DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-1	0-105	53°N	N25E	53°01'N	104.99'	0.9999
	105-209	52°45'N	N25E	52°46'N	109.99'	0.9999
MH-2	0-100	70°N	N25E	70°N	100.00'	1.0000
	100-253	65°N	N25E	65°N	152.99'	0.9999
	253-306.5	70°N	N25E	70°N	53.50'	1.0000
MH-3	0-65	72°N	N25E	72°N	65.00'	1.0000
	65-135	73°N	N25E	73°N	70.00'	1.0000
MH-32	0-100	60°N	N24E	60°N	100.00'	1.0000
	100-200	58°N	N31E	58°13'N	99.76'	0.9976
	200-300	54°N	N15E	54°18'N	99.62'	0.9962
	300-400	49°N	N25E	49°01'N	99.99'	0.9999
	400-500	47°N	N30E	47°11'N	99.70'	0.9970
	500-611	45°N	N17E	45°11'N	110.64'	0.9968

* APPARENT LENGTHS

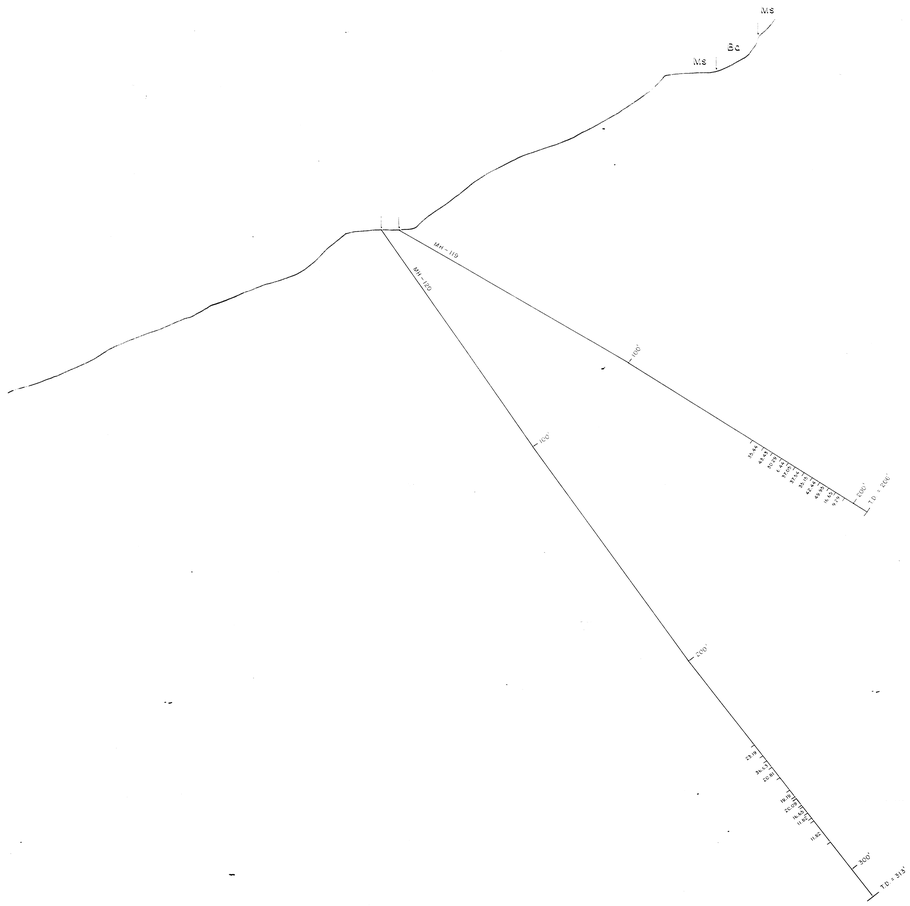
PROFILE SURVEY BY F.G. 3/6/78

Mitcham
HOUSTON, TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-1, 2, 3 & 32 PHASE II DRILLING

SCALE 1" = 20' | APPR. | DATE
DRAWN A.W.M. | DATE 3/15/78 | CHKD.
SHEET OF
DRAWING NO.

BEARING OF CROSS SECTION N25E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-119	0-100	30N	N25E ¾	30N	100'	1.0000
	100-206	32N	N25E ¾	32N	106'	1.0000
MH-120	0-100	55N	N25E ¾	55N	100'	1.0000
	100-200	54N	N25E ¾	54N	100'	1.0000
	200-313	52N	N25E ¾	52N	113'	1.0000

¾ ASSUMED

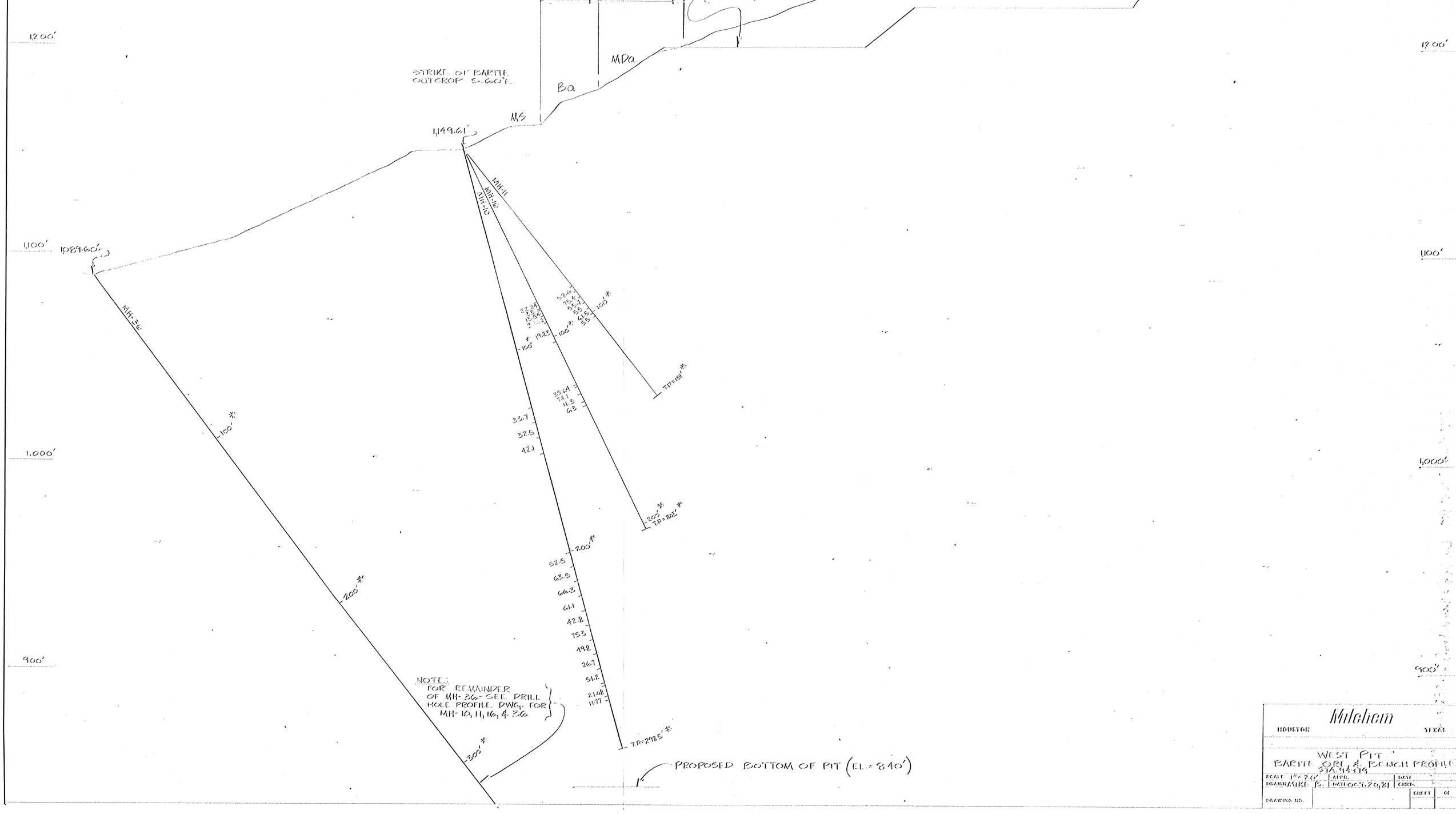
0 10 20 30 40 50
FEET

PROFILE SURVEY BY F.G. 3/6/76

Mitchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-119 & 120 PHASE II DRILLING

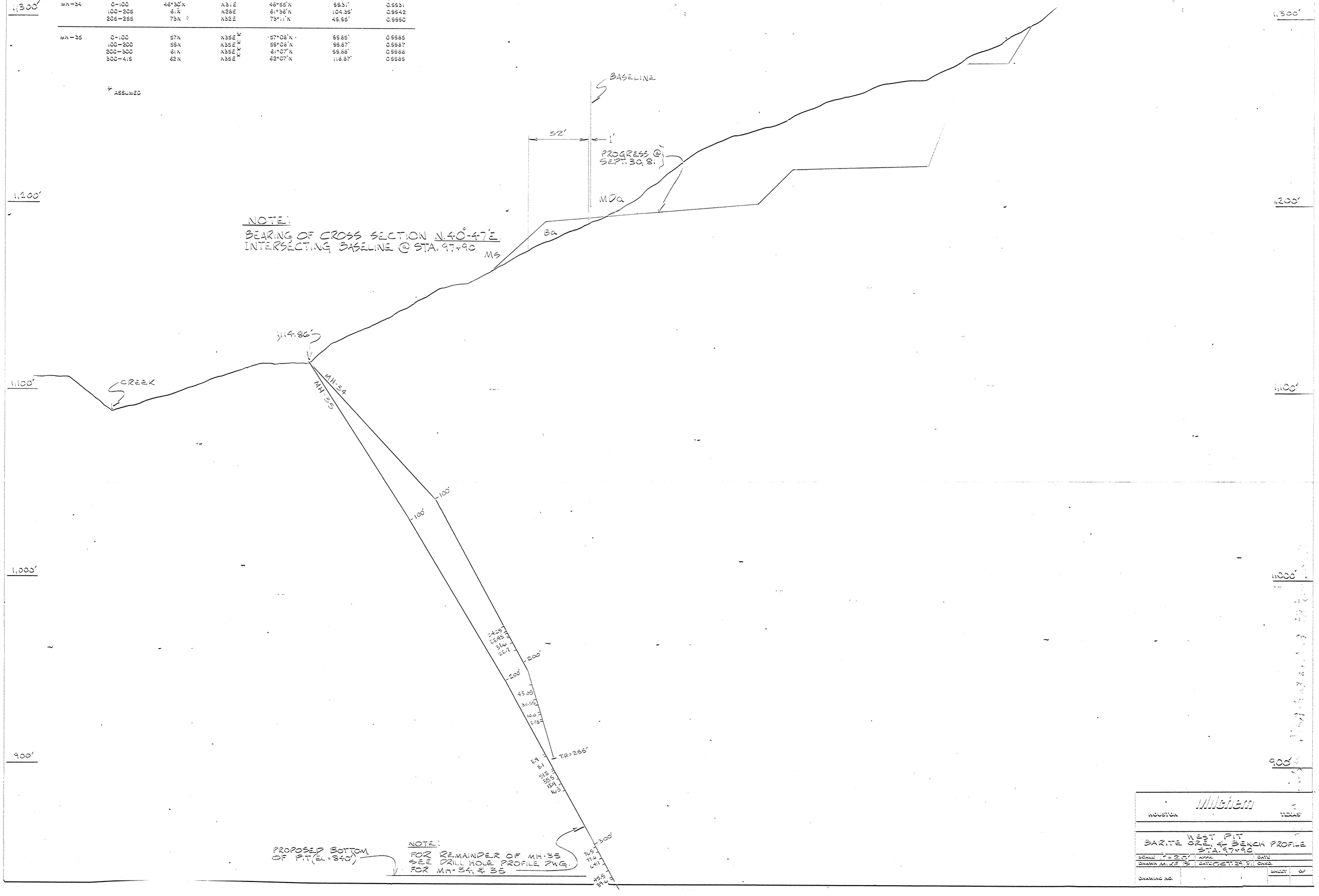
SCALE 1" = 20'	APPR.	DATE	
DRAWN B MAUNEY	DATE 12/21/76	CHKD.	
DRAWING NO.	80 S-G-095-A	SHEET	OF



1,200'
1,100'
1,000'
900'
STRIKE OF BARITE OUTCROP S.60°E.
MDa
Ba
MS
1,149.61'
1089.60'
MH-11
MH-16
MH-10
MH-36
100'*
200'*
300'*
T.P.=151'*
T.P.=202'*
T.P.=297.5'*
NOTE:
FOR REMAINDER OF MH-36 - SEE DRILL HOLE PROFILE DWG. FOR MH-10, 11, 16, & 36
PROPOSED BOTTOM OF PIT (EL.=840')
Milchem
HOUSTON
TEXAS
WEST PIT
BARITE ORE & BENCH PROFILE
STA. 94+19
SCALE 1"=20'
APPR.
DATE
DRAWN MIKE B.
DATE OCT. 20, 81
CHKD.
DRAWING NO.
SHEET
OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-34	0-100	46°30'N	N31E	46°55'N	99.31'	0.9931
	100-205	61N	N28E	61°36'N	104.39'	0.9942
	205-255	73N *	N32E	73°11'N	49.95'	0.9990
MH-35	0-100	57N	N35E *	57°08'N	99.85'	0.9985
	100-200	59N	N35E *	59°08'N	99.87'	0.9987
	200-300	61N	N35E *	61°07'N	99.88'	0.9988
	300-419	62N	N35E *	62°07'N	118.87'	0.9989

* ASSUMED



Mitchem
HOUSTON TEXAS

WEST PIT
BARITE ORE, & BENCH PROFILE
STA. 97+90

SCALE 1" = 20'	APPR.	DATE	
DRAWN MIKE B	DATE OCT. 29, '81	CHKD.	
DRAWING NO.		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-21	0-101	45°N	N26E	45°02'N	100.93'	0.9993
MH-22	0-60	25°N	N26E	25°02'N	59.93'	0.9989
MH-29	0-268.1	73°N	N26E	73°01'N	268.07'	0.9999
MH-30	0-170.1	47°N	N26E	47°02'N	169.99'	0.9994

* APPARENT LENGTHS

Milchem
HOUSTON TEXAS

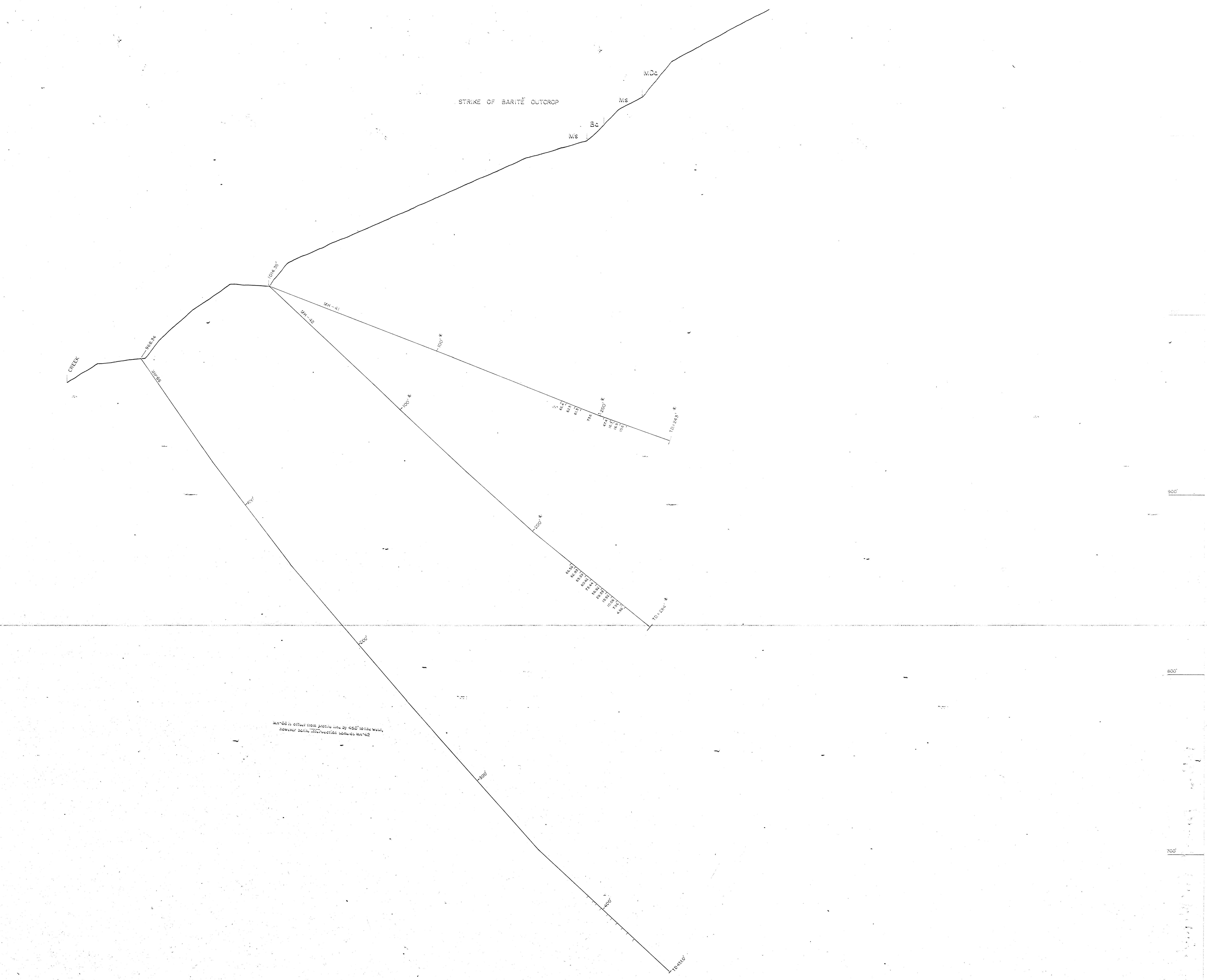
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH - 21, 22, 29 & 30 PHASE II DRILLING

SCALE 1" = 20'	APPR.	DATE
DRAWN A.W.M.	DATE 5/15/78	CHKD.
DRAWING NO.		SHEET OF

PROFILE SURVEY BY F.G. 5/6/78

BEARING OF CROSS SECTION N23°59'E

N

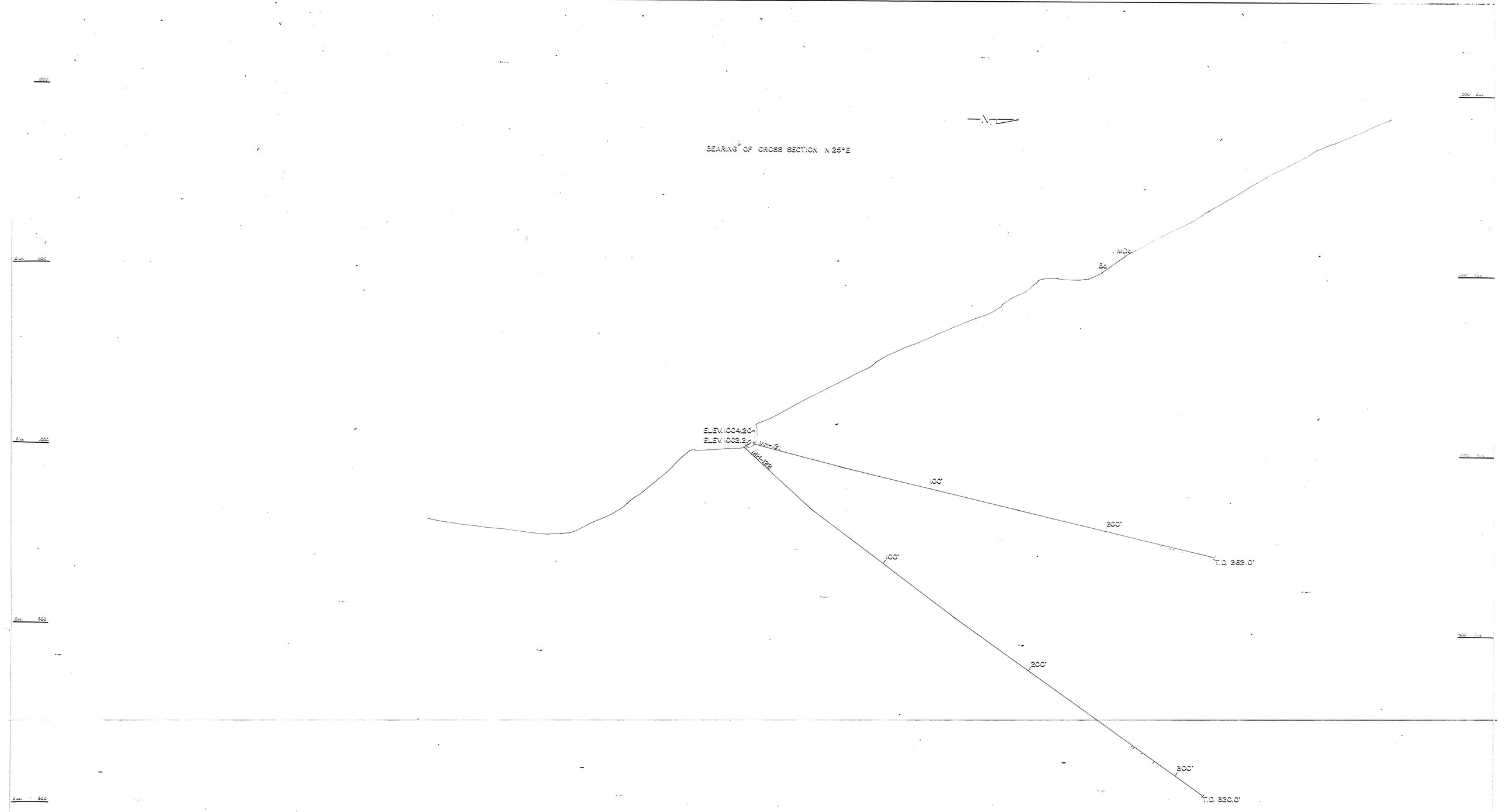


DRILL HOLE	SEGMENT.	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-41	0-110	21N	N18E	21°06'N	109.48'	0.9953
	110-200	21N	N09E *	21°40'N	87.34'	0.9704
	200-243	19N	N08E	19°42'N	41.52'	0.9655
MH-42	0-80	43N	N27E	43°02'N	79.94'	0.9993
	80-100	44N	N24E *	44°N	20.00'	1.0000
	100-150	43N	N22E	43°01'N	49.98'	0.9997
	150-200	42N	N23°30'E	42°N	50.00'	1.0000
	200-284	39N	N25E	39°N	83.99'	0.9999
MH-66	0-75'	55N	N30E			
	75-141'	52.30N	N30E	52.30N	141.0'	1.0000
	141-241	49.30N	N30E	49.30N	240.99'	.9999
	241-351	48.30N	N30E	48.30N	350.99'	.9999
	351-451	43N	N30E	43.00N	450.96'	.9999

Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-41, 42, 66

SCALE 1"=20' | APPR. | DATE
DRAWN M.T. McDonnell DATE 3/1/79 | CHKD.
DRAWING NO. 805 C-08 F | SHEET | OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMMPRESSION FACTOR
MH-121	SURFACE	15°N	N25°E			
	0.0 - 100.0	14°30'N	N27°30'E	14°30'48"N	99.91	0.9991
	100.0 - 200.0	13°N	N29°E	13°01'50"N	99.77	0.9977
	200.0 - 262.0	13°N	N27°30'E	13°00'43"N	61.94	0.9991
	T.D. - 262.0'					
MH-122	SURFACE	45°N	N25°E			
	0.0 - 100.0	42°N	N27°E	42°01'03"N	99.97	0.9997
	100.0 - 200.0	36°45'N	N29°30'E	36°50'05"N	99.80	0.9980
	200.0 - 290.0	35°15'N	N28°30'E	35°18'02"N	89.89	0.9988
	290.0 - 320.0	35°15'N	N28°30'E	35°18'02"N	29.96	0.9988
	T.D. - 320.0'					

PROFILE SURVEY BY R. OLIVER 05-07-75

HOUSTON	Mitchem	TEXAS
FANCY HILL, ARKANSAS DRILL HOLE PROFILE MH-121 & 122		
SCALE 1" = 20'0"	APPR.	DATE
DRAWN TULE RUNN	DATE JUN 25, 1975	CHKD. FUN. COL
DRAWING NO.	805-G-096	SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-91	SURFACE	45°N	N16°E			
	0.0 — 65.0	44°N	N16°30'E	44°00'04"N	65.0	1.0000
	65.0 — 135.0	42°N	N18°30'E	42°01'38"N	69.96	0.9995
	135.0 — 235.0	39°N	N22°30'E	39°01'51"N	99.61	0.9961
	235.0 — 335.0	36°45'N	N24°30'E	37°03'14"N	99.30	0.9930
	T.D. 335.0m.					
MH-93	SURFACE	20°N	N16°E			
	0.0 — 50.0	21°N	N15°30'E	21°00'03"N	50.0	1.0000
	50.0 — 140.0	21°N	N10°30'E	21°05'19"N	89.64	0.9960
	140.0 — 240.0	22°30'N	N18°30'E	22°31'08"N	99.92	0.9992
	240.0 — 243.0	22°30'N	N18°30'E	22°31'08"N	3.00	1.0000
	T.D. 243.0m.					

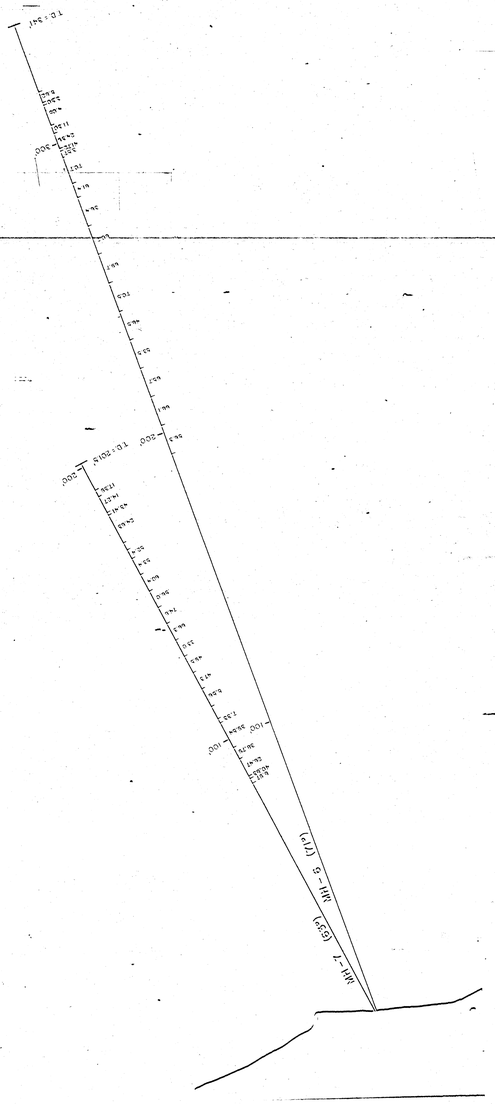
PROFILE SURVEY BY R. OLIVER 4-11-79

Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-91, 93

SCALE 1"=20'0" APPR. DATE
DRAWN TERESA RISNER DATE MAY 24, 1979 CHKD.
DRAWING NO. 805-9-085 SHEET OF

PROFILE SURVEYED BY H.L.F.
ELEVATIONS FROM SURFACE MAP



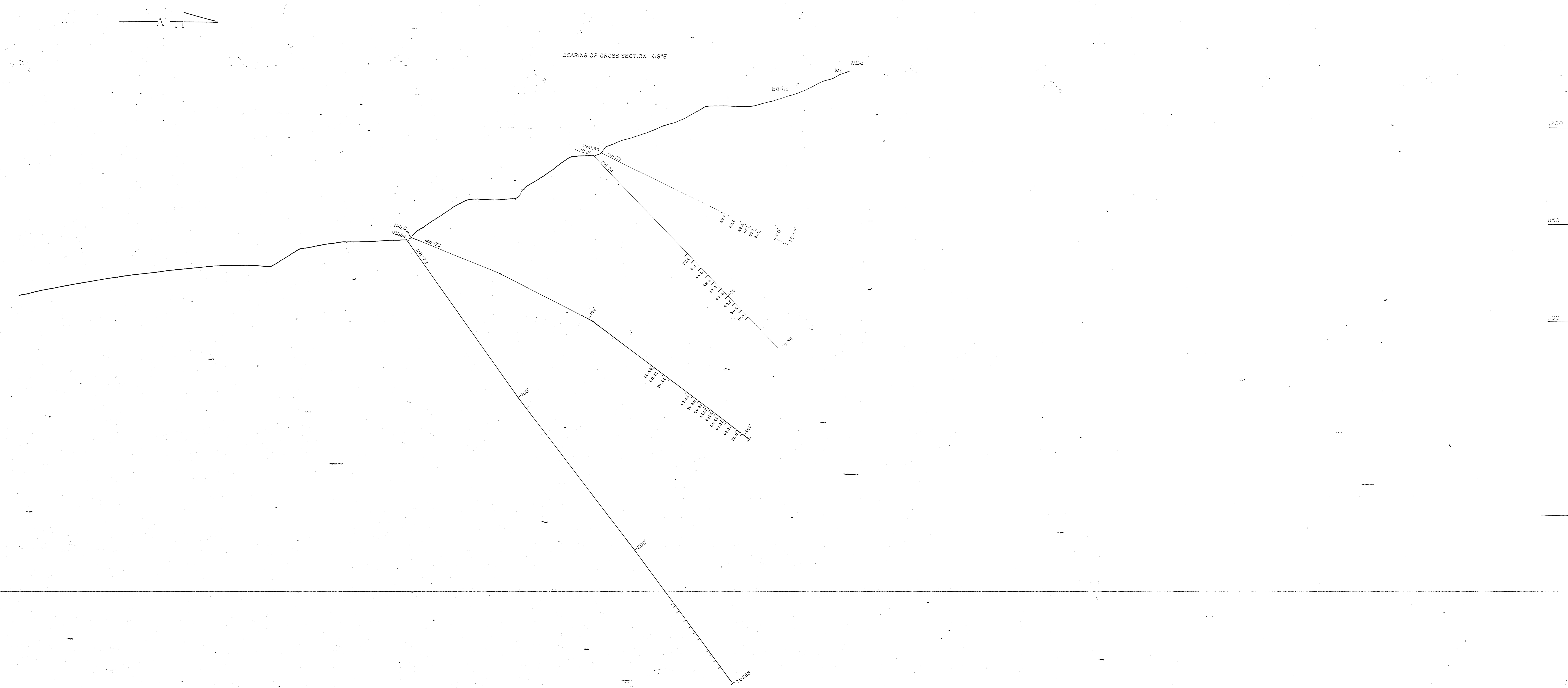
DRAWN	B. MAUNEY	DATE	12/14/77
CHKD.		DATE	
SCALE	1" = 50'	APPR.	DATE

FANOY MILL ARKANSAS
"SAILE MOLE PROFILE
MH - 6 & 7 PHASE I SAILING

Williams
HOUSTON TEXAS

DRAWING NO.

SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMMPRESSION FACTOR
MH-72	Surface	55 N	N25E			
	0-100'	55N	N24°30'E	55°10'N	99.79	.9979
	100-200	53N	N13°E	53°03'N	99.56	.9956
	200-285	54N	N02°30'E	55°N	83.94	.9876
MH-73	Surface	25N	N22E			
	0-104	27N	N10°30E	27°12'N	103.29	.9932
	104-205.5	37N	N30E	37°36'N	100.09	.9861
MH-23	0-107	25N	N18E	25°N	107.0	1.0000
MH-24	0-138	45N	N19E	45°N	137.99	.9999

HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-23,24,72,73

SCALE | APPR. | DATE
DRAWN N.T. McDonnell | DATE 2/26/79 | CHKD.
SHEET OF
DRAWING NO.

	WEST PIT					CENTRAL PIT					EAST PIT					TOTAL PERIOD				TOTAL INVENTORY			CUMULATIVE		
PERIOD	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	TOTAL BCY	TOTAL TONS	RATIO	GRADE	AREA	TONS	GRADE	BCY	TONS	RATIO
NO. 1																							3188,620	364460	8.75
PHASE 1	1240	141130																							
	1160	619460	14460	42.83	58.02																				
	1080	1257790	160840	7.82	60.84																				
	1000	1,170240	184160	7.04	55.39																				
																3188620	364460	8.75	57.90	WEST 1	214460	57.90			
NO. 2																							6371240	656820	9.71
PHASE 1	1000	161540		7.04	55.39																				
	920	824620	168440	4.90	54.54															WEST 1	68220	56.42			
PHASE 2	1320	60150																							
	1240	414820																							
	1160	1150480	53920	21.34	60.28																				
	1080	577010	70000	7.88	63.50																				
																3188620	292360	10.91	58.03						
NO. 3																							9565860	1064180	8.11
PHASE 2	1080	1167220	151470	7.88	63.50																				
PHASE 1	840	359140	151200	2.28	55.20						1240	4140													
	800		56490		55.31						1160	57330								EAST	36980	54.91			
											1080	209630													
NO. 4											1000	606650	3810	159.00	47.05								12754480	1507210	8.46
PHASE 2	1000	1733,700	253030	6.85	63.61						920	783910	38390	35.53	55.69	3188620	401360	7.83	58.27	WEST 2	41410	63.06			
	920	400,000	115000	5.20	61.84																				
											420	579,990													
											840	474930	15000	11.56	51.66	3188620	443030	7.20	60.42						
NO. 5																							15943,100	2148860	7.42
PHASE 2	920	842760	123860	5.20	61.84															WEST 2	244460	63.64			
	840	622480	252490	2.47	64.34																				
	800		97150		64.34																				
											840	1469280	93150	11.56	51.66									
											760	254,100	15000	1.06	51.36	3188620	641650	4.97	58.99						
NO. 6																							19131,720	2500,610	7.65
PHASE 1						1280	8590				760	1,177,290	127670	7.06	51.36					WEST 2	32460	63.64			
						1200	225.780				680	832,100	209080	3.98	51.46					EAST	125150	51.42			
						1120	168,440																		
						1040	176,420	15,000	18.01	54.90						3188,620	351,750	9.07	57.44						

CH2M HILL

DES. JH
DR. BHP
CHK.
APPD.

NO.	DATE	REVISION	BY	APPD.

MILCHEM INCORPORATED
FANCY HILL PROJECT
MONTGOMERY COUNTY, ARKANSAS

MINE PLAN

SHEET 1 OF 2
DATE JAN. 1980
DWG. NO. MP-01

P11518.F1

	WEST PIT					CENTRAL PIT					EAST PIT					TOTAL PERIOD				TOTAL INVENTORY			TOTAL CUMULATIVE		
PERIOD	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	TOTAL BCY	TOTAL TONS	RATIO	GRADE	AREA	TONS	GRADE	BCY	TONS	RATIO
NO. 7																									
PHASE 1						1040	1191700	60970	18.01	54.90															
						960	1419270	104970	13.52	53.56															
						880	577650	142730	6.20	57.06						3188620	308670	10.33	55.16	EAST	27680	51.42	22320,340	2809280	7.95
NO. 8																							25508960	3465380	7.36
PHASE 1						880	307560		6.20	57.06	600	358,920	182210	1.97	49.16										
						800	328,370	170,310	1.92	64.96	560		40,000		50.33										
						760		64480		64.97															
PHASE 2						1280	2,070																		
						1200	25780																		
						1120	190,220																		
						1040	494,020	44,210	11.74	58.91															
						960	693,660	62960	11.02	55.96															
						880	613,250	56,930	10.77	59.61															
NO. 9						800	199,750	41,100	4.92	56.42															
PHASE 2						760		27,930		56.42						199,750	69,040	2.89	56.80				25,108,710	3534,420	7.27

CH2M HILL

DES.	JH
DR.	BHP
CHK.	
APP'D.	

NO.	DATE	REVISION	BY	APP'D.

MILCHEM INCORPORATED
FANCY HILL PROJECT
MONTGOMERY COUNTY, ARKANSAS

MINE PLAN

SHEET 2
OF 2
DATE JAN. 1980
DWG. NO. MP-02

P 11516.F1

WEST PIT

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
1080' - 1160' Level			
A	3671.30	44.97	10,313
B	1339.22	44.97	3,762
C	426.67	44.78	1,197
D	1531.48	44.58	4,294
E	1648.89	48.26	4,703
F	1042.22	54.80	3,067
F	1102.70	61.33	3,351
G	1349.81	61.33	4,101
H	2662.63	61.33	8,090
I	4056	61.03	12,394
J	5975.41	61.03	18,179
K	854.81	65.57	2,560
L	2122.22	65.57	6,588
M	4822.22	70.10	15,323
N	5028	70.10	15,976
O	3644	67.67	11,436
P	1694	67.67	5,315
Q	3822	59.51	11,509
R	2767.93	59.51	8,335
S	770.81	56.57	2,288
T	2732.89	56.57	8,111
A'	1740.	60.16	5,256
B'	3150	52.00	9,145
C'	3000	52.00	8,710
D'	2615.15	75.58	8,555
E'	1121.78	75.58	3,670
F'	2429.63	67.00	7,598
G'	2044.44	67.00	6,393
H'	1022.22	67.00	3,197
I'	3518.52	69.99	10,946
J'	8051.94	73.67	26,072
K'	6942.59	73.67	22,480
L'	1309.63	68.41	4,125
M'	6151.85	57.40	18,333

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
1080' - 1160' (continued)			
N'	3722.96	57.40	11,095
O'	2058	52.22	5,981
P'	1348.15	52.22	3,918
P"	1788.81	64.37	5,519
Q'	4613.26	64.37	14,233
R'	2508.33	64.37	7,739
S'	3642.41	59.97	10,691
T'	3288.33	55.56	9,712
U'	6129.63	55.56	18,103
V'	-0-	37.78	-0-
1160' and above			
"A"	852.	59.51	2,565
B	1346.	59.51	4,053
C	511.	56.57	1,517
D	1993.	56.57	5,916
E	135.	60.16	409
F	511.	60.16	1,545
G	811.	60.00	2,448
H	952.	75.59	3,114
I	491.	75.59	1,605
J	877.	67.00	2,743
K	766.	67.00	2,394
L	145.	67.00	453
M	217.	62.64	664
N	303.33	64.29	936
O	288.89	64.29	891
P	57.78	64.29	178
Q	917.26	64.37	2,830
R	1748.15	64.37	5,394
S	1206.22	64.37	3,722
T	1802.78	52.00	5,234
U	1939.56	54.00	5,685
V	4803.70	54.00	14,081
W	-0-	37.78	-0-

West Pit Continued Page 2

1000' - 1080' level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
A	2696.30	44.97	7,574
B	2074.07	44.97	5,826
C	2115.56	44.97	5,943
D	622.22	44.82	1,747
E	2074.07	44.67	5,818
F	1777.78	44.67	4,987
G	1540.74	51.21	4,456
H	2749.63	57.75	8,208
I	2142.78	57.75	6,396
J	3890.74	54.43	11,281
K	5374.54	51.10	15,537
L	3157.56	51.10	9,128
M	3238.89	56.04	9,588
N	3441.67	60.98	10,439
O	3400.	60.98	10,313
P	3033.33	57.62	9,049
Q	2788.89	54.26	8,185
R	4045.83	54.26	11,657
S	1363.89	60.97	4,137
T	4137.50	67.67	12,983
U	1772.63	67.67	5,562
V	2251.11	61.70	6,853
W	1078.07	57.32	3,211
X	1537.78	57.32	4,581
Y	422.89	56.57	1,255
Z	1499.33	56.57	4,450
A'	1580.83	43.89	4,419
B'	3011.11	43.89	8,416
C'	2624.07	75.58	8,584
D'	896.	75.58	2,931
E'	2548.15	68.98	8,050
F'	2629.63	68.98	8,307
G'	1032.22	68.98	3,261
H'	3593.52	69.34	11,374
I'	8594.44	73.67	27,829
J'	7942.59	69.79	25,193
K'	1542.96	68.41	4,860

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
1000' - 1080' level (continued)			
L'	7487.04	68.41	23,583
M'	5395.93	63.15	16,646
N'	3849.56	52.22	11,176
O'	3611.11	52.22	10,495
P'	722.22	52.22	2,099
Q'	1185.	64.37	3,656
R'	4388.89	64.37	13,541
S'	2417.50	64.37	7,459
T'	3469.56	59.97	10,550
U'	3375.89	55.56	9,970
V'	6242.59	55.56	18,437
W'	4162.96	55.56	12,295
920' - 1000' level			
A	794.	44.97	2,232
B	1589.	44.97	4,463
C	1711	44.97	4,807
D	587.	44.82	1,647
E	1954.	44.67	5,480
F	1732.22	44.67	4,859
G	1480.	45.60	4,169
H	2707.78	46.53	7,661
I	2052.70	46.53	5,808
J	3670.11	48.82	10,496
K	5276.02	51.10	263
L	3206.50	51.10	9,269
M	3105.78	56.04	9,194
N	3583.19	60.98	10,868
O	3491.67	60.98	10,591
P	3327.78	57.62	9,928
Q	3163.89	54.26	9,286
R	4353.	54.26	12,777
S	1523.	60.97	4,620
T	4604.	67.67	14,447
U	2016.	67.67	6,326
V	2744.	58.88	8,237
W	1348.	50.08	3,877

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
920' - 1000' level (Continued)			
X	1867.	50.08	5,370
Y	613.	50.08	1,764
Z	2053.	50.08	5,907
A'	627.41	63.89	1,931
B'	2037.78	63.89	5,970
C'	2381.48	43.89	6,656
D'	1661.11	62.84	5,086
E'	611.	62.84	1,871
F'	2629.63	67.19	8,231
G'	2680.56	64.84	8,290
H'	1011.85	64.84	3,129
I'	3440.74	62.84	10,515
J'	7830.28	63.56	24,060
K'	7034.96	64.63	21,709
L'	1463.	65.89	4,434
M'	7407.	65.89	23,032
N'	5674.	67.15	17,758
O'	4279.	60.40	12,921
P'	4200.	60.40	12,703
Q'	840.	60.40	2,541
R'	981.48	66.06	3,054
S'	3925.93	66.06	12,217
T'	1889.41	46.05	5,880
U'	2358.89	60.51	7,149
V'	2145.78	55.56	6,337
W'	4651.85	55.56	13,739
X'	4651.85	55.56	13,739
840' - 920' level (continued)			
A	-0-	28.10	-0-
B	-0-	28.10	-0-
C	-0-	29.47	-0-
D	-0-	30.83	-0-
E	-0-	30.83	-0-
F	1007.41	44.29	2,821
G	2266.67	46.53	6,413

840' - 920' level (continued)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
H	1998.52	46.53	5,655
I	3727.41	52.61	10,853
J	5418.52	47.46	15,398
K	3165.26	47.46	8,995
L	2811.67	54.22	8,250
M	3331.85	60.98	10,106
N	3277.78	41.26	9,052
O	3272.22	59.59	9,857
P	3265.74	59.59	9,837
Q	4785.56	59.59	14,416
R	1648.15	62.73	5,043
S	4972.22	65.87	15,458
T	2104.07	65.87	6,542
U	2644.44	59.27	7,993
V	1372.22	52.66	3,996
W	2251.85	52.66	6,558
X	562.96	52.66	1,640
Y	2251.85	52.66	6,558
Z	1238.52	63.89	3,812
A'	2574.44	55.08	7,586
B'	3377.78	55.08	9,953
C'	4829.63	62.84	14,786
D'	2500.	62.84	7,654
E'	2725.93	67.19	8,532
F'	2740.74	67.19	8,579
G'	965.19	67.33	3,023
H'	3090.74	67.33	9,681
I'	7159.44	67.46	22,441
J'	6850.	67.46	21,471
K'	1384.44	67.31	4,336
L'	6994.44	67.15	21,889
M'	5326.67	67.15	16,669
N'	3966.67	58.37	11,877
O'	3866.67	58.37	11,578
P'	773.33	58.37	2,316
Q'	888.89	66.06	2,766

840' - 920' (continued)

Block	Volume Cu. Yds	%BaSO4	Ore Tons
R'	3555.56	66.06	11,065
S'	1680.83	66.06	5,231
T'	2035.70	66.06	6,335
U'	1964.44	66.17	6,117
V'	4270.37	66.17	13,297
W'	4270.37	66.17	13,297

WEST PIT TOTALS

	Volume Cu. Yds	%BaSO4	Ore Tons
840' Level			
Measured	1221.84	60.94	370,541
Indicated	129.83	59.82	39,161
920' Level			
Measured	1301.71	58.99	375,391
Indicated	107.83	56.63	31,907
1000' Level			
Measured	1346.95	60.45	407,261
Indicated	118.09	55.90	34,934
1080' Level			
Measured	1193.31	62.41	364,558
Indicated	58.31	61.75	17,755
1160' Level			
Measured	226.75	59.80	68,377
Indicated	-	-	-
Grand Totals			
Measured	5290.56	60.64	1,586,128
Indicated	414.06	58.17	123,747
Measured & Indicated	5704.62	60.46	1,709,875

WEST PIT

BLOCK	VOLUME CU. YDS.	%BaSO4	ORE TONS
A	1131.11	46.53	3200
B	2615.48	52.61	7616
C	3758.26	47.46	10680
D	1878.74	47.46	5339
E	1512.89	52.31	4399
F	1478.89	55.69	4371
G	1426.85	45.83	4024
H	1740.74	55.00	5127
I	2054.63	59.59	6189
J	3525.00	59.59	10618
K	1165.74	62.73	3567
L	3468.06	65.87	10782
M	1481.30	65.87	4605
N	2023.00	59.27	6084
O	958.44	53.95	2809
P	1430.00	53.95	4191
Q	1796.67	53.95	5265
R	918.33	63.89	2826
S	1798.61	55.08	5300
T	2457.41	55.08	7241
U	3740.74	62.84	11453
V	1971.67	62.84	6036
W	1915.56	54.58	5631
X	1910.19	54.58	5615
Y	492.22	54.65	1447
Z	839.81	54.65	2469
A'	3243.33	54.21	9517
B'	4867.33	54.21	14282
C'	1008.89	67.31	3160
D'	5122.22	67.15	16030
E'	4368.00	67.15	13669
F'	2080.00	58.37	6228

730' level

BLOCK	VOLUME CU. YDS.	%BaSO4	ORE TONS
A	-0-	39.30	-0-
B	-0-	36.72	-0-
C	1018.52	48.93	2914
D	1548.44	50.40	4461
E	841.30	50.40	2424
F	854.63	50.40	2462
G	1368.52	50.40	3943
H	1881.48	59.59	5668
I	3554.17	59.59	10706
J	1172.22	62.73	3587
K	3477.78	65.87	10812
L	1559.26	65.87	4848
M	2087.22	59.27	6277
N	908.00	53.95	2661
O	1430.00	53.95	4191
P	1796.67	53.95	5265
Q	884.07	63.89	2721
R	1761.67	55.08	5191
S	2407.41	55.08	7094
T	3724.07	62.84	11402
U	1971.67	62.84	6036
V	1915.56	54.58	5631
W	1910.19	54.58	5616
X	492.96	54.65	1450
Y	845.37	54.65	2486
Z	3251.11	54.21	9539
A'	4791.11	54.21	14058
B'	977.78	67.31	3062
C'	4888.89	67.15	15299
D'	1100.00	67.15	3442

WEST PIT (continued)

690' level

BLOCK	VOLUME CU.YDS.	%BaSO4	ORE TONS
A	666.67	65.87	2073
B	1076.67	65.87	3347
C	1516.67	59.27	4561
D	696.67	55.24	2054
E	1000.00	55.24	2949
F	1306.67	55.24	3853
G	668.15	63.89	2056
H	1298.89	55.08	3827
I	1740.74	55.08	5129
J	2757.78	62.84	8443
K	1433.33	62.84	4388
L	1392.59	41.96	3858
M	1388.89	41.96	3848
N	373.33	41.96	1034
O	592.59	41.96	1642
P	2313.89	40.95	6381
Q	3457.22	40.95	9535
R	709.26	67.31	2221
S	2951.11	67.15	9235

LEGEND

MH-00 ⊙ CENTER OF BARITE INTERVAL
- (blank) = MEASURED RESERVES
- (lined) = INDICATED RESERVES
- (stippled) = FAULTED

Milchem
HOUSTON TEXAS

LONGITUDINAL SECTION
WEST PIT
FANCY HILL, ARKANSAS

SCALE 1" = 100'0"	APPR.	DATE Sept. 14, 1979
DRAWN Teresa Risner	DATE Sept. 14, 1979	CHKD. Ferryl Gale
DRAWING NO. 1 601-G-064	SHEET 1	OF 3

GEOLOGIC MAP
FANCY HILL DISTRICT

Milchem
HOUSTON TEXAS

GEOLOGY BY FERRYL GALE

SCALE 1" = 500'	APPR. F.C. GALE
DRAWN M. BRIDGES	DATE 7-17-81
	CHKD.
DRAWING NO.	SHEET 1 OF 4

GAP MOUNTAIN BARITE PIT

N

N
Ms
Sm
Opc
Obf
Ow
MDal
MDam
MDau
Sb
14
15
22
23
24
25
26
27
34
35
36
GEOLOGY BY F. C. GALE
Milchem
HOUSTON
TEXAS
GEOLOGIC MAP
FANCY HILL DISTRICT
SCALE 1"=500'
APPR. F.C. GALE
DATE 7-17-81
DRAWN M. BRIDGES
DATE 7-8-81
CHKD.
DRAWING NO.
SHEET 2
OF 4

N

GEOLOGY BY F. C. GALE

Milchem

HOUSTON TEXAS

GEOLOGIC MAP
FANCY HILL DISTRICT

SCALE 1"= 500'	APPR. F.C. GALE	DATE 7-20-81	
DRAWN M. BRIDGES	DATE 7-20-81	CHKD.	
DRAWING NO.		SHEET 3	OF 4

Milchem, Fancy Hill District, Geologic Map, Index Sheet 3 of 4.

N

Ms
MDau
MDam
MDal
Opc
Obf
Sb
Sm

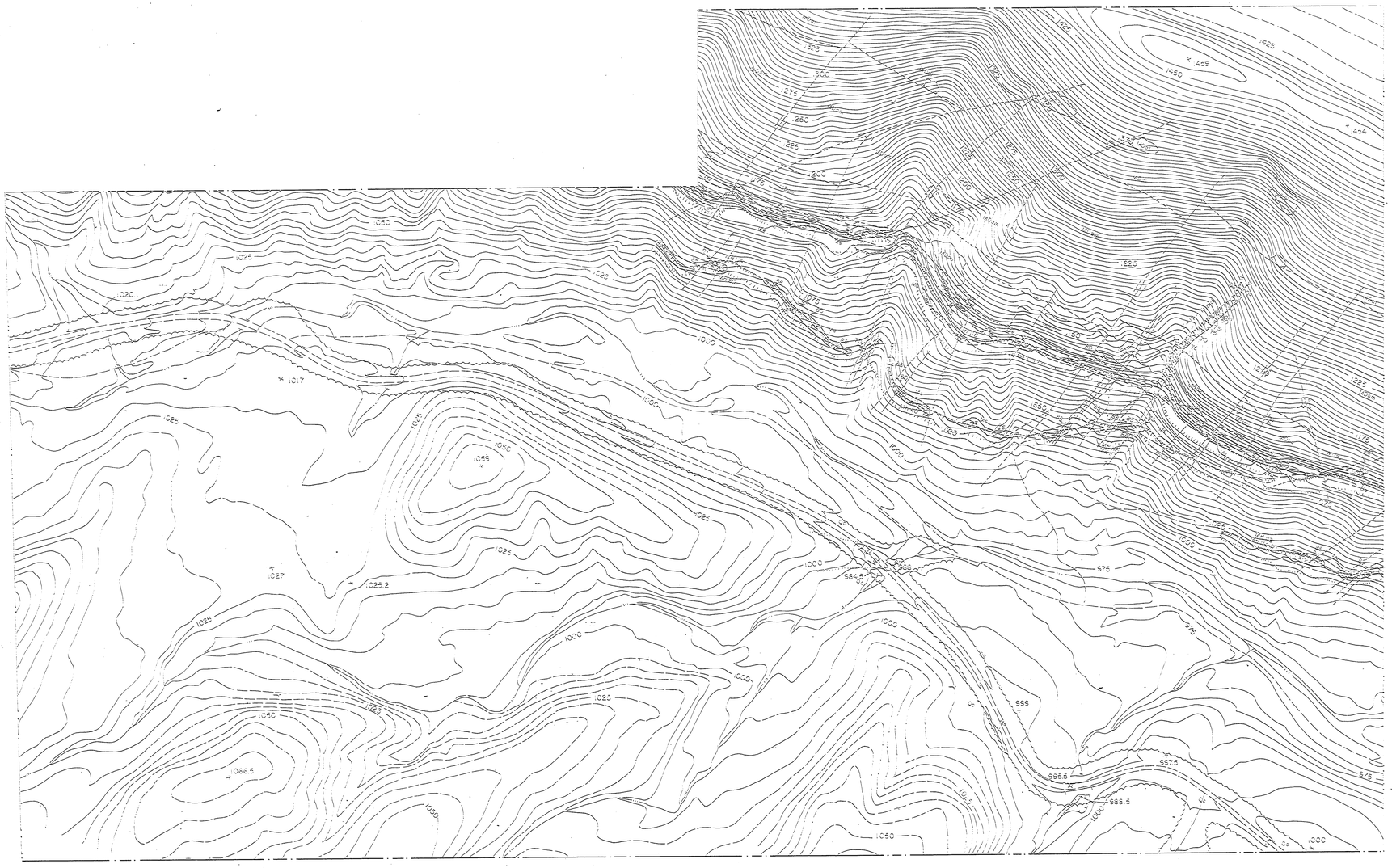
13 14 18 19 23 24 25 26 30 31 35 36

GEOLOGY BY F. C. GALE

Milchem
HOUSTON TEXAS

GEOLOGIC MAP
FANCY HILL DISTRICT

SCALE 1" = 500'	APPR. F.C. GALE	DATE 7-21-81	
DRAWN M. BRIDGES	DATE 7-21-81	CHKD.	
DRAWING NO.		SHEET 4	OF 4



EXPLANATION

Qc	Colluvium (Quaternary)
Ms	Stanley Shale (Mississippian) shale, siltstone, tuff, sandstone (stippled) (Msh - Hatton Tuff; Msb - Beaver's Bend Tuff
MDa	Arkansas Novaculite (Devonian Mississippian): novaculite (MDau - upper division; MDam - middle division; MDal - lower division)
Dmm	Missouri Mountain Shale (Devonian) shale, siltstone, and claystone
Sn	Blaylock Sandstone (Silurian)

Barite: massive to nodular

Barite: disseminated and small scattered nodules

Faults: dashed where approximately located

Relative horizontal component of movement along fault

Relative vertical component of movement along fault

Strike and dip of beds

Mitchem survey stations

Survey station, Lawrence E - East, W - West

Resurveyed Lawrence station B&F Engineering

Other B&F Engineering survey stations

Surdex survey stations

Mitchem drill holes

Baroid drill holes

Shaft

Baroid trenches

Inner toe of dozed areas

Outer edge of dozed areas and edge of dumps

GRID NORTH
TRUE NORTH

FANCY HILL BARITE MINE

WEEKS LAW LAND BLMA LEASE 057677

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300
FEET

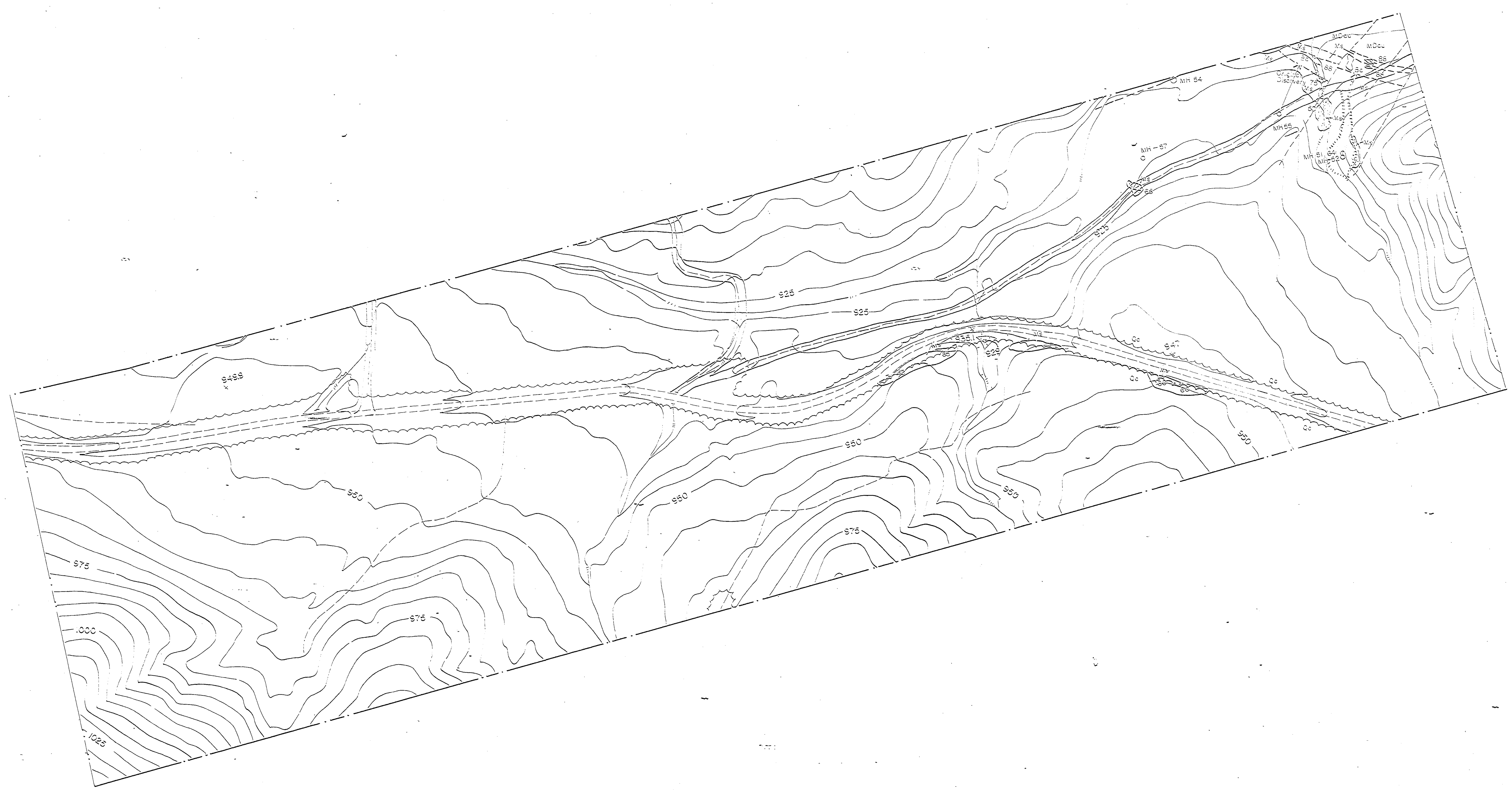
CONTOUR INTERVAL - 5 FEET
1 INCH = 100 FEET

SHEET 1 OF 2

TRACT A

COASTAL & GEODETIC SURVEY, 1957 SLATINGTON TRIANGULATION STATION

GEOLOGY BY E. F. LAWRENCE (8/78)



EXPLANATION

Qc — Colluvium (Quaternary)

Ms — Stanley Shale (Mississippian)
shale, siltstone, tuff, sandstone (stippled)
(Msh – Hatton Tuff,
Msb – Beaver's Bend Tuff)

MDa — Arkansas Novaculite (Devonian – Mississippian): novaculite
(MDau – upper division;
MDam – middle division;
MDal – lower division)

Dmm — Missouri Mountain Shale (Devonian)
shale, siltstone, and claystone

Sb — Blaylock Sandstone (Silurian)

Barite: massive to nodular

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Relative horizontal component of movement along fault

Relative vertical component of movement along fault

Strike and dip of beds

Milchem survey stations

Survey station, Lawrence
E – East; W – West

Resurveyed Lawrence station
B & F Engineering

Other B&F Engineering survey stations

Surdex survey stations

Milchem drill holes

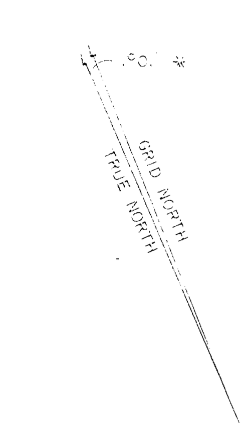
Barold drill holes

Shaft

Barold trenches

Inner toe of dozed areas

Outer edge of dozed areas and edge of dumps



FANCY HILL BARITE MINE
WEEKS LAW LAND BLMA LEASE 057677
Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300
FEET
Contour Interval – 5 feet
1 inch = 100 feet

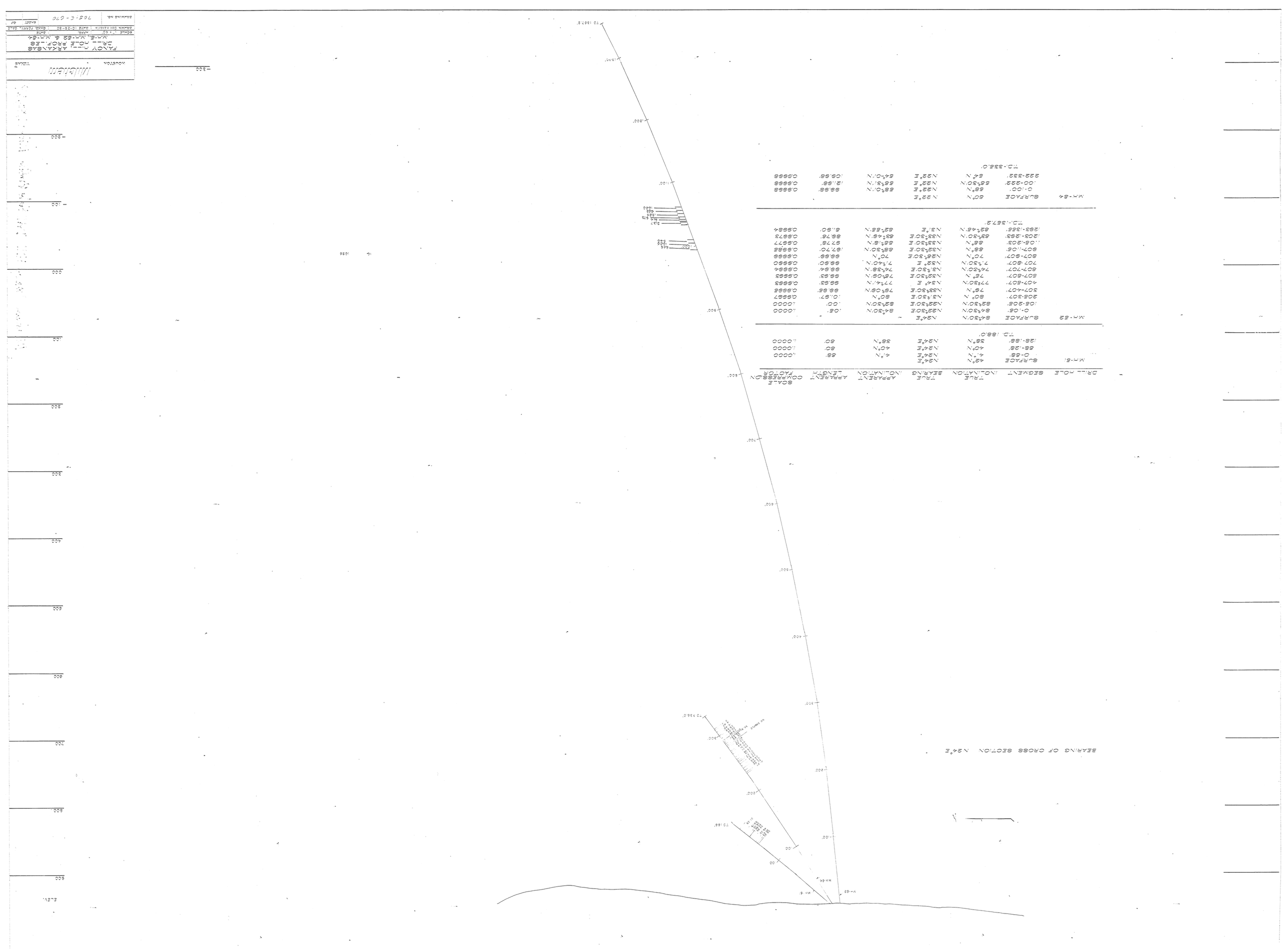
SHEET [illegible] OF 2

TRACT B

* COASTAL & GEODETIC SURVEY, 1957 SLATINGTON TRIANGULATION STATION

GEOLOGY BY E.F. LAWRENCE (8/78)

DRILL HOLE	SEGMENT	INCLINATION	TRUE BEARING	INCLINATION	APPARENT LENGTH	COORDINATES COLLAR
MT-51	SURFACE	42°\N	N24°E			
	0'-65'	4°\N	N24°E	4°\N	65'	0000 , 0000
	65'-265'	40°\N	N24°E	40°\N	60'	0000 , 0000
	265'-285'	35°\N	N24°E	35°\N	60'	0000 , 0000
			T.D. 285.0'			
MT-52	SURFACE	84°30'\N	N24°E	84°30'\N	.03'	0000 , 0000
	0'-03'	84°30'\N	N22°30'E	84°30'\N	.03'	0000 , 0000
	03'-208'	82°30'\N	N22°30'E	82°30'\N	.10'	0000 , 0000
	208'-307'	80°\N	N13°30'E	80°\N	.01.97'	0999'9
	307'-407'	79°\N	N33°30'E	79°05'\N	99.93'	0999'9
	407'-507'	77°30'\N	N34° E	77°4.'\N	99.93'	0999'9
	507'-607'	75° \N	N32°30'E	75°05'\N	99.93'	0999'9
	607'-707'	74°30'\N	N13°30'E	74°38'\N	99.94'	0999'9
	707'-807'	7.°30'\N	N32° E	7.°40'\N	99.90'	0999'0
	807'-907'	70°\N	N28°30'E	70°\N	99.99'	0999'9
	907'-1,03'	68°\N	N32°30'E	68°30'\N	.97.70'	0999'9
	1,03'-1,203'	68°\N	N33°30'E	68°15'\N	97.78'	0999'7
	1,203'-1,283'	69°30'\N	N33°30'E	69°45'\N	99.78'	0999'8
	1,283'-1,353'	62°45'\N	N3.°E	62°55'\N	61.90'	0999'4
			T.D.-1,3572.'			
MT-54	SURFACE	60°\N	N 22°E			
	0'-100'	58°\N	N22°E	58°0'\N	99.99'	0999'9
	100'-222'	56°30'\N	N22°E	56°3.'\N	21.99'	0999'9
	222'-332'	54°\N	N22°E	54°0'.\N	.09.99'	0999'9
			T.D.-332.0'			



Millcreek
MOUNTAIN TEXAS

FANCY FLAT AREA GAS
DRILL HOLE PROFILES
MT-51, MT-52 & MT-54

SCALE	1" = 40'	APPR.	DATE	
DRAWN	Dan Hankins	DATE	10-28-80	CHKD.
CHKD.		APPR.		DATE

DRAWING NO. 705-C-670

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH 86	SURFACE	15°N	N 26° E			
	0.0 – 143.0	12°N	N 26° E	12°N	143.0	1.0000
	143.0 – 243.0	15°N	N 26° E	15°N	100.0	1.0000
	243.0 – 343.0	16°N	N 26° E	16°N	100.0	1.0000
	T.D. – 343.0 FT					
MH 88	SURFACE	22°30' N	N 22° E			
	0.0 – 100.0	22°N	N 22° E	22°02'52"N	39.79	0.9979
	100.0 – 200.0	20°N	N 22° E	20°02'42"N	33.78	0.9978
	200.0 – 264.0	21°N	N 22° E	21°02'46"N	63.86	0.9979
	T.D. – 264.0 FT.					

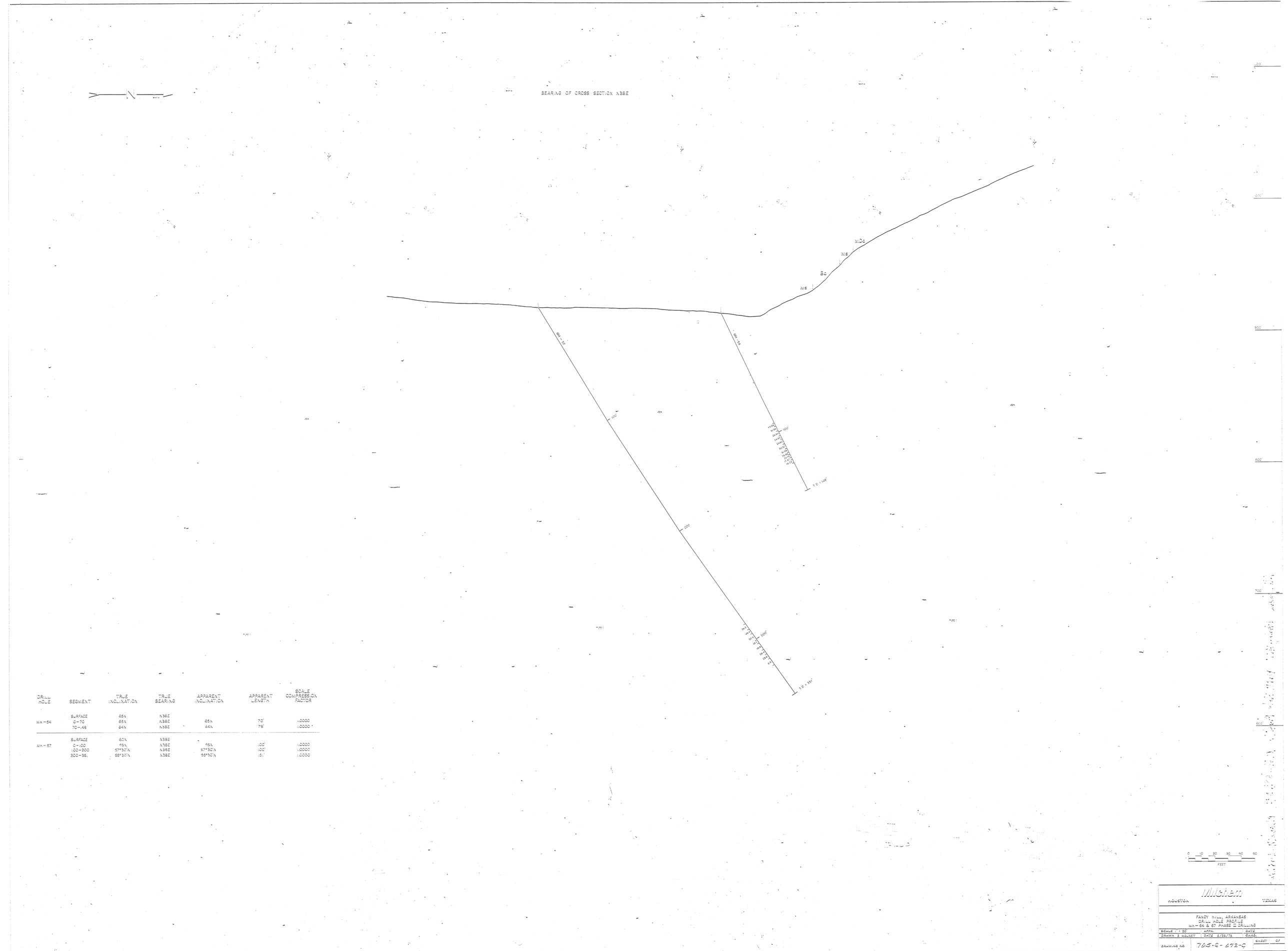
PROFILE SURVEY BY R. LINER 4-3-79

Milchem

HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-86, 88

SCALE 1" = 200'	APPR.	DATE	
DRAWN T. KISNER	DATE MAY 27, 1979	CHKD.	
DRAWING NO.		SHEET	OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
	SURFACE	65N	N38E			
MH-54	0-70	65N	N38E	65N	70'	1.0000
	70-149	64N	N38E	64N	79'	1.0000
	SURFACE	60N	N38E			
MH-57	0-100	49N	N38E	49N	100'	1.0000
	100-200	57°30'N	N38E	57°30'N	100'	1.0000
	200-365	65°30'N	N38E	65°30'N	165'	1.0000

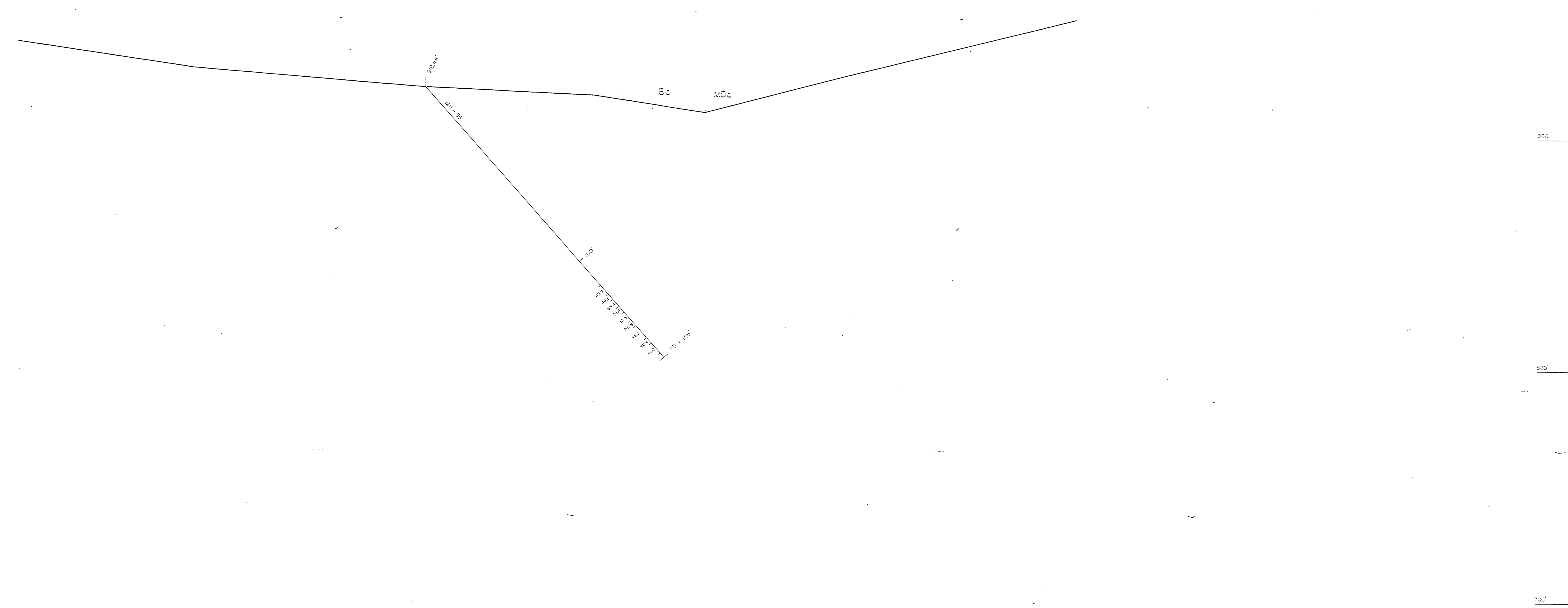
Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-54 & 57 PHASE II DRILLING

SCALE 1"=50'	APPR.	DATE	
DRAWN B. MALONEY	DATE 8/28/78	APPR.	
DRAWING NO. 705-C-672-C		SHEET	OF

BEARING OF CROSS SECTION N40E

N



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-55	SURFACE	48°30'N	N40E			
	0-77	48°30'N	N40E *	48°30'N	77'	1.0000
	77-155	48N	N40E *	48N	78'	1.0000

* ASSUMED

0 10 20 30 40 50
FEET
* APPARENT LENGTHS

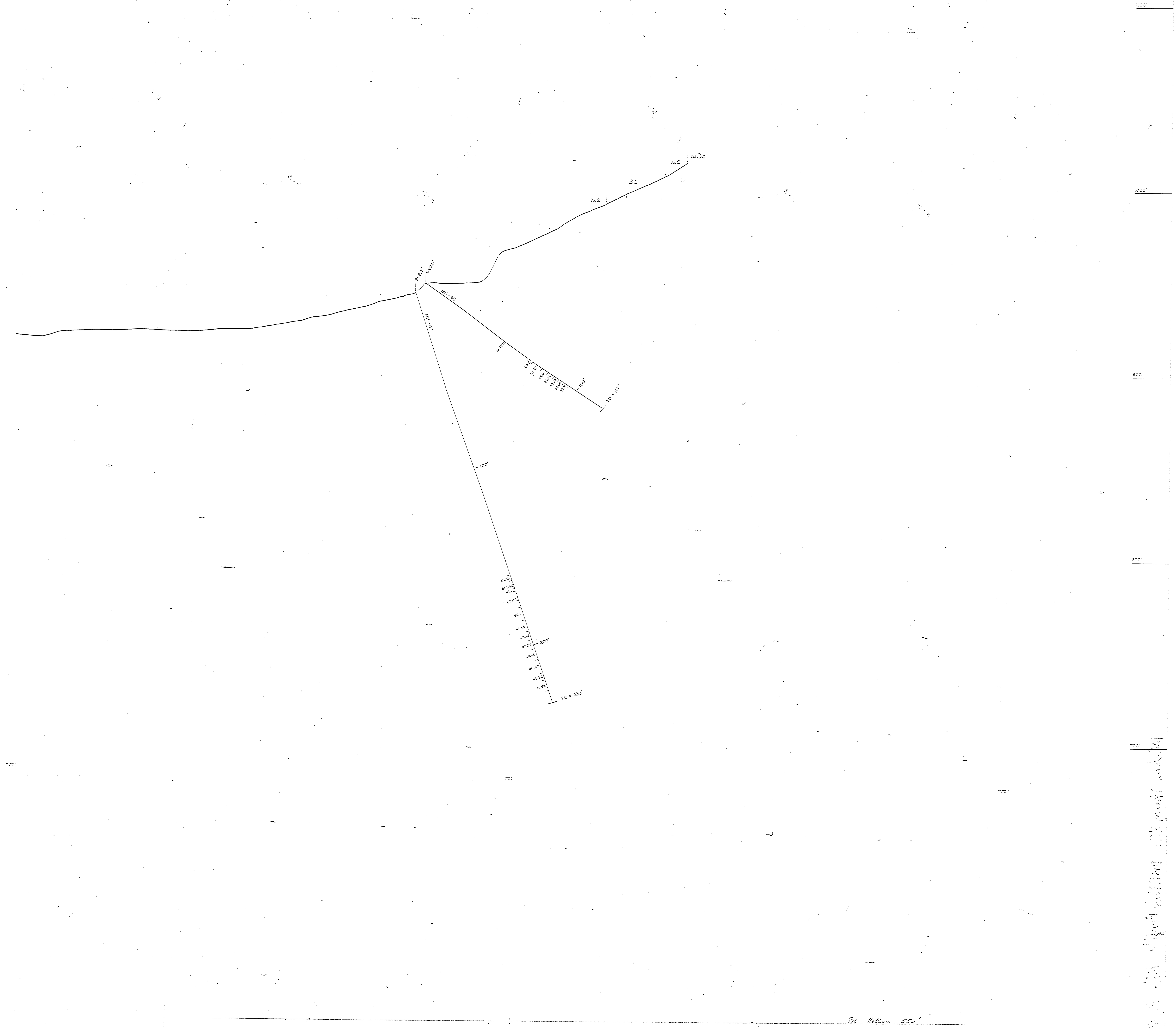
PROFILE SURVEY BY F. G. 3/8/78

HOUSTON **Milchem** TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-55 PHASE III DRILLING

SCALE 1" = 20'	APPR.	DATE
DRAWN S. MAUNEY	DATE 12/21/78	CHKD.
DRAWING NO. [illegible]-078-A	SHEET	OF

BEARING OF CROSS SECTION N35E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH – 46	0 – 25	35N	N35E	35N	25'	1.0000
	25 – 56	37N	N35E	37N	31'	1.0000
	56 – 75	35N	N35E	35N	19'	1.0000
	75 – 117	33N	N35E	33N	42'	1.0000
MH – 47	0 – 55	72N	N35E	72N	55'	1.0000
	55 – 110	70N	N35E	70N	55'	1.0000
	110 – 165	71N	N35E	71N	55'	1.0000
	165 – 233	71N	N35E	71N	68'	1.0000

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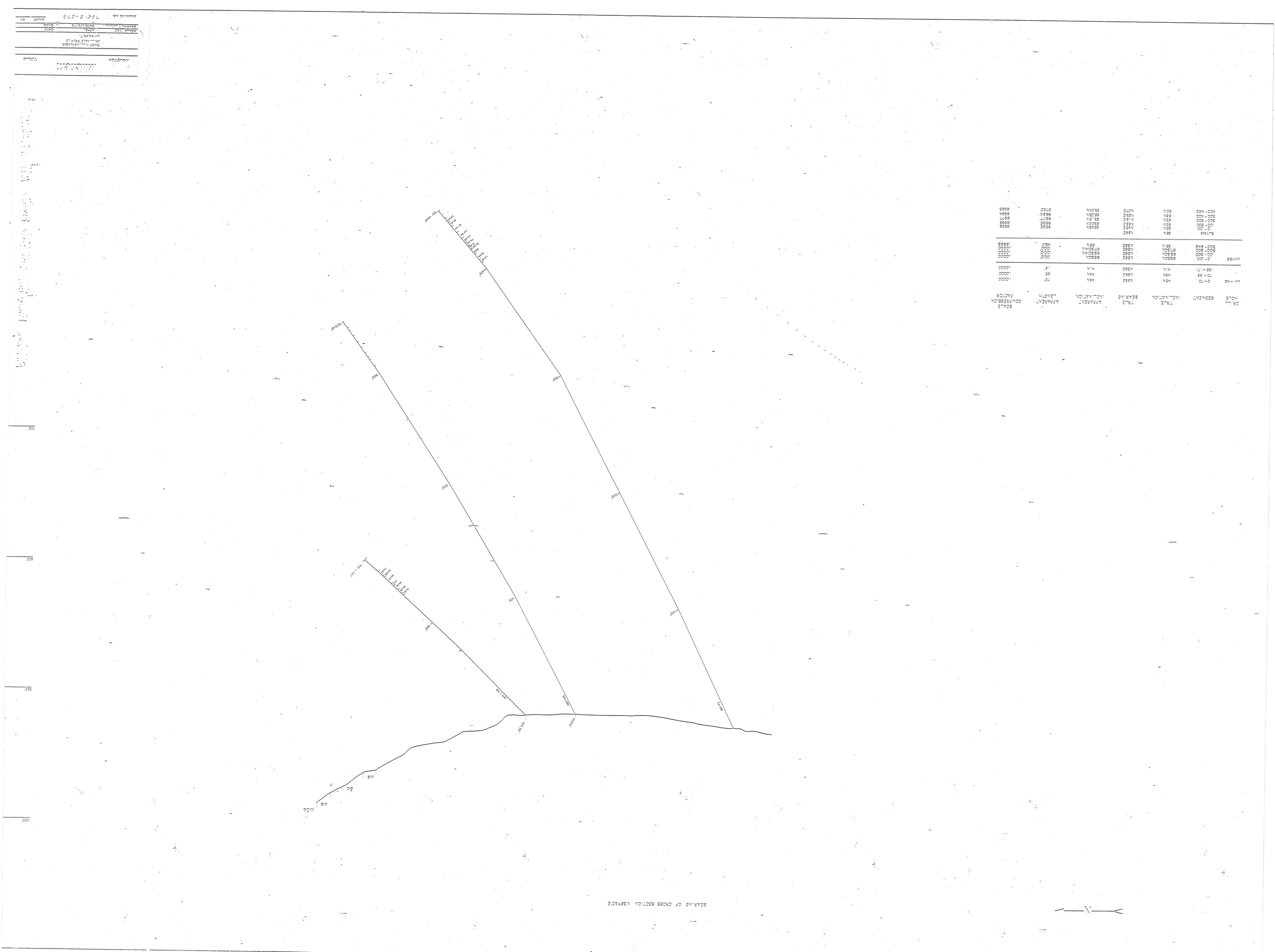
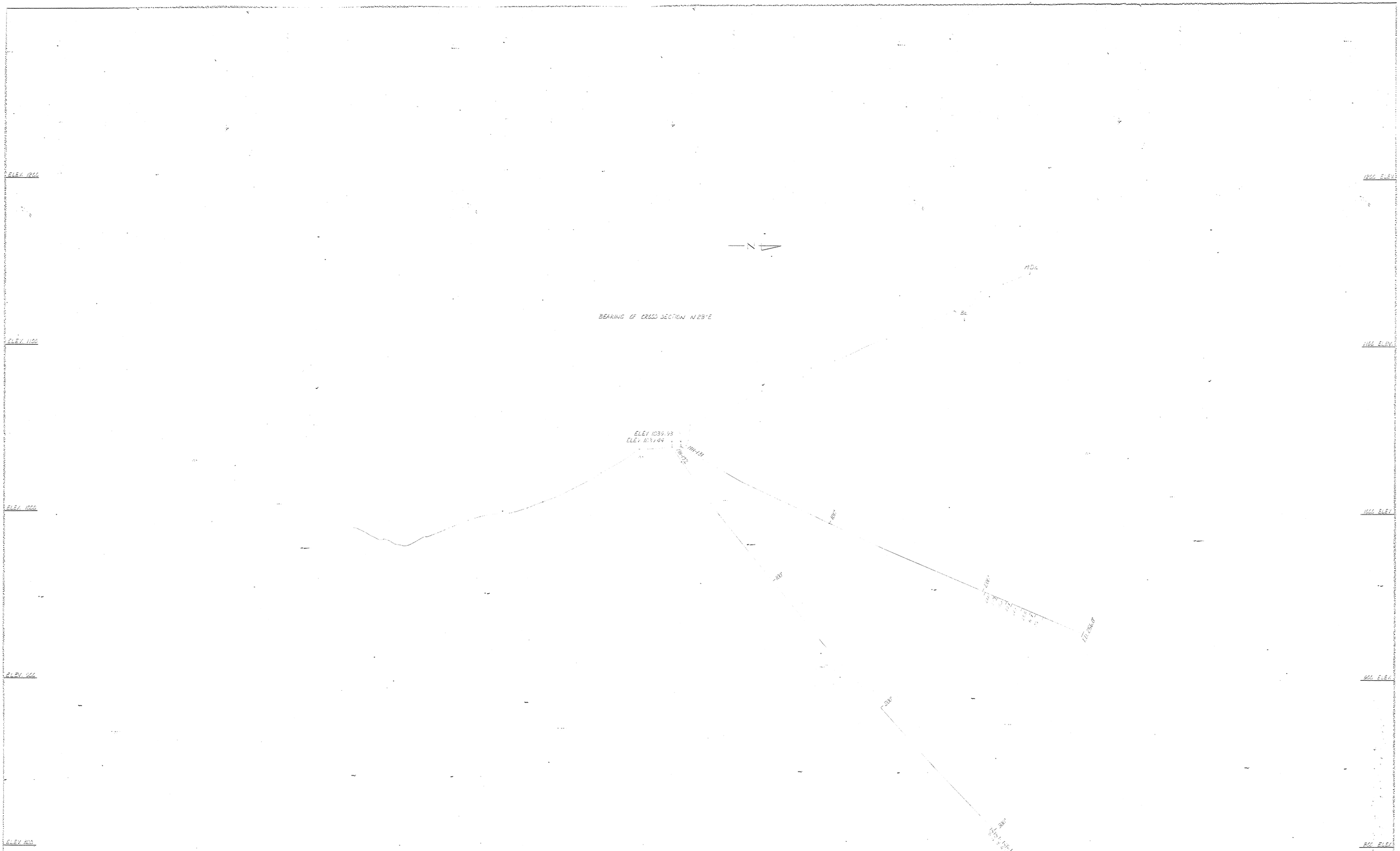
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-46,47

SCALE 1"=20'-0"	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO.	705-8-078-A	SHEET	OF



DRILL HOLE
SEGMENT
TRUE INCLINATION
TRUE BEARING
APPARENT INCLINATION
APPARENT LENGTH
SCALE COMPRESSION FACTOR
MH-48
0-70
48N
N26E
48N
70'
1.0000
70-155
43N
N26E
43N
85'
1.0000
155-171
41N
N26E
41N
16'
1.0000
MH-56
0-100
62.30N
N26E
62.30N
100'
1.0000
100-200
63.30N
N26E
63.30N
100'
1.0000
200-300
67.30N
N26E
67.30N
100'
1.0000
300-348
55N
N26E
55N
48.0'
1.0000
MH-48
0-100
68N
N26E
84.48N
93.36
1.0000
100-200
63N
N26E
63.00N
93.39
1.0000
200-300
63N
N18E
63.15N
93.77
1.0000
300-400
63N
N26E
63.00N
93.39
1.0000
400-460
60N
N07E
63.04N
67.50
1.0000



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH 131	SURFACE	30°N	N 23° E			
	0.0 – 85.0	30°N	N 23° E	30°00'N	85.00'	1.0000
	85.0 – 185.0	25°15'N	N 22°30' E	25°15'03"N	100.00'	1.0000
	185.0 – 245.0	23°N	N 20° E	23°01'42"N	59.98'	0.9988
	245.0 – 256.0	23°N	N 20° E	23°01'42"N	10.99'	0.9988
	T.D. 256.0'					
MH 132	SURFACE	55°N	N 22°30' E			
	0.0 – 98.0	55°N	N 22°30' E	55°00'N	98.00'	1.0000
	98.0 – 198.0	51°N	N 22° E	51°00'04"N	100.00'	1.0000
	198.0 – 298.0	48°N	N 22° E	48°00'04"N	100.00'	1.0000
	298.0 – 373.0	46°30'N	N 21°30' E	46°30'16"N	74.99'	0.9999
	373.0 – 378.0	46°30'N	N 21°30' E	46°30'16"N	5.00'	0.9999
	T.D. 378.0'					

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FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-131 & 132

SCALE 1"=20'0"	APPR.	DATE	
DRAWN T.C. RICHER	DATE SEPT 28, 1979	CHKD. F. [illegible]	
DRAWING NO. 805-G-100		SHEET	OF

DRILL HOLE	SEGMENT	HOLE INCLINATION	HOLE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE CORRECTION FACTOR
[illegible]	SURFACE 0.0 - 110.0 110.0 - 210.0 210.0 - 221.0 T.D. 221.0 FT.	30°N 27°N 26°N 26°N	N 23°E N 19°E N 17°30'E N 17°30'E	27°02'N 26°00'N 26°00'N	3.79' 11.62' 16.90'	0.9951 0.9963 0.9963
[illegible]	SURFACE 0.0 - 110.0 110.0 - 210.0 210.0 - 310.0 310.0 - 316.0 T.D. 316.0 FT.	[illegible] [illegible] [illegible] 42°N 42°N	N 23°E N 21°[illegible]E N 22°E N 20°30'E N 20°30'E	[illegible] [illegible]40'N [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]

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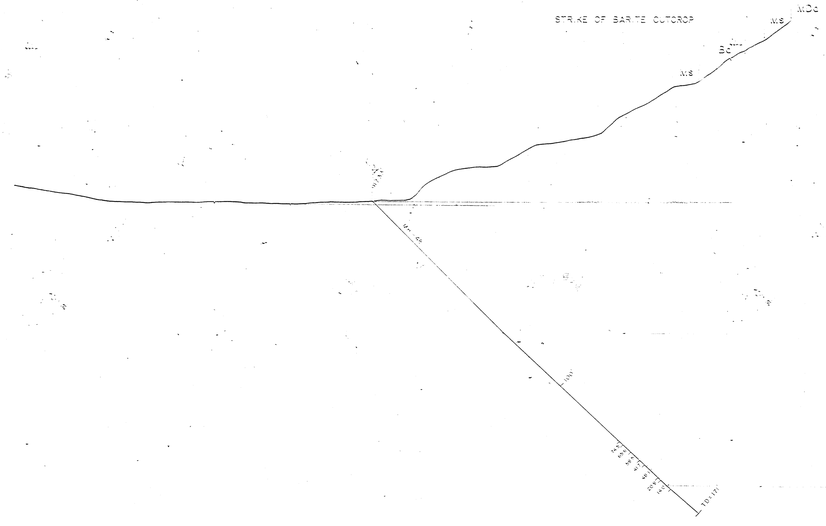
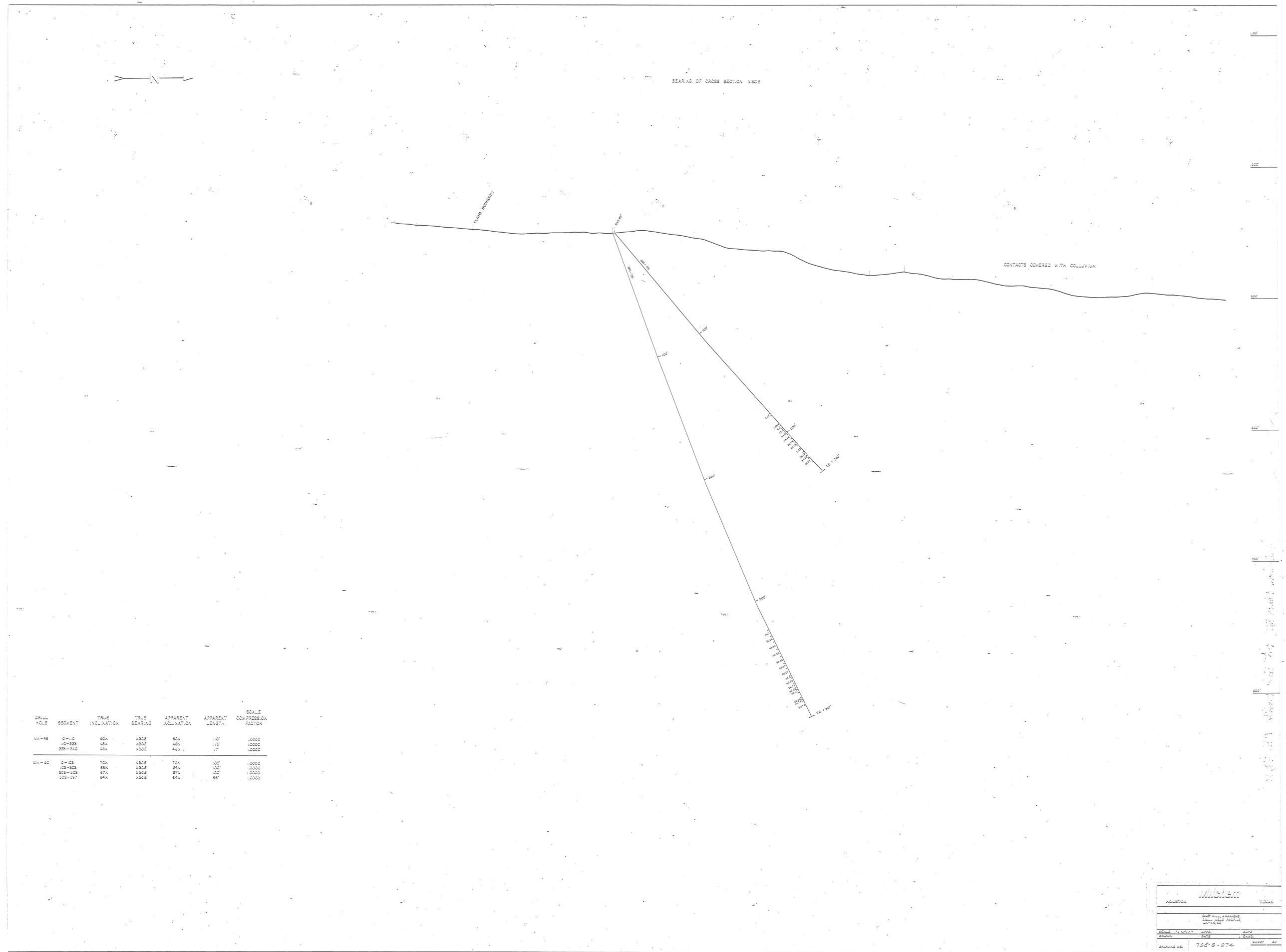
SCALE	APPR.	DATE
DRAWN	DATE	CHKD.
DRAWING NO.		SHEET OF

BEARING OF CROSS SECTION N28°30'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SLOPE COMPRESSION FACTOR
WH-48	0-70	45A	N28E	45A	70.00'	1.0000
	70-155	45A	N28E	45A	85.00'	1.0000
	155-171	41A	N28E	41A	16.00'	1.0000



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-49	0-110	50N	N30E	50N	110'	1.0000
	110-223	48N	N30E	48N	113'	1.0000
	223-240	46N	N30E	46N	17'	1.0000
MH-50	0-102	70N	N30E	70N	102'	1.0000
	102-202	69N	N30E	69N	100'	1.0000
	202-302	67N	N30E	67N	100'	1.0000
	302-397	64N	N30E	64N	95'	1.0000

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FAULT HILL, ARIZONA
DRILL HOLE PROFILE
MH-49, 50

SCALE 1" = 50'-0" APPR. DATE
DRAWN DATE CHKD.

DRAWING NO. 795-3-074 SHEET OF

PROFILE SURVEY BY F. D. 3/6/78

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-100	0-100	64°N	N20E	64°20'N	99.99'	0.9998
	100-200	66°N	N24E	66°04'N	99.92'	0.9992
	200-225	62°N	N30E	62°26'N	28.26'	0.9943
MH-101	0-90	67°30'N	N11E	67°42'N	89.87'	0.9988
	90-190	66°N	N14E	66°05'N	99.93'	0.9993
	190-300	69°N	N19E	69°03'N	109.97'	0.9994
	300-400	69°N	N19E	69°03'N	99.97'	0.9994
	400-436	82°N	N3.1E	82°01'N	36.99'	0.9999

STRIKE OF BARITE OUTCROP S66E

BEARING OF CROSS SECTION N18E

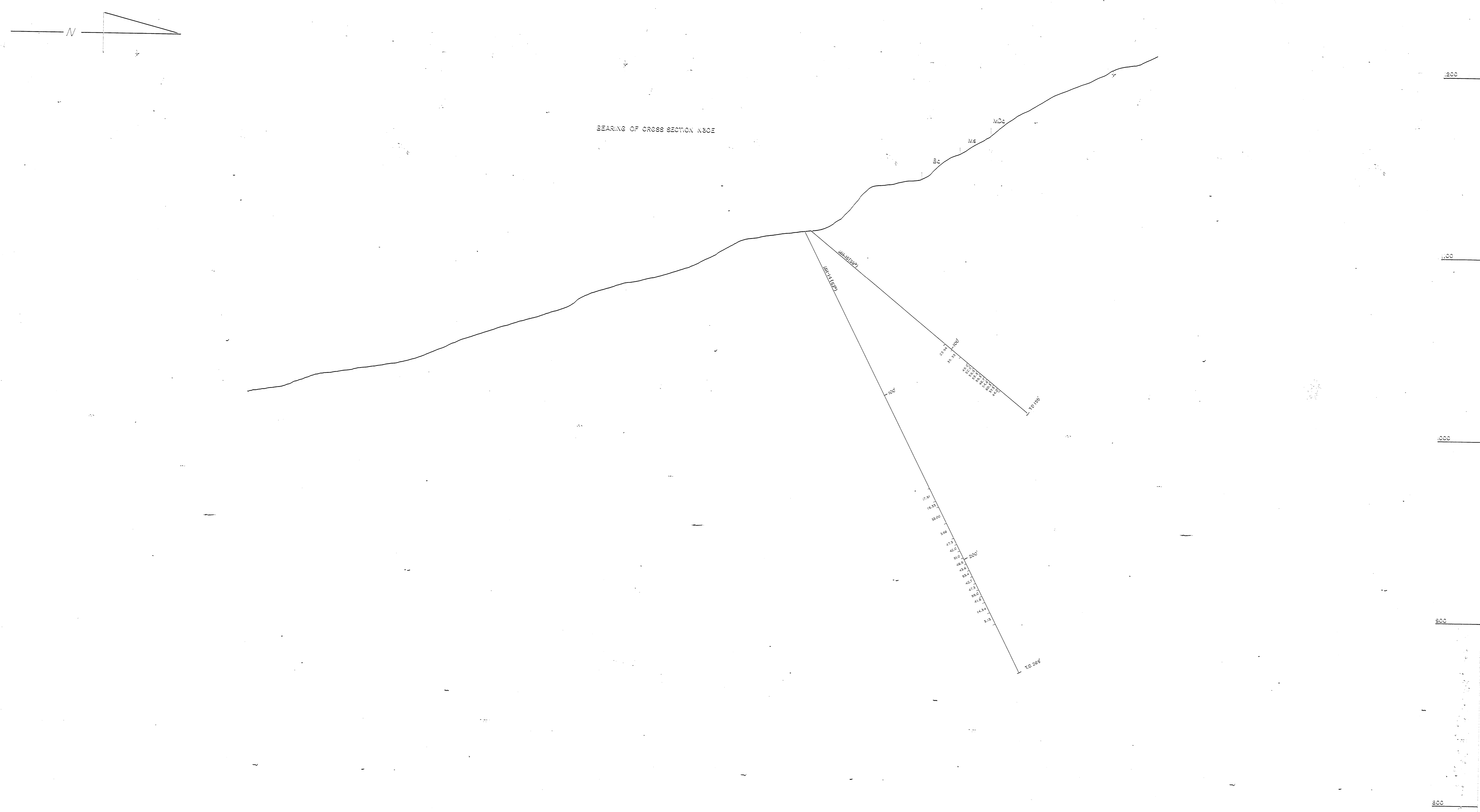
N

APPARENT LENGTHS

ACCEPTED	TRACED
Millsaps	

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH - 100 & 101 PHASE II DRILLING

SCALE 1" = 20'	APPR.
DRAWN A.L.W.	DATE 5/16/78
DRAWING NO.	765-6-576-C



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-14	0-269'	63N	N30E	63°N	269.0'	1.0000
MH-15	0-155'	39N	N30E	39°N	155.0'	1.0000

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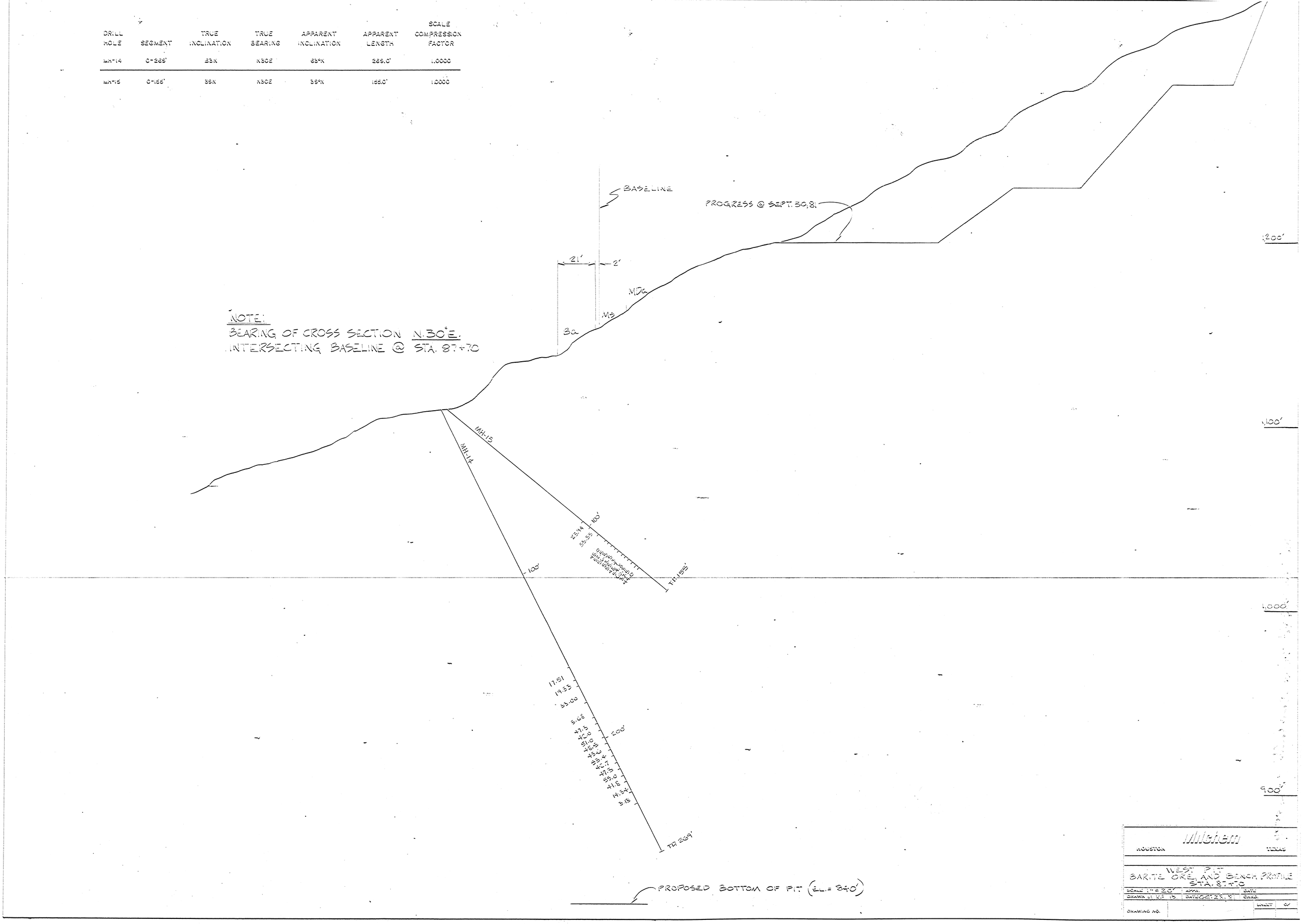
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-14, 15

SCALE 1"=20'	APPR.	DATE
DRAWN M.T. McConnell	DATE 8/1/79	CHKD.
DRAWING NO.		SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-14	0-269'	63N	N30E	63°N	269.0'	1.0000
MH-15	0-155'	39N	N30E	39°N	155.0'	1.0000



NOTE:
BEARING OF CROSS SECTION N.30°E.
INTERSECTING BASELINE @ STA. 87+70

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WEST PIT
BARITE ORE AND BENCH PROFILE
STA. 87+70

SCALE 1" = 20'	APPR.	DATE
DRAWN W. K.F. 13	DATE OCT. 28, 81	CHKD.
DRAWING NO.		SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-6B	SURFACE	60N	N26E	68°30'N	76'	1.0000
	0-76	68°30'N	N26E	68°30'N	76'	1.0000
	76-160	67N	N26E	67N		
MH-6B	SURFACE	70N	N16E	70°17'N	98.82'	0.9982
	0-100	70N	N16E	68°46'N	98.76'	0.9976
	100-200	68°30'N	N16E	68°30'N	98.74'	0.9974
	200-300	68°30'N	N16E	68°30'N	98.52'	0.9972
	300-350	64°30'N	N16E	64°30'N		

BEARING OF CROSS SECTION N26E

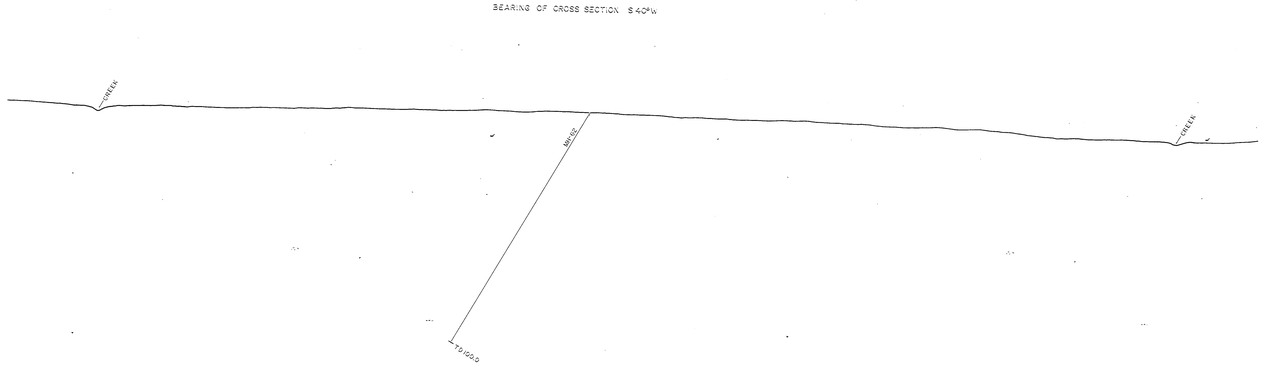
PROFILE SURVEY BY F.G. 5/8/78

0 10 20 30 40 50
FEET

* APPARENT LENGTH

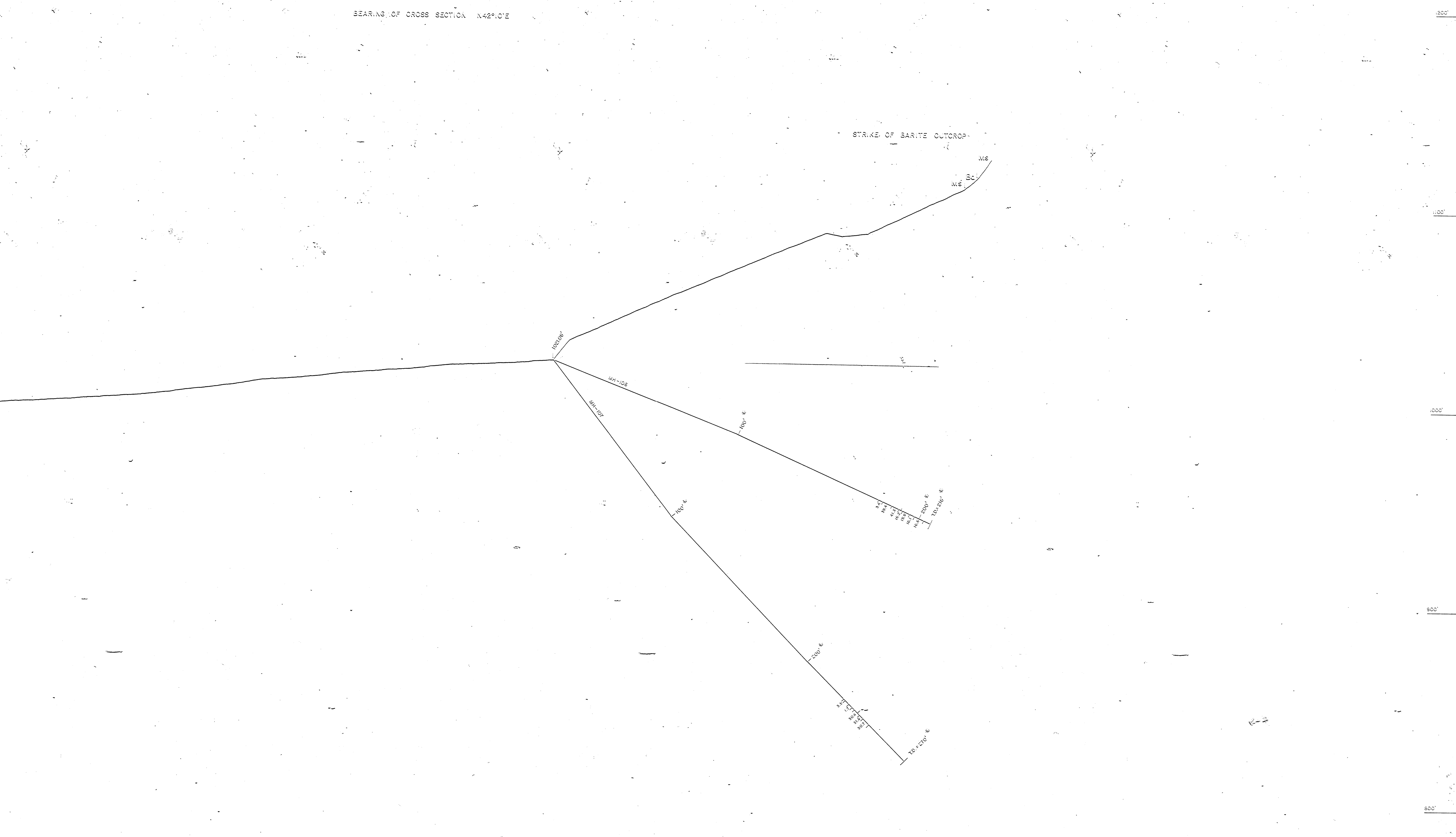
INDUSTRIAL	
SCALE 1" = 20'	
DRAWN & MAINTY	
DRAWING NO.	70

BEARING OF CROSS SECTION S 40°W



HOLE SEGMENT INCLINATION
MH-82 0-100' 60°S

HOUSTON	Mitchem		TEXAS
	FANCY HILL ARKANSAS DRILL HOLE PROFILE MH-82		
SCALE 1"=20'0"	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO.	705-6-080	SHEET	OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-106	0-100	21N	N42E *	21°00'N	100.0'	1.0000
	100-216	24N	N43E	24°00'N	115.99'	0.9999
MH-107	0-100	51N	N27E	51°59'N	98.64'	0.9864
	100-200	46N	N43E	46°00'N	99.99'	0.9999
	200-270	45N	N34E	45°18'N	69.65'	0.9949

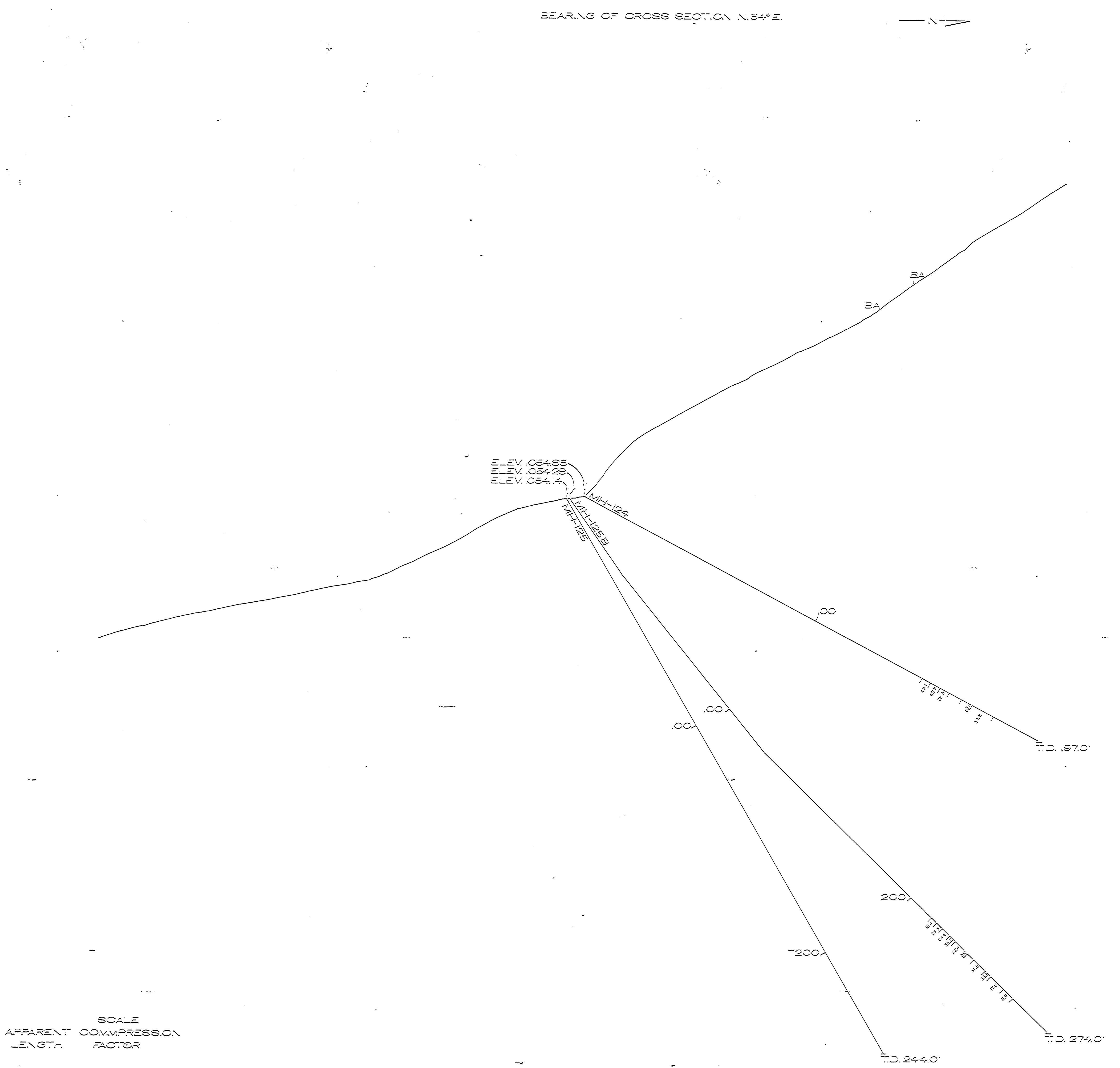
* ASSUMED

HOUSTON Milchem TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH- 106, 107

SCALE 1" = 20'	APPR.	DATE
DRAWN	DATE 1-79	CHKD.
DRAWING NO. 705-G-081	SHEET	OF

BEARING OF CROSS SECTION N.34°E.



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMMPRESSION FACTOR
MH-124	SURFACE	30°N	N 34°E			
	0.0 - 100.0	28°N	N 32°30'E	28°00'29"N	99.97'	0.9997
	100.0 - 195.0	28°N	N 31°E	28°01'57"N	94.90'	0.9989
	195.0 - 197.0	28°N	N 31°E	28°01'57"N	2.00'	0.9989
	T.D. - 197.0'					
MH-125	SURFACE	60°N	N 34°E			
	HOLE WAS NOT COMPLETED DUE TO TWIST OF AT 244.0 FT.					
	NO SURVEY DATA.					
	T.D. - 244.0'					
MH-125B	SURFACE	55°N	N 34°E			
	0.0 - 74.0	55°15'N	N 36°30'E	55°16'32"N	73.98'	0.9997
	74.0 - 174.0	51°N	N 37°30'E	51°03'08"N	99.93'	0.9993
	174.0 - 264.0	44°45'N	N 36°E	44°46'03"N	89.97'	0.9997
	264.0 - 274.0	44°45'N	N 36°E	44°46'03"N	9.97'	0.9997
	T.D. - 274.0'					

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FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-124, 125 & 125B

SCALE 1"=20'0" APPR. DATE
DRAWN T. RISNER DATE 10-03-79 CHKD. F. GALE
SHEET OF
DRAWING NO.

PROFILE SURVEY BY F.D. 5/6/78

APPARENT LENGTHS

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MM-6	0-344	64°N	N20E	64°N	344'	1.0000
MM-9	0-284	64°N	N20E	64°N	284'	1.0000
MM-31	0-100	64°30'N	N 15°30'E	64°36'N	99.50'	0.9898
	100-200	65°N	N 22°30'E	66°03'N	99.97'	0.9997
	200-300	62°N	N2°E	62°13'N	99.78'	0.9972
	300-407	51°N	N26E	61°16'N	106.65'	0.9948

BEARING OF CROSS SECTION N20E

ACCESS	TEXAS
FANCY HILL ARKANSAS	
DRILL HOLE PROFILE	
MM-6 & 9 PHASE 2 DRILLING	
SCALE 1" = 20'	APPR. DATE
DRAWN A.M.H.	DATE 5/15/78
CHECKED	DATE
SHEET OF	
DRAWING NO.	

LEGEND

- SHAFT OR PIT
- BULLDOZER TRENCH
- ROAD
- TRAIL
- CONTACT OF PIKE GRAVEL AND OVERLYING TRINITY SAND
- APPROXIMATE CONTACT
- LAND CORNERS AS LOCATED
- BACKHOE TRENCH

TRUE NORTH

MAGNETIC NORTH

BARITE EXPOSURES IN THIS AREA UNEXPLORED

EST. SECTION CORNER

GRAVELED COUNTY ROAD

DIERKS 5 MILES

BARITE OUTCROP

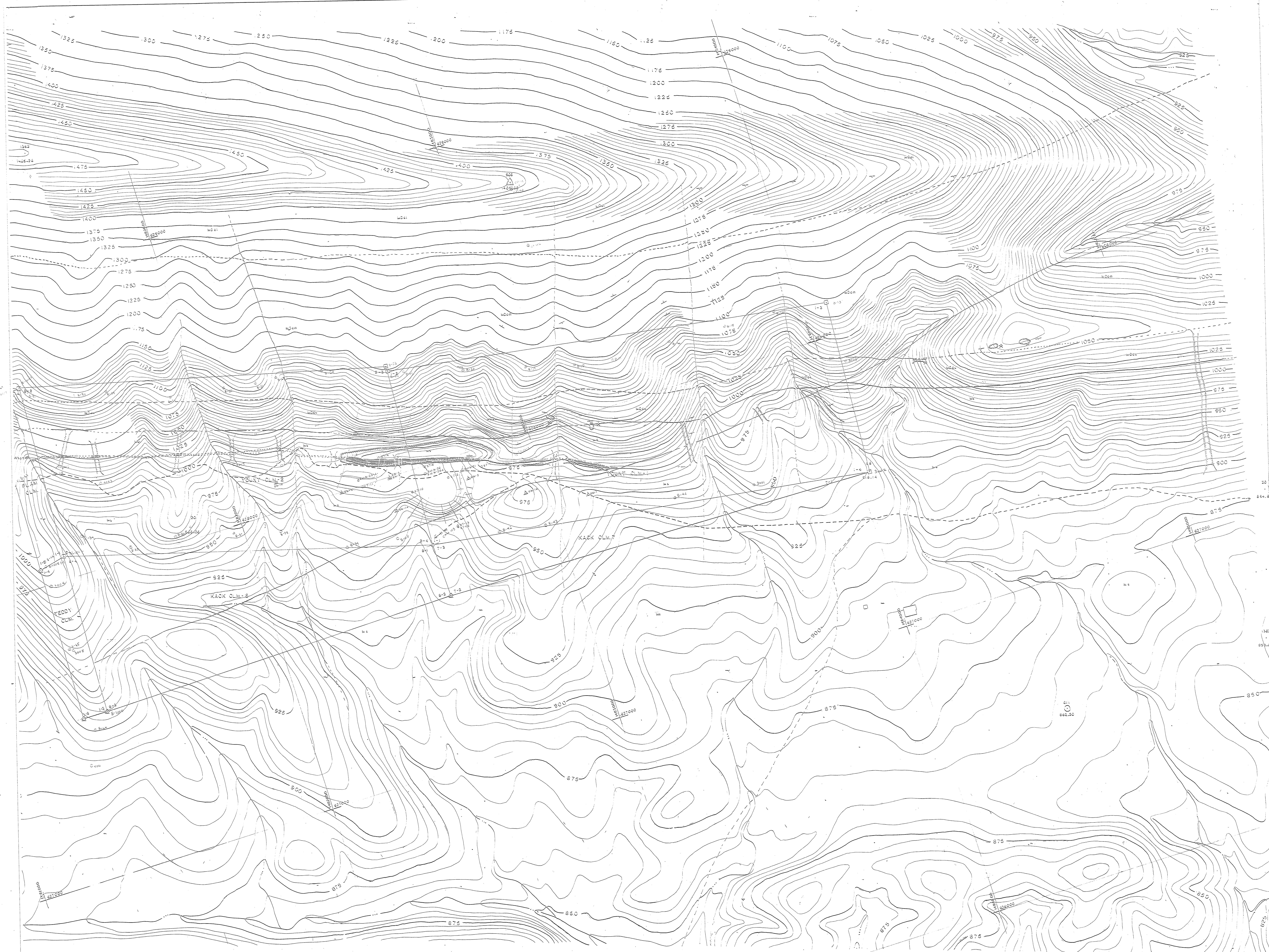
BARITE OUTCROP

TOPOGRAPHIC EXPLORATION MAP
LUCKY 13 DEPOSIT
DETROIT BARITE COMPANY

VICINITY OF SEC. 13, T 7 S, R 28 W
HOWARD COUNTY, ARKANSAS
SCALE 1" = 200'
CONTOUR INTERVAL = 2 FEET
DATUM IS MEAN SEA LEVEL

NOV. 1954 R.B.M.

PLATE IV



LEGEND

- ⊙ Survey Stations,
- ⊡ Patented Claim Corners
- △ ⊙ ⊙ Other B & F Engineering Survey Stations
- △ Milchem Drill Holes
- Other Drill Holes
- CH2M Hill Survey Stations
- ◇ Unpatented Claim Corners

100 0 100 200 300
Feet
Contour Interval — 5 Feet

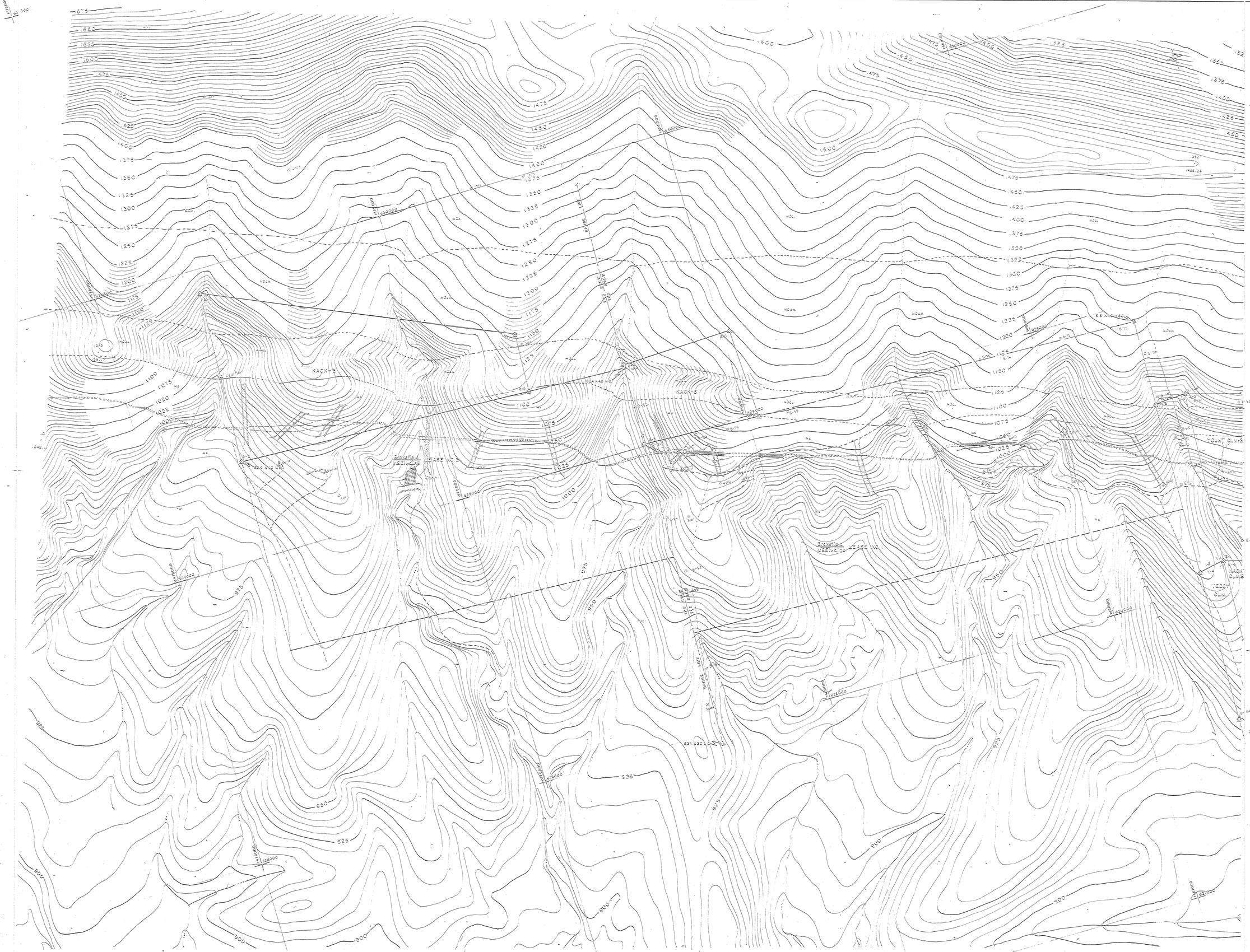
GAP MOUNTAIN BARITE MINE
SEC. 19 T4S R25W
Montgomery County, Arkansas

Survey by Rod Oliver

Milchem
HOUSTON TEXAS

GAP MOUNTAIN BARITE MINE

SCALE 1" = 100'	APPR. Ferryl Gale	DATE June - 80	
DRAWN D. Hendrix	DATE 4-23-80	CHKD. Ferryl Gale	
DRAWING NO.	302-B-001-A	SHEET 1	OF 2



LEGEND

- Survey Stations
- Patented Claim Corners
- Other B & F Engineering Survey Stations
- Milchem Drill Holes
- Other Drill Holes
- C.H.2.M. Hill Survey Stations
- Unpatented Claim Corners

100 0 100 200 300

Feet

Contour Interval — 5 Feet

GAP MOUNTAIN BARITE MINE

SEC.24 T4S R26W & SEC.19 T4S R26W

Montgomery County, Arkansas

Survey by Rod Oliver

HOUSTON	Milchem	TEXAS
GAP MOUNTAIN BARITE MINE		
SCALE 1" = 100'	APPR. FERRY, SCIO	DATE JUNE - 80
DRAWN D. Hendrix	DATE 4-23-80	CHKD. FERRY, SCIO
DRAWING NO.	302-B-002-2A	SHEET 2 OF 2

BEARING OF CROSS SECTION N 15°E

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
57-10	SURFACE	58°-30'N	N 15°E			
	0-100	58°-30'N	N 15°E	58°-30'N	100	1.0000
	100-156	52°-30'N	N 15°E	52°-30'N	56	1.0000
	156-212	45° N	N 15°E	45° N	56	1.0000
	212-267.7	42° N	N 15°E	42° N	75.7	1.0000
	T.D. 267.7'					
B.M. 26	SURFACE	30° N	N 18°E			
	0-130	30° N	N 18°E	30°-02'-03"N	129.87	0.9990
	T.D. 130.0'					
B.M. 26-A	SURFACE	58° N	N 18°E			
	0-240	58° N	N 18°E	58°-02'-07"N	239.91	0.9996
	T.D. 240.0'					
57-6	SURFACE	30° N	N 19 E			
	0-64.5	30° N	N 19 E	30°-03'-38"N	64.38'	0.9982
	T.D. 64.5'					

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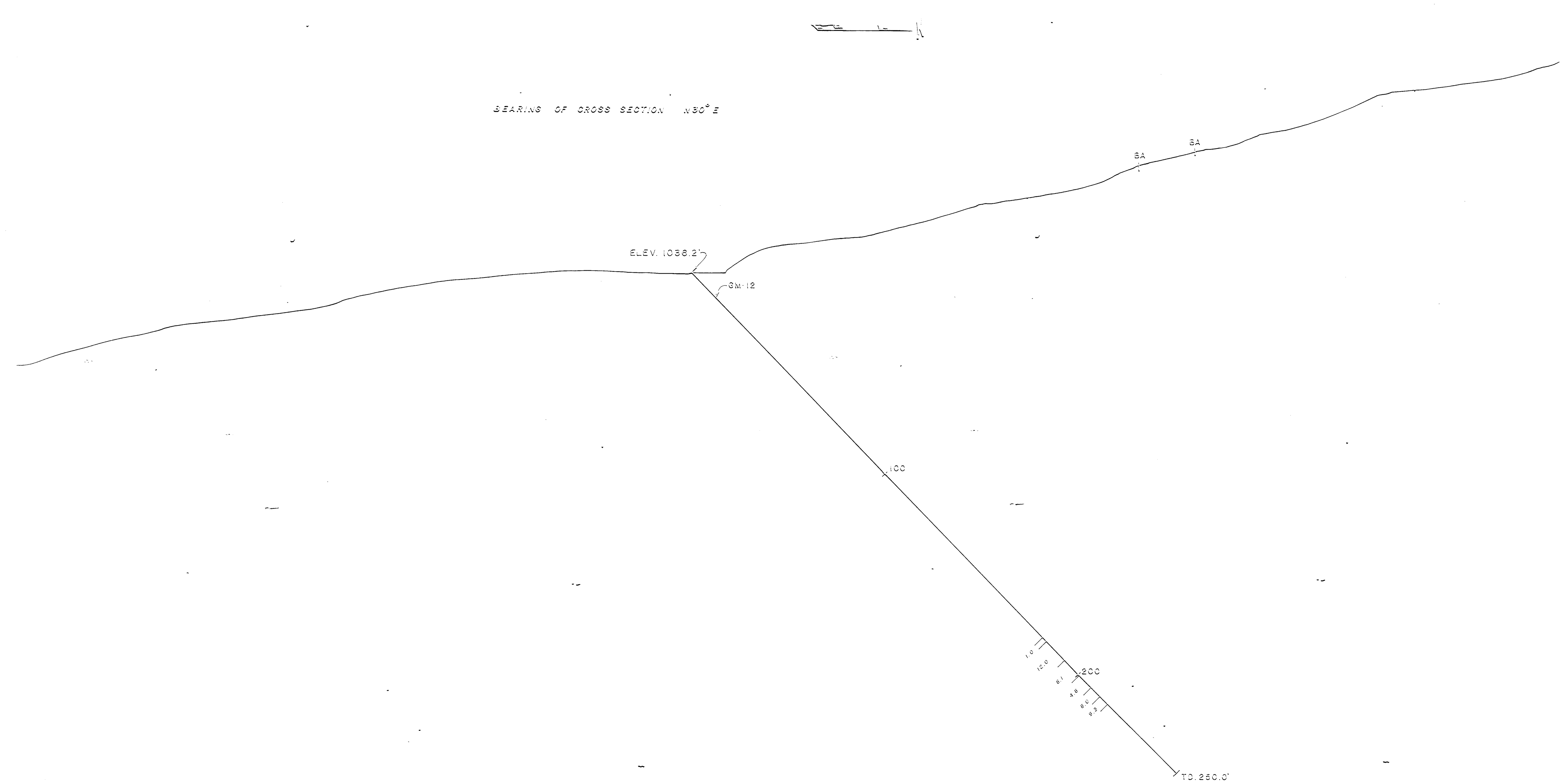
GAP MOUNTAIN
DRILL HOLE PROFILE
57-6, B.M. 26, B.M. 26A & 57-10

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-23-80	CHKD. F. GALE
DRAWING NO. 605-G-055		SHEET OF

BEARING OF CROSS SECTION N30° E



ELEV.
1100
1000
900
800
700

DRILL HOLE	SEGEMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-12	SURFACE	46° N	N 30° E			
	0-100	46° N	N29°-45' E	46°-00'-01" N	100.00'	1.0000
	100-200	45°-45' N	N28°-30' E	45°-45'-35" N	99.98'	0.9998
	200-245	45° N	N28°-30' E	45°-00'-35" N	44.99'	0.9998
	245-250	45° N	N28°-30' E	45°-00'-35" N	5.00'	0.9998
	T.D. 250.0'					

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GAP MOUNTAIN
DRILL HOLE PROFILE
G.M.-12

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-24-60	CHKD. F. GALE
DRAWING NO.	605-G-048	SHEET OF

N

Ms
MDau
MDam
MDal
Opc
Obf
Sb
Sm

13
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31
35
36
728

DOZED AWAY?
BOONE SPRINGS

MORE LIKELY A HIGH ANGLE FAULT

GEOLOGY BY F. C. GALE

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GEOLOGIC MAP
FANCY HILL DISTRICT

SCALE 1" = 500' | APPR. F.C. GALE | DATE 7-21-81
DRAWN M. BRIDGES | DATE 7-21-81 | CHKD.
DRAWING NO. | SHEET 4 | OF 4

ELEV.

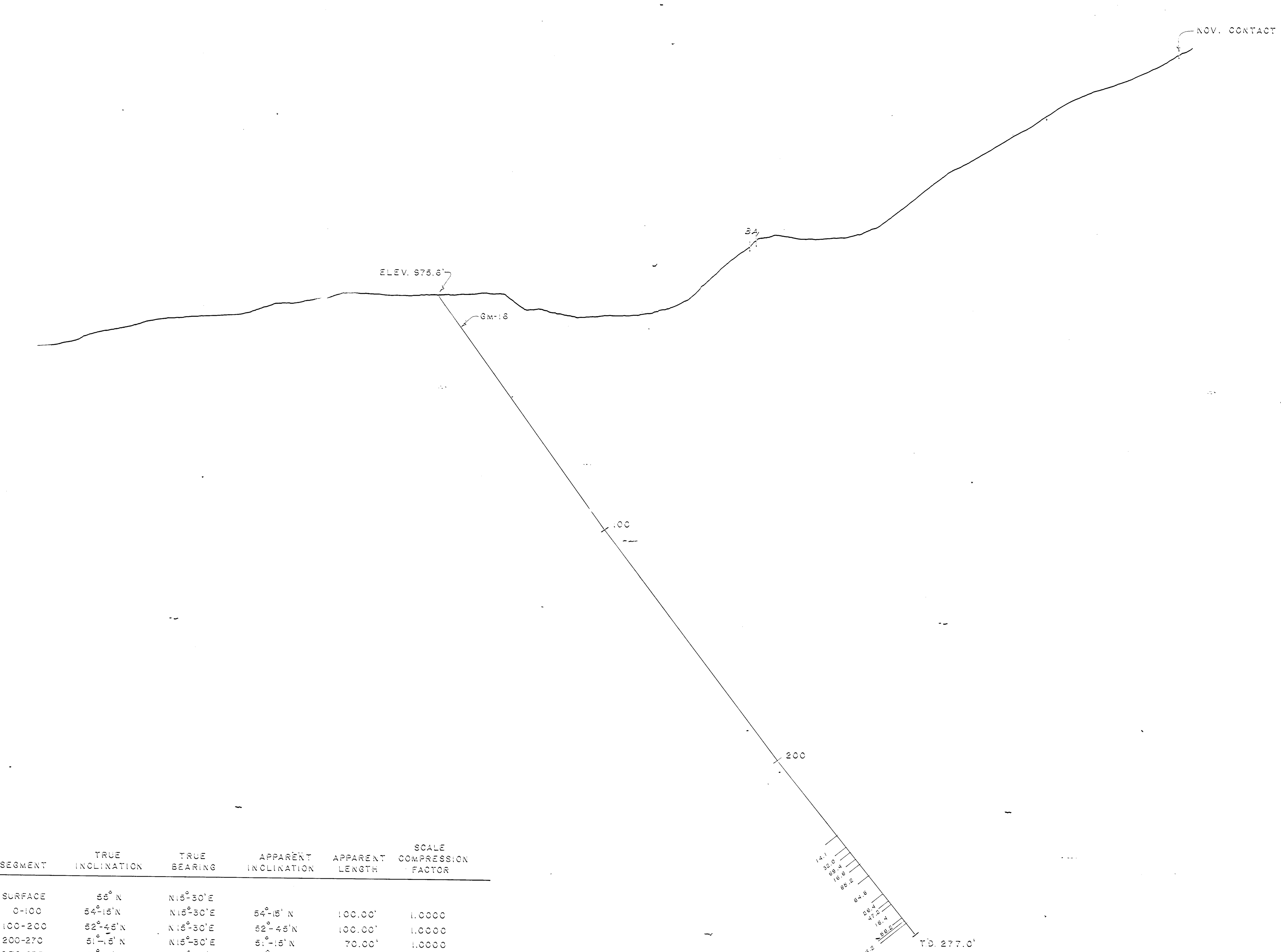
1100

1000

900

800

700



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-16	SURFACE	55° N	N15°-30'E			
	0-100	54°-15'N	N15°-30'E	54°-15' N	100.00'	1.0000
	100-200	52°-45'N	N15°-30'E	52°-45'N	100.00'	1.0000
	200-270	51°-15'N	N15°-30'E	51°-15'N	70.00'	1.0000
	270-277	51°-15'N	N15°-30'E	51°-15'N	7.00'	1.0000
	T.D. 277.0'					

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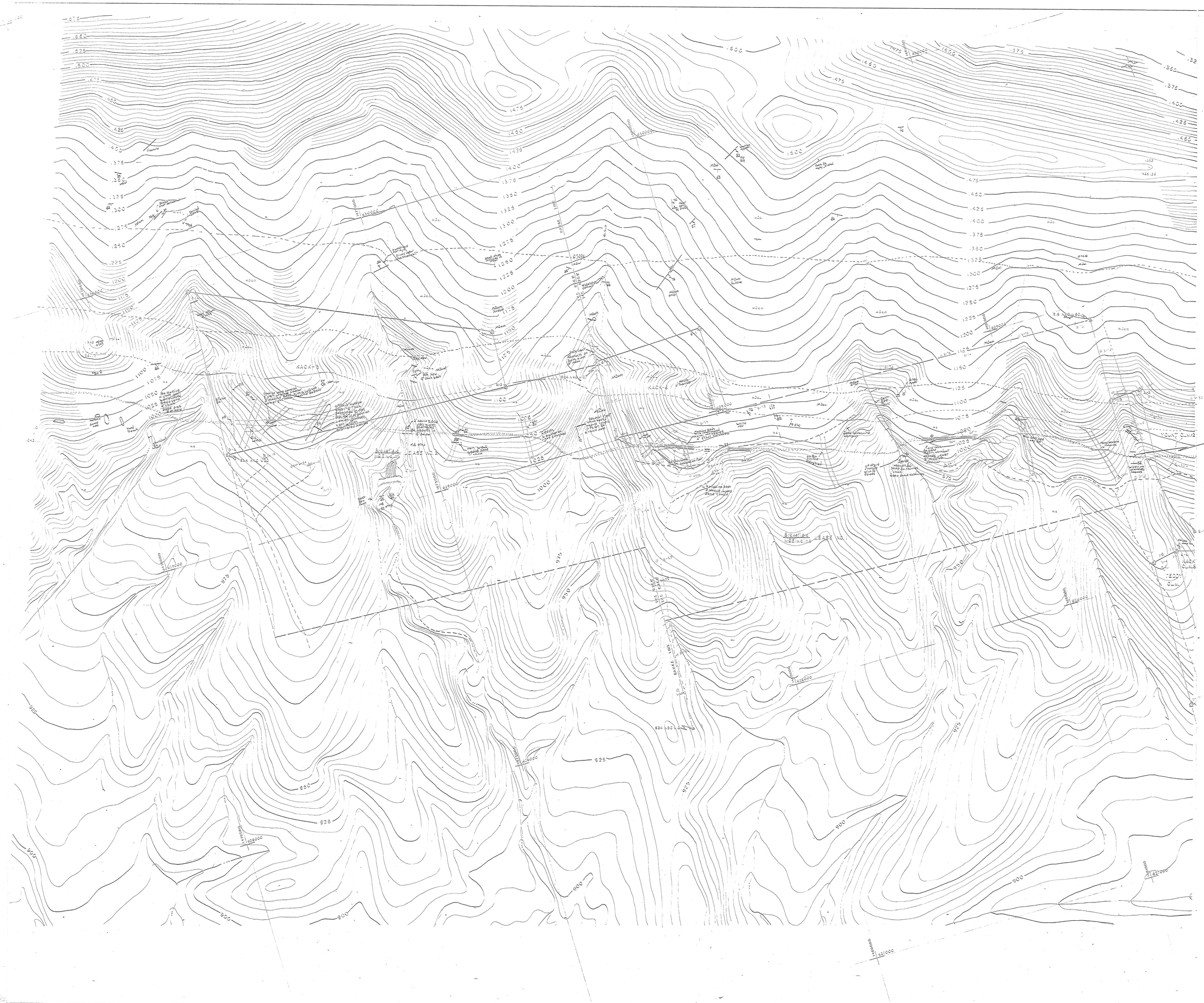
GAP MOUNTAIN
DRILL HOLE PROFILE
GM-16

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-28-80	CHKD. F. GALE
DRAWING NO.	605-G-051	SHEET OF



LEGEND

- Survey Stations
- Patented Claim Corners
- Other B & F Engineering Survey Stations
- Milchem Drill Holes
- Other Drill Holes
- C.H.2.M. Hill Survey Stations
- Unpatented Claim Corners

14' Contains 9' of Ba in 8 narrow layers of nodules and several 1" to 3" massive beds

0 100 200 300
Feet
Contour Interval — 5 Feet

MOUNTAIN BARITE MINE
T4S R26W & S20.15 T4S R26W
Montgomery County, Arkansas

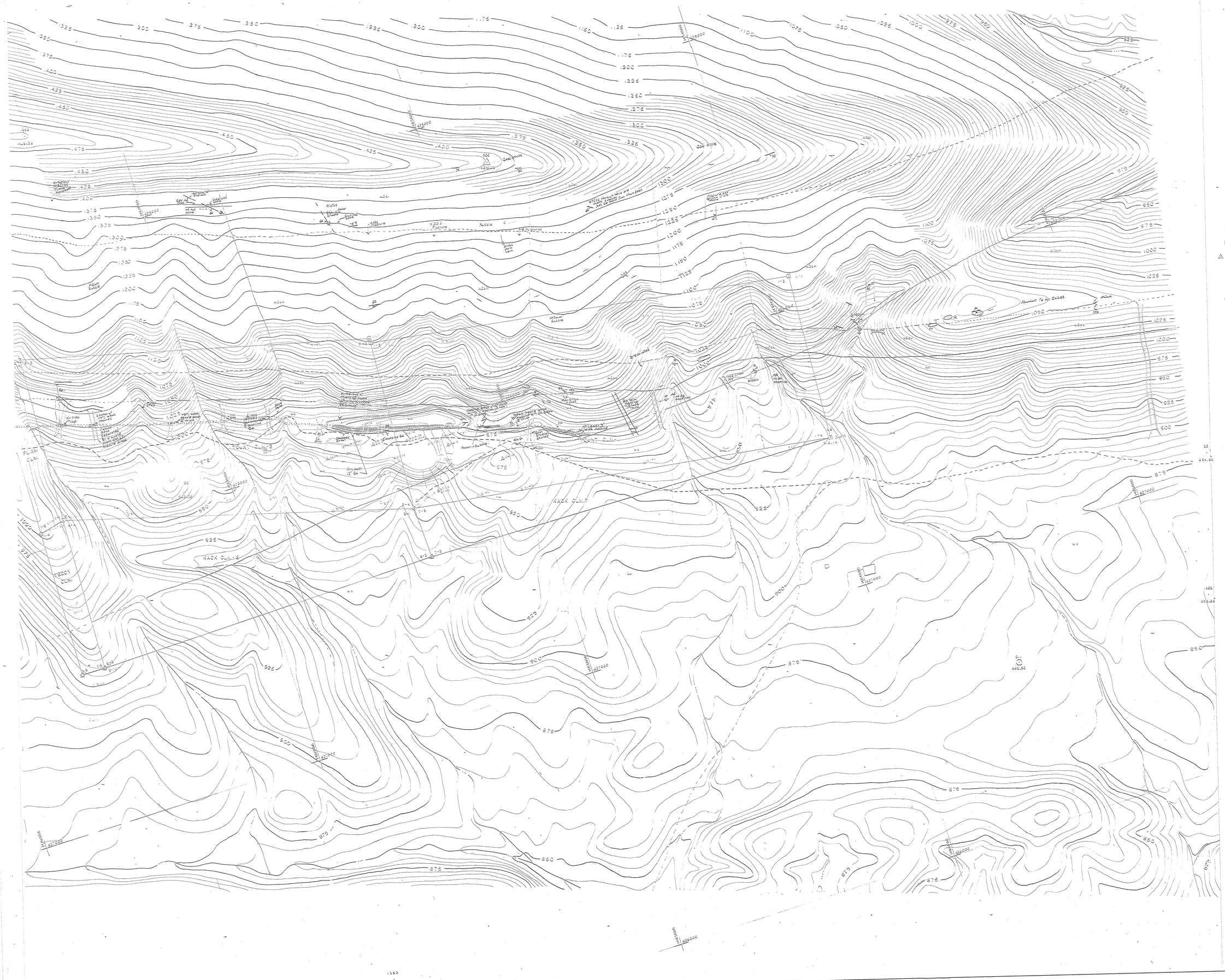
Red River

Milchem

HOUSTON TEXAS

MAP MOUNTAIN BARITE MINE

1:100	APPR. Ferry, Gale	DATE June 1-80	
Metcalfe	DATE 4-23-80	CHKD. Ferry, Gale	
NO. 302-B-002-2A		SHEET 2	OF 3



LEGEND

- Survey Stations,
- Patented Claim Corners
- Other B&F Engineering Survey Stations
- Milchem Drill Holes
- Other Drill Holes
- CH2M Hill Survey Stations
- Unpatented Claim Corners

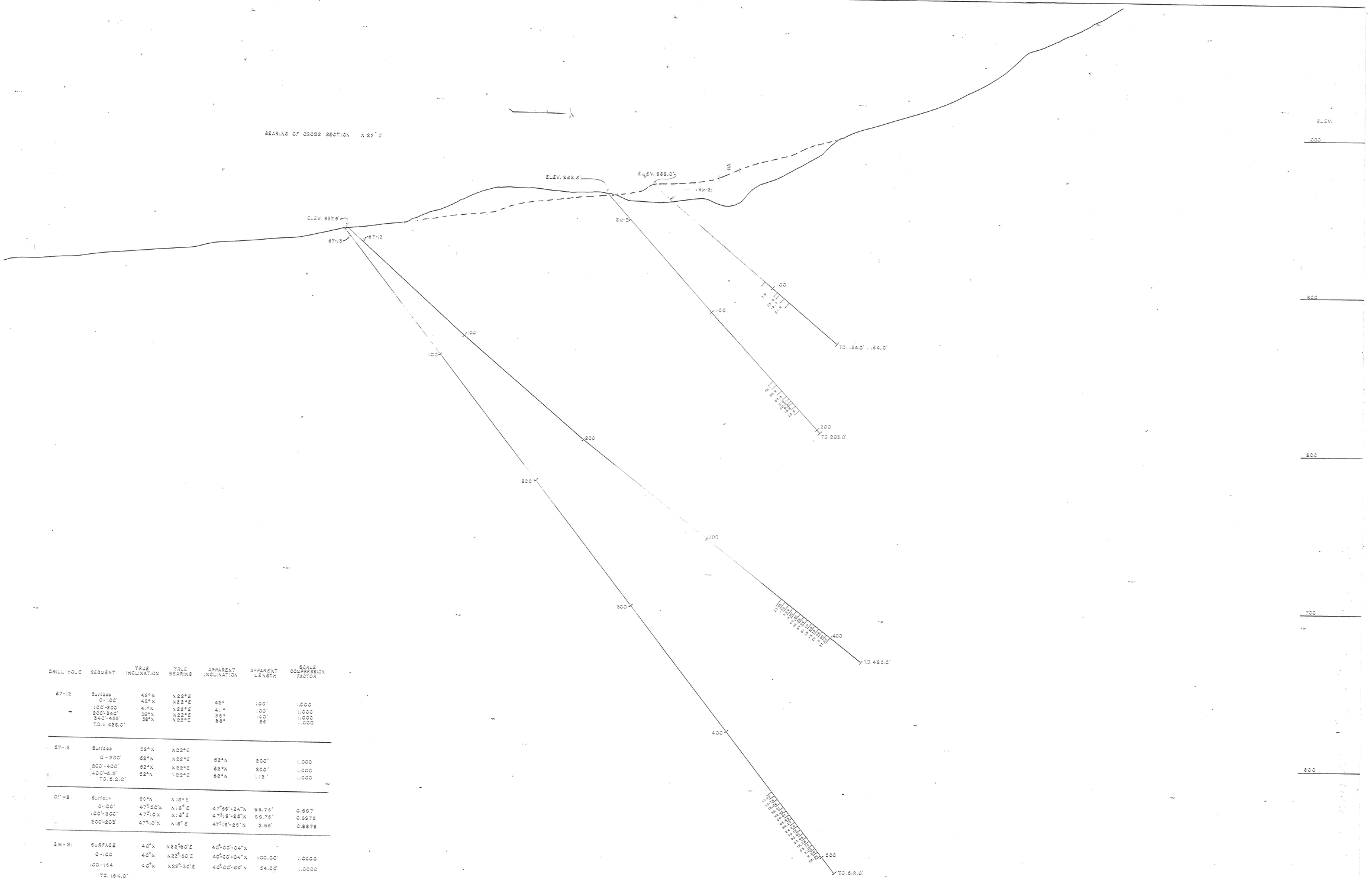
100 0 100 200 300
Feet
Contour Interval = 6 Feet

GAP MOUNTAIN BARITE MINE

SEC. 15 T4S R26W
Montgomery County, Arkansas

Survey by Rod Oliver

HOUSTON	Milchem		TEXAS
GAP MOUNTAIN BARITE MINE			
SCALE 1" = 100'	APPR. Ferry, Sale	DATE June 80	
DRAWN D. Hanchy	DATE 2-29-80	CHKD. Ferry, Sale	
DRAWING NO.	302-B-001-A	SHEET 1	OF 2



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
57-12	Surface	42°N	N 22°E			
	0-100'	42°N	N 22°E	42°	100'	1.000
	100'-200'	41°N	N 22°E	41°	100'	1.000
	200'-340'	38°N	N 22°E	38°	140'	1.000
	340'-425'	38°N	N 22°E	38°	85'	1.000
	T.D.= 425.0'					
57-13	Surface	52°N	N 22°E			
	0-200'	52°N	N 22°E	52°N	200'	1.000
	200'-400'	52°N	N 22°E	52°N	200'	1.000
	400'-512'	52°N	N 22°E	52°N	112'	1.000
	T.D. 512.0'					
GM-2	Surface	50°N	N 18°E			
	0-100'	47°50'N	N 18° E	47°59'-24"N	99.75'	0.997
	100'-200'	47°10'N	N 18° E	47°19'-25"N	99.75'	0.9975
	200'-203'	47°10'N	N 18° E	47°19'-25"N	2.99'	0.9975
BM-21	SURFACE	40°N	N 22°30'E	40°00'-04"N		
	0-100	40°N	N 22°30'E	40°00'-04"N	100.00'	1.0000
	100-154	40°N	N 22°30'E	40°00'-04"N	54.00'	1.0000
	T.D. 154.0'					

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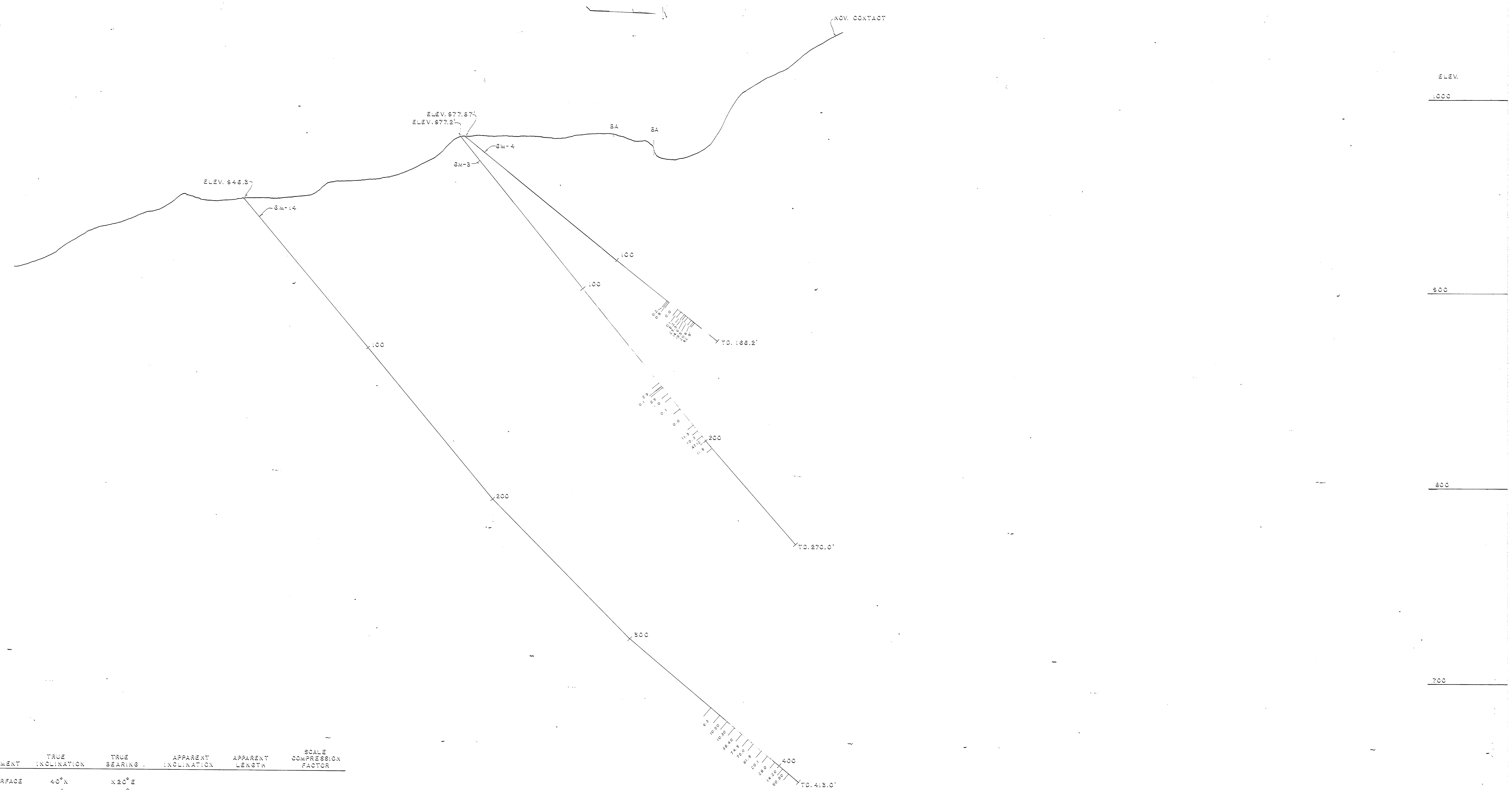
GAP MOUNTAIN
DRILL HOLE PROFILE
57-12, 57-13, BM-2, & GM-2

SCALE 1" = 20' APPR. DATE
DRAWN D. Hendrix DATE 7-16-80 CHKD. F. Gale
DRAWING NO. 605-G-042 SHEET 1 OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-4	SURFACE	40°N	N20°E			
	0-100	39°N	N17°E	39°-02'-18"N	99.92'	0.9992
	100-166	38°-30'N	N14°-30'E	38°-37'-44"N	65.81'	0.9972
	TD. 166.2'					
GM-3	SURFACE	52°N	N20°E			
	0-100	51°N	N21°-30'E	51°-00'-35"N	99.99'	0.9999
	100-200	50°-45'N	N20°-30'E	50°-45'-04"N	100.00'	1.0000
	200-260	48°-50'N	N21°-30'E	48°-50'-35'N	59.99'	0.9999
	260-270	48°-50'N	N21°-30'E	48°-50'-35'N	10.00'	0.9999
	TD. 270.0'					
GM-14	SURFACE	50°N	N15°E			
	0-100	50°N	N12°-15'E	50°-15'-31"N	99.62'	0.9962
	100-200	50°-15'N	N12°-45'E	50°-28'-33"N	99.67	0.9967
	200-300	45°-15'N	N11°E	45°-36'-17"N	99.39'	0.9939
	300-400	40°-15'N	N10°E	40°-40'-59"N	99.12'	0.9912
	400-413	40°-15'N	N10°E	40°-40'-59"N	9.91'	0.9912
	TD. 413.0'					

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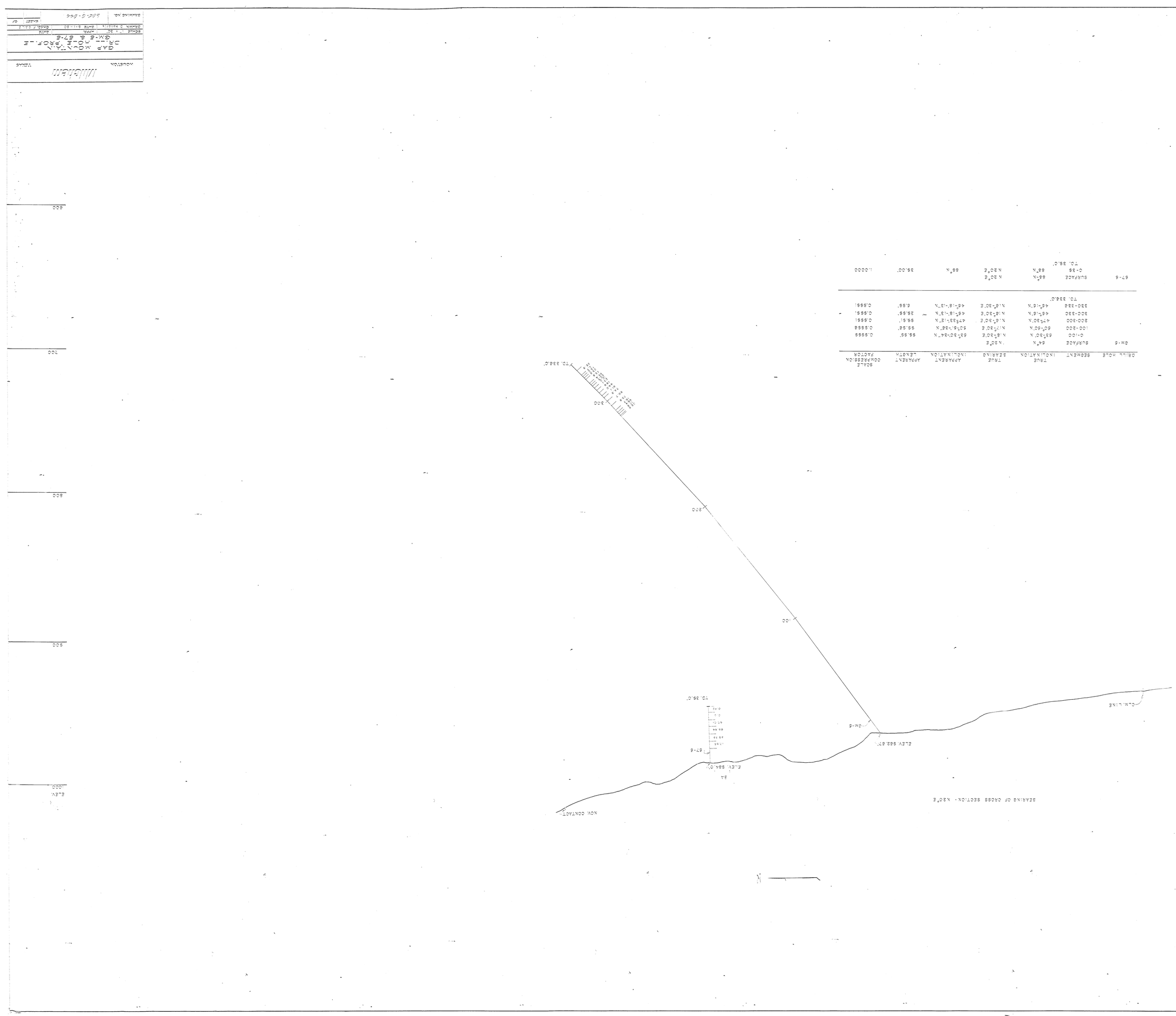
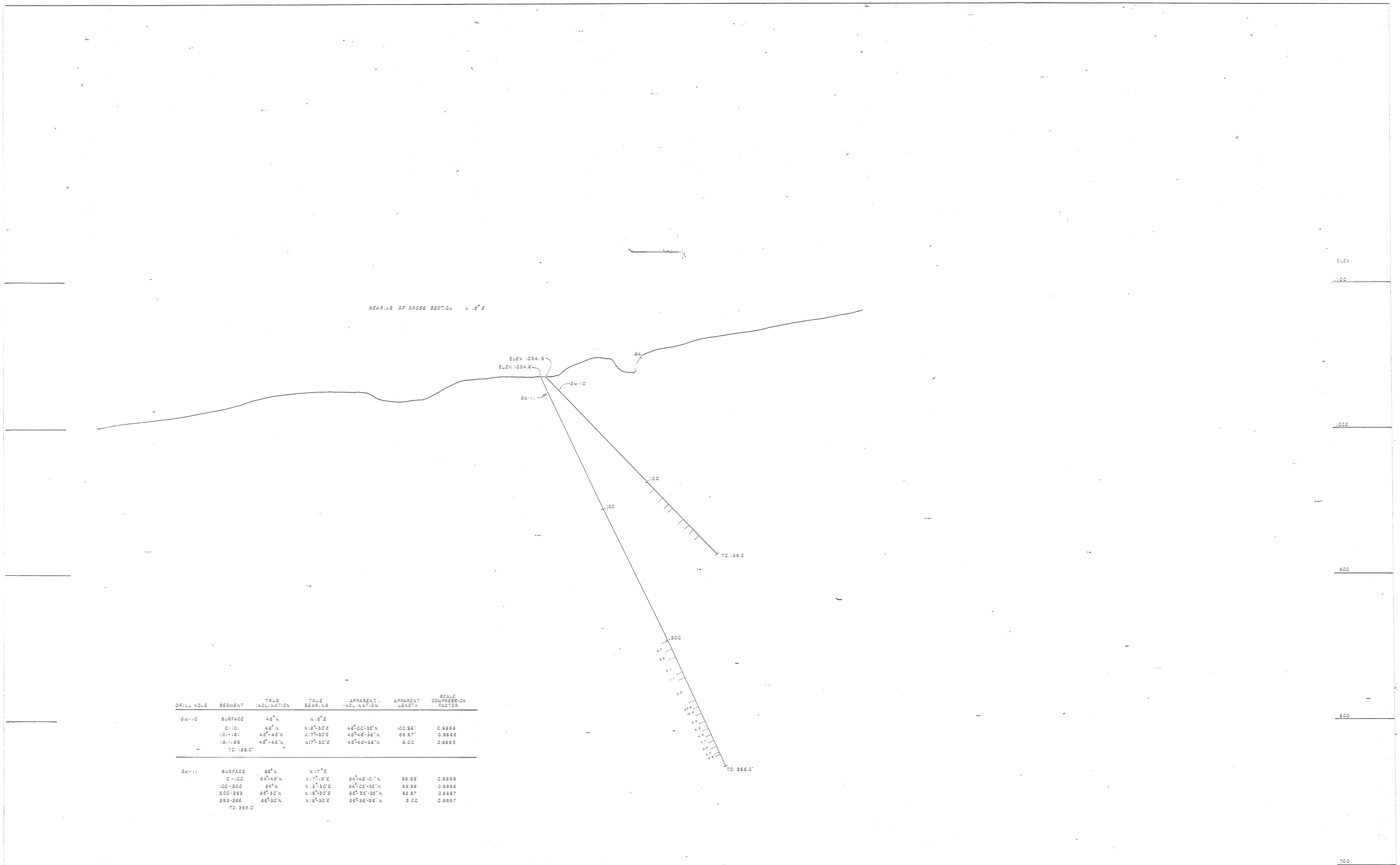
GAP MOUNTAIN
DRILL HOLE PROFILE
GM-3, GM-4 & GM-14

SCALE 1" = 20'	APPR.	DATE
DRAWN D Hendrix	DATE 7-30-80	CHKD. F. GALE
DRAWING NO. 605-G-043		SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-6	SURFACE	44°N	N.30°E			
	0-100	33°30'N	N.18°30'E	65°30'-84"N	99.99'	0.9998
	100-200	20°-30'N	N.7°30'E	67°31'-38"N	99.98'	0.9998
	200-300	47°30'N	N.18°30'E	47°33'-12"N	99.97'	0.9991
	300-330	46°-18'N	N.18°30'E	46°-18'-19"N	29.99'	0.9991
	330-336	46°-18'N	N.18°-30'E	46°-18'-19"N	6.99'	0.9991
			TD. 336.0'			
GM-6	SURFACE	88°N	N.30°E	88°N	35.00'	1.0000
	0-35	88°N	N.30°E			
			TD. 35.0'			





DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-10	SURFACE	46° N	N 16° E			
	0-101	46° N	N16°-30'E	46°-00'-35"N	100.98'	0.9998
	101-181	46°-45'N	N17°-30'E	46°-46'-38"N	59.97'	0.9995
	181-189	46°-45'N	N17°-30'E	46°-46'-38"N	8.00	0.9995
	TD. 189.0'					
GM-11	SURFACE	65° N	N 17° E			
	0-100	64°-45'N	N17°-15'E	64°-48'-01"N	99.99'	0.9999
	100-200	64° N	N 18°-30'E	64°-02'-32"N	99.96	0.9998
	200-293	65°-30'N	N 18°-30'E	65°-35'-25"N	92.97	0.9997
	293-295	65°-30'N	N 18°-30'E	65°-35'-25" N	2.00	0.9997
	TD. 295.0'					

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GAP MOUNTAIN
DRILL HOLE PROFILE
GM-10 & GM-11

SCALE 1" = 20'	APPR.	DATE	
DRAWN D. HANSON	DATE 7-24-80	CHKD. F. GALE	
DRAWING NO. 605-G-047		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
57-1	SURFACE	28°N	N.5°E			
	0-81	28°N	N.5°E	28°N	81.0'	1.0000
	T.D. 81.0'					

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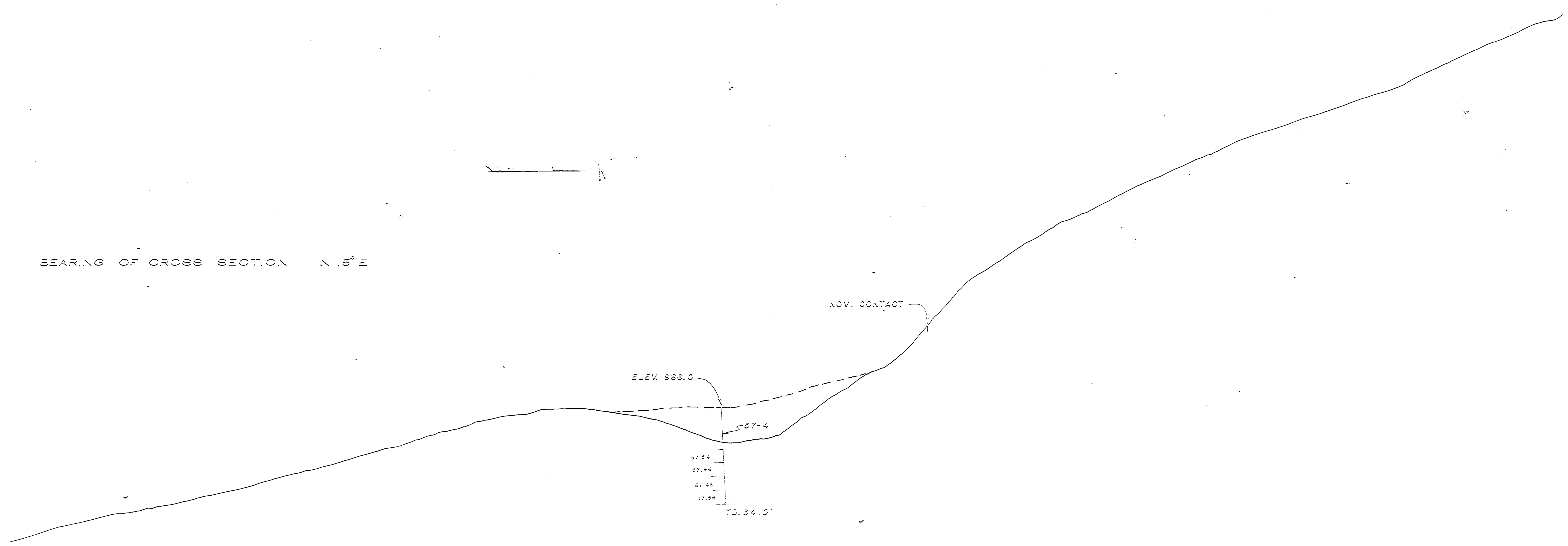
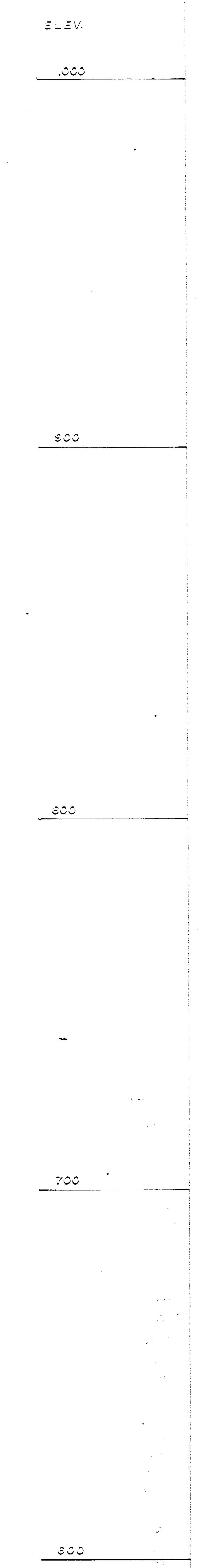
GAP MOUNTAIN
DRILL HOLE PROFILE
57-1

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 8-1-80	CHKD. F. GALE
DRAWING NO.	605-G-052	SHEET OF





DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
57-4	SURFACE	87°-30'N	N.15°E			
	0-34	87°-30'N	N.15°E	87°-30'N	34.0'	1.0000

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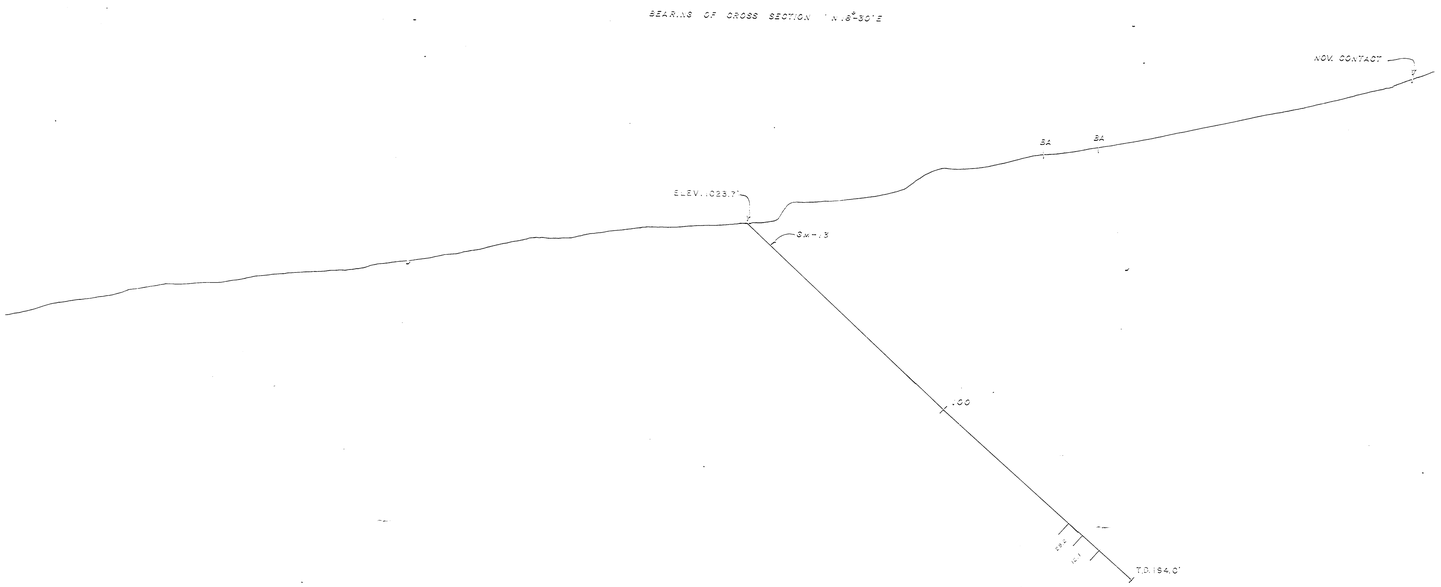
GAP MOUNTAIN
DRILL HOLE PROFILE
57-4

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 8-3-60	CHKD. F. GALE
DRAWING NO. 605-G-054		SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-13	SURFACE	45° N	N 18°-30' E			
	0-100	42°-30' N	N 18°-30' E	42°-30' N	100.00'	1.0000
	100-190	4.° N	N 18°-30' E	4.° N	90.00'	1.0000
	190-194	4.° N	N 18°-30' E	4.° N	4.00'	1.0000
	TD 194.0'					

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GAP MOUNTAIN
DRILL HOLE PROFILE
GM-13

SCALE 1" = 20'	APPR.	DATE	
DRAWN D. PARRISH	DATE 7-25-80	CHKD.	F. SALE
DRAWING NO. 205-G-043	SHEET	OF	

Fancy Hill Geologic Map 1 of 4 7.5 min Handcolored 7/17/81

GEOLOGY BY FERRYL GALE

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GEOLOGIC MAP
FANCY HILL DISTRICT

SCALE 1" = 500' | APPR. F.C. GALE | DATE 7-17-81
DRAWN M. BRIDGES | DATE 7-17-81 | CHKD.

SHEET 1 OF 4
DRAWING NO.

GAP MOUNTAIN BARITE PIT

N

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
22-A	SURFACE	40°N	N20°E			
	0-222	40°N	N20°E	40°N	222'	1.000
57-11	SURFACE	52°N	N20°E			
	0-100	52°N	N20°E	52°N	100'	1.000
	100-200	48°-30'N	N20°E	48°-30'N	100'	1.000
	200-245	42°-30'N	N20°E	42°-30'N	45'	1.000
	245-377	38°N	N20°E	38°N	132'	1.000
57-14	SURFACE	56°N	N20°E			

HOLE NOT COMPLETED

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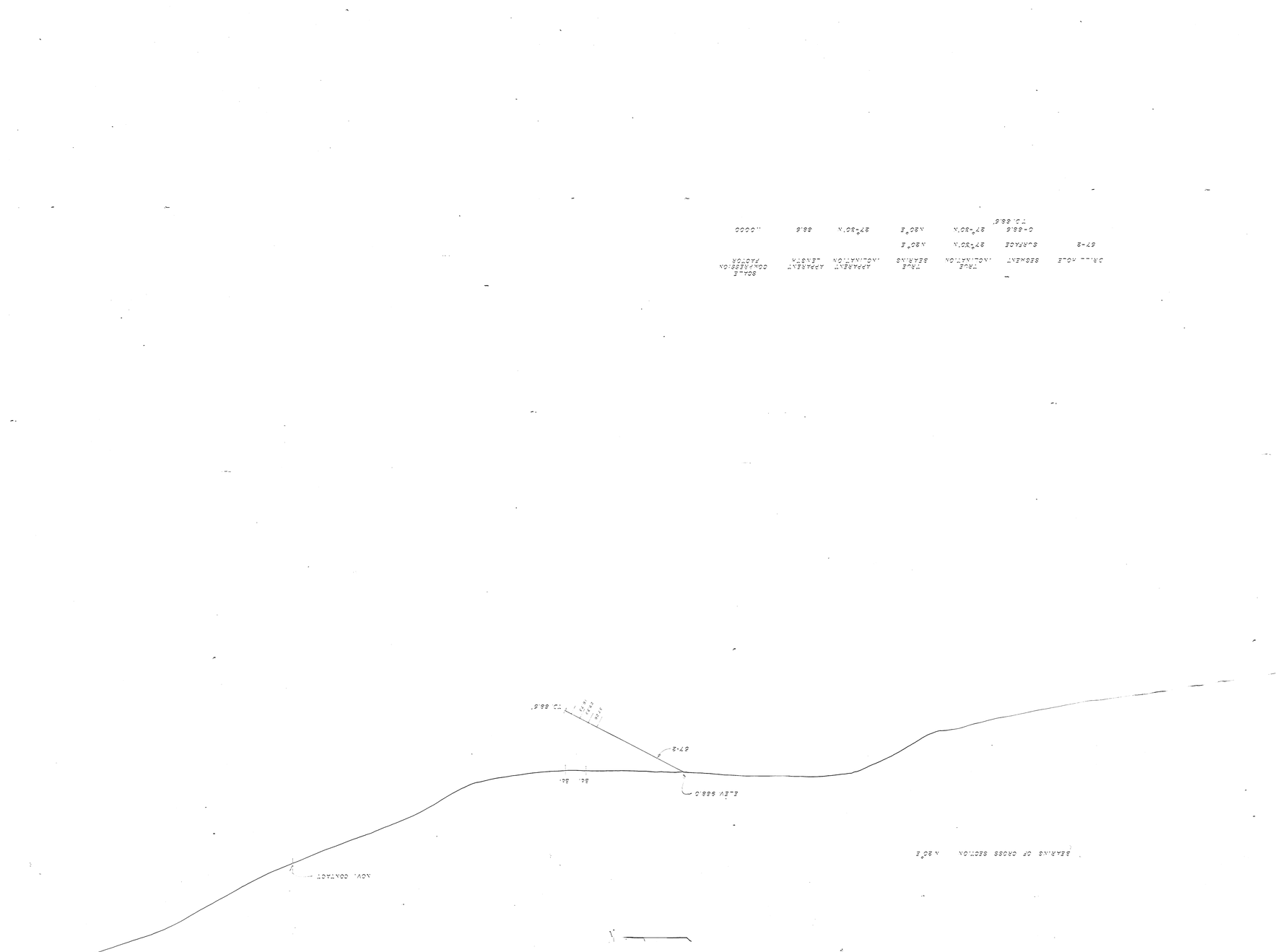
GAP MOUNTAIN
DRILL HOLE PROFILE
22-A, 57-11 & 57-14

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-16-80	CHKD. F. GALE
DRAWING NO. 605-G-057		SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE CONVERSION FACTOR
87-2	SURFACE	87°30'N	N.30°E			
	0-88.6	87°30'N	N.30°E	87°30'N	88.6	1.0000
	T.D. 88.6'					



MOUSTON	TEXAS		
GAR MOUNTAIN			
DRILL HOLE SECTION			
87-2			
SCALE 1" = 20'	APPR.	DATE	
DRAWN D. PARSLEY	DATE 8-5-80	CHKD. A. BALL	DATE
DRAWING NO. 607-S-058		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-15	SURFACE	44° N	N 22° E			
	0-100	44°-15' N	N 22°-30' E	44°-15'-04" N	100.00'	1.0000
	100-200	43° N	N 23° E	43°-00'-16" N	99.99'	0.9999
	200-280	43°-15' N	N 10° E	43°-52'-56" N	79.08'	0.9999
	280-288	43°-15' N	N 10° E	43°-52'-56" N	7.92'	0.9999
	T.D. 288.0'					

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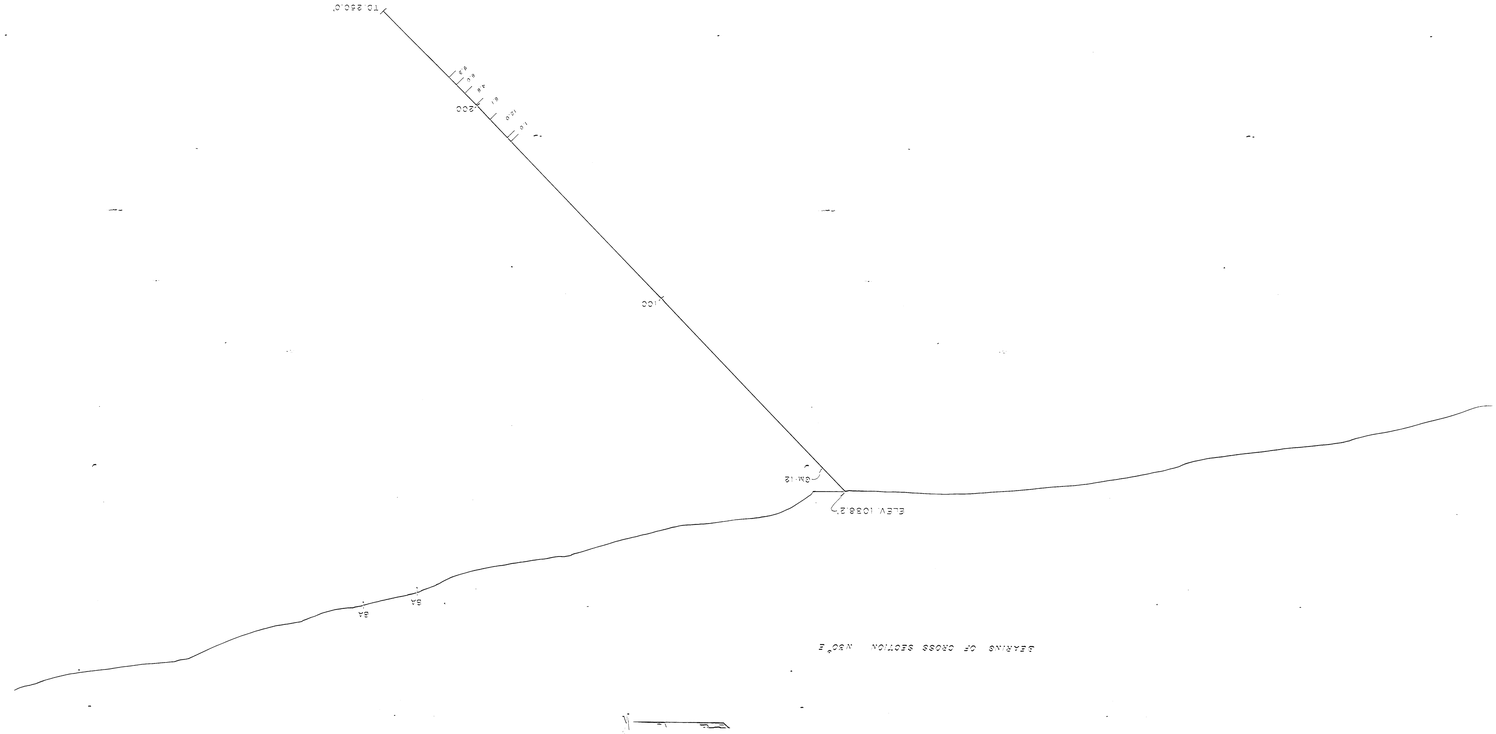
HOUSTON TEXAS

GAP MOUNTAIN
DRILL HOLE PROFILE
GM-15

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-25-80	CHKD. F. GALE
DRAWING NO. 605-2-050		SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
BM-12	SURFACE	46° N	N 30° E			
	0-100	46° N	N38°42'E	46°00'-01" N	100.00'	1.0000
	100 - 200	46°46'N	N38°30'E	46°46'-32"N	99.99'	0.9998
	200-244	46° N	N38°30'E	46°00'-38"N	44.99'	0.9998
	244-260	46° N	N38°30'E	46°00'-33"N	6.00'	0.9998
	TD: 260.0'					

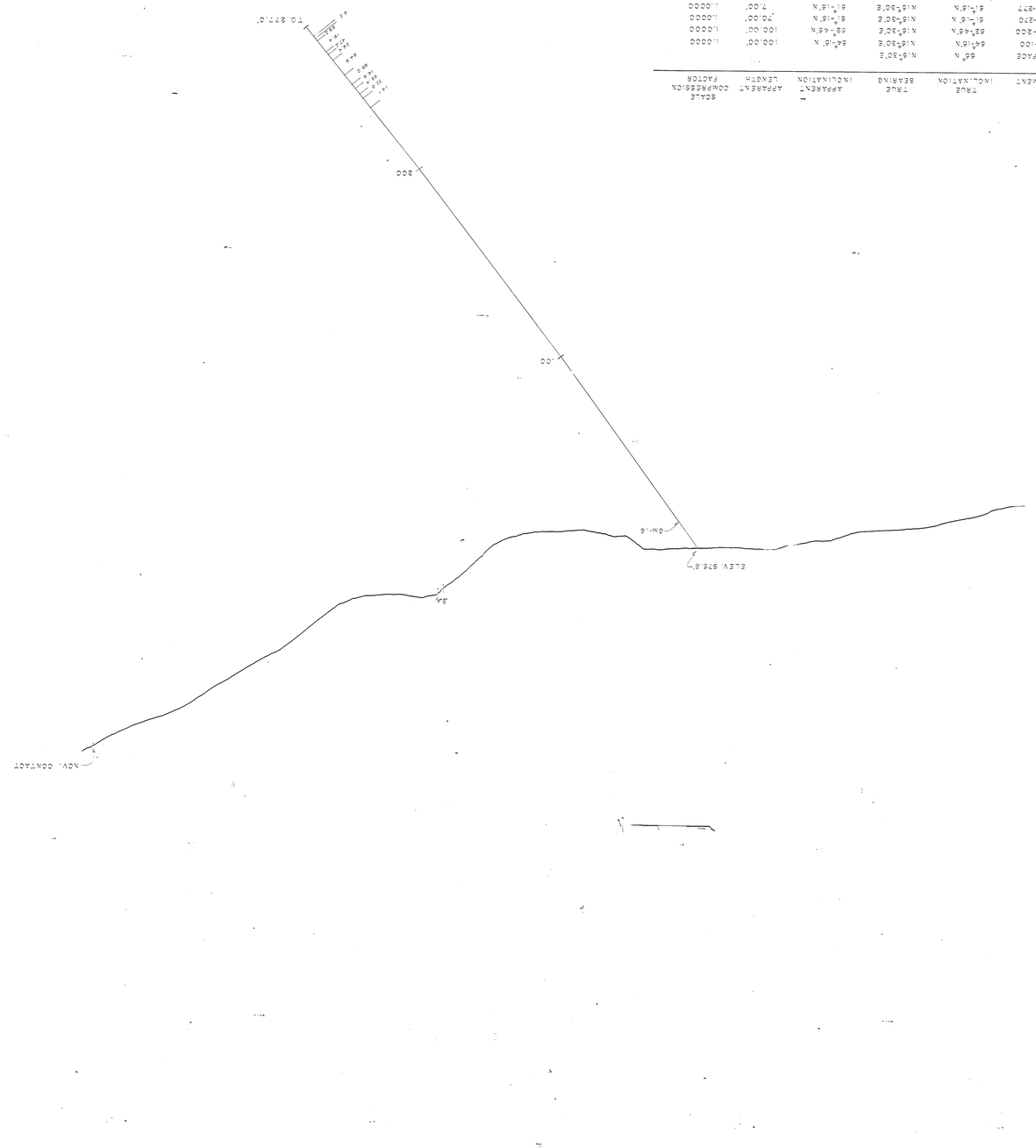
BEARING OF CROSS SECTION N30°E



Williams	HOUSTON		TEXAS
GAP MOUNTAIN PROFILE			
SECTION G-G'-1-2			
SCALE 1" = 20'	APPR.	DATE	
DRAWN D. MARTIN	DATE 7-24-85	CHKD. J. BLUE	CHKD.
DRAWING NO.	605-G-048		SHEET 6 OF

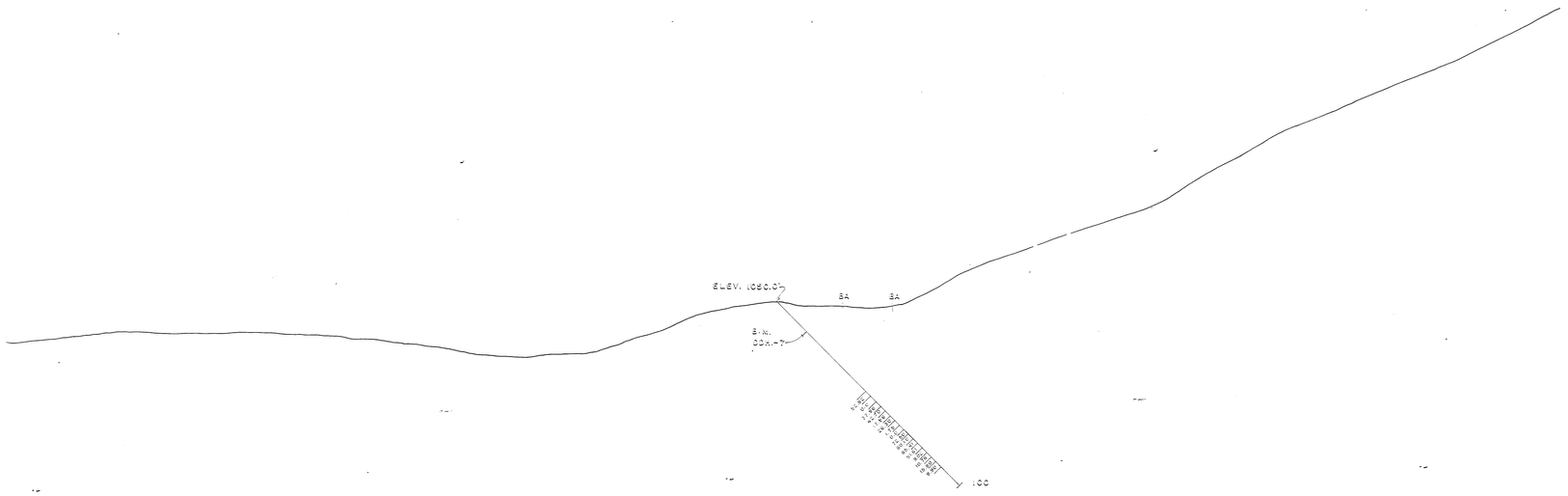
DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-16	SURFACE	45°	N 16½°E			
	0-100	44±1/2°N	N16½°E	44±1/2°	100.00'	1.0000
	100-200	42±1/2°N	N 16½°E	43½°N	100.00'	1.0000
	200-270	41±1/2°N	N16½°E	41±1/2°N	70.00'	1.0000
	270-277	41±1/2°N	N16½°E	41±1/2°N	7.00'	1.0000

T.D. 277.0'



GAS MOUNTAIN DRILL HOLE PROFILE GM-16			
SCALE 1" = 20'	APPR.	DATE	
DRAWN D. Haddrix	CHK'D	7-28-80	CHKD. P. CALE
DRAWING NO.			SHEET OF

Williams
HOUSTON TEXAS



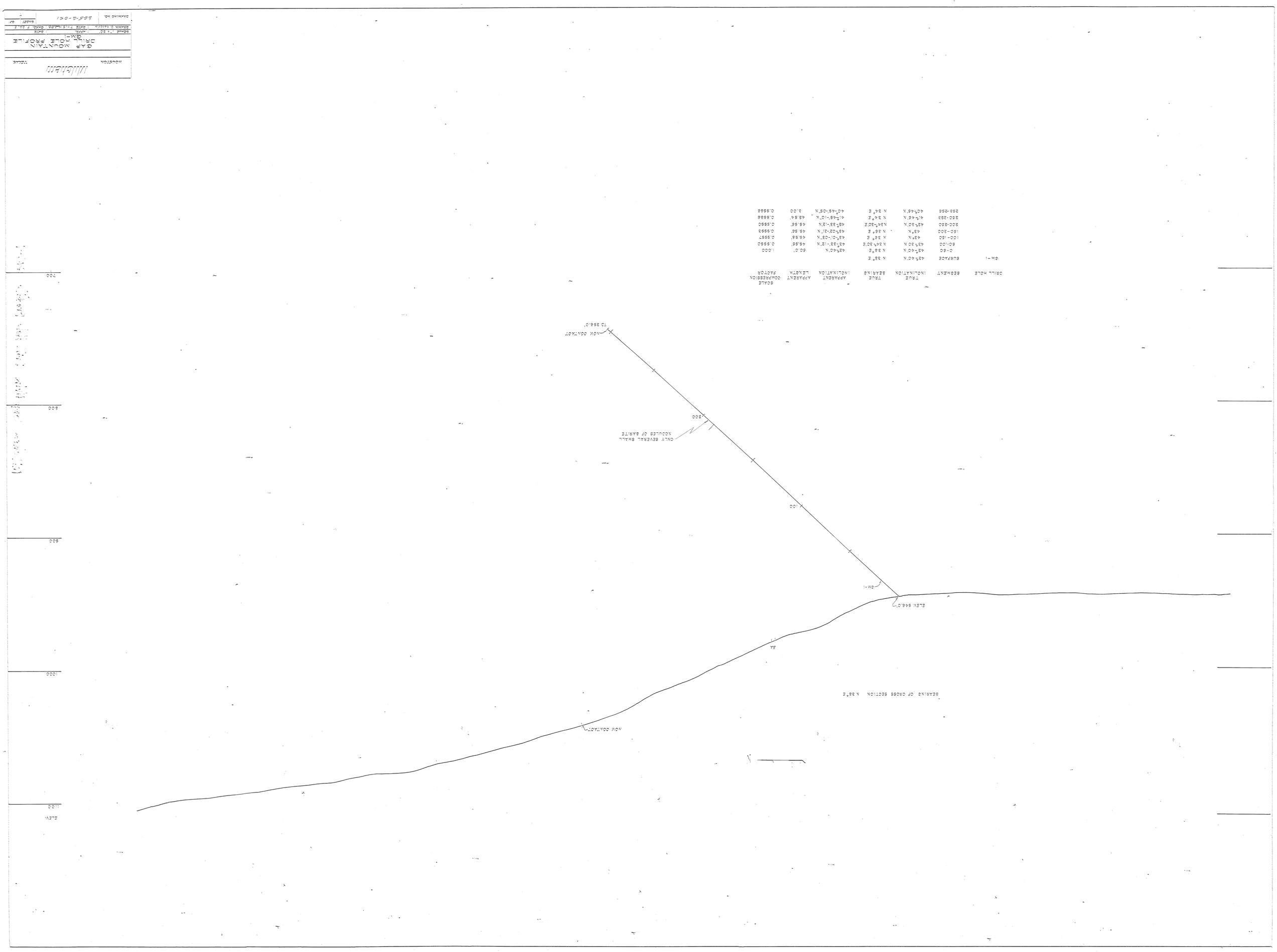
DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
B.M. DDH-7	SURFACE	46° N	N 24° E			
	0-100	46° N	N 24° E	46° N	100.00'	1.0000

Western
HOUSTON TEXAS

GAP MOUNTAIN
DRILL HOLE PROFILE
B.M. DDH-7

SCALE 1" = 20'	APPR.	DATE	
DRAWN D. HANSEN	DATE 7-28-80	CHKD. & CALC.	
DRAWING NO. 605-6-658		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-1	SURFACE	42°40'N	N 38°E			
	0-60	42°40'N	N 38°E	42°40'N	60'0"	1.000
	60-100	42°30'N	N 34°30'E	42°33'-12"N	49.58'	0.9990
	100-150	42°N	N 36°E	42°01'-03"N	49.58'	0.9997
	150-200	42°N	N 36°E	42°02'-21"N	49.58'	0.9993
	200-250	42°30'N	N 34°30'E	42°38'-13"N	49.58'	0.9990
	250-283	41°42'N	N 34°E	41°48'-10"N	43.84'	0.9988
	283-286	40°42'N	N 34°E	40°49'-08"N	3.00	0.9988



Millcreek
MOUNTAIN
TITANIUM

GAP MOUNTAIN
DRILL HOLE PROFILE
GM-1

SCALE 1"= 20'	APPVD.	DATE	SHEET # 2 OF 2
DRAWN D. HANSEN	DATE 7-16-2020	CHKD.	SHEET

JOB NUMBER 505-9-001

ELEV.

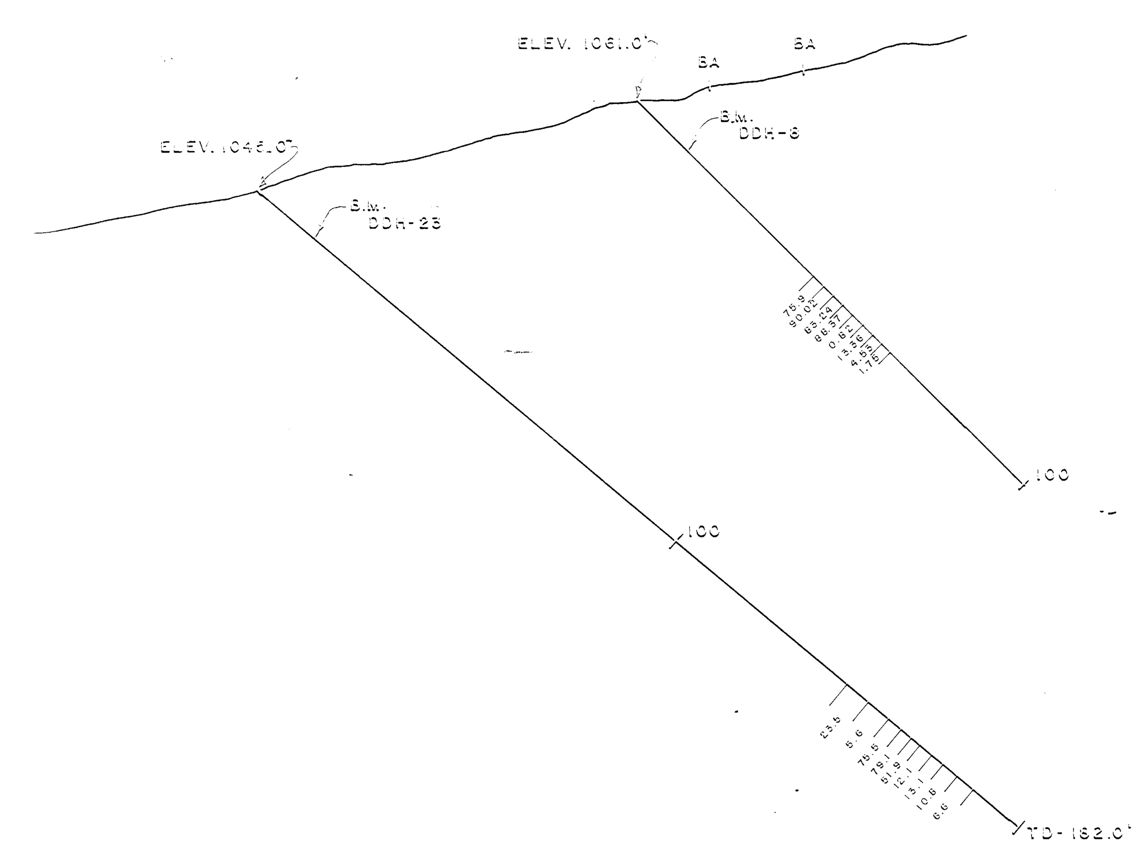
1200

1100

1000

900

800



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
B.M. DDH-23	SURFACE	40° N	N 24° E			
	0-100	40° N	N 24° E	40° N	100.00'	1.0000
	100-182	40° N	N 24° E	40° N	82.0	1.0000
	T D 182.0'					
B. M. DDH-8	SURFACE	46° N	N 20° N			
	0-100	46° N	N 20° E	40°-04'-12" N	99.88'	0.9988

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HOUSTON TEXAS

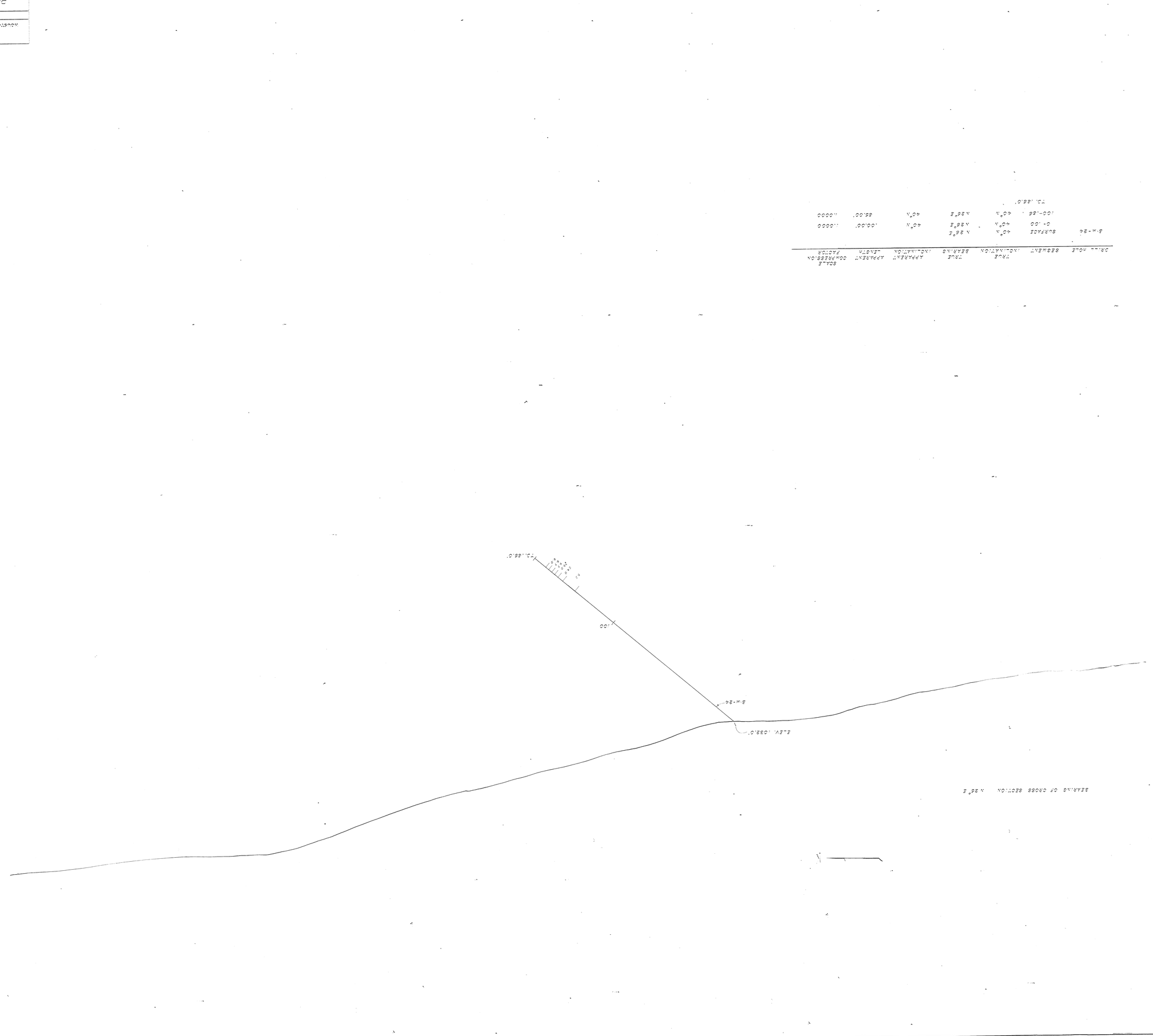
GAP MOUNTAIN
DRILL HOLE PROFILE
B.M.-DDH-23 & B.M.-DDH-8

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-28-80	CHKD. F. GALE
DRAWING NO.	605-G-059	SHEET OF

DRILL HOLE	SEGMENT	INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
S-W-24	SURFACE	40°∧	N 28°E	40°∧	100.00'	1.0000
	0+ 00	40°∧	N 28°E			
	100-186	40°∧	N 28°E	40°∧	85.00'	1.0000

T.D. 286.0'

SEARLS OF CROSS SECTION N 28° E



Millican	HOUSTON	TEXAS	
GAP MOUNTAIN PROFILE			
DRILL HOLE S-W-24			
SCALE 1" = 20'	APPR.	DATE	
DRAWN D. MILLICAN	DATE 8-4-80	CHKD. & SCALE	
DRAWING NO. 88F-G-080		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
GM-8	SURFACE	50° N	N 15° E			
	0-110	51°-15' N	N 18°-30' E	51°-18'-08" N	109.92'	0.9993
	110-210	50° N	N 11°-30' E	50°-03'-10" N	99.92'	0.9992
	210-223	50° N	N 11°-30' E	50°-03'-10" N	12.99'	0.9992
	T.D. 223.0'					
GM-9	SURFACE	67° N	N 15° E			
	0-105	67° N	N 16°-30' E	67°-00'-25" N	104.99'	0.9999
	105-205	65° N	N 17° E	65°-00'-48" N	99.99'	0.9999
	205-305	63°-30' N	N 16°-30' E	63°-30'-28" N	99.99'	0.9999
	305-367	60°-45' N	N 16°-30' E	60°-45'-30" N	61.99'	0.9999
	367-375	60°-45' N	N 16°-30' E	60°-45'-30" N	8.00'	0.9999
	T.D. 375.0'					

Milchem
HOUSTON TEXAS

GAP MOUNTAIN
DRILL HOLE PROFILE
G.M.-8 & G.M.-9

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hendrix	DATE 7-23-80	CHKD. F. GALE
DRAWING NO. 605-6-046	SHEET	OF

N

Ms Sm Opc Obf Ow MDal MDam MDau

14 15 22 23 24 25 26 27 34 35 36 Sb

GEOLOGY BY F. C. GALE

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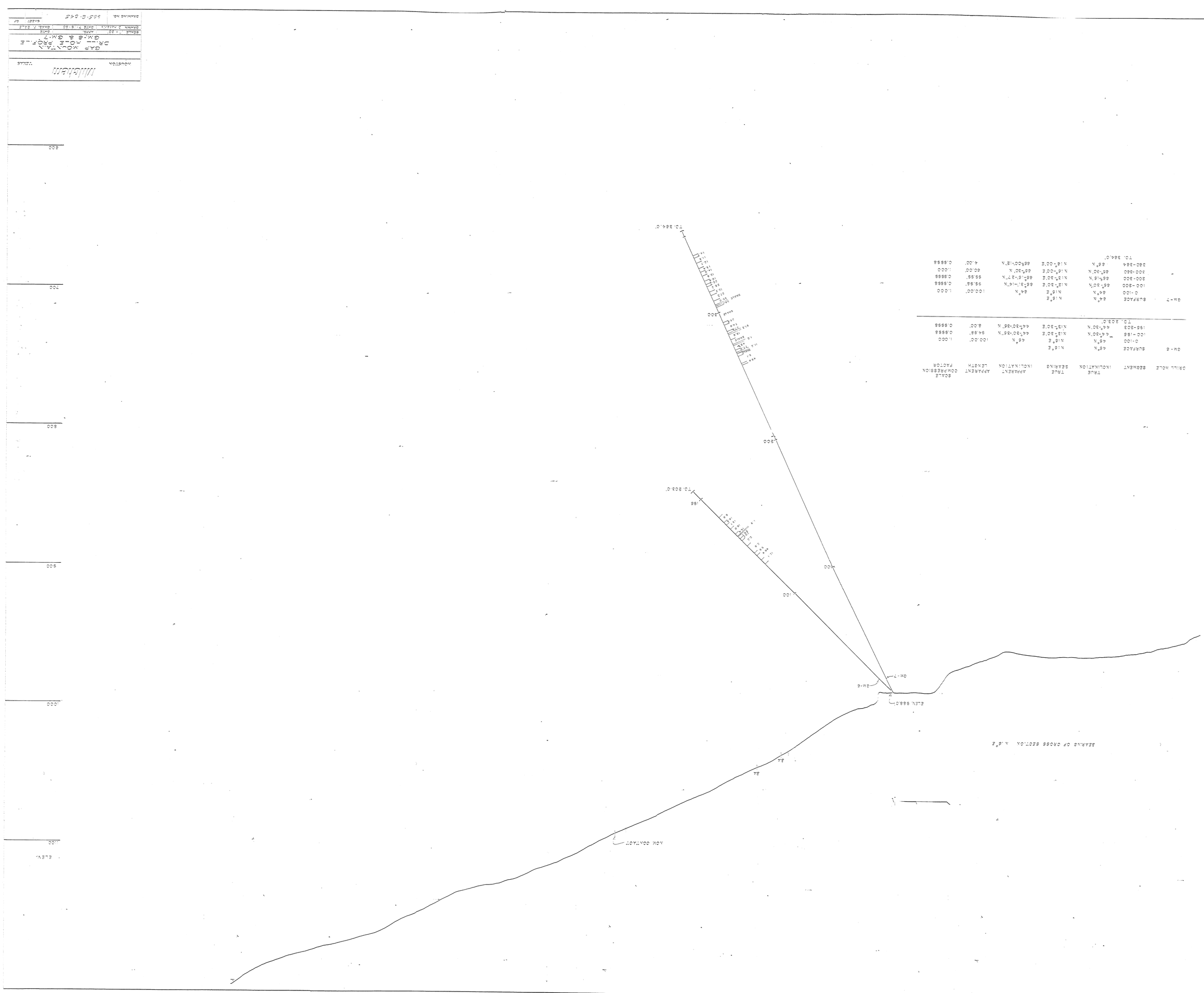
HOUSTON TEXAS

GEOLOGIC MAP
FANCY HILL DISTRICT

SCALE 1"=500'	APPR. F.C. GALE	DATE 7-17-81
DRAWN M. BRIDGES	DATE 7-8-81	CHKD.
DRAWING NO.	SHEET 2	OF 4

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE DOWNGRADE FACTOR
GM-8	SURFACE	48°N	N.18°E			
	0-100	48°N	N.18°E	48°N	100.00'	1.000
	100-158	47°30'N	N.18°30'E	47°30'-48'N	94.98'	0.9998
	158-328	44°30'N	N.18°30'E	44°30'-48'N	8.00'	0.9998
	TD. 328.0'					
GM-7	SURFACE	64°N	N.18°E			
	0-100	64°N	N.18°E	64°N	100.00'	1.000
	100-800	63°30'N	N.18°-30'E	63°31'-14'N	99.86'	0.9998
	800-300	63°15'N	N.18°-30'E	63°-15'-27'N	99.99'	0.9998
	300-360	63°-30'N	N.18°-00'E	63°-30'N	60.00'	1.000
	360-364	63°N	N.18°-00'E	63°00'-12'N	4.00'	0.9998
	TD. 364.0'					



GAP MOUNTAIN
DRILL HOLE PROFILE
GM-5 & GM-7

SCALE 1"=200'	APPR.	DATE	
DRAWN J. MARTIN	DATE 7-18-80	CHKD. F. BALL	
DRAWING NO. 605-G-645			SHEET 01

Millheim
HOUSTON TEXAS

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
87-8	SURFACE 0 - 79.4 TO. 79.4'	46°N	N 80°E	46°N	79.4'	1.0000

700

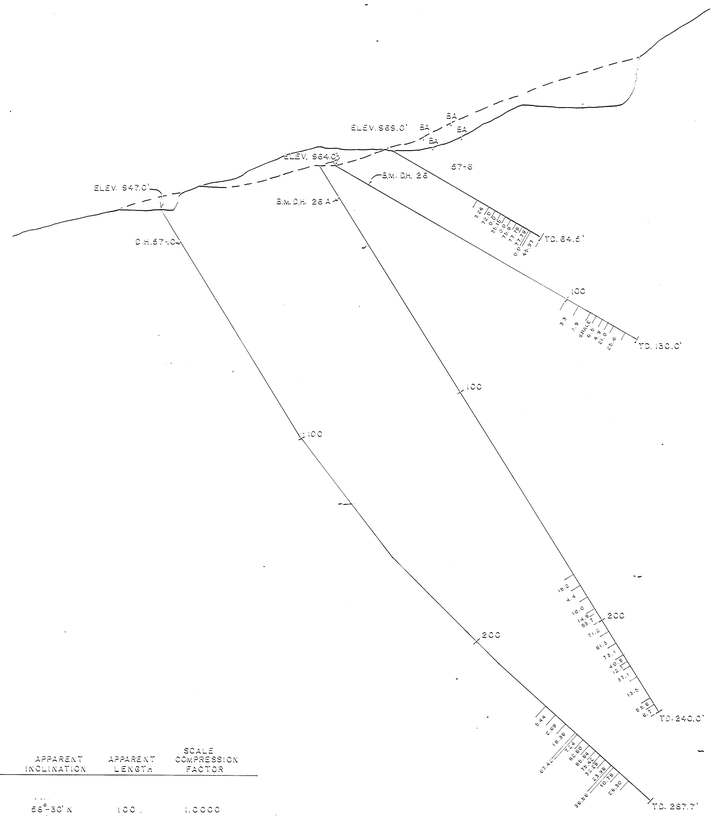
800

Williamson
WATERVOO IOWA

GAP MOUNTAIN
DRILL HOLE PROFILE
87-8

SCALE 1" = 50'	APPR.	DATE	
DRAWN D. Hamrick	DATE 7-29-80	CHKD. & SCALE	
DRAWING NO. GAP-8-DP8		SHEET	OF

BEARING OF CROSS SECTION N 15° E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
57-10	SURFACE	58°-30' N	N 15° E			
	0-100	58°-30' N	N 15° E	58°-30' N	100	1.0000
	100-156	52°-30' N	N 15° E	52°-30' N	56	1.0000
	156-212	45° N	N 15° E	45° N	56	1.0000
	212-287.7	42° N	N 15° E	42° N	75.7	1.0000
	T.D. 287.7'					
B.M. 26	SURFACE	30° N	N 15° E			
	0-130	30° N	N 15° E	30°-02'-03" N	129.87	0.9990
	T.D. 130.0'					
B.M. 26-A	SURFACE	58° N	N 15° E			
	0-240	58° N	N 15° E	58°-02'-07" N	239.91	0.9998
	T.D. 240.0'					
57-6	SURFACE	30° N	N 19 E			
	0-84.5	30° N	N 19 E	30°-03'-38" N	84.38'	0.9982
	T.D. 84.5'					

ELEV.

1000

900

800

700

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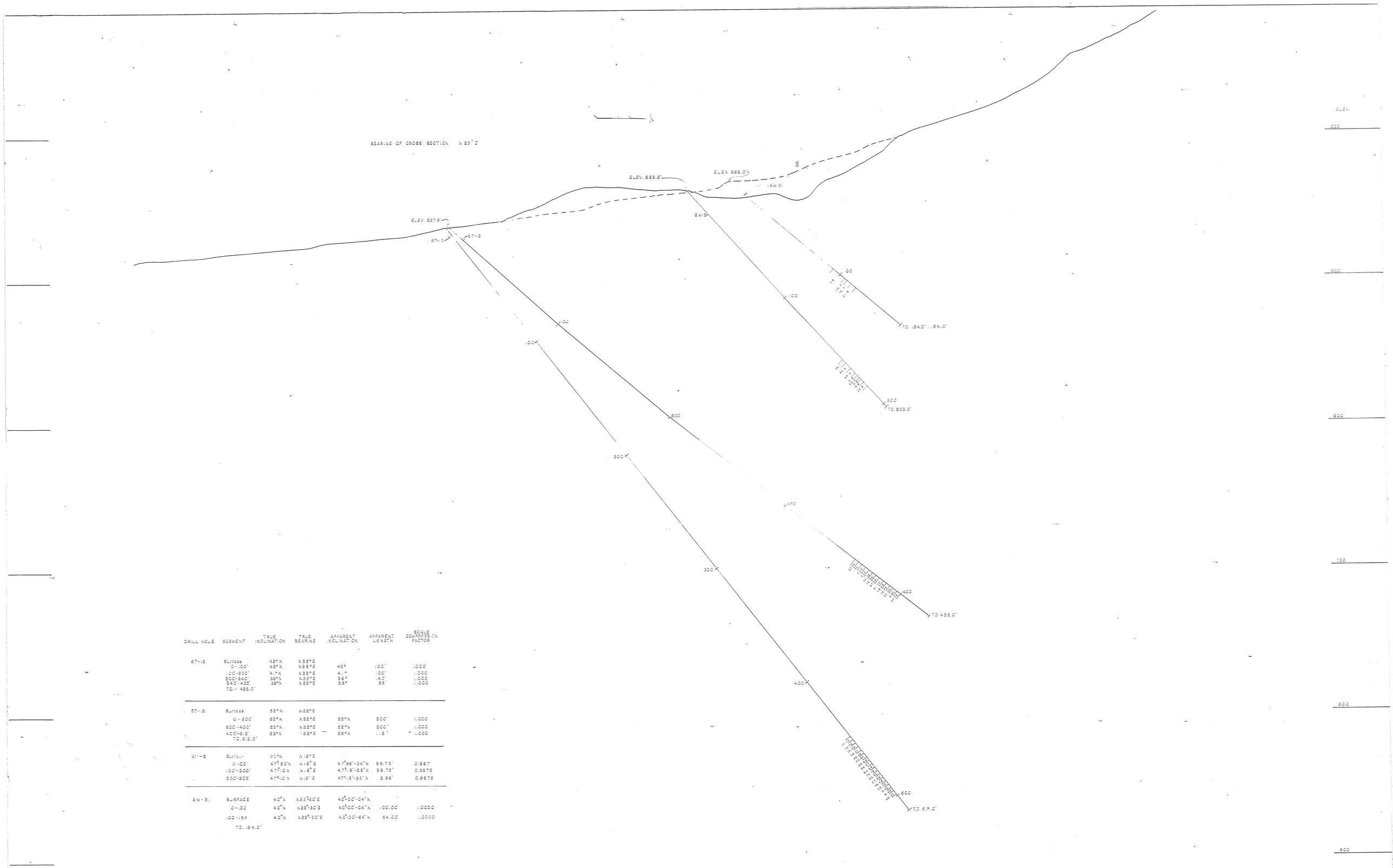
GAP MOUNTAIN
DRILL HOLE PROFILE
57-6, B.M. 26, B.M. 26A & 57-10

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hardin	DATE 7-23-80	CHKD. F. GALE
DRAWING NO. 605-G-055		SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
57-12	Surface	42° N	N 22° E			
	0-100'	42° N	N 22° E	42°	100'	1.000
	100'-200'	41° N	N 22° E	41°	100'	1.000
	200'-340'	38° N	N 22° E	38°	140'	1.000
	340'-425'	38° N	N 22° E	38°	85'	1.000
	T.D.= 425.0'					
57-13	Surface	52° N	N 22° E			
	0-200'	52° N	N 22° E	52° N	200'	1.000
	200'-400'	52° N	N 22° E	52° N	200'	1.000
	400'-512'	52° N	N 22° E	52° N	112'	1.000
	T.D. 512.0'					
57-2	Surface	50° N	N 18° E			
	0-100'	47°-50' N	N 18° E	47°-59'-24" N	99.75'	0.997
	100'-200'	47°-10' N	N 18° E	47°-19'-25" N	99.75'	0.9975
	200'-203'	47°-10' N	N 18° E	47°-19'-25" N	2.99'	0.9975
BM-21	SURFACE	40° N	N 22°-30' E	40°-00'-04" N		
	0-100	40° N	N 22°-30' E	40°-00'-04" N	100.00'	1.0000
	100-154	40° N	N 22°-30' E	40°-00'-04" N	54.00'	1.0000
	T.D. 154.0'					

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HOUSTON TEXAS

GAP MOUNTAIN
DRILL HOLE PROFILE
57-12, 57-13, BM-2, & BM-2

SCALE 1" = 20'	APPR.	DATE
DRAWN D. Hoskins	DATE 7-15-80	CHKD. F. Gale
DRAWING NO. 605-G-042		SHEET OF

T. 44 S., R. 27 W.
T. 44 S., R. 26 W.
T. 43 S., R. 26 W.
T. 43 S., R. 25 W.
FANCY HILL MINE
MILCHEM INCORPORATED
SCALE 1"=1000'
DATE OF PHOTOGRAPHY 12-21-78
N

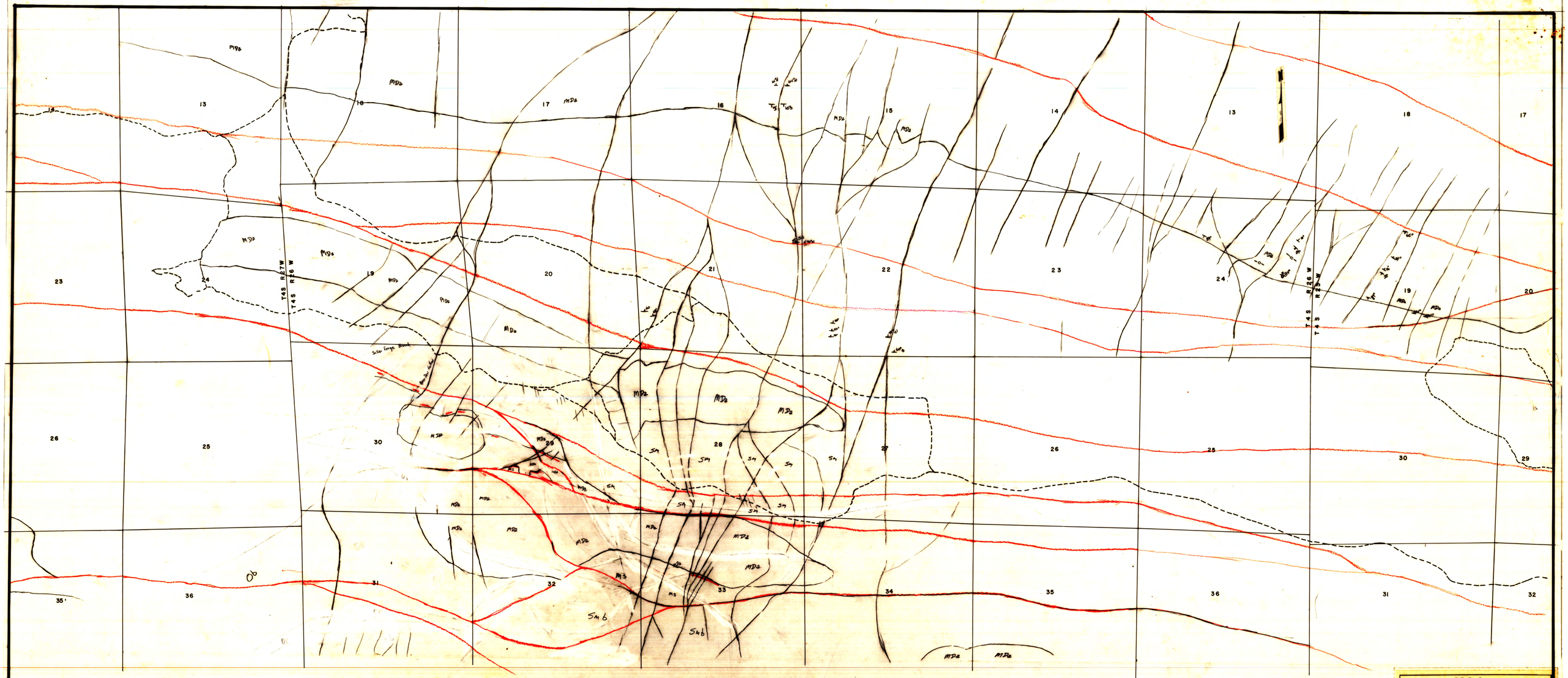
Callahan Mining Geochem

Per Gary Smith 10-19-82

Fancy Hill Area Arkansas

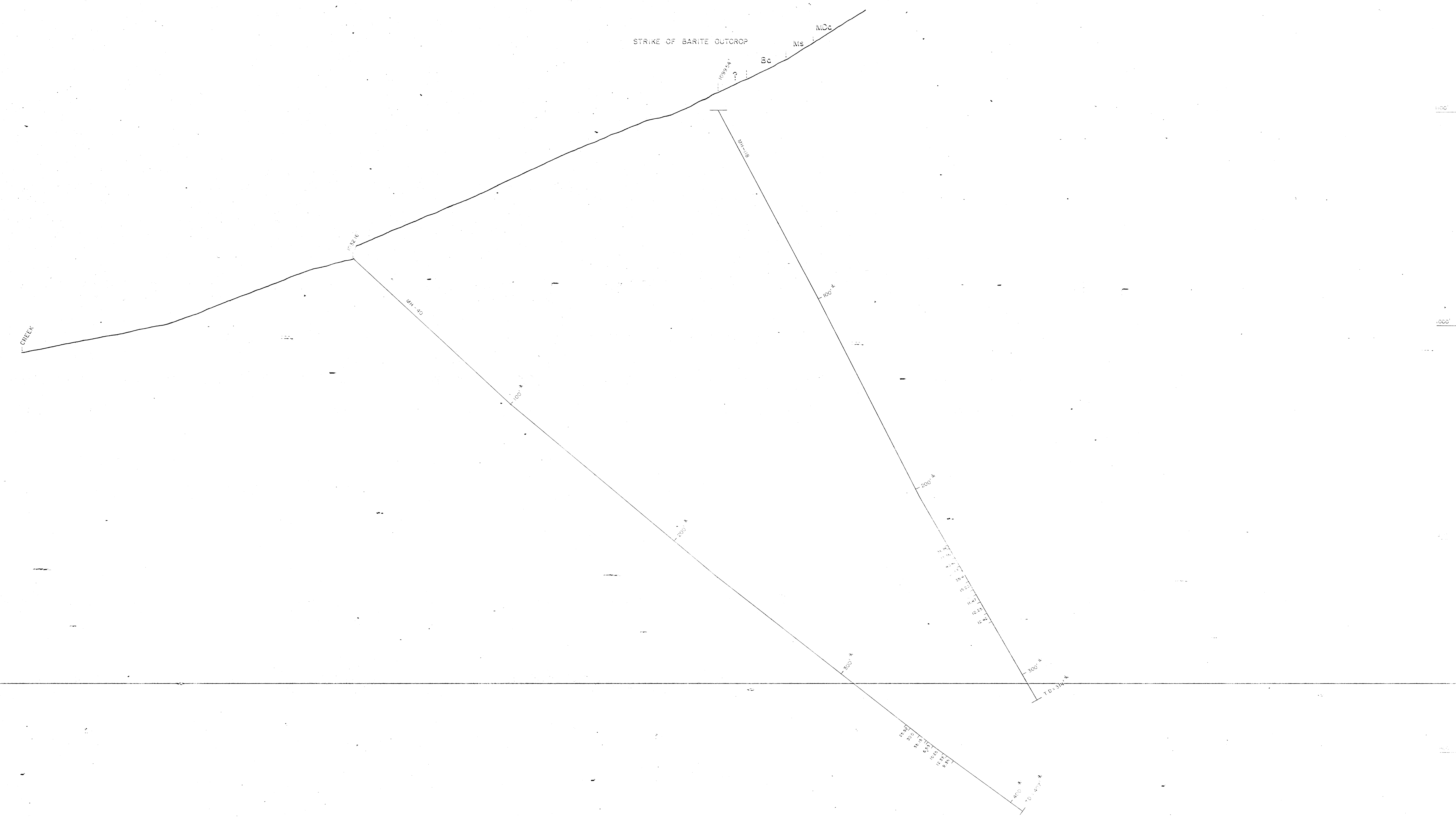
Samples analyzed by fusion

Barium
Zinc
Silver



Milchem	HOUSTON TEXAS
GEOLOGY MAP FANCY HILL MINING DISTRICT	
SCALE 1" = 2 1000'	APPR.
DRAWN Dan Hendrix	DATE 8-21-80
DRAWING NO. 605-G-063	DATE CHKD. FERRY-SALE SHEET OF

BEARING OF CROSS SECTION N33°29'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-40	0-100	43N	N31E	43°02'N	99.95'	0.9995
	100-227	40N	N32E	40°01'N	126.98'	0.9998
	227-257	38N	N34E	38°00'N	30.00'	1.0000
	257-357	38N	N28E	38°08'N	99.72'	0.9972
	357-407	36N	N29E	36°05'N	49.90'	0.9980
MH-118	0-100	62N	N32E	62°00'N	99.99'	0.9999
	100-205	63N	N32E	63°00'N	104.99'	0.9999
	205-314	60N	N32E	60°01'N	108.99'	0.9999

0 10 20 30 40 50
FEET

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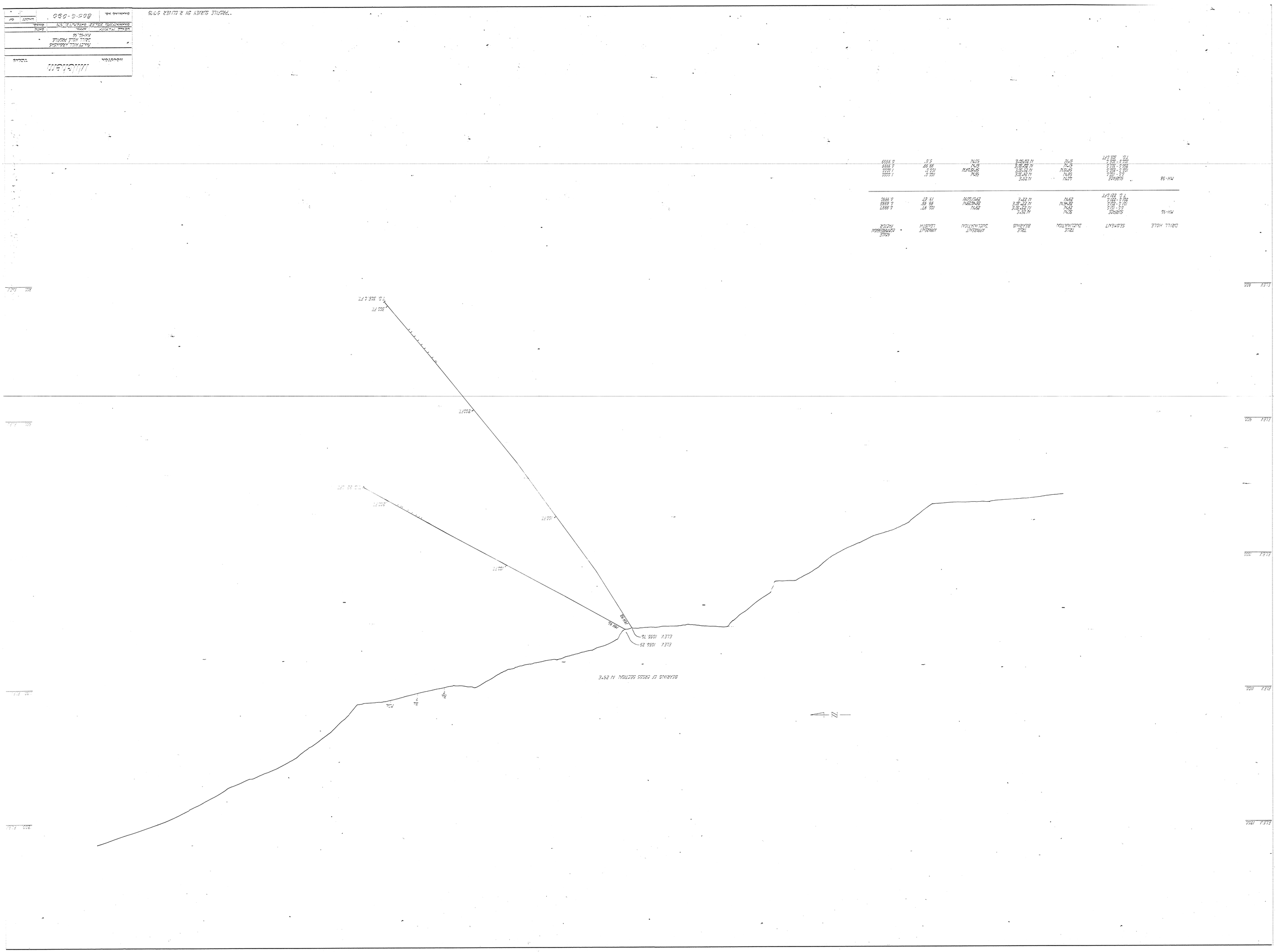
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-40 PHASE II DRILLING

SCALE 1" = 20'	APPR.	DATE
DRAWN B MAINEY	DATE 6/26/76	CHKD.
DRAWING NO.	805-G-687-C	SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	DOGLEG SEVERITY
MW-96	SURFACE	90°N	N 25°E	90°N	0.0	0.0000
	0.0 - 100.0	90°N	N 25°E	90°N	100.0	0.0000
	100.0 - 200.0	90°N	N 25°E	90°N	100.0	0.0000
	200.0 - 300.0	90°N	N 25°E	90°N	100.0	0.0000
	300.0 - 325.0	90°N	N 25°E	90°N	25.0	0.0000
	TD 325.0 FT					
MW-98	SURFACE	90°N	N 25°E	90°N	0.0	0.0000
	0.0 - 100.0	90°N	N 25°E	90°N	100.0	0.0000
	100.0 - 200.0	90°N	N 25°E	90°N	100.0	0.0000
	200.0 - 300.0	90°N	N 25°E	90°N	100.0	0.0000
	300.0 - 325.0	90°N	N 25°E	90°N	25.0	0.0000
	TD 325.0 FT					

PROFILE SURVEY BY R. OLIVER 5-7-95

Williams

FALCON HILL ARENAS
DRILL HOLE PROFILE
MW-96,98

865-G-099

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
NOV-4	0-40'	53°N	N-SE	53°N	40'	.9999
	40-80'	52°N	N-SE	52°N	80'	.9999
	80-110'	51°N	N-SE	51°N	109.9'	.9999
	110-142'	50°N	N-SE	50°N	141.9'	.9999
	142-230'	51°N	N-SE	51°N	229.9'	.9999
	230-300'	48°N	N-SE	48°N	299.9'	.9999
	300-340'	48°N	N-SE	48°N	339.9'	.9999
	340-370'	43°N	N-SE	43°N	369.9'	.9999
	370-400'	41°N	N-SE	41°N	399.9'	.9999

HOUSTON

Mitchell

TEXAS

FANCY HILL ARKANSAS
DRILL HOLE PROFILE
NOV-4 OR NOV-43

SCALE 1"=20'

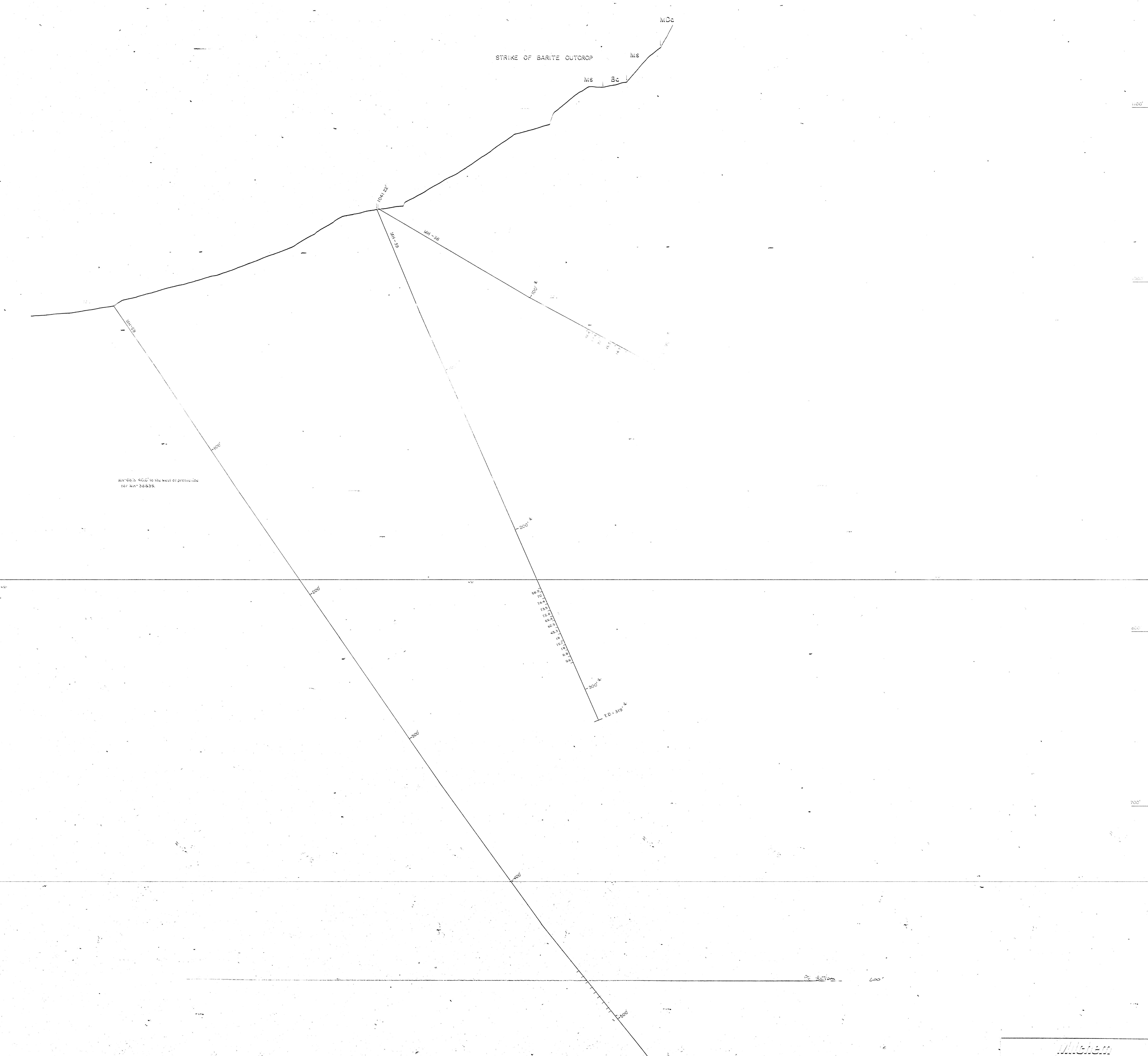
DRAWN BY: McDonald DATE: 8/2/79

CHECKED BY: DATE:

DRAWING NO. 805-C-089

SHEET 6 OF

BEARING OF CROSS SECTION N22°02'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-38	0-100	30N	N25E *	30°02'N	99.90'	0.9990
	100-182	28N	N25E *	28°02'N	81.91'	0.9990
MH-39	0-64	67N	N30E	67°12'N	63.91'	0.9985
	64-200	66N	N30E	58°15'N	135.63'	0.9973
	200-319	63N	N28E	66°07'N	118.89'	0.9991
MH 68	Surface	55N	N30E			
	0-130	* ASSUMED 55N	N30E	56°15'N	129.61'	.9970
	130-230	55N	N30E	56°15'N	99.68'	.9968
	230-330	55N	N30E	55°16'N	99.68'	.9968
	330-430	54N	N30E	54°16'N	99.67'	.9967
	430-534	51N	N30E	51°17'N	102.60'	.9962

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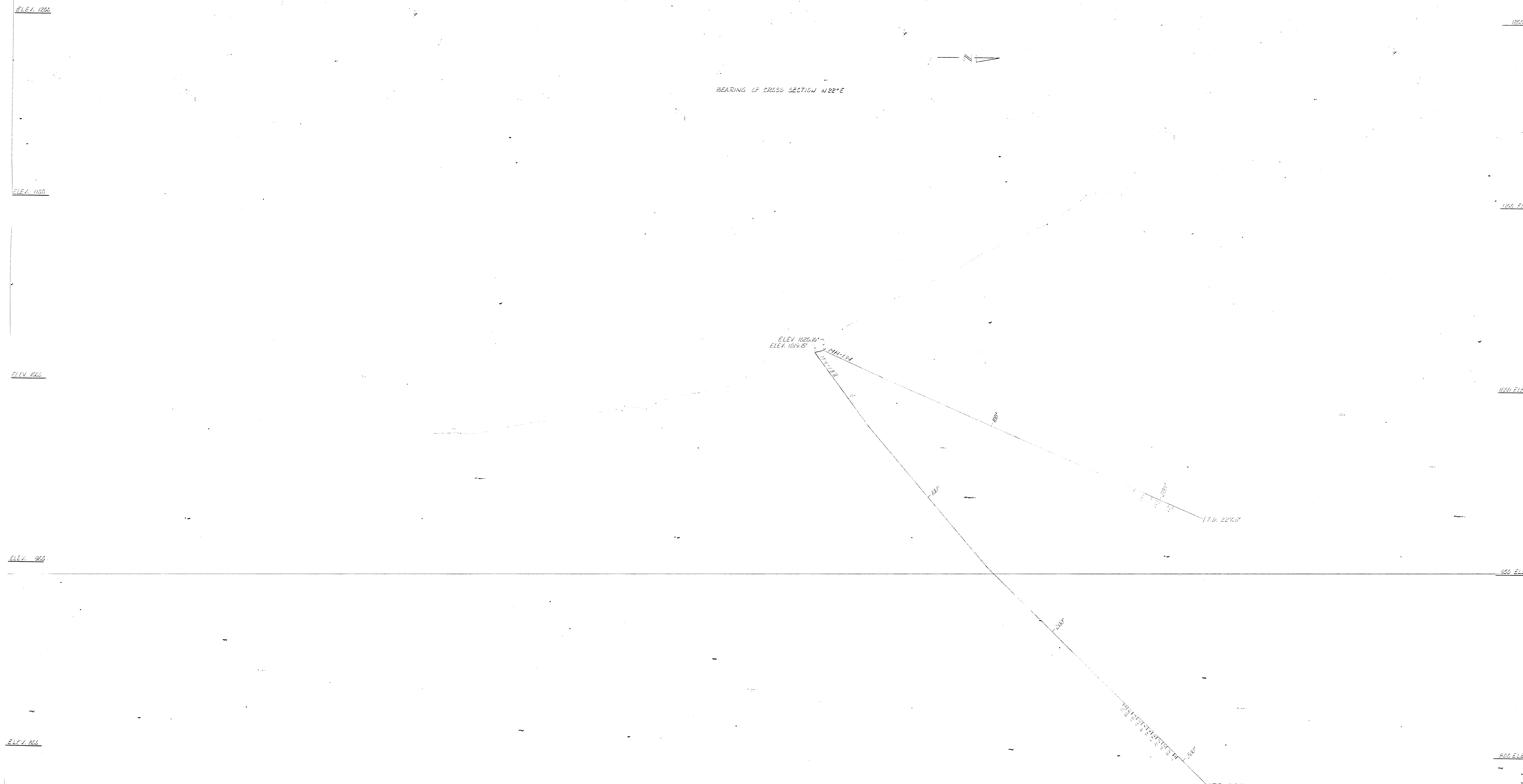
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-38, 39, 68

SCALE 1" = 50'	APPR.	DATE
DRAWN M.T. McDonnell	DATE 3/7/78	CHKD.
DRAWING NO. [illegible]		SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-133	SURFACE	55°N	N22°E			
	0.0 – 100.0	53°30'N	N22°E	53°30' N	100.0'	1.0000
	100.0 – 200.0	49°30'N	N22°30'E	49°30'04"N	100.0'	1.0000
	200.0 – 310.0	44°N	N22°E	44°00'N	110.0'	1.0000
	310.0 – 319.0	44°N	N22°E	44°N	9.0'	1.0000
	T.D. 319.0'					
MH 134	SURFACE	25°N	N20°E			
	0.0 – 70.0	24°45'N	N21°E	24°45'12"N	69.99'	0.9999
	70.0 – 160.0	23°45'N	N20°30'E	23°45'03"N	90.00'	1.0000
	160.0 – 225.0	23°N	N19°30'E	23°00'03"N	65.00'	1.0000
	225.0 – 227.0	23°N	N19°30'E	23°00'03"N	2.00'	1.0000
	T.D. 227.0'					

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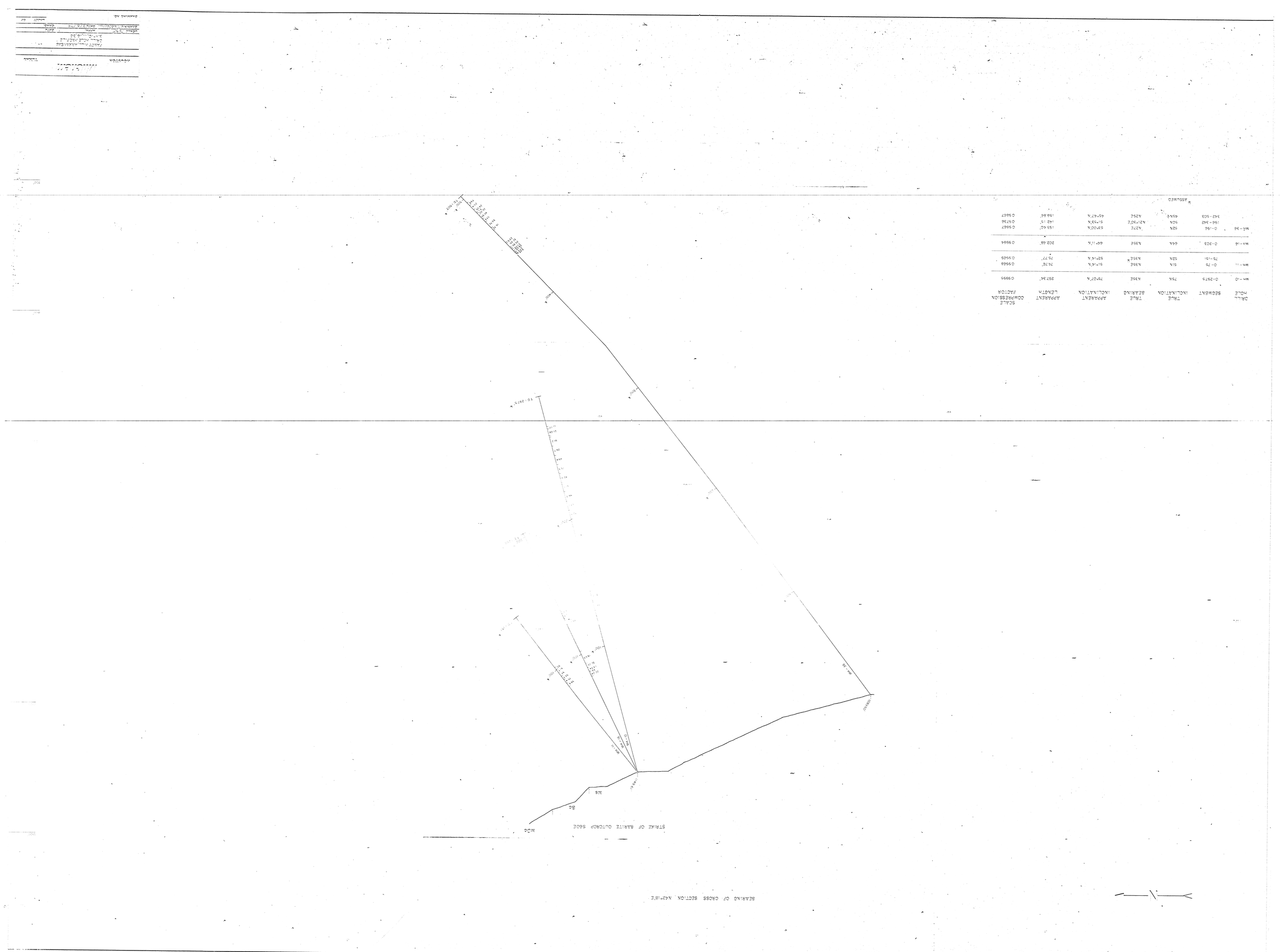
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-133 & 134

SCALE 1" = 20.0' | APPR. | DATE
DRAWN T.C. KISNER | DATE SEPT 26, 1979 | CHKD. FERRIL GALE
DRAWING NO. | SHEET | OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-10	0-297.5	75N	N35E	75°07'N	297.34'	0.9995
MH-11	0-75	51N	N35E	51°14'N	74.76'	0.9968
	75-151	52N	N35E*	52°14'N	75.77'	0.9969
MH-16	0-203	64N	N35E	64°11'N	202.68'	0.9984
MH-36	0-196	52N	N27E	53°00'N	193.40'	0.9967
	196-342	50N	N21°30'E	51°53'N	142.15'	0.9736
	342-503	45N	N35E	45°47'N	158.86'	0.9867

* ASSUMED

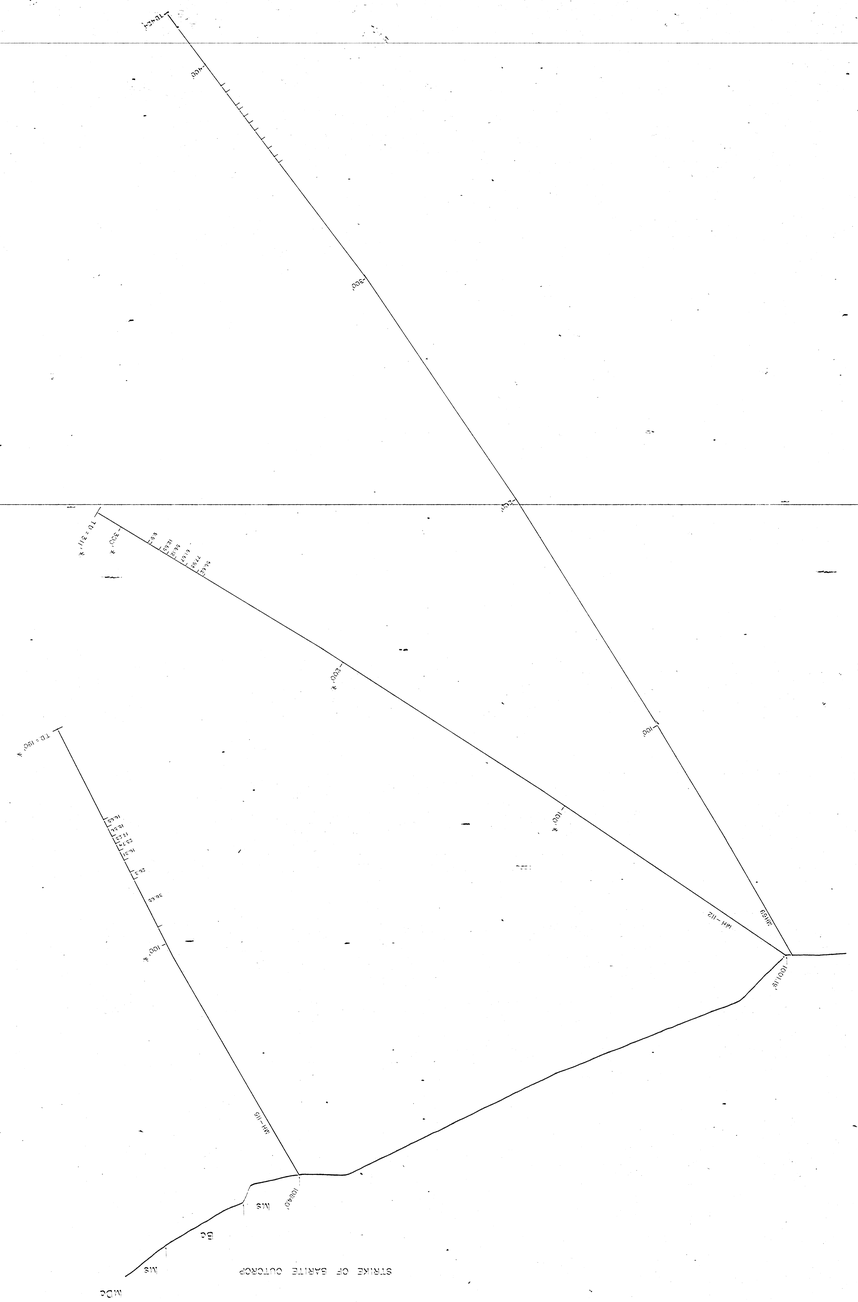
DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-113	0-60	24N	N20E	24°00'N	60.00'	1.0000
	60-130	25N	N20E	25°00'N	70.00'	1.0000
	130-200	25N	N22E	25°01'N	69.96'	0.9994
	200-256	25N	N25E	25°06'N	57.80'	0.9966
MH-114	0-116	47N	N17E	47°02'N	115.94'	0.9995
	116-206	45N	N17E	45°02'N	89.95'	0.9994
	206-300	43N	N19E	43°00'N	94.00'	1.0000
	300-400	41N	N11E	41°20'N	99.34'	0.9934
MH-70	Surface	55N	N20E			
	0-95	54N	N19E	54°00'N	95.00'	.9999
	95-185	53N	N22E	53°00'N	89.98'	.9998
	185-295	51N	N23E	51°01'N	109.94'	.9995
	295-395	55N	N38E	56°20'N	98.42'	.9842
	395-495	66N	N26E	66°07'N	99.91'	.9991
	495-595	58N	N18E	58°00'N	99.98	.9998

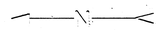
HOUSTON **Milchem** TEXAS

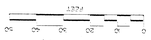
FANCY HILL ARKANSAS
DRILL HOLE PROFILE
MH 113, 114 & 70

SCALE 1"=20'	APPR.	DATE 2/13/79
DRAWN: T McDonnell	DATE	CHKD.
DRAWING NO.	805-C-094-C	SHEET OF

SCALE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MM-12	0-110	30A	N36E	34°01'N	1059'	0.9597
	110-210	30A	N12E	32°35'N	963.5'	0.9695
	210-311	30A	N16E	31°01'N	962.1'	0.9704
MM-113	0-56	60A	N20E	60°04'N.	545.4'	0.9956
	56-150	62A	N20E	63°04'N	545.6'	0.9956
MM65	SURVEY	ASSUMED 60A	N20E		555.1'	.9955
	0-100	58A	N20E	59°04'N	555.1'	.9955
	100-200	58A	N20E	58°04'N	555.1'	.9955
	200-300	58A	N20E	56°04'N	555.2'	.9956
	300-454	57A	N20E	55°04'N	555.2'	.9956







DRAWING NO.	806-6-053
SHEET	OF
DRAWN BY MJC	DATE 12/21/78
SCALE 1" = 20'	APPR.

FAULT MILL MANASAS
SALLE MUSE FAULT
MM-12 & 113 MAKE A SALLING

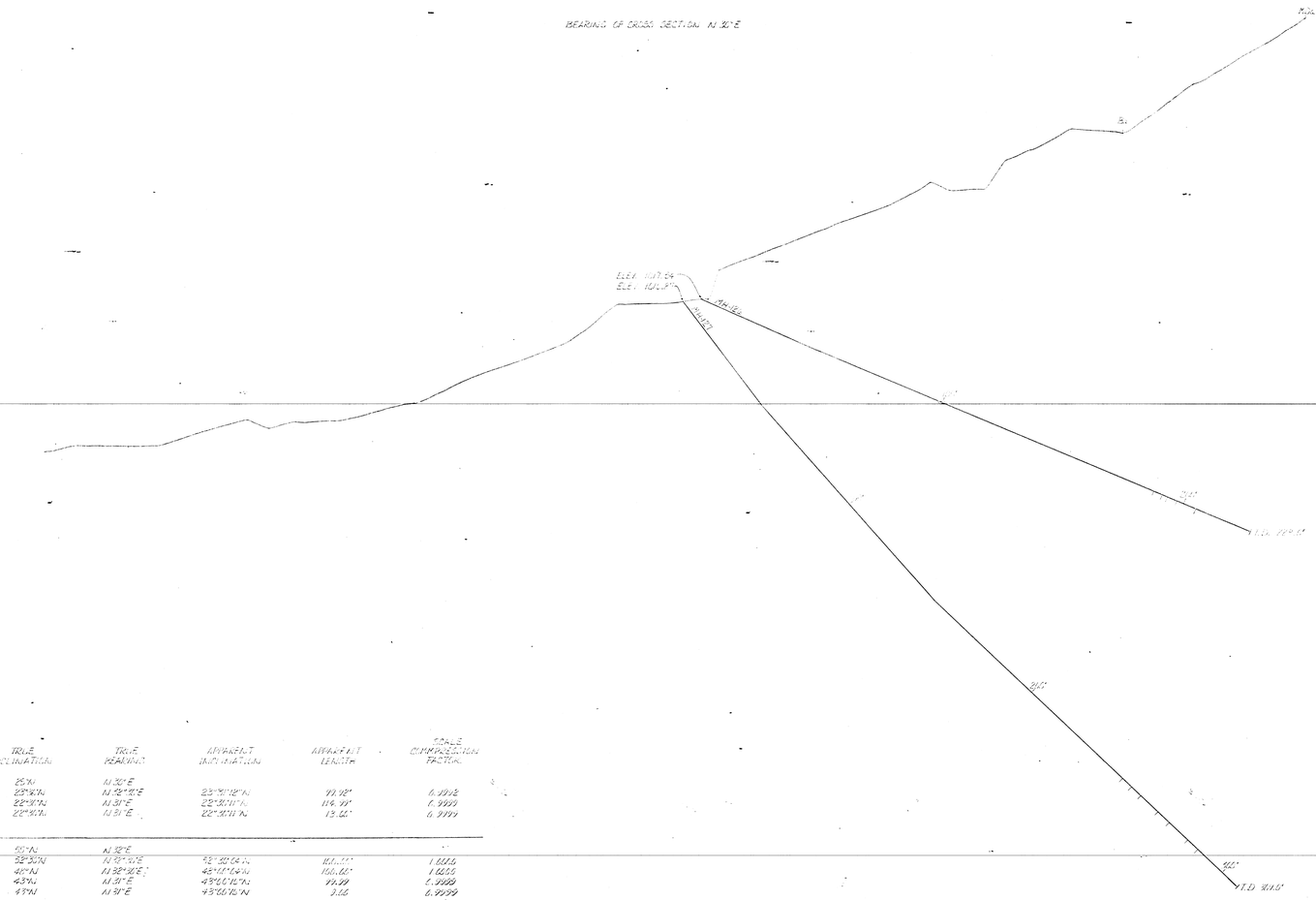
REVISION	ITEMS
Milgram	

ELEV. 1060

ELEV. 1000

ELEV. 940

BEARING OF CROSS SECTION N 30°E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE CORRECTION FACTOR
M-128	SURFACE	25°N	N 30°E			
	0.0 – 100.0	25°N	N 32°30'E	23°31'12"N	99.18'	0.9912
	100.0 – 215.0	22°30'N	N 31°E	22°31'11"N	114.77'	0.9977
	215.0 – 228.0	22°30'N	N 31°E	22°31'11"N	13.00'	0.9977
	T.D. – 228.0'					
M-127	SURFACE	35°N	N 30°E			
	0.0 – 100.0	35°30'N	N 32°30'E	33°30'04"N	101.11'	1.0016
	100.0 – 200.0	43°N	N 32°30'E	42°17'19"N	100.00'	1.0205
	200.0 – 300.0	43°N	N 31°E	43°00'15"N	99.99	1.0222
	300.0 – 369.0	43°N	N 31°E	43°00'15"N	2.16	0.9999
	T.D. – 369.0'					

PRINTED 5/13/69 BY R. MILLER 2-16-71

WILLBROS HOUSTON TEXAS	
TRACT FIVE PATHWAY DRILL HOLE LOCATE MAP NO. 4 OF 4	
SCALE: 1" = 50'-0"	APPR.
DRAWN: [illegible]	DATE: 2/17 & 11/71
DRAWING NO. 805-C-057	DATE: CHKD. BY:
	SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMMPRESSION FACTOR
MH-130	SURFACE	22°N	N17°E			
	0.0 - 110.0	19°30'N	N17°E	[illegible]	110.0	1.0000
	110.0 - 210.0	16°30'N	N19°30'E	16°30'04"N	99.91	0.9991
	210.0 - 310.0	14°30'N	N20°E	14°31'09"N	99.87	0.9987
	310.0 - 314.0	14°30'N	N20°E	14°31'09"N	3.99	0.9987
	T.D. 314.0'					

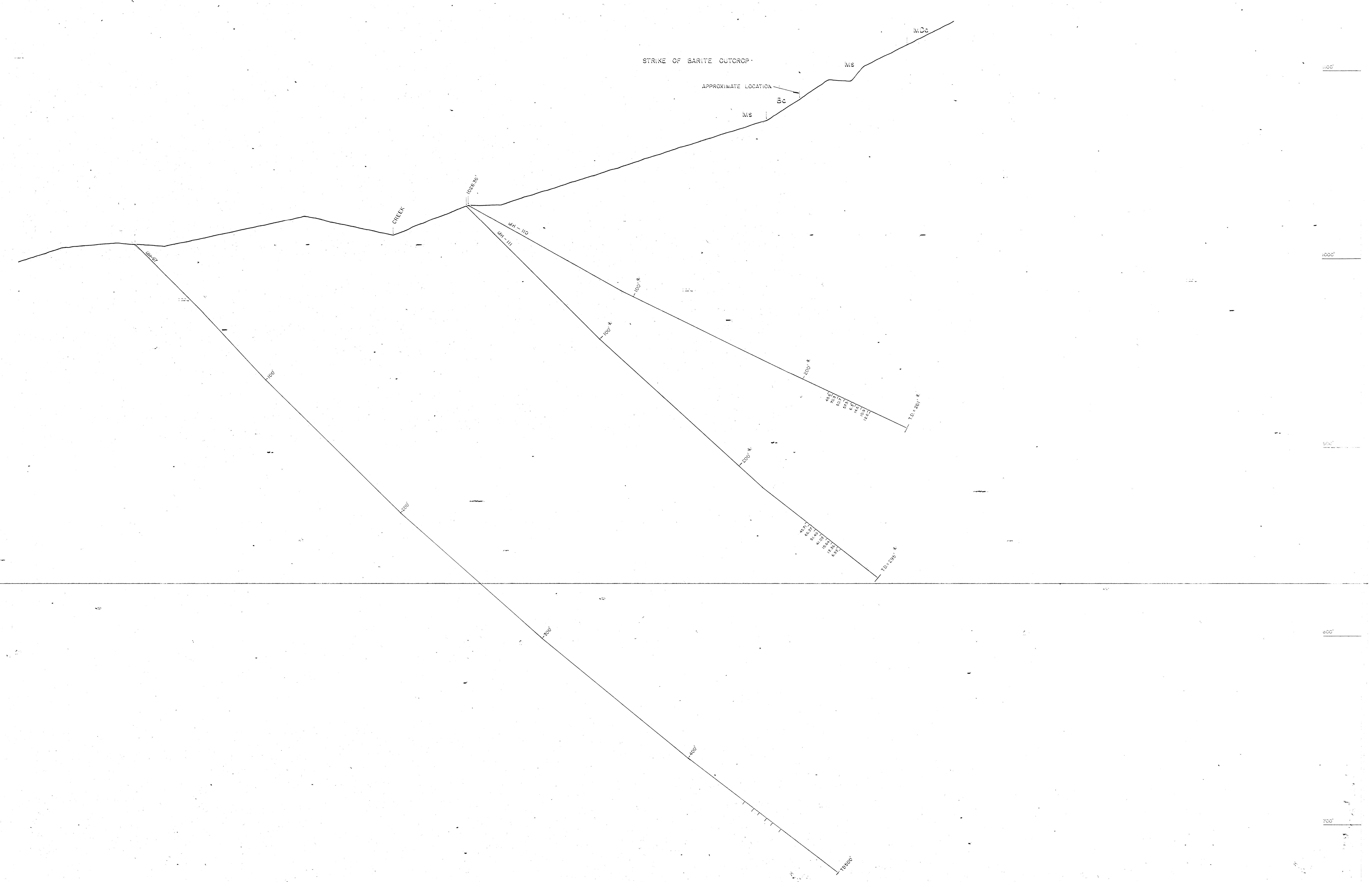
PROFILE SURVEY BY R. OLIVER 5-14-79

Milchem
HOUSTON TEXAS

FANCY HILL ARKANSAS
DRILL HOLE PROFILE
MH-130

SCALE 1" = 20'-0" | APPR. | DATE
DRAWN T. PARKER | DATE MAY 4, 1979 | CHKD. F. CATE
DRAWING NO. 805-G-099 | SHEET | OF

BEARING OF CROSS SECTION N15°05'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-110	0-93	29N	N11E	29°04'N	92.82'	0.9981
	93-192	26N	N18E	26°02'N	98.90'	0.9990
	192-261	25N	N14E	25°00'N	68.99'	0.9999
MH-111	0-76	45N	N13E	45°01'N	75.97'	0.9997
	76-100	45N	N18E	45°02'N	23.98'	0.9994
	100-217	42N	N20E	42°06'N	116.76'	0.9980
	217-295	38N	N19E	38°04'N	77.89'	0.9986
MH-67	Surface	45N	N16E			
	0-100	47N	N16E	47°00'N	100.0'	1.0000
	100-200	44°30'N	N16E	44°30'N	99.99	.9999
	200-300	41°30'N	N16E	41°30'N	99.99	.9999
	300-400	40°N	N16E	40°N	99.99	.9999
	400-500	38°N	N16E	38°N	99.99	.9999

Pit Bottom 650

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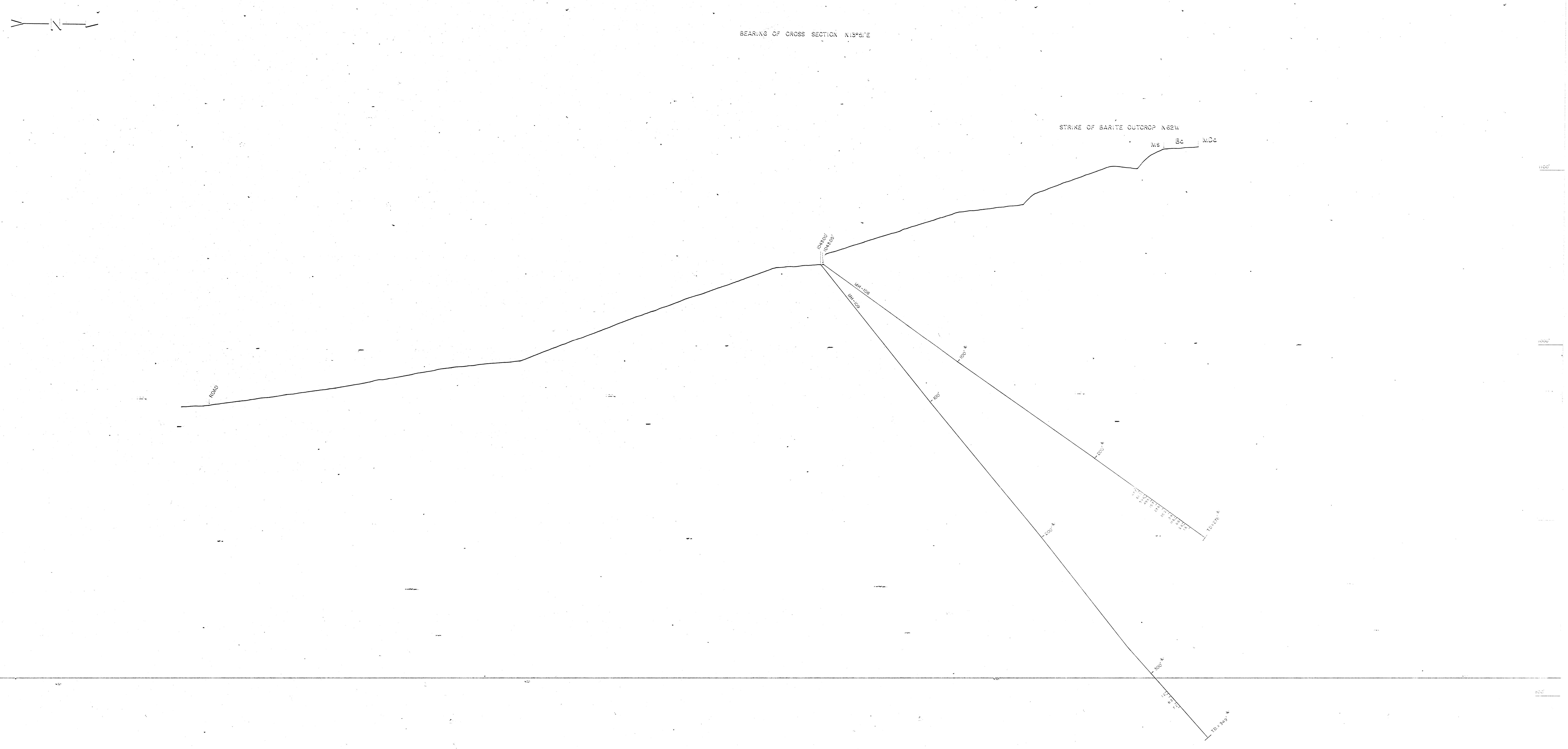
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-110, 111, 67

SCALE 1"=20'	APPR.	DATE
DRAWN T. McConnell	DATE 3/7/79	CHKD.
DRAWING NO. 805-G-092		SHEET OF

N



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-108	0-100	33N	N37E	35°14'N	94.41'	0.9441
	100-200	33N	N35E *	33°42'N	98.16'	0.9816
	200-260	35N	N20E	35°09'N	59.77'	0.9961
	260-278	35N	N21E	35°13'N	17.91'	0.9948
MH-109	0-100	51N	N14E	51°00'N	100.00'	1.0000
	100-200	50N	N10E	50°04'N	99.91'	0.9991
	200-280	51N	N23E	51°17'N	79.68'	0.9999
	280-349	48N	N15E	48°00'N	68.99'	0.9999

* ASSUMED

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FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-108, 109

SCALE 1"=20' | APPR. | DATE
DRAWN M.T. McComm... | DATE 5/2/79 | CHKD.
DRAWING NO. [illegible] | SHEET | OF

	WEST PIT					CENTRAL PIT					EAST PIT					TOTAL PERIOD				TOTAL INVENTORY			TOTAL CUMULATIVE		
PERIOD	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	ELEVATION	OVERBURDEN	TONS	RATIO	GRADE	TOTAL BCY	TOTAL TONS	RATIO	GRADE	AREA	TONS	GRADE	BCY	TONS	RATIO
NO 7																									
PHASE 1						1040	1191700	60970	18.01	54.90															
						960	1419270	104970	13.52	53.56															
						880	577650	142730	6.20	57.06						3188620	308670	10.33	55.16	EAST	27680	51.42	22320,340	2809280	7.95
																							25508960	3465,380	1.36
NO 8																									
PHASE 1						880	307560	—	6.20	57.06	600	358,920	182210	1.97	49.16										
						800	328,370	170,310	1.92	64.96	560	—	40,000	—	50.33										
						760	—	64480	—	64.97															
PHASE 2						1280	2,070																		
						1200	25780																		
						1120	190220																		
						1040	494020	42,210	11.74	58.91															
						960	693,660	62960	11.02	55.96															
						880	613,250	56,830	10.77	59.61															
NO 9						800	199,750	41,100	4.92	56.42															
PHASE 2						760	—	27,930	—	56.42						199,750	69,040	2.89	56.80	—	—	—	25,708,710	3,534,420	7.27

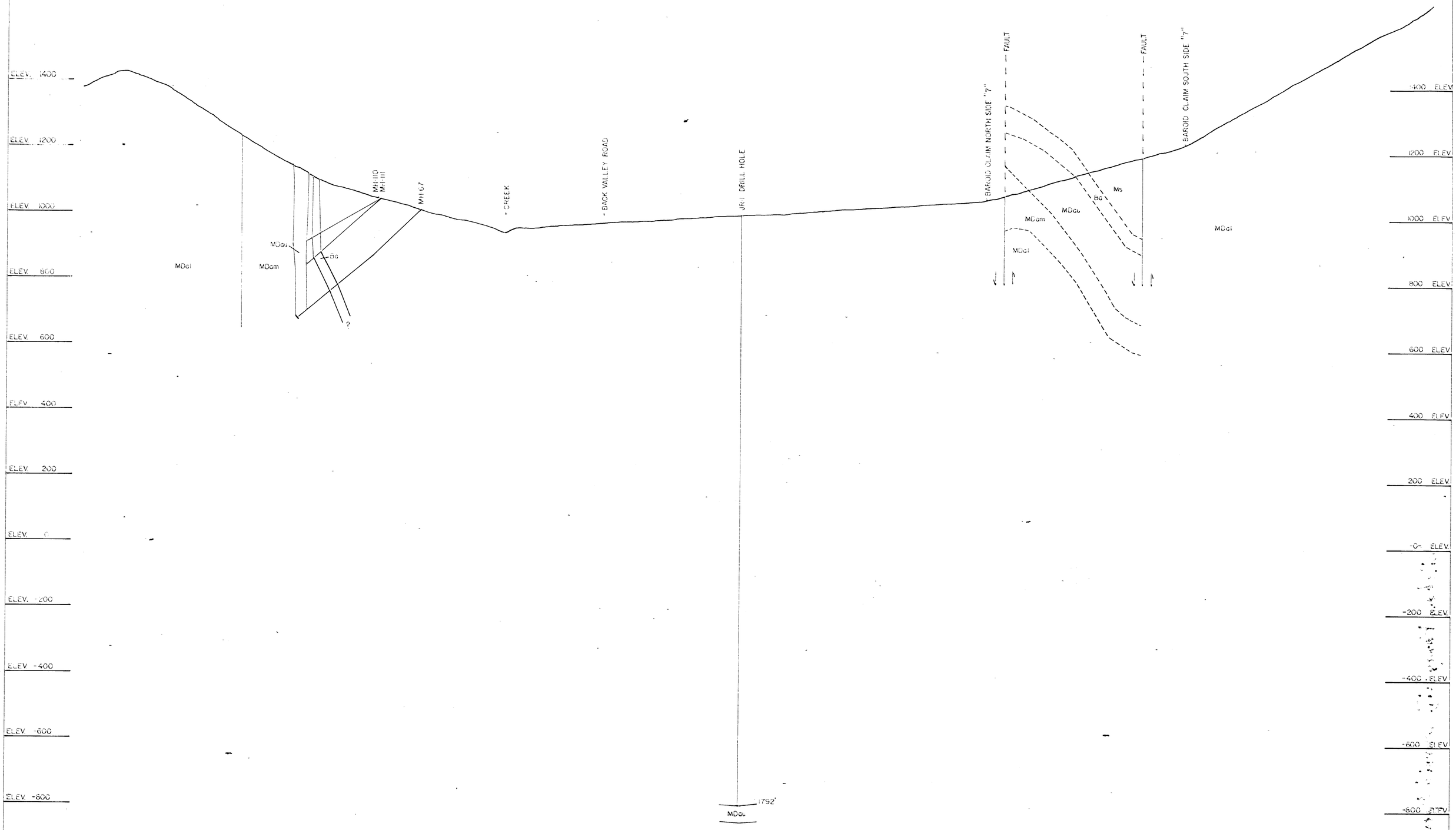
CH2M HILL	DES. JH					
	DR. BHP					
	CHK.					
	APPD.	NO.	DATE	REVISION	BY	APPD.

MILCHEM INCORPORATED
FANCY HILL PROJECT
MONTGOMERY COUNTY, ARKANSAS

MINE PLAN

P 11518.F1

SHEET 2
OF 2
DATE JAN. 1980
DWG. NO. MP-02



LEGEND

MDg (u, m, l) — ARKANSAS NOVACULITE (MISSISSIPPIAN-DEVONIAN) NOVACULITE (MDgu upper division; MDgm middle division; MDgl lower division)

Bg — Bentonite: massive to nodular

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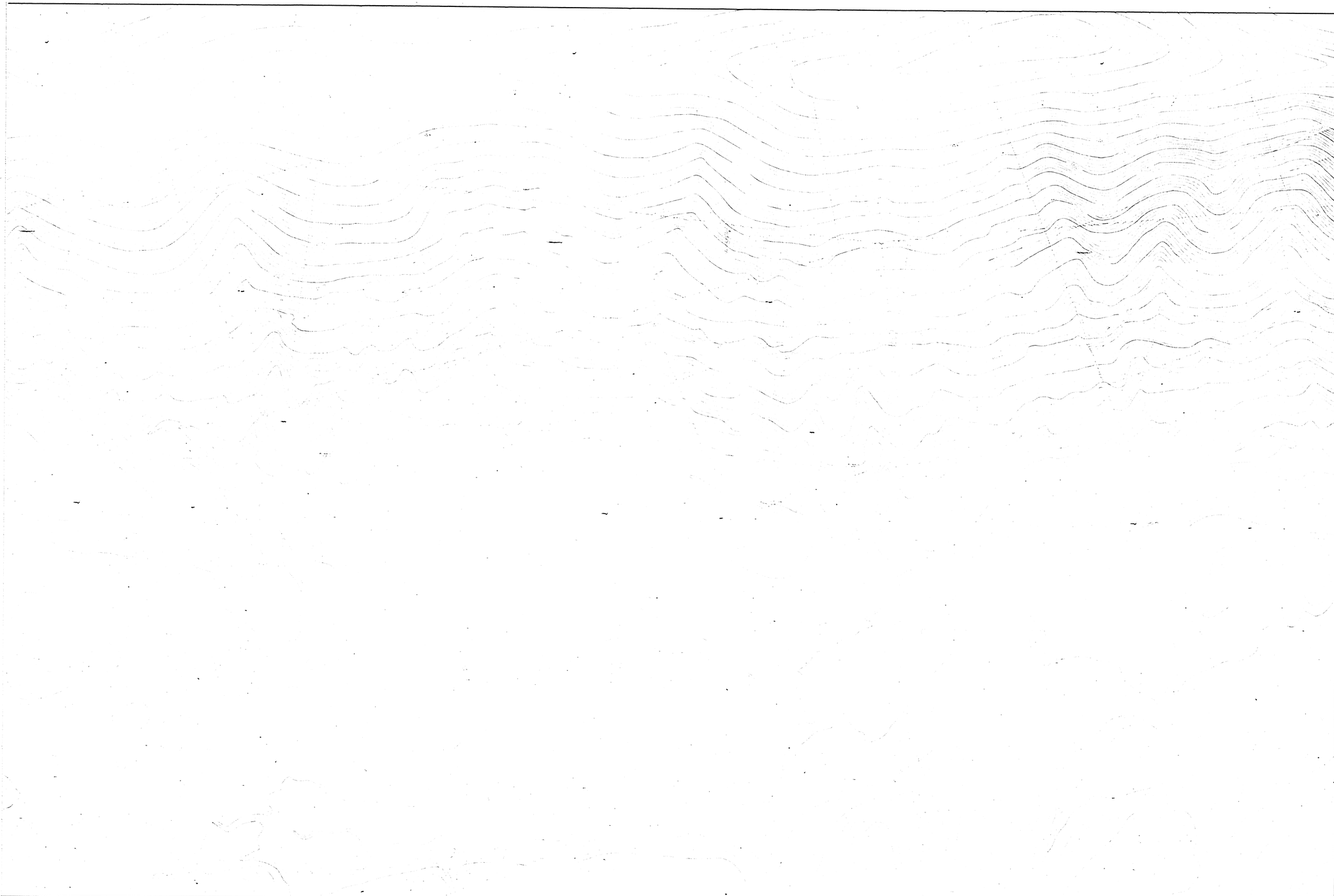
CROSS SECTION FANCY HILL BAROID OPERATION

SCALE 1" = 200'0" V&H	APPR. FERRYL GALE	DATE JANUARY 15, 1980	
DRAWN TERESA RISNER	DATE JANUARY 15, 1980	CHKD. F. C. GALE	
DRAWING NO. 1		SHEET 1	OF 1



LEGEND

Ms	Stanley shale (Mississippian): shale, siltstone, tuff, sandstone. (Msh – Hatton tuff; Mbb – Beaver's Bend tuff).
MDa	Arkansas novaculite (Devonian – Mississippian): novaculite.
Dmm	Missouri Mountain slate (Devonian ?): shales, siltstones & claystones.
Sb	Baylock sandstone (Silurian).

Barite: massive to nodular.

Barite: interbedded with shale.

Barite: disseminated & small scattered nodules.

Faults: dashed where approximately located.

Strike and dip of beds

Survey stations, Lawrence

Resurveyed Lawrence stations, B & F Engineering

Other B & F Engineering survey stations

Milchem drill holes

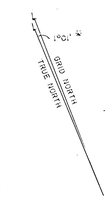
Barola drill holes

Surdex survey stations

Shaft

Barola trenches

Crest of dozed areas



* Coast & Geodetic Survey, 1957
Slatington Triangulation Station

100 0 100 200 300
Feet

Contour Interval - 5 feet

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

1" = 100' Sheet 1 of 3

FANCY HILL BARITE MINE
TOPOGRAPHIC MAP
BAS & F.R. 13.14.15

DWG. NO. 101-B-117-1

Geology by E. F. Lawrence (1977)
Drafted by B. Mooney (1978)

LEGEND

Mc	Stanley shale (Mississippian): shale, siltstone, tuff, sandstone (Mch - Hatton tuff, Mbb - Beaver's Bend tuff).
MDc	Arkansas novaculite (Devonian – Mississippian): novaculite.
Dmm	Missouri Mountain slate (Devonian ?): shales, siltstones & claystones.
Sb	Baylock sandstone (Silurian).

Barite: massive to nodular

Barite: interbedded with shale

Barite: disseminated & small scattered nodules

Faults: dashed where approximately located

Strike and dip of beds

Survey stations, Lawrence

Resurveyed Lawrence stations, B & F Engineering

Other B & F Engineering survey stations

Mitchem drill holes

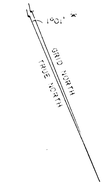
Barcia drill holes

Surdex survey stations

Shaft

Barcia trenches

Crest of dozed areas



* Coast & Geodetic Survey, 1957
Slatington Triangulation Station

100 0 100 200 300
Feet

Contour interval – 5 feet

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

1" = 100' Sheet 2 of 3

FANCY HILL BARITE MINE
TOPOGRAPHY MAP
BOS CLM. 3, 4, 5, 6, 9, 11 & 12

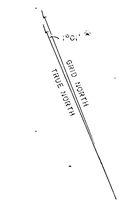
DWG No. 151-B-917-2

Geology by E F Lawrence (1977)
Drafted by B Mauney (1978)

LEGEND

- MS — Stanley shale (Mississippian): shale, siltstone, tuff, sandstone. (MSH – Hatton tuff; MSB – Beaver's Bend tuff).
- MDc — Arkansas novaculite (Devonian – Mississippian): novaculite.
- Dmm — Missouri Mountain shale (Devonian ?): shales, siltstones & claystones.
- Sb — Boylock sandstone (Silurian).

- Barite: massive to nodular
- Barite: interbedded with shale
- Barite: disseminated & small scattered nodules
- Faults: dashed where approximately located
- 76 — Strike and dip of beds
- 340 — Survey stations, Lawrence
- Resurveyed Lawrence stations, B&F Engineering
- Other B&F Engineering survey stations
- Mitchem drill holes
- Baroid drill holes
- Surdex survey stations
- Shaft
- Baroid trenches
- Crest of dozed areas



* Coast & Geodetic Survey, 1957
Sidington Triangulation Station

100 0 100 200 300
Feet

Contour interval = 5 feet

FANCY HILL BARITE MINE

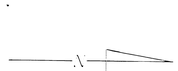
Fancy Hill Mining District
Montgomery County, Arkansas

1" = 100' Sheet 3 of 3

FANCY HILL BARITE MINE
GEOLOGY - SURVEY POINTS

DWG. NO. 201-G-103

Geology by E. F. Lawrence (1977)
Drafted by S. Mooney (1978)



BEARING OF CROSS SECTION N17°15'E

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-4	0-153'	36°N	N20E	36°02'N	152.86'	0.9992
MH-5	0-230'	64°N	N20E	64°02'N	229.95'	0.9998
MH-33	0-45'	60°N	N20E	60°01'N	45.0'	1.0000
	45-90'	89°N	N39E	89°26'N	45.0'	0.9999
	90-206'	86°N	N39E	86°17'N	115.96'	0.9997
	206-306'	88°N	N39E	88°09'N	99.95'	0.9999
	306-406'	78°N	N39E	78°50'N	99.70'	0.9970
	406-506'	76°N	N40E	77°03'N	99.56'	0.9956
	506-606'	78°N	N42E	79°04'N	99.62'	0.9962
	606-688'	77°N	N43E	78°15'N	81.61'	0.9952

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FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-4, 5, 33

SCALE 1" = 30'	APPR.	DATE	
DRAWN B.T. McDONALD	DATE 3/1/79	CHKD.	
DRAWING NO.		SHEET	OF

DRILL HOLE	SEGMENT	TOTAL INCLINATION	TOTAL LEAKAGE	ALLOWABLE INCLINATION	ALLOWABLE LENGTH	SCALE DIMENSION FACTOR
MIN 1	LEAKAGE	80%	N20E			
	0.0 - 70.0	20%	N20E	[illegible]	70.0	1.0000
	70.0 - 140.0	20%	N20E	20%	70.0	1.0000
	140.0 - 220.0	20%	N20E	20%	[illegible]	1.0000
	T.D. 220.0 FT					
MIN 2	LEAKAGE	80%	N20E			
	0.0 - 120.0	50.0%	N24.5E	50.0%	120.0	1.0000
	120.0 - 220.0	54%	N24.5E	54.0%	100.0	1.0000
	220.0 - 320.0	70%	N24.5E	70.0%	100.0	1.0000
	320.0 - 420.0	40.0%	N20.0E	40.0%	100.0	1.0000
	420.0 - 470.0	40.0%	N20.0E	40.0%	120.0	1.0000
	T.D. 470.0 FT					

PROFILE SURVEY BY R. OLIVER 4-6-79

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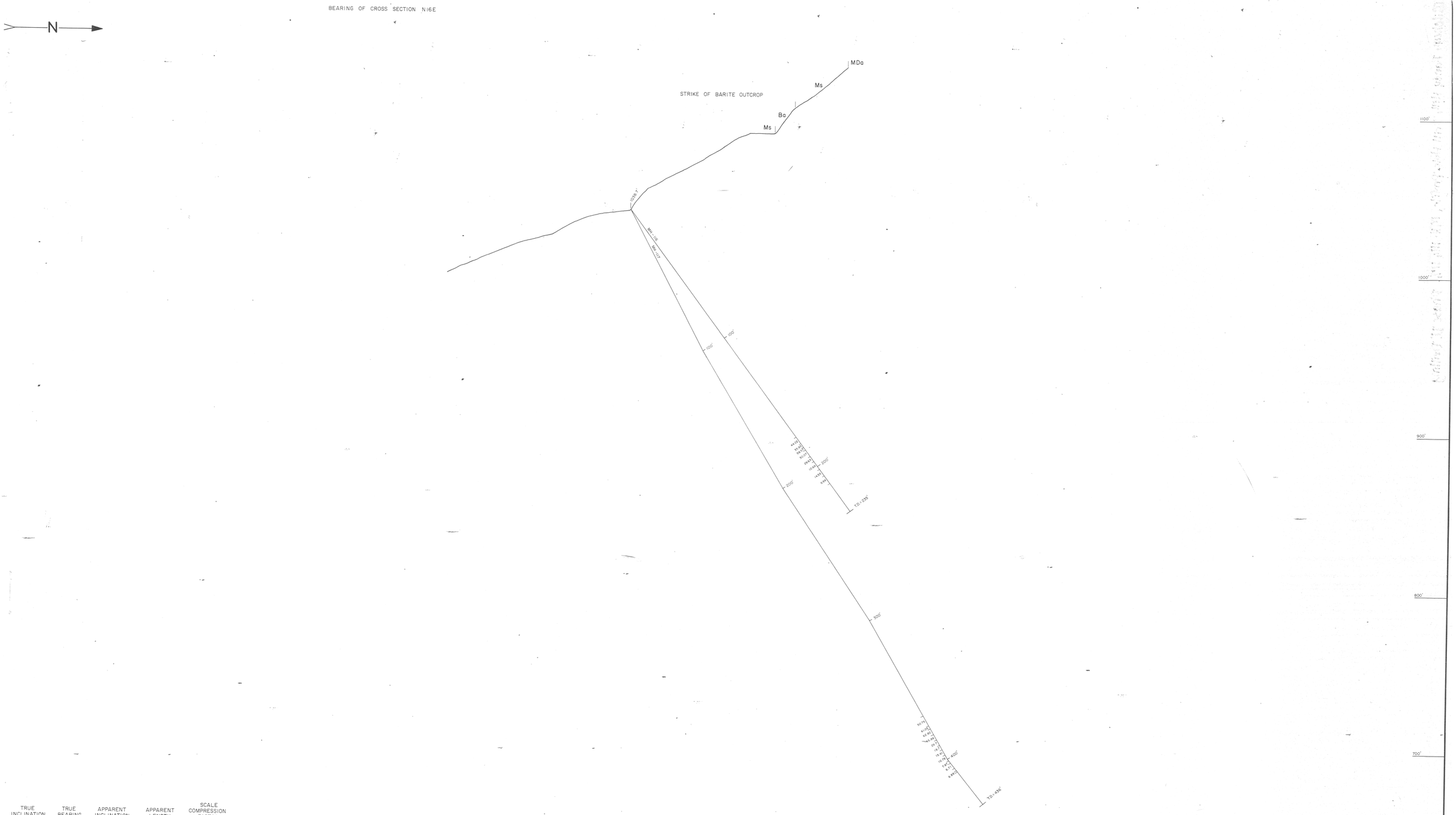
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-50, 52

SCALE 1" = 20'-0"	APPR.	DATE	
DRAWN J. KOUNEY	DATE MAY 21, 1979	CHKD.	
DRAWING NO.		SHEET	OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-116	0-235	53N	N16E	53N	235.00'	1.0000
MH-117	0-100	62N	N16E *	62N	100.00'	1.0000
	100-200	59N	N16E *	59N	100.00'	1.0000
	200-300	56N	N16E *	56N	100.00'	1.0000
	300-400	60N	N16E *	60N	100.00'	1.0000
	400-436	51N	N16E *	51N	36.00'	1.0000

* ASSUMED

PROFILE SURVEY BY F.G. 3/16/78

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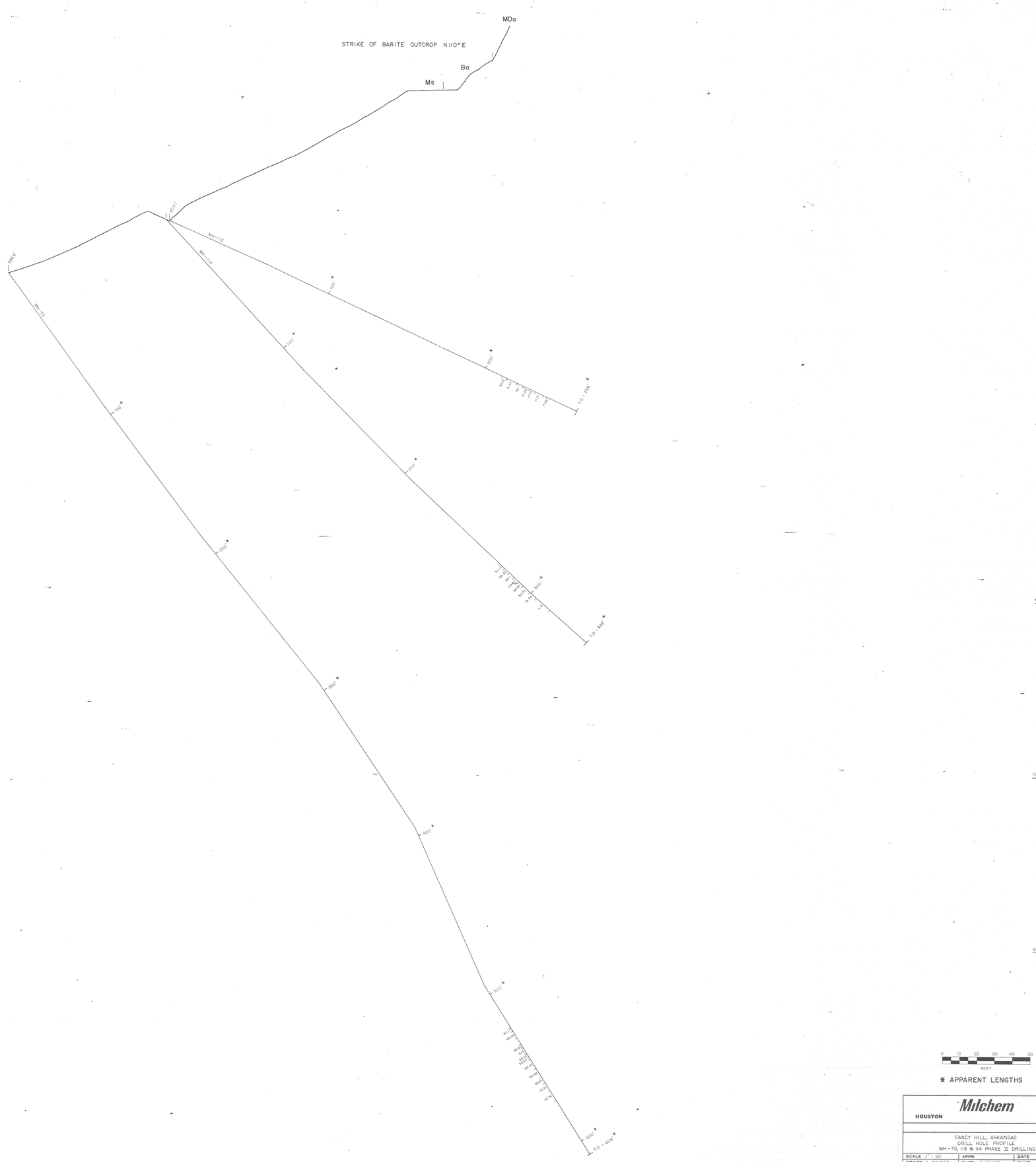
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-116 & 117 PHASE II DRILLING

SCALE 1" = 20'	APPR.	DATE	
DRAWN B. MAUNEY	DATE 6/28/78	CHKD.	
DRAWING NO. 305-G-084-A		SHEET	OF

N

BEARING OF CROSS SECTION N19°46'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
	SURFACE	55N	N20E			
MH – 70	0–95	54N	N19E	54°N	95'	1.0000
	95–185	53N	N22E	53°01'N	89.98'	0.9997
	185–295	51N	N23E	51°03'N	109.93'	0.9994
	295–395	55N	N38E	56°22'N	98.38'	0.9838
	395–495	66N	N26E	66°08'N	99.9'	0.9990
	495–609	58N	N18E	58°01'N	113.99'	0.9999
MH – 113	0–60	24N	N20E	24°N	60'	1.0000
	60–130	25N	N20E	25°N	70'	1.0000
	130–200	25N	N22E	25°01'N	69.96'	0.9994
	200–258	25N	N25E	25°86'N	57.8'	0.9966
MH – 114	0–116	47N	N17E	47°02'N	115.94'	0.9995
	116–206	45N	N17E	45°02'N	89.95'	0.9994
	206–300	43N	N19E	43°N	94'	1.0000
	300–343	41N	N11E	41°20'N	42.71'	0.9934

0 10 20 30 40 50
FEET

* APPARENT LENGTHS

PROFILE SURVEY BY F. G. 3/6/78

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FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH – 70, 113 & 114 PHASE II DRILLING

SCALE 1" = 20'	APPR.	DATE	
DRAWN B. MAUNEY	DATE 12/21/78	CHKD.	
DRAWING NO. 805-G-094-A		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE (MMHEADING)
MH-77	0.0 - 0.2 FT	70 IN	N 40° E	70 IN	67 IN	[illegible]
	67.0 - 184.0	72 IN	N 40° E	72 IN	[illegible]	[illegible]
	184.0 - 244.0	70 IN	N 40° E	70 IN	[illegible]	[illegible]
	244.0 - 334.0	71 IN	N 40° E	71 IN	[illegible]	[illegible]
	T.D. 334.0 FT					

PROFILE SURVEY BY R. OLIVER 4-4-79

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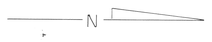
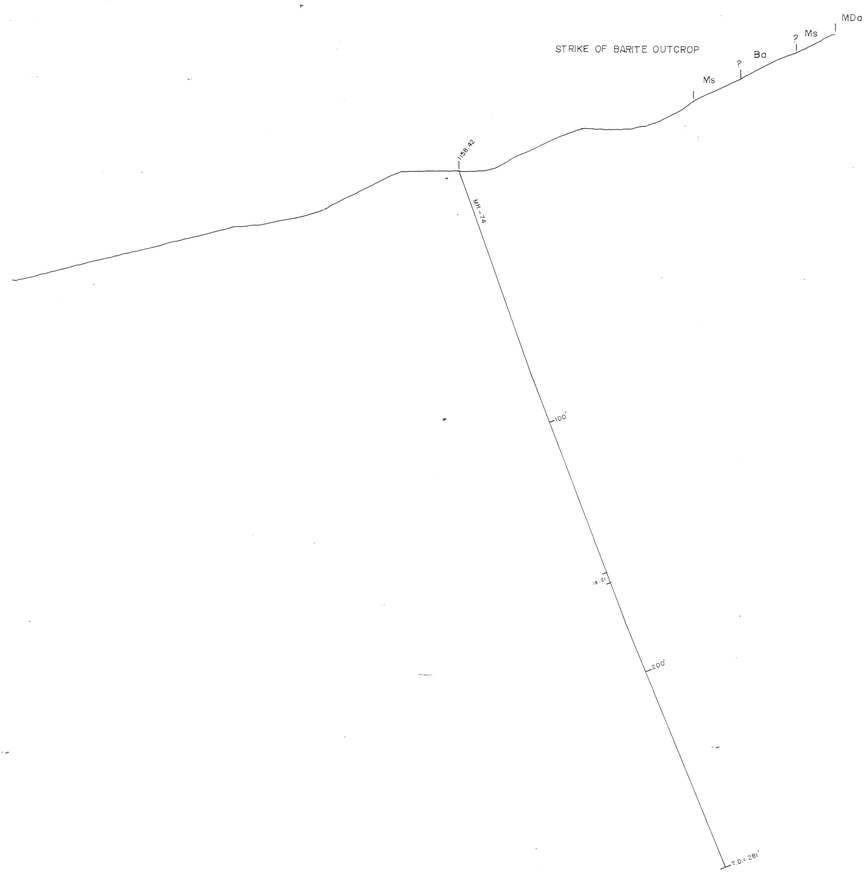
FAMILY HILL ARKANSAS
DRILL HOLE PROFILE
MH-77

SCALE	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO.		SHEET	OF

BEARING OF CROSS SECTION N20°E





DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FRACTION
MH-74	0-81.0	70N	N20E	70°N	81.0	1.000
	81.0-181.0	71N	N15E	71°08'	99.92	0.992
	181.0-281.0	72N	N06E	72°30'	99.72	0.9972
	T.D.- 281.0					

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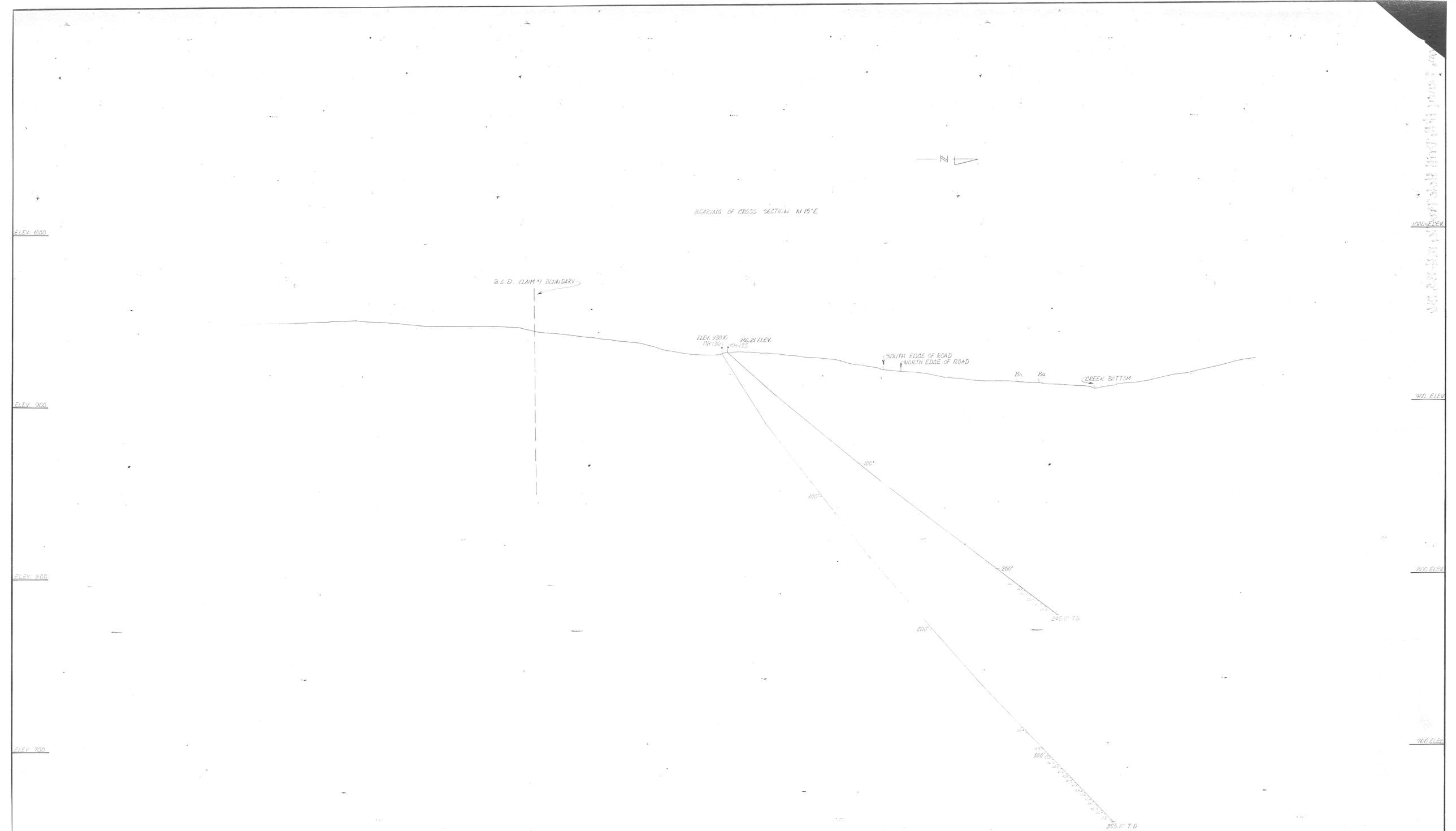
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-74 PHASE III DRILLING

SCALE 1"=20'	APPR.	DATE
DRAWN S.M.	DATE 4-7-79	CHKD.

DRAWING NO. SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-135	SURFACE	45°N	N 15°E			
	0.0 - 75.0	42°N	N 15°30'E	42°00'08"N	75.00'	1.0000
	75.0 - 155.0	39°45'N	N 16°E	37°45'15"N	99.99'	0.9999
	155.0 - 235.0	37°30'N	N 15°30'E	37°30'04"N	80.00'	1.0000
	235.0 - 245.0	37°30'N	N 15°30'E	37°30'04"N	10.00'	1.0000
	T.D. 245.0'					
MH-136	SURFACE	63°N	N 15°E			
	0.0 - 75.0	58°N	N 14°30'E	58°00'09"N	95.00'	1.0000
	95.0 - 195.0	52°30'N	N 15°E	52°30'N	100.00'	1.0000
	195.0 - 295.0	49°N	N 16°45'E	47°00'48"N	99.98'	0.9998
	295.0 - 345.0	46°45'N	N 14°30'E	46°45'04"N	50.00'	1.0000
	345.0 - 355.0	46°45'N	N 14°30'E	46°45'04"N	10.00'	1.0000
	T.D. 355.0					

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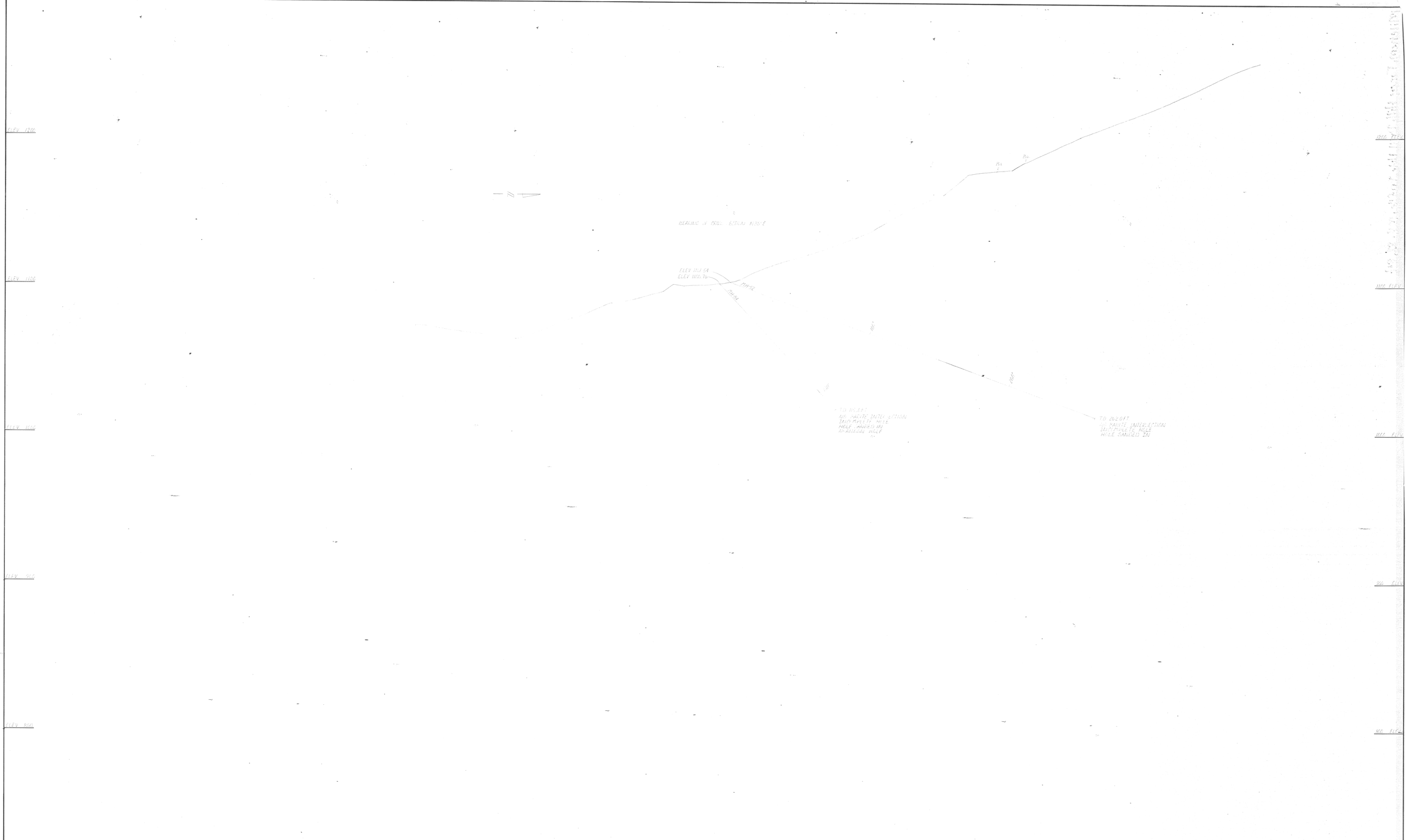
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-135 & 136

SCALE 1" = 200'-0"	APPR.	DATE	
DRAWN T. BLAIR	DATE SEPT. 21, 1973	CHKD. TERRY CALE	
DRAWING NO.		SHEET	OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH 82	SURFACE G.O. 262.0 T.D. 262.0 FT.	20°N 20°N	N 35°E	20°N	262.0'	1.0000
MH 84	SURFACE G.O. 115.0 T.D. 115.0 FT.	47°N 47°N	N 35°E	47°N	115.0	1.0000

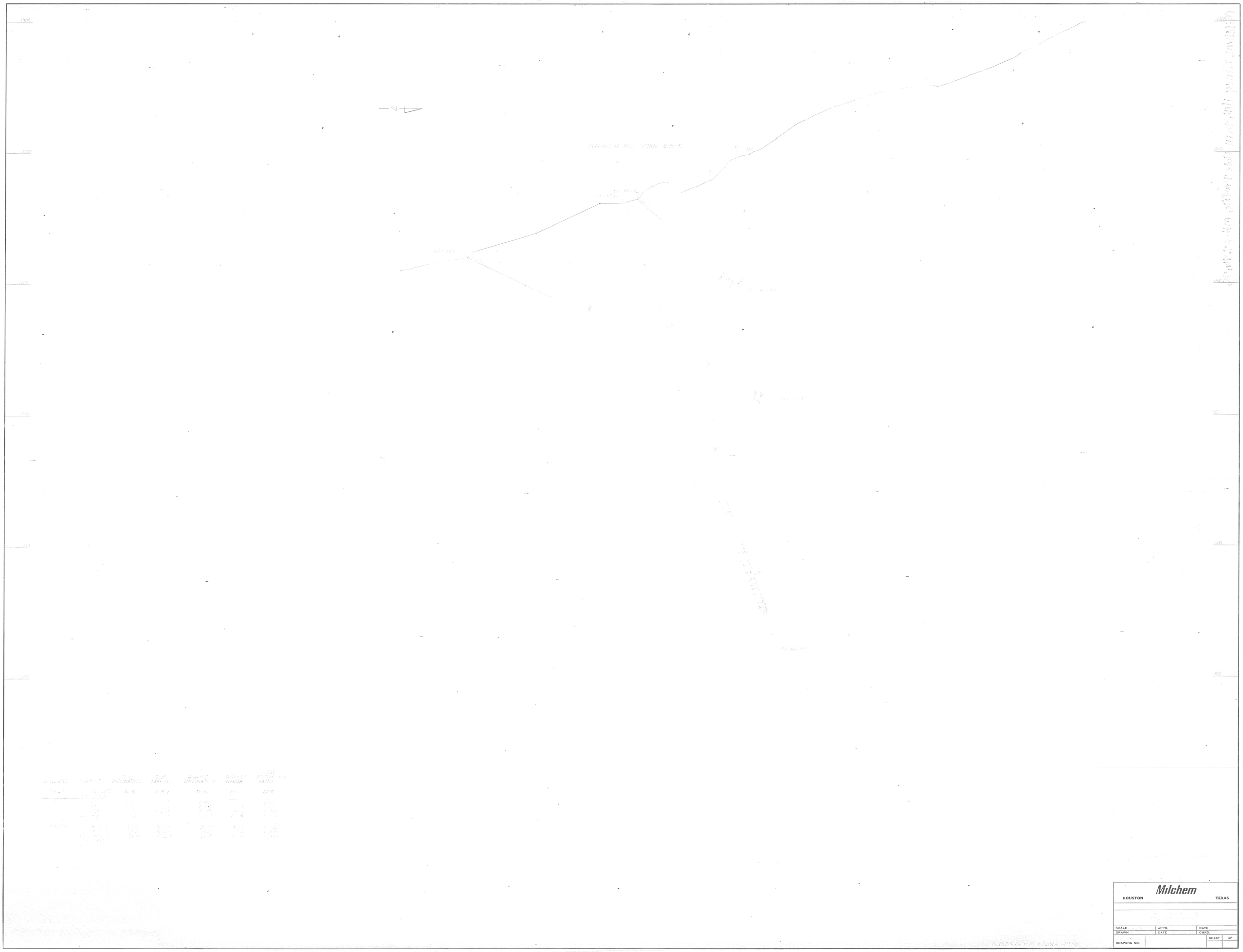
PROFILE SURVEY BY R. FLOWER 4-9-79

Milchem

HOUSTON TEXAS

FAULTY HILL AIRWAYS
DRILL HOLE PROFILE
MH 82 84

SCALE:	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO.		SHEET	OF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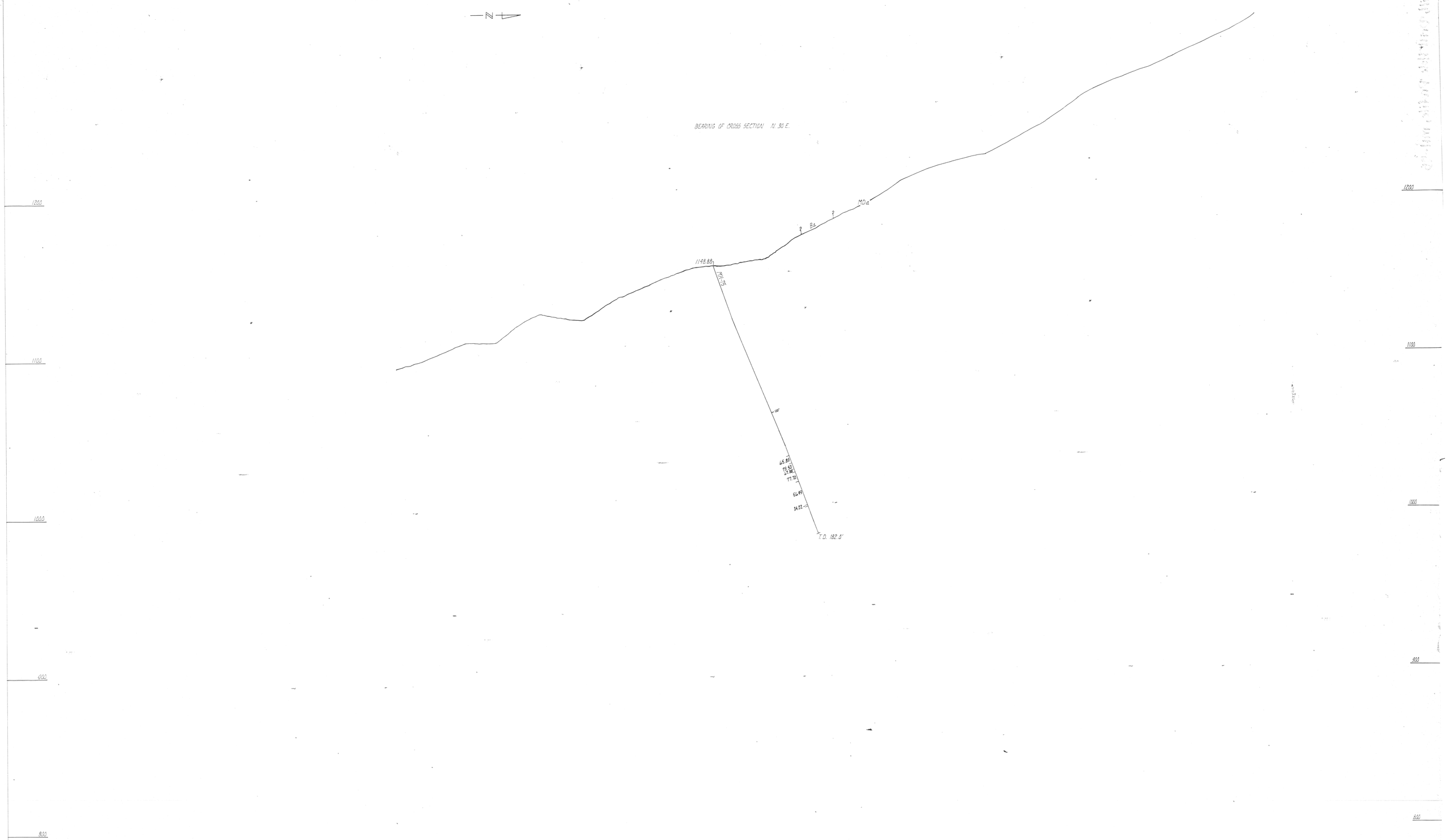
Milchem
HOUSTON
TEXAS
SCALE
APPR.
DATE
DRAWN
DATE
CHKD.
DRAWING NO.
SHEET
OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMMPRESSION FACTOR
MH-75	0-36	70°N	N. 30 E.	70°N	36.0	1.000
	36-123	67°N	N. 30 E.	67°N	87.0	1.000
	123-182	69°N	N. 28 E.	69°01'	59.0	0.9999
	T.D. 182.0'					

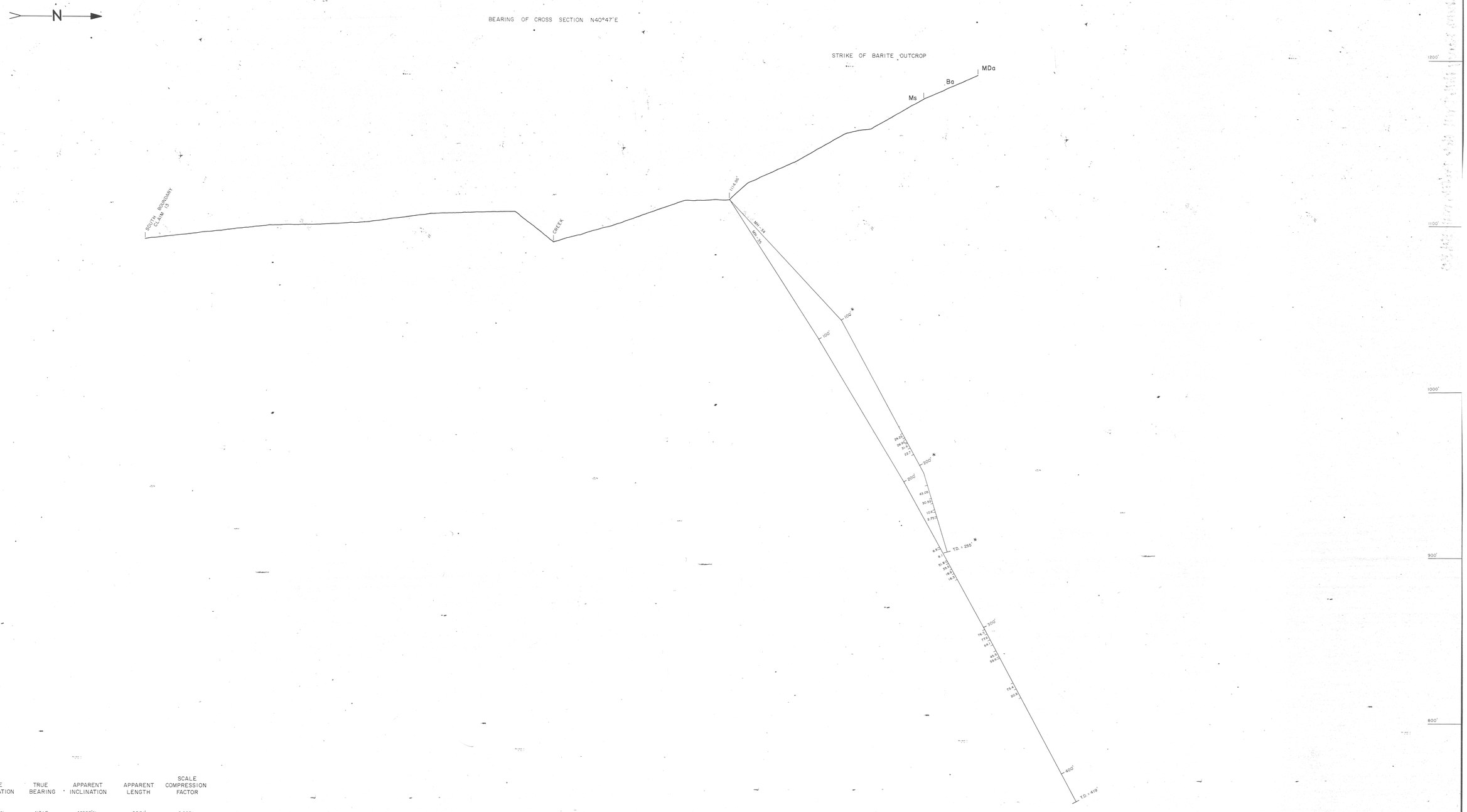
PROFILE SURVEY BY R. OLIVER. 4-2-79

Milchem

HOUSTON TEXA

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH 75

SCALE 1"=20'	APPR.	DATE
DRAWN T. RISNER	DATE 5-16-79	CHKD.
DRAWING NO.		SHEET



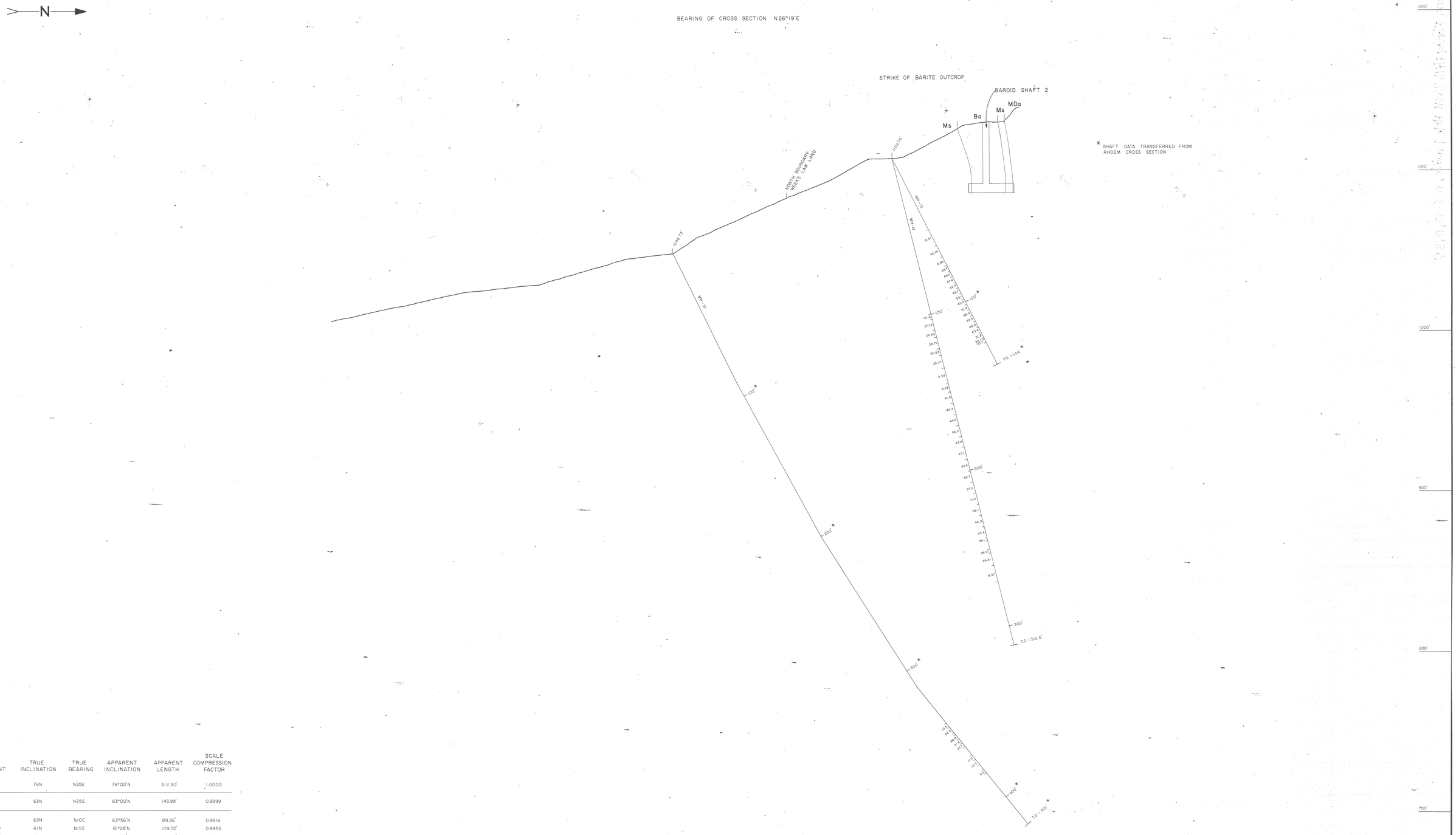
DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-34	0-100	46°30'N	N31E	46°55'N	99.31'	0.9931
	100-205	61N	N28E	61°36'N	104.39'	0.9942
	205-255	73N	N32E	73°11'N	49.95'	0.9990
MH-35	0-100	57N	N35E*	57°08'N	99.85'	0.9985
	100-200	59N	N35E*	59°08'N	99.87'	0.9987
	200-300	61N	N35E*	61°07'N	99.88'	0.9988
	300-419	62N	N35E*	62°07'N	118.87'	0.9989

* ASSUMED

Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-34,35

SCALE	APPR.	DATE
DRAWN M.T. McDonnell	DATE 2/27/79	CHKD.
DRAWING NO.		SHEET OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-12	0-312.5	76N	N25E	76°00'N	312.50'	1.0000
MH-13	0-144	63N	N25E	63°00'N	143.99'	0.9999
MH-37	0-90	63N	N10E	63°56'N	89.26'	0.9918
	90-200	61N	N15E	61°28'N	109.50'	0.9955
	200-312	57N	N14E	57°36'N	111.24'	0.9932
	312-422	51N	N21E	51°07'N	109.81'	0.9983

Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-12, 13, 37

SCALE 1"=20'	APP'D.	DATE
DRAWN	DATE	CHK'D.
DRAWING NO.		SHEET / OF

LEGEND

Ms	Stanley shale (Mississippian): shale, siltstone, tuff, sandstone. (Msh – Hatton tuff; Mbb – Beaver's Bend tuff).
MDa	Arkansas novaculite (Devonian – Mississippian): novaculite.
Dmm	Missouri Mountain slate (Devonian ?): shales, siltstones & claystones.
Sb	Baylock sandstone (Silurian).

Barite: massive to nodular.

Barite: interbedded with shale.

Barite: disseminated & small scattered nodules.

Faults: dashed where approximately located.

176 Strike and dip of beds

340 Survey stations, Lawrence

Resurveyed Lawrence stations, B&F Engineering

Other B&F Engineering survey stations

Milchem drill holes

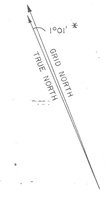
Baroid drill holes

Surdex survey stations

Shaft

Baroid trenches

Crest of dozed areas



* Coast & Geodetic Survey, 1957
Slatington Triangulation Station

100 0 100 200 300
Feet

Contour Interval - 5 feet

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

1" = 100' Sheet 1 of 3

FANCY HILL BARITE MINE
TOPOGRAPHIC MAP
SEC 6,7,12,13,14&15

DWG. No. 101-E-017-1

Geology by E. F. Lawrence (1977)
Drafted by B Mauney (1978)

1040 Level

Block	Volume Cu. Yds.	%Ba$O4	%SO4	Ore Tons
A	1518.52	55.60		4,474
B	-0-	-0-		-0-
C	-0-	-0-		-0-
D	-0-	-0-		-0-
G	-0-	-0-		-0-
H	-0-	-0-		-0-
I	-0-	-0-		-0-
J	-0-	-0-		-0-
K	1718.89	71.77		5,510
L	2076.67	71.77		6,667
M	2904.44	71.77		8,028
N	1590.56	62.90		4,871
P & O	2080.	57.32		6,196
R & S	1600.	57.32		4,766
R' & T	-0-	-0-		-0-
U	466.67	40.00		1,281
V	1733.33	42.17		4,918
W	3233.00	41.22		8,927
X	2403.70	44.90		6,750
Y	1796.67	44.90		5,046
Z	1679.63	44.90		4,717
A'	1022.22	44.90		2,871
B'	340.74	44.90		957
C'	-0-	-0-		-0-
D'	-0-	-0-		-0-

(960' - 1040' Level)

A	344.44	55.06		1,015
B	-0-	-0-		-0-
C	-0-	-0-		-0-
D	217.78	41.78		603
E	139.44	44.90		392
F	1468.	44.90		4,122
G	1037.78	50.38		2,990
H	3414.44	55.86		10,099
I	3463.70	71.42		11,083
J	3755.56	62.90		11,501
K	2800.	62.90		8,575
L	640.	57.32		1,966
M	2370.37	57.32		7,061

960' - 1040' Level (Continued)

Block	Volume Cu. Yds.	%Ba$O4	%SO4	Ore Tons
N	1813.33	57.32		5,402
O	-0-	-0-		-0-
P	-0-	-0-		-0-
Q	486.85	40.00		1,334
R	1802.59	42.17		5,054
S	732.	42.17		2,030
S'	1274.	41.22		3,518
T	1210.	41.22		3,342
U	760.	40.27		2,090
V	2617.	44.90		7,348
W	2103.	44.90		5,906
X	2953.	44.90		8,293
Y	1360.	44.90		3,819
Z	-0-	-0-		-0-
A'	-0-	-0-		-0-
B'	-0-	-0-		-0-
C'	-0-	-0-		-0-
D'	-0-	-0-		-0-

980' - 960' Level

A	507.	52.10		1,472
B	360.	52.10		1,046
C	666.	48.50		1,903
D	211.	44.90		591
E	1457.	44.90		4,090
F	1007.	58.32		3,015
G	3618.	71.77		11,598
H	4135.	71.71		13,250
I	5089.	62.90		15,585
J	3578.	62.90		10,957
K	1659.	61.72		5,051
L	5926.	61.72		18,041
M	4617.	61.72		14,055
N	-0-	-0-		-0-
O	-0-	-0-		-0-
P	604.	40.00		1,660
Q	1849.	42.17		5,177.
R	713.	42.17		1,978
S	2230.	41.22		6,158
T	601.	40.27		1,654
U	2222.	40.27		6,110
V	1887.	42.59		5,244

980' - 960' Level (Continued)

Block	Volume Cu. Yds.	%Ba$O4	%SO4	Ore Tons
W	1926.	44.90		5,408
X	1778.	44.90		4,992
Y	1333.	44.90		3,744

800' - 880' Level

A	1467.	65.55		4,552
A'	-0-	12.40		-0-
B	987.	70.4		3,160
C	822.	70.4		2,617
D	2878.	75.25		9,397
E	4978.	75.25		16,256
F	5270.	72.40		16,961
G	5460.	72.40		17,561
H	1244.	66.11		3,874
I	4148.	66.11		12,917
J	4417.	66.11		13,748
K	4209.	62.56		12,868
L	3324.	62.56		10,161
M	1283.	59.36		3,861
N	2588.	59.36		7,786
O	670.	59.36		2,016
P	1894.	55.36		5,589
Q	477.	51.35		1,379
R	1943.	51.35		5,620
S	2055.	50.29		5,917
T	2474.	49.22		7,087
U	2449.	49.22		7,017

725' - 800' Level

BLOCK	VOLUME CU. YDS.	%Ba$O4	%SO4	ORE TONS
A	-0-	18.69		-0-
B	3813.33	57.90		11392
C	3178.00	57.90		9493
D	2129.00	57.90		6360
E	1167.00	57.01		3470
F	4115.00	57.01		12239
G	1867.00	59.02		5607
H	4567.00	61.03		13855
I	1534.00	61.03		4653
J	2516.00	61.03		7634
K	359.00	63.73		1105
L	814.00	66.42		2528
M	698.00	69.39		2200
N	2512.00	71.81		8054
O	3670.00	71.81		11766
P	4502.00	72.40		14278
Q	5793.00	72.40		18626
R	1486.00	66.11		4626
S	4644.00	66.11		14457
T	4521.00	66.11		14072
U	3865.00	62.74		11830
V	2880.00	62.74		8813
W	1187.00	61.05		3601
X	2498.00	59.36		7517
Y	686.00	59.36		2065
Z	1791.00	55.36		5284
A'	448.00	51.35		1397
B'	630.00	51.35		1827
C'	-0-	24.82		-0-
D'	-0-	24.82		-0-

650' - 725' Level

BLOCK	VOLUME CU. YDS.	%Ba$O4	%SO4	ORE TONS
A	677.78	56.50		2011
B	2033.00	56.50		6033
C	1762.00	56.50		5228
D	1167.00	56.50		3461
E	4206.00	56.50		12478
F	1945.00	56.50		5769
G	4936.00	56.50		14644
H	1547.00	56.50		4590
I	2629.00	56.50		7801
J	425.00	62.44		1300
K	735.00	62.44		2246
L	882.00	68.37		2778
M	3024.00	68.37		9523
N	3452.00	68.37		10870
O	4969.00	68.37		14389
P	5769.00	68.37		18167
Q	1677.00	64.63		5187
R	4793.00	64.63		14801
S	4639.00	64.63		14331
T	4059.00	61.87		12368
U	3008.37	61.87		9166
V	1375.00	59.95		4149
W	2833.00	59.11		8511
X	769.00	59.11		2310
Y	2039.00	57.11		6066
Z	488.00	51.35		1411
A'	944.00	51.35		2733

600' - 650' Level

BLOCK	VOLUME CU. YDS.	%Ba$O4	%SO4	ORE TONS
A	251.11	62.44		767
B	351.56	68.37		1107
C	1375.00	68.37		4330
D	2177.00	68.37		6857
E	3094.00	68.37		9744
F	3844.00	68.37		12107
G	1182.00	63.15		3625
H	3378.00	63.15		10357
I	3116.00	63.15		9554
J	2713.00	61.00		8231
K	2016.00	61.00		6116
L	971.00	58.85		2913
M	2078.00	58.85		6236
N	579.00	58.85		1739
O	1469.44	58.85		4410
P	350.00	51.35		1013
Q	631.00	51.35		1825

CENTRAL PIT PHASE I (TOTALS)

Block	Volume Cu. Yds.	%Ba$O4	%SO4	Ore Tons
800 ' Level				
%measured	58,037	64.96		170,311
Indicated	-	-		-
880' Level				
%measured	40,388	56.17		119,641
Indicated	7,795	61.72		23,092
960' Level				
Measured	54,902	53.49		104,061
Indicated	660	57.32		1,906
1040' Level				
Measured	25,805	54.90		75,968
Indicated	-	-		-
Level Totals				
%measured	156,132	58.57		468,981
Indicated	8,225	61.38		24,998
Grand Totals				
%measured & Indicated	164,457	58.71		493,979

CENTRAL PIT PHASE II

1040' Level

Block	Volume Cu. Yds.	%Ba$O4	%SO4	Ore Tons
A"	4,345.37	47.70		12,362
B"	577.78	47.70		1,644
A'	2,231.	57.20		6,581
B	1,922.	57.20		5,723
C	1,096.	57.20		3,262
D	1,170.	71.46		3,584
E	3,463.	71.46		11,092

960' - 1040' Level

K	2,666.67	47.70		7,586
L	888.89	47.70		2,529
E	4,140.	57.20		12,329
F'	3,600.	57.20		10,718
O	2,448.	57.20		7,286
H	1,377.78	71.46		4,409
I	1,684.44	71.46		14,992
J	1,056.30	55.06		3,112

880' - 960' Level

M	493.33	47.70		1,403
N	4,370.37	57.20		13,011
O	3,703.70	57.20		11,026
P	2,407.41	57.20		7,167
Q	1,377.78	63.73		4,237
R	3,283.56	63.73		11,943
S	1,208.89	63.01		3,704
T	1,452.87	62.46		4,440

880' - 880' Level

U	4,555.56	52.53		13,259
V	3,796.30	53.53		11,103
W	2,467.59	53.53		7,217
X	1,288.89	56.00		3,815

880' - 880' Level(continued)

Block	Volume Cu. Yds.	%Ba$O4	%SO4	Ore Tons
Y	4,457.78	56.00		13,194
Z	1,866.67	60.78		5,666
A*	4,518.52	65.55		14,025
B'	1,837.04	65.55		5,702
C'	688.89	65.55		2,138

Grand Totals

800' Level

Measured	23,611	57.67		70,664
Indicated	1,567	57.78		5,662

880' Level

Measured	13,319	60.08		40,711
Indicated	5,679	58.49		16,711

960' Level

Measured	20,962	59.96		62,999
Indicated	-0-	-0-		-0-

1040' Level

Measured	14,725.	58.91		44,208
Indicated	-0-	-0-		-0-

Level Totals

Measured	72,617	59.03		217,870
Indicated	7,246	59.07		27,361

Grand Totals

Measured & Indicated	79,863	59.03		240,207

LONGITUDINAL SECTION CENTRAL PIT

MILCHEM INCORPORATED
FANCY HILL PROJECT

MX -44 SHEET 2 OF 2

P11516.F1 JAN. 1980

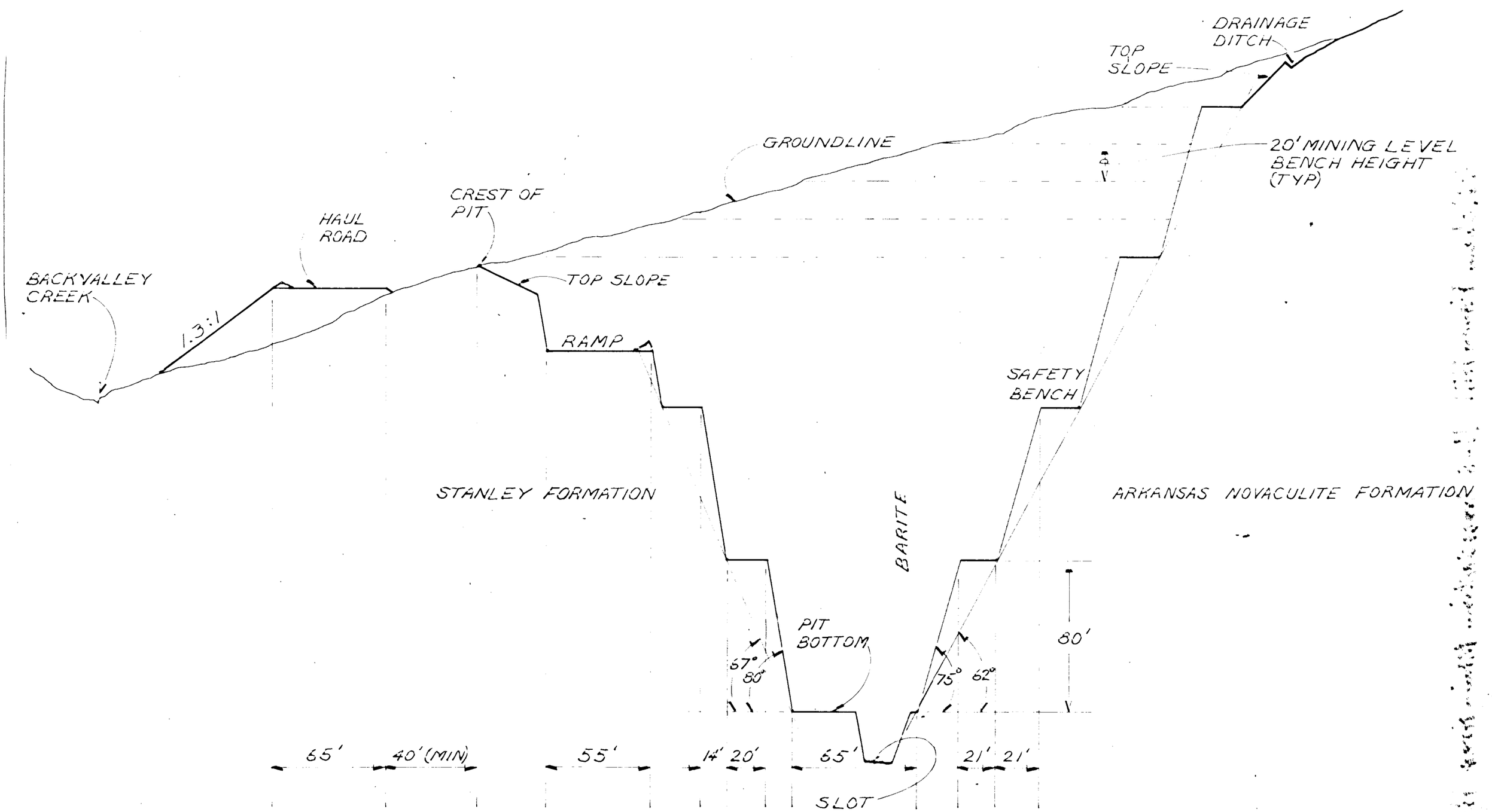


FIGURE IV – 5

MILCHEM INCORPORATED
FANCY HILL PROJECT

N–S CROSS SECTION–MINING AREA

P11516.F1.60 DECEMBER 1979

CH2M HILL

SURFACE

BH

MH-113

MH-117

WASTE

WASTE

TD = 2580'

20°

25'

80'

BARITE ORE

75°

20'

75'

300' BELOW OUTCROP

TD = 3450'

Milchem

HOUSTON TEXAS

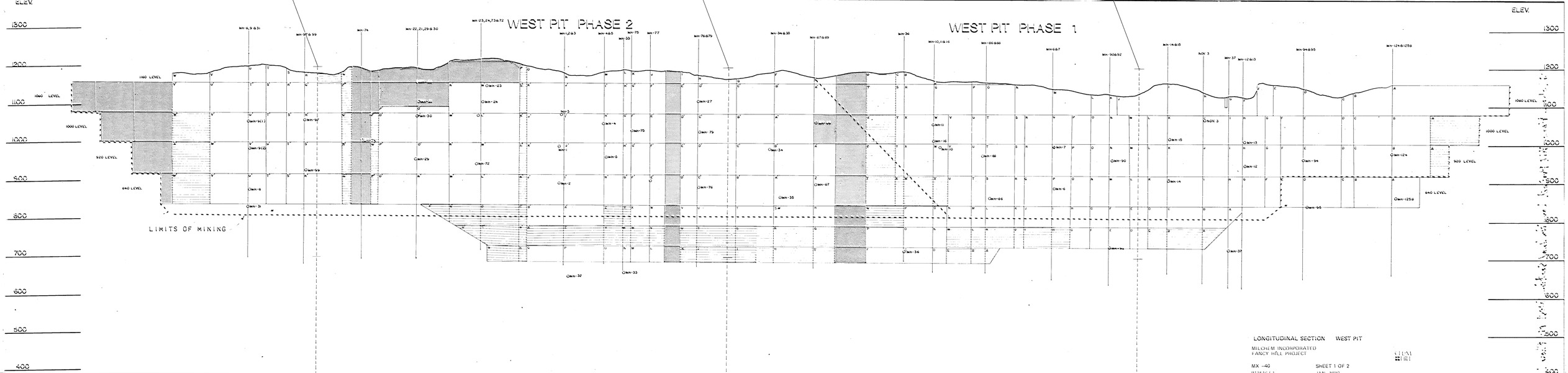
SCALE

DRAWN

APPR.

DATE

DRAWING NO. /



LONGITUDINAL SECTION WEST PIT

MILLENIUM INCORPORATED
FANCY HILL PROJECT

MX -40 SHEET 1 OF 2
P1151611 JAN. 1990

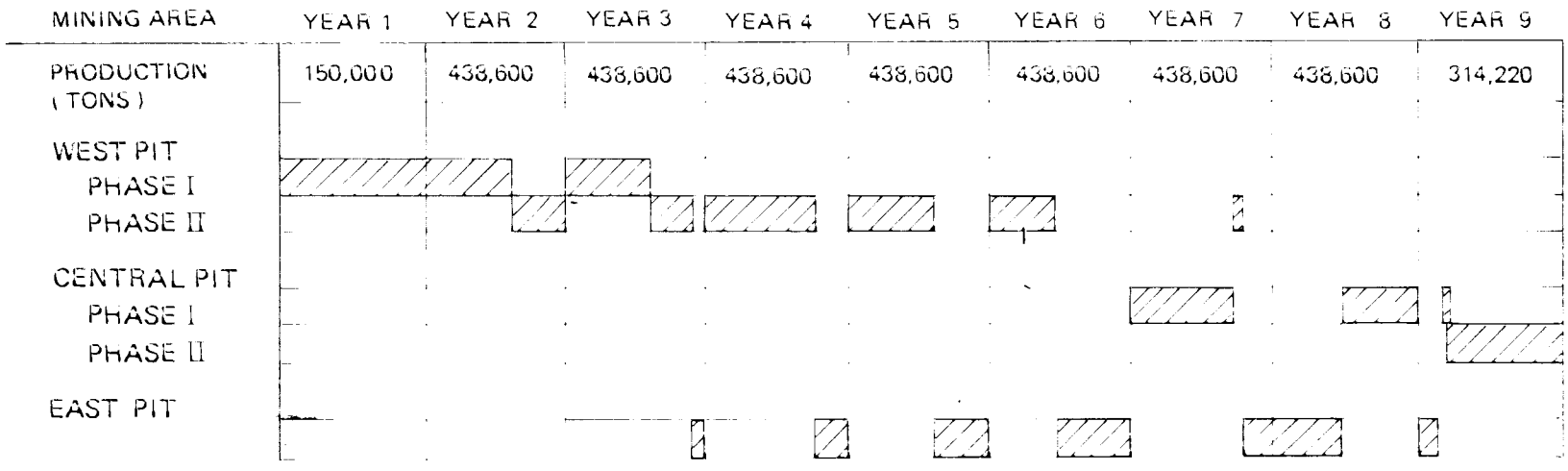


FIGURE V-3
ORE REMOVAL SCHEDULE

FANCY HILL PROJECT
MILCHEM INCORPERATED

P 11516.F1

JAN. 1980

CH2M HILL

1000 and above Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
A	-0-	34.44	-0-
A'	-0-	34.44	-0-
B	-0-	34.44	-0-
C	211.85	50.01	609
D	158.89	65.57	493
B"	348.15	42.93	969
C"	626.67	42.93	1,744

920' - 1000' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
E	-0-	34.44	-0-
F	-0-	34.44	-0-
F'	-0-	34.44	-0-
G	1062.22	50.10	3,056
H	2470.81	65.57	7,670
I	1925.19	65.57	5,976
K	2095.09	58.20	6,268
J	1322.96	58.20	3,858
S	164.00	49.25	470
T'	119.78	42.93	333
R'	757.41	42.93	2,108
X'	1436.28	42.93	3,997
B"	1636.67	42.93	4,556
E"	-0-	36.50	-0-
F	-0-	36.50	-0-

840' - 920' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
I	-0-	34.44	-0-
J	-0-	34.44	-0-
J'	-0-	34.44	-0-
K	1333.33	50.01	3,839
L	2533.33	65.57	7,864
M	2473.78	65.57	7,679
O	2619.44	58.20	7,837
P	4811.11	58.20	14,394
AA	1302.22	55.64	3,847
AA"	5031.48	53.08	14,683
FF	3198.61	59.88	9,649
GG	4209.91	59.88	12,700

840- - 920' level (continued)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
KK	1357.48	52.56	3,952
MM	7907.41	45.23	22,239
NN	5786.67	45.23	16,274
RR	544	46.78	1,541
WW	1700	46.78	4,816
XX	1433.78	46.78	4,061
B'	2891.78	42.00	8,013
C'	2739.26	42.00	7,591
G'	330	49.25	946
H'	798.52	49.25	2,288
M'	272.59	42.93	759
S'	1185.19	42.93	3,298
Y'	1672.22	42.93	4,654
A"	1880	42.93	5,232
D"	-0-	36.50	-0-
E"	-0-	36.50	-0-

760' - 840' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
M	984.44	52.57	2,866
N	607.41	52.57	1,768
N'	537.78	52.57	1,566
N"	1025.93	70.70	3,270
N"'	898.89	70.70	2,865
O	1262.22	57.64	3,766
P	2346.67	44.58	6,580
Q	2169.17	44.58	6,082
R	2562.89	58.20	7,670
S	4905.56	58.20	14,676
BB	1358.89	55.64	4,016
BB'	3946.02	53.08	11,516
CC'	1322.22	56.48	3,9[illegible]
GG	3553.33	59.88	10,719
HH	5075.46	59.88	15,311
LL	1907.41	54.25	5,598
NN	9914.81	48.61	28,3[illegible]
MM	7320.00	48.61	20,914
SS	1280	46.05	3,614
XX	4000	46.05	11,[illegible]
YY	2328.89	46.78	6,59[illegible]

760' - 840' Level (continued)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
C'	3408.89	42.00	9,446
D'	2962.96	42.00	8,211
H'	1555.56	49.25	4,458
W'	272.59	42.93	759
T'	1185.19	42.93	3,298
A'	1244.44	42.93	3,463
Z'	1600	42.93	4,453

680' - 760' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
R	1937.07	70.70	6,17[illegible]
W	1538.89	70.70	4,90[illegible]
S	1277.04	57.64	3,810
T	2291.11	44.58	6,424
X	2269.93	44.58	6,365
Y	2688.00	53.84	7,873
Z	5859.26	53.84	17,16[illegible]
CC	1720	51.57	4,983
CC'	7289.63	49.30	20,894
HH	5374	55.52	15,870
II	6310.46	55.52	18,634
OO	11657.41	51.98	33,841
PP	6508.89	51.98	18,895
TT	1578.67	45.32	4,442
YY	4933.33	45.32	13,880
ZZ	4686.67	45.32	13,180
D'	2368.00	45.32	6,663
E	173.33	48.93	498
I'	1184.44	48.83	3,388
O'	793.33	45.03	2,229
P'	730.37	45.03	2,052
Q'	1322.22	45.03	3,71[illegible]

640' - 680' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
U'	1528.89	49.48	4,3[illegible]
"V"	222.22	49.48	[illegible]
DD	2611.11	49.48	7,491
EE	3252.13	49.48	9,[illegible]

640' - 680' Level (continued)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
JJ	994.44	47.50	2,826
DD'	4513.89	45.52	12,712
II	3675	51.15	10,626
HH	3631.11	51.15	10,499
PP	5907.41	51.98	17,149
QQ	3106.67	51.98	9,019
'UU'	695.70	45.32	1,9[illegible]
"ZZ"	2174.07	45.32	6,117
F'	2065.37	45.32	5,811
E'	1043.56	45.32	2,93[illegible]
G'	88.89	48.40	2[illegible]
J'	546.67	48.40	1,5[illegible]
P'	350	47.13	99[illegible]
U'	322.22	47.13	914
V'	322.22	47.13	91[illegible]

600' - 640' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
EE	4533.33	45.52	12,7[illegible]
JJ	3555.56	51.15	10,281
TT	3679.63	51.15	10,640
QQ	5462.96	51.98	15,8[illegible]
RR	2828.89	51.98	8,[illegible]
VV	613.33	45.32	1,7[illegible]
A'	2044.44	45.32	5,75[illegible]
B'	2044.44	45.32	5,75[illegible]
F'	1022.22	45.32	2,87[illegible]
G'	88.89	48.40	254
E	466.67	48.40	1,3[illegible]
K'	66.67	48.40	19[illegible]
Q'	155.56	47.13	441

EAST PIT

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
600' - 640' level			
A	635.19	49.48	1822
B	1893.0	49.48	5430
C	2402.0	49.48	6891
D	3315.0	49.48	9510
E	1028.0	42.88	2859
F	360.0	42.88	1002
640' - 680' level			
A	618.0	49.48	1772
B	960.0	49.48	2754
C	229.0	49.48	658
560' - 600' level			
A	2105.0	49.48	6039
B	3050.0	49.48	8749
C	4461.0	42.88	12413
D	1338.0	42.88	372[illegible]
E	3828.0	45.52	10781
F	1390.0	45.52	3914
G	3378.0	51.15	9766
H	3145.0	51.15	9093
I	942.0	51.32	2725
J	4233.0	51.48	12259
K	2720.0	51.48	7877
L	652.0	45.32	1834
M	1996.0	45.32	5617
N	2668.0	45.32	7506
520' - 560' level			
A	1000.0	49.48	2869
B	3092.0	49.48	8871
C	4477.0	42.88	12455
D	1342.0	42.88	3733
E	3876.0	45.52	10914
F	1421.0	45.52	4003

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
520' - 560' continued			
G	3561.0	51.15	10297
H	3331.0	51.15	9631
I	1060.0	51.32	3067
J	4314.0	51.48	12494
K	2720.0	51.48	7877
L	652.0	45.32	1834
M	1996.0	45.32	5616
N	1633.33	45.32	4596
465' - 520' level			
A	2873.0	49.48	8241
B	6300.0	42.88	17528
C	1844.0	42.88	5131
D	5250.0	45.52	14784
E	1943.0	45.52	547[illegible]
F	4999.0	51.15	1445[illegible]
G	4590.0	51.15	13271
H	1456.0	51.32	421[illegible]
I	5912.0	51.48	1712[illegible]
J	3720.0	51.48	10773
K	672.0	45.32	1891
L	1976.0	45.32	5559

EAST PIT LEVELS TOTAL

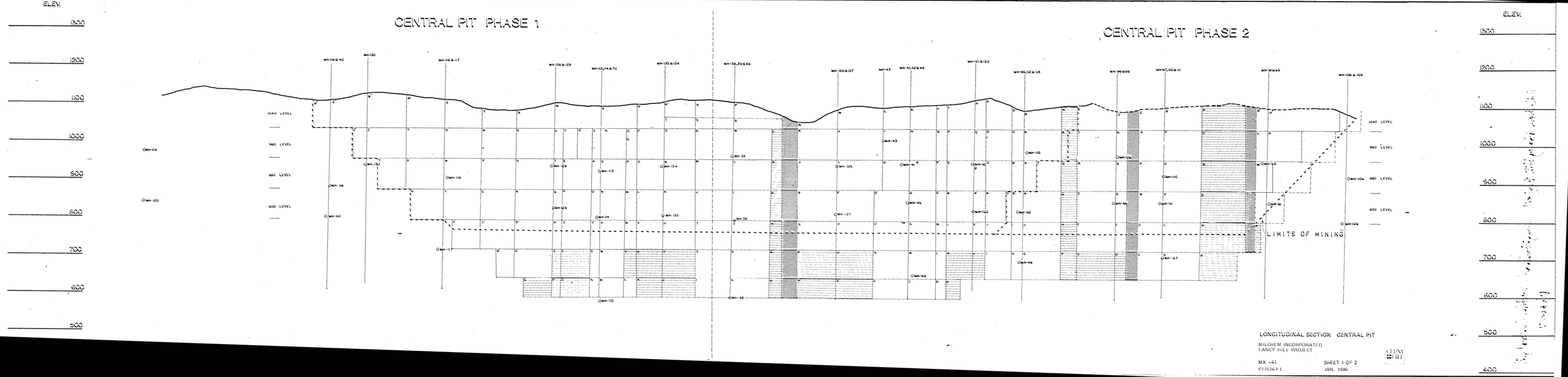
	Volume Cu. Yds.	%BaSO4	Ore Tons
1000' Level			
Measured	718.89	50.40	2,071
Indicated	626.67	42.93	1,744
920' Level			
Measured	11233.96	57.55	33,50[illegible]
Indicated	1756.45	42.93	4,888
840' Level			
Measured	52,655.82	51.93	153,8[illegible]
Indicated	5,356.29	48.99	15,3[illegible]
760' Level			
Measured	52989.10	51.44	182,384
Indicated	8548.52	50.46	24,639
680' Level			
Measured	67858.72	52.06	197,0[illegible]
Indicated	6633.33	47.07	18,81[illegible]
640' Level			
Measured	32360.09	49.42	92,7[illegible]
Indicated	4701.48	47.32	13,3[illegible]
600' Level			
Measured	24682.59	49.41	70,7[illegible]
Indicated	1880	45.62	5,29[illegible]
Grand Totals			
Measured & Indicated	281991.91	51.17	815,47[illegible]

LONGITUDINAL SECTION EAST PIT

MILCHEM INCORPORATED
FANCY HILL PROJECT

MX 45 SHEET 2 OF 2

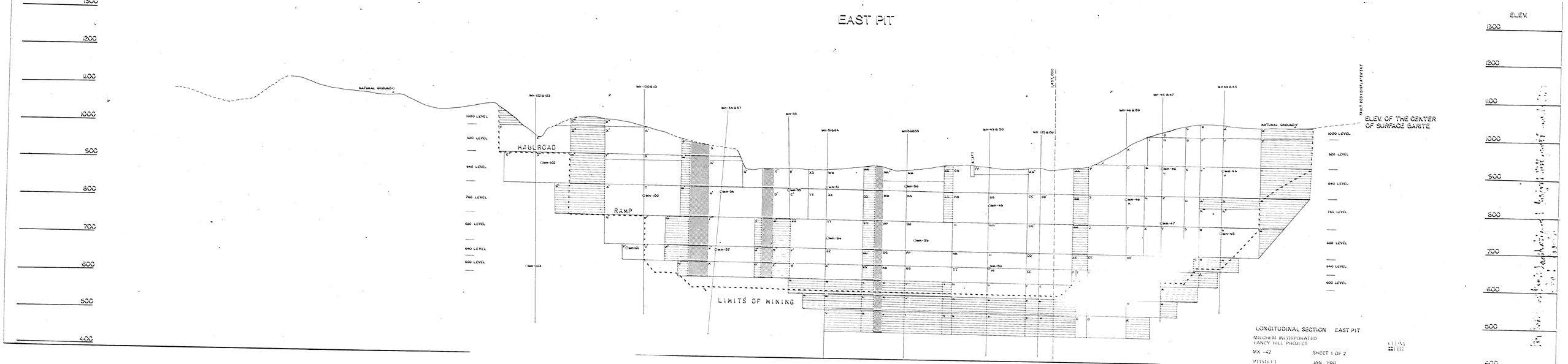
P11516.F1 JAN. 1980



LONGITUDINAL SECTION CENTRAL PIT

MILCHEM INCORPORATED
FANCY HILL PROJECT

MX -41 SHEET 1 OF 2
P11516.F1 JAN. 1980


EAST PIT
ELEV.
1300
1200
1100
1000
900
800
700
600
500
400
NATURAL GROUND
HAULROAD
RAMP
LIMITS OF MINING
ELEV. OF THE CENTER OF SURFACE BARITE
1000 LEVEL
920 LEVEL
840 LEVEL
760 LEVEL
680 LEVEL
640 LEVEL
600 LEVEL
LONGITUDINAL SECTION EAST PIT
MILCHEM INCORPORATED
FANCY HILL PROJECT
MX -42
SHEET 1 OF 2
JAN. 1980

1040 Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
A	1518.52	55.60	4,474
B	-0-	-0-	-0-
C	-0-	-0-	-0-
D	-0-	-0-	-0-
G	-0-	-0-	-0-
H	-0-	-0-	-0-
I	-0-	-0-	-0-
J	-0-	-0-	-0-
K	1718.89	71.77	5,510
L	2076.67	71.77	6,657
M	2504.44	71.77	8,028
N	1590.56	62.90	4,871
P & O	2080.	57.32	6,196
R & S	1600.	57.32	4,766
R' & T	-0-	-0-	-0-
U	466.67	40.00	1,281
V	1773.33	42.17	4,918
W	3233.00	41.22	8,927
X	2403.70	44.90	6,750
Y	1796.67	44.90	5,045
Z	1679.63	44.90	4,717
A'	1022.22	44.90	2,871
B'	340.74	44.90	957
C'	-0-	-0-	-0-
D'	-0-	-0-	-0-

(960' - 1040' Level)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
A	344.44	55.06	1,015
B	-0-	-0-	-0-
C	-0-	-0-	-0-
D	217.78	41.78	603
E	139.44	44.90	392
F	1468.	44.90	4,122
G	1037.78	50.38	2,990
H	3414.44	55.86	10,099
I	3463.70	71.42	11,083
J	3755.56	62.90	11,501
K	2800.	62.90	8,575
L	640.	57.32	1,906
M	2370.37	57.32	7,061

960' - 1040' Level (Continued)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
N	1813.33	57.32	5,402
O	-0-	-0-	-0-
P	-0-	-0-	-0-
Q	485.85	40.00	1,334
R	1822.59	42.17	5,054
S	732.	42.17	2,030
S'	1274.	41.22	3,518
T	1210.	41.22	3,342
U	760.	40.27	2,090
V	2617.	44.90	7,348
W	2103.	44.90	5,906
X	2057.	44.90	5,777
Y	1360.	44.90	3,819
Z	-0-	-0-	-0-
Z'	-0-	-0-	-0-

880' - 960' Level

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
A	507.	52.10	1,472
B	360.	52.10	1,046
C	666.	48.50	1,903
D	211.	44.90	591
E	1457.	44.90	4,092
F	1007.	58.32	3,015
G	3618.	71.77	11,598
H	4135.	71.71	13,252
I	5089.	62.90	15,585
J	3578.	62.90	10,957
K	1659.	61.72	5,051
L	5926.	61.72	18,041
M	4617.	61.72	14,055
N	-0-	-0-	-0-
O	-0-	-0-	-0-
P	604.	40.00	1,660
Q	1849.	42.17	5,127.
R	713.	42.17	1,978
S	2230.	41.22	6,158
T	601.	40.27	1,654
U	2222.	40.27	6,110
V	1887.	42.59	5,244

880' - 960' (continued)

Block	Volume Cu. Yds.	%BaS04	Ore Tons
W	1926.	44.90	5,408
X	1778.	44.90	4,992
Y	1333.	44.90	3,744

800' - 880' Level

Block	Volume Cu. Yds.	%BaS04	Ore Tons
A	1467.	65.55	4,552
A'	-0-	12.40	-0-
B	987.	70.4	3,140
C	822.	70.4	2,617
D	2878.	75.25	9,397
E	4978.	75.25	16,256
F	5270.	72.40	16,951
G	5460.	72.40	17,561
H	1244.	66.11	3,874
I	4148.	66.11	12,912
J	4417.	66.11	13,748
K	4209.	62.56	12,868
L	3324.	62.56	10,161
M	1283.	59.36	3,861
N	2588.	59.36	7,786
O	670.	59.36	2,016
P	1894.	55.36	5,589
Q	477.	51.35	1,379
R	1943.	51.35	5,622
S	2055.	50.29	5,917
T	2474.	49.22	7,087
U	2449.	49.22	7.017

725' - 800' level

BLOCK	VOLUME CU. YDS.	%BaS04	ORE TONS
A	-0-	18.69	-0-
B	3813.33	57.90	11392
C	3178.00	57.90	9493
D	2129.00	57.90	6360
E	1167.00	57.01	3470
F	4115.00	57.01	12239
G	1867.00	59.02	5607
H	4567.00	61.03	13855
I	1534.00	61.03	4653
J	2516.00	61.03	7634
K	359.00	63.73	1105
L	814.00	66.42	2538
M	698.00	69.39	2209
N	2512.00	71.81	8054
O	3670.00	71.81	11766
P	4502.00	72.40	14479
Q	5791.00	72.40	18626
R	1486.00	66.11	4626
S	4644.00	66.11	14457
T	4521.00	66.11	14072
U	3865.00	62.74	11830
V	2880.00	62.74	8813
W	1187.00	61.05	3601
X	2498.00	59.36	7517
Y	686.00	59.36	2065
Z	1791.00	55.36	5284
A'	448.00	51.35	1297
B'	630.00	51.35	1822
C'	-0-	24.82	-0-
D'	-0-	24.82	-0-

650' - 725' level

BLOCK	VOLUME CU. YDS.	%BaS04
A	677.78	56.50
B	2033.00	56.50
C	1762.00	56.50
D	1167.00	56.50
E	4206.00	56.50
F	1945.00	56.50
G	4936.00	56.50
H	1547.00	56.50
I	2629.00	56.50
J	425.00	62.44
K	735.00	62.44
L	882.00	68.37
M	3024.00	68.37
N	3452.00	68.37
O	4569.00	68.37
P	5769.00	68.37
Q	1677.00	64.63
R	4793.00	64.63
S	4639.00	64.63
T	4059.00	61.87
U	3008.37	61.87
V	1375.00	59.95
W	2833.00	59.11
X	769.00	59.11
Y	2039.00	57.11
Z	488.00	51.35
A'	944.00	51.35

ORE TONS
2011
6033
5228
3461
12478
5769
14644
4590
7801
1300
2246
2778
9523
10870
14389
18167
5182
14806
14331
12368
9166
4149
8515
2310
6068
1412
2733

600' - 650' level

BLOCK	VOLUME CU. YDS.	%BaSO4	ORE TONS
A	251.11	62.44	767
B	351.56	68.37	1107
C	1375.00	68.37	4330
D	2177.00	68.37	6857
E	3094.00	68.37	9744
F	3844.00	68.37	12107
G	1182.00	63.15	3625
H	3378.00	63.15	10357
I	3116.00	63.15	9554
J	2713.00	61.00	8231
K	2016.00	61.00	6116
L	971.00	58.85	2913
M	2078.00	58.85	6236
N	579.00	58.85	1739
O	1469.44	58.85	4410
P	350.00	51.35	1013
Q	631.00	51.35	1825

CENTRAL PIT PHASE I (TOTALS)

Block	Volume Cu. Yds.	%BaSO4	Ore Tons
800 ' Level			
Measured	55,037	64.96	170,311
Indicated	-	-	-
880' Level			
Measured	40,388	56.17	119,641
Indicated	7,585	61.72	23,092
960' Level			
Measured	34,902	53.49	103,061
Indicated	640	57.32	1,906
1040' Level			
Measured	25,805	54.90	75,968
Indicated	-	-	-
Level Totals			
Measured	156,132	58.57	468,981
Indicated	8,225	61.38	24,998
Grand Totals			
Measured & Indicated	164,357	58.71	493,979

CENTRAL PIT PHASE II

1040' Level

Block	Volume Cu. Yds.	%BaS04	Ore Tons
A"	4,345.37	47.70	12,362
B"	577.78	47.70	1,644
A	2,211.	57.20	6,581
B	1,922.	57.20	5,723
C	1,096.	57.20	3,262
D	1,120.	71.46	3,584
E	3,453.	71.46	11,052

960' - 1040' level

Block	Volume Cu. Yds.	%BaS04	Ore Tons
K	2,666.67	47.70	7,586
L	888.89	47.70	2,529
E	4,140.	57.20	12,325
F	3,600.	57.20	10,718
Q	2,448.	57.20	7,288
H	1,377.78	71.46	4,409
I	4,684,44	71.46	14,992
J	1,056.30	55.06	3,112

880' - 960' Level

Block	Volume Cu. Yds.	%BaS04	Ore Tons
M	493.33	47.70	1,403
N	4,370.37	57.20	13,011
O	3,703.70	57.20	11,026
P	2,407.41	57.20	7,167
Q	1,377.78	63.73	4,237
R	3,883,56	63.73	11,943
S	1,208.89	63.01	3,704
T	1,452.87	62.46	4,440

800' - 880' Level

Block	Volume Cu. Yds.	%BaS04	Ore Tons
U	4,555.56	52.53	13,259
V	3,796.30	53.53	11,103
W	2,467.59	53.53	7,217
X	1,288.89	56.00	3,815

800' - 880' level(continued)

Block	Volume Cu. Yds.	%BaS04	Ore Tons
Y	4,457.78	56.00	13,194
Z	1,866.67	60.78	5,656
A'	4,518.52	65.55	14,025
B'	1,837,04	65.55	5,702
C'	688.89	65.55	2,138

Grand Totals

800' Level			
Measured	23,611	57.67	70,453
Indicated	1,867	60.78	5,656
880' Level			
Measured	13,319	60.08	40,21[illegible]
Indicated	5,579	58.49	16,71[illegible]
960' Level			
Measured	20,862	59.96	62,959
Indicated	-0-	-0-	-0-
1040' Level			
Measured	14,725.	58.91	44,208
Indicated	-0-	-0-	-0-
Level Totals			
Measured	72,517	59.03	217,8[illegible]
Indicated	7,446	59.07	27,3[illegible]
Grand Totals			
Measured & Indicated	79,963	59.03	240,207

LONGITUDINAL SECTION CENTRAL PIT

MILCHEM INCORPORATED
FANCY HILL PROJECT

MX -44 SHEET 2 OF 2

P11516.F1 JAN. 1980

CH2M HILL

LONGITUDINAL SECTION WEST PIT

MILCHEM INCORPORATED
LANCY HILL PROJECT

MX 43
Pit114.FI

SHEET 2 OF 2
JAN 1990

EXPLANATION

- Qal — Alluvium / Colluvium, Quaternary
- Ms — Stanley Shale (Mississippian): shale, siltstone, tuff, sandstone (stippled). Msh – Hatton tuff; Mbb – Beaver's Bend tuff).
- MDa — Arkansas Novaculite (Devonian–Mississippian): novaculite.
- Dmm — Missouri Mountain Slate (Devonian?): shales, siltstone & claystones.
- Sb — Blaylock Sandstone (Silurian).

- Barite: massive to nodular.
- Barite: interbedded with shale.
- Barite: disseminated & small scattered nodules.
- Faults: dashed where approximately located.
- Relative vertical movement of faults.
- Relative lateral movement of faults.
- 80 — Strike and dip of beds.
- E 21 — Survey stations.
- Milchem drill holes.
- Baroid drill holes.
- Surdex survey stations.
- Shaft
- Baroid trenches.
- Face of dozed areas.
- Outer edge of dumps and dozed areas; edge of benches.
- Trenches, pits, and cuts.

NORTH
SURDEX GRID

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

20 0 20 40 60
Feet

Contour Interval – 5 feet

Geology by Edmond F. Lawrence (1977)
Drafted by Damon Burns

1300
1275
1250
1225
1200
1175
1150
1125
1100
SURVEY GRID
W28B
W28
W27
W26
W25
W24
W23
W22C
W22B
W22
W21
W20
W20B
W19
W18
W17
W16
W16B
MDs
Ms
MDc
Ma
Be7
Be6
Be5
Be4
Be3
Be2
Be1
Bch
Bch1
Bch2
Bch3
Bch4
Bch5
Bch6
Bch7
Bch8
Bch9
Bch10
Bch11
Bch12
Bch13
Bch14
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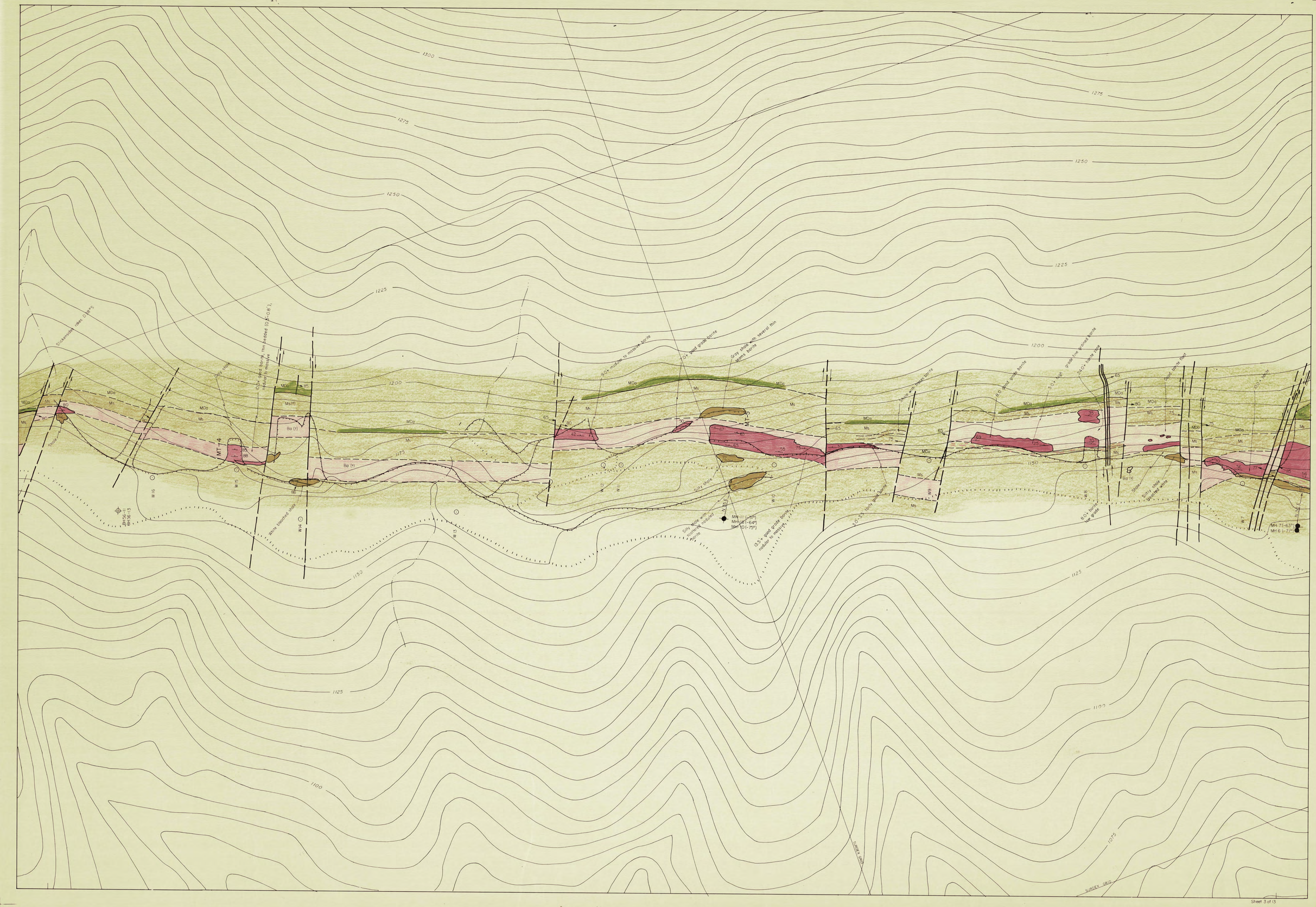
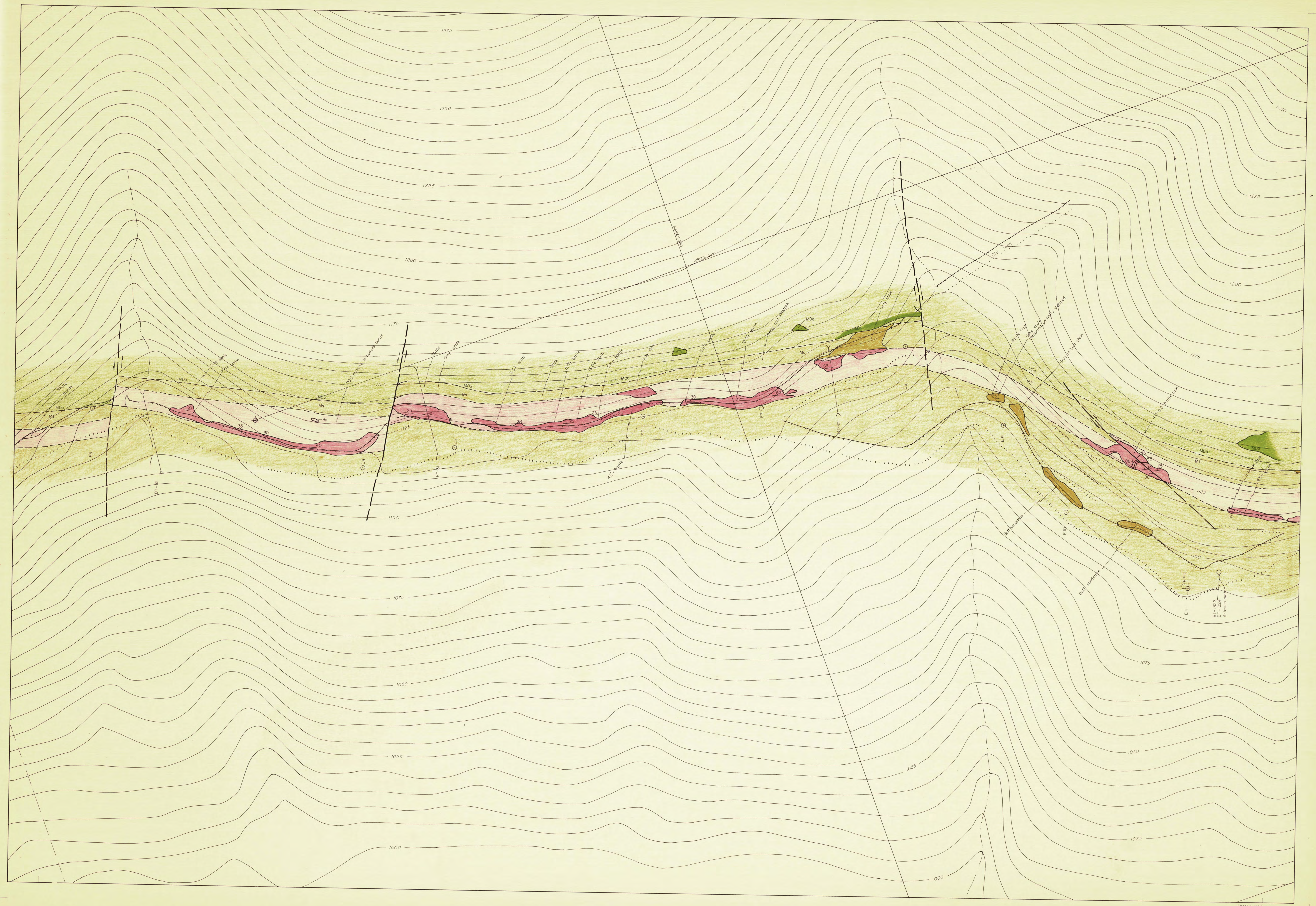
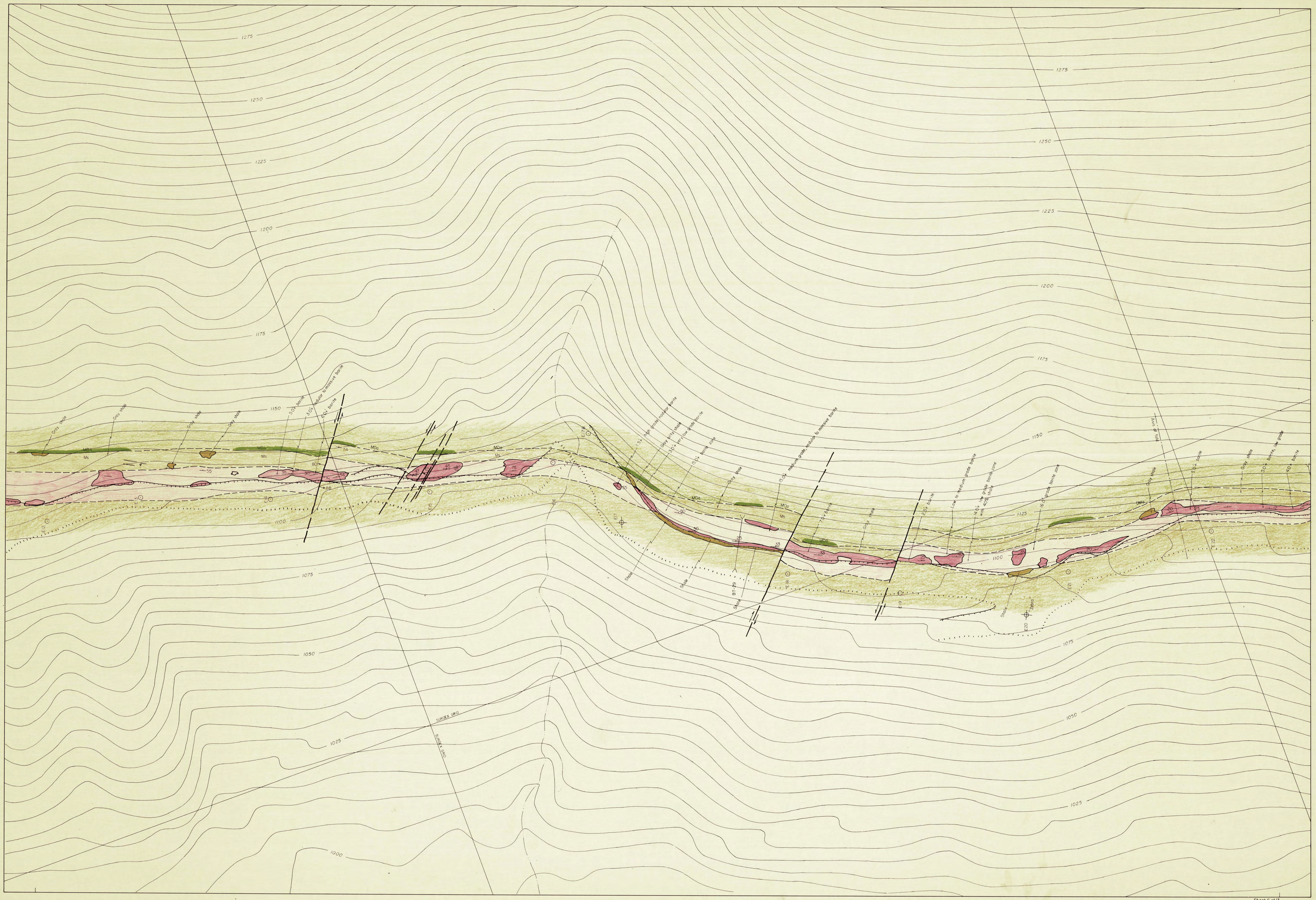

1300
1275
1250
1225
1200
1175
1150
1125
1100
1075
MT-14
MT-5
Slickensides rakes D-38°S
Gray shale
White bleached shale
Silty shale
Shale with traces barite
Gray shale with several thin seams barite
Silty shale with scattered nodular barite
Silty shale bleached white
Shale
Ms
MDa
Ba (?)
W16
W15
W14
W13
W12
W11
W10
W9
W8
W7
MH-11 (-51°)
MH-16 (-64°)
MH-10 (-75°)
MH 7 (-63°)
MH 6 (-71°)
SURDEX GRID

Sheet 3 of 13

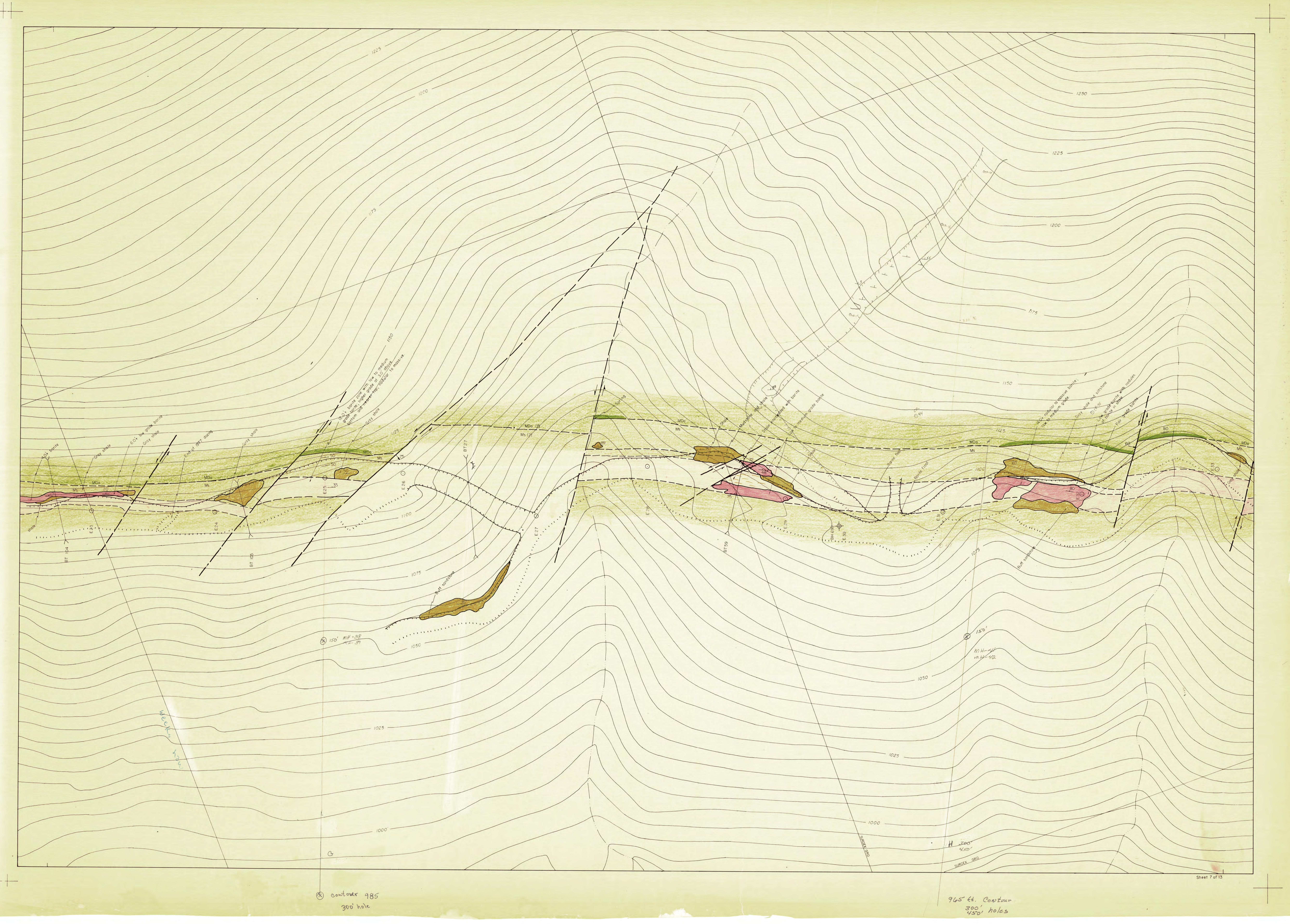
1250
1225
1200
1175
1150
1125
1100
1075
1050
1025
2.0' barite + 6.0' low grade brite as lenses (0.05'-0.20') in shale.
8.0' barite
14.0' barite
11.0' barite
MDa
Ms
W4
W5
W6
N30E
MH-7 (-63°)
MH-6 (-71°)
Silty shale
Lite gray shale
MT-6
24.5' good grade barite, gray in color, nodular to massive
18.5 massive to nodular barite
Slumped surface
No.2 shaft (Baroid)
270' Ba, nodular to massive, gray in color, with intercalations of shale.
Top of novaculite, very hard, cryptocrystalline, quartz and chalcedony, 0.5'-2.5' rounded nodules, cemented by pyrite.
W-1
TP-1
MT-7
Old Bariod samples
W3
W2
N25 E
MH-13 (-63°)
MH-12 (-76°)
MH-15 (-39°)
MH-14 (-63°)
Buff sandstone
Traces of Bo in shale
Old pad
Old road
Barite
E-1
E2
E3
BT-32
SURDEX GRID


1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
E3
E4
E5
E6
E7
E8
E9
E10
E11
BT-30
BT-31
BT-32
BT-1323
BT-1324
Artesian water
"Spring"
Buff sandstone
Gray to buff shale
Gray shale contorted, partially slumped
Barite float
4.0-5.0' barite zone
2.5 barite zone
4.5+ barite
Gray shale
Shale and siltstone
10.0'+ barite
5.5+ barite
5.0'+ barite
13.0'+ barite
2.5'+ barite
40'+ barite
20.0' massive to nodular barite
7.0'+ barite
Shale
Barite
Ba
MDa
Ms
Old road
SURDEX GRID

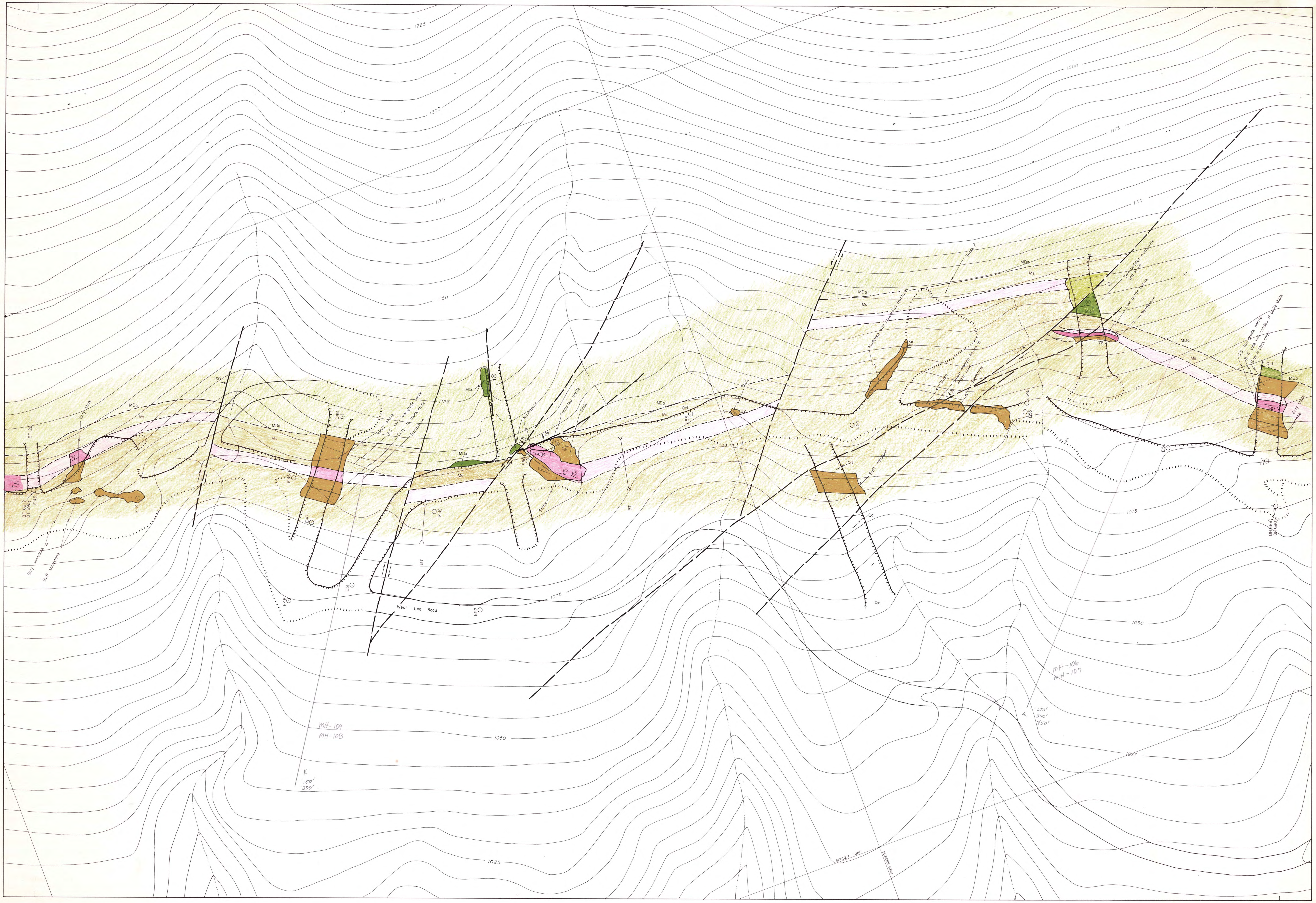
Sheet 5 of 13

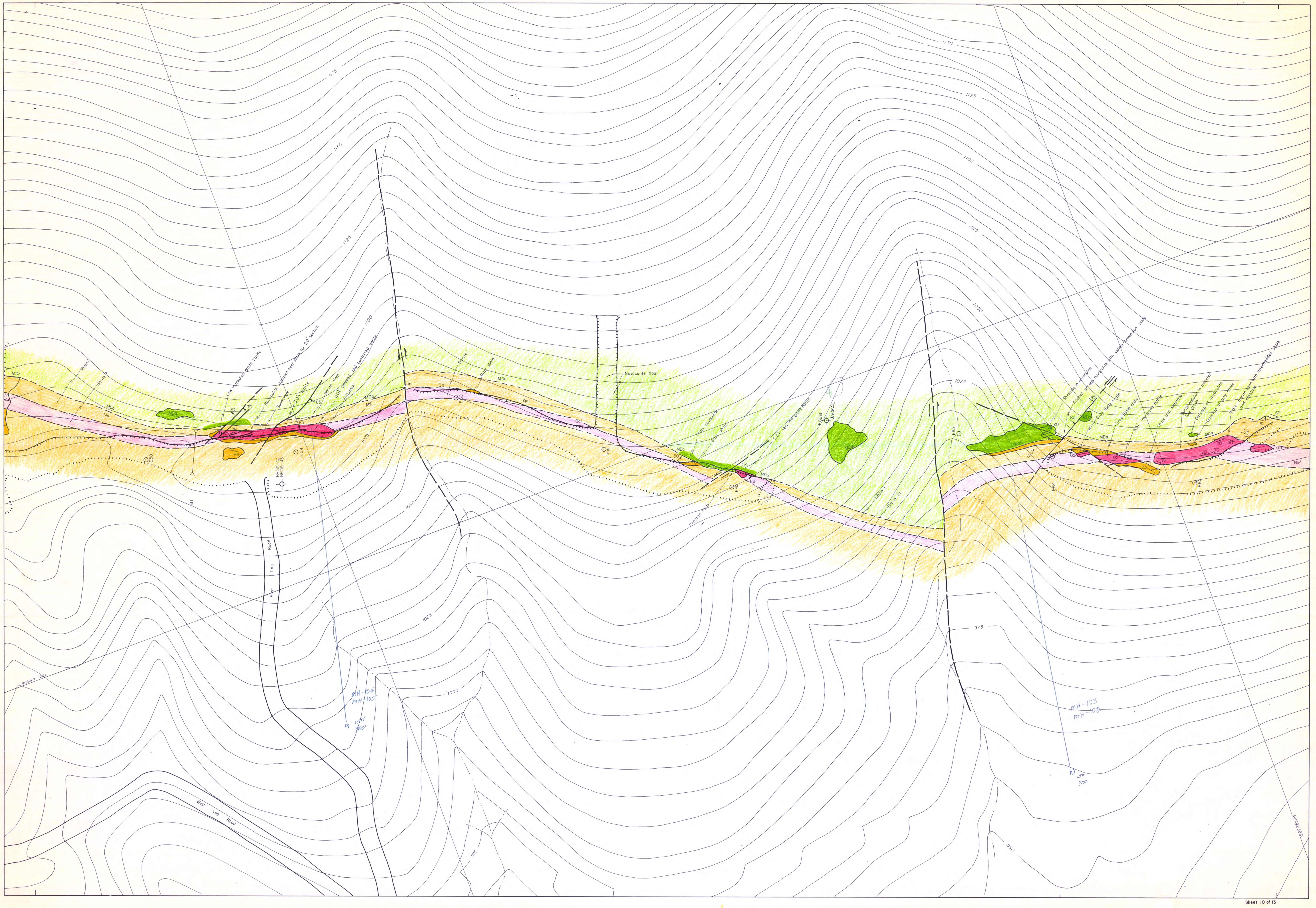


Sheet 6 of 13
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
SURDEX GRID
E12
E13
E14
E15
E16
E17
E17B
E18
E19
E20
E21
E22
"Zebra"
BT-29
Shale
Gray shale
Gray silty shale
MDa
Ms
Axis of fold
60'+ barite
3.0'+ nodular to massive barite
5.0'+ barite
1.5'+ high grade nodular barite
3.0'+ very low grade barite
15.0'+ barite zone
15.0'+ medium grade, nodular to massive barite
7.0'+ barite
2.5'+ barite
Low to medium grade barite
14.0'+ low grade barite zone with 40% shale
16.0' grade barite zone
50'+ barite
50'+ barite, low grade
40'+ barite


Sheet 7 of 13
965 ft. Contour
300' 450' holes
contour 985
300' hole
SURDEX GRID
H 300' 450'
150' MH-41 MH-42
150' MH-38 MH-39
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
Buff sandstone
Gray shale
Fair grade barite
Low grade barite with nodules of barite in shale
Gray shale and siltstone
14.0'+ nodular to massive barite; low to medium grade
Barite floor
Low to medium grade barite
Shale interbedded with barite
Mudstone and shale
Shale
Spring
12.0'+ barite zone with low to medium grade barite; higher grade at 3.0' above bottom and meter top; nodular to massive
6.0'+ low grade barite
End of 1977 dozing
4.0'+ barite
shale
MDa
Ms
MDa (?)
Ms (?)
E23
E24
E25
E26
E27
E28
E29
E30
E31
E32
E33
BH 699
BT59
BT27
BT 104
BT 105
Weeks

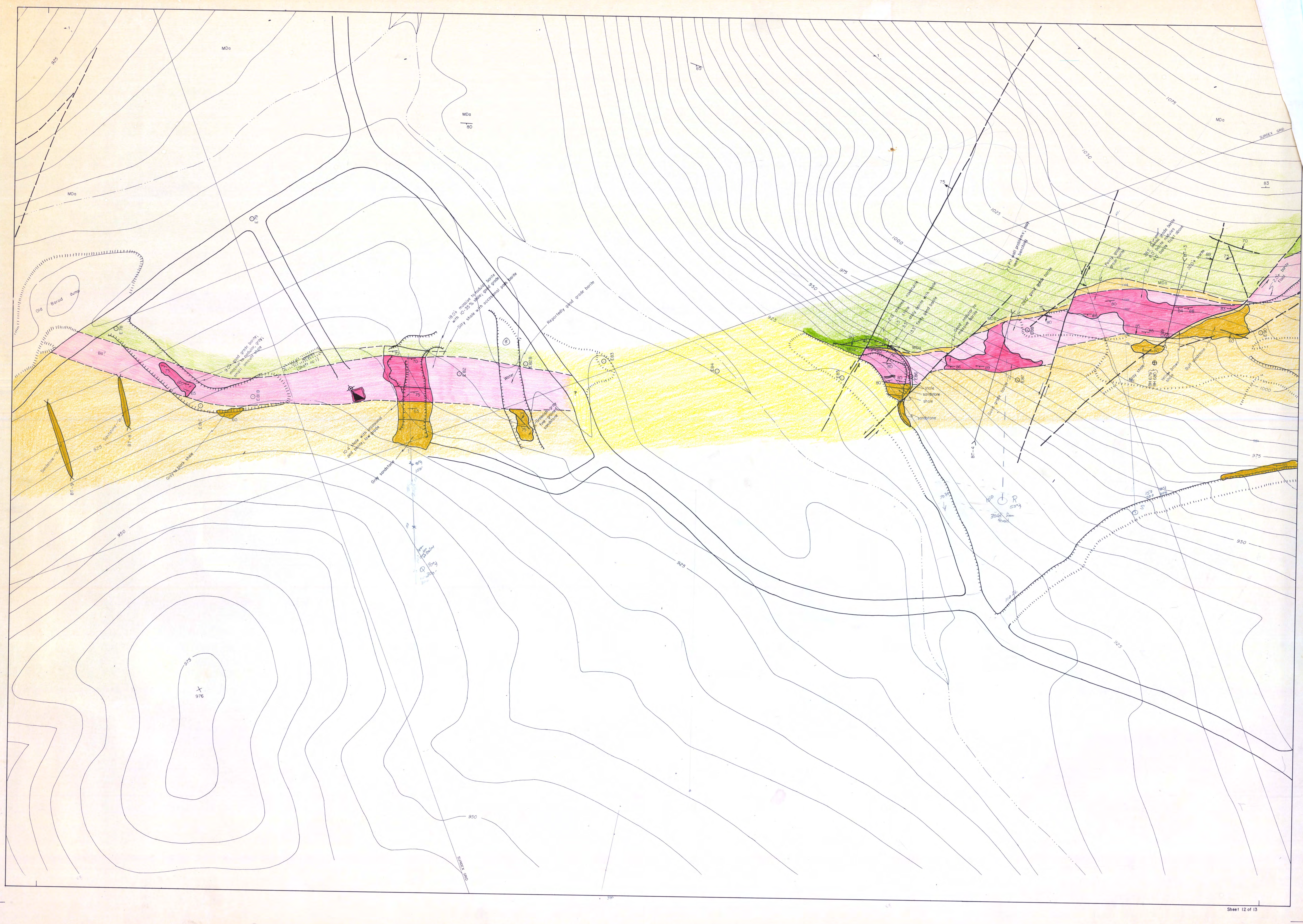
300' Hole
ON 965 Contour


1225
1200
1175
1150
1125
1100
1075
1050
1025
West Log Road
MDa
Ms
Qcl
BT
BT-22
BT 691
BT 692
BH 689
BH 690
E43
E44
E45
E46
E47
E48
E49
E50
E51
E52
E53
E54
E54D
E55
E56
E57
Gray shale
Buff sandstone
Gray sandstone
Gray shale
7.5' very low grade barite
Gray to black shale
Sandstone
Shale
Novaculite
Contorted barite
Shale
Buff sandstone
Mudstone with concoidal fractures
Shale ?
Shale
Small amount barite in shear zone
Sandstone
Interbedded novaculite and shale
Low grade barite
Sandstone
5.5 low grade barite
3-4' zone with nodules of barite shale
Gray to black shale
Gray shale
Sandstone
MH-109
MH-108
K
150'
300'
MH-106
MH-107
150'
300'
450'
SURDEX GRID
SURDEX GRID



1175
1150
1125
1100
1075
1050
1025
1000
975
950
MDa
Ms
Shale ?
Barite ?
Low to medium grade barite
Novaculite slumped over shale for 20' section
Sandstone
3.0'+ barite
Barite float
6.0'+ sheared and contorted barite
Siltstone
E58
E59
BH55-42
BH55-43
BT
Qal
Gray shale
E60
E61
Novaculite float
Platy novaculite
2.0'+ very low grade barite
E62
E62B
"JACKAL"
Chevron folds
Barite (?)
E63
Sheeting in novaculite
Altered porous novaculite with yellow-brown iron oxide
Gray fissle shale
6.5'+ low grade barite
Shale and siltstone
Barite nodular to massive low grade
Outcrop of novaculite
Outcrop of gray shale
9.5'+ barite zone with interbedded shale and siltstone
Shale
E64
E65
Ba?
East Log Road
West Log Road
SURDEX GRID
MH-104
MH-105
M 150' 300'
MH-103
MH-102
W 150 300

Mound Hill Mining District, Hand Colored Geologic Sheet 11 of 13


MDa
925
Old Baroid dump
E78
E79
Ba?
75
65
9.0+ good grade barite; massive to nodular, gray; small amount shale
Old samples (Shaft no.1)
E81B
E81C
60
Sandstone
Sandstone
BT-9
BT-8
Gray to black shale
10.4' shale with occasional pod barite; low grade
Gray sandstone
70
75
65
18.0+ massive to nodular barite with 10-35% shale; good grade
Silty shale with occasional pods barite
Reportedly good grade barite
E82
E82B
Water
Greenish gray fine-grained sandstone
?
E83
E84
E85
MDa
80
85
950
975
1000
1025
1050
1075
SURDEX GRID
83
75
2.0' sheared novaculite
1.5' shale
3.5' shaly barite with shale
13.5' fairly good barite
Good nodular to massive barite
E86
shale
sandstone
shale
sandstone
Pit wall problems; may need benching
280' good grade barite
E88
E87
Good grade barite
86
89
BT-4
Fairly good grade barite
28.5 Good grade barite
6.0' barite nodules
4.0' barite float above
BT-3
320'+ barite
88
70
84
88
83
E89
2.0+ barite float
Gray shale
BH 679
BH 680
Yellow brown shale
Buff sandstone
E90
60
976
SURDEX GRID
R
S
110 ft.
30 ft from Road

EXPLANATION

- Qal — Alluvium / Colluvium — Quaternary
- Ms — Stanley Shale (Mississippian): shale, siltstone, tuff, sandstone (stippled) (Msh – Hatton tuff; Mbb – Beaver's Bend tuff).
- MDa — Arkansas Novaculite (Devonian–Mississippian): novaculite.
- Dmm — Missouri Mountain Slate (Devonian?): shales, siltstone & claystones.
- Sb — Blaylock Sandstone (Silurian).

- Barite: massive to nodular.
- Barite: interbedded with shale.
- Barite: disseminated & small scattered nodules.
- Faults: dashed where approximately located.
- U / D — Relative vertical movement of faults.
- Relative lateral movement of faults.
- 80 — Strike and dip of beds.
- E 21 — Survey stations.
- Milchem drill holes.
- Baroid drill holes.
- Surdex survey stations.
- Shaft.
- Baroid trenches.
- Face of dozed areas.
- Outer edge of dumps and dozed areas; edge of benches.
- Trenches, pits, and cuts

NORTH
SURDEX GRID

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

20 0 20 40 60
Feet

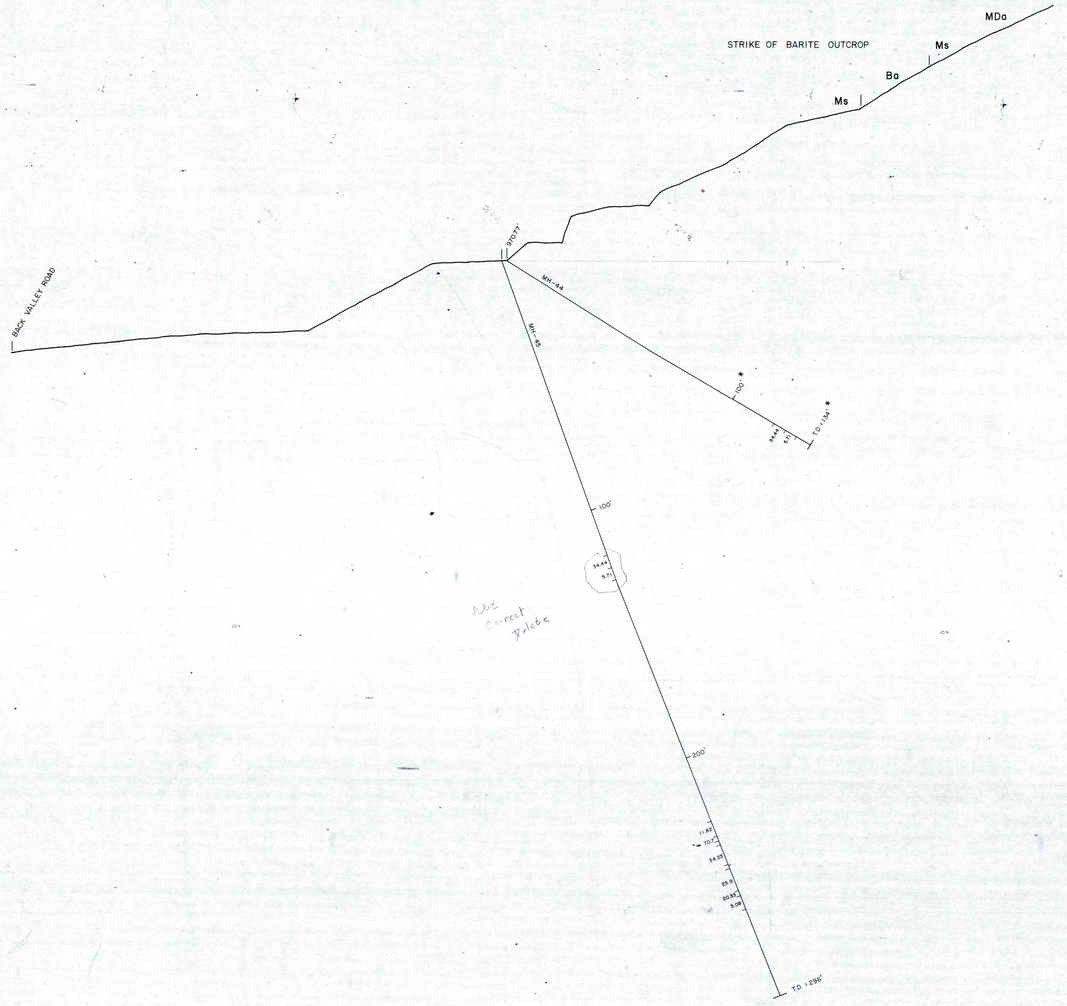
Contour Interval – 5 feet

Geology by Edmond F. Lawrence (1977)
Drafted by Damon Burns

Sheet 13 of 13

N

BEARING OF CROSS SECTION N29°11'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-44	0-64	32N	N30E	32N	64.0'	0.9999
	64-134	30N	N30E	30N	69.99'	0.9999
MH-45	0-130	70N	N30E*	70N	130.0'	1.0000
	130-296	68N	N30E*	68N	166.0'	1.0000

* ASSUMED

Milchem

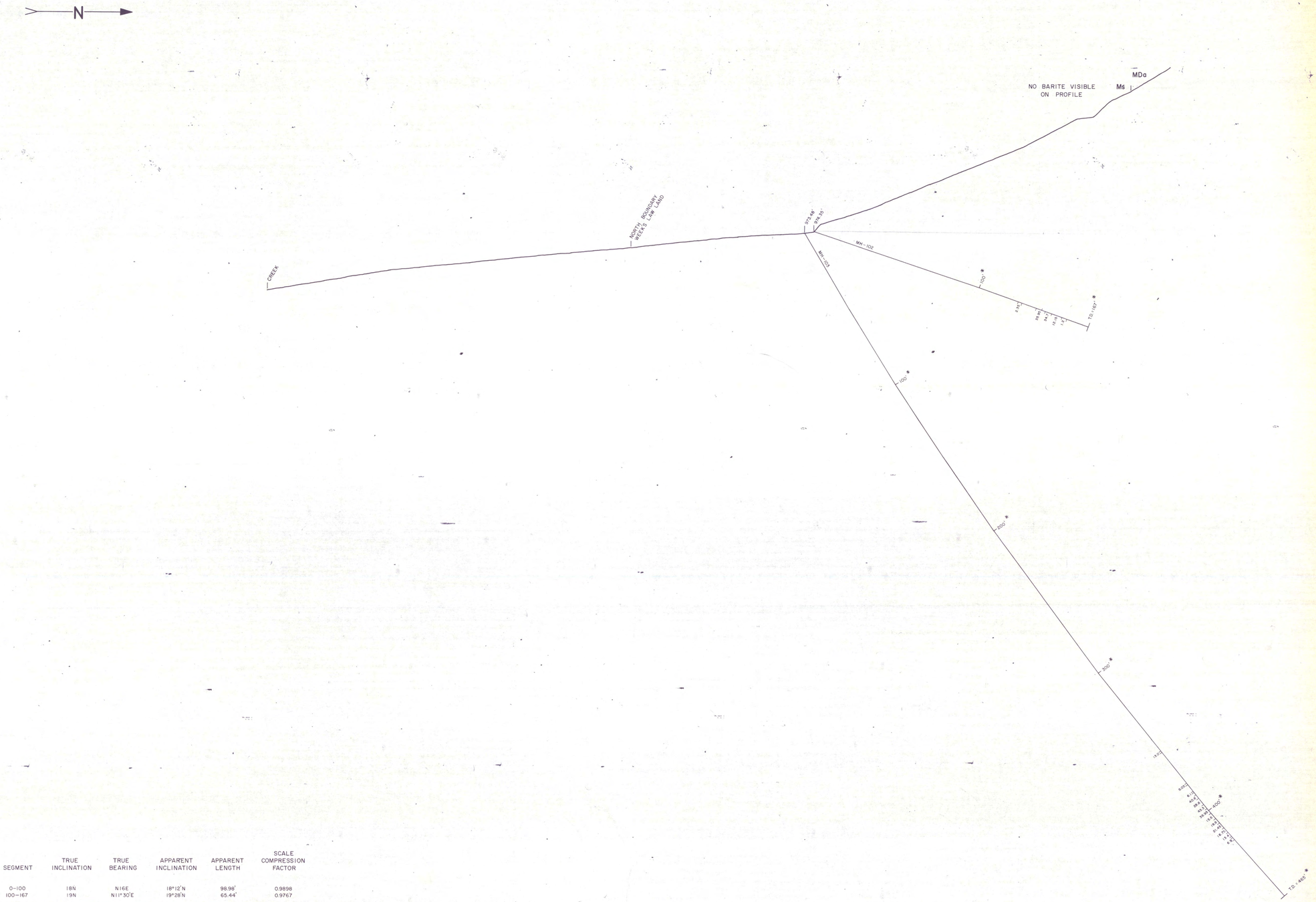
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-44,45

SCALE	APPR.	DATE
DRAWN	DATE	CHKD.

DRAWING NO. 705-G-076 SHEET OF

BEARING OF CROSS SECTION N24°37'E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-102	0-100	18N	N16E	18°12'N	98.98'	0.9898
	100-167	19N	N11°30'E	19°28'N	65.44'	0.9767
MH-103	0-50	59N	N20E	59°05'N	49.96'	0.9991
	50-100	58N	N26E	58°00'N	50.00'	0.9999
	100-150	56N	N17E	56°14'N	49.86'	0.9972
	150-200	55N	N18E	55°11'N	49.89'	0.9978
	200-300	53N	N19E	53°08'N	99.83'	0.9983
	300-400	51N	N21E	51°03'N	99.92'	0.9992
	400-465	48N	N18E	48°11'N	64.81'	0.9970

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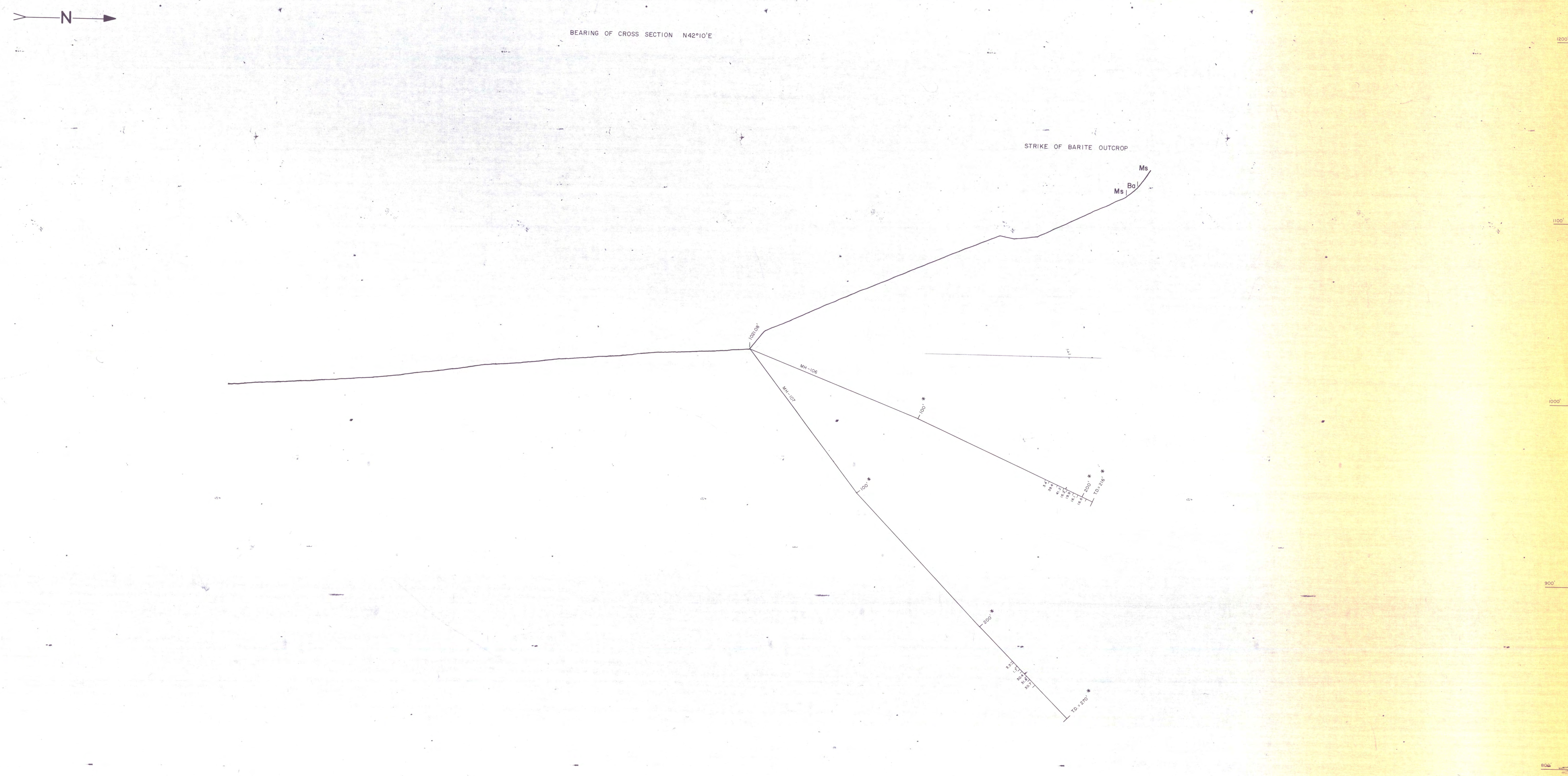
FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-102, 103

SCALE 1" = 20'	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO. 705-G-075		SHEET	OF



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-106	0-100 100-216	21N 24N	N42E * N43E	21°00'N 24°00'N	100.0' 115.99'	1.0000 0.9999
MH-107	0-100 100-200 200-270	51N 46N 45N	N27E N43E N34E	51°59'N 46°00'N 45°18'N	98.64' 99.99' 69.65'	0.9864 0.9999 0.9949

* ASSUMED

800'

700'

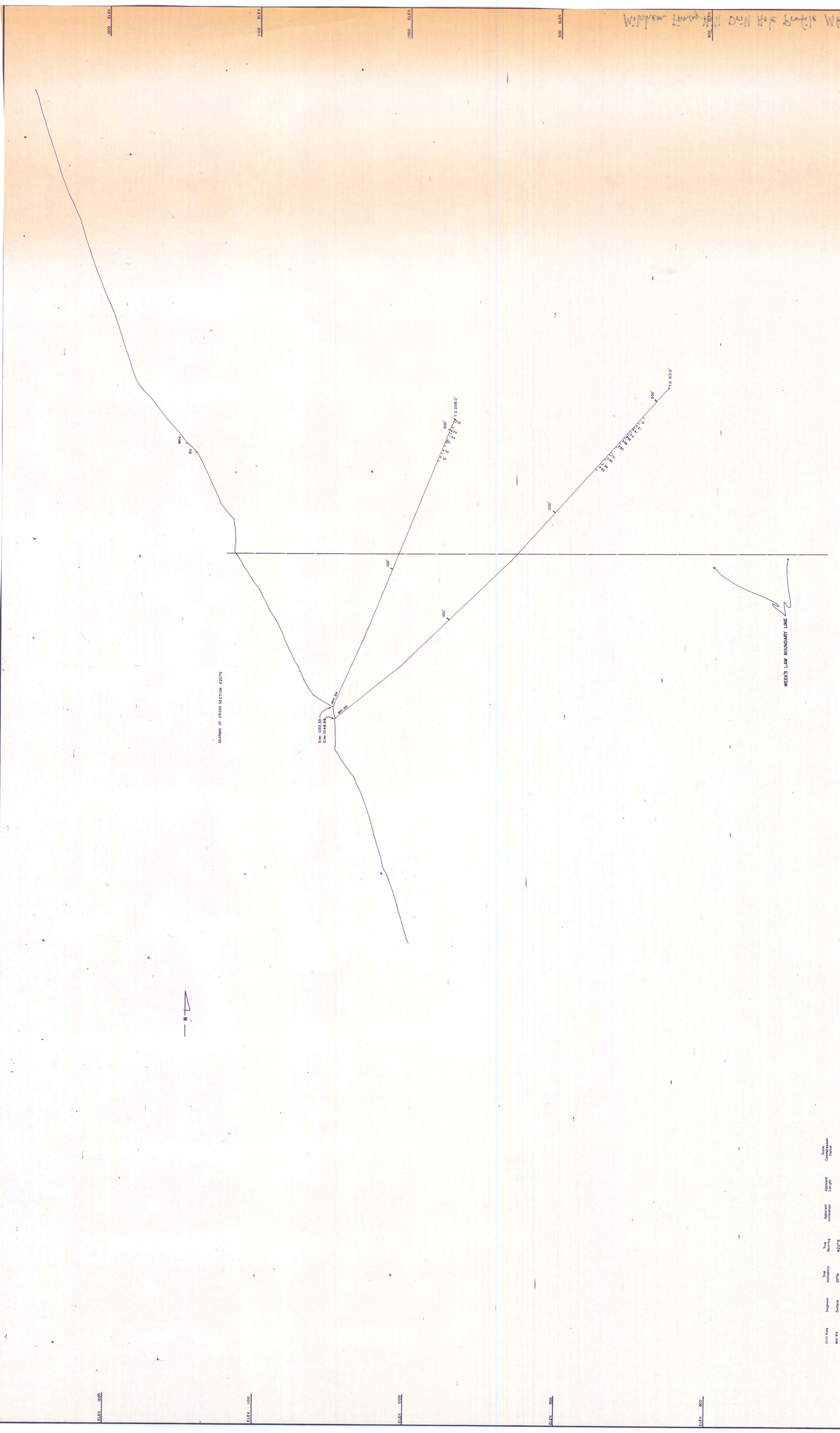
Milchem Fancy Hill Drill Hole Profile MH-106, 107

Milchem

HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH- 106, 107

SCALE 1" = 20'	APPR.	DATE
DRAWN	DATE -79	CHKD.
DRAWING NO. 705-G-081	SHEET	OF



Drill Hole	Segment	True Inclination	True Bearing	Apparent Inclination	Apparent Length	Scale Compression Factor
MH-94	Surface	25°N	N20°E			
	0.0-100.0	24°N	N22°30'E	24°00'13"	99.92	0.9982
	100.0-200.0	22°N	N23°30'E	22°02'14"	99.84	0.9984
	200.0-208.0	22°N	N23°30'E	22°02'14"	7.99	0.9984
	T.D.-208.0'					
MH-95	Surface	55°N	N20°E			
	0.0-108.0	51°N	N25°30'E	51°07'48"	107.80	0.9982
	108.0-208.0	46°N	N26°30'E	46°11'05"	99.69	0.9969
	208.0-308.0	42°N	N25°30'E	42°07'53"	99.75	0.9975
	308.0-313.0	42°N	N25°30'E	42°07'53"	4.99	0.9975
	T.D.-313.0'					

HOUSTON

Milchem

TEXAS

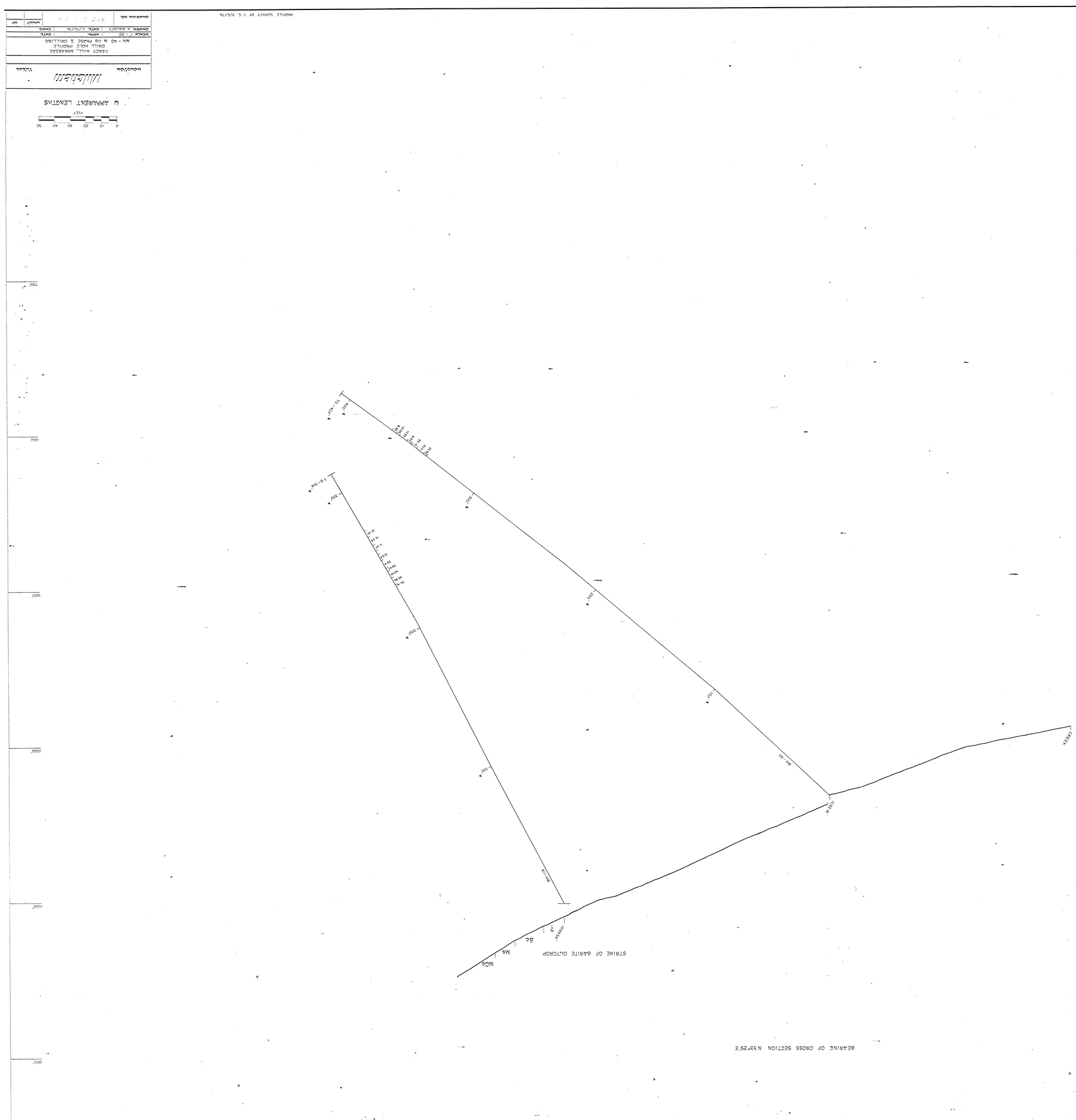
FRANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-94 & 95

SCALE 1" = 20'0"
DRAWN Teresa Rizzer
APPR.
DATE June 22, 1979
DATE
CHKD.
SHEET OF
DRAWING NO.

PROFILE SURVEY BY F.G. 3/6/78

DRILL HOLE	SEGMENT	TRUE INCLINATION	BEARING	TRUE APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-40	0-100	43N	N31E	49°02'N	99.9'	0.9998
	100-227	40N	N32E	40°01'N	126.9'	0.9998
	227-257	38N	N34E	38°00'N	30.00'	1.0000
	257-357	38N	N28E	38°08'N	99.72'	0.9972
	357-407	36N	N29E	36°05'N	49.90'	0.9980
MH-118	0-100	62N	N32E *	62°00'N	99.99'	0.9999
	100-205	63N	N32E *	63°00'N	104.99'	0.9999
	205-314	60N	N32E *	60°01'N	108.99'	0.9999

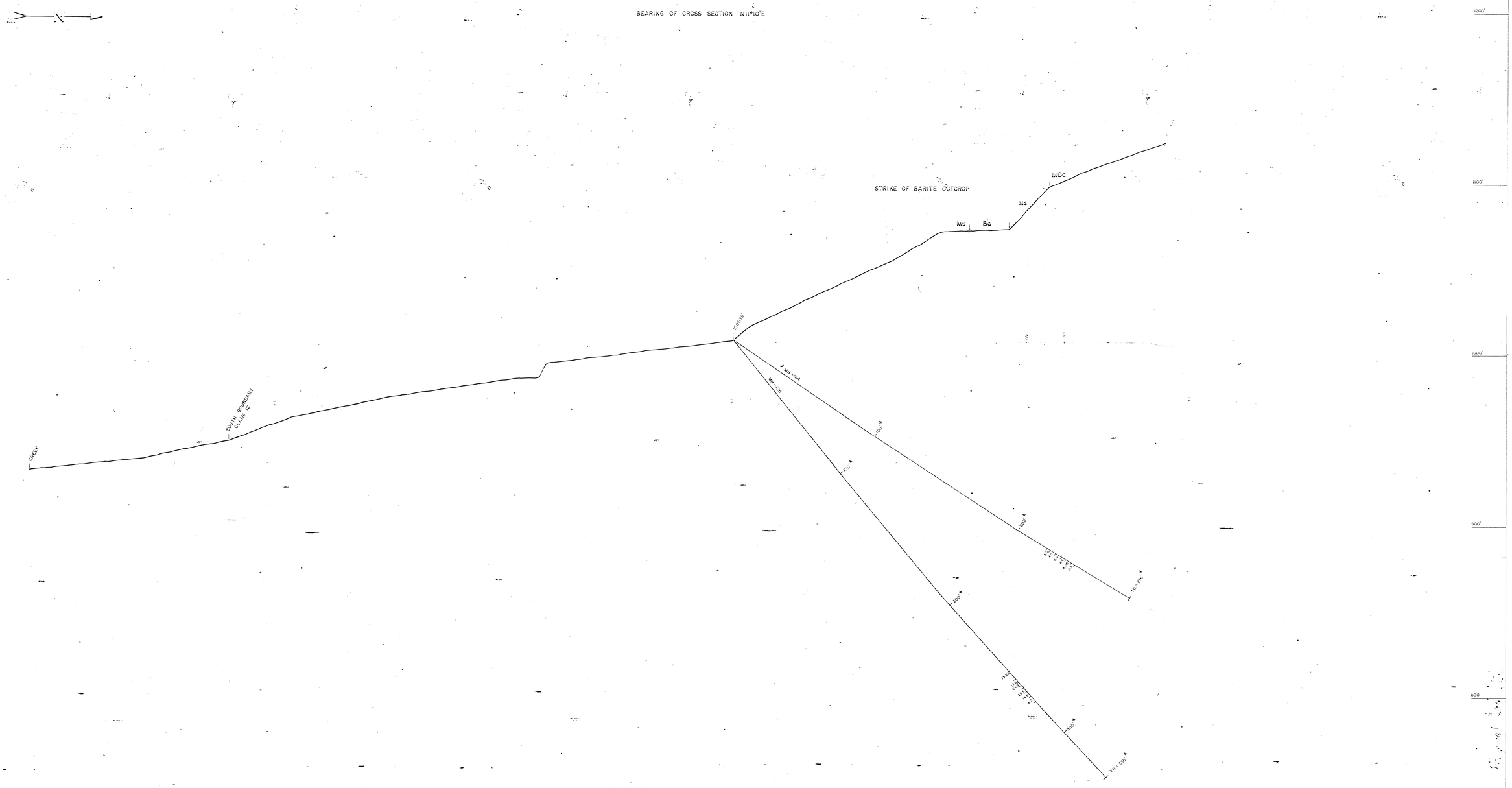
* ASSUMED



* APPARENT LENGTHS

0 10 20 30 40 50
FEET

HOUSTON	TEXAS
FANCY HILL ARKANSAS	
MH-40 & MH PHASE 2 DRILLING	
DRILL HOLE PROFILE	
SCALE 1" = 20'	APPR.
DRAWN B. WAINEY	DATE 4/28/78
CHKD.	DATE
SHEET OF	
DRAWING NO.	



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-104	0-92	34N	N08E	34°02'N	91.90'	0.9990
	92-200	33N	N11E	33°00'N	108.00'	1.0000
	200-276	31N	N14E	31°02'N	75.93'	0.9991
MH-105	0-100	51N	N09E	51°01'N	99.97'	0.9997
	100-192	50N	N13E	50°01'N	91.98'	0.9998
	192-287	48N	N15E	48°04'N	94.90'	0.9990
	287-336	47N	N11E	47°00'N	49.00'	1.0000

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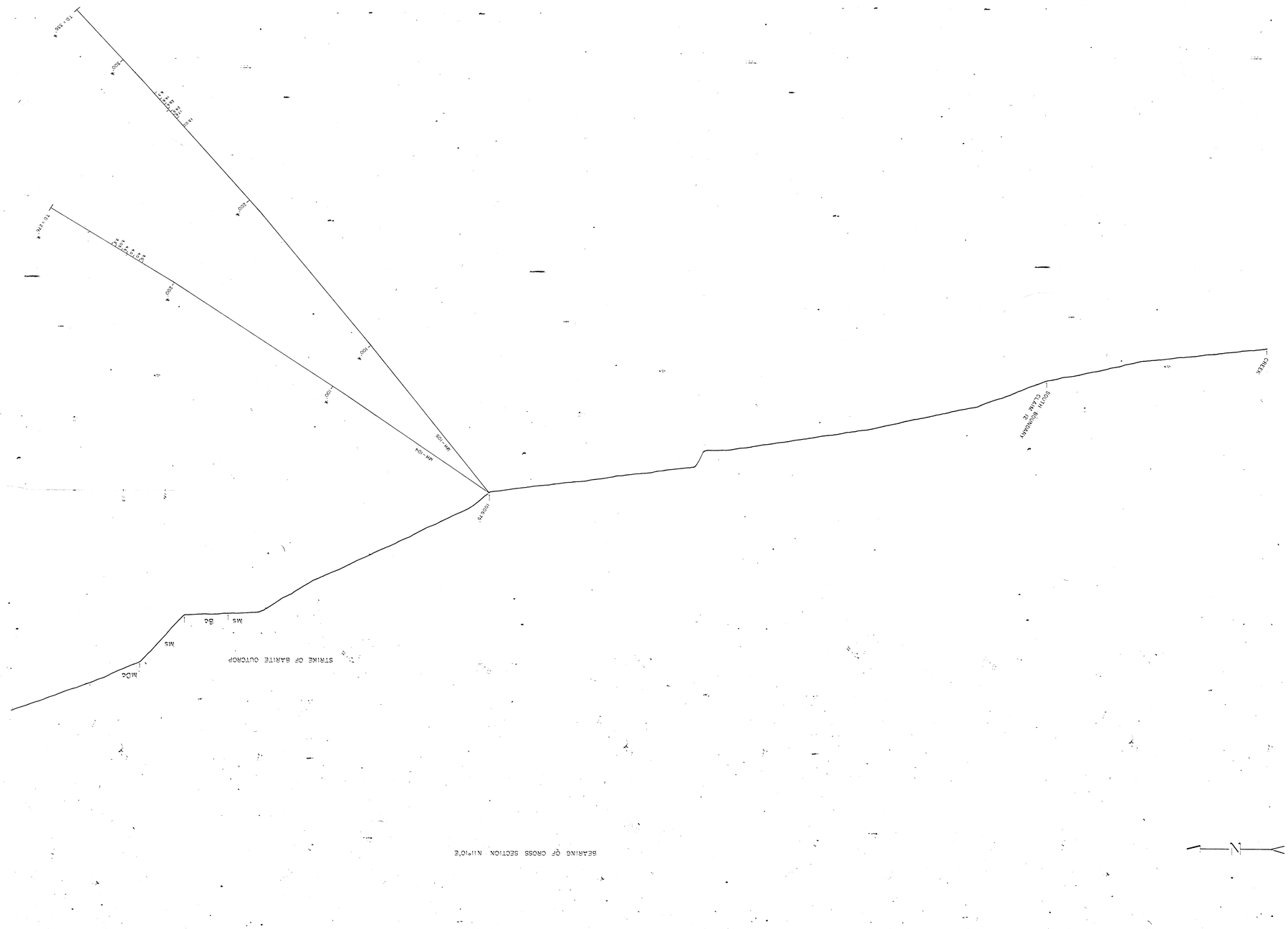
HOUSTON TEXAS

FAROT HILL, ARKANSAS
DRILL HOLE PROFILE
MH-104, 105

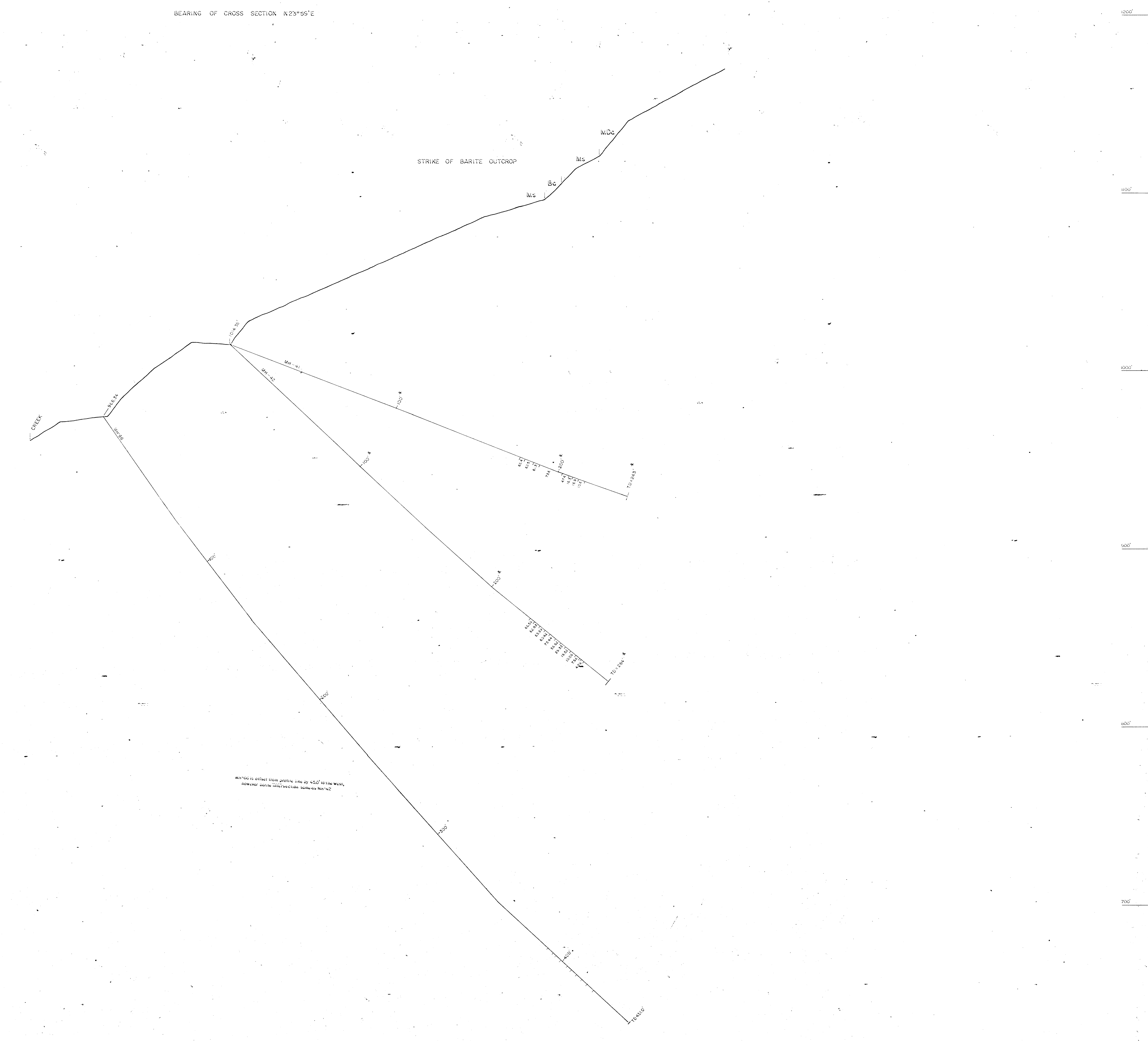
SCALE 1" = 200'	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO.	705-G-082	SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-104	0-92	34N	N08E	34°02'N	91'07"	0.9990
	92-200	33N	N11E	33°00'N	108.00'	1.0000
	200-276	31N	N14E	31°02'N	75'37"	0.9991
MH-105	0-100	51N	N09E	51°01'N	99'07"	0.9997
	100-192	50N	N13E	50°01'N	91'48"	0.9998
	192-287	48N	N15E	48°04'N	94'40"	0.9990
	287-336	47N	N11E	47°00'N	49.00'	1.0000



		millsam.	
		HOUSTON	TEXAS
CHART MAP MAKING			
BAILEY MOLY PROPERTY			
MH-104, 105			
SCALE 1" = 200'	APPR.	DATE	
DRAWN	DATE	CHKD.	
DRAWING NO.	705-5-082		
SHEET	OF		

N



MH-66 is offset from profile line by 45.0' to the west, however barite intersection same as MH-42

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-41	0-110	21N	N18E	21°06'N	109.48'	0.9953
	110-200	21N	N05E *	21°40'N	87.34'	0.9704
	200-243	19N	N08E	19°42'N	41.52'	0.9655
MH-42	0-80	43N	N27E	43°02'N	79.54'	0.9953
	80-100	44N	N24E *	44°N	20.00'	1.0000
	100-150	43N	N22E	43°01'N	49.98'	0.9997
	150-200	42N	N23°30'E	42°N	50.00'	1.0000
	200-284	39N	N25E	39°N	83.99'	0.9999
MH-66	0-75'	55N	N30E			
	75-141'	52.30N	N30E	52.30N	141.0'	1.0000
	141-241	49.30N	N30E	49.30N	240.99'	.9999
	241-351	48.30N	N30E	48.30N	350.99'	.9999
	351-451	43N	N30E	43.00N	450.96'	.9999

Milchem
HOUSTON — TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-41, 42, 66

SCALE 1"=20' | APPR. | DATE
DRAWN M.T. McDonnell | DATE 5/1/79 | CHKD.
DRAWING NO. | SHEET OF

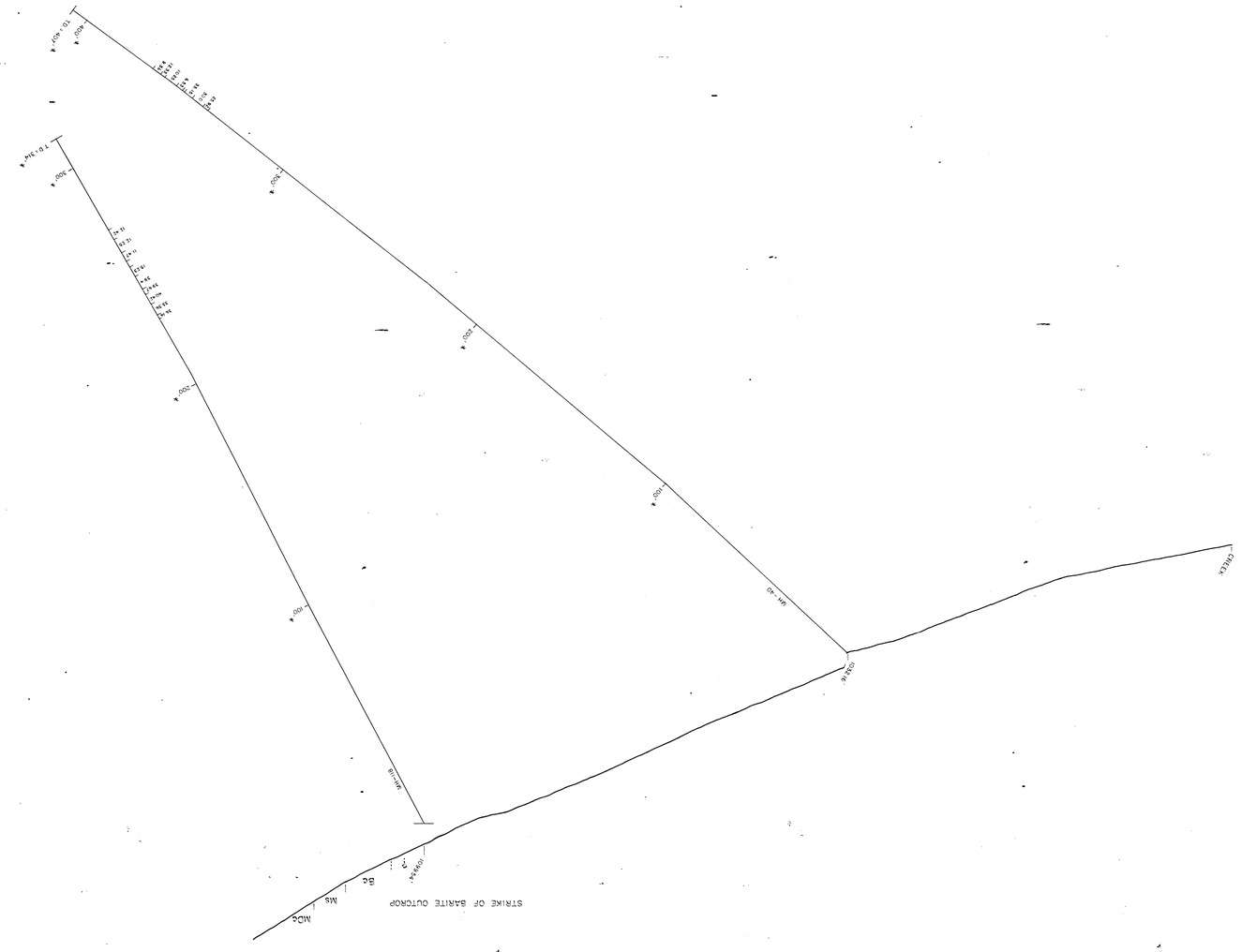
PROFILE SURVEY BY F. G. 3/6/78

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
Mh – 40	0–100	43N	N31E	43°02'N	99.95'	0.9995
	100–227	42N	N32E	40°01'N	126.96'	0.9956
	227–257	38N	N34E	36°00'N	30.00'	1.0000
	257–357	38N	N28E	36°08'N	99.72'	0.9972
	357–407	36N	N29E	34°05'N	49.90'	0.9980
Mh – 118	0–100	62N	N32E *	62°00'N	99.97'	0.9999
	100–206	63N	N32E *	63°00'N	104.99'	0.9999
	206–314	60N	N32E *	60°01'N	108.99'	0.9999

* ASSUMED

* APPARENT LENGTHS

0 10 20 30 40 50 FEET



Millsaps
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
Mh – 40 & 118 PHASE II DRILLING

SCALE 1" = 20'	APPR.	DATE	
DRAWN R. WALKEY	DATE 6/29/78	CHKD.	
DRAWING NO.		SHEET	OF

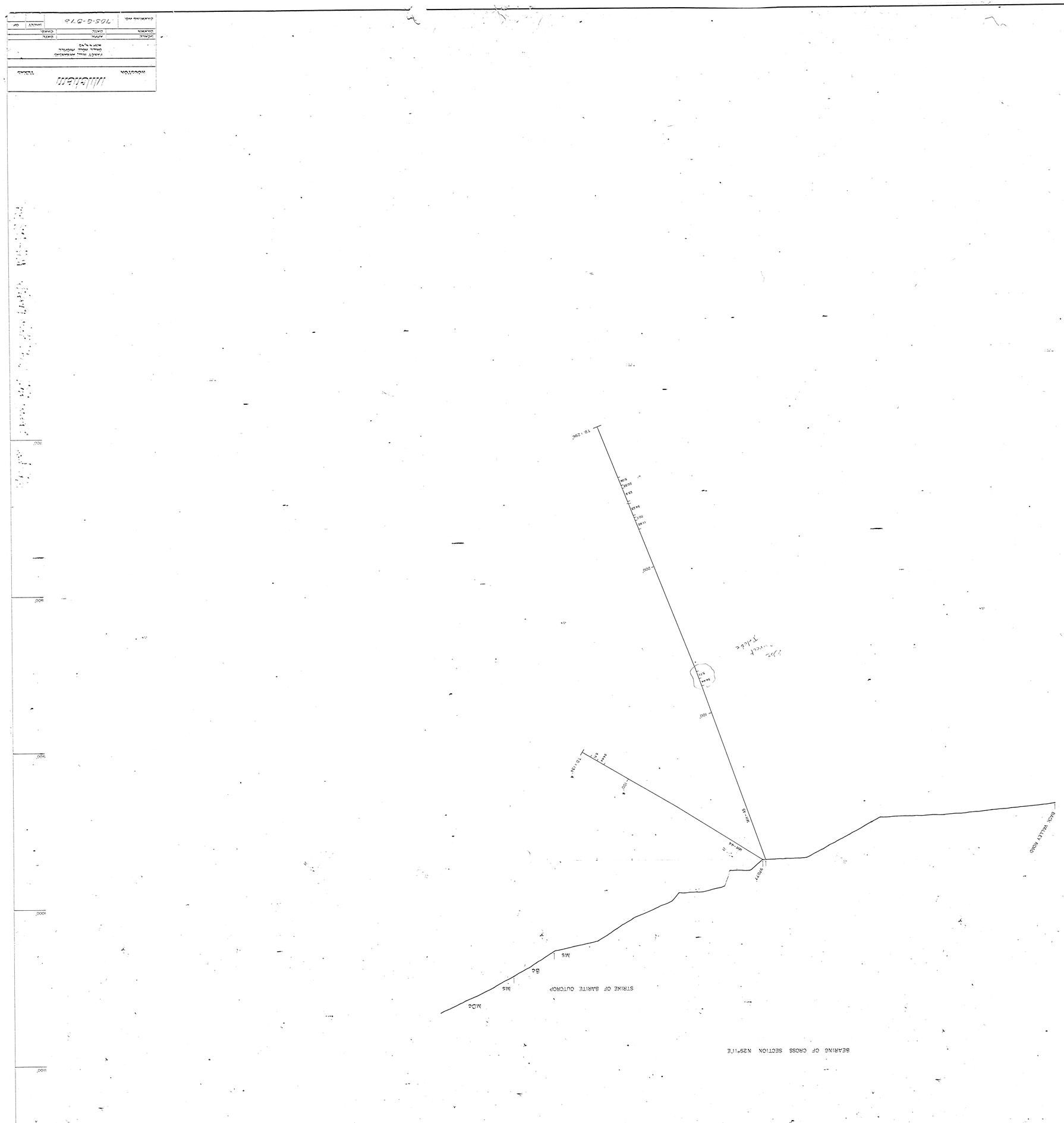
DRILL HOLE	SEGMENT	[illegible] INCLINATION	HOLE BEARING	[illegible] INCLINATION	APPARENT LENGTH	[illegible] COMPENSATION FACTOR
MH-[illegible]	SURFACE	[illegible]	N [illegible] E			
	6.0 – [illegible]	44°N	N [illegible] E	44°12'[illegible]	79.69	0.9961
	[illegible] – [illegible]	46°N	N 2[illegible]°E	46	77.6	1.0000
	15[illegible] – 25[illegible]	4[illegible]°N	N [illegible] E	47°[illegible]'N	[illegible]	0.9999
	2[illegible] – 3[illegible]	4[illegible]°N	N 2[illegible]°E	4[illegible]	7[illegible]	1.0000
	3[illegible] – 37[illegible]	[illegible]°N	N [illegible] E	[illegible]	47.6	1.0000
	T.D. – 37[illegible] FT					
MH 39	SURFACE	20°N	N 2[illegible]°E			
	6.0 – 127.0	1[illegible]°N	N 2[illegible]°E	1[illegible]°N	127.0	1.0000
	127.0 – 22[illegible]	20°N	N 2[illegible]°E	20°N	10[illegible]	1.0000
	T.D. 22[illegible] FT					

PROFILE SURVEY BY R. OLIVER 4-10-79

Milchem HOUSTON TEXAS			
FANCY HILL, ARKANSAS DRILL HOLE PROFILE MH-37, 39			
SCALE 1" = 20'0"	APPR.	DATE	
DRAWN T. RISNER	DATE MAY 23, 1979	CHKD.	
DRAWING NO.		SHEET	OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	COMPRESSION FACTOR
MH-44	0-64	32N	N30E	32N	64'	0.9999
	64-124	30N	N32E	30N	69'9"	0.9999
MH-45	0-130	70N	N30E *	70N	130'	1.0000
	130-296	66N	N30E *	66N	166'	1.0000

* ASSUMED



DRAWING NO.	705-G-716		
SCALE	1"=100'	DATE	
DRAWN		DATE	
CHKD.		DATE	
APPD.		DATE	

PROJECT MILL MINERALS
Drill Hole Plot
MH-44 to MH-45

Millheim
INDUSTRIES
TUCSON

BEARING OF CROSS SECTION N15E

STRIKE OF BARITE OUTCROP S65E

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-100	0-100	54°N	N20E	54° 00'N	99.99'	0.9999
	100-200	55°N	N24E	55° 04'N	99.92'	0.9992
	200-229	52°N	N30E	52°25'N	128.26'	0.9943
MH-101	0-90	67°30'N	N11E	67°42'N	89.87'	0.9986
	90-190	65°N	N14E	65°05'N	99.93'	0.9993
	190-300	63°N	N15E	63°03'N	109.94'	0.9995
	300-400	63°N	N15E	63°03'N	99.95'	0.9995
	400-439	62°N	N21E	62°01'N	38.99'	0.9999

* APPARENT LENGTHS

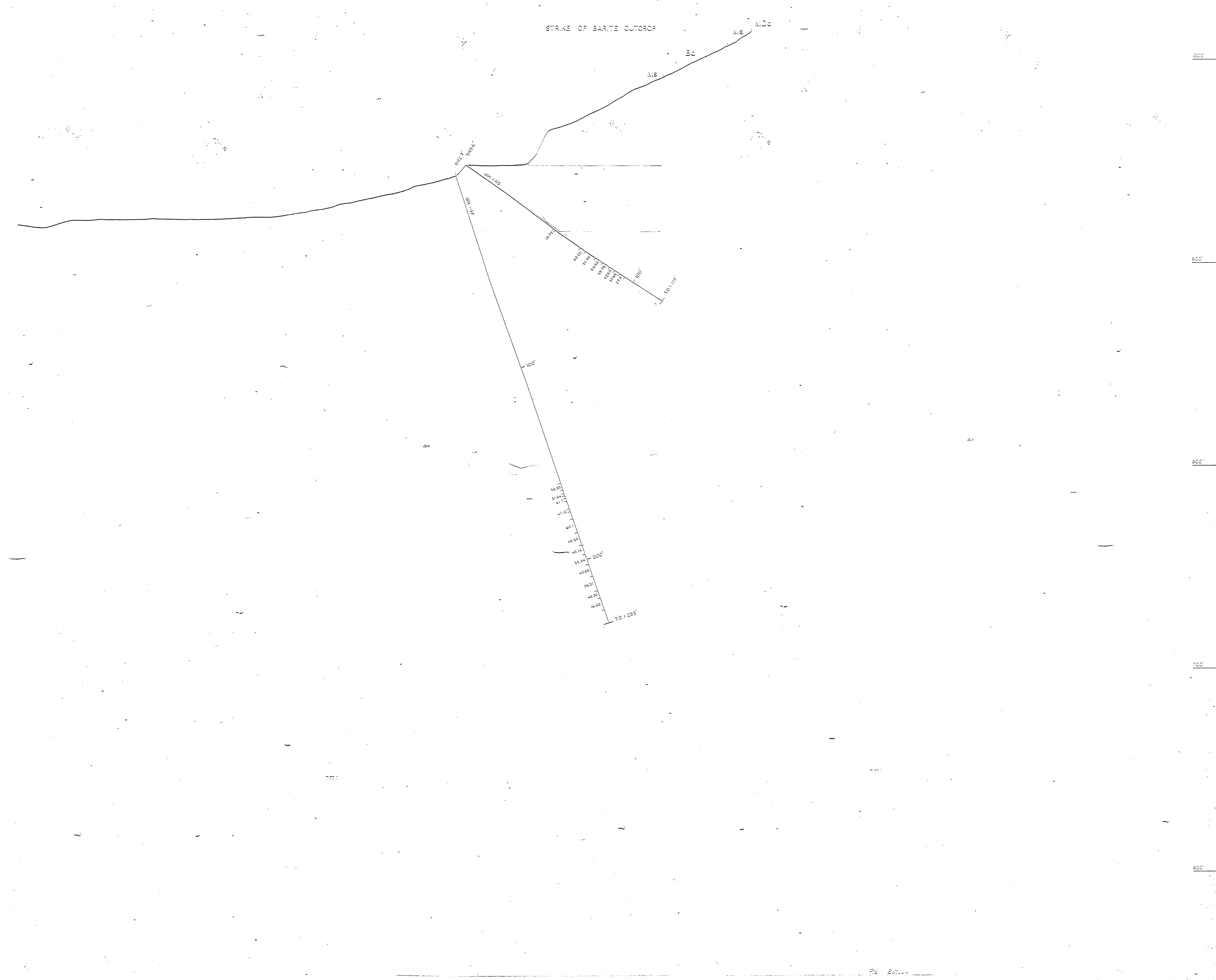
Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH - 100 & 101 PHASE II DRILLING

SCALE 1" = 20'	APPR.	DATE
DRAWN A W M	DATE 5/15/76	CARD.
DRAWING NO.	75- G-575-C	SHEET OF

PROFILE SURVEY BY F G 3/6/76

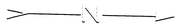
BEARING OF CROSS SECTION N35E



DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MH-46	0-25	35N	N35E	35N	25.00'	1.0000
	25-56	37N	N35E	37N	31.00'	1.0000
	56-75	35N	N35E	35N	19.00'	1.0000
	75-117	33N	N35E	33N	42.00'	1.0000
MH-47	0-55	72N	N35E	72N	55.00'	1.0000
	55-110	70N	N35E	70N	55.00'	1.0000
	110-165	71N	N35E	71N	55.00'	1.0000
	165-233	71N	N35E	71N	68.00'	1.0000

Fancy Hill, Arkansas
Drill Hole Profile

Drawing No.



BEARING OF CROSS SECTION N38E

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPRESSION FACTOR
MA-54	SURFACE	65N	N38E			
	0-70	65N	N38E M	65N	70'	1.0000
	70-149	64N	N38E M	64N	79'	1.0000
MA-57	SURFACE	60N	N38E			
	0-100	56N	N38E M	56N	100'	1.0000
	100-200	57°30'N	N38E M	57°30'N	100'	1.0000
	200-351	56°30'N	N38E M	56°30'N	151'	1.0000

M ASSUMED

0 10 20 30 40 50
FEET

PROFILE SURVEY BY P. G. 3/8/78

William
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MA-54 & 57 PHASE II DRILLING

SCALE 1" = 20' APPR. DATE
DRAWN B. MANLEY DATE 6/28/78 CHKD.
DRAWING NO. 765-P-072-A SHEET 2/

Drill Hole	Segment	True Inclination	True Bearing	Apparent Inclination	Apparent Length	Scale Compression Factor
MH-94	Surface	25°N	N20°E			
	0.0-100.0	24°N	N22°30'E	24°01'13"	99.92	0.9992
	100.0-200.0	22°N	N23°30'E	22°02'14"	99.84	0.9984
	200.0-208.0	22°N	N23°30'E	22°02'14"	7.99	0.9984
	T.D.-208.0'					
MH-95	Surface	55°N	N20°E			
	0.0-108.0	51°N	N25°30'E	51°07'45"	107.80	0.9982
	108.0-208.0	46°N	N26°30'E	46°11'05"	99.69	0.9969
	208.0-308.0	42°N	N25°30'E	42°07'53"	99.75	0.9975
	308.0-313.0	42°N	N25°30'E	42°07'53"	4.99	0.9975
	T.D.-313.0'					

Milchem
HOUSTON TEXAS

FANCY HILL, ARKANSAS
DRILL HOLE PROFILE
MH-94 & 95

SCALE 1" = 20'0"	APPR.	DATE
DRAWN Teresa Ritter	DATE June 22, 1979	CHKD.
DRAWING NO.		SHEET OF

DRILL HOLE	SEGMENT	TRUE INCLINATION	TRUE BEARING	APPARENT INCLINATION	APPARENT LENGTH	SCALE COMPENSATION FACTOR
MH-87	SURFACE	[illegible]	N 22 E			
	0.0 – [illegible]	44°N	N [illegible] E	44°12'[illegible]	[illegible]	0.9961
	[illegible] – [illegible]	41°N	N 22 E	40°	[illegible]	1.0000
	[illegible] – [illegible]	42°N	N 22 E	42°00'[illegible]"N	[illegible]	0.9999
	[illegible] – [illegible]	41°N	N 22 E	[illegible]	[illegible]	[illegible]
	[illegible] – [illegible]	[illegible]	N 22 E	[illegible]	[illegible]	1.0000
	T.D. – [illegible] FT					
MH-89	SURFACE	20°N	N 22 E			
	0.0 – 127.0	18°N	N 22 E	18°N	127.0	1.0000
	127.0 – 227.0	20°N	N 22 E	20°N	[illegible]	1.0000
	T.D. 227.0 FT					

PROFILE SURVEY BY R. OLIVER 4-10-79

Milchem HOUSTON TEXAS		
FANCY HILL, ARKANSAS DRILL HOLE PROFILE MH-87, 89		
SCALE 1" = 20'0"	APPR.	DATE
DRAWN T. RIENER	DATE MAY 23, 1979	CHKD.
DRAWING NO.	SHEET	OF

WEST PIT PHASE 2

WEST PIT PHASE 1

ELEV.

1300

1200

1100

1000

900

800

700

600

500

ELEV

400

1300

1160 LEVEL

1080 LEVEL

1000 LEVEL

920 LEVEL

840 LEVEL

LIMITS OF MINING

10' Lo GRADE

23' MIXED

2' Lo GRADE FAULT ZONE

9' Lo GRADE

2 LAYERS MIXED

Lo GRADE

Lo GRADE

Lo GRADE

INTERBED

CENTRAL PIT PHASE 1

CENTRAL PIT PHASE 2

LONGITUDINAL SECTION - WEST PIT

1200

1100

1000

900

800

700

600

500

ELEV

400

1300

LOCATION ARROW

35' MIXED

29' Lo GRADE

55+SH INTEB BED

23' Lo GRADE

SAND BLK SH GRY SS

14' Lo GRADE

29' MOST Lo

25' Lo GRADE

BROKEN ZONE

19' MOST Lo

BRK GRY SH BROKEN ZONE

21' MOST Lo

BRK + GRY SH

25' MOST Lo

26' MOST Lo GRADE

21' Lo GRADE

FAULT ZONE

28' MIXED

GRAY BLK SH

26' MIXED

29' MIXED

15' MIXED

25' SOME Lo

BRK SH BRK SS BRK SH BROKEN ZONE

25' MIXED

35'

INTERBED GRY + BLK SH

12' MIXED

GRY ELEY BIKED

25' Lo GRADE

INTERBED GRY BLK SH

13' Lo GRADE

GRY SH BROKEN ZONE

23'

BRK GREY SH

25' MIXED

BRK GRY SH BRK SH BROKEN ZONE

41' MIXED

BRK GRY SH

22' MIXED

BRK GRY SH

17' MOST Lo

BLK SH

30' MOST Lo

BLK SH

20' Lo GRADE

BLK SH

8' Lo GRADE

BLK GRY SH

EAST PIT

ELEV.

1300

1200

1100

1000

900

800

700

600

500

400

NATURAL GROUND

HAULROAD

RAMP

LIMITS

24' MOSTLY Lo GRADE

GRY + BLK SH BROKEN ZONE

15' Lo GRADE

20'

GRY SS BROKEN ZONE

14' ALL Lo GRADE

GRY SS BLK SH

20' ALL Lo GRADE

GRY SS BLK SH

16' MOSTLY Lo GRADE

GRY SS BROKEN ZONE

26' Lo GRADE

BLK SH GREY SS

21' Lo GRADE

52.

44'

BLK GRY SH GRY SS BLK SH

22' MIXED

BLK SH BROKEN ZONE

9' Lo GRADE

BLK SH BROKEN ZONE

23'

BLK SH BROKEN ZONE

47'

BLK GRY SH

32'

BLKSH

13' SOME Lo

GRY SS

ELEV OF THE CENTER OF SURFACE BARITE

LONGITUDINAL

1"= 100'

BARITE INCLUDING ALL VALUES

Barite thicknesses and grades by Wallace Mitchell 3-83

1200
1100
1000
900
800
700
600
500
400
0
400
800
1200
1600
2000
2400
2800
3200
3600
4000
4400
4800
5200
5600
6000
6400
5800
7200
7600
8000
8400
8800
9200
9600
10000
1" = 200'
1" = 200'
CH2M HILL

PERCENT BERKITE HIGHGRADE ISOPACH

GEOLOGY BY E. C. GALE

Midcham

HOUSTON TEXAS

GEOLOGIC MAP
FANCY HILL DISTRICT

SCALE 1" = 500' | APPR. E. C. GALE | DATE 7-20-61
DRAWN M. BRIDGES | DATE 7-20-61 | CHKD.

DRAWING NO. | SHEET 3 | OF 4

E. C. Gale made geologic Mapping and drilling

EXPLANATION

- Qc — Colluvium (Quaternary) (also Alluvium—Qal)
- Ms — Stanley Shale (Mississippian) shale, siltstone, tuff, sandstone (stippled) (Msh—Hatton Tuff; Msb—Beavers Bend Tuff)
- MDa — Arkansas Novaculite (Mississippian-Devonian) novaculite (MDau—upper division; MDam—middle division; MDal—lower division)
- Dmm — Missouri Mountain Shale (Devonian) shale, siltstone, and claystone
- Sb — Blaylock Sandstone (Silurian)

- Barite: massive to nodular
- Barite: disseminated and small scattered nodules
- Faults: dashed where approximately located
- Relative horizontal component of movement along fault
- Relative vertical component of movement along fault
- Strike and dip of beds
- Millchem survey stations
- Survey station, Lawrence E=East, W=West
- Resurveyed Lawrence station B&F Engineering
- Other B&F Engineering survey stations
- Durdex survey stations
- Millchem drill holes
- Baroid drill holes
- Shaft
- Baroid trenches
- Inner toe of dozed areas
- Outer edge of dozed areas and edge of dumps

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300

Contour interval 5 feet
1 inch = 100 feet

*Coastal & Geodetic Survey, 1927 datum Triangulation Station

Topography by Surdex
Drafted by W.T. McDonnell

Geology by R.F. Lawrence

EXPLANATION

Qc	Colluvium (Quaternary) (also Alluvium-Qal)
Ms	Stanley Shale (Mississippian) shale, siltstone, tuff, sandstone (stippled) (Msh-Hatton Tuff; Msb-Beaver's Bend Tuff)
MDa	Arkansas Novaculite (Mississippian-Devonian) novaculite (MDau-upper division; MDam-middle division; MDal-lower division)
Dmm	Missouri Mountain Shale (Devonian) shale, siltstone, and claystone
Sb	Blaylock Sandstone (Silurian)

Barite: massive to nodular

Barite: disseminated and small scattered nodules

Faults: dashed where approximately located

Relative horizontal component of movement along fault

Relative vertical component of movement along fault

Strike and dip of beds

Mitchem survey stations

Survey station, Lawrance E-East, W-West

Resurveyed Lawrance station B&F Engineering

Other B&F Engineering survey stations

Surdex survey stations

Mitchem drill holes

Baroid drill holes

Shaft

Baroid trenches

Inner toe of dozed areas

Outer edge of dozed areas and edge of dumps

GRID NORTH
TRUE NORTH

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300
FEET

Contour interval = 5 feet
1 inch = 100 feet

* Coastal & Geodetic Survey, 1957 Slatington Triangulation Station

Geology by B.F. Lawrence 1/17/74

Topography by Surdex
Drafted by M.T. McDonnell

EXPLANATION

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- Surdex survey stations
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- Boroid drill holes
- Shaft
- Boroid trenches
- Inner toe of dozed areas
- Outer edge of dozed areas and edge of d...

180'
GRID DEPTH
TRUE DEPTH

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200
FEET

Contour Interval = 5 feet
1 inch = 100 feet

Coastal & Geodetic Survey, 1937 Slatington Triangulation Stat

Topography by Surdex
Drafted by M.T. McDonnell

Geology by R.E.L.

EXPLANATION

- Qc — Colluvium (Quaternary) (also Alluvium–Qal)
- Ms — Stanley Shale (Mississippian) shale, siltstone, tuff, sandstone (stippled) (Msh–Hatton Tuff; Msb–Beavers Bend Tuff)
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- Inner toe of dozed areas
- Outer edge of dozed areas and edge of dumps

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300

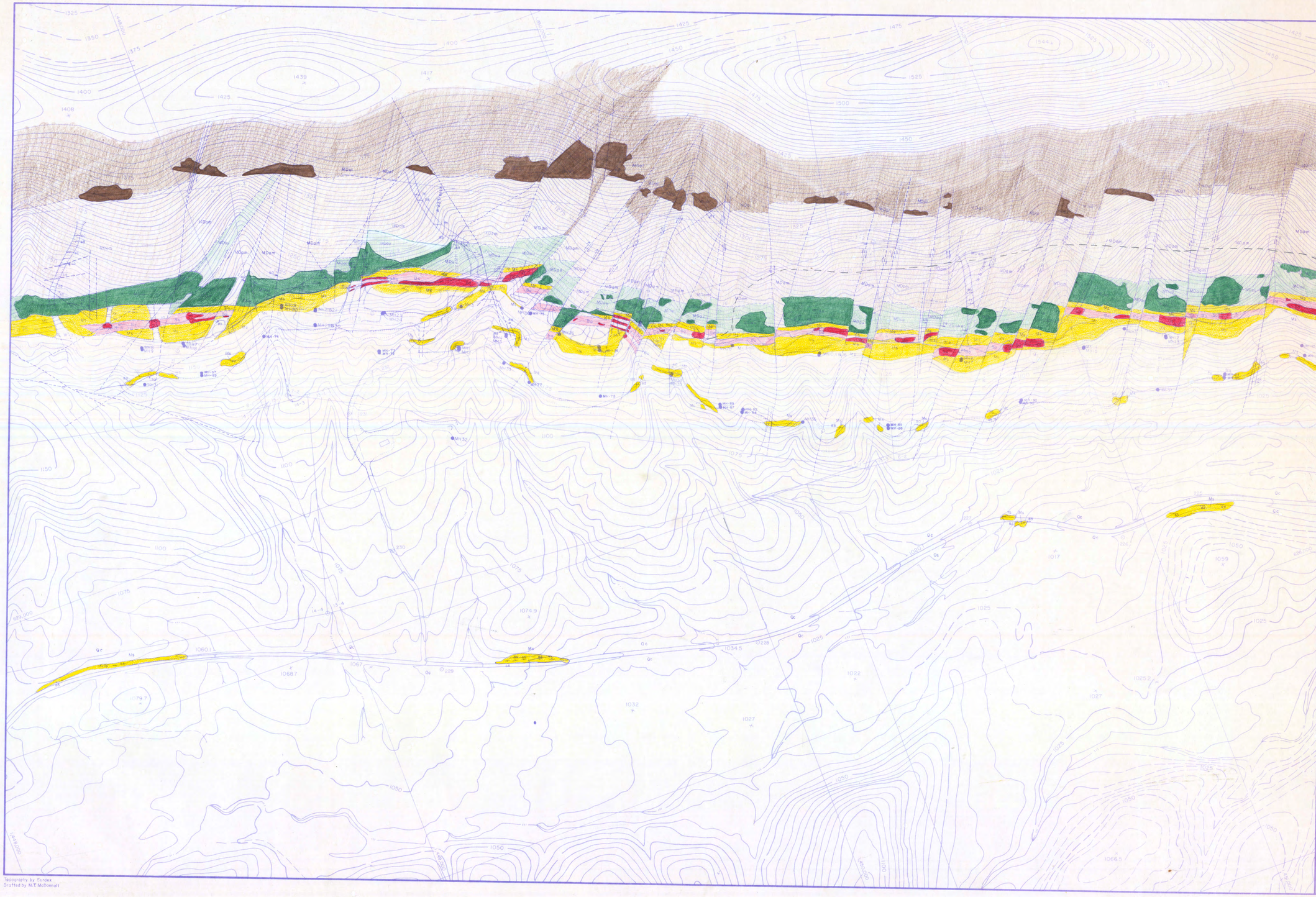
Contour Interval = 5 feet
1 inch = 100 feet

*Coastal & Geodetic Survey, 1857 Blatington Triangulation Station

Topography by Surdex
Drafted by M.T. McDonnell

Geology by E.F. Lawrence 1977

1 of 3



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- Shaft
- Baroid trenches
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- Outer edge of dozed areas and edge of dumps

GRID NORTH
TRUE NORTH

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300
FEET

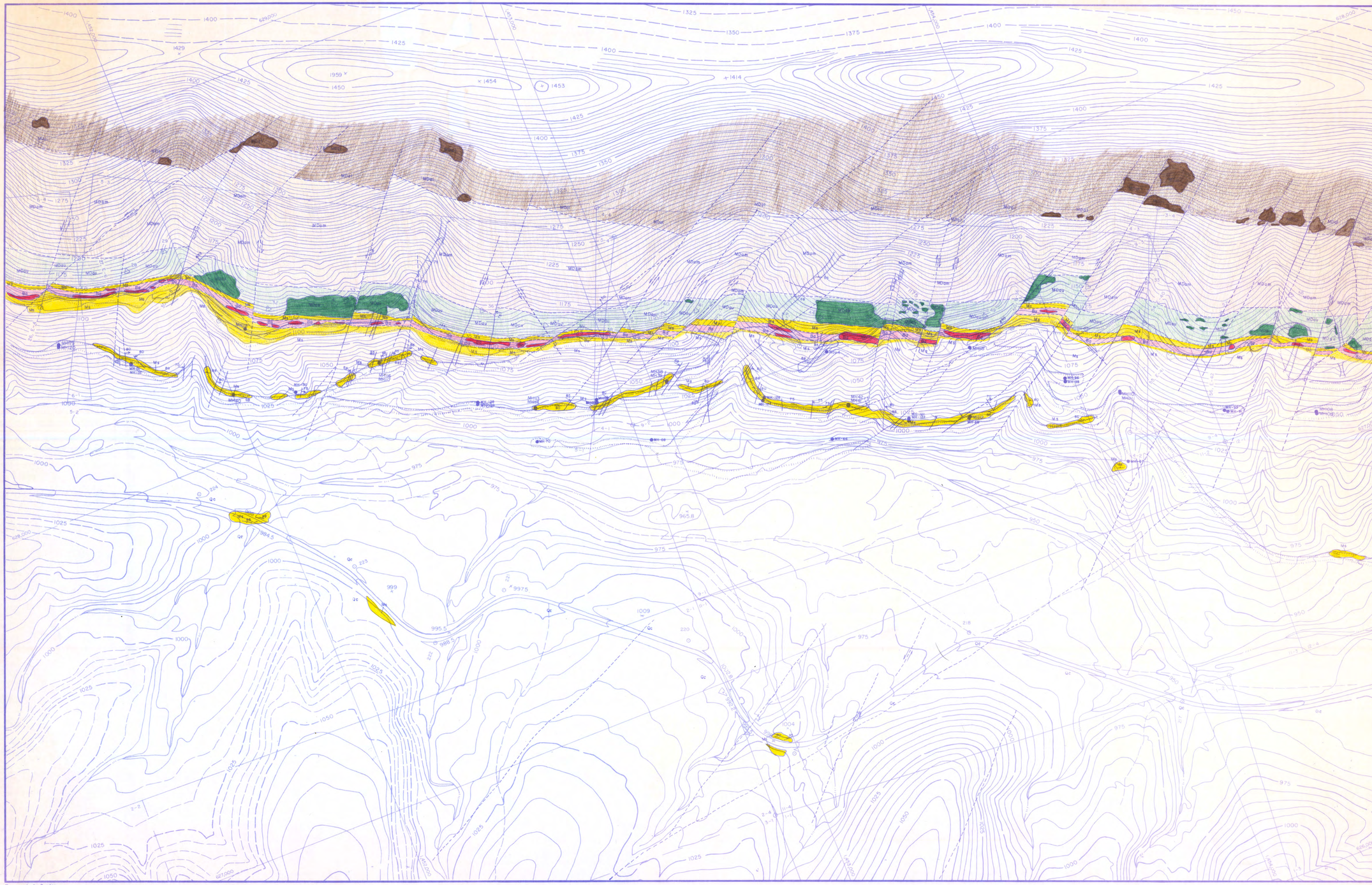
Contour interval - 5 feet
1 inch = 100 feet

* Coastal & Geodetic Survey, 1957 Slatington Triangulation Station

Topography by Surdex
Drafted by M.T. McDonnell

Geology by E.F. Lawrance (10/78)

2 of 3



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- Outer edge of dozed areas and edge of dumps

1°01'
GRID NORTH
TRUE NORTH

FANCY HILL BARITE MINE

Fancy Hill Mining District
Montgomery County, Arkansas

100 0 100 200 300
FEET

Contour Interval - 5 feet
1 inch = 100 feet

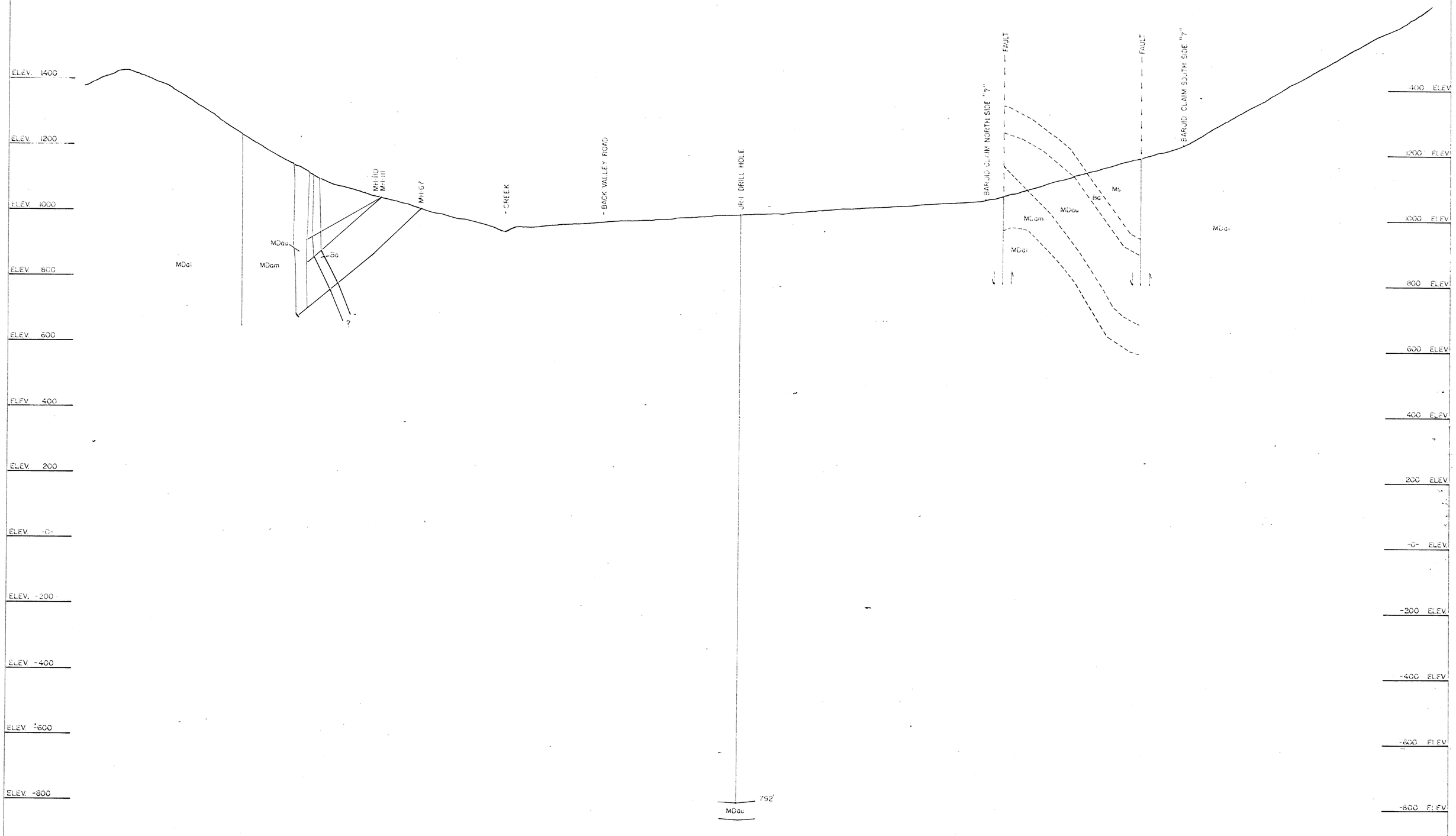
Coastal & Geodetic Survey, 1957 Slatington Triangulation Station

Topography by Surdex
Drafted by M.T. McDonnell

Geology by E.F. Lawrence (10/78)

3 of 3

SHEET 2 OF 3



LEGEND

MDg (u / m / l) — ARKANSAS NOVACULITE
MISSISSIPPIAN-DEVONIAN NOVACULITE
(MDgu-upper division;
MDgm-middle division;
MDgl-lower division)

Bg — Barite: massive to nodular

Mitchem

HOUSTON TEXAS

CROSS SECTION-FANCY HILL-BAROID OPERATION

SCALE 1"=200'0" V&H	APPR. FERRYL GALE	DATE JANUARY 15, 1980	
DRAWN TERESA RISNER	DATE JANUARY 15, 1980	CHKD. F. C. GALE	
DRAWING NO. 1		SHEET 1	OF 1