.G.S. 1:24,000 7½ – 2021 Tombstone and 1:62,500 Tombstone Topographic Map, 1968, reprinted 1982, contour interval 10 feet. Property from the files of the Tombstone Development Company, Inc.

EXPLANATORY NOTES

Property data are from Cochise County Courthouse records, U.S. Bureau of Land Management records, and Tombstone Development Co., Inc., researched by Thomas C. Wolfla. Only the Development plotted as closely as records would permit on the U.S.G.S. 7 1/2 minute quadrangles – see Plate 2. The data from Plate 2 were compiled on the Tombstone, Tombstone SW, Fairbank and Lewis Springs 7 1/2 minute quadrangles – see Plate 2. The data from Plate 2 were then reduced photographically to 1" = 1000' scale and then further enlargement of the Tombstone 7.5 minute topographic map, 1968, photo revised, 1978. The claim data was re-plotted and adjusted to conform to the above to the records. No field checking of this data has been done.

Location of mine shafts were taken from the 1908 U.S.G.S. 1" = 500' topographic map. Geology of the Tombstone Basin area has been plotted directly from the 1957 vintage map noted in the references on this sheet. South of the Fremster Fault, geology from the 1957? map was updated according to the more recent work by Hewett and Drewes, as interpreted by James A. Briscoe.

This map was prepared using the overlay drafting method. The topographic information was compiled by the appropriate sources as noted above. The geology and mine shafts and workings are shown unscreened.

CONTOUR INTERVAL 25 FEET

200 0 200 400 Feet

Scale 1" = 200'

INSET MAP #3
T.19S. R.22E. T.20S. R.22E.

PLATE 11, 12 & 13

GEOLOGY AND LAND STATUS MAP

COUNTRY: U.S.A. TOMBSTONE DEVELOPMENT COMPANY, INC.

STATE: ARIZONA

COUNTY: COCHISE

MOUNTAIN RANGE: TOMBSTONE HILLS

MINING DISTRICT: TOMBSTONE

Prepared by: James A. Briscoe, Thomas C. Wolfla, Jr.

James A. Briscoe and Associates
Tucson, Arizona

DATE: 9/11/82	REVISIONS					
DRAWN BY: JAB	DATE	NUMB.	BY	DATE	NUMB.	BY
APPROVED:						
DRAWING NUMBER						
D.N.	R.	P.	F.	LOC.		

9-25-82

scale 1"=200'

DATE: 9/11/82	REVISIONS					
DRAWN BY: MLB	DATE	NUMB.	BY	DATE	NUMB.	BY
APPROVED:						
DRAWING NUMBER						
D.N.	R.	P.	F.	LOC.		

Underground Workings
Tombstone D.C.
COUNTRY: U.S.A. GEOLOGY BY:
STATE: AZ.
COUNTY: Cochise
MOUNTAIN RANGE: Tombstone Hills
MINING DISTRICT: Tombstone

scale 1"=200'

DATE: 9/23/82	REVISIONS					
DRAWN BY: MLB	DATE	NUMB.	BY	DATE	NUMB.	BY
APPROVED:						
DRAWING NUMBER						
D.N.	R.	P.	F.	LOC.		

Geology
Tombstone D.C.
COUNTRY: U.S.A. GEOLOGY BY:
STATE: AZ.
COUNTY: Cochise
MOUNTAIN RANGE: Tombstone Hills
MINING DISTRICT: Tombstone

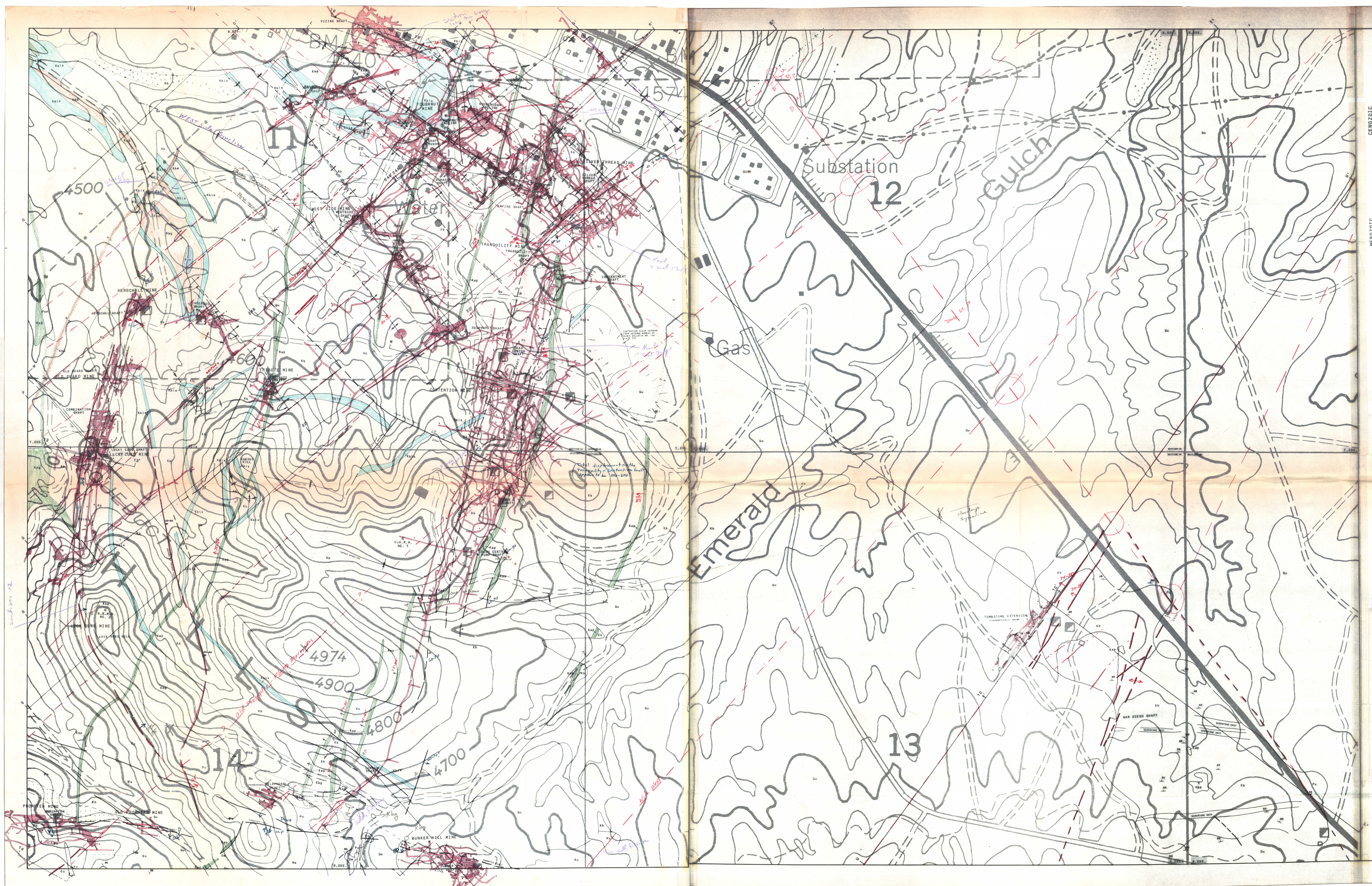


PLATE 12

GEOLOGY MAP EXPLANATION

ROCK TYPES

CENOZOIC — TERTIARY-QUATERNARY

- Qb — BASALT INTRUSIVE
- Qa — QUATERNARY UNDIVIDED
- Tr — RHYOLITE PLUG AND ASSOCIATED DIKES (AGE: 69 M.Y.)

MESOZOIC — CRETACEOUS

- Kha — HORNBLENDE ANDESITE PLUG AND ASSOCIATED DIKES
- Krd — RHYODACITE
- Kg — GRANOPHYRE
- Kat — UNCLE SAM TUFF; (AGE: 71.8 ± 0.4 M.Y.)
- Kap — SCHIEFFELIN GRANODIORITE (AGE: 72 M.Y.)
- Kap — ANDESITE PORPHYRY DIKED

Unconformity

- Kb — RIBBEY FORMATION
- Kbls — LIMESTONE, including shale & tuff, (AGE: 74 M.Y.)
- Kbq — QUARTZITE, including shale & tuff, (AGE: 74 M.Y.)

Kbls Kbq Range Equivalents: "Hereford" and "Coronado" Members of Bisbee Group; Fossiliferous limestone and quartzite members of Glance Conglomerate near Cananea.

PALEOZOIC — PENNSYLVANIAN - PERMIAN — MAGDALENA GROUP

Unconformity

- Pcm — CORONA LIMESTONE
- Ped — EPITAPH DOLOMITE
- Pc — COLINA LIMESTONE
- PPe — PERMIAN-PENNSYLVANIAN EARP LIMESTONE

PALEOZOIC — MISSISSIPPIAN

- Ph — HORQUILLA LIMESTONE

Disconformity

- Me — ESCABROSA LIMESTONE

PALEOZOIC — DEVONIAN

Disconformity

- Dm — MARTIN LIMESTONE

PALEOZOIC — CAMBRIAN

Disconformity

- Cc — ABRIGO LIMESTONE
- Cb — BOLSA QUARTZITE

Unconformity

- Pzg — GRANITE
- Pzp — PINAL SCHIST

PRECAMBRIAN

PLATE 13

ALTERATION AND MINERALIZATION

- HORNFELS
- SKARN
- SILICIFICATION-MASSIVE TO WEAK
- MARBLE, BLEACHING AND/OR PHYLLIC ALTERATION
- LIMONITE AFTER SULFIDES-MASSIVE TO DISSEMINATED
- MANGANESE-MASSIVE TO DISSEMINATED
- MINOR COPPER MINERALIZATION FROM HYPOGENE SOURCE
- COPPER MINERALIZATION SIMILAR TO THAT PRODUCED AT MINING
- SUPERGENE MINERALIZATION WITHIN OXIDE AND SECONDARY ENRICHMENT ZONES

UNDERGROUND WORKINGS

STOPE

LIMELINE

LEVEL 1 · LEVEL 2 · LEVEL 3 · LEVEL 4 · LEVEL 5 · LEVEL 6 · LEVEL 7 · LEVEL 8 · LEVEL 9 · LEVEL 10

SYMBOLS

SECTION LINES
a. Tombstone-unpublished sections from Butler-Tenney report
b. Geologic traverse sections from this report

CONTACT
Dashed where approximately located, dotted where concealed or interpreted

FAULT
Dashed where approximately located, dotted where concealed

VEINS
Includes the so called "stringers" of local usage

STOPES AND SLOPE
a. Stoping rooms
b. Raises, Winzes
c. Vertical drill

FLOW STRUCTURE
Including strike and dip
Flow structure shown

a. Traces outcroppings and openings have been taken from old blueprint data.
b. Traces outcroppings and openings were interpreted from existing maps, aerial photographs, etc.

SHAFTS
a. 1878 - 1879 U.S.G.S. 7 1/2 min. Tombstone Quadrangle.
b. Transferred from 1908 U.S.G.S. Tombstone, Quadrangle, 15 minute series, with adjustments and field measurement inspect to feet.

ADIT PORTAL

PROSPECT PIT

RAILROAD
grade now dismantled

REFERENCES — GEOLOGY

PLATE 11

PROPERTY MAP EXPLANATION

PATENTED PROPERTY OWNERSHIP

UNPATENTED PROPERTY OWNERSHIP

NOTE NUMBER FOLLOWED BY LETTER INDICATES TYPE OF OWNERSHIP

M - Mining claim (unpatented)
S - Surface ownership only
W - Withdrawal - no mineral entry
P - State Prospecting Permit
L - State Mineral Lease
A - State Prospecting Permit Application

EXPLANATORY NOTES

CONTOUR INTERVAL 80 FEET

0 200 400 600 800 1000 Feet

Scale 1"=200'

PLATE 11, 12 & 13

LAND STATUS AND GEOLOGY MAP OF T.20S., T.20S., R.22E. GEOLOGY AND LAND STATUS MAP

COUNTRY: U.S.A. — TOMBSTONE DEVELOPMENT COMPANY, INC.

STATE: ARIZONA

COUNTY: COCHISE

MOUNTAIN RANGE: TOMBSTONE HILLS

MINING DISTRICT: TOMBSTONE

Prepared by James A. Briscoe and Associates

James A. Briscoe

DATE	BY	CHK'D	APP'D
8/11/82			
DRAWN			
APPROVED			

DRAWING NUMBER

11/5/82 REVISION