6000 0083 (0760)

Look at
air
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fo
Gonnoros

ADIT No. 1

6000 0083 (0760)

6 MAY 84
[redacted] /Warren
Adit S30°W of Main Shaft

From	To	Bear	Dist (ft)	Vert ∠	Horiz Dist	Vert Dist	Elev	L	C	R	Remarks
Sta 300	302	S33°W	90				5200	10.0	9.0	4.5	Nate at collar Sta 300 = SW Corner
								4.5	15.0	3.5	of main shaft at Collar.
								3.5	20.0	4.5	start of OH stope
								3.5	25.0	4.0	End of OH stope
									7.0		18 ft to fault
								3.0	32.0	3.0	Gunnet start
								3.0	38.0	3.5	0.5 ft wide start of fault on rt rib
								3.0	46.0	3.0	1.0 ft wide Fault on lft rib
								3.0	55.0	3.5	Start rt-hand drift
								3.0	59	3.0	N68°W - 25 ft long rt drift
								2.5	61.0	—	Start lft-hand drift
								—	64.0	4.5	End rt-hand
								9.0	63.0		Str face lft hand drift
								3.5	70.0	—	End lft-hand
								2.0	72.0		Start fault Left
								3.5	75.5	3.0	end fault Left

6000 0083 (0760)

GENTRY
SATKOSKI / WHITE
2 May 84
A[redacted] OF MAIN [redacted]

ADIT No 2

FROM	TO	BEAR	DIST (FEET)	VERT ∠	HORIZ DIST (FT)	VERT DIST (FT)	ELEV (FT)	L	C	R	REMARKS
Sta 300	Ø	N60°W	2	0	2		5200				Sta 300 = SW corner
Ø	301	S70°W	180	0	180			1.5	10		of main shaft at collar;
									13	3.5	Sta Ø is from MD & LJ
								2.0	18	4.5	Pyrox/porph hfb 1 ft
								2.5	20		above floor between 18 & 19 ft
								3.0	23	5.0	stoped to surface on lft
									24	4.5	OH Stope trends N45°E
											stoped to surface on rt
								2.5	28		
									32	3.0	
								2.5	34		Start of shear
								2.5	36		End of shear
									31	4.0	Start of shear
									33	3.0	End of shear
									43	2.5	Shear
								2.5	46		1 ft wide dips 85° SE
									61	3.0	Shear 1 ft 85° NW
								2.5	66		
								2.5	85	2.5	Start of frax diorite intr
								2.5	105	2.5	dip 85° SW start of fault zone
								3.0	111	2.5	End fault zone
									122	2.5	Stringer veins in dio start dip 50° SW
								2.5	126		
									133	3.0	end
								3.5	136		
									135	3.0	qtz vein 0.5 ft thick or thrift
								3.5	137		qtz vein 0.5 ft thick dip 72° SW
								3.0	142.5		dio-porph ends/stern starts
									156	3.0	
								2.5	158		Amphib - sulf de garnet stn ends; dio porph starts

GENTRY - North ADIT = open cut

✓ % = wt %

6000 0083 (0760)

Port No	Lab No	Field No	Sample Description	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten
				All values in ppm unless otherwise noted						
3	WI-4776	RS-176	Cont. chip across 5.0 ft of garnet & decomposed garnet skarn						0.010%	WO_3 0.15%
7	4777	RS-177	do						0.056%	WO_3 0.97%
3	4778	RS-178	do						72 ppm	WO_3 0.23%
9	4779	RS-179	do						0.014%	WO_3 0.32%
0	4780	RS-180	do						0.017%	WO_3 0.60%
1	4781	RS-181	Cont. chip across 5.0 ft of fine; massive to coarse-grained iron(?) garnet skarn; Moderately sheared.						0.039%	WO_3 1.06%
2	4782	RS-182	do → but with occasional fissure-filling qtz veins.						0.049%	WO_3 1.78%
1	4783	RS-183	Cont. chip across 5.0 ft of garnet & decomposed garnet skarn. Some malachite & chalcosite with garnet & qtz veins						31 ppm	WO_3 0.06%
2	4784	RS-184	Cont. chip across 5.0 ft of skarn with qtz veins						27 ppm	60

GENTRY – NORTH ADIT & OPEN CUT

6000 0083 (0760)

PORT NO	LAB NO	FIELD NO	SAMPLE DESCRIPTION	GOLD	SILVER	COPPER	LEAD	ZINC	MOLYBDENUM	TUNGSTEN			
				All values in ppm unless otherwise noted									
22	WI-4785	RS-185	Cont. chip across 5.0 ft of fine, massive to coarse-grained garnet skarn.						36ppm	600			
23	4786	RS-186	do						49ppm	500			
4	4787	RS-187	Cont. chip across 5.0 ft of skarn fault gouge (below aplite outcrop).						0.025%	WO_3 0.50%			
5	4788	RS-188	do						0.025%	WO_3 0.32%			
6	4789	RS-189	Random chip across FeOx stained aplite dike						18ppm	24			
24	4790	RS-190	Cont. chip across 5.0 ft of garnet skarn similar to RS-182						49ppm	300			
25	4791	RS-191	do						40ppm	450			
26	4792	RS-192	do						27ppm	40			
6	4793	RS-193	Cont. chip across 4.0 ft of fault zone in skarn & calc-silicate. Some zones of coarse-grained garnet texture						93ppm	WO_3 0.19%			

GENTRY - NORTH ADIT & OPEN CUT % = wt % 6000 0083 (0760)

Pt. No.	LAB No.	FIELD No.	Sample Description	Au	Ag	Cu	Pb	Zn	Mo	W	As	Sb	Hg	Spec	Notes
				All values in ppm unless otherwise noted											
17	4794	RS-194	Cont. chip across 8.0 ft of coarse garnet zone below calc-silicate layer. Some scheelite in calc-silicate.						40	72					
18	4795	195	Cont. chip across 4.0 ft of garnet skarn						85	WO_3 0.10%					
19	4796	196	Cont. chip across 6.0 ft of granular garnet skarn.						0.019%	WO_3 0.47%					
20	4797	197	Cont. chip across 7.0 ft of gouge.						58	WO_3 0.07%					
27	4798	198	Cont. chip across 5.0 ft of dense, fine-grained garnet skarn (has conchoidal frax), with mix of Ca & Fe garnet, & blebs of epidote/idocrase (1-5% of rock)						31	40					
28	4799	199	Cont. chip across 5.0 ft of 50/50 mix of fine grained garnet, & coarser grained garnet skarn; contains 6 cross-cutting 1/2 to 1 in.-wide fissure-filling qtz veins.						40	14					
29	4800	200	do but with fewer qtz veins..						45	20					
30	4801	201	do						31	24					
31	4802	202	Random chip of diorite porphyry endoskarn						18	14					

GENTRY

% = wt % * near detection limits

6000 0083 (0760)

RPT. No.	LAB No.	FIELD No.	Sample Description	Au	Ag	Cu	Pb	Zn	Mo	W	As	Sb	Hg	Spec	Notes
				All values in ppm unless otherwise noted											
	5.27° E, 16° X		Decline:												
32	WI-4757	RS-247	Cont. chip across 2.0 ft of garnet & qtz skarn in fault gouge						NA?	WO_3 0.54%					
93	4758	RS-248	Cont chip across 4 ft of garnet & qtz skarn in fault gouge.						NA?	WO_3 0.47%					
	SURFACE SAMPLES:														
	WI-4774	RS-174							45	160					
	4775	RS-175							0.108%	500					
	4724	RW-017		0.020	0.560*				98	WO_3 0.40%					
46	4725	RS-246	Cont. Chip across 3.0 ft of aplite garnet skarn & calc-silicate hole in fault gouge	0.042	<0.3				NA?	200					
33	WI-4759	RS-249	Grab of fetid smelling marble approx. 1 ft away from garnet skarn. No mineralization or garnet in marble sample.						NA?	32					
36	4760	RS-250	Random grab across approx 30 ft of granular garnet skarn & qtz veinlet mix. Includes both float & outcrop.						NA?	160					
34	4761	RS-251	Random grab of glassy garnet skarn ("dry looking"). Zone is approx. 10 ft wide on both sides of drainage.						NA?	320					
45	IW-4821	RW-001	Random chip across 10.0 ft of 2 ft-wide iron-garnet skarn w/ scattered blebs of epidote/idocrase						0.061%	WO_3 0.96%					

Mineral Chief

GENTRY LEVEL No. 1

% = wt %

✓ ✓

6000 0083 (0760)

Port No	Lab No	Field No	Sample Description	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten			
				All values in ppm unless otherwise noted									
51 ✓	WI-4805 ✓	RS-205 ✓	Cont. chip across 5.0 ft. of calc-silicate hfls, along strike of normal fault at HW-FW contact. Some small patches of granular garnet skarn. Minor WO_3 in calc-silicate as dissem.; higher WO_3 content in garnet skarn veinlets & pods						✓ 0.042%	W WO_3 ✓ 0.08%			
52 ✓	4806 ✓	RS-206 ✓	Cont. chip across 7.0 ft of calc-silcate hfls. Same as RS-205, but westerly 5.0 ft contains more pods & veinlets of granular garnet skarn. WO_3 & Powellite more fracture controlled than disseminated.						✓ 99	✓ 240			
53 ✓	4807 ✓	RS-207 ✓	Cont. Chip across 3.0 ft of granular garnet skarn; sample is normal to apparent bedding. 20-30% of granular skarn comprised of epidote/idocrase, ± calcite. Approx 2% WO_3 in granular pods contained in skarn						✓ 0.032%	✓ WO_3 0.73%			
54 ✓	WI-4808 ✓	RS-208 ✓	Cont. chip across 4.0 ft of calc-silicate hfls containing 2.0 ft pod of marble, & calc-silcates (epidote/idocrase, & garnet). WO_3 disseminated throughout prd. prevalent in calc-silicate as fracture fillings						✓ 0.012%	✓ WO_3 0.45%			
55 ✓	4809 ✓	RS-209 ✓	Cont. chip across 2.0 ft of "In & Out" zone of marble, & epidote/idocrase + qtz + calcite (around nose of pillar). Below sample area is zone of porphyryblastic garnet in calc-silicate hfls (?)						✓ 0.024%	✓ WO_3 1.62%			
56 ✓	4810 ✓	RS-210 ✓	Cont. Chip across 5.0 ft. of 90% fine-grained garnet skarn, & 10% pyroxene (?). Powellite predominant under UV light						✓ 0.011%	✓ WO_3 0.08%			
57 ✓	4811 ✓	RS-211 ✓	Cont. Chip across 5.0 ft. of moderately coarse-grained garnet skarn; local sections of good scheelite fluorescence. 1-2 ft. section of garnet skarn gouge.						✓ 0.028	✓ WO_3 0.44%			
58 ✓	4812 ✓	RS-212 ✓	Cont. chip across 4.0 ft of garnet skarn; 80% pale-brown, fine-grained garnet, 20% coarser-grained, dark-brown-red garnet						✓ 0.010%	✓ WO_3 0.01%			
59 ✓	4813 ✓	RS-213 ✓	Cont. Chip across 4.75 ft of garnet skarn with relict hfls texture evident in some sections. WO_3 as fracture fillings in hfls, & dissem. in fine-grained garnet skarn.						✓ 85 ppm	✓ WO_3 0.02%			

MAIN SHAFT
GEISTRY LEVEL No. 1

6000 0083 (0760)

All values in ppm unless otherwise noted

Port No	Lab No	Field No	Sample Description	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten
02	WI-4814	RS-214	Cont. chip across 5.0 ft of garnet skarn & calc-silicate hfls: 2 ft of fine-grained, pale-brown garnet skarn; 3 ft of calc-silicate hfls with minor garnet.						93 ppm	WO_3 <0.01%
03	4815	RS-215	Cont. chip across 4.5 ft of dark-red garnet skarn with local patches of good WO_3 fluorescence.						0.071%	WO_3 0.02%
04	4816	RS-216	Cont. chip across 4.0 ft of fine to med.-grained garnet skarn; 2 ft pod of qtz-epidote/idocrase, with high grade dissem. WO_3. Pod has strong Powellite component of fluorescence.						0.072%	WO_3 0.02%
05	WI-4817	RS-217	Cont. chip across 3.5 ft of garnet skarn & hfls: first 2 ft same as 216; next 2.5 ft comprised of calc-silicate hfls with spotty WO_3 fluorescence.						0.075%	WO_3 0.12%
06	4818	RS-218	Cont. chip across 6.0 ft of very-fn-grained green calc-silicate hfls: 1% combined scheelite & Powellite fluorescence (less on fresh surfaces).						0.018%	WO_3 0.04%
07	4819	RS-219	Cont. chip across 5.5 ft. of Granular garnet skarn, with 20% epidote/idocrase, + 10% calcite. Zone of garnet skarn is 3 ft thick & capped with calc-silicate hfls.						76 ppm	WO_3 1.28%
08	4820	RS-220	Cont. chip across 5.0 ft of Garnet skarn (Same as 219). On fresh surfaces, contains 10-35% scheelite & Powellite fluorescence.						0.070%	WO_3 1.20%
09	4822	RS-221	Cont. chip across 4.0 ft of garnet skarn (same as 219 & 220); floor is calc-silcate hfls with < 1% dissem. scheelite fluorescence & 1% scheelite fluoresc. in frax.						0.029%	WO_3 1.25%
01	4823	RS-222	Grab of hfls back fill in SW drift; up to 1% scheelite & Powellite fluorescence in calc-silicate hfls.						0.021%	WO_3 0.31%
02	4824	RS-223	Cont. chip across 4.0 ft of fine-grained, glassy garnet & hfls (50/50 mix)						0.048%	WO_3 0.03

GENTRY

* near detection limits
% = wt %

6000 0083 (0760)

All values in ppm unless otherwise noted

Port ID	Lab No	Field No	Sample Description	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten	As	Sb
72	WI-4740	RS-227	Main Shaft, Level No. 2: Cont. chip across 2.0 ft of garnet skarn on foot wall side of normal fault.	0.021	<0.3	<5	<80	190	120	0.31% WO_3	99	<20
35	4741	RS-228	570°W Adit: Cont. chip across 4.0 ft of FeOx garnet skarn with 1-5% qtz veinlets. Skarn is highly fractured. Moderate powellite & Scheelite.	<0.007	0.5*	<5	<80	110	530	40	44*	<20
37	4742	570°W Adit RS-229	Cont. chip across 4.0 ft of Amphibole & sulfide-rich (up to 30% Cp & Py) garnet skarn (same as 228) Scheelite in sulfides, garnet skarn & qtz veinlets.	0.021	0.360*	85	<80	330	130	250	20*	<20
38	4743	RS-230	Cont. chip across 4.0 ft of garnet skarn (continuous with RS-229). Amphiboles, scheelite & sulfides decrease.	0.014*	0.630*	<5	<80	190	52	60	<20	<20
39	4744	RS-231	Cont. chip across 6.0 ft of garnet skarn (same as 229). Contains py, cp, Tr. Mo & Scheelite.	0.031	<0.3	150	<80	190	140	200	23*	<20
40	4745	RS-232	Cont. chip across 6.0 ft of garnet skarn (same as 229) Continuous with RS-231.	0.021	0.879	<5	<80	220	83	160	<20	<20
75	WI-4803	S.33°W Adit RS-203	Grab of Garnet skarn w/ >1% scheelite + powellite fluorescence.						1.00%	0.26%		
78	4804	RS-204	Random chip of 2 x 3 ft mineralized pad of shattered garnet skarn in hfls. Mainly fracture-filling powellite.						2.28%	Mo interference		
80	WI-4772	RS-172	Grab from ore chute in Level 2 off main shaft						0.052%	0.90%		
81	4773	RS-173	"						0.027%	0.53%		

Gentry Tungsten - Surface mappings

6000 0083 (0760)

ORT O	LAB NO	Field NO	Sample DESCRIPTION	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten WO_3		Spec
				All values in ppm unless otherwise noted								
44 ✓ 4	WI 2042	1WR-621-1 OK	5 FT chip of sheared and broken Tactite	<.03					<2	915		
43 ✓ 3	WI 2043	1WR-621-2	10 FT chip of unmineralized appearing Limestone OK	<.03					<2	.34%		
42 ✓ 2	WI 2044	1WR-621-3	8 FT chip 3 FT of which is across structure in Tactite OK	<.03					<2	200		
50 ✓ 18	WI 2045	1WR-621-4	grab of isolated skarn outcrop OK	<.03					<2	127		
48 ✓ 16	WI 2046	1WR-621-5	10 FT chip between SW and W bearing adits near head frame OK	<.03					21	299		✓
WI 1887 47 ✓ 5		1WR 520-1	10 FT chip of Tactite starting at contact with intrusive NW of head-frame OK							.34%		✓
WI 1888 ~~49~~ ✓ 7		1WR 520-2	10 FT chip of Tactite South of head frame							.28%		
WI 1889 41 ✓ 11		1WR 520-3	15 FT chip of sheared and iron oxide stained Tactite							.03%		✓
40 ✓ 10	WI 2334	1WR 1010-6	10 FT chip across skarn zone in altered Limestone. occasional ¼ IN to 1 IN quartz veins	<.007	<.3	11	<150	170		W 320		✓

Gentry Tungsten - Surface mapping cont

6000 0083 (0760)

PORT NO	LAB NO	Field NO	Sample DESCRIPTION	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten		Spec
				All values in ppm unless otherwise noted								
39 9	WI 2335	IWR 1010-7	8FT chip across Tactite zone with abundant quartz veins	<.007	<.3	37	<150	165		W 120		✓
38 8	WI 2336	IWR 1010-8	13FT chip across Tactite zone with 1-3in quartz veins on north side of cut.	<.007	<.3	<10	<150	130		200		
37 7	WI 2337	IWR 1010-9	10FT chip across dark red Tactite zone with white quartz veins	<.007	<.3	<10	<150	180		60		✓
32 5	WI 2319	IWR 1010-10	10FT chip across dark red dense outcrop of Tactite	<.007	<.3	17	<150	<5		800		✓
35 6	WI 2320	IWR 1010-11	8FT chip of altered and shattered coarse grained intrusive with red gouge zones and abundant iron oxide	<.007	<.3	110	<150	<5		70		
14 2	WI 2321	IWR 1010-12	10FT chip along Tactite zone with dark red garnets	<.007	<.3	13	<150	62		1.51%		✓
3 4	WI 2322	IWR 1010-13	10FT chip along Tactite zone with 3-4FT zones of coarse intrusive	<.007	<.3	35	<150	41		.59%		
15 3	WI 2323	IWR 1010-14 ?	8FT chip in Tactite zone along shear; quartz veins? (see sample book	.02	<.3	<10	<150	<5		60		✓
21 4	WI 2349	IWR 1010-22	10FT chip across Tactite zone	<.007	<.3	<10	<150	130		240		

Gentry middle adit S 80W

6000 0083 (0760)

All values in ppm unless otherwise noted

Port No	Lab No	Field No	Sample Description	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten		Spec
79 ✓ 9	WI 2333	IWR 1010-S	7 FT chip Epidote, quartz gouge zone	<.007	.6	240	<150	~~<5~~		W ~~110~~		
				<.007	<.3	56	<150	250		110		
80 ✓ 20	WI 2324	IWR 1010-15	10FT chip along Left wall of adit from 20-30FT. Sample of quartz epidote veins in Tactite zone	<.007	<.3	<10	200	280		280		
81 ✓ 21	WI 2325	IWR 1010-16	2 FT chip in Tactite zone	<.007	<.3	<10	<150	210		400		✓
82 ✓ 22	WI 2344	17	4FT chip on Right side through Fault gouge.	<.007	<.3	27	<150	<150		40		✓
83 ✓ 23	WI 2345	18	Grab from .5-2 FT quartz vein Left side in Tactite.	<.007	<.3	56	<150	50		32		
✓ 24	WI 2346	19	3FT chip across quartz Tactite stringer zone	<.007	<.3	<10	<150	90		32		✓
80 ✓ 25	WI 2347	20	10FT chip across quartz Tactite stringer zone with occasional malachite	<.007	<.3	<10	<150	300		120		
01 ✓ 26	WI 2348	21	Grab of monzonitic intrusive from Face	<.007	<.3	470	<150	97		<5		✓

Gentry · Underground 556°W Trend Southern most adit

6000 0083 (0760)

Port No	Lab No	Field No	Sample Description	Gold	Silver	Copper	Lead	Zinc	Molybdenum	Tungsten W		Spec
				All values in ppm unless otherwise noted								
23 ✓ 27	WI 2305	IWR-1010-1	11.5 FT chip weathered Tactite zone of massive garnet, epidote, with some quartz veining. Sample along left wall starting at portal	<.007	<.3	13	<150	68		1600		✓
24 28 ✓	WI 2306	IWR-1010-2	5 FT chip across fault zone S. side of adit from 30-35 FT	<.007	<.3	135	<150	180		200		
27 ✓ ~~30~~	WI 2307	IWR-1010-3	6 FT chip across face; highly Argillic altered and fractured quartz monzonite(?)	<.007	<.3	41	<150	<5		6		✓
26 ✓ 29	WI 2308	IWR-1010-4	1 FT chip of gouge material in fault at 62 FT	<.007	.6	240	<150	<5		24		✓

Four distinct types of skarn have been recognized:

1. scheelite-bearing Crystal-rich, granular garnet skarn

2. Glassy-garnet-rich skarn
   w/ important amounts of colorless pyroxene & qtz
3. Pyroxene-rich skarn
   w/ important amounts of qtz, garnet & epidote
   some mo, py, & cp.
4. Porphyoblastic garnet-quartz-calcite skarn
   minor scheelite

SUMMARY

1. This is a discontinuous, pinching & swelling tungsten skarn, with a strike length of about 600ft, widths that vary from zero to 50ft, & thicknesses up to 40 ft

2. Four types of skarn have been recognized, but tungsten seems to be most concentrated in only one type, which will cause dilution problems during mining

3. Grades range from — to — % WO_3, but dilution will be a problem

4. Quartz diorite porphyry appears to limit the depth of the skarn because it forms a basement for the skarn in the vicinity of the main shaft.

   Skarn may reach greater depth near the contact of the
qdp — FW with the fault in Level no. 2 (Longitudinal section A-A')
   Additional Skarn may also be present in the subsurface on the HW side of the fault.

5. At least 3 DDH (angle holes) are proposed to determine the skarn's depth, lateral continuity, & a better picture of its grade w/ respect to skarn type, & proximity to the marblized limestone

6. Detracting Factors
   A. Proximity of fetid marblized ls to contact of Kqmp to skarn suggests
      — Kqmp "dry" — not much juice for prograde metasomatic alt. of all the ls.
   B. Skarn not very deep — floored by qdp in level 2 & both adits finish in qdp.

Deposit Type
Rock units
  Host rx
  Co. rx
  Structure
} Petrographic
Deposit geometry
  Surface
  Underground
Analyses of rock samples

Gentry mine main workings
  Qtz dio. porphyry traced 550 ft
  Normal fault traced 550 ft
    Skarn " "
      Skarn - widest surface exposure - 25 ft (R-34)
      Skarn - widest underground " - 50 ft (S 33°W Adit)
Interbedded w/ hfls — skarn extends about 40 ft into subsurface from portal of S 33°W Adit through main shaft into level #2

Potential for more skarn

not good signs
1. qdp forms basement
2. Marblized Ls still has fetid odor - not juiced up enough by metasomatic fluids to drive stink out

3. Possible additional skarn in HW down dropped on north side of fault

Three types of skarn
1. Scheelite-bearing Granular - garnet xtal-rich, contains retrograde assemblage

2. Glassy - garnet rich

3. Pyroxene rich - some py, mo, cp
iron rich

6000 0083 (0760)

Gentry

Sampling :

CC 18 + 6 + 9 + 8 + 8 + 3 + 8 + 9 + 6 + 4

Grab 𝍸 ||||

Random chip ||||

CC 𝍸 𝍸 𝍸 𝍸 𝍸 ||| / 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |||

28

53
28
81

Grab 𝍸 ||| 8

Random chip |||| 4

Select

CC 𝍸 𝍸 𝍸 𝍸 𝍸 ||/

Grab |||

Random chip

6000 0083 (0760)

S. W. Koehler Co.

P.O. Box 41
Grangeville, Idaho 83530
(208) 983-2734

PETROGRAPHIC ANALYSIS OF 13 SAMPLES FROM A TUNGSTEN SKARN DEPOSIT

Please send to Bill White

Prepared For

U. S. BUREAU OF MINES, WFOC

12 June 1984

REGISTERED PROFESSIONAL GEOLOGIST
STEVEN W. KOEHLER
NO. 426
STATE OF IDAHO

G-A Our porphyry at Gentry but this sample from N of Road near cabin and is quite fresh K-stain

A quartz diorite porphyry consisting of about 57 percent plagioclase (sodic oligoclase with albite rims), 15 percent pale brown to green hornblende, 10 percent biotite, 10 percent quartz, 5 percent orthoclase, 2 percent ilmenite, 1 percent sphene, and apatite. The rock contains 25 percent subhedral plagioclase phenocrysts 3 - 8 mm across and often with strong undulatory extinction. Groundmass grains generally are .05 - 1.5 mm across. Hornblende grains are subhedral and up to 4 mm long. Some large biotite grains contain dozens of sphene inclusions. Interstitial orthoclase grains are anhedral and up to 1 mm across. Plagioclase shows light alteration to sericite and epidote. The overall texture is subhedral granular.

G-B Kamp of Hardyman K-stain

A granodiorite consisting of 55 percent plagioclase (oligoclase), 25 percent quartz, 15 percent perthitic orthoclase, 4 percent biotite, 1 percent sphene, ilmenite, and apatite. The texture is subhedral granular and seriate with most grains ½ - 6 mm across. Well developed sphene crystals are sometimes twinned and up to 1 mm long. Some quartz occurs as vermicular intergrowths with plagioclase, especially around the rims of plagioclase grains. A few biotite grains are partly altered to chlorite (ferroan prochlorite) along the biotite cleavage. Plagioclase, which displays well developed synneusis textures and oscillatory zoning is lightly altered to clinozoisite, epidote, sericite, and clay (birefringence and color like kaolinite).

G-11 Our intrusive in the adits (Face area) K-stain

A quartz diorite porphyry that has undergone propylitic alteration. Except for alteration minerals, the mineralogy and textures are essentially the same as G-A. At a minimum, most plagioclase grains have a turbid appearance due to pitting and some grains are as much as 50 percent replaced by epidote and clinozoisite with minor sericite. These epidote grains are anhedral to subhedral and up to 1 mm across. The little biotite remaining is colorless to reddish brown, however, most grains have been completely altered to chlorite (pennine) or limonite. In this case limonite seems to be an alteration product of chlorite. Hornblende has been bleached to colorless to pale gray-green colors. Some epidote occurs along fractures in hornblende. Ilmenite has been completely altered to hematite. Orthoclase is largely unaffected by the alteration except for light pitting and minor alteration to clay and carbonate. Quartz generally is fresh. Sphene, even those inclusions in biotite that has been completely altered to chlorite, has not been affected by the alteration. Likewise, apatite does not seem to have been affected by the alteration. A few cubes of pyrite are present but these have been completely oxidized to limonite.

G-4 Aplite from northern most prospect K-stain

An aplite consisting roughly of 50 percent orthoclase, 25 percent plagioclase (oligoclase), and 25 percent quartz. Accessory ilmenite, biotite, and muscovite are present. Biotite is golden brown to dark brown and may be heavily altered to iron oxides, especially along cleavage planes. The rock texture is anhedral granular and seriate with most grains being .04 - 2 mm across. There is a weak parallel alignment of elongate tectosilicate grains, suggesting a flow structure. Hematite inclusions and vacuoles in feldspar grains also are parallel to alignment of their feldspar hosts and elongate quartz grains. Flow structure often occurs in small dikes or near the contacts of larger dikes. Limonite (from oxidized biotite?) occurs along grain boundaries and causes the red color of the hand sample.

G-3 from Northern drainage that starts at the Jasperoid & ends at Northern workings K-stain

A hornfels consisting of 40 percent quartz, 35 percent muscovite, 12 percent aluminian prochlorite, 10 percent plagioclase (oligoclase), 3 percent biotite, euhedral zircon, and rutile. The tectosilicates have a granoblastic polygonal texture and the micas display a moderate schistosity. Most grains are .03 - .4 mm across but some grains are up to 1¼ mm. Al-prochlorite is intergrown with muscovite and biotite and appears to replace these minerals. Where biotite is replaced the Al-prochlorite contains granules of rutile. The Al-prochlorite probably developed as a retrograde metamorphic mineral. The original rock probably was a siltstone.

G-3A Our fetid Ls northern end

A calcite marble with granoblastic polygonal texture and containing about 97 percent calcite. Most calcite grains are elongate and generally are ¼ - 2 mm long and 1/10 - 1/2 mm wide. Muscovite is the most common silicate mineral, and commonly occurs as .15 mm long flakes scattered throughout the rock along grain boundaries and as inclusions in calcite. Grains of graphite often less than 5 microns across occur most abundantly along calcite grain boundaries but also occur as inclusions in calcite and muscovite. Some tremolite grains up to ¼ mm long are present. An occasional spot of limonite (oxidized pyrite?) up to .2 mm long can be found. The original rock was a fairly pure limestone.

G-12 The porphyroblastic garnet calc silicate that we found scheelite in on the dump K-stain

This section is across the contact of an igneous intrusive and contact metamorphosed sediment. The igneous intrusive is highly altered but has a relict subhedral granular texture with ¼ - 4 mm grain size. Compositionally, the intrusive seems to have been a granodiorite, the major minerals listed in order of abundance being plagioclase, quartz, K-feldspar, and colorless pyroxene. Plagioclase is highly altered to sericite, epidote, and clinozoisite. Pyroxene tends to occur as skeletal crystals with quartz and epidote filling spaces along pyroxene cleavages and quartz containing inclusions of pyroxene. Sphene is a common accessory mineral. Some ferroan prochlorite and oxidized pyrite grains are present. Quartz also occurs along fractures transverse to the contact.

The original sediment probably was a calcareous siltstone. The present texture is granoblastic polygonal with typical grain size of .04 mm. Porphyroblasts of garnet up to 1 cm across are present. Garnet is poikiloblastic with concentric layers of inclusions of carbonate, pyroxene, and quartz. Fine grained minerals in the metasediment include quartz, plagioclase, K-feldspar, Al-prochlorite, garnet, epidote, clinozoisite, carbonate, sphene, and pyrite. Another mineral, possibly cuspidine, is present and has optical properties as follows: low birefringence like .01, r.i. quartz, bx +, distinct r v, good cleavages as right angles. Some pyroxene and muscovite also are present. Any of these minerals may be concentrated along certain layers of the rock. Garnet is reddish brown in hand sample and neutral in thin section.

RS-229 The dark green Py, chp, Mo, bearing Rock in Adit

Polished Thin Section

A skarn rich in pyroxene and containing important amounts of quartz, garnet, and epidote. The texture is granoblastic with most grains being ¼ - 6 mm across. Pyroxene is pale green in thin section and may be iron-rich diopside or hedenbergite. Garnet is dark reddish brown in hand sample and pale orange-brown in thin section. Quartz occurs as porphyroblastic grains up to 1 cm across. Quartz is poikiloblastic with inclusions of pyroxene which occur as small single crystals and relatively large skeletal crystals. Pyroxene generally is free of inclusions but is partly replaced by uralite and epidote. Carbonate occurs along fractures in pyroxene and uralite. Garnet occurs as porphyroblasts up to 2 cm across and forms aggregates at least 7 cm across. Garnet contains inclusions of uralite, Fe-prochlorite*, carbonate, quartz, pyroxene, epidote, and clay. The uralite and Fe-prochlorite inclusions contain inclusions of garnet indicating garnet replacement by these minerals. Pyrite occurs as clots up to 1 cm across intergrown with pyroxene. A .15 mm grain of molybdenite occurs between grains of Fe-prochlorite and garnet. Some chalcopyrite occurs along cleavage in pyroxene. The nature of the occurrences of uralite, Fe-prochlorite, and epidote are good evidence for retrograde metamorphism.

RS-208 underground at first pillar

This section is across the contact of calcite marble and a scheelite-bearing quartz-epidote layer.

The marble has a granoblastic polygonal texture with typical grain size of ¼ - 1 mm. In some areas of the marble, calcite grains are lenticular and are intergrown with fibrous lenticular quartz. Porphyroblasts of garnet several millimeters across occur in the marble and may contain inclusions of quartz, very pale green pyroxene, and calcite. Some garnet crystals are isotropic and others are distinctly anisotropic and divded into sectors with a biaxial character. Some of these grains could be vesuvianite. According to Deer, Howie, and Zussman (An Introduction to the Rock Forming Minerals, 1966, p. 32) ".....the distinction (vesuvianite) from grossular garnet may be difficult." The 6-sided form of anisotropic crystals favors garnet, however.

The layer in contact with the marble consists mostly of quartz and epidote. The quartz grains are anhedral to euhedral and ¼ - 4 mm across. Distinctly zoned anhedral to euhedral crystals of epidote generally .1 - .5 mm across occur as inclusions in quartz and along quartz grain boundaries. Anhedral to euhedral grains of scheelite 3/4 - 2 mm across occur along quartz grain boundaries and sometimes contain inclusions of pyroxene and carbonate. The scheelite fluoresces blue-white in hand sample. Calcite occurs interstitially to quartz and fluoresces red in hand sample. (Calcite in marble does not fluoresce). Zircon and carbonate occurs as inclusions in quartz.

G-13 Glassy Garnet skarn

A garnet-rich skarn containing important amounts of colorless pyroxene and quartz. Garnet is reddish brown in hand sample and neutral in thin section. Most of the garnet is isotropic but in places it is anisotropic with strong growths zoning and pie-sector twinning. Garnet contains inclusions of quartz, pyroxene, epidote, uralite, and carbonate. Carbonate also occurs along fractures in garnet. Quartz occurs as porphyroblasts up to 1 cm across with numerous small crystals and relatively large skeletal crystals of pyroxene. Small amounts of uralite, epidote, and carbonate occur along fractures in pyroxene and probably represent retrograde replacement minerals.

* possibly pennine

G-9 Granular skarn Typical of higher W

A scheelite-bearing granular garnet skarn consisting mostly of garnet crystals .02 - 6 mm across. Cores of large garnet crystals are isotropic and rims are anisotropic with distinct growth bands. The isotropic cores have a neutral color and the anisotropic rims are banded in shades of pale orange-brown. Most of the smaller garnets are anisotropic with concentric growth banding and sector twinning. In hand sample the garnets are brownish red. Cavities in garnet are lined with garnet crystals and may be filled with quartz (a single monocrystalline grain, polycrystalline aggregates, or chalcedony) and/or carbonate. Less commonly these cavities are filled with pale green chlorite or pale yellow-brown phyllosilicate (chlorite-mixed layered clay?). The green chlorite is Fe-prochlorite* Occasional cubes of pyrite are associated with quartz or carbonate in these cavities. Colorless pyroxene and epidote are intergrown with and occur as inclusions in garnet. Anhedral to subhedral grains of scheelite up to 2 mm across are intergrown with garnet, pyroxene, carbonate, epidote, and quartz. Some scheelite grains in this sample fluoresce the characteristic bluish white color of scheelite but others fluoresce a cream yellow color characteristic of powellite or high molybdenum scheelite.

RS-202 endoskarn N end near workings K-stain

An endoskarn consisting of about 60 percent quartz, 30 percent plagioclase (oligoclase), 7 percent pale green pyroxene, and 3 percent epidote + carbonate + sphene. Most quartz and plagioclase grains are ¼ - 4 mm across. Plagioclase is subhedral and quartz is anhedral. Pyroxene occurs as anhedral to euhedral grains .1 - .5 mm across, often as inclusions in quartz and plagioclase but also along grain boundaries of these minerals. Plagioclase is lightly altered to epidote, carbonate, and sericite. Minor K-feldspar inclusions occur in plagioclase. Interstitial sphene crystals up to 1 mm long are present. Pyroxene is lightly altered to uralite, epidote, and carbonate.

RS-209 underground, first Pillar at base

A skarn consisting mostly of granoblastic calcite, porphyroblastic garnet, porphyroblastic quartz, and porphryoblastic calcite. Most granoblastic calcite grains are ¼ - 1 mm across. Garnet grains are up to 2 cm across and porphyroblastic quartz and calcite grains are up to 1 cm across. Quartz contains inclusions of epidote and colorless pyroxene. In places, garnet seems to have undergone extensive replacement by clay (fine grained chlorite ?). Carbonate, epidote, and quartz occur as inclusions and along fractures in garnet. Most garnet is isotropic and neutral to very pale orange-brown in thin section. Rims of some garnets are anisotropic. Intergrowths of quartz and clay (fine grained chlorite ?) possibly represent former intergrowths of fine grained garnet and quartz. Acicular inclusions in quartz may be an amphibole which in places has been replaced by clay (chlorite ?). Epidote occurs along fractures in granoblastic calcite. Clay (chlorite ?) occurs along some grain boundaries of granoblastic calcite. Minor scheelite occurs in the hand sample and thin section rock chip but none was seen in thin section.

* possibly pennine

6000 0083 (0760)

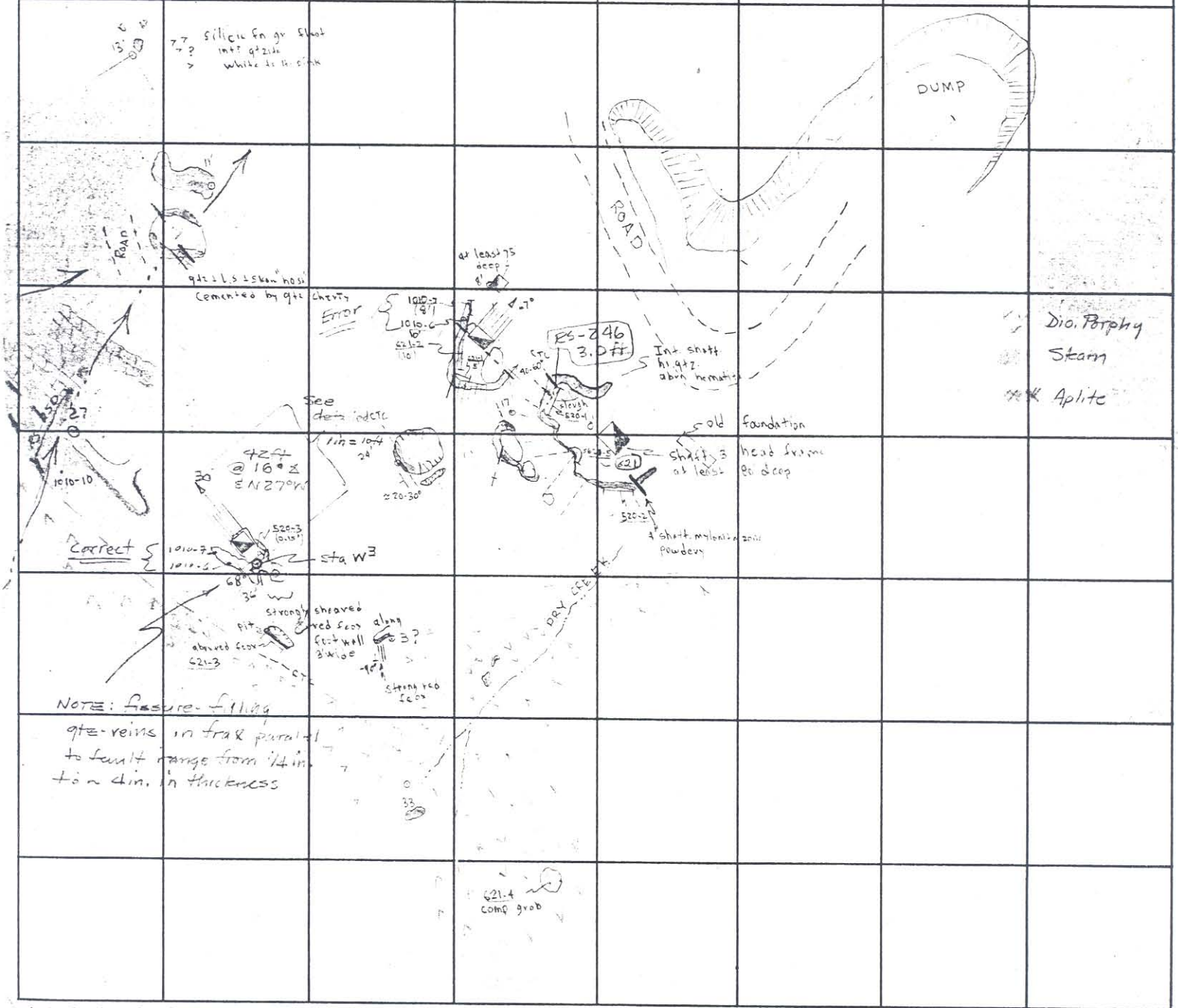
6-21-1

Gentry Mine
DJ. N.D
6-21-82
6-21-1

N

Scale 1" = 50'

	Bearing	Dip	Dist	Δ	Ft ±	Elev. Start 0'
	N74W	35'	21'	+29°	+17	17
to pit	S65W	44	43	+9½	+7	24'
from 17'	N10W	45'	44'	-10½	-9'	8'
from 17'	S55W	100	98	+11°	+19'	36'
	S60E	45'	45'	+0°	+0'	36A
	S5°E	50	50'	-4°	-3'	33
from 8'	N70W	100'	100	+1½°	+3'	11'
	N31W	52'	52'	+2°	-2	13'
	S58W	100'	97	+13½	+23	36'



6000 0083 (0760)

6-21-2

Gentry (cont)

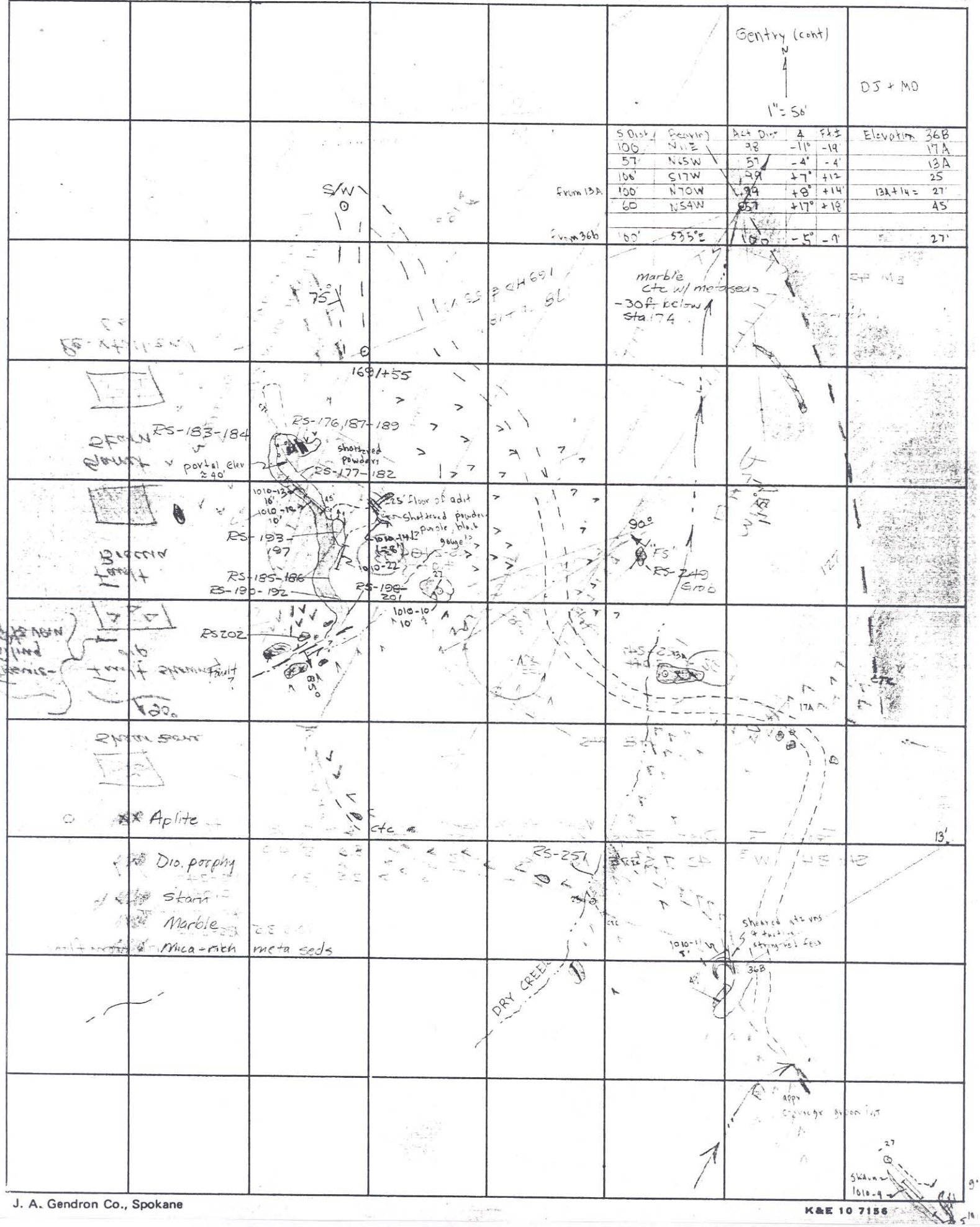
N

1" = 50'

DJ + MD

S Dist	Bearing	Act Dir	4	Ft ±
100	N.E	98	-11°	-19'
57	N65W	57	-4°	-4'
100'	S17W	99	+7°	+12
100'	N70W	99	+8°	+14'
60	N54W	57	+17°	+19'
100'	S35°E	100	-5°	-9'

Elevation 36B 17A 13A 25 13A+14 = 27' 45 27'



27 APR 84
GENTRY
MAIN SHAFT
1ST LEVEL
[illegible] / WHITE

6000 0083 (0760)

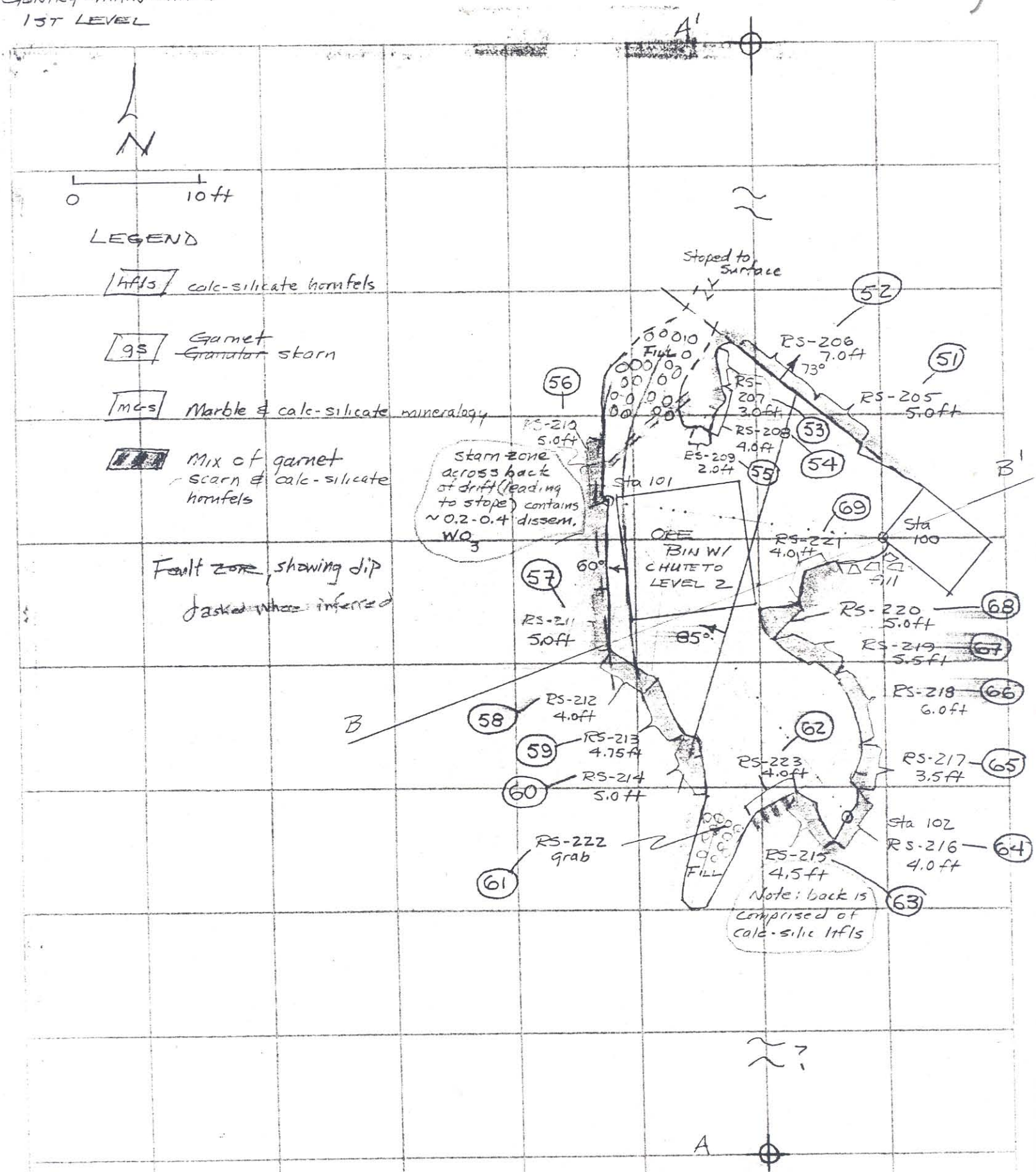
LEVEL 1: FROM	TO	BEAR	DIST	VERT ∠	HORIZ DIST	VERT DIST	ELEV.	L	C	R	REMARKS
STA 100	101	N82°W	22.4	0	22.4				3.0	7.5	Sta 100 = NW corner
(-17.5 ft below								2.5	4.0		
									13.0	14.0	of shaft
Sta 300 at collar)									16.0	7.0	At 10 ft, fault in back
									18.0	14.0	strikes S16°W
									22.4	12.0	
								6.0	6.0		
								7.0	9.0		
								15.0	17.0		
								12.0	20.7		
101	102	S36°E	32.0	0	32.0				14.0	5.5	Sta 102 A = face of SE drift
									20.0	6.0	
								6.0	23.0		
									24.0	8.0	
								4.5	28.0	2.0	@ 20 ft (tape) SW drift bears S16°W & is 18 ft (est)

LEVEL 2: (floor is -32.0 ft below Sta 300 at collar)

FROM	TO	BEAR	DIST	VERT ∠	HORIZ DIST	VERT DIST	ELEV.	L	C	R	REMARKS
Sta 201	202	S81W°	23.75	0	23.75			4.0	0	3.5	Sta 201 is post at
NOTE: zero on								6.0	2.0	3.5	NE corn of shaft
tape starts at								5.0	7.0	3.0	bottom; Sta 202 is
Sta 202								5.0	8.0	1.5	chute of ore bin. (waist high or 3.0 ft above floor)
								5.0	10.0	1.5	Sta 200 is past
								6.5	13.0	1.5	located at 10.25 ft
									15.0	2.5	from Sta 201; Sta
									18.0	3.5	200 is vertically below
								9.0	20.0		
								7.0	22.0	3.5	Sta 100 (1st level)
								3.0	23.75	1.5	& 29 ft below Sta 300 (SW corn main shaft at collar)
201	203	N36°W	38.0	0	38.0			5.5	13.0	2.0	
								4.5	16.0	2.0	fault
								2.0	18.0	1.5	
								3.5	22.0	3.5	fault
								3.0	26.0	3.5	fault
								4.0	30.0	3.5	fault
								6.5	34.0	2.0	fault
								8.0	38.0	2.0	fault
203	204	N58°W	30.0				Seam garnet/idoc	2.5	30.0	2.0	"
							calc-silic-hfls	4.0	23.0	2.5	"
								4.0	18.0	1.0	"
							calc-silic hfls w/pods of glossy garnet seam w/ 1% scheel fluoresc.	4.5	15.0	2.0	"
								4.5	11.0	2.0	

27 APR 84
SATROSKI / WHITE
GENTRY - MAIN SHAFT
1ST LEVEL

6000 0083 (0760)

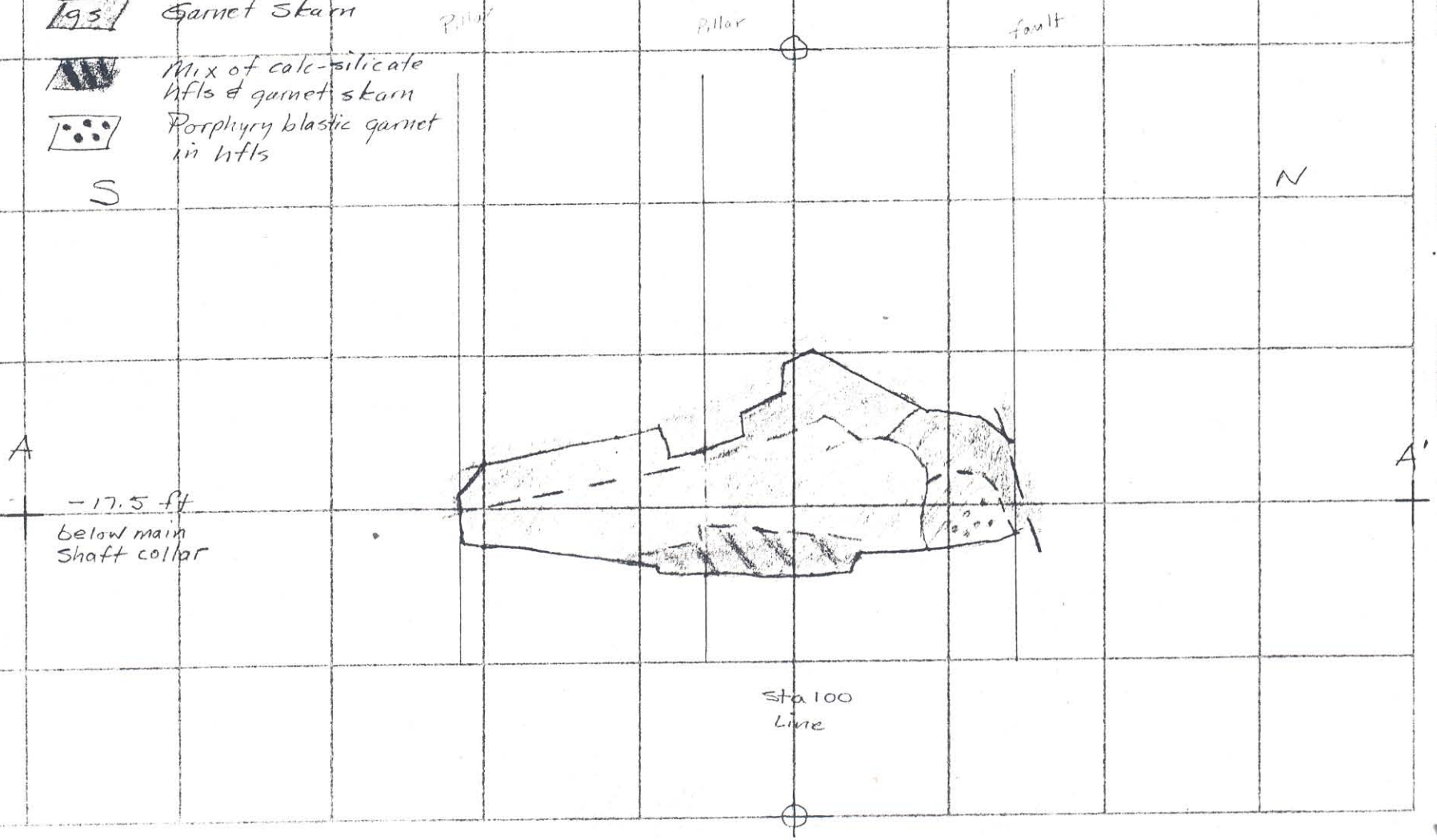


3 MAY 84
SATKOSKI / WHITE
GENTRY, MAIN SHAFT

LEVEL No 1, Longitudinal section looking West

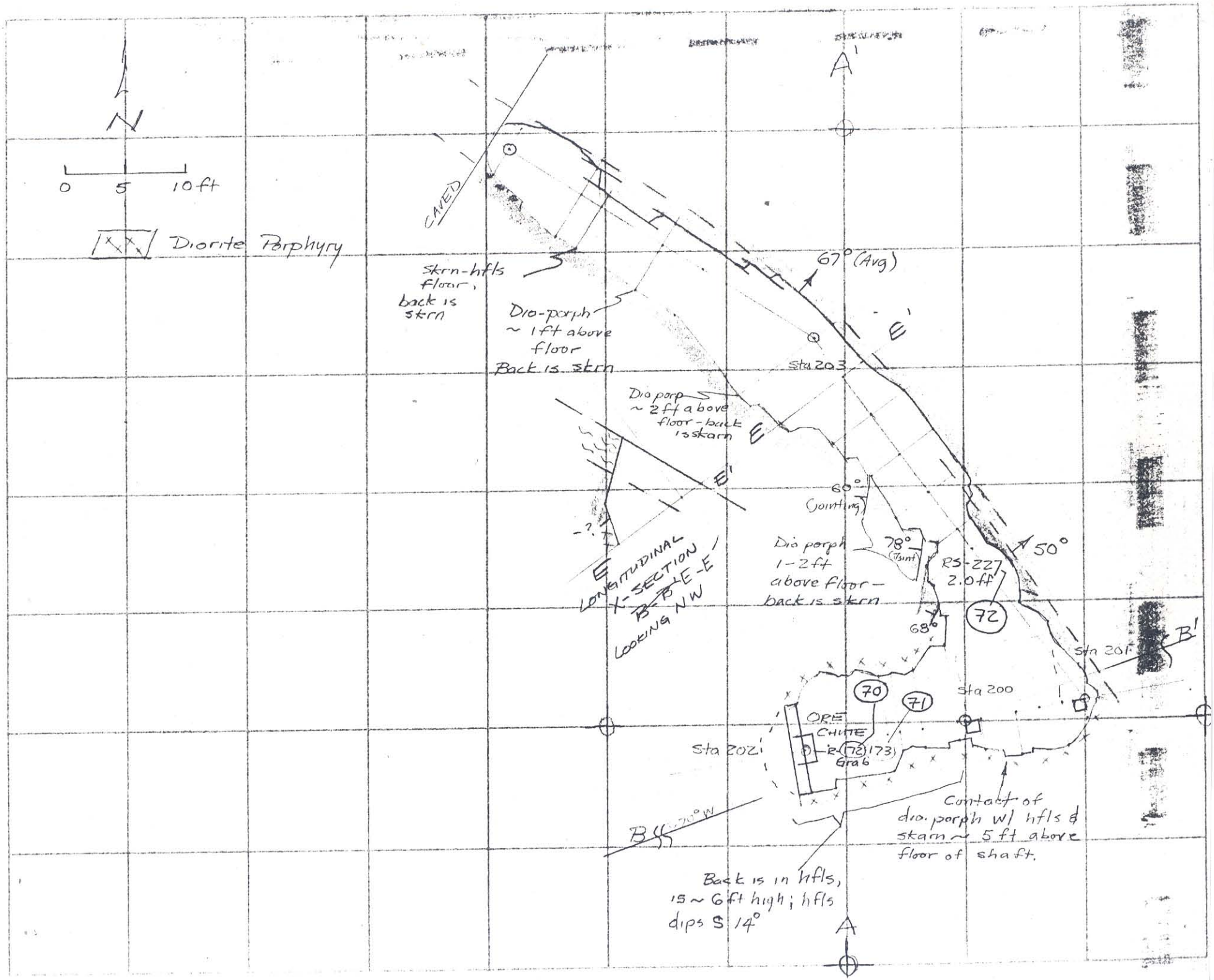
LEGEND

- Calc-silicate hfls
- Garnet Skarn
- Mix of calc-silicate hfls & garnet skarn
- Porphyry blastic garnet in hfls



6000 0083 (0760)

6000 0083 (0760)



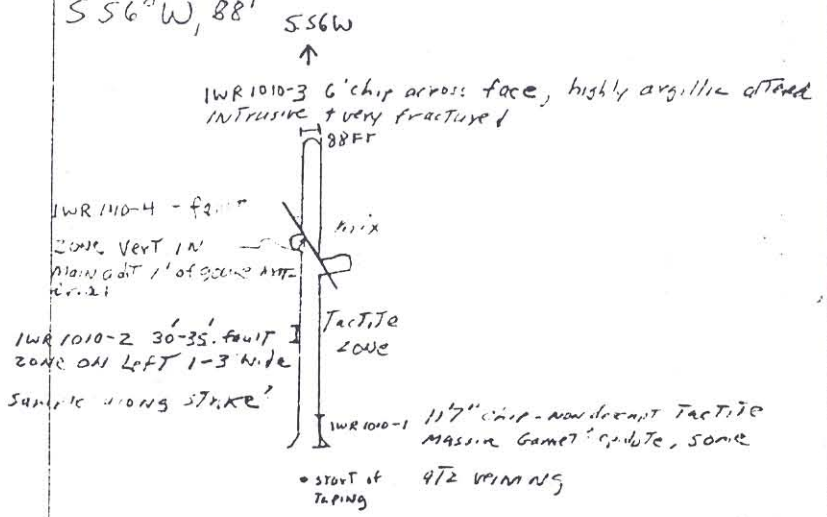
30 APR 84
SATKOSKI / WHITE
GENTRY
MAIN SHAFT, LEVEL 2

60000083 (0760)

Sather Pr field Notes

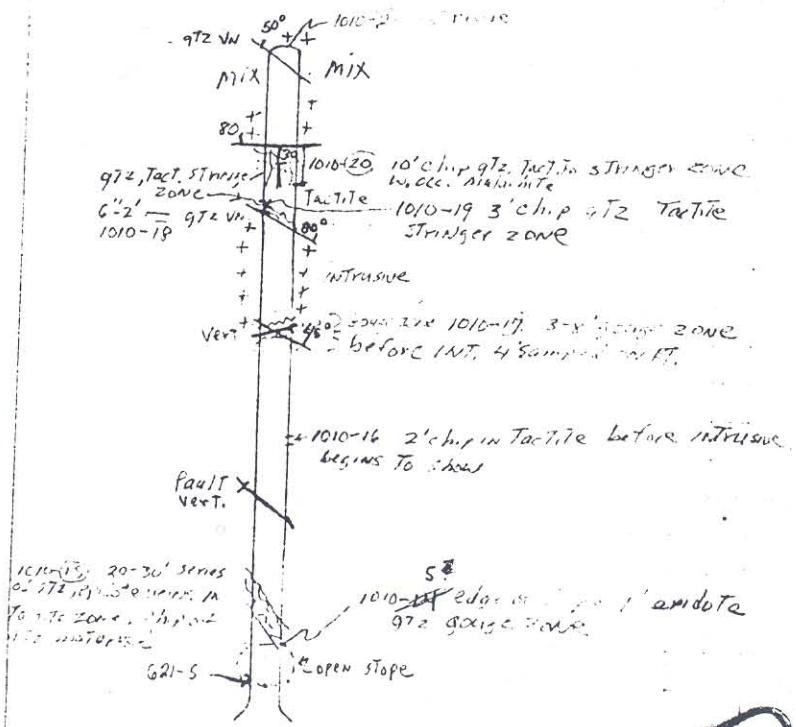
10.10.92 Gentry 1IN=50'

S most adit of W of shaft T bearing
S 56° W, 88'



1 IN = 50'

1010-20 - note [illegible] zone has 2 directions of [illegible] joining



Middle Adit S 80W

6000 0083/0760

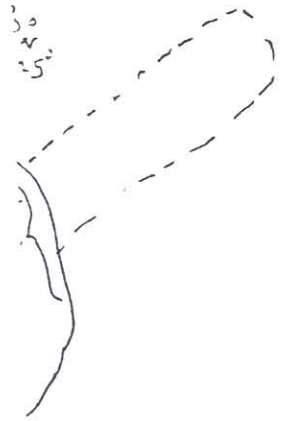
6/21 Gentry W03 Property - surface mapping & sampling
Thunderstorms by noon.
Sample locations shown on map.

621-1 5' chip all I could get sheared & broken tactite
621-2 10' chip of unmin appearing L.S.

621-3 8' chip ≈3' across structure in trench
621-4 comp grab of isolated skarn o.c.
621-5 Rib between NW and West adit in main open cut (head frame) area

6/22 Toured Jack S. in morning
Checked soil geochem anomalies
Started mapping on soil sta 24+25 1E
thunderstormed out

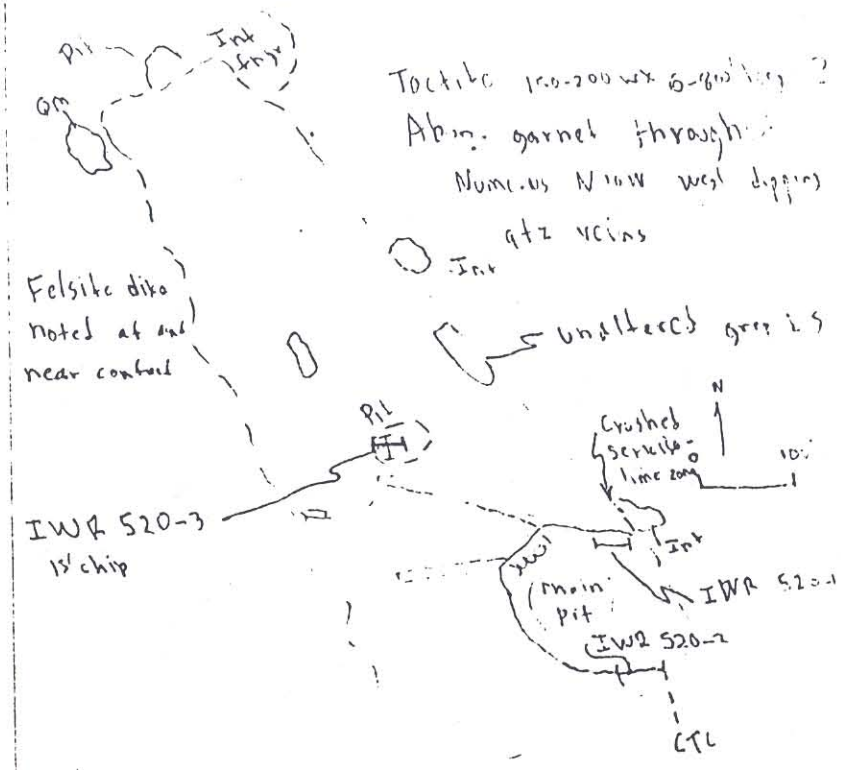
STIBNITE TRIP



GENTRY WOZ (Gillis Range)

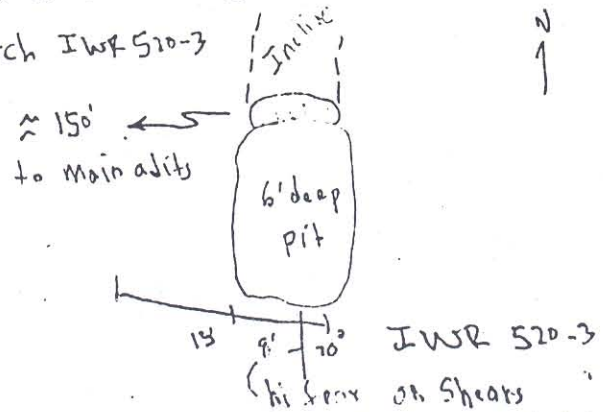
Maria Lund or Rund 1978 Garnet-Tung ?

Recent claims



Plan - Take 3 samples, check for WO3 [illegible] black lik assay best

Sketch IWR 520-3



Strong N-S shear orientation

5/20 Fri

3 SHAFT AREA South of Copper Hill

N75°E 47°N dip to 3' wide shear in Limestone at contact of 3 pitch shafts

Almost all Cu carbonates malachite azurite Chrysocolla and bright green antelerite? Chalco tare

2 Samples taken IWR 520-4 grab of Cu stained dump at SE shaft - inaccessible to sampl. behind shaft

IWR 520-5 4' chip at central shaft fault zone Shaft inclined to north

5/21/82

Sunny warm 82° Fallon

Reconned up road on way to Block Mt Cu

Saw pyritic some iron stained some not quartz eye silicic porphyry near valley bottom in "intrusive" contact w silicic fine grained felsic "cap" also containing pyrite

No stockwork, rare quartz veins, no epidote in "intrusive" (alt) along fractures

[4 Samples IWR 521-1-4

BIG TWENTY - Drove up steep hill half way up. Appr 6 shafts and two adits aligned N70-75°E along an 2-10' wide near vertical shear containing strong limonite staining

Country rock fine grained "salt and pepper" intrusive unaltered

Abun kaolin alteration along shear

Source? 6900 0083 (0760)

Gillis Canyon Scheelite

This area which is also known as the Gentry Mine, is located on the east flank of the quartz monzonite intrusive of the Gillis Range, immediately south of where Gillis Canyon cuts the quartz monzonite.

There are four shallow shafts and three tunnels whose dumps indicate that there is probably three or four hundred feet of underground workings. The rock is probably Excelsior and is a brownish tan, brittle, felsic volcanic. There are also some interbedded limestones and black dense quartzites (?). In places the limestone has been marbleized and in others silicified and locally silicated. Between the Excelsior and the quartz monzonite there is a zone of dark, dense diorite which contains considerable biotite and hornblende, and which I believe is a hybrid rock. The mafics of this particular unit have been largely converted to chlorite.

The prospect appears to be a typical contact type situation of limited extent and it is extremely doubtful that much ore will ever be found. No further work is recommended.

File No. 0003I
(6000 0083 (0760)

Mike Dunn Version

Gentry Mine and Vicinity

USBM seq. no 03230210457

Introduction

Location: The Gentry Mine is located in the CW1/2SE1/4 sec 33 T.12N. R.30E. of the Gillis Canyon 15' quadrangle. The ~~area~~ Property is ~~along side~~ on the east side of Gillis Canyon in the Agai Pah Hills. Previous work: The mine consists of four shafts, ~~three~~ five adits, and several pits and trenches. ~~Additional adits, pits, and trenches occur in the immediate vicinity (plate X).~~ delete? The main shaft is located in the center of a glory hole ~~which~~ that has three adits radiating ~~out~~ from it. The shaft is ~~30~~ 32- ft deep ~~with a 20 ft by 20 ft room at the bottom~~ & contains two levels. The commodity was tungsten which occurred as the mineral s scheelite & powellite. The ore was hand picked and upgraded to 1.0% WO_3. It was then hauled to a nearby railroad siding on the reservation (Stucky) where it was milled. The mining was discontinued because of recovery problems due to the fineness of the scheelite (Fred Kenderson, miner, personal comm.).

Geology

The area's geological setting consists of a roof pendent within a granitic intrusion. The pendent is primarily a medium to dark grey, thin to moderately thick bedded limestone, with minor intercalated thin shales and silts. The intrusive is the Gillis Canyon pluton which consists of a light grey to pinkish grey, porphyritic quartz monzonite with uniform texture. Along the margins of the pluton, the intrusive rock is locally less porphyritic haveing a fine-grained, more aplitic texture In addition to this is a border phase of the pluton which is a more mafic diorite to granodiorite rock containing considerable biotite and hornblende in its matrix and may be the result of metamorphism. It is locally present as isolated pods, and as a discontinuous contact zone with the country rock. This more mafic rock is cut by aplite dikes and

dio. porphyry older than Kqmp (Xenoliths of dio p. in Kqmp)

narrow quartz veinlets and will itself extend into the country rock as local stringers and dikes. This phase of the Gillis Canyon pluton is very prevalent in the vicinity of the Gentry Mine (Hardyman, 1978).

Three phases of metamorphism is represented in the rocks within the vicinity of the Gentry Mine. Initial isochemical metamorphism has recrystalized the limestone and may have turned some of the silty layers into calc-silicates, metosomatic processes have altered the limestone and the intrusive near thier contact into a garnet-rich skarn, and retrograde alteration has produced epidote where meteoric water flowed back through the system. ?

The rocks and mineral types at this locality suggest a typical W skarn deposit which is usually confined to a narrow(approximately 10 meters) but vertically extensive zone(Meinert, 1983). However, because the limestone in this case is a roof pendent, the vertical depth of the skarn, which is limited to the depth of the pendent, may not be so extensive. Also, plate X shows the skarn zone to be fairly wide at the southeastern end. This appears to be due to assimilation and metasomatization of chunks of limestone off from the main pendent because this area is scattered with patches of limestone and intrusive within the skarn.

The metasomatic process may also have followed structures such as bedding planes and fractures which lead away from the general trend of the contact giving the skarn the appearance of interfingering or occuring as dikes through both the limestone and the intrusive. Minor faulting appears to have complicated the picture.

Preliminary mapping by the U.S. Bureau of Mines indicates a possible fault which may have played an important part in the tungsten mineralization. Indications of the fault include shattered powdery contacts between the skarn and intrusive in the main workings and in those to the northwest, the angular truncation of the limestone pendent, the extension of the skarn out past the limestone to the northwest, and the fact that they all line up along a similar trend. Rock chip assays (appendix X) show that the tungsten mineralization of the skarn is primarily concentrated along this trend as well. It is possible that initial metasomatism and tungsten mineralization of the skarn followed this trend as a preexisting structure and forces caused continual movement along the same structure long after the mineralization had stopped.

Faulting appears to be post WO_3 mineralization. WO_3 concentr. along marble fronts rather than along fau zones.

Three vertical holes, as shown on plate X, are recommended to evaluate this areas potential as a future ore deposit for tungsten. The holes are located to test the horizontal trend of the highest assays as well as to test the vertical extent of the skarn. The holes should be drilled as deep as possible or until the hole is definately beyond the skarn zone. If warrented, additional holes could be angled to determine if the zone dips to either side rather then being vertical as it should be. If a deposit with reasonable reserves can be determined, bulk rock samples should be taken and tested for better recovery techniques since this was a problem in the past.

References

Hardyman, R.F., 1978, Volcanic stratigraphy and structural geology of Gillis Canyon quadrangle, northern Gillis Range, Mineral County, Nevada: PhD thesis, University of Nevada, 248p.

Meinert, L.D., 1983, Variability of skarn deposits - Guides to exploration: in Boardman, S.J., ed., Revolution in the Earth Sciences, Kendall- Hunt Publishing Co., 384p.

! = <

Map No.	Sample Description	All Values in ppm unless otherwise noted Au	Ag	Cu	Pb	Zn	Mo	W	Spec
1	10 ft chip along tactite zone with 3-4 ft zones of coarse intrusive	!.007	!.3	35	!150	41		.59%	
2	10 ft chip along tactite zone with dark red garnets	!.007	!.3	13	!150	62		1.51%	*
3	8 ft chip in tactite zone along shear; quartz veins ?	.02	!.3	!10	!150	!5		60	*
4	10 ft chip across tactite zone	!.007	!.3	!10	!150	180		240	
5	10 ft chip across dark red dense outcrop of tactite	!.007	!.3	17	!150	!5		800	*
6	8 ft chip of altered and shattered coarse grained intrusive with red gouge zones and abundant iron oxide	!.007	!.3	110	!150	!5		70	
7	10 ft chip across dark red tactite zone with white quartz veins	!.007	!.3	!10	!150	180		60	*
8	13 ft chip across tactite zone with 1-3 in. quartz veins on north side of cut	!.007	!.3	!10	!150	130		200	
9	8 ft chip across tactite zone with abundant quartz veins	!.007	!.3	37	!150	165		120	*

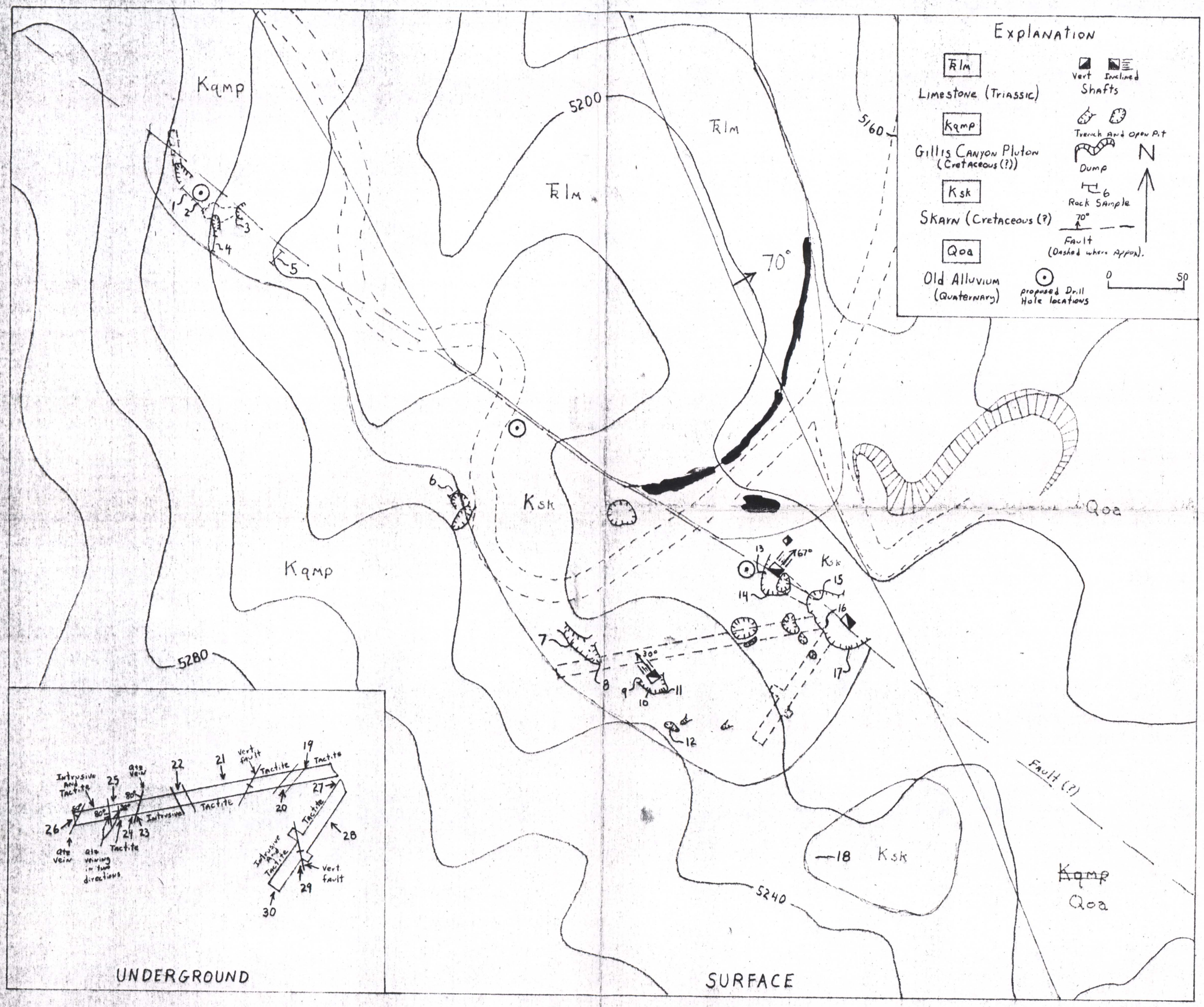
10	10 ft chip across skarn zone in altered limestone; occasional 1/4 in. to 1 in. quartz veins	!.007	!.3	11	!150	170		320	*
11	15 ft chip of sheared and iron oxide stained tactite							300	*
12	8 ft chip, 3 ft of which is across structure in tactite	!.03					!2	200	
13	10 ft chip of ~~unmineral-ized appearing limestone~~ gray green calc silicate with garnet skarn pods. Quartz veins cut both.	!.03					!2	.34%	

25	10 ft chip across quartz tactite stringer zone with occasional malachite	!.007	!.3	!10	!150	300	120	
26	Grab of monzonitic intrusive from face	!.007	!.3	470	!150	97	!5	*
27	11.5 ft chip of weathered tactite zone of massive garnet, epidote, with some quartz veining. Sample along left wall starting at portal	!.007	!.3	13	!150	68	.16%	*

Map No.	Sample Description	All values in ppm unless otherwise noted Au	Ag	Cu	Pb	Zn	Mo	W	Spec
28	5 ft chip across fault zone S side of adit from 30-35 ft	!.007	!.3	135	!150	180		200	
29	1 ft chip of gouge material in fault at 62 ft	!.007	.6	240	!150	!5		24	*
30	6 ft chip across face; highly argillic altered and fractured quartz monzonite(?)	!.007	!.3	61	!150	!5		6	*

6000 0083 (0760)

6000 0083 (0760)



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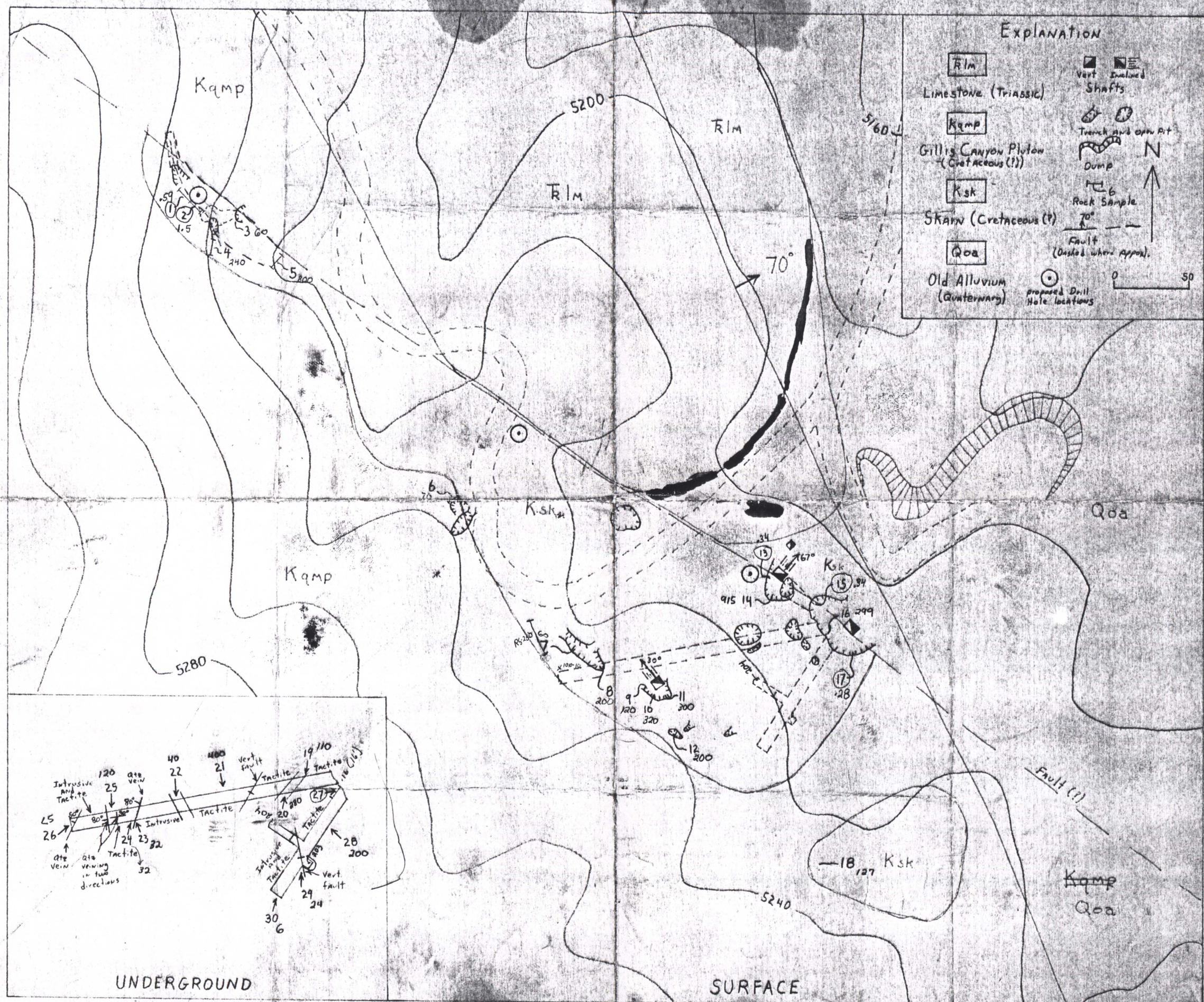

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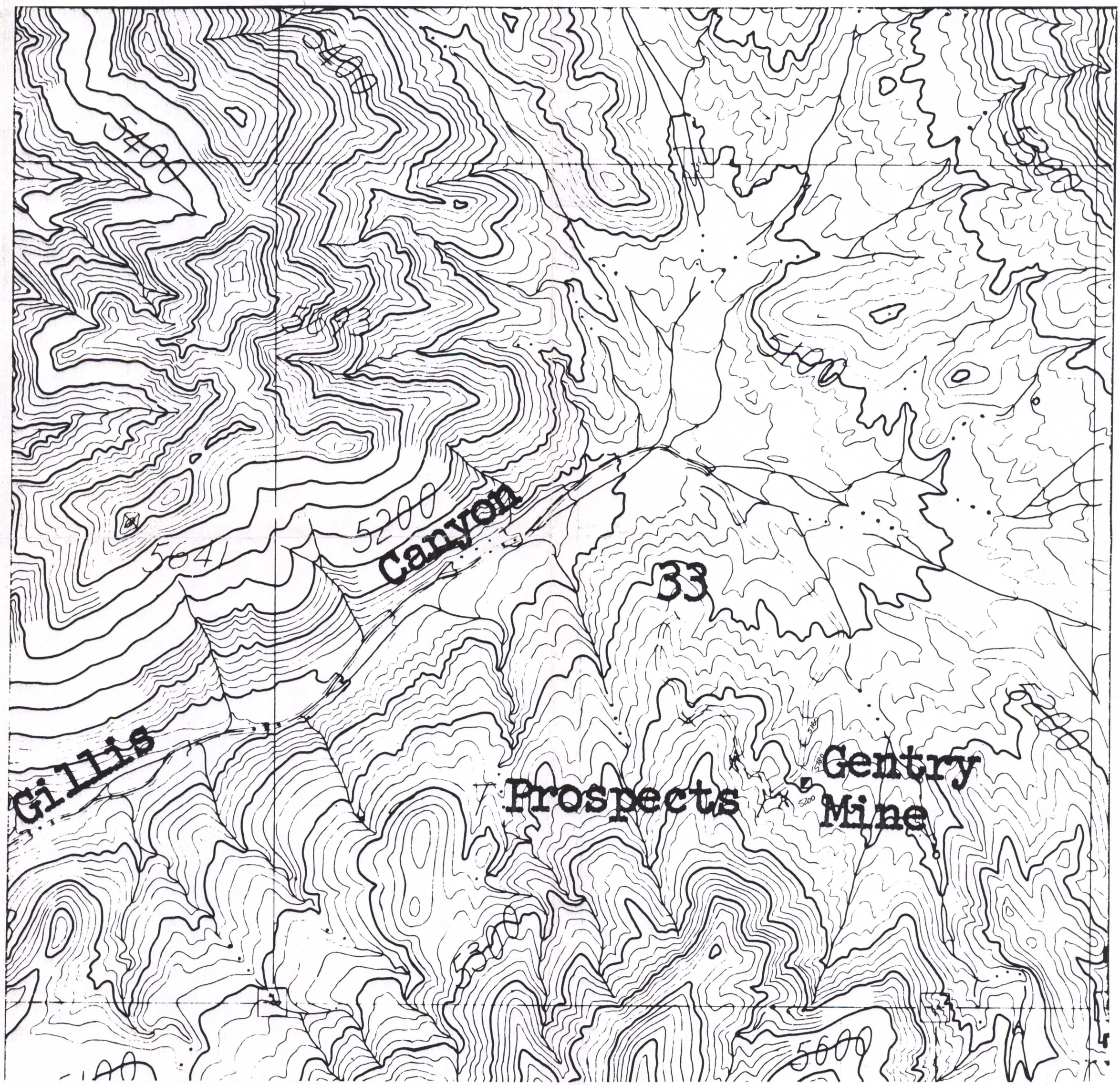

Scale : 1in = 500ft
Contour Interval = 20ft

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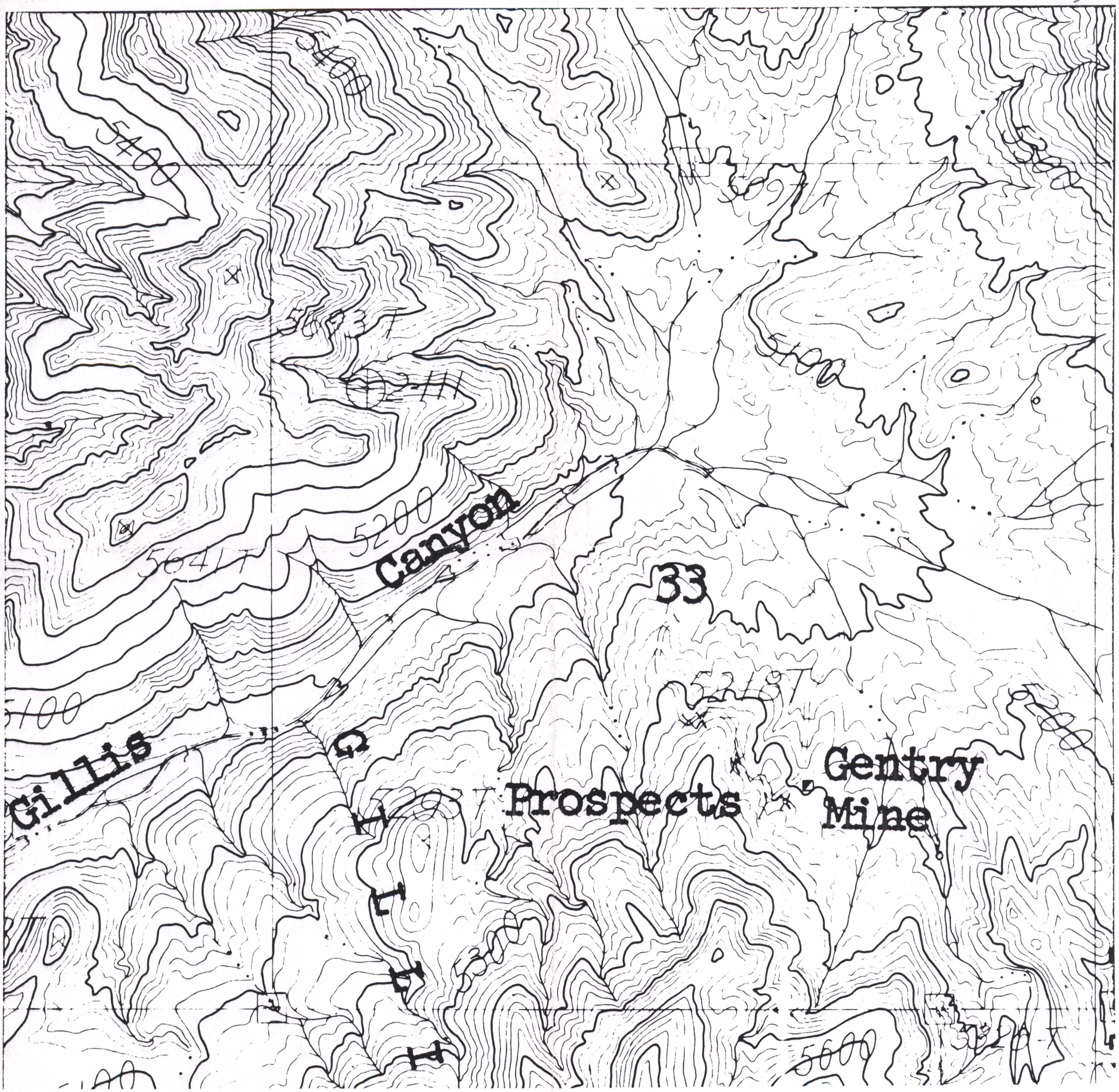

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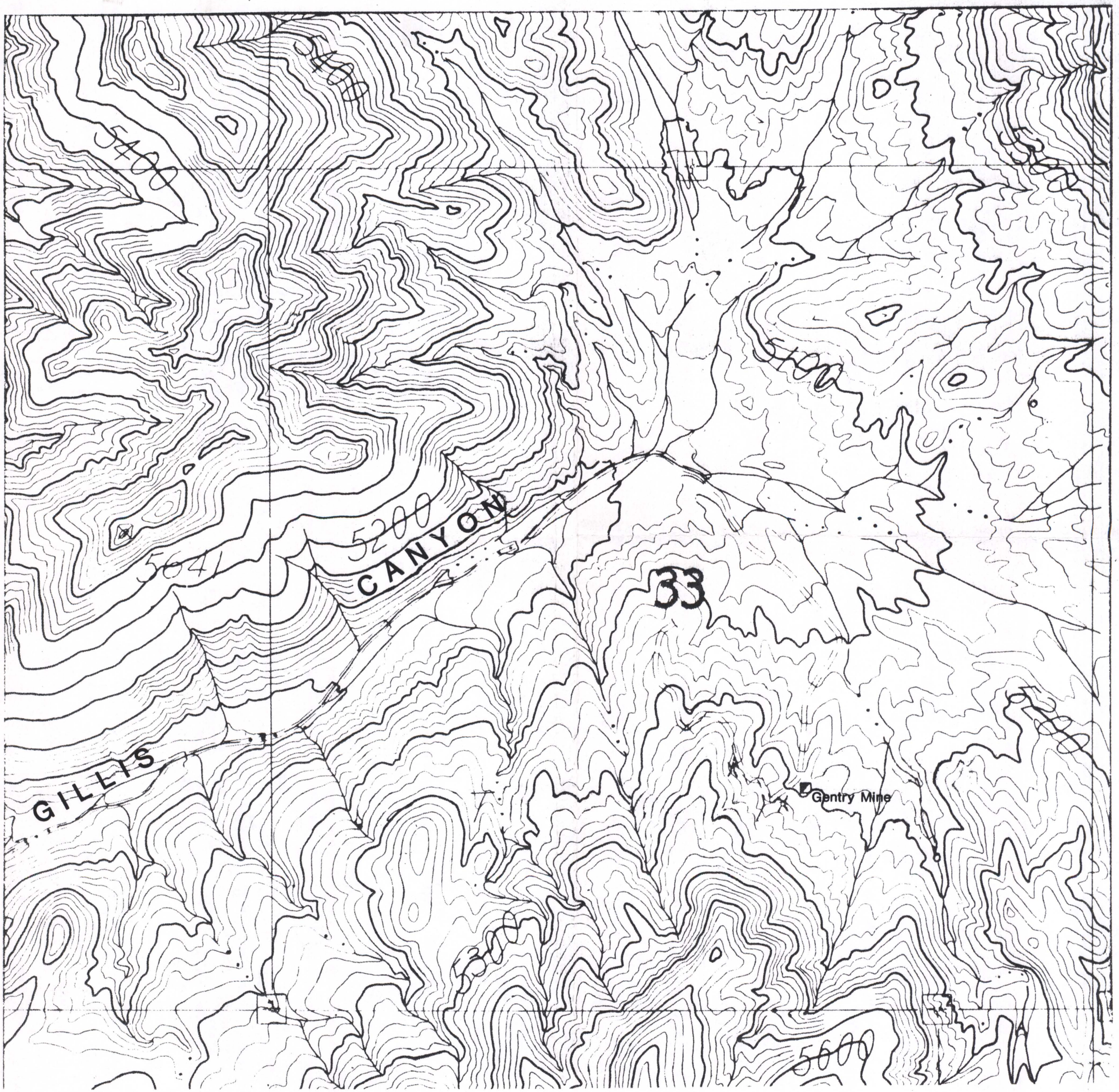

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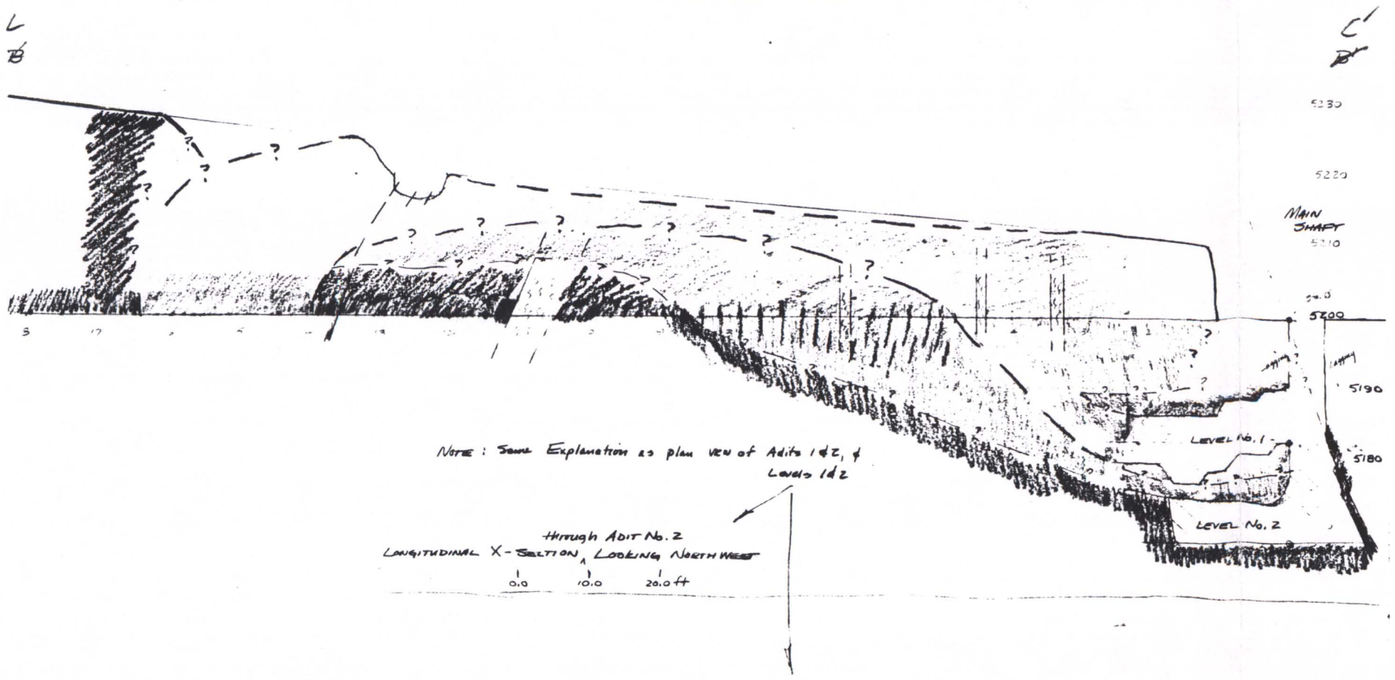

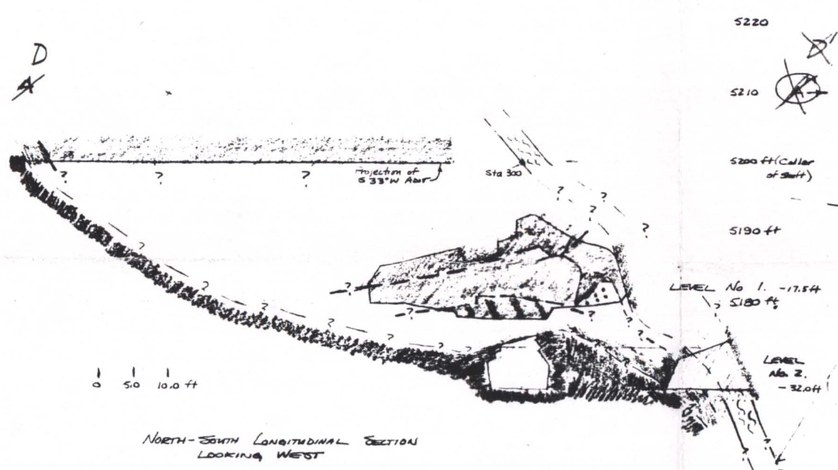

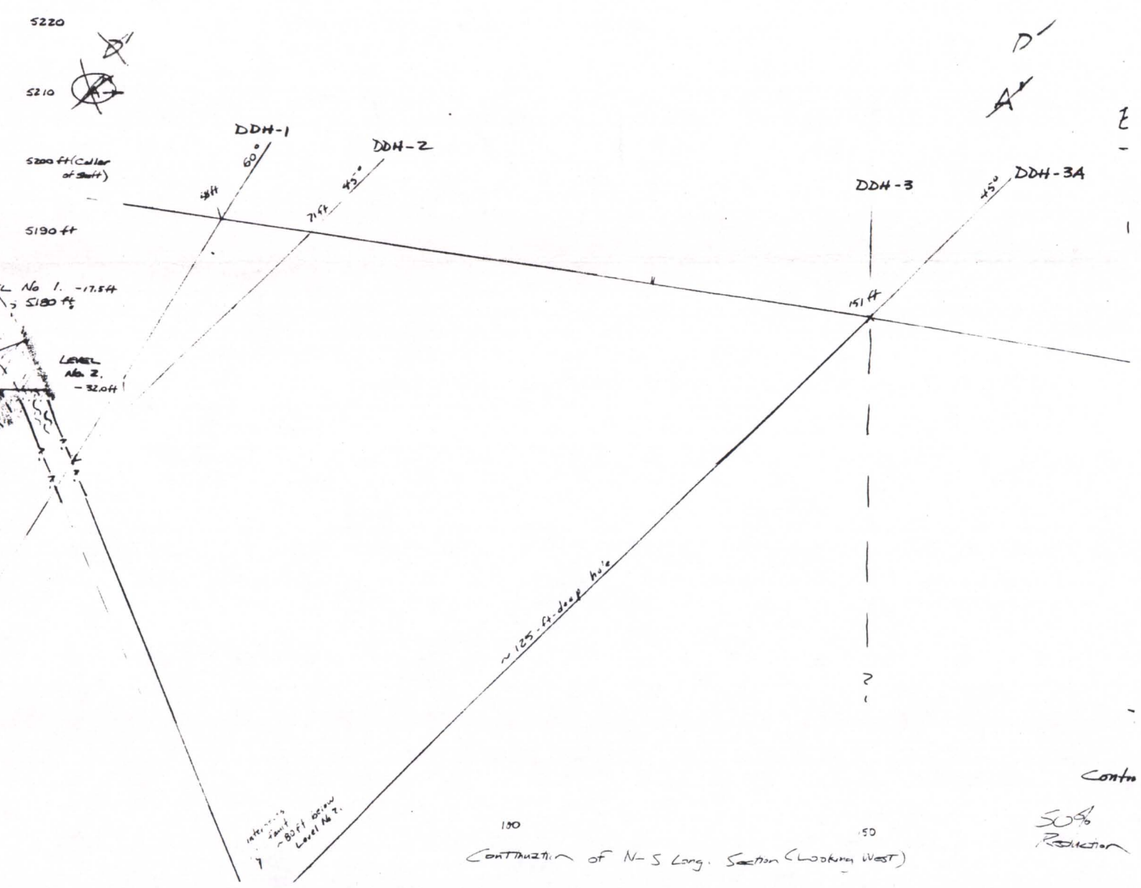

Contd

50% Reduction

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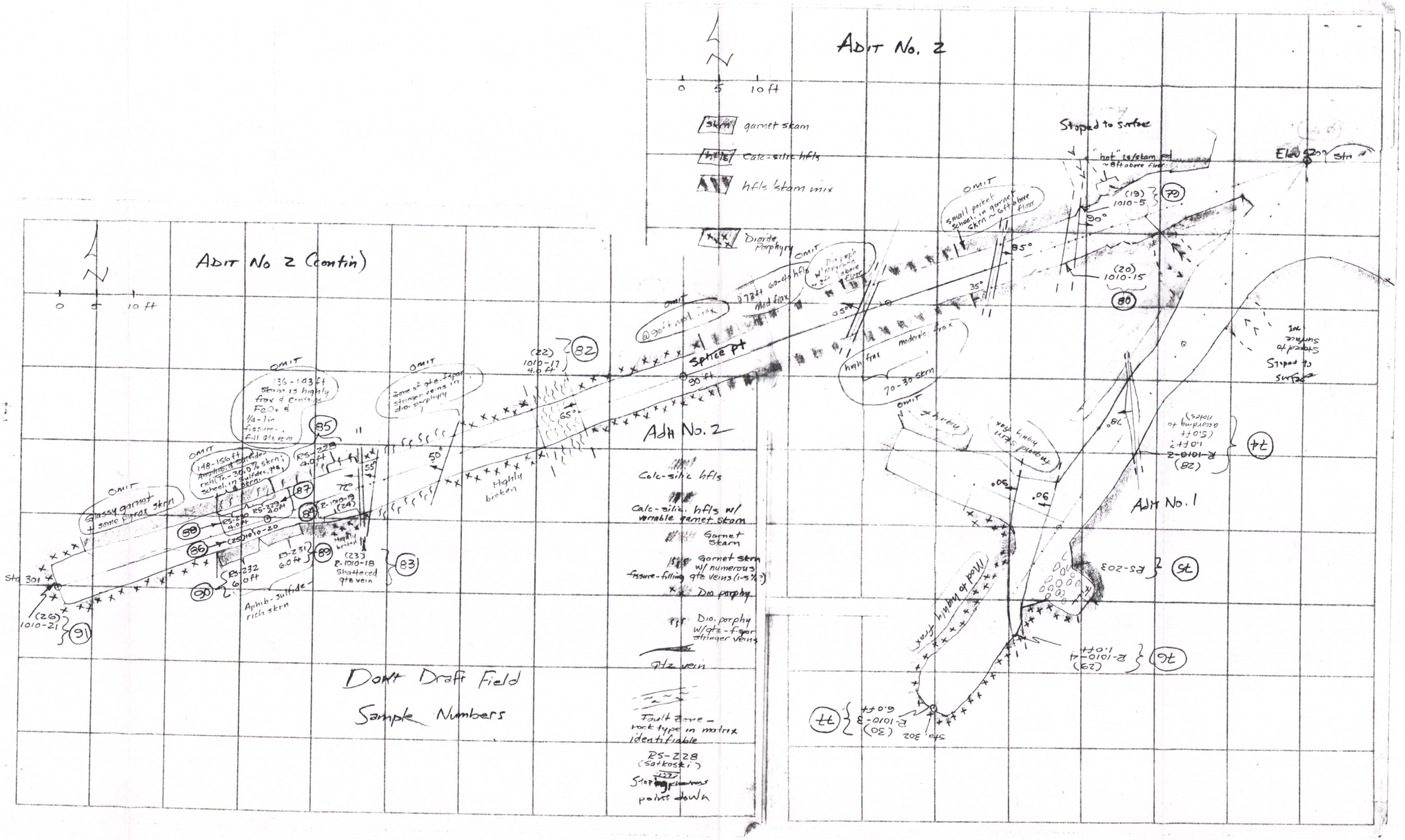

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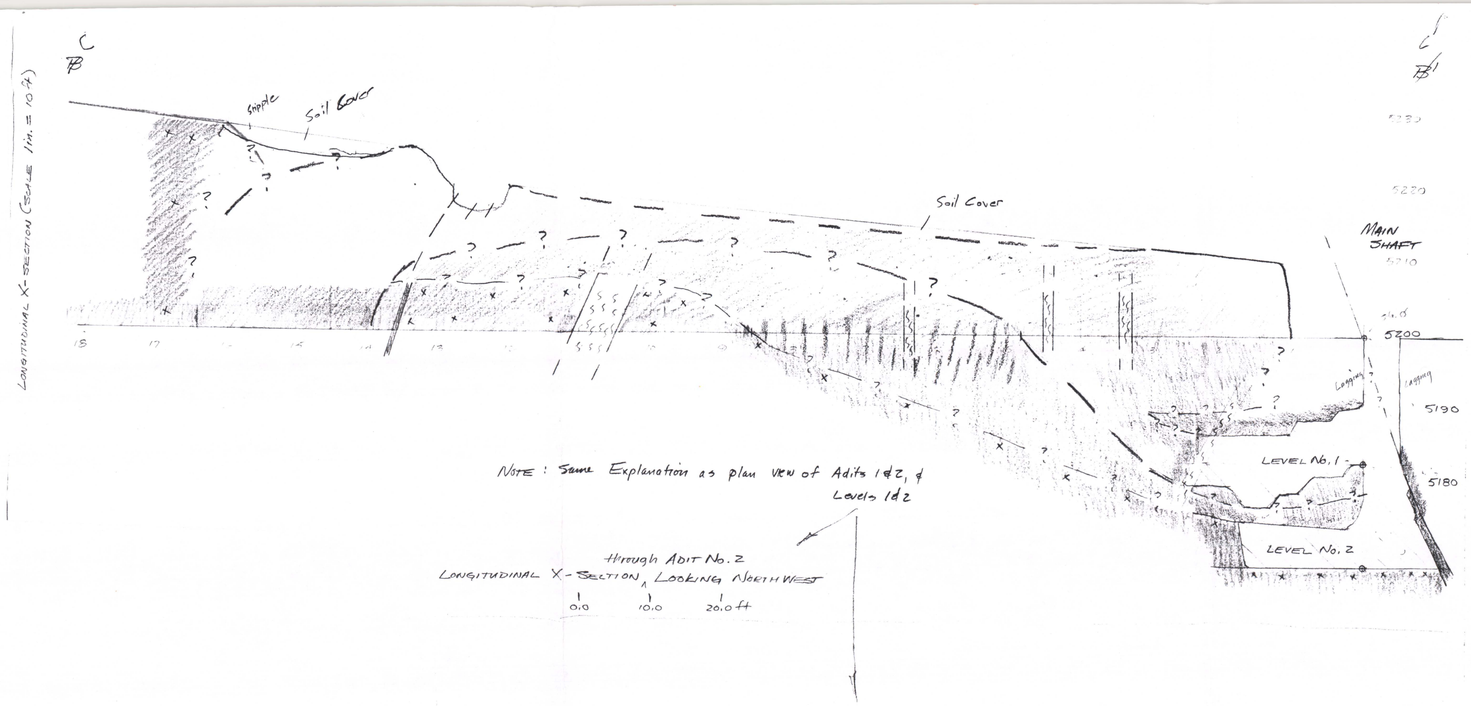

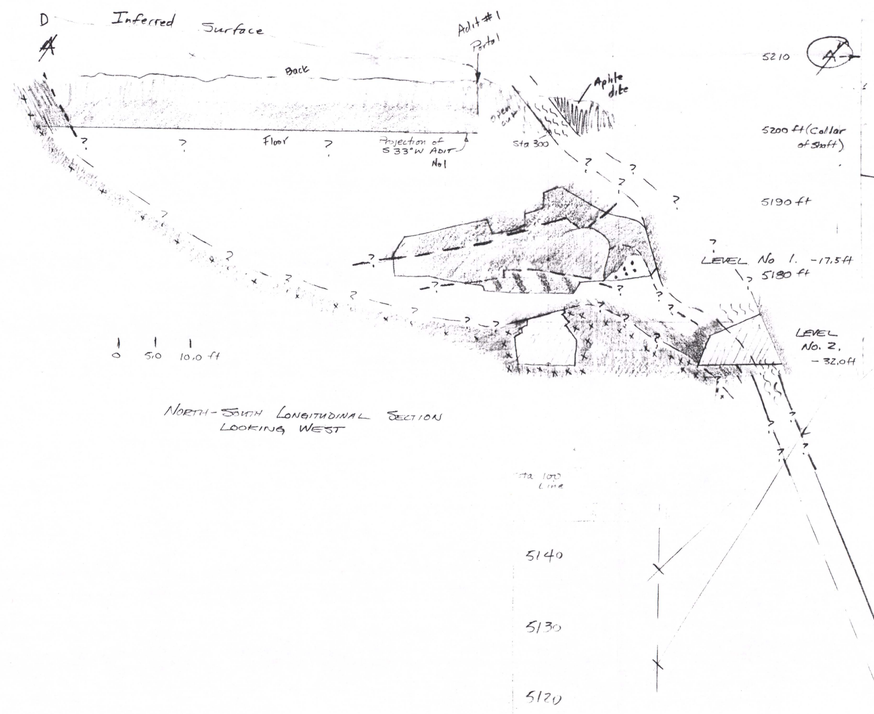

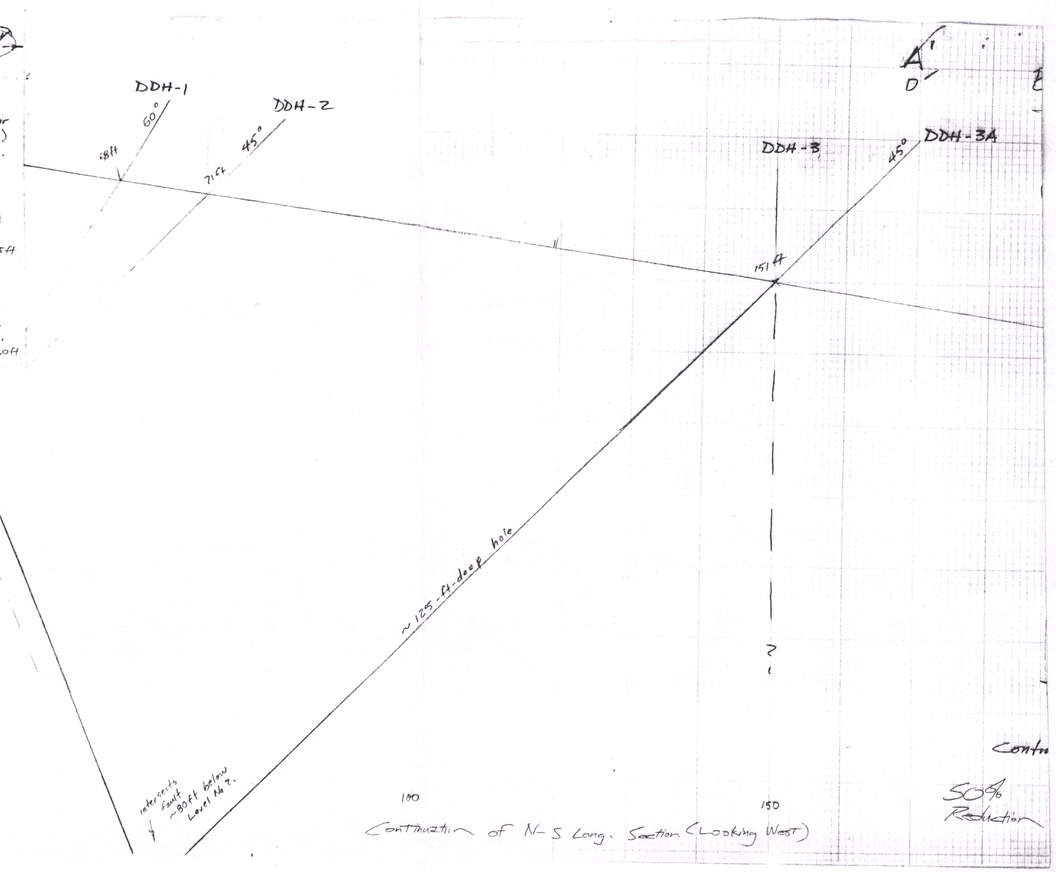

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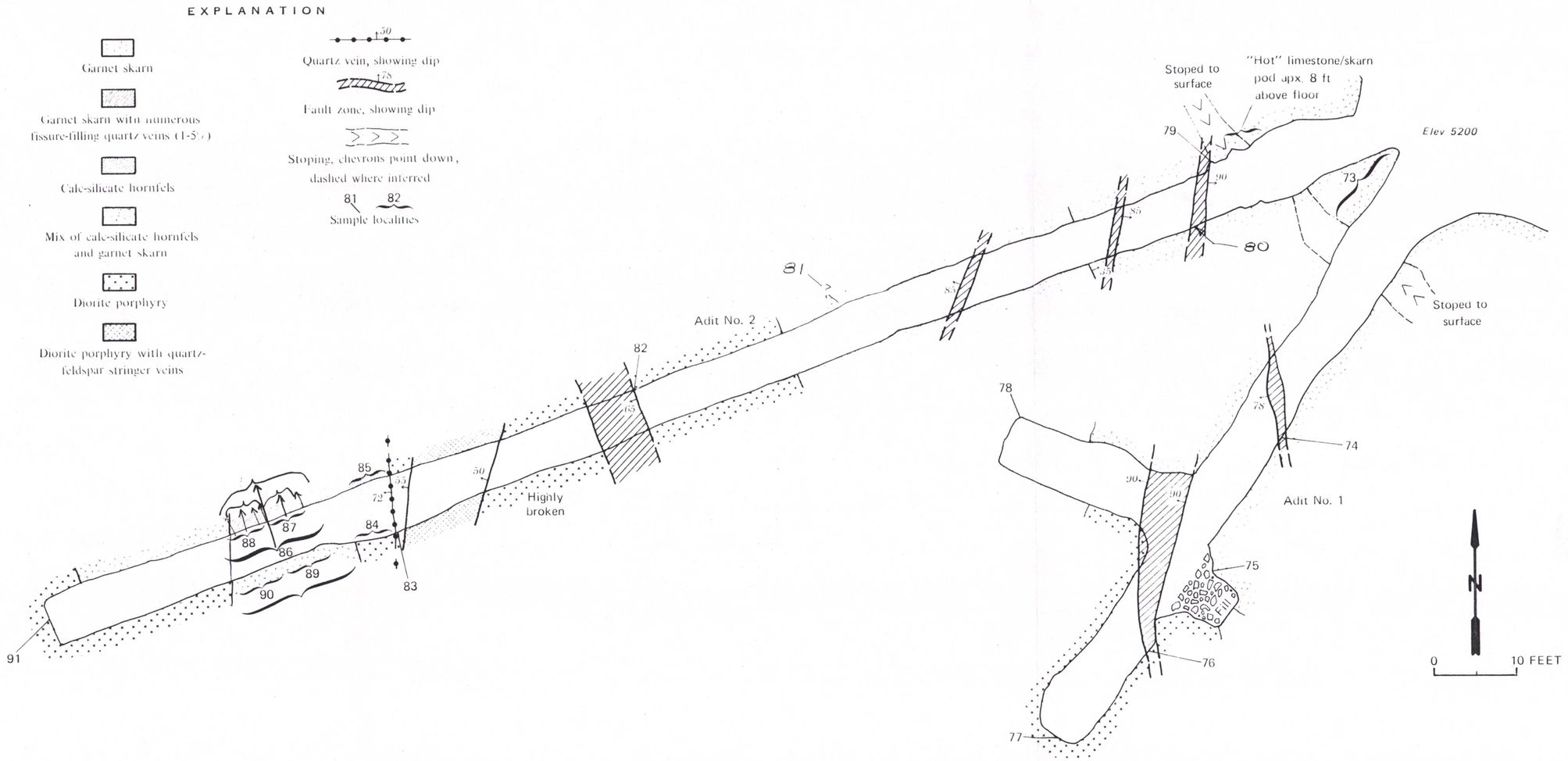

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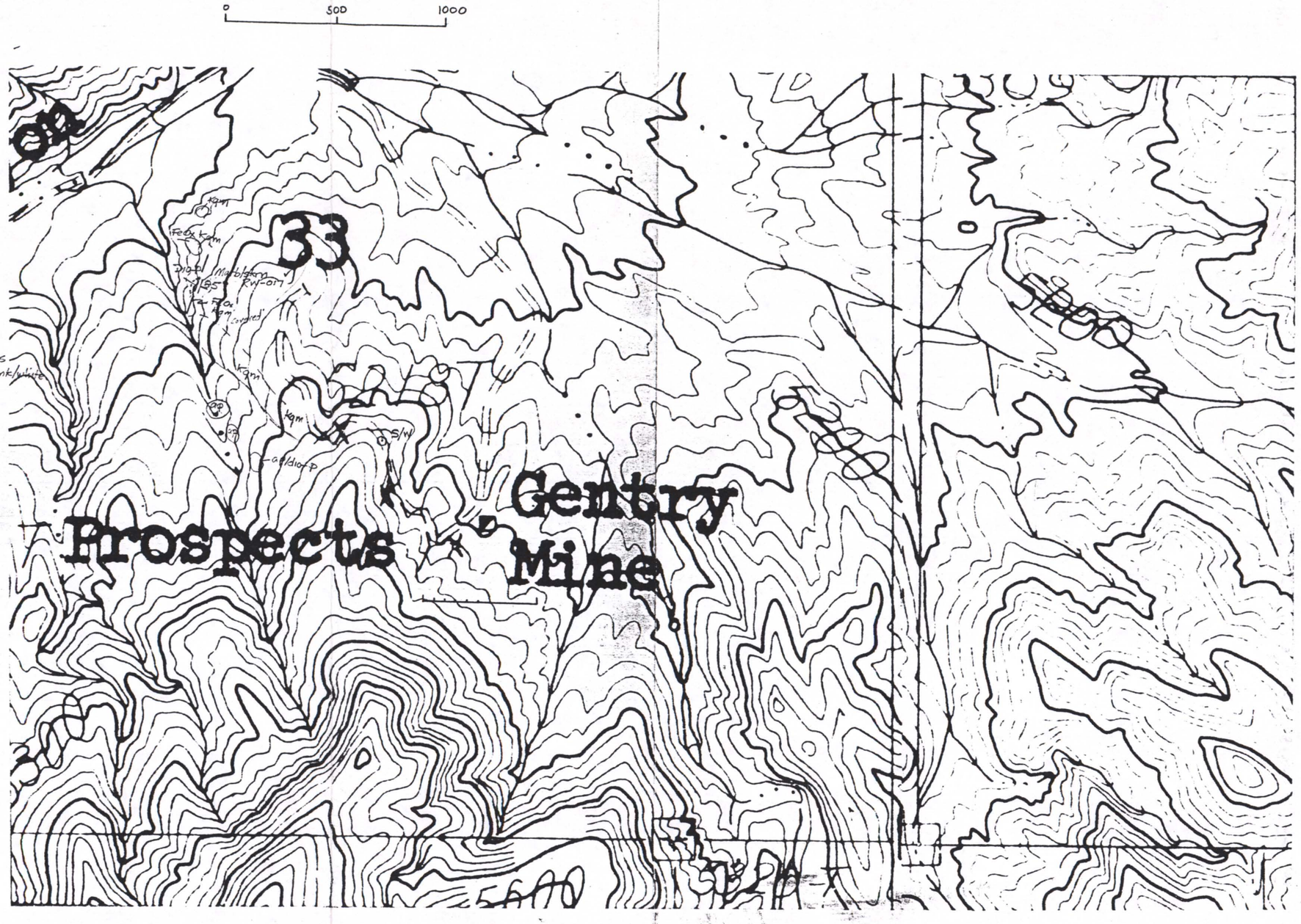

kqm = contains numerous pink/white aplite dikes

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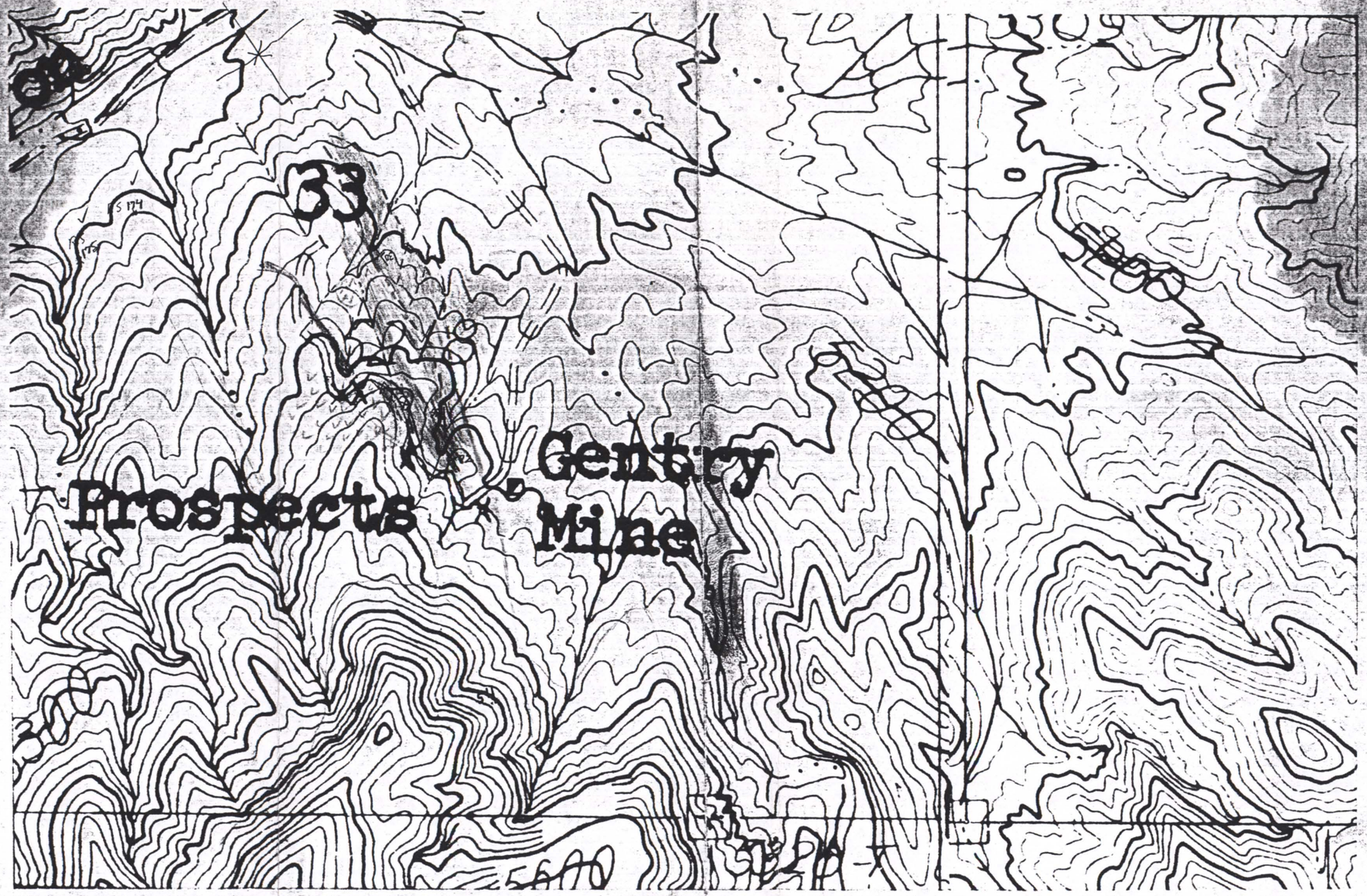
RS-172, 173 Crude in Shaft

Aplite
Dio Porph
Skarn
Marble
Mag Rich Hf



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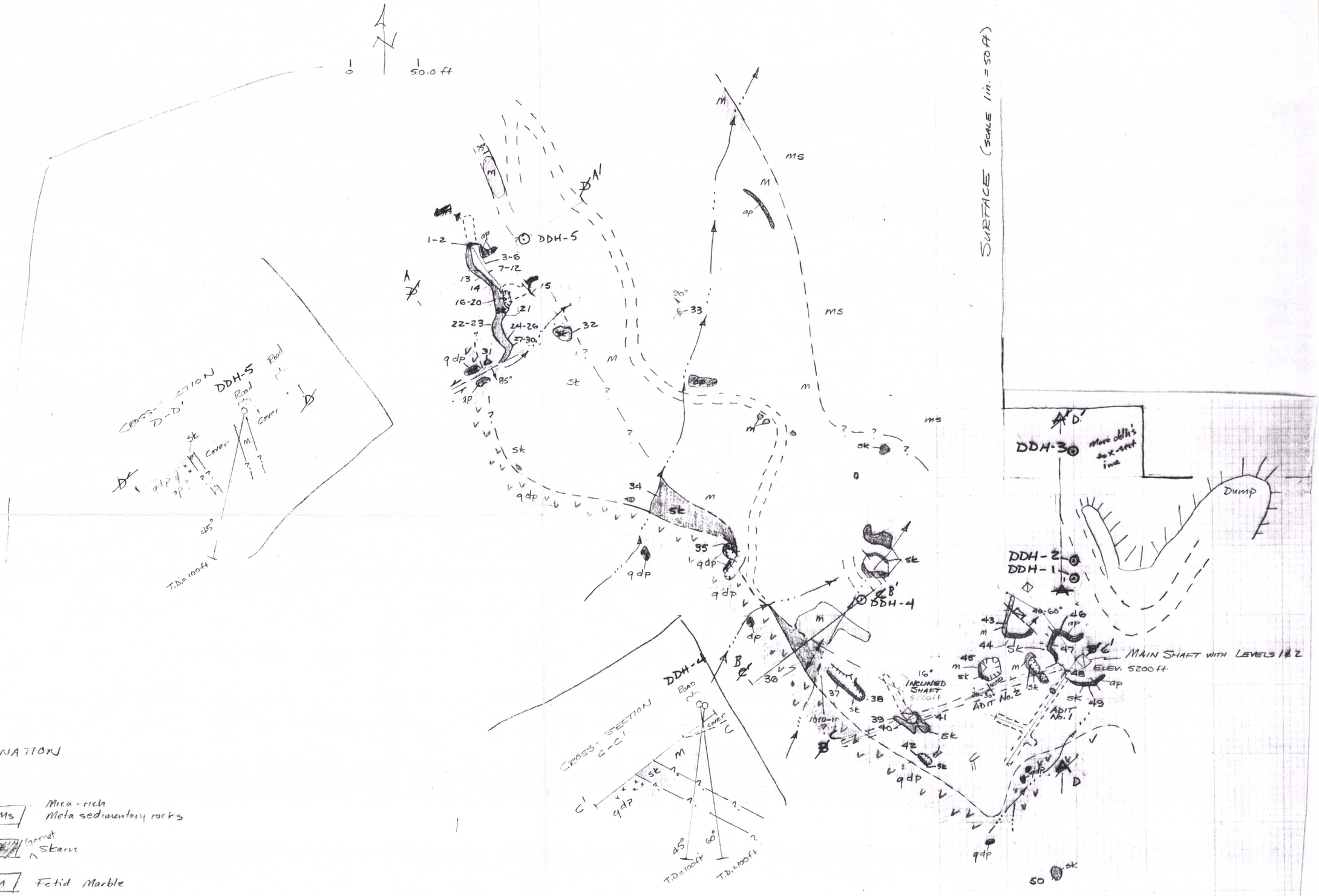

EXPLANATION

- ms — Mica-rich Meta sedimentary rocks
- sk — Garnet Skarn
- m — Fetid Marble
- ap — Aplite dikes
- qdp — Qtz diorite porphyry
- Contact, dashed where inferred
- Fault, showing dip, dashed where inferred
- Shaft

Patterned areas w/ Abreviations are outcrops

Non-patterned areas w/ Abreviations represent inferred geol due to cover