	Mill. P.	% Cu
HF	14.5	1.03
7.	28.0	1.07
ABG	33.0	.69
Total.	76.5	.90

Final est. breakdown at Mission for Tax purposes.
From memory by Schubel

Banner DDH's, for which need weights of core and sludge, and number of times sludge split before weighing.

212	
242	
243	
246	
248	
249	
250	
251	
257	
263	to 600' depth only.
264	726 - 766 only
266	
267	
268	Below 800' depth only.
245	Below 740' depth only.
265	
272	
270	Below 800' depth only.
260	
254	Below 975' only.

John

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona
October 17, 1960

FILE MEMORANDUM

BANNER MINING COMPANY
Eisenhower Group Drilling

Courtright and I briefly examined some of the recent drill cores, east of Banner's Palo Verde shaft, October 17, 1960.

DDH 242

203 - 736'	Arg. Some cpy, low-grade
736 - 766'	Tactite. Weak cpy.
766 - 800'	Arg. Looks like Papago fm -- but may be the calc. arg. of the Pima.
800 - 867'	Tactite. Weak cpy. Andesite at bottom contact.
867 - 971'	Mb.

1097 - Bottom

DDH 246

Logged from 840 - 1075'	Arg. -- pebbly. Mineralization very weak.

Bottom

DDH 248

Logged from 600 - 640'	Arg. Weak cpy, no ore-grade.
640 - 738'	Tactite and diop. hf. Spotty cpy, locally plus 1% Cu est.
738 - 817'	Mb.

Bottom

DDH 249

Logged from 580 - 670'	Arg. Weak cpy -- probably no ore.
670 - 800'	Tactite. Galena-sphalerite near bottom. contact. Spotty cpy, locally 1% Cu+ (est)
800 - 905'	Mb.

Bottom

DDH 250

Logged from 562 - 638'	Meta-por. Some weak cpy.
638 - 984'	Arg. Weak cpy (possibly .3-.6%) to 840'. Below 840' about 1% Cu est.
984 -1027'	Tactite. Strong bornite and cpy. Plus 2% est.
1027 -1086'	Mb.

Bottom

DDH 263

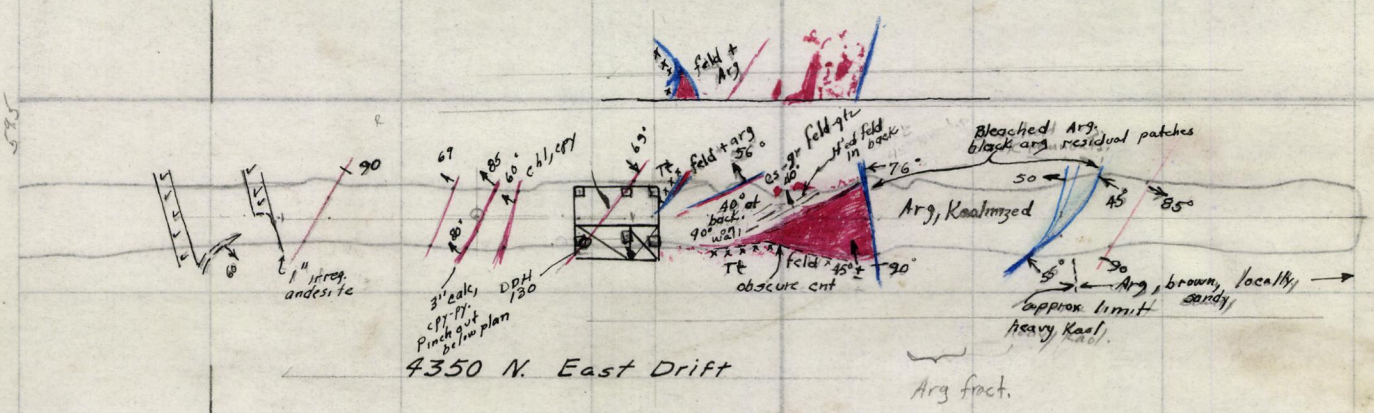
Logged from 500 - 560'	Arg. Weak cpy. No ore.
560 - 566'	Tactite. Py plus a little cpy. Trace sphalerite.
940 -1116'	Sandy arg and arkose. Tr. py. 940' - 960' shear zone.
1116 -1129'	Black limestone.
1129 - 1171'	Granite, sheared.

DDH 265, drilling

At about 400 - 450' saw metapor. and arg. weak cpy.

JOHN E. KINNISON

Mapped at waist Height

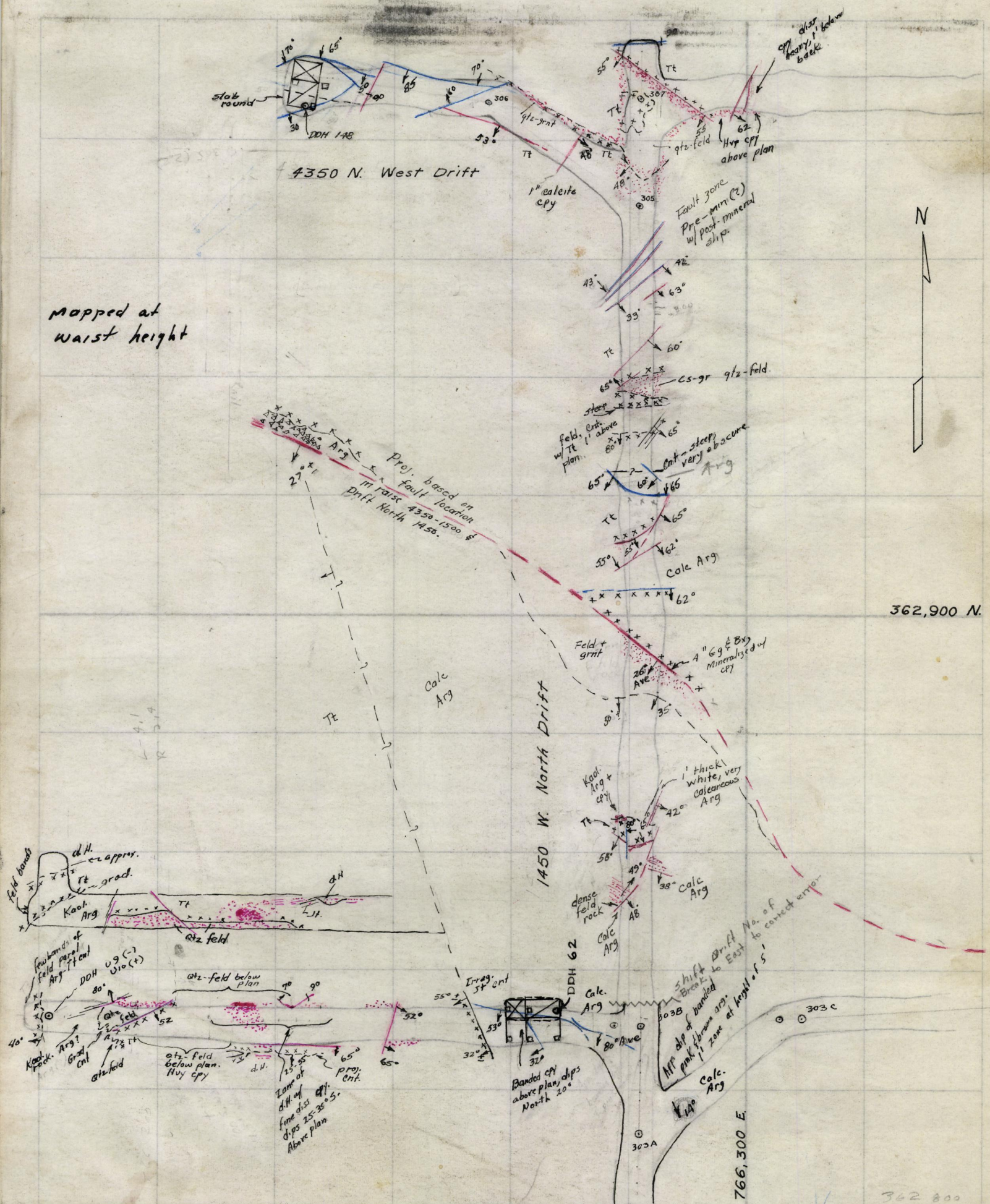


MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____

MINE_____ LOCATION_____ LEVEL_____

GEOLOGY BY_____ SURVEY_____ SCALE_____ DATE_____



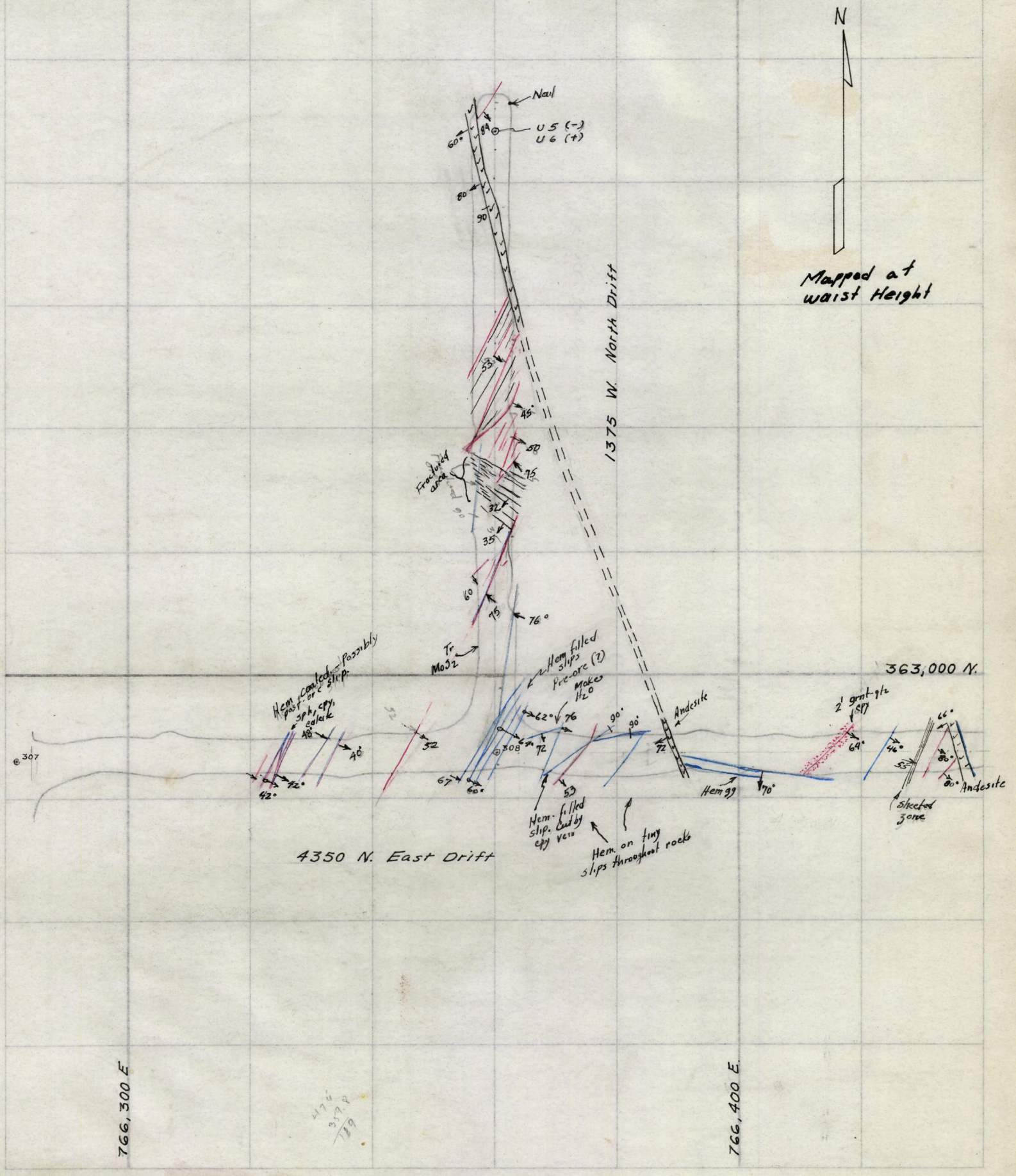
MINE MISSION LOCATION UNDERGROUND EXPL LEVEL 370

GEOLOGY BY JEK SURVEY Brunton-tape SCALE 1"=20' DATE

JEK. Tied to transit spads (A.H.)

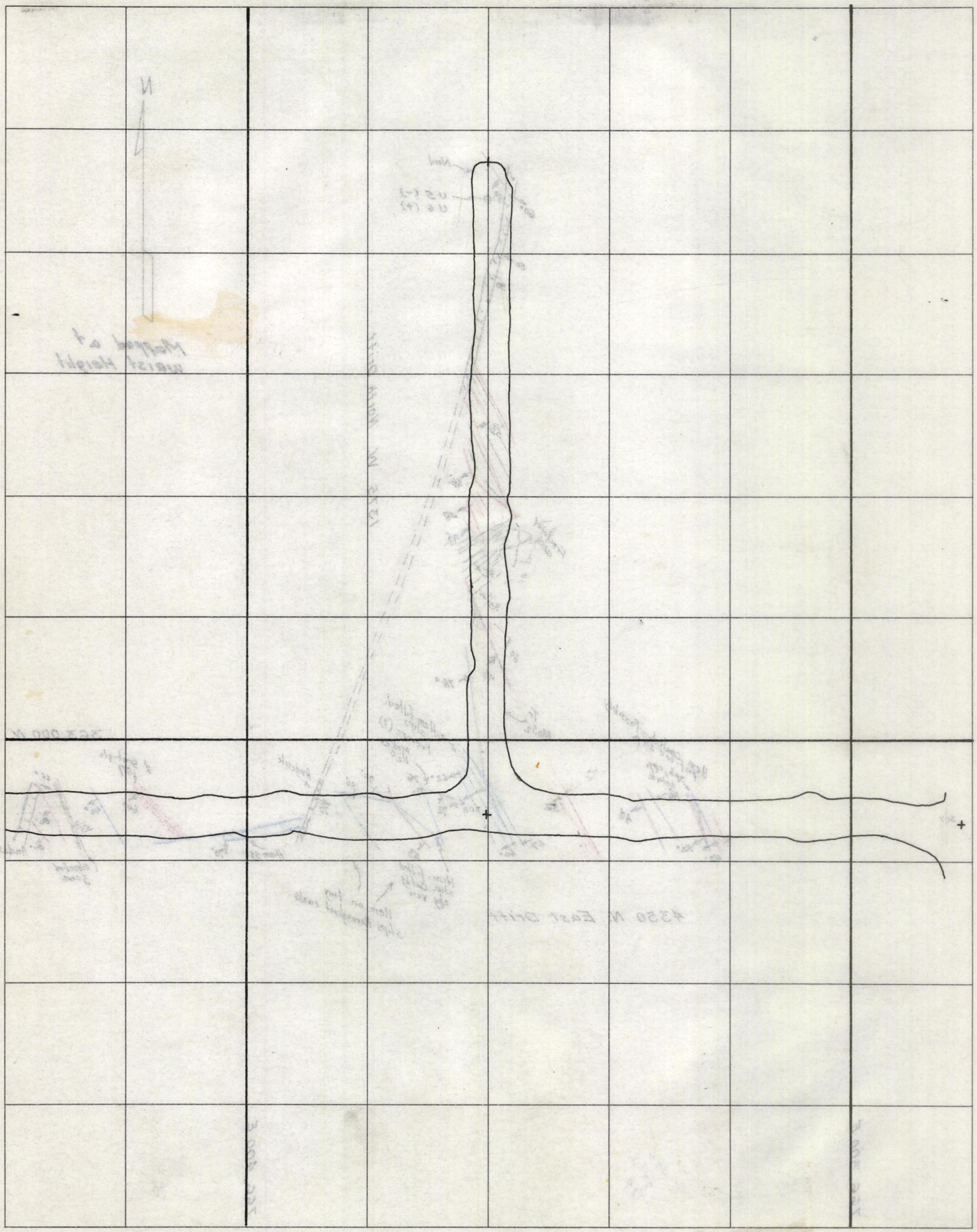
MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____



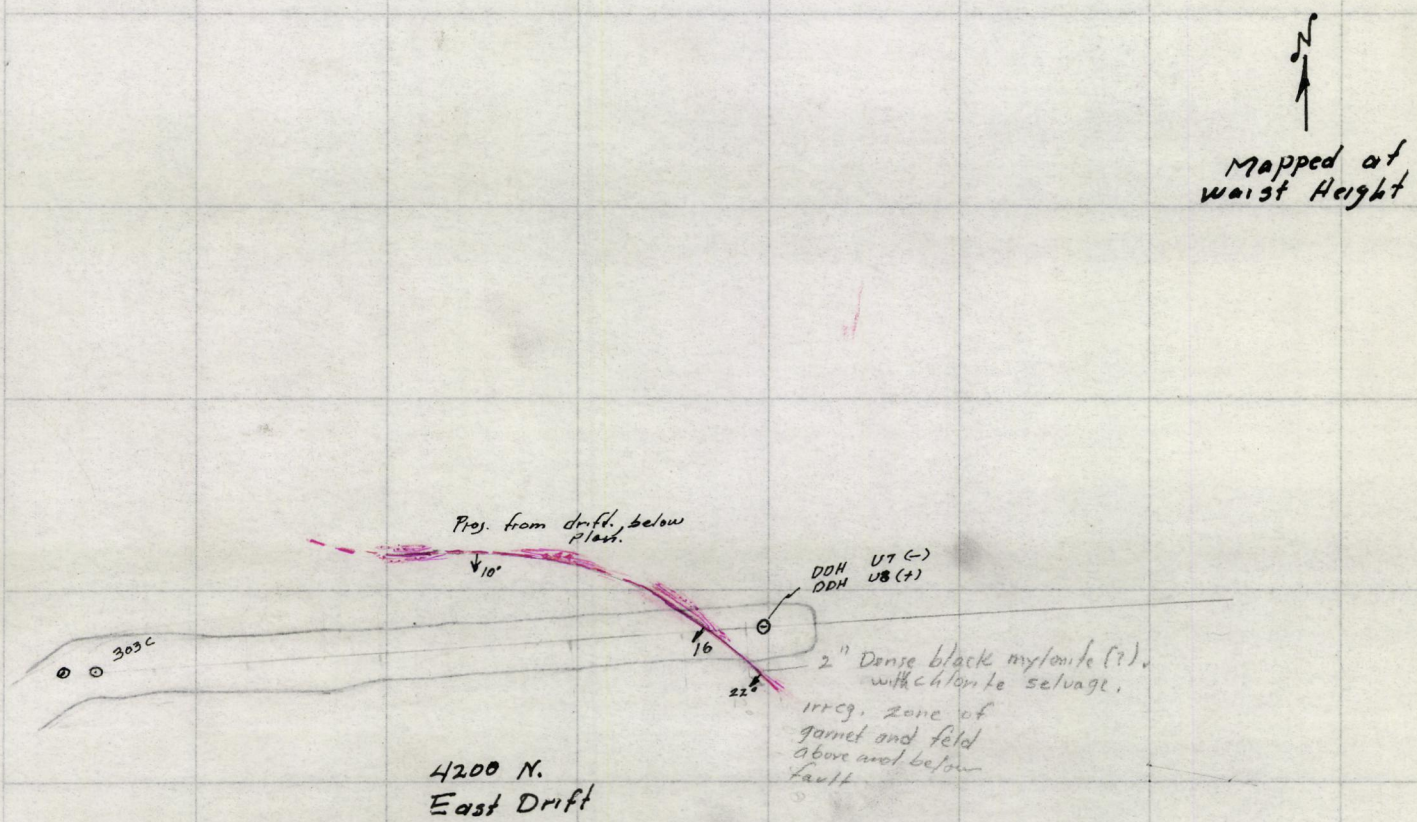
MINE MISSION LOCATION UNDERGROUND EXP'L LEVEL 370

GEOLOGY BY JEK SURVEY JEK Brunton-tape. Adj. to transit spads (A.H.) SCALE 1" = 20' DATE April 1959

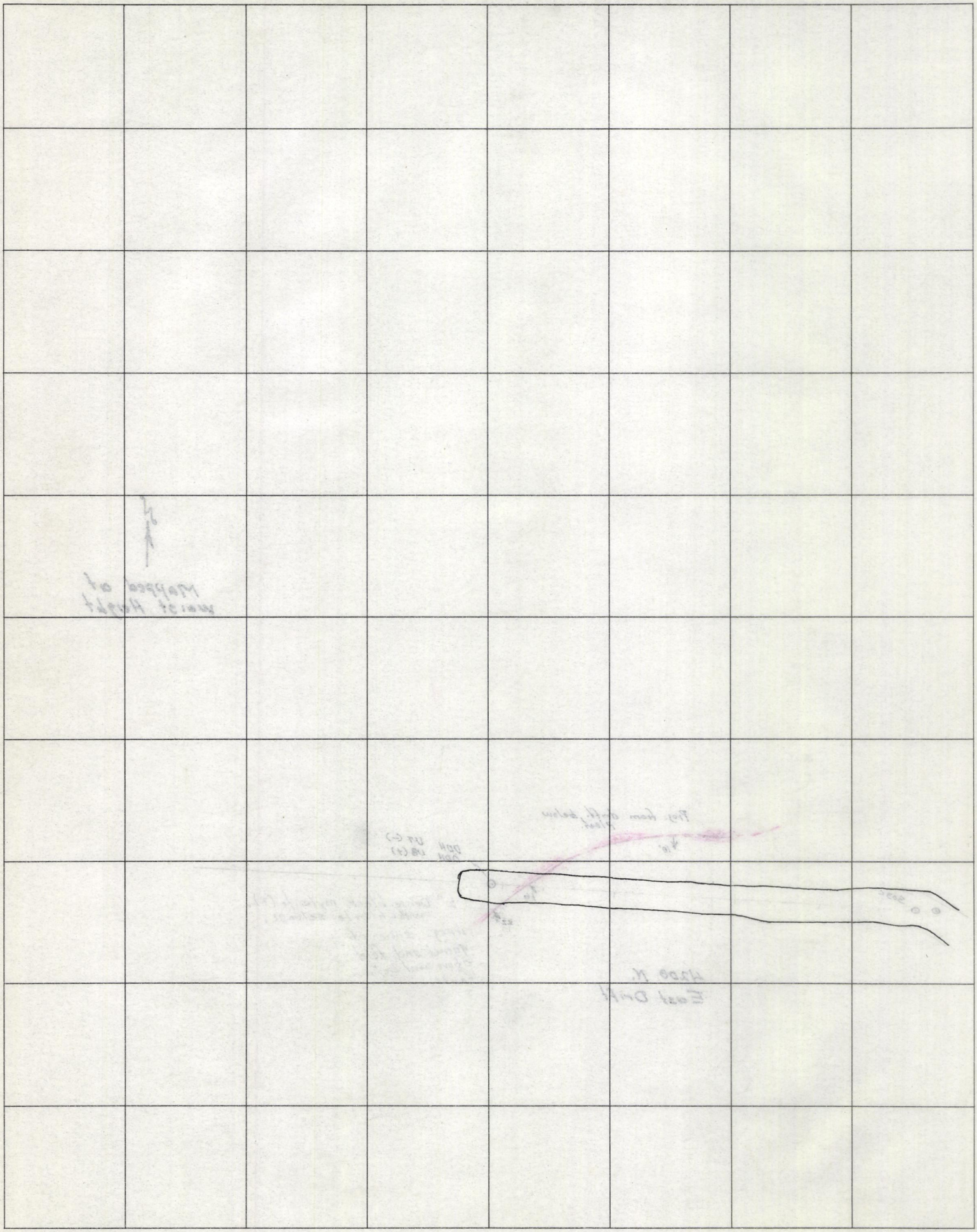


MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____



MINE Mission LOCATION Underground working LEVEL 370
GEOLOGY BY JEK SURVEY JEK Tape., tied to transite spads (A.H.) SCALE 1" = 20' DATE Mar. 1959



Notes

1 - Towards N. end of drift are Numerous N-S vertical to 80° 1/4" qtz-calcite veins. These are slightly irregular and en ech. Only the more prominent are plotted, but numerous others are present. Sulf. occassionally are associated in the wall rock.

2 - Alt Arg. - Arg (Calc.) converted to drop, and contains some grnt. In appearance it is like Mb in some respects (color-hardness) and like arg in others (texture and fracture).

MINE EAST PIMA (MISSION) LOCATION EXPL. SHAFT LEVEL 370

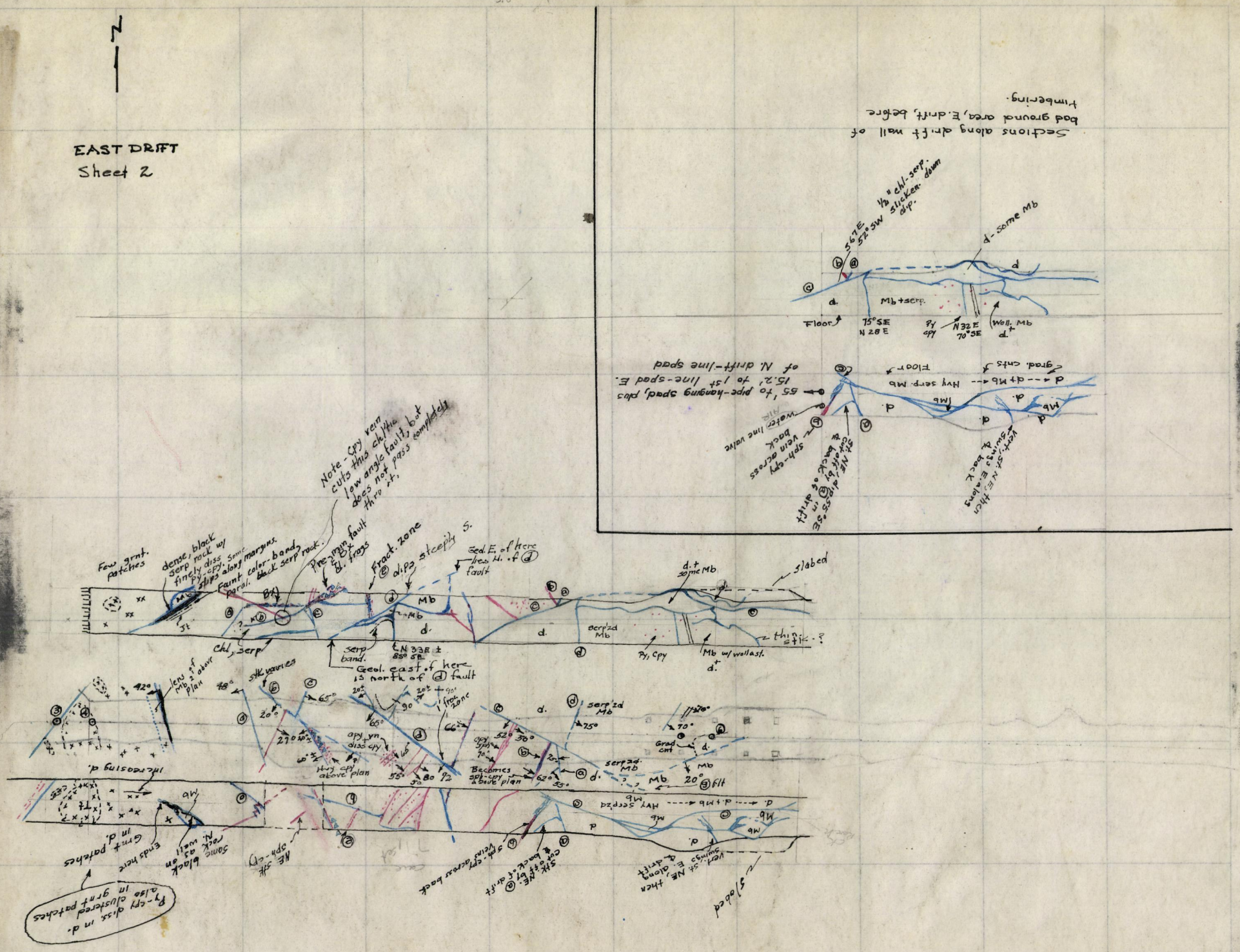
GEOLOGY BY JEK SURVEY JEK SCALE 1" = 20' DATE Sept, 58

Waist Ht Brunton-Tape

MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____

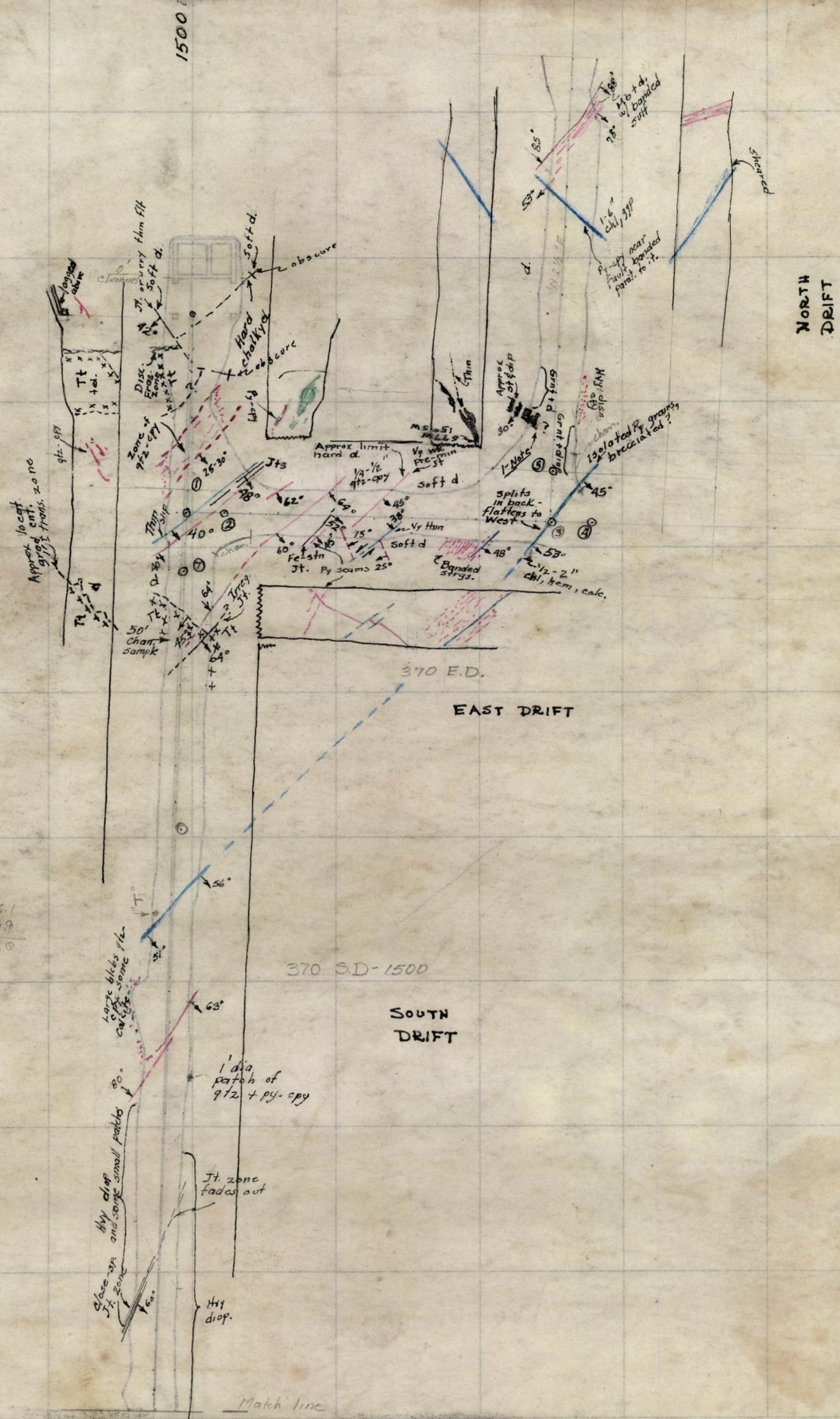
EAST DRIFT
Sheet 2



MINE EAST PIMA LOCATION MISSION SHAFT LEVEL 370
GEOLOGY BY JEK SURVEY JEK, Brunton - Tape SCALE 1" = 20' DATE Aug 1958
waist ht

MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____



MINE EAST PIMA	LOCATION EXPL. SHAFT	LEVEL 370	
GEOLOGY BY J.E.K. Waist Ht.	SURVEY J. E. K Brunton	SCALE 1" = 20'	DATE July, Aug

MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____

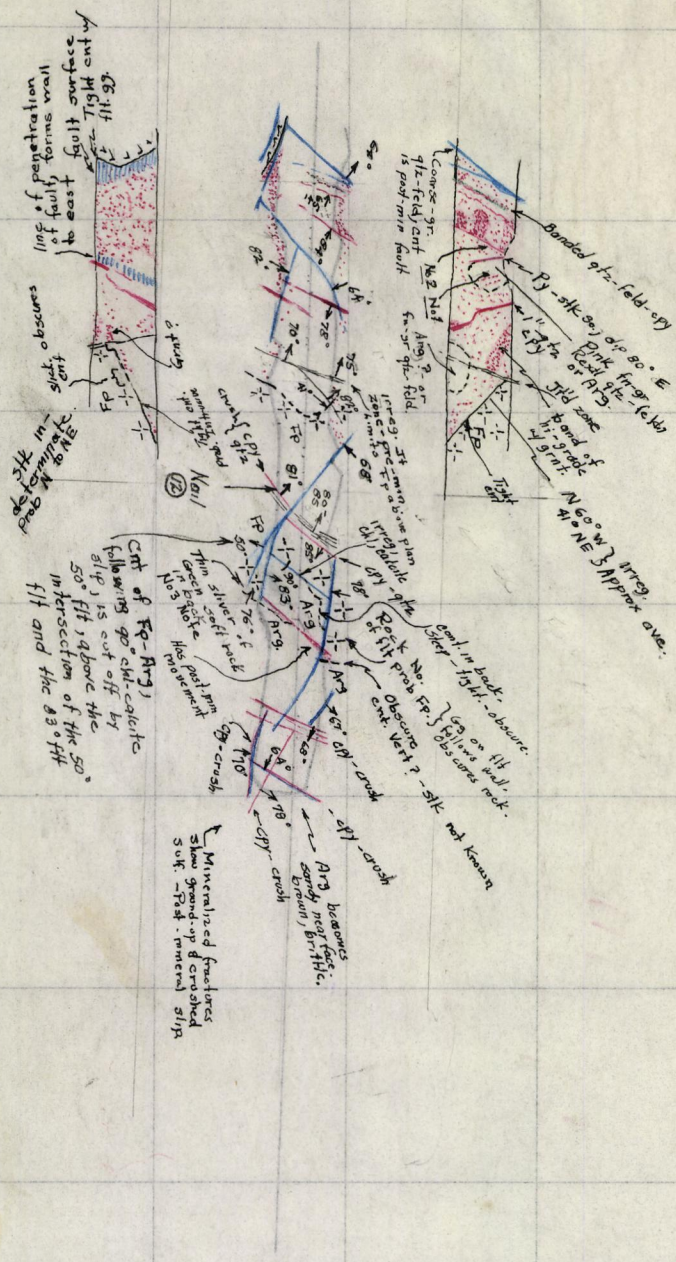
Notes -

No 1 - Location of sample of fn-gr qtz-feld or arg? Sample E.P. 370-1

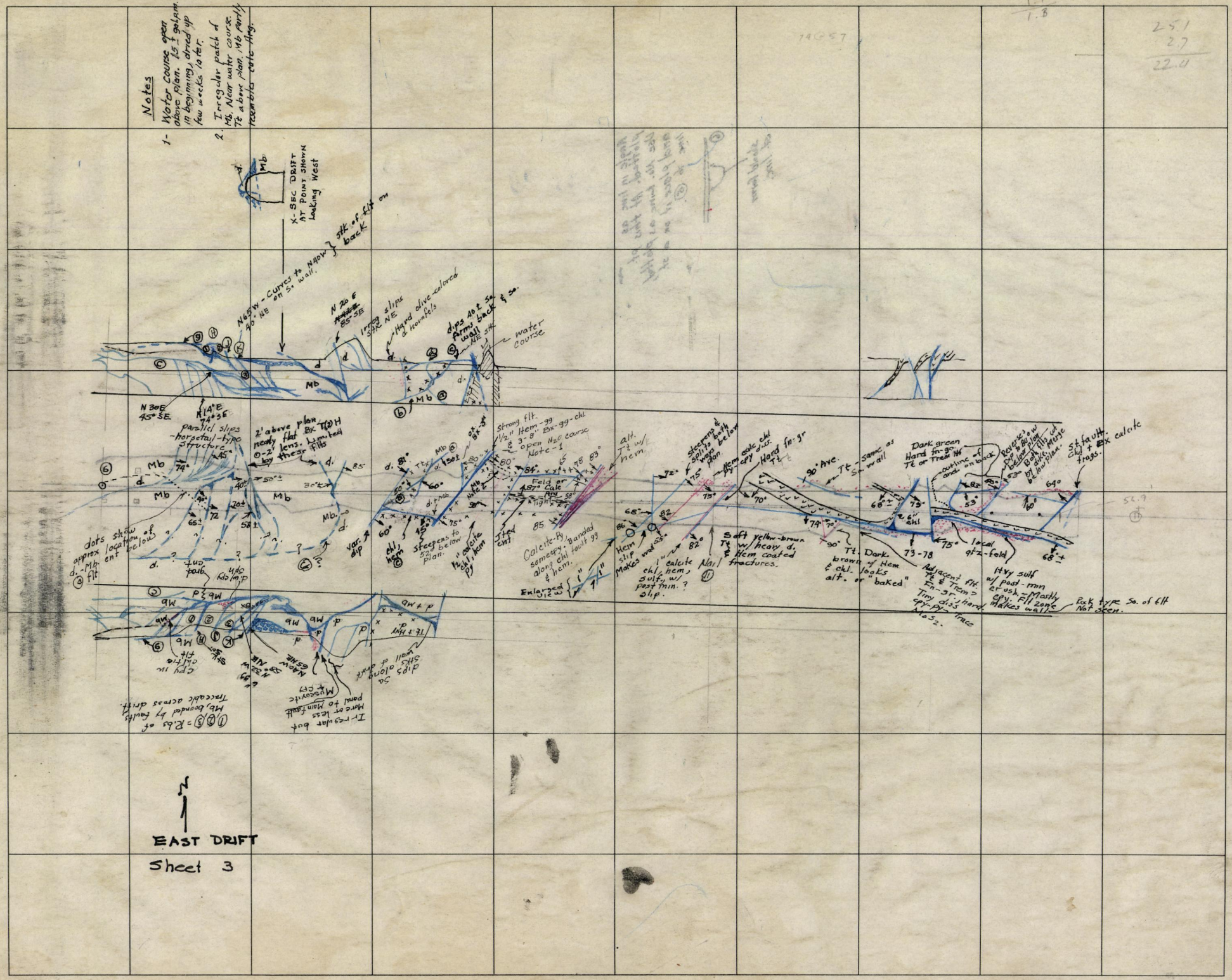
No 2 - Location of sample of coarse-gr. qtz-feld, w/ moderate sulfide, Sample E.P. 370-2

No 3 - Light green rock - thin sliver (2') in back along fault 20' W. of face. Possibly altered andesite. Sample EP 370-4

⁄ — Symbol for Fp.


Banded qtz-feld-cpy
Py-stk 80° E
Pink fn-gr (feld)
Pink qtz of Arg
Fld zone
Band of fn-grnd grnt.
N 60° W
41° NE
Approx ave.
Arg
Coarse-gr. qtz-feld. cut is post-min fault
No 2
No 1
Arg? or fn-gr qtz-feld.
Fp
Tight cut
Cpy-crush
Arg becomes sandy near fault. Brown/brittle.
Mineralized fractures show ground-up & crushed suf. - Post-mineral slip
Cpy-crush
Cpy-crush
Cpy-crush

FORM 1006

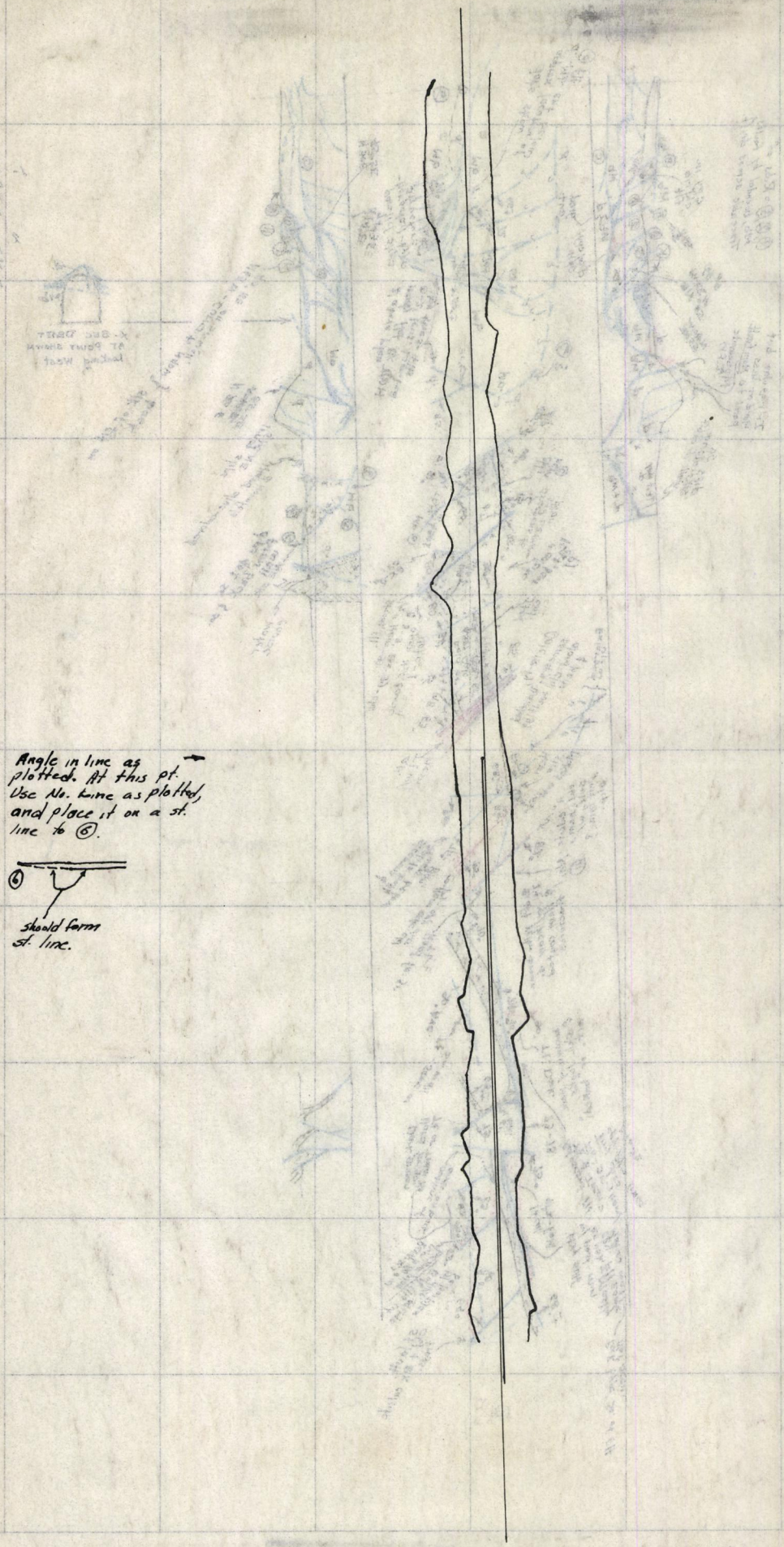


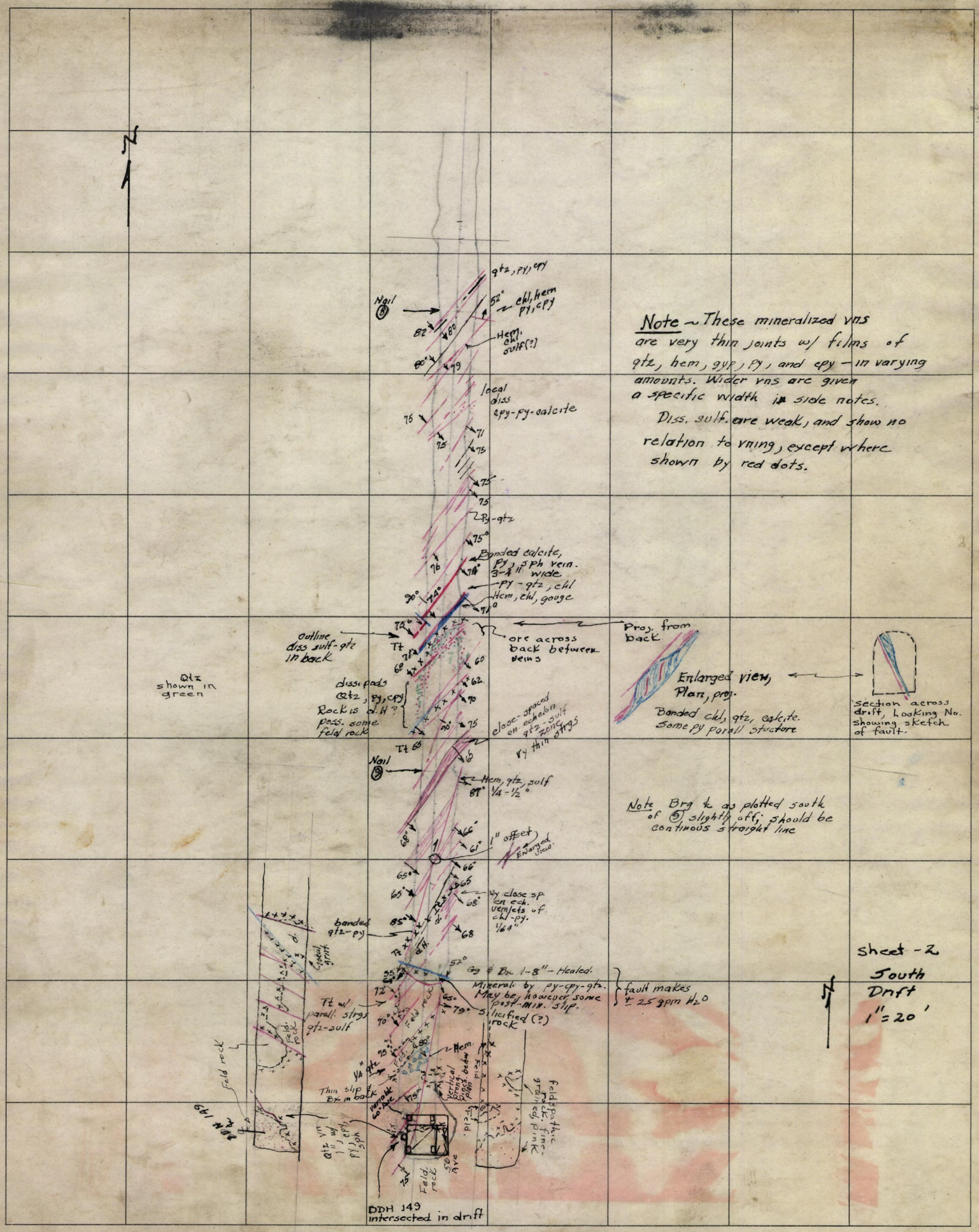
MINE ~ EAST PIMA (MISSION) LOCATION ~ EXPL. SHAFT LEVEL ~ 370

GEOLOGY BY ~ J.E.K. SURVEY ~ J.E.K. Brunton - Tape SCALE: 1" = 20' DATE ~ Sept, 58

Waist HT.

FORM 1006


Angle in line as plotted. At this pt. Use No. line as plotted, and place it on a st. line to ⑥.
⑥
should form st. line.

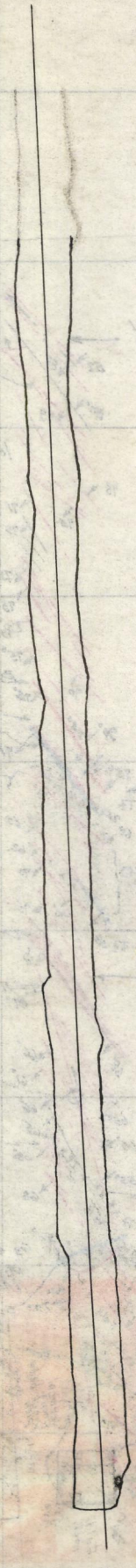


Note ~ These mineralized vns are very thin joints w/ films of qtz, hem, gyp, py, and cpy — in varying amounts. Wider vns are given a specific width in side notes.

Diss. sulf. are weak, and show no relation to vning, except where shown by red dots.

MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____



MINE EAST PIMA (MISSION) LOCATION EXPL. SHAFT LEVEL 370

GEOLOGY BY JEK Waist Ht SURVEY JEK Bronton-Tape SCALE 1"=20' DATE Sept 58

Memo for S. Tanner Mission

Discussed this with K. & S. 7/24/61
He said wait till later and see

Although I did not mention this in my recent memo to you, it is of course obvious that if a given tonnage is separated into tactite and hornfels according to the ratio I gave, an adjustment could be made for the difference in tonnage factor of these two units. My estimate, which was sufficient for the original purpose of that estimate, was, as noted, based on volume. ~~This was sufficient.~~ However, since an ~~[illegible]~~ outcome estimate is now to be made using this old estimate, such a refinement might be made now so well as accuracy for the purpose of appearance. The difference in tonnage factors is probably less that the possible error in the volumetric estimate itself. However an outside engineer *might* want to use some such calculation.

Von Fay recently used these figures in analyzing Banner core recovery.

Tactite - sp. gr. 3.12 Hornfels sp. gr. 2.8

SEK

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 13, 1958

Mr. Norman Weiss
Milling Engineer
American Smelting and Refining Company
600 Crandall Building
Salt Lake City, Utah

EAST PIMA
Metallurgical Ore
Types and Distribution

Dear Sir:

Enclosed is a memorandum by Mr. Kinnison with attached diagrammetic section and tabulation giving relative percentages among ore types. The ore is subdivided into those physical types which seem to have fairly distinctive metallurgical characteristics, particularly as regards grinding and crushing. (As stated in the last sentence of Kinnison's memorandum, the ore body cannot yet be subdivided into types having clearly contrasting flotation characteristics.)

At one time I indicated to you that we possibly could determine the tonnages of the various metallurgical ore types within specified production periods. It now is apparent that this cannot be done accurately because the physical differences are too subtle and tend to vary too widely within each small, individual stratigraphic and structural unit of the ore body. However, when compared with his diagrammetic section showing ore in relation to the 2-year, 8-year and ultimate shape of the pit, Kinnison's tabulation provides a general idea of the proportions of the ore types and the periods during which the principal ones will predominate in the mill feed. Even though these data are no more than generalizations, they may be of help in the mill planning.

As we discussed during your last visit here, the physical character (in terms of grinding and crushing) of ore mined from this deposit will vary much more widely than at Silver Bell or any of the other large-scale disseminated deposits. This applies when considering hourly and daily production units as well as monthly and yearly intervals. Among the so-called porphyry plants, the Kennecott mill at McGill has probably handled the greatest variety of ore types during the past 20 years. This mill has treated large tonnages of material similar to some of the East Pima ore types, particularly tactite and hornfels. Of course, McGill's major tonnage has been ordinary porphyry ore, and I would not know the scheduling and mixing procedures. In any case, it would seem to me that the McGill mill feed may represent the closest

physical comparison to some of the East Pima conditions, although it will not reflect the extremes during short time intervals which should be anticipated at East Pima.

A set of 18 specimens of typical ores has been selected and thin sections, petrographic descriptions and photomicrographs are now being prepared with emphasis on metallurgical problems, in accordance with our discussions with you. These will be sent to you soon.

By his copy Mr. Pope will be advised that a suite of typical ore specimens will be sent to him shortly.

Yours very truly,

KENYON RICHARD

Attachments
cc - all with attachments:
DJPope
LHHart
NWeiss - 2 extra
JDVincent
RJMellen

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 10, 1958

MEMORANDUM TO K. E. RICHARD

EAST PIMA
Metallurgical Ore
Types and Distribution

The attached diagram and tabulation of rock distribution illustrates the occurrence and proportions of the different types of ore bearing rocks in the East Pima copper deposit.

The host rock types shown on the diagram and tabulation sheet constitute over 95 per cent of the material which will be milled, and with but slight modification are classified in the same manner as used on the geological sections prepared last summer (both Mr. Hart in the New York office and Mr. Lacy in the Salt Lake office have a set of these 100-scale sections).

The per cent distribution of the host rock types was estimated visually by studying the geological cross sections, and by utilizing general familiarity with East Pima geology. As such, this estimate is not a precise measurement but is the product of personal judgment guided by the data recorded on the geological cross sections. Furthermore, only ore bearing rocks within the ultimate pit (engineer's design of 1957) were considered, and any change in the shape of the pit will change somewhat the estimated per cent distribution.

The tests conducted at El Paso (Serial 612) have made apparent the fact that different rocks from East Pima react variously to grinding and require different flotation treatment.

From a metallurgical viewpoint, the following rock types are the most important:

1. Argillite. A generally very hard, siliceous rock, but commonly fractured. In part it contains stringers of chlorite and serpentine. It is essentially a silt-sized arkose with a variable quantity of small (less than 3/4 mm) sand grains. The grade of ore in this rock type is normally less than 0.8 per cent copper.

2. Quartzite. A pure, fine-grained quartzite, with silica cement. The grade of ore is normally less than 0.8 per cent copper.

3. Feldspar rock. In the eastern ore body coarse-to fine-grained feldspar, with some quartz, occurs as host to a small tonnage of better grade ore. It probably would compare metallurgically to the argillite.

4. Tactite. A garnet rich rock which varies from euhedral friable to structureless masses. It commonly contains admixed soft diopside, sometimes constituting a major portion of the rock. Some of the tactite is extremely hard and tough, but the diopside-rich type is a hybrid rock containing both hard and soft minerals which may produce a differential grinding problem.

5. Hornfels. The hornfels variety of host rock is more variable in character than are most of the other rocks. It is dominantly a diopside rock, with minor garnet, but exhibits 3 physical types.

A. Hard, dense. This rock is massive and uniform, and microscopic work suggests that this type may contain more iron than types B. or C., and possibly it grades toward a fine-grained hedenbergite rock. This type may be hard to crush, but may grind more easily than tactite.

B. Fine-grained, granular. This type appears "sandy." It consists of granular massive diopside. The rock crushes fairly easily, and as indicated by El Paso mill test grinds easily also.

C. Fine-grained, pulverent. Similar to type B., but is finer grained and tends to disintegrate easily. This type may be expected to crush and grind easily.

Of these rock types, the tactite and siliceous rocks (argillite, quartzite, feldspar rock) are hard rocks, and the hornfels types are softer and require less grinding time. However, the hornfels types as a group show a wide range of physical properties.

There is as yet no clearly definable relation between the host rocks described above and the copper recovery or grade of concentrate.

JOHN E. KINNISON

JEK/ds

San Xavier 9 @ 500' = 4500 ft.

NE Ore Body interspaced drilling

27 holes – about 12,800 ft

1 Expl. hole 600

13,400' Total

Development holes between C-3 (Banner-AS&R) and present pit design.

9 holes 4,700 feet

Development holes between Pima and present pit design

2250 N & 2850 N, 2000 through 4750

24 holes @ 900' = 21,600 ft

One expl hole at 1000 feet 1,000

22,600 ft.

Interspaced holes in Central & West pit areas drilling between holes on lines 2500 W, 3000 W, 3500 W, 4000 W, 4500 W.

8 holes @ 700' = 5,600 ft.

to complete grid, 4 development holes = 3000 ft

8,600 ft Total

This might double, if desired, or say 14 000 feet.

For West end, exploration. 9 prelim holes, at, say, 800 feet 7,200 feet

Grand Total 66,400 feet

Superseded

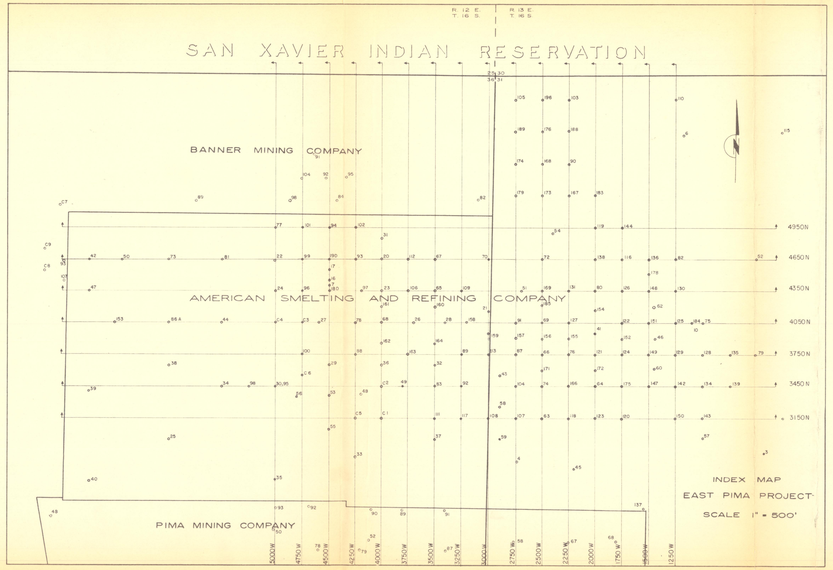
	San Xavier, Interspaced	5000
	NE ore Body, Interspaced	14000
Devel.	Near C-3 on Banner line	5000
Devel.	Between Pima - A S & R	23000
	Interspaced, West & Central	14000
	West end exploration	8000
		69,000 feet

at 9.00 Total cost/foot $620,000

1175.0
26.5
1148.5
60
1088.5

3.5
168
26.5

superceded



DESCRIPTION OF STRATIGRAPHY AND ROCK TYPES

EAST PIMA ORE BODY

The rocks penetrated to date by drilling at East Pima represent (1) originally chemical (limy or gypsiferous) sediments, (2) clastic sediments, and (3) igneous.

The sedimentary rocks have been grouped into three stratigraphic units which occur structurally from top to bottom as follows:

1. Papago formation - Cretaceous or Tertiary. Principally massive argillite with varying amounts of conglomerate, arkose and quartzite. The rocks are altered and locally recrystallized in the ore zone. Thin lenses of tactite have resulted from silication of original sedimentary limy zones and/or areas of hydrothermally introduced carbonate.

2. Pima formation - Upper Paleozoic. An originally limy series, in part gypsiferous, now consisting principally of lime silicate minerals, with interbedded quartzite and argillite, and a thick unit(s) of marble.

3. Kino formation - Tertiary (?) - A clastic-volcanic unit consisting of conglomerate, arkose, argillite, minor graywacke, volcanic flows or welded tuffs, and pyroclastics.

CLASTIC ROCKS

1. Arkose - A granular-textured rock similar to quartzite but containing enough feldspar grains to be readily recognizable as such. The arkose can be further described as (1) fine grained - 1/4 - 1 mm; (2) medium grained 1 - 2 mm; and (3) coarse-grained 2 - 4 mm. 1/4 mm is approximately the minimum limit of identification with the hand lens.

2. Quartzite - A pure quartzite with grains large enough to be distinguished with a hand lens. The same grain size limits as for arkose apply here.

3. Argillite - A hard, dense, massive rock in which no grains can be identified with a hand lens. Petrographic work shows this type to be a siltstone or sandy siltstone and in field use includes those rocks with some quartz grains in an argillitic matrix.

4. Conglomerate - A rock containing 25 % or more of fragments greater than 4 mm.

5. Graywacke - These rocks, which to date have been verified petrographically only in the Kino formation, consist of numerous small fragments of volcanics and dark argillite, and a small percentage of ferro-magnesian minerals.

METAMORPHOSED AND/OR METASOMATIZED LIMY SEDIMENTS

1. Tactite - A coarse-grained to massive lime silicate rock of which garnet is the principal constituent.

2. Hornfels - A hard or soft, slightly greenish to white, generally fine-grained lime silicate rock with minor garnet.

3. Feldspathic-rocks - These rocks vary from extremely fine to coarse grained, and are characterized by quartz and feldspar which vary from a few per cent to 100 per cent of the rock mass. The fine-grained variety is hard and slightly pinkish with a conchoidal fracture. Tactite is commonly intermixed with the feldspathic areas.

4. Marble - Fine to coarse-grained recrystallized limestone.

IGNEOUS

Pre-ore:

1. Meta-porphyry - A quartz monzonite porphyry, the composition and texture of which is due in part to introduced quartz and and orthoclase. This rock intrudes as sill-like bodies into the area of uncontrollable contact between the Pima and Papago formations in the western part of the ore body. (Previous maps term this rock Grm.)

2. Felsite porphyry - Volcanic-textured acid porphyry rocks generally near latite or quartz-latite in composition. This compositional group may include both intrusive and extrusive rocks.

Post-ore:

1. Andesite - Dark grey to greenish black, commonly porphyritic and frequently magnetic.

Basement Rock:

The East Pima area is bottomed between 1100 and 1500 feet below surface by a post-ore (?) thrust fault, below which is coarse-grained granitic rock.

GEOLOGIC SYMBOLS AND ABBREVIATIONS

ROCKS

FORMATIONS

Papago formation — Pgf
Pima formation — Plf
Kino formation — Kf

META-SEDIMENTS

Clastic:
- Arkose - Ark
- Argillite - Arg
- Quartzite - Qtzt
- Conglomerate - Cgl
- Graywacke - Gwk

Limey:
- Tactite - Tt
- Hornfels - Hf
- Marble - Mb

Principally East Ore body:
- Calcareous Argillite - Calc Arg
- Feldspathic alteration of limey or clastic rocks / or field rock

Overburden and bedrock contact

IGNEOUS

Pre-ore:
- Meta-porphyry - Mp
- Felsite porphyry - Fp

Post-ore:
- Andesite - And

Geology projected horizontally to section

Geology projected along structural dip of section

Dip of 60° N shown in solid parallelogram plotted beside hole

ABBREVIATIONS

MINERALS

Quartz - Qtz
Feldspar - Fld
Gypsum - Gyp
Wollastonite - Woll
Garnet - Grnt
Diopside - Diop

Magnetite - Mag
Pyrite - Py
Chalcopyrite - Cpy
Chalcocite - Cc
Molybdenite - Mo
Sphalerite - Sph

OTHERS

Gouge - Gg
Breccia - Bx
Vesicle - Mass
Siliceous - Sil
Silicified - Silf

Silicated - Silct
Gypsiferous - Gyp
Argillitic - Arg
Altered - alt

STRUCTURES

Contact

Unconformity between Pgf - Plf

Fault

Any structure line approximately parallel to section, showing amount and direction of dip

Any structural line crossing section at an angle showing direction of "dip" into section and angle of horizontal deviation

Above structures dashed where approximately located, and questioned where location or existence is speculative

Fault breccia

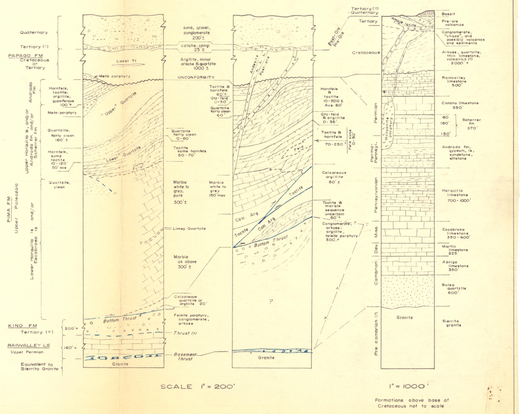
Breccia containing fragments and large and small horses of Kino formation

Ore (> 0.40 % Cu)

Waste (< 0.40 % Cu)

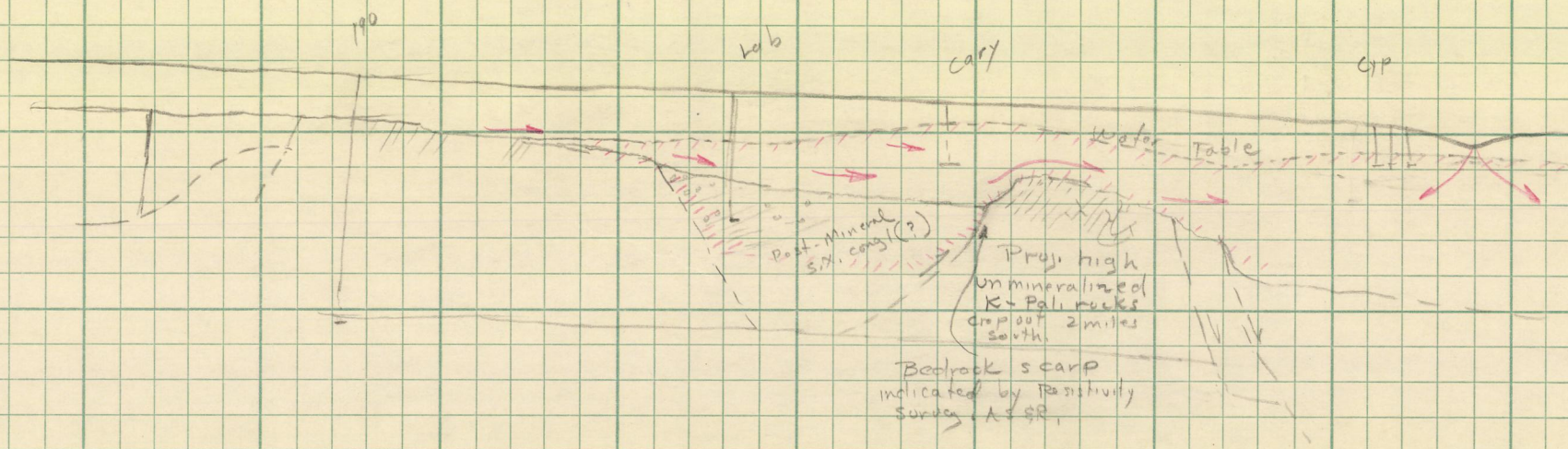
STRATIGRAPHIC COLUMN

EAST PIMA AREA



J.E. Kinnison - October, 1957

EP-156-1E



K+E 353-5
5 X 5 to the inch.
KEUFFEL & ESSER CO.
MADE IN U.S.A.

Note:

DDH 200 was covered by Pima tailings before it was surveyed. No specific drill-grid (geophysical) co-ordinates are on file, but approx locations were shown on a "Bedrock geology" map by Hunsaker shortly after drilling this hole.

A field sketch map used by clerk confirmed this location. The co-ordinates listed below split a small deviation of these two locations, and are recorded on the Composite logs prepared in the fall of 1960. Elevation was determined approximately by plotting this accepted location on an aerial-survey topographic map.

DDH 200 10+95 S
7+70 E } approx.
Collar El. 3210

See also DDH 202

John E Hunsaker
Jan 14, 1960

Note

DDH 202 was covered by Pima tailings before it was surveyed. No specific Drill-grid (geophysical) co-ordinates are specified in our files. An approximate location ~~appeared~~ appeared on Kinnison's "Bedrock geology" map prepared shortly after the hole was bottomed.

Survey notes by A. Haworth give co-ordinates (U.S.G.S. base) for this hole, but this survey was based on a probable location below the tailings reconstructed by Haworth. A map by Jack Clark (field map) shows a pencil-sketch location, a few hundred feet different from the survey location above mentioned. Both of these are much further west than the hole as shown on "Bedrock geology". The Clark and Haworth locations were plotted and a point between them selected for use on future Freeport Office maps. The measured Drill-grid co-ordinates of this assumed location are shown on the Composite logs of Dec 1960. Elevation was established by plotting this point on the aerial-photography topography map, 5' contours.

Co-ordinates 202

10+90 S
1+10 E } Approx

Elevation Collar
3220' Approx

John E Kinnison

Jan 14, 1961

See also DDH 200

1. Dues — and error

Heinrich open
meeting at 8:20

New Bus

1. Heinrich reports having written letter about Buck

2. Nominating committee has met and selected slate of officer as follows

pres K Rickson
L. Hendel
Ed Mucholoughs
Art Boke

Red Welch
John Jenny

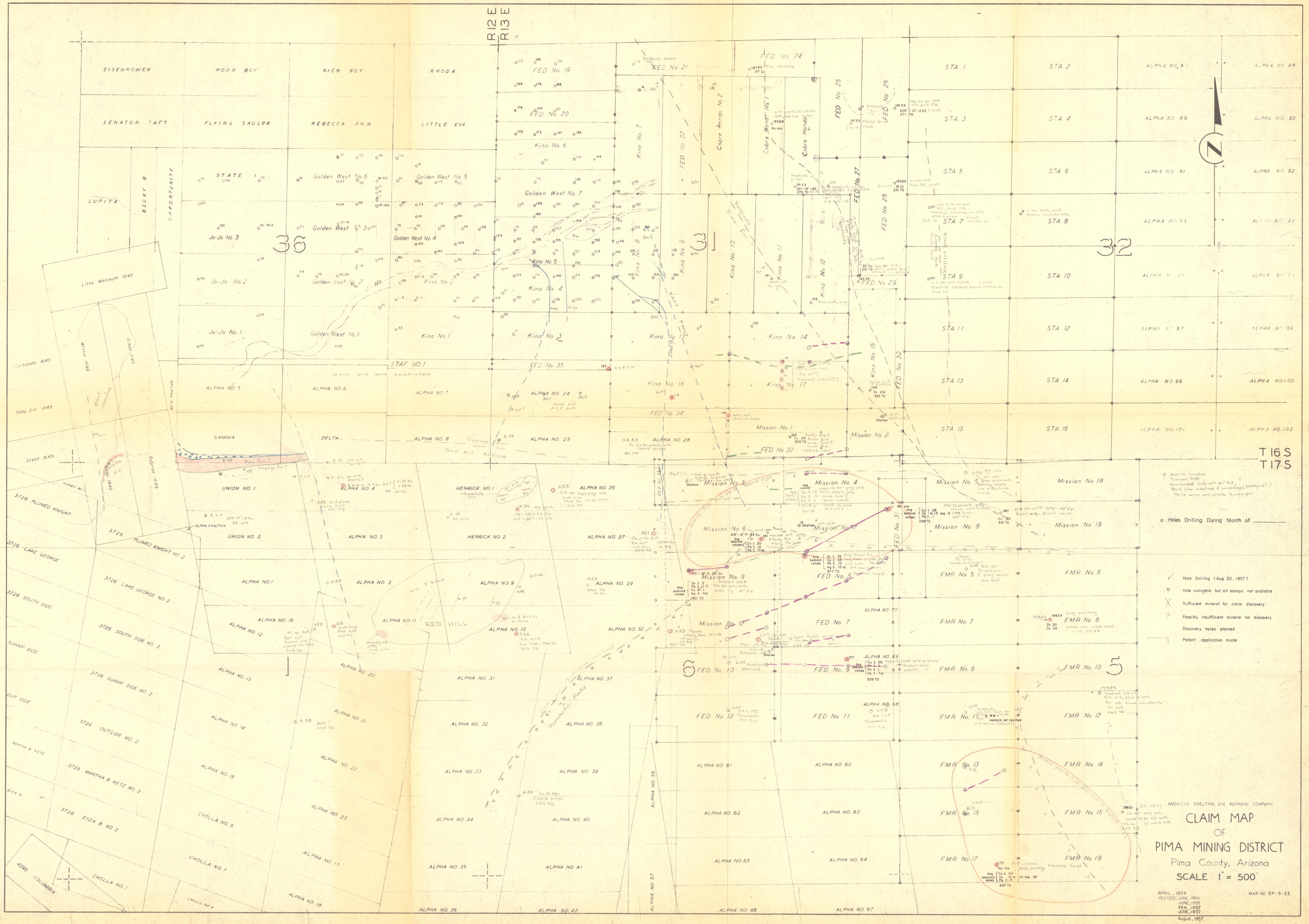
3. Read Mission 66 letter

4. Plan another field trip to Pinacate next fall to invite locals

5. Next meet 21st April — Lecy on ore gunder
6. " " May — Ronald Vile IGY

ADJ - 9:20 58 persons

R12E
R13E
T16S
T17S
EISENHOWER
POOR BOY
RICH BOY
RHODA
SENATOR TAFT
FLYING SAUCER
REBECCA ANN
LITTLE EVA
LUPITA
BECKY B
OPPORTUNITY
STATE 1
Golden West No. 6
Golden West No. 5
Jo-Jo No. 3
Golden West
Golden West No. 4
Jo-Jo No. 2
Golden West No. 2
Kino No. 2
Jo-Jo No. 1
Golden West No. 1
Kino No. 1
Little Mammoth 1649
Carbonate 1649
Ninty Six 1649
Crest 1649
Dawn 1649
Sunrise 1649
BETA FRACTION
STAF NO. 1
ALPHA NO. 5
ALPHA NO. 6
ALPHA NO. 7
GAMMA
DELTA
ALPHA NO. 8
UNION NO. 1
ALPHA NO. 4
HERRICK NO. 1
ALPHA NO. 26
UNION NO. 2
ALPHA NO. 3
HERRICK NO. 2
ALPHA NO. 27
ALPHA NO. 1
ALPHA NO. 2
ALPHA NO. 9
ALPHA NO. 29
ALPHA NO. 16
ALPHA NO. 12
ALPHA NO. 11
ALPHA NO. 10
ALPHA NO. 30
ALPHA NO. 13
ALPHA NO. 20
ALPHA NO. 31
ALPHA NO. 37
ALPHA NO. 14
ALPHA NO. 21
ALPHA NO. 32
ALPHA NO. 38
ALPHA NO. 15
ALPHA NO. 22
ALPHA NO. 33
ALPHA NO. 39
CHOLLA NO. 8
ALPHA NO. 23
ALPHA NO. 34
ALPHA NO. 40
CHOLLA NO. 7
ALPHA NO. 17
ALPHA NO. 35
ALPHA NO. 41
CHOLLA NO. 6
ALPHA NO. 18
ALPHA NO. 36
ALPHA NO. 42
ALPHA NO. 56
ALPHA NO. 57
3726 PLUMED KNIGHT
3726
PLUMED KNIGHT NO. 2
3726 LAKE GEORGE
3726 LAKE GEORGE NO. 2
3726 SOUTH SIDE
3726 SOUTH SIDE NO. 2
SUNNY SIDE
3726 SUNNY SIDE NO. 2
OUT SIDE
3726 OUTSIDE NO. 2
MARTHA B. KETZ
3726 MARTHA B. KETZ NO. 2
EIDA B.
3726 EIDA B. NO. 2
4295 COLUMBA
CHOLLA NO. 1
FED No. 19
FED No. 20
Kino No. 6
Golden West No. 7
Kino No. 5
Kino No. 4
Kino No. 3
FED No. 35
ALPHA NO. 24
ALPHA NO. 25
FED No. 21
FED No. 22
FED No. 24
FED No. 23
Cabre Hondo No. 2
Cabre Hondo
Cabre Hondo No. 3
FED No. 25
FED No. 26
FED No. 27
FED No. 28
FED No. 29
FED No. 30
Kino No. 7
Kino No. 8
Kino No. 9
Kino No. 10
Kino No. 11
Kino No. 12
Kino No. 13
Kino No. 14
Kino No. 15
Kino No. 16
Kino No. 17
FED No. 34
Mission No. 1
FED No. 32
Mission No. 2
FED No. 33
FED No. 31
Mission No. 3
Mission No. 4
Mission No. 5
Mission No. 18
Mission No. 6
Mission No. 7
Mission No. 8
Mission No. 19
Mission No. 9
FED No. 5
FMR No. 5
FMR No. 6
ALPHA NO. 70
Mission No. 12
FED No. 7
FMR No. 7
FMR No. 8
ALPHA NO. 69
FED No. 10
FED No. 9
FMR No. 9
FMR No. 10
ALPHA NO. 68
FED No. 12
FED No. 11
FMR No. 11
FMR No. 12
ALPHA NO. 61
ALPHA NO. 60
FMR No. 13
FMR No. 14
ALPHA NO. 62
ALPHA NO. 63
FMR No. 15
FMR No. 16
ALPHA NO. 65
ALPHA NO. 64
FMR No. 17
FMR No. 18
ALPHA NO. 66
ALPHA NO. 67
STA 1
STA 2
STA 3
STA 4
STA 5
STA 6
STA 7
STA 8
STA 9
STA 10
STA 11
STA 12
STA 13
STA 14
STA 15
STA 16
ALPHA NO. 87
ALPHA NO. 88
ALPHA NO. 89
ALPHA NO. 90
ALPHA NO. 91
ALPHA NO. 92
ALPHA NO. 93
ALPHA NO. 94
ALPHA NO. 97
ALPHA NO. 98
ALPHA NO. 99
ALPHA NO. 100
ALPHA NO. 101
ALPHA NO. 102
N
AMERICAN SMELTING AND REFINING COMPANY
CLAIM MAP
OF
PIMA MINING DISTRICT
Pima County, Arizona
SCALE 1" = 500'
APRIL, 1954
REVISED JUNE, 1954
JUNE, 1955
MAP NO.


R12E
R13E
T16S
T17S
EISENHOWER
POOR BOY
RICH BOY
RHODA
SENATOR TAFT
FLYING SAUCER
REBECCA ANN
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Little Mammoth 1649
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FED No. 9
FED No. 10
FED No. 11
FED No. 12
36
32
1
6
5
Carbonate 1649
Ninty Six 1649
Crest 1649
Black Limestone
Alpha 1649
Beta Fraction
Pima Fm.
Papago Fm.
Red Hill
Arkose
Black Hills
Pyroclastic Rocks
Pyroclastic contact
Acic & alt
RED HILL
3726 PLUMED KNIGHT
3726 PLUMED KNIGHT NO. 2
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OUT SIDE
3726 OUTSIDE NO. 2
3726 MARTHA B KETZ NO. 2
3726 EIDA B NO. 2
42925 COLUMBIA
CHOLLA NO. 1
CHOLLA NO. 7
CHOLLA NO. 8
Approx. location
Holes Drilling During Month of
Hole Drilling (Aug. 30, 1957)
Hole complete but all assays not available
Sufficient mineral for claim discovery
Possibly insufficient mineral for discovery
Discovery holes planned
Patent application made
AMERICAN SMELTING AND REFINING COMPANY
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Pima County, Arizona
SCALE 1" = 500'
APRIL, 1954
REVISED JUNE, 1954
JUNE, 1955
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MAP NO. EP-5-2E