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GRAVITY SURVEY

FLORENCE RIDGE PROJECT

PINAL COUNTY, ARIZONA

FOR

PILLAR, LOWELL & ASSOCIATES

PROJECT 0939

Registered Professional Engineer
CERTIFICATE NO. 11382
ROBERT E. WEST
Date Signed 10/19/79
ARIZONA, U.S.A.

Robert E. West

mining
geophysical surveys inc

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ACCOMPANYING THIS REPORT:

2 PLAN MAPS

1 COMPUTER LISTING OF DATA

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mining geophysical surveys inc

GRAVITY SURVEY
FLORENCE RIDGE PROJECT
PINAL COUNTY, ARIZONA

FOR

PILLAR, LOWELL & ASSOCIATES

SUMMARY:

A gravity survey east of Florence, Arizona (see plan maps) has delineated an east-northeast trending gravity high that may indicate the presence of high density premineral rocks. Precambrian granite overlain by basalt is exposed near the east end of this gravity high. We estimate that the high density rocks are 1300' to 2600' wide. They are buried 500' to 1000' on the western end of the gravity high.

An extremely strong east-west regional gravity gradient and complex structure make interpretation of the gravity data in this area difficult. Despite these complications, the gravity high and the Precambrian rock outcrop indicate that relatively shallow premineral rocks occur here and further exploration is warranted.

INTRODUCTION:

A gravity survey was conducted in the titled area during the period September 10-14, 1979 under the direction of Robert E. West, geophysicist. The report and interpretation are by R. E. West.

A gravity survey conducted in this area in 1978 (MGS Project

0807) first located the east-northeast trending gravity high. The purpose of this survey is to better define the anomalous gravity high in order to determine the extent of high density rocks which are its source.

INTERPRETATION:

The gravity high is shown on the Bouguer anomaly map as an east-northeast "nosing" of the contours. A regional residual separation was performed on the Bouguer anomaly map to isolate the anomalous high. A residual gravity high of 1 to 1.5 mgal resulted with the maximum amplitude occurring near the outcrop of Precambrian rocks.

A two-dimensional horizontal cylinder was used as a model to interpret the residual anomaly. An estimate of the density contrast between the Precambrian rocks was obtained by analyzing a profile across the anomaly at the outcrop. The result was 0.1 gm/cm^3. Based upon our past experience in Arizona basins, this is a lower density contrast than we would normally expect and we used density contrasts of 0.1 and 0.4 gm/cm^3 to determine extremes of width and depth of the high density rock. These estimates are shown on the residual gravity map.

SURVEY PROCEDURE:

A LaCoste and Romberg, Inc. model G geodetic gravity meter (#325) was used for the survey. This meter has a reading accuracy

of 0.01 mgal and a drift rate of less than 1 mgal/month.

The gravity survey was tied to the Florence, Arizona base station of the Arizona Gravity Base Station Network. The Florence base has an observed gravity of 979407.234 $\pm$0.13 mgal.

Elevations, latitudes and longitudes were obtained from a 7-1/2' topographic map with 10' contour intervals. Elevation errors of $\pm$5' for gravity stations would cause errors in the Bouguer anomalies of $\pm$0.3 mgal.

The gravity data were reduced by computer using standard gravity corrections. Linear drift corrections were applied to the field data after tide corrections had been applied. Latitude, free-air, and Bouguer corrections were made on the observed gravities. A density of 2.67 gm/cm^3 was used for the Bouguer correction. Terrain corrections were not applied to the data.

Respectfully submitted,

Robert E. West
Geophysicist

Registered Professional Engineer (Geophysics)
CERTIFICATE NO. 11332
ROBERT E. WEST
Date Signed 10/19/79
ARIZONA, U.S.A.

October 19, 1979
Tucson, Arizona

GRAVITY SURVEY DATA

MINING GEOPHYSICAL SURVEYS - 2400 EAST GRANT ROAD - TUCSON, ARIZONA 85719

MGS PROJECT 0939

STATION NUMBER	NORTH LATITUDE (DEG)	(MIN)	WEST LONGITUDE (DEG)	(MIN)	ELEV. (FT)	TIDE CORR (MGAL)	OBSERVED GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE BOUGUER ANOMALY RHO 2.670 (MGAL)
------- DRIFT RATE= .008199 MGAL/HR -------									
LINE 1 STN 0	33.	2.29	111.	21.17	1532.0	.034	979399.715	-37.784	-89.978
LINE 1 STN 1	33.	2.38	111.	21.17	1527.0	.034	979400.268	-37.825	-89.849
LINE 1 STN 2	33.	2.47	111.	21.17	1521.0	.034	979400.718	-38.063	-89.882
LINE 1 STN 3	33.	2.54	111.	21.17	1518.0	.034	979401.196	-37.964	-89.681
LINE 1 STN 4	33.	2.62	111.	21.17	1515.0	.033	979401.745	-37.806	-89.421
LINE 1 STN 5	33.	2.72	111.	21.17	1513.0	.033	979402.189	-37.688	-89.234
LINE 1 STN 6	33.	2.74	111.	21.17	1513.0	.032	979402.353	-37.551	-89.098
LINE 1 STN 7	33.	2.80	111.	21.17	1509.0	.031	979402.742	-37.621	-89.032
LINE 1 STN 8	33.	2.88	111.	21.17	1507.0	.030	979403.124	-37.536	-88.879
LINE 1 STN 9	33.	2.97	111.	21.17	1504.0	.029	979403.435	-37.632	-88.872
LINE 1 STN 10	33.	3.04	111.	21.17	1501.0	.029	979403.625	-37.820	-88.958
LINE 1 STN 11	33.	3.13	111.	21.17	1500.0	.028	979403.805	-37.857	-88.961
LINE 1 STN 12	33.	3.17	111.	21.17	1499.0	.026	979403.968	-37.843	-88.913
LINE 1 STN 13	33.	3.26	111.	21.17	1498.0	.024	979404.213	-37.816	-88.852
LINE 1 STN 14	33.	3.34	111.	21.17	1497.0	.023	979404.375	-37.858	-88.860
LINE 1 STN 15	33.	3.42	111.	21.17	1495.0	.022	979404.450	-38.081	-89.015
LINE 1 STN 16	33.	3.50	111.	21.17	1495.0	.020	979404.573	-38.068	-89.001
LINE 1 STN 17	33.	3.58	111.	21.17	1495.0	.019	979404.622	-38.129	-89.062
LINE 1 STN 18	33.	3.61	111.	21.17	1495.0	.017	979404.614	-38.177	-89.111
LINE 1 STN 19	33.	3.67	111.	21.17	1495.0	.016	979404.758	-38.116	-89.050
LINE 1 STN 20	33.	3.74	111.	21.17	1495.0	.014	979404.927	-38.044	-88.977
LINE 1 STN 21	33.	3.83	111.	21.17	1495.0	.013	979405.044	-38.051	-88.984
LINE 1 STN 22	33.	3.92	111.	21.17	1495.0	.012	979405.076	-38.142	-89.075
LINE 1 STN 23	33.	4.00	111.	21.17	1495.0	.007	979405.155	-38.173	-89.106
------- DRIFT RATE= .005088 MGAL/HR -------									
LINE 2 STN 0	33.	3.82	111.	19.48	1540.0	.012	979399.610	-39.238	-91.705
LINE 2 STN 1	33.	3.88	111.	19.54	1532.0	.009	979400.203	-39.480	-91.674
LINE 2 STN 2	33.	3.93	111.	19.62	1527.0	.007	979400.677	-39.545	-91.568
LINE 2 STN 3	33.	3.99	111.	19.70	1524.0	.005	979401.226	-39.360	-91.282
LINE 2 STN 4	33.	4.04	111.	19.77	1518.0	.003	979401.404	-39.815	-91.532
LINE 2 STN 5	33.	4.04	111.	19.87	1517.0	-.000	979401.851	-39.462	-91.145
LINE 2 STN 6	33.	4.04	111.	19.97	1514.0	-.002	979402.127	-39.469	-91.049
LINE 2 STN 7	33.	4.04	111.	20.06	1512.0	-.004	979402.544	-39.240	-90.753
LINE 2 STN 8	33.	4.04	111.	20.16	1510.0	-.006	979403.091	-38.830	-90.325
LINE 2 STN 9	33.	4.04	111.	20.27	1509.0	-.008	979403.133	-38.932	-90.343
LINE 2 STN 10	33.	4.04	111.	20.36	1507.0	-.011	979403.304	-38.950	-90.292
LINE 2 STN 9 REP.	33.	4.04	111.	20.27	1509.0	-.013	979403.096	-38.970	-90.380
LINE 2 STN 11	33.	4.04	111.	20.45	1505.0	-.017	979403.380	-39.062	-90.336
LINE 2 STN 13	33.	4.04	111.	20.67	1503.0	-.019	979403.754	-38.876	-90.082
LINE 2 STN 14	33.	4.04	111.	20.78	1502.0	-.022	979404.103	-38.621	-89.793
LINE 2 STN 12	33.	4.04	111.	20.55	1505.0	-.031	979403.511	-38.931	-90.205
LINE 2 STN 14 REP.	33.	4.04	111.	20.78	1502.0	-.032	979404.053	-38.671	-89.843
LINE 2 STN 15	33.	4.04	111.	20.87	1501.0	-.033	979404.263	-38.555	-89.693
LINE 2 STN 16	33.	4.04	111.	20.97	1499.0	-.033	979404.554	-38.452	-89.522
LINE 2 STN 17	33.	4.04	111.	21.07	1495.0	-.033	979404.801	-38.581	-89.515

Registered Professional Engineer (Geophysics) CERTIFICATE NO. 11362 ROBERT E. WEST Date Signed 10/19/79 ARIZONA, U.S.A.

GRAVITY SURVEY DATA

MINING GEOPHYSICAL SURVEYS - 2400 EAST GRANT ROAD - TUCSON, ARIZONA 85719

MGS PROJECT 0939

STATION NUMBER	NORTH LATITUDE (DEG)(MIN)	WEST LONGITUDE (DEG)(MIN)	ELEV. (FT)	TIDE CORR (MGAL)	OBSERVED GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE BOUGUER ANOMALY RHO 2.670 (MGAL)
LINE 2 STN 18	33. 4.04	111. 21.16	1492.0	-.034	979405.066	-38.599	-89.430
LINE 3 STN 1	33. 4.12	111. 20.67	1504.0	-.034	979403.865	-38.781	-90.021
LINE 3 STN 2	33. 4.20	111. 20.66	1505.0	-.034	979403.964	-38.698	-89.972
LINE 3 STN 3	33. 4.28	111. 20.64	1505.0	-.034	979404.045	-38.727	-90.001
LINE 2 STN 13 REP.	33. 4.04	111. 20.67	1503.0	-.034	979403.813	-38.817	-90.023
LINE 3 STN 4	33. 3.97	111. 20.68	1503.0	-.033	979403.813	-38.721	-89.927
LINE 3 STN 5	33. 3.89	111. 20.68	1504.0	-.033	979403.694	-38.636	-89.876
LINE 3 STN 6	33. 3.80	111. 20.68	1505.0	-.032	979403.563	-38.549	-89.823
LINE 3 STN 7	33. 3.71	111. 20.67	1505.0	-.032	979403.479	-38.510	-89.784
LINE 3 STN 8	33. 3.63	111. 20.67	1505.0	-.031	979403.351	-38.528	-89.802
LINE 3 STN 9	33. 3.54	111. 20.67	1505.0	-.030	979403.385	-38.370	-89.644
LINE 3 STN 10	33. 3.47	111. 20.67	1505.0	-.029	979403.311	-38.348	-89.622
LINE 3 STN 11	33. 3.39	111. 20.67	1505.0	-.028	979403.204	-38.346	-89.620
------- DRIFT RATE= .059501 MGAL/HR -------							
LINE 3 STN 11 REP.	33. 3.39	111. 20.67	1505.0	.008	979403.160	-38.389	-89.663
LINE 3 STN 12	33. 3.30	111. 20.66	1507.0	.008	979403.025	-38.211	-89.554
LINE 3 STN 13	33. 3.17	111. 20.65	1510.0	.007	979402.616	-38.161	-89.605
LINE 3 STN 14	33. 3.09	111. 20.64	1514.0	.007	979402.391	-37.900	-89.481
LINE 3 STN 15	33. 3.00	111. 20.63	1518.0	.006	979401.868	-37.923	-89.640
LINE 3 STN 16	33. 2.92	111. 20.63	1521.0	.005	979401.328	-38.071	-89.890
LINE 3 STN 17	33. 2.84	111. 20.63	1525.0	.005	979400.794	-38.119	-90.075
LINE 3 STN 18	33. 2.76	111. 20.63	1529.0	.004	979400.193	-38.234	-90.326
LINE 3 STN 19	33. 2.68	111. 20.63	1533.0	.002	979399.603	-38.337	-90.565
LINE 3 STN 20	33. 2.64	111. 20.63	1535.0	.001	979399.388	-38.310	-90.606
LINE 4 STN 0	33. 3.17	111. 20.15	1530.0	-.002	979400.721	-38.175	-90.301
LINE 4 STN 1	33. 3.17	111. 20.25	1524.0	-.004	979401.039	-38.421	-90.342
LINE 4 STN 2	33. 3.17	111. 20.35	1520.0	-.005	979401.380	-38.456	-90.241
LINE 4 STN 3	33. 3.17	111. 20.44	1520.0	-.007	979401.772	-38.064	-89.849
LINE 4 STN 4	33. 3.17	111. 20.54	1517.0	-.009	979402.050	-38.068	-89.751
LINE 4 STN 5	33. 3.17	111. 20.64	1510.0	-.010	979402.521	-38.256	-89.700
LINE 4 STN 5 REP.	33. 3.17	111. 20.64	1510.0	-.011	979402.422	-38.354	-89.799
LINE 4 STN 6	33. 3.17	111. 20.74	1507.0	-.013	979403.182	-37.877	-89.220
LINE 4 STN 7	33. 3.17	111. 20.84	1504.0	-.015	979403.621	-37.720	-88.961
LINE 4 STN 8	33. 3.17	111. 20.93	1500.0	-.016	979403.913	-37.804	-88.908
LINE 4 STN 9	33. 3.17	111. 21.03	1499.0	-.018	979404.010	-37.801	-88.871
LINE 4 STN 10	33. 3.17	111. 21.13	1499.0	-.020	979404.005	-37.806	-88.876
------- DRIFT RATE= -.013222 MGAL/HR -------							
LINE 4 STN.10 REP.	33. 3.17	111. 21.13	1499.0	.075	979404.039	-37.773	-88.843
LINE 4 STN.11	33. 3.17	111. 21.22	1498.0	.070	979404.202	-37.704	-88.740
LINE 4 STN.12	33. 3.17	111. 21.32	1496.0	.068	979404.293	-37.801	-88.769
LINE 4 STN.13	33. 3.17	111. 21.42	1493.0	.065	979404.599	-37.776	-88.642
LINE 4 STN.14	33. 3.17	111. 21.51	1492.0	.063	979404.947	-37.523	-88.354
LINE 4 STN.15	33. 3.17	111. 21.61	1490.0	.061	979405.309	-37.349	-88.112
LINE 4 STN.16	33. 3.17	111. 21.70	1490.0	.058	979405.964	-36.694	-87.457
LINE 4 STN.17	33. 3.17	111. 21.80	1488.0	.055	979406.243	-36.603	-87.298
LINE 4 STN.18	33. 3.17	111. 21.90	1486.0	.052	979406.509	-36.525	-87.152

Registered Professional Engineer (Geophysics) CERTIFICATE NO. 11332 ROBERT E. WEST Date Signed 10/19/79 ARIZONA, U.S.A.

GRAVITY SURVEY DATA

MINING GEOPHYSICAL SURVEYS - 2400 EAST GRANT ROAD - TUCSON, ARIZONA 85719

MGS PROJECT 0939

STATION NUMBER	NORTH LATITUDE (DEG)	(MIN)	WEST LONGITUDE (DEG)	(MIN)	ELEV. (FT)	TIDE CORR (MGAL)	OBSERVED GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE BOUGUER ANOMALY RHO 2.670 (MGAL)
LINE 5 STN. 0	33.	3.17	111.	21.68	1490.0	.047	979405.454	-37.204	-87.967
LINE 5 STN. 1	33.	3.26	111.	21.68	1488.0	.044	979405.692	-37.278	-87.973
LINE 5 STN. 2	33.	3.34	111.	21.69	1488.0	.041	979405.852	-37.228	-87.923
LINE 5 STN. 3	33.	3.08	111.	21.68	1491.0	.032	979405.362	-37.078	-87.875
LINE 5 STN. 4	33.	3.00	111.	21.68	1491.0	.029	979405.198	-37.132	-87.929
LINE 5 STN. 5	33.	2.93	111.	21.68	1492.0	.027	979404.928	-37.212	-88.044
LINE 5 STN. 6	33.	2.84	111.	21.68	1493.0	.024	979404.791	-37.132	-87.997
LINE 5 STN. 7	33.	2.73	111.	21.68	1494.0	.021	979404.471	-37.207	-88.106
LINE 5 STN. 8	33.	2.66	111.	21.68	1500.0	.018	979403.973	-37.044	-88.148
LINE 5 STN. 9	33.	2.58	111.	21.68	1500.0	.015	979403.593	-37.314	-88.418
LINE 5 STN. 10	33.	2.49	111.	21.67	1503.0	.013	979403.237	-37.265	-88.471
LINE 5 STN. 11	33.	2.41	111.	21.67	1506.0	.010	979402.832	-37.278	-88.586
LINE 5 STN. 12	33.	2.32	111.	21.67	1509.0	.008	979402.555	-37.149	-88.559
LINE 6 STN. 0	33.	2.29	111.	21.67	1510.0	.000	979402.553	-37.015	-88.460
LINE 6 STN. 1	33.	2.29	111.	21.57	1515.0	-.002	979402.029	-37.070	-88.684
LINE 6 STN. 2	33.	2.29	111.	21.47	1520.0	-.004	979401.420	-37.208	-88.993
LINE 6 STN. 3	33.	2.29	111.	21.37	1524.0	-.007	979400.902	-37.350	-89.271
LINE 6 STN. 4	33.	2.29	111.	21.27	1528.0	-.009	979400.396	-37.479	-89.537
LINE 7 STN. 0	33.	2.74	111.	21.16	1513.0	-.012	979402.431	-37.473	-89.019
LINE 7 STN. 1	33.	2.74	111.	21.27	1506.0	-.014	979402.838	-37.724	-89.032
LINE 7 STN. 2	33.	2.74	111.	21.37	1503.0	-.015	979403.347	-37.498	-88.704
LINE 7 STN. 3	33.	2.74	111.	21.46	1500.0	-.017	979403.659	-37.468	-88.572
LINE 7 STN. 4	33.	2.74	111.	21.57	1497.0	-.018	979404.034	-37.375	-88.376
LINE 7 STN. 5	33.	2.74	111.	21.77	1490.0	-.021	979405.114	-36.954	-87.717
LINE 7 STN. 6	33.	2.74	111.	21.88	1489.0	-.023	979405.458	-36.703	-87.432
LINE 7 STN. 7	33.	2.74	111.	21.97	1487.0	-.023	979405.866	-36.484	-87.145
LINE 7 STN. 8	33.	2.74	111.	22.07	1485.0	-.024	979406.247	-36.291	-86.883
LINE 7 STN. 9	33.	2.74	111.	22.19	1484.0	-.025	979406.587	-36.045	-86.604
LINE 7 STN. 10	33.	2.74	111.	21.08	1514.0	-.026	979401.971	-37.839	-89.420
LINE 7 STN. 11	33.	2.74	111.	20.98	1519.0	-.026	979401.607	-37.733	-89.484
LINE 7 STN. 12	33.	2.74	111.	20.88	1522.0	-.027	979401.090	-37.968	-89.821
LINE 7 STN. 13	33.	2.74	111.	20.78	1526.0	-.027	979400.757	-37.925	-89.914
------- DRIFT RATE= .001253 MGAL/HR -------									
LINE 1 STN 18 REP.	33.	3.61	111.	21.17	1495.0	-.016	979404.629	-38.163	-89.096
LINE 8 STN 1	33.	3.61	111.	21.26	1493.0	-.016	979404.930	-38.051	-88.916
LINE 8 STN 2	33.	3.61	111.	21.36	1491.0	-.015	979405.099	-38.069	-88.867
LINE 8 STN 3	33.	3.61	111.	21.07	1496.0	-.014	979404.506	-38.192	-89.159
LINE 8 STN 4	33.	3.61	111.	20.97	1497.0	-.019	979404.274	-38.330	-89.331
LINE 8 STN 5	33.	3.61	111.	20.88	1499.0	-.018	979403.937	-38.479	-89.549
LINE 8 STN 6	33.	3.61	111.	20.78	1502.0	-.018	979403.805	-38.329	-89.501
LINE 8 STN 7	33.	3.61	111.	20.68	1505.0	-.018	979403.583	-38.269	-89.543
LINE 8 STN 8	33.	3.61	111.	20.58	1507.0	-.017	979403.245	-38.418	-89.760
LINE 8 STN 9	33.	3.61	111.	20.48	1508.0	-.017	979403.168	-38.401	-89.778
LINE 8 STN 10	33.	3.61	111.	20.38	1510.0	-.016	979403.106	-38.275	-89.719
LINE 8 STN 11	33.	3.61	111.	20.28	1510.0	-.016	979402.890	-38.491	-89.936
LINE 8 STN 12	33.	3.61	111.	20.18	1518.0	-.013	979402.377	-38.252	-89.969
------- DRIFT RATE= -.000462 MGAL/HR -------									

Registered Professional Engineer
CERTIFICATE NO. 11332
ROBERT E. WEST
Signed 10/19/89
ARIZONA, U.S.A.

GRAVITY SURVEY DATA

MINING GEOPHYSICAL SURVEYS - 2400 EAST GRANT ROAD - TUCSON, ARIZONA 85719

MGS PROJECT 0939

STATION NUMBER	NORTH LATITUDE (DEG)	(MIN)	WEST LONGITUDE (DEG)	(MIN)	ELEV. (FT)	TIDE CORR (MGAL)	OBSERVED GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE BOUGUER ANOMALY RHO 2.670 (MGAL)
LINE 9 STN 0	33.	3.02	111.	20.13	1537.0	.016	979400.035	-37.997	-90.361
LINE 9 STN 1	33.	3.10	111.	20.13	1533.0	.016	979400.576	-37.942	-90.170
LINE 9 STN 2	33.	3.18	111.	20.13	1529.0	.014	979401.014	-37.989	-90.081
LINE 9 STN 3	33.	3.26	111.	20.13	1527.0	.013	979401.389	-37.912	-89.936
LINE 9 STN 4	33.	3.35	111.	20.13	1523.0	.011	979401.719	-38.083	-89.970
LINE 9 STN 5	33.	3.42	111.	20.13	1520.0	.010	979402.015	-38.165	-89.950
LINE 9 STN 6	33.	3.52	111.	20.13	1520.0	.008	979402.193	-38.124	-89.909
LINE 8 STN 12 REP.	33.	3.60	111.	20.13	1518.0	.006	979402.428	-38.187	-89.904
LINE 9 STN 7	33.	3.68	111.	20.13	1515.0	.005	979402.563	-38.444	-90.059
LINE 9 STN 8	33.	3.77	111.	20.13	1515.0	.004	979402.668	-38.463	-90.078
LINE 9 STN 9	33.	3.84	111.	20.13	1510.0	.002	979402.829	-38.868	-90.312
LINE 9 STN 10	33.	3.92	111.	20.13	1510.0	.000	979402.952	-38.855	-90.299
LINE 9 STN 11	33.	4.02	111.	20.13	1510.0	-.001	979402.963	-38.981	-90.426
LINE 8 STN 13	33.	3.60	111.	20.05	1520.0	-.006	979401.967	-38.460	-90.245
LINE 8 STN 14	33.	3.60	111.	19.96	1527.0	-.007	979401.719	-38.050	-90.073
LINE 8 STN 15	33.	3.60	111.	19.87	1530.0	-.009	979400.841	-38.645	-90.771
LINE 8 STN 16	33.	3.60	111.	19.78	1534.0	-.010	979400.625	-38.485	-90.747
LINE 8 STN 17	33.	3.60	111.	19.68	1540.0	-.011	979400.177	-38.368	-90.835
LINE 10 STN 1	33.	4.10	111.	19.72	1519.0	-.016	979401.287	-39.920	-91.671
LINE 10 STN 2	33.	4.15	111.	19.67	1520.0	-.016	979401.117	-40.065	-91.851
LINE 10 STN 3	33.	4.22	111.	19.59	1521.0	-.024	979400.870	-40.314	-92.133
LINE 10 STN 4	33.	4.28	111.	19.52	1521.0	-.025	979400.635	-40.631	-92.451
LINE 10 STN 5	33.	4.32	111.	19.43	1521.0	-.026	979400.263	-41.059	-92.878
LINE 10 STN 6	33.	4.38	111.	19.37	1521.0	-.026	979399.952	-41.452	-93.271
LINE 10 STN 7	33.	4.43	111.	19.28	1521.0	-.027	979399.694	-41.779	-93.598
LINE 10 STN 8	33.	4.48	111.	19.19	1525.0	-.030	979399.666	-41.499	-93.454
LINE 10 STN 9	33.	4.48	111.	19.10	1530.0	-.031	979399.241	-41.453	-93.579
LINE 10 STN 10	33.	4.40	111.	19.10	1533.0	-.032	979399.196	-41.107	-93.335
LINE 10 STN 10 REP.	33.	4.40	111.	19.10	1533.0	-.032	979399.195	-41.107	-93.335
LINE 10 STN 11	33.	4.30	111.	19.10	1538.0	-.033	979399.054	-40.641	-93.040
LINE 1 STN 10 \0807'	33.	4.21	111.	19.10	1540.0	-.034	979398.835	-40.548	-93.015
STN R-1	33.	4.42	111.	19.75	1515.0	-.036	979401.340	-40.683	-92.298
STN R-2	33.	4.32	111.	20.12	1510.0	-.036	979402.733	-39.623	-91.068
STN R-3	33.	4.42	111.	21.01	1500.0	-.037	979405.002	-38.432	-89.536
LINE 11 STN 0	33.	2.12	111.	20.19	1608.0	-.032	979393.634	-36.483	-91.266
LINE 11 STN 1	33.	2.19	111.	20.25	1580.0	-.031	979395.302	-37.545	-91.374
LINE 11 STN 2	33.	2.25	111.	20.32	1570.0	-.031	979396.275	-37.595	-91.084
LINE 11 STN 3	33.	2.32	111.	20.36	1558.0	-.030	979396.849	-38.246	-91.326
LINE 11 STN 4	33.	2.39	111.	20.43	1553.0	-.029	979397.653	-38.008	-90.918
LINE 11 STN 5	33.	2.46	111.	20.49	1549.0	-.028	979397.716	-38.417	-91.191
LINE 11 STN 6	33.	2.51	111.	20.53	1543.0	-.028	979397.987	-38.779	-91.348
------- DRIFT RATE= .005038 MGAL/HR -------									
LINE 12 STN 0	33.	3.97	111.	19.18	1550.0	.091	979398.212	-39.901	-92.708
LINE 12 STN 1	33.	3.90	111.	19.10	1561.0	.091	979398.389	-38.593	-91.775
LINE 12 STN 2	33.	3.84	111.	19.03	1568.0	.089	979398.145	-38.097	-91.517
LINE 12 STN 3	33.	3.78	111.	18.97	1568.0	.088	979397.782	-38.377	-91.798
LINE 12 STN 4	33.	3.72	111.	18.90	1568.0	.086	979397.387	-38.689	-92.110

Registered Professional Engineer (Geophysics) CERTIFICATE NO. 11332 ROBERT E. WEST Date Signed 10/10/79 ARIZONA, U.S.A.

GRAVITY SURVEY DATA

MINING GEOPHYSICAL SURVEYS - 2400 EAST GRANT ROAD - TUCSON, ARIZONA 85719

MGS PROJECT 0939

STATION NUMBER	NORTH LATITUDE (DEG)	(MIN)	WEST LONGITUDE (DEG)	(MIN)	ELEV. (FT)	TIDE CORR (MGAL)	OBSERVED GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE BOUGUER ANOMALY RHO 2.670 (MGAL)
LINE 12 STN 5	33.	3.67	111.	18.82	1580.0	.085	979396.565	-38.314	-92.143
LINE 12 STN 6	33.	3.60	111.	18.76	1580.0	.083	979396.255	-38.528	-92.358
LINE 12 STN 7	33.	3.56	111.	18.68	1590.0	.082	979395.730	-38.056	-92.228
LINE 12 STN 8	33.	3.50	111.	18.61	1602.0	.079	979394.680	-37.897	-92.476
LINE 12 STN 9	33.	3.43	111.	18.54	1614.0	.077	979393.517	-37.835	-92.822
LINE 12 STN 10	33.	3.38	111.	18.47	1642.0	.074	979391.896	-36.753	-92.695
LINE 12 STN 11	33.	3.33	111.	18.40	1660.0	.072	979390.685	-36.002	-92.557
LINE 12 STN 12	33.	3.27	111.	18.33	1668.0	.069	979389.947	-36.106	-92.933
LINE 12 STN 13	33.	3.21	111.	18.27	1683.0	.067	979388.829	-35.731	-93.069
LINE 12 STN 14	33.	3.15	111.	18.20	1683.0	.064	979388.690	-35.787	-93.126
LINE 13 STN 0	33.	3.13	111.	19.73	1550.0	.037	979398.700	-38.260	-91.067
LINE 13 STN 1	33.	3.07	111.	19.66	1560.0	.032	979398.194	-37.743	-90.891
LINE 13 STN 2	33.	3.01	111.	19.58	1570.0	.028	979397.443	-37.471	-90.959
LINE 13 STN 3	33.	2.97	111.	19.51	1577.0	.025	979396.846	-37.355	-91.082
LINE 13 STN 4	33.	2.90	111.	19.43	1583.0	.021	979396.257	-37.283	-91.214
LINE 13 STN 5	33.	2.86	111.	19.36	1588.0	.017	979396.036	-36.979	-91.081
LINE 13 STN 6	33.	2.79	111.	19.29	1594.0	.013	979395.362	-36.992	-91.298
LINE 13 STN 7	33.	2.75	111.	19.22	1600.0	.010	979394.908	-36.827	-91.338
LINE 13 STN 8	33.	2.70	111.	19.13	1605.0	.005	979394.818	-36.378	-91.059
LINE 13 STN 7 REP.	33.	2.75	111.	19.22	1600.0	.001	979394.992	-36.743	-91.254
LINE 14 STN 0	33.	3.31	111.	19.68	1550.0	-.015	979399.630	-37.577	-90.384
LINE 14 STN 1	33.	3.38	111.	19.62	1550.0	-.017	979399.512	-37.791	-90.598
LINE 14 STN 2	33.	3.45	111.	19.58	1550.0	-.019	979399.510	-37.889	-90.696
LINE 14 STN 3	33.	3.52	111.	19.52	1550.0	-.020	979399.496	-37.999	-90.807
LINE 14 STN 4	33.	3.58	111.	19.47	1550.0	-.022	979399.624	-37.953	-90.760
LINE 14 STN 5	33.	3.66	111.	19.42	1550.0	-.026	979399.118	-38.569	-91.376
LINE 14 STN 6	33.	3.72	111.	19.36	1550.0	-.027	979398.873	-38.897	-91.704
LINE 14 STN 7	33.	3.80	111.	19.30	1550.0	-.029	979398.888	-38.992	-91.799
LINE 14 STN 8	33.	3.87	111.	19.25	1550.0	-.030	979398.705	-39.271	-92.078
LINE 14 STN 9	33.	3.96	111.	19.20	1550.0	-.031	979398.328	-39.772	-92.579
LINE 14 STN 10	33.	4.00	111.	19.12	1554.0	-.032	979398.186	-39.592	-92.535
LINE 14 STN 11	33.	4.05	111.	19.04	1553.0	-.033	979397.934	-40.007	-92.916
LINE 14 STN 12	33.	4.10	111.	18.97	1554.0	-.035	979398.047	-39.869	-92.812
LINE 14 STN 13	33.	4.16	111.	18.90	1555.0	-.036	979397.966	-39.937	-92.915
LINE 14 STN 14	33.	4.21	111.	18.82	1555.0	-.037	979397.516	-40.456	-93.434
LINE 14 STN 15	33.	4.28	111.	18.74	1555.0	-.037	979397.139	-40.930	-93.907
LINE 14 STN 16	33.	4.32	111.	18.68	1555.0	-.039	979396.750	-41.374	-94.351
STN R-4	33.	4.54	111.	21.23	1515.0	-.045	979405.576	-36.612	-88.227
STN R-5	33.	4.78	111.	20.73	1521.0	-.046	979403.717	-38.236	-90.055
STN R-6	33.	4.94	111.	20.27	1525.0	-.046	979402.670	-39.127	-91.082
STN R-7	33.	4.94	111.	19.60	1524.0	-.047	979400.029	-41.862	-93.783
STN R-8	33.	4.83	111.	19.15	1528.0	-.048	979399.458	-41.906	-93.964
STN R-9	33.	4.94	111.	18.85	1528.0	-.048	979398.765	-42.750	-94.807

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GRAVITY SURVEY DATA

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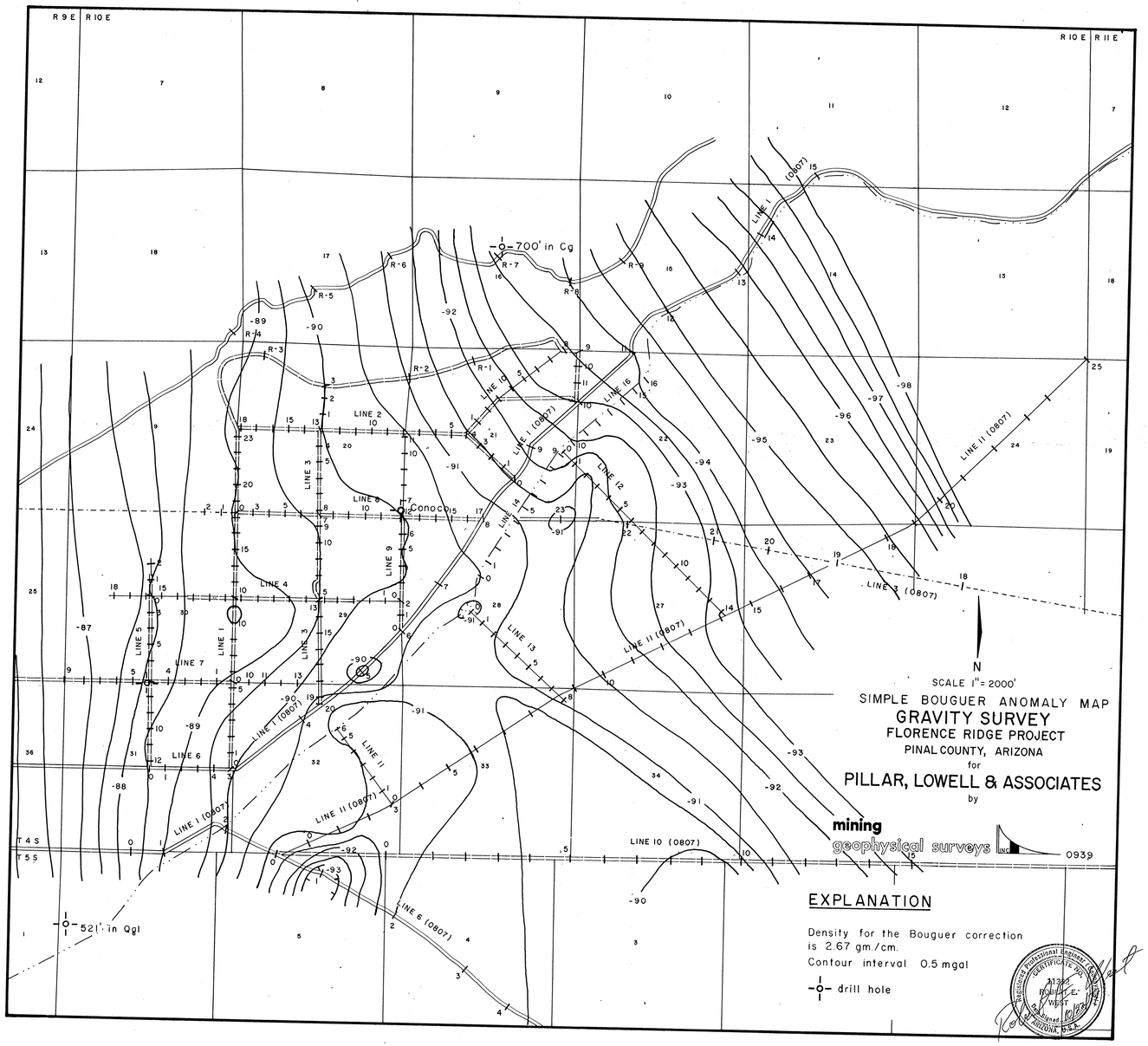
MGS PROJECT 0939

STATION NUMBER	NORTH LATITUDE (DEG)(MIN)	WEST LONGITUDE (DEG)(MIN)	ELEV. (FT)	TIDE CORR (MGAL)	OBSERVED GRAVITY (MGAL)	FREE AIR ANOMALY (MGAL)	SIMPLE BOUGUER ANOMALY RHO 2.670 (MGAL)
------- DRIFT RATE= .008199 MGAL/HR -------							
LINE 1 STN 0	33. 2.29	111. 21.17	1532.0	.034	979399.715	-37.784	-89.978
LINE 1 STN 1	33. 2.38	111. 21.17	1527.0	.034	979400.268	-37.825	-89.849
LINE 1 STN 2	33. 2.47	111. 21.17	1521.0	.034	979400.715	-38.063	-89.882
LINE 1 STN 3	33. 2.54	111. 21.17	1518.0	.034	979401.196	-37.964	-89.681
LINE 1 STN 4	33. 2.62	111. 21.17	1515.0	.033	979401.745	-37.808	-89.421
LINE 1 STN 5	33. 2.72	111. 21.17	1513.0	.033	979402.189	-37.688	-89.234
LINE 1 STN 6	33. 2.74	111. 21.17	1513.0	.032	979402.353	-37.591	-89.098
LINE 1 STN 7	33. 2.80	111. 21.17	1509.0	.031	979402.742	-37.621	-89.032
LINE 1 STN 8	33. 2.88	111. 21.17	1507.0	.030	979403.124	-37.536	-88.879
LINE 1 STN 9	33. 2.97	111. 21.17	1504.0	.029	979403.435	-37.632	-88.872
LINE 1 STN 10	33. 3.04	111. 21.17	1501.0	.029	979403.625	-37.820	-88.958
LINE 1 STN 11	33. 3.13	111. 21.17	1500.0	.028	979403.805	-37.857	-88.961
LINE 1 STN 12	33. 3.17	111. 21.17	1499.0	.026	979403.968	-37.843	-88.913
LINE 1 STN 13	33. 3.26	111. 21.17	1498.0	.024	979404.213	-37.816	-88.852
LINE 1 STN 14	33. 3.34	111. 21.17	1497.0	.023	979404.375	-37.858	-88.860
LINE 1 STN 15	33. 3.42	111. 21.17	1495.0	.022	979404.450	-38.081	-89.015
LINE 1 STN 16	33. 3.50	111. 21.17	1495.0	.020	979404.573	-38.068	-89.001
LINE 1 STN 17	33. 3.58	111. 21.17	1495.0	.019	979404.622	-38.129	-89.062
LINE 1 STN 18	33. 3.61	111. 21.17	1495.0	.017	979404.614	-38.177	-89.111
LINE 1 STN 19	33. 3.67	111. 21.17	1495.0	.016	979404.758	-38.116	-89.050
LINE 1 STN 20	33. 3.74	111. 21.17	1495.0	.014	979404.927	-38.044	-88.977
LINE 1 STN 21	33. 3.83	111. 21.17	1495.0	.013	979405.044	-38.051	-88.984
LINE 1 STN 22	33. 3.92	111. 21.17	1495.0	.012	979405.076	-38.142	-89.075
LINE 1 STN 23	33. 4.00	111. 21.17	1495.0	.007	979405.155	-38.173	-89.106
------- DRIFT RATE= .005088 MGAL/HR -------							
LINE 2 STN 0	33. 3.82	111. 19.48	1540.0	.012	979399.610	-39.238	-91.705
LINE 2 STN 1	33. 3.88	111. 19.54	1532.0	.009	979400.203	-39.480	-91.674
LINE 2 STN 2	33. 3.93	111. 19.62	1527.0	.007	979400.677	-39.545	-91.568
LINE 2 STN 3	33. 3.99	111. 19.70	1524.0	.005	979401.226	-39.360	-91.282
LINE 2 STN 4	33. 4.04	111. 19.77	1518.0	.003	979401.404	-39.815	-91.532
LINE 2 STN 5	33. 4.04	111. 19.87	1517.0	-.000	979401.851	-39.462	-91.145
LINE 2 STN 6	33. 4.04	111. 19.97	1514.0	-.002	979402.127	-39.469	-91.049
LINE 2 STN 7	33. 4.04	111. 20.06	1512.0	-.004	979402.544	-39.240	-90.753
LINE 2 STN 8	33. 4.04	111. 20.16	1510.0	-.006	979403.091	-38.880	-90.325
LINE 2 STN 9	33. 4.04	111. 20.27	1509.0	-.008	979403.133	-38.932	-90.343
LINE 2 STN 10	33. 4.04	111. 20.36	1507.0	-.011	979403.304	-38.950	-90.292
LINE 2 STN 9 REP.	33. 4.04	111. 20.27	1509.0	-.013	979403.096	-38.970	-90.380
LINE 2 STN 11	33. 4.04	111. 20.45	1505.0	-.017	979403.380	-39.062	-90.336
LINE 2 STN 13	33. 4.04	111. 20.67	1503.0	-.019	979403.754	-38.876	-90.082
LINE 2 STN 14	33. 4.04	111. 20.78	1502.0	-.022	979404.103	-38.621	-89.793
LINE 2 STN 12	33. 4.04	111. 20.55	1505.0	-.031	979403.511	-38.931	-90.205
LINE 2 STN 14 REP.	33. 4.04	111. 20.78	1502.0	-.032	979404.053	-38.671	-89.843
LINE 2 STN 15	33. 4.04	111. 20.87	1501.0	-.033	979404.263	-38.555	-89.693
LINE 2 STN 16	33. 4.04	111. 20.97	1499.0	-.033	979404.554	-38.452	-89.522
LINE 2 STN 17	33. 4.04	111. 21.07	1495.0	-.033	979404.801	-38.581	-89.515

Registered Professional Engineer (Geophysics) CERTIFICATE NO. 11362 ROBERT E. WEST Date Signed 10/19/ ARIZONA, U.S.A.


R 9 E
R 10 E
R 10 E
R 11 E
T 4 S
T 5 S
-700' in Cg
-521' in Qgl
Conoco
LINE 1
LINE 2
LINE 3
LINE 4
LINE 5
LINE 6
LINE 7
LINE 9
LINE 10
LINE 11
LINE 12
LINE 13
LINE 14
LINE 16
LINE 1 (0807)
LINE 3 (0807)
LINE 5 (0807)
LINE 6 (0807)
LINE 10 (0807)
LINE 11 (0807)
N
SCALE 1" = 2000'
SIMPLE BOUGUER ANOMALY MAP
GRAVITY SURVEY
FLORENCE RIDGE PROJECT
PINAL COUNTY, ARIZONA
for
PILLAR, LOWELL & ASSOCIATES
by
mining geophysical surveys INC.
0939
EXPLANATION
Density for the Bouguer correction is 2.67 gm./cm.
Contour interval 0.5 mgal
drill hole
Registered Professional Engineer
CERTIFICATE NO.
31392
ROBERT E. WEST
Registered
ARIZONA, U.S.A.

Foxtcroft Apprl
Quarterly Meeting

FLORENCE RIDGE SOUTH 151-184

This project is a spin off of "Florence Ridge", a one-hole project which penetrated barren Precambrian granite at a depth of 1180 ft, beneath a post-mineral section of upper terrace gravels, older basalt, and and older granitic conglomerate probably equivalent to the Whitetail conglomerate. An unfavorable land position prevented a second hole. The object was to further evaluate a relatively shallow bedrock ridge.

Information was subsequently obtained on an old Asarco hole, bottomed at 1300-1500 feet in "sticky red clay", suggestive of a ferruginous conglomerate or a sheared fault slice of leached capping. By combining the detailed gravity data with that from the old Bor-O wash gravity survey, it seemed apparent that a secondary ridge split off of the "Florence Ridge" in a SE direction toward the outcrops of younger basalt at "Picture Rocks" hill. Investigation reveals no evidence that bedrock has been reached by any previous exploration drilling ~~to bar~~ in this area.

Information from an old Asarco report indicates the same for "Florence Ridge"

Regional redefinition of the west-southwesterly trending Ray to Poston Butte "mineral zone" indicates that there are two parallel zones separated by a barren "strip". The northerly zone extends from Ray to Poston Butte, and thence W-SW to weak mineralization at Cholla Mountain.

The secondary (or Picture Rocks) ridge seems to be a fossilized remnant of an accumulation of ferruginous conglomerate.

1" = 48,000"

1" = 62,500"

$$\frac{1}{48,000} = \frac{x}{62,500}$$

Although this may be a fundamental "mineral zone" with a deep-seated origin, the known deposits are all displaced by "flat faults", apparently thus ~~moving~~ spreading slices of porphyry systems ~~on a west~~ along a S 70° ± W vector, paralleling and overprinting the possible deep seated major mineral belt.

The southerly zone extends from Kelvin, WSW to the Red Hills deposit, which is itself a klippen of leached capping, overlying a secondary, wider zone of weak, fracture controlled copper oxides and sulfides.

No ore bodies have yet been found in the southern mineral zone, although several weak porphyry copper systems have be drilled by a variety of exploration groups.

Although the southern belt is not, strictly speaking, a straight-line feature, the known occurrences have been averaged on a regional map to establish a vector.

We believe the Ridge running northwest from picture rocks warrants a one-hole program, and a site has been selected where the southern zone (by projection) crosses this ridge.

A drilling contract has been given to Drill-X, Inc., whose prices are favorable and who have experience drilling ~~this~~ the Florence area. A rotary 1500 class rig is tentatively scheduled to move to the project on Monday, April 27.

GRAVITY DATA INTERPRETATION MAP
SCALE 1" = 2000'
GRAVITY SURVEY
PLAN MAP
BOX O WASH PROJECT 7-21
PINAL COUNTY, ARIZONA
for
PILLAR, LOWELL & ASSOCIATES
by
mining geophysical surveys
0807
EXPLANATION
Geologic contact interpreted from topographic map
Pre-post mineral rock contact picked by a gravity crew
U D Normal fault interpreted from gravity data
2600'-3900' Depth to premineral rocks estimated from gravity data for Δρ of 0.3 and 0.4 gm./cm.3
FLORENCE BASIN
DEEP BASEMENT, POSSIBLE SHALLOW BASEMENT TO NORTH
AXIS OF 1 MGAL RESIDUAL GRAVITY HIGH. POSSIBLE SHALLOW PREMINERAL ROCKS
Reported p€ gr
PICTURE ROCKS HORST
RELATIVELY SHALLOW BASEMENT
DEEP GRAVEL GRABEN
DEEP BASEMENT TO NORTH, SHALLOWING TO SOUTH
CAT HILLS HORST
SHALLOW BASEMENT
EAST PICACHO BASIN
DEEP BASEMENT
PICACHO MOUNTAINS
p€ gr
BOX O HILLS
NINETY SIX HILLS
MIDDLE MOUNTAIN
PROSPECT HILL
CAT HILLS
Quintana 2302' in gravel
Base Station
Qs
QTb
LINE 1
LINE 2
LINE 3
LINE 4
LINE 5
LINE 6
LINE 7
LINE 8
LINE 9
LINE 10
LINE 11
LINE 12
LINE 13
LOOP A
LOOP B
SHALLOW
1200'-1800'
1700'-2500'
3700'-5500'
2000'-2900'
1800'-2700'
900'-1400'
3400'-5100'
2100'-3000'
3000'-4500'
1000'-1600'
2200'-3300'
2600'-3900'
800'-1200'
1300'-2000'
2300'-3500'
1600'-2300'
500'-800'
2600'-4100'
700'-1000'
1400'-2200'
T. 4 S.
T. 5 S.
T. 6 S.
T. 7 S.
R. 9 E.
R. 10 E.
R. 11 E.
R. 12 E.