TRANSIT BOOK

44.5
3
22/31 1.5 (14
22
91

Distances from Side Stakes for Cross-Sectioning

Slope 1 to 1. Roadway of Any Width

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0
1	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	1
2	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	2
3	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	3
4	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	4
5	5.00	5.10	5.20	5.30	5.40	5.50	5.60	5.70	5.80	5.90	5
6	6.00	6.10	6.20	6.30	6.40	6.50	6.60	6.70	6.80	6.90	6
7	7.00	7.10	7.20	7.30	7.40	7.50	7.60	7.70	7.80	7.90	7
8	8.00	8.10	8.20	8.30	8.40	8.50	8.60	8.70	8.80	8.90	8
9	9.00	9.10	9.20	9.30	9.40	9.50	9.60	9.70	9.80	9.90	9
10	10.00	10.10	10.20	10.30	10.40	10.50	10.60	10.70	10.80	10.90	10
11	11.00	11.10	11.20	11.30	11.40	11.50	11.60	11.70	11.80	11.90	11
12	12.00	12.10	12.20	12.30	12.40	12.50	12.60	12.70	12.80	12.90	12
13	13.00	13.10	13.20	13.30	13.40	13.50	13.60	13.70	13.80	13.90	13
14	14.00	14.10	14.20	14.30	14.40	14.50	14.60	14.70	14.80	14.90	14
15	15.00	15.10	15.20	15.30	15.40	15.50	15.60	15.70	15.80	15.90	15
16	16.00	16.10	16.20	16.30	16.40	16.50	16.60	16.70	16.80	16.90	16
17	17.00	17.10	17.20	17.30	17.40	17.50	17.60	17.70	17.80	17.90	17
18	18.00	18.10	18.20	18.30	18.40	18.50	18.60	18.70	18.80	18.90	18
19	19.00	19.10	19.20	19.30	19.40	19.50	19.60	19.70	19.80	19.90	19
20	20.00	20.10	20.20	20.30	20.40	20.50	20.60	20.70	20.80	20.90	20
21	21.00	21.10	21.20	21.30	21.40	21.50	21.60	21.70	21.80	21.90	21
22	22.00	22.10	22.20	22.30	22.40	22.50	22.60	22.70	22.80	22.90	22
23	23.00	23.10	23.20	23.30	23.40	23.50	23.60	23.70	23.80	23.90	23
24	24.00	24.10	24.20	24.30	24.40	24.50	24.60	24.70	24.80	24.90	24
25	25.00	25.10	25.20	25.30	25.40	25.50	25.60	25.70	25.80	25.90	25
26	26.00	26.10	26.20	26.30	26.40	26.50	26.60	26.70	26.80	26.90	26
27	27.00	27.10	27.20	27.30	27.40	27.50	27.60	27.70	27.80	27.90	27
28	28.00	28.10	28.20	28.30	28.40	28.50	28.60	28.70	28.80	28.90	28
29	29.00	29.10	29.20	29.30	29.40	29.50	29.60	29.70	29.80	29.90	29
30	30.00	30.10	30.20	30.30	30.40	30.50	30.60	30.70	30.80	30.90	30
31	31.00	31.10	31.20	31.30	31.40	31.50	31.60	31.70	31.80	31.90	31
32	32.00	32.10	32.20	32.30	32.40	32.50	32.60	32.70	32.80	32.90	32
33	33.00	33.10	33.20	33.30	33.40	33.50	33.60	33.70	33.80	33.90	33
34	34.00	34.10	34.20	34.30	34.40	34.50	34.60	34.70	34.80	34.90	34
35	35.00	35.10	35.20	35.30	35.40	35.50	35.60	35.70	35.80	35.90	35
36	36.00	36.10	36.20	36.30	36.40	36.50	36.60	36.70	36.80	36.90	36
37	37.00	37.10	37.20	37.30	37.40	37.50	37.60	37.70	37.80	37.90	37
38	38.00	38.10	38.20	38.30	38.40	38.50	38.60	38.70	38.80	38.90	38
39	39.00	39.10	39.20	39.30	39.40	39.50	39.60	39.70	39.80	39.90	39
40	40.00	40.10	40.20	40.30	40.40	40.50	40.60	40.70	40.80	40.90	40
41	41.00	41.10	41.20	41.30	41.40	41.50	41.60	41.70	41.80	41.90	41
42	42.00	42.10	42.20	42.30	42.40	42.50	42.60	42.70	42.80	42.90	42
43	43.00	43.10	43.20	43.30	43.40	43.50	43.60	43.70	43.80	43.90	43
44	44.00	44.10	44.20	44.30	44.40	44.50	44.60	44.70	44.80	44.90	44
45	45.00	45.10	45.20	45.30	45.40	45.50	45.60	45.70	45.80	45.90	45
46	46.00	46.10	46.20	46.30	46.40	46.50	46.60	46.70	46.80	46.90	46
47	47.00	47.10	47.20	47.30	47.40	47.50	47.60	47.70	47.80	47.90	47
48	48.00	48.10	48.20	48.30	48.40	48.50	48.60	48.70	48.80	48.90	48
49	49.00	49.10	49.20	49.30	49.40	49.50	49.60	49.70	49.80	49.90	49
50	50.00	50.10	50.20	50.30	50.40	50.50	50.60	50.70	50.80	50.90	50

Distance of slope stake from side or shoulder stake for any width roadway, slope 1 to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

Indexed to P6 - 6/1/48 mbd.
✓ P52 9/27/48 mbd

Nor 3.475 4.920 4.920
So. 3.19 .285 560
0.285 4.635 36

334.240
3.775
338.015
4.38
333.635

375.98

IMPROVED TABLES
AND
INFORMATION

DIRECTIONS FOR USE OF TABLES

TABLE No. XIV

Distance of slope stake from side or shoulder stake for any width roadway, slope 1½ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. VIII

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections. Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

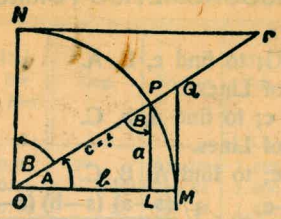


TABLE II

TRIGONOMETRIC FORMULÆ.

$\angle A = \angle MOP \qquad \angle B = \angle PON = \angle OPL$

$R = OB = c = 1$

$$\sin A = \frac{a}{c} = \frac{a}{1} = a = \text{sos } B = LP$$

$$\text{sos } A = \frac{b}{c} = \frac{b}{1} = b = \sin B = OL$$

$$\tan A = \frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ$$

$$\cot A = \frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT$$

$$\sec A = \frac{OQ}{OM} = \frac{OQ}{1} = OQ = \csc B = OQ$$

$$\csc A = \frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT$$

$$\text{vers } A = \frac{LM}{OP} = LM = \text{covers } B$$

$$\text{covers } A = \frac{OP - LP}{OP} = OP - LP = \text{vers } B$$

$$\text{exsec } A = PQ = \text{coexsec } B$$

$$\text{coexsec } A = PT = \text{exsec } B$$

$$\sin \tfrac{1}{2} A = \sqrt{\frac{1 - \cos A}{2}} \qquad \cos \tfrac{1}{2} A = \sqrt{\frac{1 + \cos A}{2}}$$

$$\sin 2A = 2 \sin A \cos A \qquad \cos 2A = \cos^2 A - \sin^2 A$$

$$\text{Law of Lines} \quad \frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C}$$

$$\text{Law of Cosines} \quad c^2 = a^2 + b^2 - 2ab \cos C$$

$$\text{Law of Tangents} \quad \frac{a+b}{a-b} = \frac{\tan \tfrac{1}{2}(A+B)}{\tan \tfrac{1}{2}(A-B)}$$

TABLE XIII—CORRECTIONS FOR TANGENTS AND EXTERNALS

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table VIII) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	Degree of Curve													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	03	.06	09	13	16	19	.22	.25	.28	.31	.34	38	42	.46
15°	04	10	14	19	24	.29	.34	.39	45	.51	.53	58	.63	.68
20°	06	.13	19	26	.32	.39	.45	.51	.58	.65	.72	79	.84	.90
25°	.08	16	24	.33	40	49	.58	67	.75	.83	90	.99	1.06	1.14
30°	10	19	.29	39	49	.59	.69	79	.89	.99	1.09	1.20	1.29	1.39
35°	11	22	.34	47	.58	.69	.70	.81	.92	1.04	1.29	1.42	1.54	1.66
40°	13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94
45°	15	.30	44	60	76	91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21
50°	17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48
55°	19	38	.57	76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77
60°	21	42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07
65°	23	46	.69	.93	1.16	1 40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39
70°	25	.51	76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09
80°	30	.61	.91	1.22	1.53	1.84	2.15	2.46	2 78	3.10	3.44	3.78	4.12	4.46
85°	33	66	1.00	1.33	1.68	2.02	2.36	2 70	3.05	3.40	3.77	4.14	4.55	4 89
90°	36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32
95°	39	79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.98	5.38	5.83
100°	.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34
110°	51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4 76	5.31	5 86	6.43	7 01	7 60
120°	62	1.25	1 93	2.52	3.16	3.81	4 45	5.11	5.77	6 44	7 12	7.80	8.50	9 22

FOR EXTERNALS ADD

Central Angle	Degree of Curve													
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020
15°	.003	.007	.010	.014	.018	.023	.027	.029	.032	.035	.039	.043	.047	.051
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083
25°	.009	.018	.027	036	.046	.056	.065	.074	.083	.093	.106	120	127	135
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700
60°	.056	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.711	.845	.922	1.01
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17
75°	.095	.182	.286	.383	.480	.578	.678	.777	.877	.977	1.07	1.18	1.29	1.39
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62
85°	.128	.259	.391	.524	.657	.790	.926	1.06	1.20	1.34	1.47	1.62	1.76	1.91
90°	.149	.299	.450	.603	.756	.910	1.07	1.22	1.38	1.54	1.70	1.87	2.03	2.20
95°	.174	.350	.522	.706	.985	1.06	1.25	1.43	1.62	1.80	1.99	2.18	2.38	2.58
100°	.200	.401	.604	.809	1.01	1.22	1.43	1.64	1.85	2.06	2.28	2.50	2.73	2.96
110°	.268	.536	.806	1.08	1.35	1.63	1.91	2.20	2.48	2.76	3.05	3.35	3.66	3.96
120°	.360	.721	1.08	1.45	1.82	2.19	2.57	2.95	3.33	3.72	4.11	4.50	4.91	5.32

INDEX

OVER

SAN PASQUAL VALLEY, Elev. of WELLS 74-79 ✓

" " " SKETCH OF WELLS 80 ✓

" " " Trang. of Wells 81 ✓

" " " ELEV. of WELLS 82 ✓
Alice

" " " " " " 83-84 ✓

SAN PASQUAL Valley, Survey for Lease 85-88 ✓
Line Fenton RANCH alice

San Pasqual Valley Elev of Wells 89-91 ✓

LAKE HODGES — Profile & X-Sects ✓
of Gunnited Ditch, 1/4 mile Downstream
from Gaging Station 92-96
Alice

MAY 12, 1948

WELL #1 - SAN PASQUAL VALLEY

INSPECTOR - R.W. DARBY

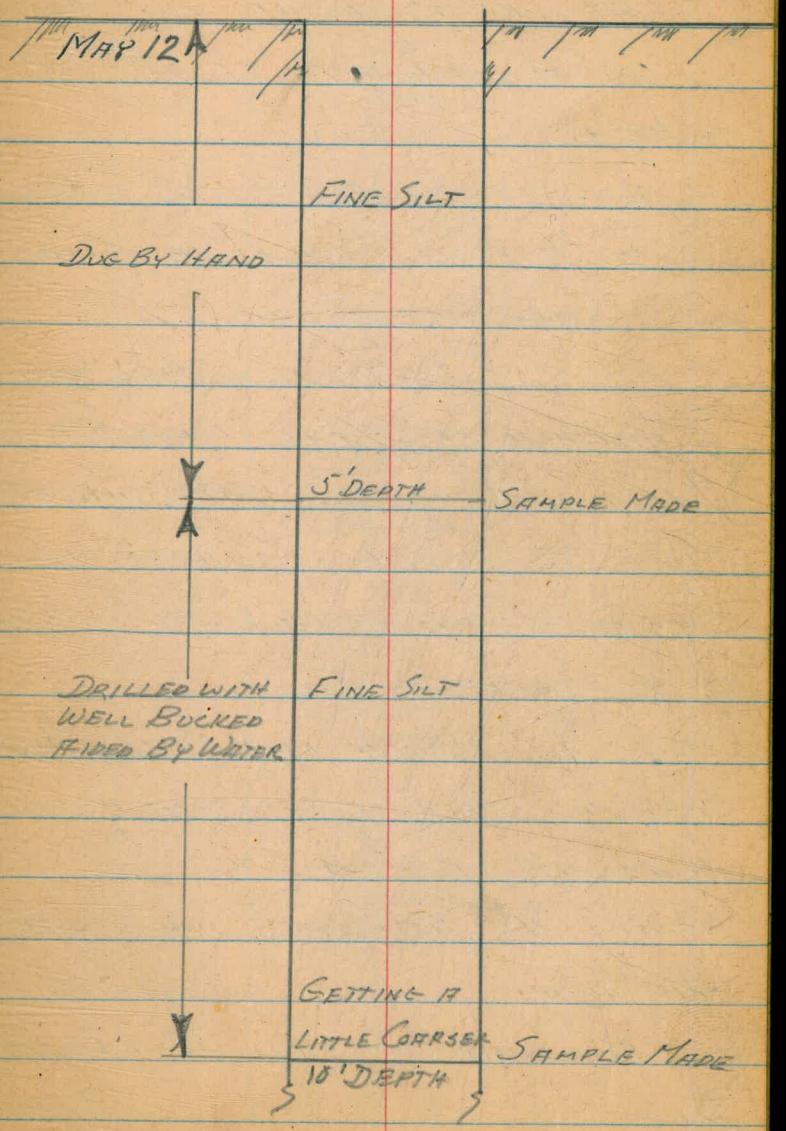
DRILLING OF THE WELL STARTED AT NOON THIS DATE. EQUIPMENT FOR DRILLING WAS SET UP APRIL 14 1948.

SURFACE MATERIAL IS A FINE SILT SAND.

THE FIRST 5FT OF WELL WAS DUG BY HAND. THEN THE CASING WAS SET IN THIS 5' HOLE. THE MATERIAL AT THIS 5' LEVEL WAS OF SAME AS SURFACE MATERIAL.

IN DRILLING THE WELL A WELL BUCKET WAS DROPPED INTO THE WELL AND WITH THE AID OF WATER WAS FILLED AND REMOVED.

AT THE 10FT DEPTH THE MATERIAL WAS A SILT WITH COARSER GRAINS OF SAND IN IT - STILL IT WAS A SILT.



May 12, 1918
Well #2, San Pasqual Valley
Inspector R.W. Darby

At the 15' Depth the Material was the same as at the 10' Depth.

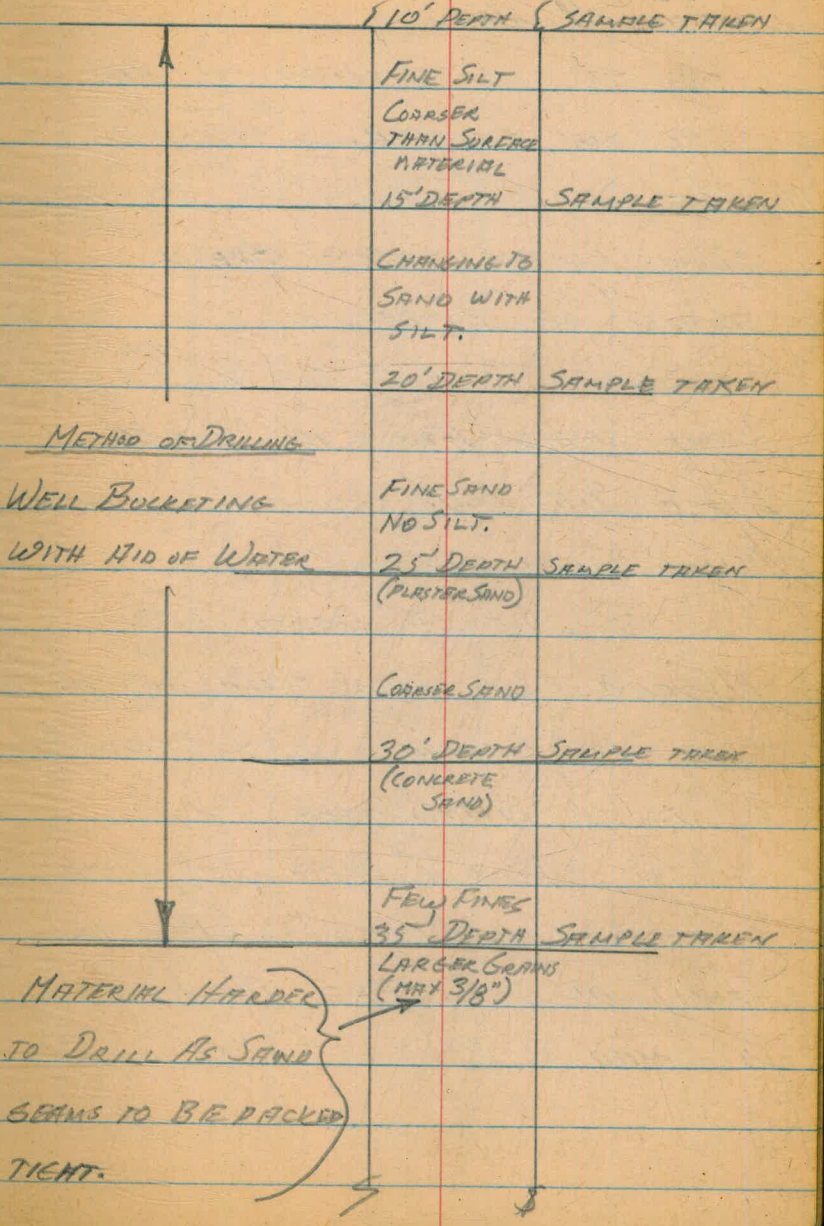
At the 20' Depth the Material was a Fine Silt mixed with a Fine Sand.

At 25' Depth the Silt had Disappeared and the Fine Sand (Like a Plaster Sand) prevailed.

At 30' Depth the Sand had Coarser Grains in it. (Looked like a Concrete Sand).

At 35' Depth the Sand became Coarser with a Decrease in the Amount of Fines – There was some 3/8" Aggregate mixed with this sand.

The Sand at this 35' Level was getting harder to Drill



MAY 12 & 13, 1948

WELL #1, SAN PASQUAL VALLEY

INSPECTOR R.W. DARBY

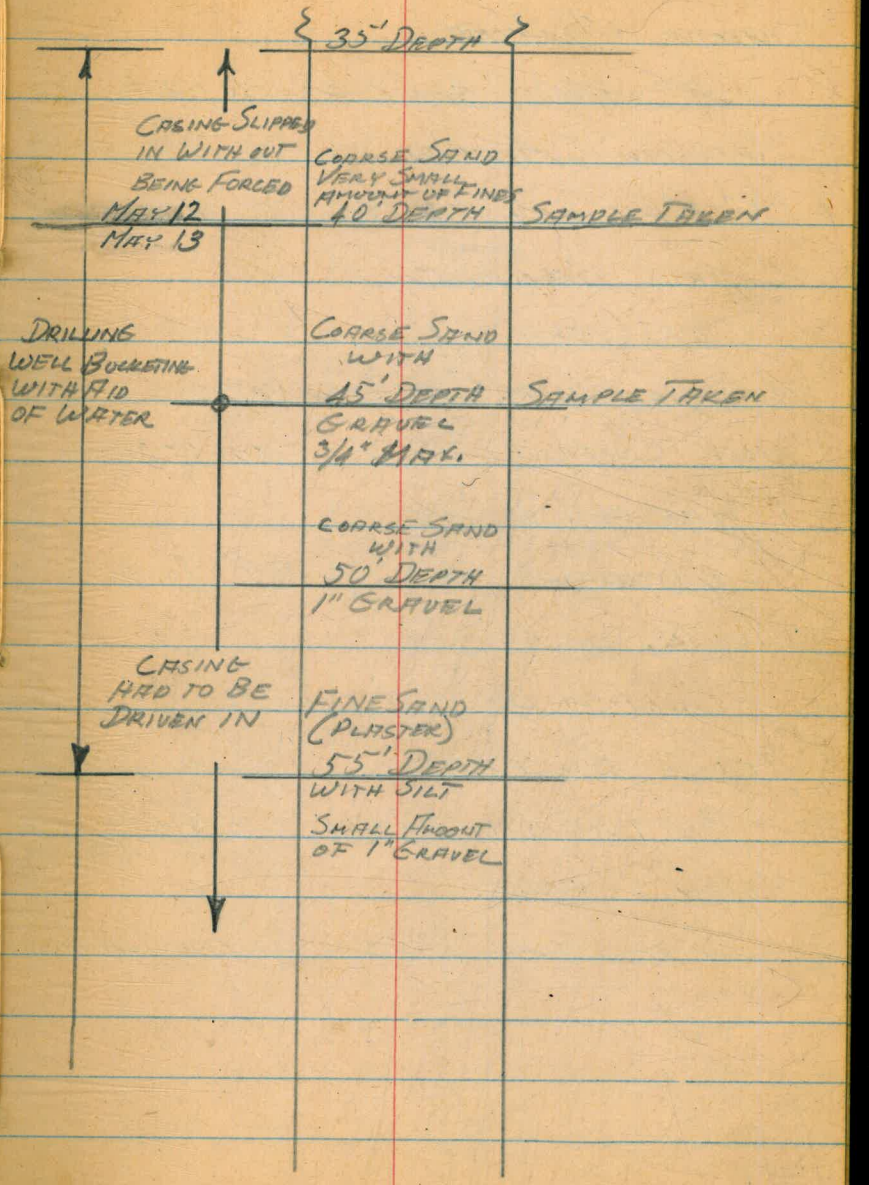
INTO AS IT SEEMED TO BE PACKED TIGHTER.

MAY 13 - AT 40' DEPTH THE SAND BECAME COARSER, VERY SMALL AMOUNT OF FINES.

AT THE 45' DEPTH THE SAME SAND FOUND AT THE 40' DEPTH HAD 3/4" MAX. SIZE GRAVEL MIXED WITH IT.

AT THE 50' DEPTH THE MATERIAL WAS THE SAME AS AT THE 45' LEVEL WITH GRAVEL UP TO 1" MAX. SIZE.

AT THE 55' DEPTH THE SAND CHANGED TO A FINE SAND (PLASTER SAND) WITH SILT. THE AGGREGATE DECREASED IN AMOUNT (MAX. SIZE OF 1")



MAY 14, 1948
WELL #2; SAN DASQUAL VALLEY

#1 well

INSPECTOR R.W. DARBY

AT THE 60 FT DEPTH THE MATERIAL CHANGED TO A GRAVEL (3" MAX SIZE) WITH A VERY COARSE SAND.

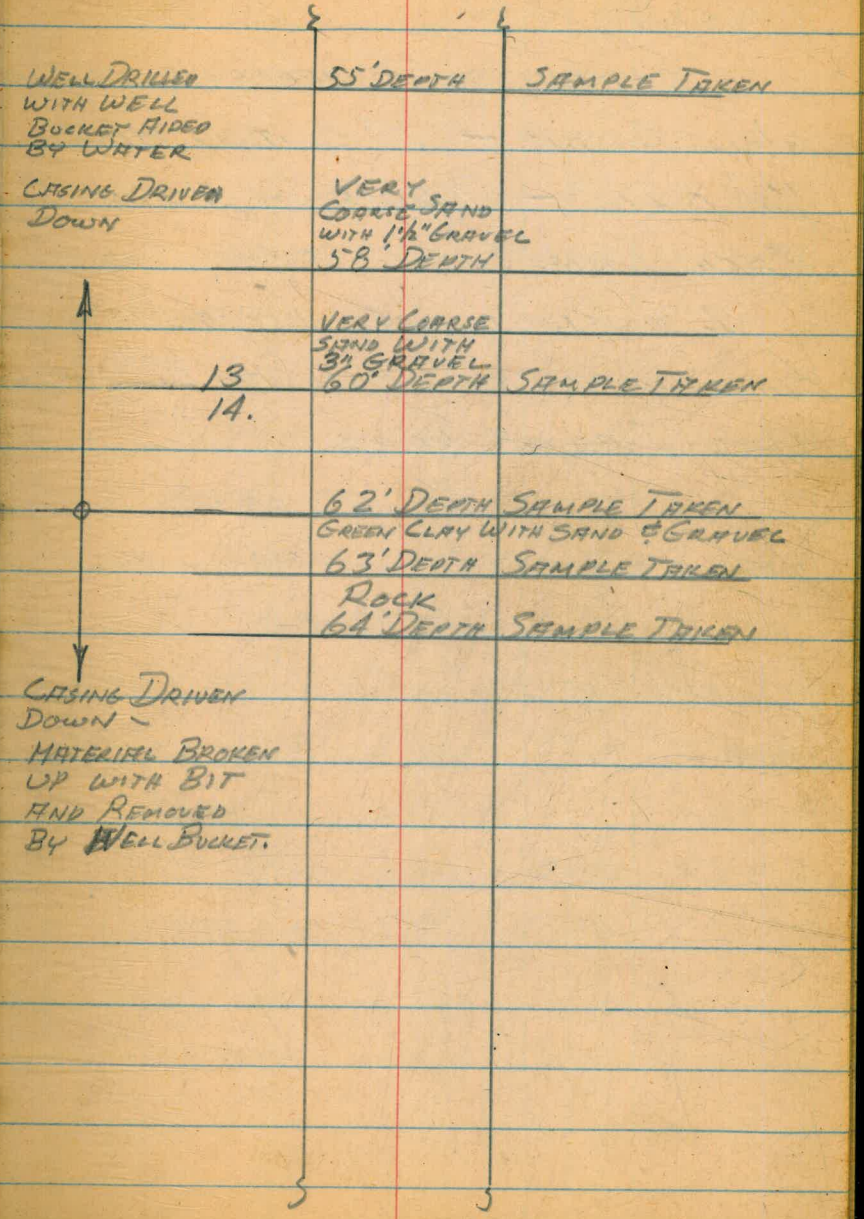
BETWEEN 62' & 63' THE MATERIAL WAS: A GREENISH CLAY WITH COARSE SAND AND GRAVEL (MAX OF 1")

BETWEEN 63' & 64' WAS ROCK.

BOTTOM OF CASING 63' BELOW SURFACE.

BOTTOM OF WELL 64' BELOW SURFACE.

TOP OF CASING 2' ABOVE GROUND SURFACE.



WELL #1 - SAN PASQUAL VALLEY

MAY 15, 1918 R.W. DARBY

STARTED TO PERFERATE THE WELL CASING - A CUT IS MADE 1/4" X 2 1/2" - 7 CUTS TO A RING - EACH RING 9"-11" APART.

23 RINGS CUT THIS DATE.

SHUT DOWN AT NOON AS CUTTING TOOL BROKE DOWN

MAY 17. R.W. DARBY

FINISHED PERFERATING THE WELL AT 2:30 PM THIS DATE.

THEN EXCAVATED AROUND THE WELL CASING IN PREPARATION FOR GRAVELING.

THE PERFERATING WAS STARTED 60' BELOW THE GROUND SURFACE AND STOPPED 11' BELOW SURFACE.

IN PERFERATING 7 CUTS PER RING (AROUND CASING AT SAME ELEV) ARE MADE WITH RINGS 9" TO 12" APART IN ELEV.

57 RINGS WERE MADE GIVING A TOTAL OF 399 CUTS.

MAY 18

WELL #1, SAN PASQUAL VALLEY

R.W. DARBY

STARTED GRAVELING THE WELL.

A TOTAL OF 30600 lbs OF GRAVEL WAS USED.

2 MEN FROM WATER DIST. DROPPED BY SHORTLY AFTER NOON.

MR BEERMANN - CITY WATER-ENER SEC - INSPECTED OPERATIONS. ARRIVED 11 AM & DEPARTED AT 12 NOON.

DRILLER WANTED AN AIR COMPRESSOR (210) FOR AIR JETTING. ORDERED ON THROUGH MR BEERMANN.

MAY 19.

WELL #1, SAN PASQUAL VALLEY

R.W. DARBY

8 AM TO 11 30 AM - SETTING UP EQUIP FOR AIR JETTING. CITY COMPRESSOR ARRIVED AT 11:30 AM.

VERY LITTLE GRAVEL WAS USED DURING AIR JETTING.

WATER CLEARED UP EARLY RAPIDLY.

DRILLER ESTIMATED A DISCHARGE OF 400 GALS. PER MIN - BUT IT WAS NOT KNOWN AS WHERE THE WATER TABLE WAS DURING THIS DISCHARGE.

GAVE DAILY DATA TO MR BEERMANN WHO ORDERED THE WELL CAPPED AND ABANDONED. TIME 3:30 PM.

VISITORS - GAS & ELEC. CO. SURVEY PARTY - MR HOKE IN CHARGE.

HODGES TEST WELL #2
SAN PASQUAL VALLEY
CONTRACTOR - SAN DIEGO PUMP & WELL DRILLING CO.
ACTIVE PARTNER ON THIS CONTRACT
JACK HAMILTON
INSPECTOR JACK PATTON

JUNE 16, 1948 WED.
CAME OUT TO JOB 9:15 AM - EQUIPMENT SET UP BUT NO WORKMAN. CALLED MR PYLE. WAITED UNTILL 1PM AND LEFT AS INSTRUCTED.

JUNE 18 1948 FRI. INSP. PATTON
WELL DRILLER JACK HAMILTON
HELPER MACK
DRILLING STARTED 9.AM.
1ST 5' DUG BY HAND AND CASING SET IN HOLE. SURFACE MATERIAL VERY FINE SILT SAND.
MATERIAL AT 5' DEPTH SAME AS

SURFACE. DRILL HOLE 28' DEEP TO DAY AND SUNK 35' of 12" CASING 30' BELOW SURFACE OF GROUND.
CASING USED WAS 2 LENGTHS OF THREADED TYPE LEFT FROM FIRST WELL. The FIRST JOINT WAS 16' & SECOND WAS 19'.
MILLER DELIVERED 80' OF 3/8 WALL RECONDITIONED RANDOM LENGTH CASING 7'-10' FROM SOUTHERN EQUIPMENT & MACH CO. AND PICKED UP THE 2 - 20' LENGTHS TO RETURN TO SDG&E CO. FROM WHOM THE CITY HAD BOTTOWED IT.
MR HAMILTON WAS DISPLEASED WITH The 80' OF PIPE BECAUSE THE 3/8" WALLS WOULD BE VERY DIFFICULT FOR HIM TO WELD

WITH ACETYLENE (acetylene) THE ONLY EQUIPMENT HE HAS. I CALLED MR WUESTE WHO AGREED TO SEND OUT ACITY WELDER THE NEXT DAY. TOOK SAMPLES EVERY 5ft.

JUNE 19, 1948 SAT. INS. PATTON

WELL DRILLER - GIL ANGUS

HELPER MACK

CITY WELDER - EQUIPMENT # 391

CONTRACTOR FORCE ON JOB

9:30AM. DRILLED WELL TO DEPTH OF 60'. MR. ANGUS DIDNT THINK IT PRACTICAL TO DRILL ANY DEEPER. AT 45' DEPTH HIT MUDDY SILT AND AT 59' STRUCK HILLSIDE CLAY. CASING

WHEN GOT TO DEPTH OF 60' SEEMED TO HIT SOLID MATERIAL AS HAMMER BOUNCED ON CASING WITH NO RESULTS.

WELDER WELDED 3 JOINTS OF PIPE MAKING TOTAL LENGTH OF CASING 62'3"

4:30PM QUIT FOR DAY

JUNE 21, MONDAY INS. PATTON

WELL DRILLER JACK HAMILTON

HELPER MACK

9:15AM STARTED

DRILLED & BAILED WELL OUT TO 61½'. USED HARD ROCK BIT FOR DRILLING. UPTO 60 FT NOTHING BUT BUCKET WAS USE WITH THE AID

OF WATER PUMPED FROM ADJACENT SLEW TO DRILL WELL. ORDERED 1" GRAVEL AT 10:30 AM. PERFERATED WELL. PERFERATED 38 ROUNDS 7 HOLES TO A ROUND. DIVIDED THE ROUNDS EVENLY FROM 56½ FT DEPTH TO 17 FT. DEPTH

6+ yds. OF GRAVEL FROM FENTONS ARRIVED AT 3PM. TRUCK GOT STUCK; STRIPPED REVERSE GEAR AND HAD TO DUMP GRAVEL 15-20' AWAY FROM WELL. MR. HAMILTON TALKED TO MR. BEERMAN AND BOTH AGRED PRACTICAL DEPTH HAD BEEN REACHED

6-22-48 TUESDAY INS. PATTON

TOOK REED & JOHNSON FROM CHOLLAS TO JOB AND SHOVELED GRAVEL AROUND OUTSIDE OF CASING AS THE EIRTH SUNK

WHILE SAND THAT HAD ENTERED PERFERATIONS WAS BAILED OUT. ORDERED 5 MORE YDS. OF GRAVEL.

LEFT JOB AT 1 A.M. TO TAKE MEN BACK TO CHOLLAS. DRILLER AND HELPER PUT DOWN EJECTOR PIPE IN AFTERNOON.

ORDERED AIR COMPRESSOR FOR NEXT DAY.

WELL DRILLER	HAMILTON
HELPER	MACK

6-23-48 WED. INS. PATTON

WELL DRILLER	HAMILTON
HELPER	MACK

CITY AIR COMPRESSOR #1601 - 315 CU FT. & OPERATOR

JETTED WELL - USED APPROX

4 yds more gravel to fill in around casing.

Jetted out 800 gal. per min (Mr. Hamiltons & Mr Angus estimate) for 5 hours with ejector at 34' depth. When air was shut off water would immediately rise to 10' level. Mr. Angus and helper visted Job at noon. All well men were enthuastic over output of well. The air was intermittantly turned off to aid in sturring up settlings of well and ejecting sediment out. At 2 PM water was clear. Taste was excellent. Welded

cap on well.

6-24-48 Thurs At office

Mr. Baylor Brooks washed last sample looked at it under magnifying glass and decided there was no decomposed granite. He & Mr. Beermann went out to well site — talked to Mr Hamilton on phone and decided well should go deeper.

6:25:48 Fri Ins. Pattoix.

Well driller Gil Angus

Helper Mack

9:30

Put star bit on rig with a

SET OF JARERS ABOVE IT
FIRST DRILLING GROUND START
ED SETTLING + TOP OF PIPE
DRIFTED AT A L FACING WEST
ABOUT ½". BEFORE DRILLING THE
BUCKET WAS DROPPED DOWN
AND BROUGHT UP CLEAR WATER
WITH A LITTLE SAND AT BOTTOM
THE STAR BIT USED IS 10" IN DIA
AS IS THE BUCKET TO SEE IF WELL
COULD BE SUNK DEEPER WITH OUT
USING MORE CASING. THE ATTEMPT
WAS UNSUCCESSFUL AS THE WELL LOST
DEPTH. AS DRILLING PROCEEDED
THE CASING HAD A TENDANCY TO
DRIFT TO AN L FACING WEST TO THE
EXTENT THAT CABLE ON BUCKET
WAS RUBBING ON EDGE OF CASING

W ←

DROVE CASING DOWN FLUSH WITH
GROUND. THE DRIVING STREIGHTEN-
ED CASING. THE GRAVEL AROUND
CASING SETTELED ABOUT 2 FT.
THE DRILLER CALLED MR HAMILTON,
WHO INSTRUCTED HIM TO USE BUCKET
TO TRY TO GET TO ORIGINAL DEPTH.
WELDED 5'7 ON CASING. FRANKS WELDING
SERVICE

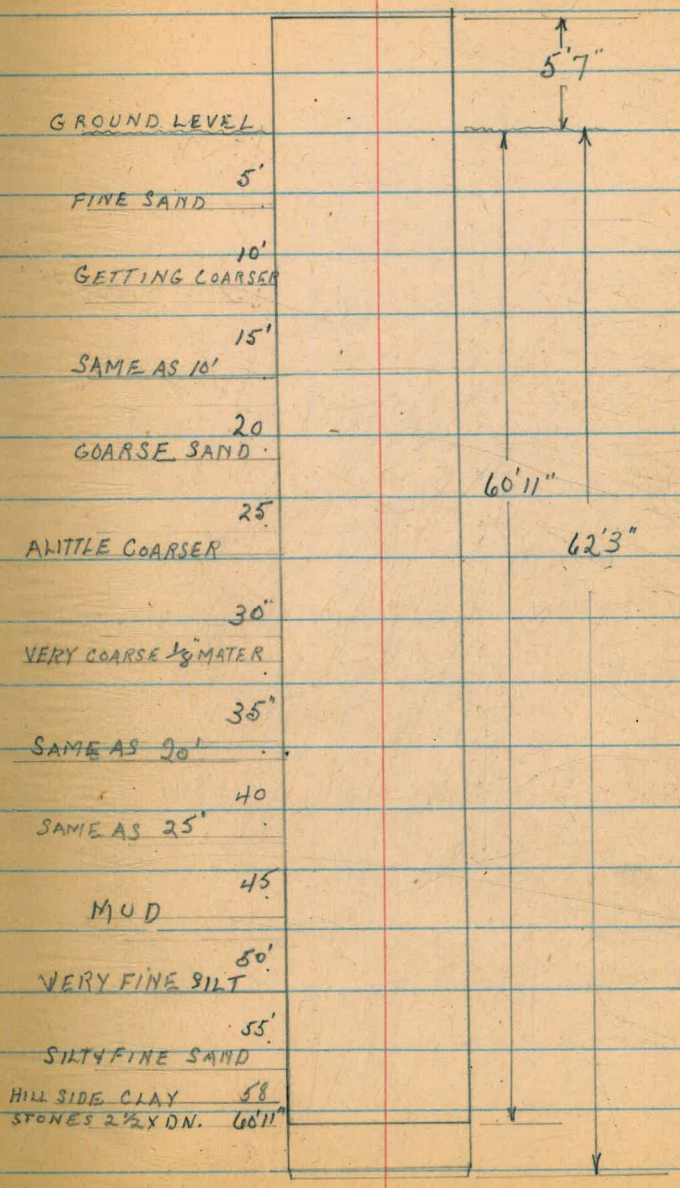
6-26-48 SAT INS. PATTON
WELL DRILLER JACK HAMILTON
" " GIL ANGUS
9AM START 12 STOP
BAILED UNTIL IT WAS JUDGED
WELL WAS SEALED AND REASONABLY
CLEAR OF SOLIDS. IF PUMP IS
PUT ON WELL A VALVE SHOULD
BE ATTACHED TO CONTROLL FLOW

To protect pump. Much time spent examing samples of material brought up if further depth is desired - Contractor wants to put 10" casing inside of present 12" casing. Tried to get in touch with Mr. Beerman but failed Contractor quit at Noon.

See Dwg # 58" for location
About 1000 ft east of well #1

Elevation Casing - 319.61 - M.P.V.

#2



HODGES WELL #3
SAN PASQUAL VALLEY
CONTRACTOR SAN DIEGO PUMP
AND WELL DRILLING CO.
INSPECTOR JACK PATTON

SEPT 2 CONTRACTOR HAD EQUIP-
MENT ON JOB BUT DID NOT START
WORK.

SEPT 3 FRIDAY NO INSPECTOR
WELL DRILLER MR DEWEY & HELPER
SET UP EQUIPMENT, DUG 5' WITH SHOVEL.
SET UP 16" O.D. CASING AND BURNT
OUT CLUTCH OF RIG WHEN THEY
PICKED UP BUCKET. EQUIPMENT
DOES NOT SEEM HEAVY ENOUGH
FOR 16" WELL. MADE UNSUCCESSFUL
ATTEMPT AT DRIVING A SAND POINT

SEPT 4 SATAM INS. PATTON
MR. DEWEY ALONE ON JOB REPAIR
ING CLUTCH. HAD GOOD LUCK AS REP-
AIR MAN SO DRILLED WELL TO DEPTH
OF 15' BY NOON. TOOK SAMPLES

EVERY 5'. THESE FIRST THREE
SAMPLES VARIED VERY LITTLE
FROM SURFACE MATERIAL OF FINE
SAND, FLAKED MICA & SILT. STOPPED
AT NOON BECAUSE OF NO HELPER.
THE CASING SUNK FOR THE DAY WAS
1 LENGTH OF 16" OD CASING 14' LONG
WITH 12" LONG SHOE WELDED TO
BOTTOM

SEPT 5, 1948 SUNDAY INSP. PATTON
WELL DRILLER MR DEWEY
HELPER DON
WELDED ON SECOND 13'8" LENGTH OF
CASING. DRILLED WELL AND
SUNK CASING TO 27' DEPTH. AT
25 FT DEPTH PUT DRIVING HEAD ON
CASING AND DROVE IT DOWN 2'
CHARACTER OF MATERIAL REMOVED

FROM. WELL CHANGED VERY LITTLE. WORK WAS SLOWED SOME WHAT BECAUSE WATER HAD TO BE HAULED FROM WELL #2 TO CARRY ON DRILLING OPERATIONS UNTIL DEPTH OF 22' WAS REACHED. THEN THERE WAS ENOUGH WATER IN WELL TO CARRY ON WORK. WHEN NEW LENGTH OF PIPE WAS WELDED ON, JARERS HAD TO BE REMOVED TO GET BUCK ET IN CASING. ON WELL #2 DRILL ER DIDNT USE JARERS UNTILL ABOUT A 40' DEPTH WAS REACHED. USED TRUCK WITH CHAIN TO STRAIGHTEN CASING. FINISHED DAY BY WELDING ON 3RD LENGTH OF CASING 13'9" LONG.

SEPT. 6, 1948 MONDAY INS. PATTON

DRILLED WELL WITH BUCKET TO 30'. PUT ON DRIVING HEAD AND DROVE CASING DOWN. 5'. AREA AROUND CASING FELL AWAY TO A DEPTH OF 5' WITH A 6' DIAMETER. NEED GRAVEL BUT BEING HOLIDAY DO WITH OUT. LEE HAMILTON, OWNER OF RIGGING CAME OUT AT NOON AND ADVISED NOT TO DRILL ANY MORE TILL GRAVEL CAME. WELL DOWN ABOUT 33FT. CASING ABOUT 35'. MATERIAL STILL HAS'NT CHANGED IN CHARA CTER OR SIZE. A MEDIUM COARSE SAND. Worked ON RIG THEN DRILLED & SUNK CASING TO 42' DEPTH. FINISHED DAY WELDING 4TH LENGTH 13'10" ON CASING. AT 35 FT. DEPTH MATERIAL

REMOVED CHANGED TO COARSE
SAND WITH FINE GRAVEL

SEPT 7 TUESDAY INS PATTON
MATERIA REMOVED CONTINUED
TO GET COARSER WITH AHIGHER
PERCENTAGE OF GRAVEL. AT 50'
DEPTH THERE WERE HOT 5-2½"
STONES. AT 55' DEPTH THE
MATERIAL REMOVED CONTAINED
10% WATER BEARING GRAVEL.
GRAVEL 6 yds (13500#) ARRIVED
AT 4PM. WELL DRILLER WOULD
JUST AS SOON IT WOULDENT
ARRIVE TILL MORNING AS IT WAS
TIME TO WELD ON ANOTHER LENGTH
OF PIPE AND THE HOLE ENABLED
HIM TO WELD A FULL LENGTH. OTHER
WISE HE WOULD HAVE TO CUT

SOME OFF BECAUSE RIG IS NOT
AS HIGH AS IT SHOULD BE. GRAVEL
WAS DUMPED AT SIDE OF HOLE.
5th LENGTH OF CASING 13¼" WELDED ON
TOTAL LENGTH 69'3"

SEPT 8 WEDNESDAY INS. PATTON
WELL DRILLER DEWEY
HELPER SMITH

DUE TO NO GRAVEL IN HOLE RIG
SETTELED CONSYDERABLEY AND HAD
TO BE STRIGHTENED BEFORE DRILL-
ING COULD be beGUN.
SAMPLE AT 60 FT DIDNT VARY MUCH
FROM 55' SAMPLE. ALTHOUGH COLOR IS
GETTING A DARKER GRAY. IT BECOMES
INCREASINGLY DIFFICULT TO DRIVE
CASING DOWN. AT 58 FT LEVEL HAD
TO APPLY HEAT FROM WELDING
TORCH TO FREE DRIVING HEAD

FROM CASING AFTER DRIVING.
AND REPEAT SAME PROCEDURE
EVERY TIME HEAD IS USED.
AT 61FT LEVEL BROUGHT UP SOME
BLUE CLAY THAT DRILLER CALLS
DECOMPOSED GRANITE. 65' SAMPLE
CONSISTS MAINLY OF THIS D.G.

SEPT. 9 1948 INS. PATTON
DRILLER DEWEY
HELPER SMITH

RECD. 15000TH GRAVEL AT 8:15 AM
STARTED USING STAR BIT AT 65'
LEVEL SAMPLES AT 70 75 80
WERE ABOUT OF THE SAME CONSISTENCY
D.G. AND YELLOW CLAY.
A DRILLED HOLE TO DEPTH
OF 84' WITH CASING DOWN 69' BEFORE
IT WAS NECESSARY TO ADD MORE
CASING AND DRIVE IT DOWN. ADDED

13'8" OF CASING IN TWO SECTIONS OF
7'0" & 6'7½" AND CUTOFF 3½" OF
DISTORTED CASING. TOTAL CASING
TO DATE 82'7½"

SEPT. 10, 1948 - INS. PATTON
DRILLER DEWEY
HELPER SMITH

RECD 13'9" OF 16" CASING. ADDED
7'2" OF CASING. 3:15 TOOK LAST
SAMPLE THAT DRILLER MAINTAINS IS ROCK BOTTOM 85'
3:15 CABLE CAME OFF SHIVE AND
BROKE GUY WIRE AND KINKED
CABLE BADLEY. AT NOON RAN OUT
OF OXYGEN BORROWED SOME AT
FENTON'S RANCH. MR. BEERMANN
WAS SATISIFED THAT 85 FT
SAMPLE WAS ROCK BOTTOM AND

NOT WATER BEARING, THAT FURTHER DRILLING WAS NOT REQUIRED.

SEPT. 11, 1948 SAT INS. PATTON
DRILLER DEWEY
HELPER SMITH

DRILLER BROUGHT OUT HARD ROCK DRILL INCASE MR BEERMANN WAS NOT SATISFIED WITH LAST SAMPLE. TO DAY CONTRACTOR STARTS COLLECTING BY DAY INSTEAD OF FOOTAGE. RAN BUCKET DOWN SEVERAL TIMES TO CHECK DEPTH AND MATERIAL AT BOTTOM. BROUGHT UP SEVERAL CONVINCING SAMPLES ONE A LARGE ONE FOOT ROCK. CUT OFF CASNG APPROXIMATELY ONE FOOT ABOVE GROUND LEVEL. TOTAL

LENGTH OF CASING IS 84'5" WITH 83'5" BELOW GROUND LEVEL. THE HOLE IS 85' DEEP FROM TOP OF CASING OR 84' BELOW SURFACE OF GROUND. STARTED PERFERATING CASING WITH HOLES 5/16" X 2½" AT A 77FT. DEPTH. 8 HOLES TO A ROUND AND EACH ROUND APPROX 10" HIGHER THAN THE LAST. FINISHED 30 ROUNDS BUT PERFERATOR RELEASED SO POORLY TOOK IT OUT TO FIX. 5:30 PM ENDOF DAY

SEPT 13, MONDAY INS. PATTON
DRILLER DEWEY
HELPER DEAN

WORKED ON PERFERATOR UNTIL 10:30 RECD 15400# OF GRAVEL. CITY FORCE WORKING ON PUMP WELL #2. CITY EQUIP

#2151 & 4423 PICKED UP 4 LENGTHS OF 16" ID PIPE THAT COULDNT BE USED ON THIS WELL. FINISHED PERFERATING LAST ROUND AT 19FT BELOW TOP OF CASING. TOTAL ROUNDS OF HOLES WAS 67 WITH 8 HOLES TO ROUND TOTAL HOLES 536-4= 532. 4 ROUNDS HAD 7 HOLES. JACK HAMILTON & GIL ANGUS STOPPED BY & PICKED UP PERFERATOR & 16" BAILER. LEFT US 12" BAILER TO CLEAN OUT HOLE. LESS CHANCE OF SMALLER BAILER GETTING WEDGED IN CASING WITH GRAVEL WHILE GRAVEL PACKING. AFTER PERFERATING HOLE FILLED WITH SAND TO 40FT LEVEL BELOW TOP OF CASING. HOLE CLEANED OUT FAIRLY WELL TO 50FT. LEVEL AT END OF DAY

SEPT. 14, 1948 TUES INS. PATTON

DRILLER. DEWEY

HELPER DEAN

DURING NIGHT MATERIAL ENTERED PERFERATIONS TO THE DEPTH OF 38FT. TOP OF CASING DRIFTED TO THE NORTH ABOUT 4" TO THE FOOT. WHILE CLEANING OUT HOLE STRAIGHTENED BY KEEPING STRAIN ON CHAIN ATTACHED TO TRUCK WHILE BAILING & GRAVEL PACKING. BAILED ALL DAY AND GOT GRAVEL PACKED TO ABOUT A DEPTH OF 60 FT. INCLUDING TO DAY BILL OF DRILLERS IS $945.00 JACK HAMILTON ANXIOUS TO KNOW HOW THE PART OVER $1000.00 IS TO BE HANDLED.

SEPT. 15 1948 WED. INS PATTON
DRILLER DEWEY
HELPER SMITH

RECEIVE 14800# GRAVEL
WUESTE CALLED AT 7AM FOR AN
APPROX. COMPLETION DATE. I EST-
IMATED SAT. SEPT. 17. HELPER
DIDN'T GET ON JOB TILL 11 AM.
CITY ATT'Y. IS GOING TO TAKE CARE
OF OVER EXPENDITURE. AGREED ON
NO OF WELDS. THERE ARE EIGHT
WELDS INSTEAD OF 10 THAT WAS
BILLED YESTERDAY. CLEANED WELL
OUT AND GRAVEL PACKED TO DEPTH
OF 72 FT. RIG SETTLED BADLY.

SEPT. 16, 1948 THURS INS PATTON
DRILLER DEWEY
HELPER DEAN

RECD. 15300# GRAVEL
STRAIGHTENED RIG
LOST ABOUT 10 FT. DURING NIGHT.
GOT HOLE CLEANED OUT TO ABOUT 78 FT
WHEN THERE WAS A BREAK THROUGH AND
NEARLY 20 FT. OF HOLE WAS LOST. CLEANED
OUT WELL TO 83 FT. DEPTH AS DEEP
AS DRILLER WANTS TO GO WITH
BUCKET. KEPT STRAIN ON
CASING PULLING IT TO SOUTH & WEST.
WELL DRILLER WANTED AIR
COMP. FOR NOON TOMORROW. SCHTOFF
TOLD KEEYS MONDAY. DRILLER
SUGGESTED I MAKE ARRANGEMENTS TO
GET GRAVEL OVER WEEK END

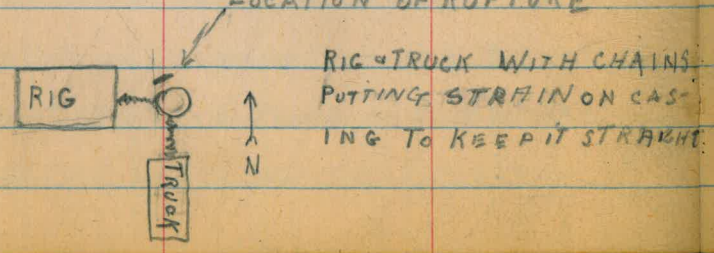
AND BRING COMPRESSOR OUT MY SELF SAT. MORNING. VETOED BY MR. WUESTE. AS IT WAS

SEPT. 17, FRIDAY INS PATTON
DRILLER DEWEY
HELPER DEAN

LOST ABOUT 13' DURING NIGHT. CLEANED UP AT 9AM TO 83'. STARTED TO WASH, THAT IS BRING THE BUCKET UP TOWARD THE UPPER END OF WELL AND WORK IT UP & DOWN. SERVES THE SAME PURPOSE AS JETTING BUT NOT QUITE AS FAST. GRAVEL SETTLED RAPIDLY ORDERED MORE GRAVEL. RIG SETTLED BADLY. HAD TO STOP AND STRAIGHTEN IT. LUCKY THE AIR COMPRESSOR ISN'T HERE, AS WE COULDN'T GET GRAVEL HERE

FAST ENOUGH IF JET WAS WORKING. QUIT OPERATING AT 11:30AM AS GROUND CAVED IN AROUND FRONT END OF RIG. CALLED AT 12:30 AND FENTONS SAID GRAVEL WAS ON ITS WAY OUT. GRAVEL GOT OUT HERE AT 3 P.M. NEW MAN ON TRUCK AND HE GOT LOST. JUST BEFORE LUNCH, BUCKET GOT HUNG UP IN CASING, WAS JARED LOOSE WITH OUT TOO MUCH TROUBLE. DRILLER ATTRIBUTED IT TO A RAGGED WELD. WHEN OPERATIONS STARTED LATE IN AFTER NOON BUCKET HUNG UP AGAIN, WAS JARED LOOSE, BUT WITH QUITE A LOT OF EFFORT. DRILLER MADE SEVERAL MORE PROBINGS WITH BUCKET AND DECIDED IT WAS A BREAK IN CASING OR AN INWARD BULGE APT TO BREAK AT ANY TIME. HIS OPINION WAS THAT IF OPERATIONS WERE CONTINUED WE WOULD BE APT TO LOSE

THE WELL AND SOME OF HIS EQUIPMENT. THE DEPTH OF THIS OBSTACLE WAS FIGURED AT 43 FT. WHICH LATER PROVED TO BE INCORRECT INSOFAR AS IT WAS THE TOP END OF THE BUCKET THAT WAS CATCHING AND WE NEGLECTED TO DEDUCT THE LENGTH OF BUCKET. CALLED MR WUESTE AND HE AUTHORIZED THE INSERTION OF 43 FT. OF 12" LINER. MR HAMILTON DIDN'T THINK THAT WAS A LARGE ENOUGH SAFTY FACTOR SO ON A LATER CALL HE AUTHORIZED 65 FT OF 12" LINER. WHICH WAS TIME SAVING DUE TO THE ERROR IN FIGURING THE RUPTURE AT 43 FT. INSTEAD OF 28 FT. DEPTH.



THE N.W. SECTION WHERE RUPTURE OCCOURED IS THE SECTION WHERE GRAVEL SETTLED THE FASTEST.

SEPT 18, 1948 SAT. INS. PATTON

DRILLER DEWEY

HELPER PATTON

SPENT DAY AT CONTRACTORS YARD IN BOSTONIA GETTING 12" PIPE CUT TO MOST ADVANTAGEOUS SIZE AND CUTTING IN PERFERATIONS WITH ACETYLENE TORCH. CUT 70 ROUNDS APPROX. 10" APART 6 HOLES TO A ROUND FOR A TOTAL OF 418 — 1/4 X 2 1/2 HOLES.

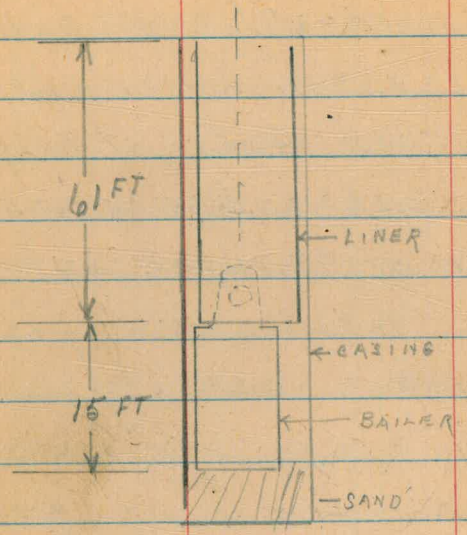
SEPT. 19, 1948 SUNDAY - INS. PATTON
DRILLER DEWEY
HELPER DEAN

CHECKED TO MAKE SURE OF LOCATION OF BREAK IN CASING AND FOUND IT TO BE 28' INSTEAD OF 43'. PUT DOWN 24'8" LENGTH OF 12" LINER WELDED ON LENGTH OF 11'10 LINER AND WHEN IT WAS HALF WAY DOWN IT STARTED TO BIND. DURING DAY ADDED 2 MORE LENGTHS OF 11' 10" CASING. WORK WAS SLOWED DOWN BECAUSE THE LINER WENT DOWN SO SLOWLY AND DRILLER WAS USING LENGTHS TOO LONG FOR RIG TO HANDLE. ON 3RD LENGTH FINALLY CUT 5'2" OFF OF IT. THERE IS NO SHOE ON THE LINER AND DRILLER IS AFRAID TO DRIVE IT AS LOWER END MIGHT CURL.
MATERIAL IN WELL ROSE TO 35 FT

LEVEL. WHEN LINER GOT DOWN TO THIS LEVEL THE FRICTION STOPPED IT AND IT WAS NECESSARY TO USE BAILER. ENDED DAY WITH LINER DOWN TO 50 FT LEVEL

SEPT 20, 1948 MONDAY PATTON
DEWEY
DEAN

INSERTED LINER TO FULL 65' LENGTH. LINER MADE UP OF ONE 24'8" LENGTH - TWO 11'10" LENGTHS ONE 6'10" LENGTH & TWO 5FT LENGTHS. AT 3PM: CLEANED HOLE OUT TO APPROX. 82 FT WHICH MADE TOP OF BAILER 2' BELOW BOTTOM OF LINER. WHEN BAILER WAS BEING PULLED OUT THE TOP OF BAILER CAUGHT ON BOTTOM OF LINER. LEFT AS IS TO GET EQUIPMENT TO LIFT LINER



TUESDAY SEPT 21 PATTON DEWEY DEAN

LIFTED LINER OUT OF CASING 13FT BEFORE BAILER SWUNG FREE. USED JACKS AND RIG TO DO THIS. THIS HIGHT WAS NECESSARY AS HOLE SANDED IN THAT MUCH DUE TO EXCESSIVE JARING. IT WAS 1:30 PM BEFORE CASING WAS RAISED TO THIS HEIGHT. HAD CLUTCH TROUBLE WITH RIG DO TO EXCESSIVE STRAIN OF MORNINGS WORK

WEDNESDAY SEPT 22, 1948

PATTON, DEWEY Y DEAN

ORDERED Y RECD 14,500 # OF GRAVEL. WELDED ON 12'4" LENGTH OF 12" LINER THEN HAD TO CUT OFF 6FT TO GET TOOLS INTO WELL. CLEANED WELL DOWN TO 75 FT AND DROVE LINER TO 70 FT 4" DEPTH LINER DROVE HARD SO IT WAS AGREED BY DRILLER Y MR. HAMILTON NOTHING WOULD BE GAINED BY ADDING MORE LINER. FOOT VALVE ON BUCKET WAS LEAKING SO AS TO MAKE IT IN-EFFECTIVE FOR CLEANING HOLE ANY DEEP ER THAN 75FT. THE JET WILL DO CLEAN OTHER 9 FT GOOD ENOUGH FOR ALL PRACTICAL PURPOSES.

THURSRAY SEPT 23 (1948)

HOLE DID NOT FILL UP BEYOND DEPTH OF LINER DURING NIGHT. CLEANED HOLE WITH BUCKET TO 82 FT. INSERTED JET. CASING LEANS APPROX. 6" TO 80 FT TOWARD EAST. RECD. TURN BUCKLES, CLAMPS, 43/4" GALV. CABLE FROM FICAS. CABLE TO STIFF SO GOT FLEXABLE CABLE FROM BLOUNT. ANCORED CABLE TO TREES TO HOLD CASING IN POSITION & STREIGNTEN IF POSSABLE WHILE JETTING. COMPRESSOR 160 CFM OPERATOR PANASEWICZ ARRIVED AT NOON. STARTED JETTING AT 2PM. QUIT AT 7:15 BECAUSE OF NO LIGHT. GRAVEL DIDNT SETTLE AS MUCH AS WAS EXPECTED. SHUT GATE VALVE EACH TIME WATER CLEARED - 6 TIMES - AND LET AIR CHURN IN SIDE WELL. THE LAST TIME VALVE WAS SHUT 15 MINUTES A WATER CLEARED

IN 15 MINUTES. THE WATER LEVEL OF WELL IS APPROX 13 FT. WITH JET ON WATER LEVEL SHRANK TO 20 FT LEVEL AND STAYED WHILE JET WAS OPERATING. RETURNED TO ORIGINAL LEVEL WHEN JET SHUT OFF IN ABOUT 3 MIN. DRILLER GOT EVERY THING PACKED READY TO GO.

JET IS AT 80 FT DEPTH. DISCHARGE IS APPROX 600-750 GAL A MINUTE

JET OPERATED 5 HOURS

FRIDAY SEPT 24 INS. COMPROPER PATTON PANASEWICZ

DRILLER AND HELPER HAULED RIG & EQUIPMENT AWAY. AGREED ON PROPOSED BILL OF:

85 FT OF HOLE	@ 8.00	640.-
8 WELDS	@ 4.00	32.-
12 DAYS	@ 75.00	900.-
71'2" OF 12" CASING	@ 4.00	284.67
84'5" - 16" "	@ 5.50	464.29
1 SHOE	@ 125.00	125.00

IN ADDITION TO THE ABOVE CHARGES - THERE IS TO BE A $9.37 AN HOUR CHARGE FOR PULLING. THE JET AND ANY OTHER SERVICES REQUIRED MR ARNOLD - PYLE, WUESTE & SCHROEF VISITED THE JOB.

RAN JET 7 HOURS AT 110# PRESSURE

SOME DELAY IN FIXING OIL FILTER ON COMPRESSOR.

GRAVEL SETTLED ABOUT 4' FT DURING DAY.

AT BEGINNING OF DAY OPERATED WITH GATE OPEN 15 MIN AND CLOSED 5 MINUTES AND TOWARD THE END OF DAY WITH GATE CLOSED 5 MINUTES WATER WOULD CLEAN UP IN TEN MINUTES.

GOT 40 GALLON DRUM OF GAS FROM BLOUNT FOR AIR COMPRESSOR

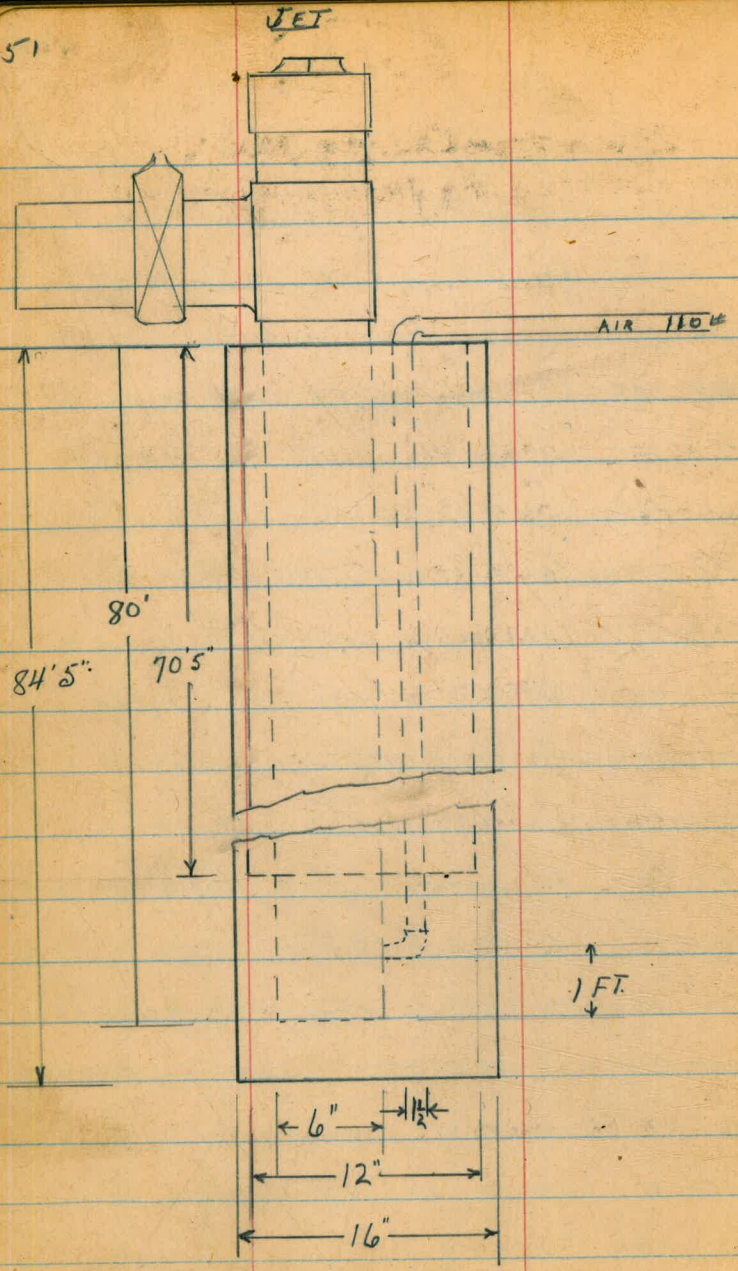
SAT. SEPT. 25 (1948) PATTON

PANASEWICZ

GOT 50 GALLON GAS FROM BLOUNT

RAN JET ALL DAY WITH GATE VALVE OPEN AND WATER RUNNING FOR 10 MIN AND THEN GATE VALVE CLOSED SO AIR WOULD BLOW AIR AND WATER OUT PERFERATIONS AND CAUSE GRAVEL TO PACK & SETTLE. AT END OF DAY CALLED MR HAMILTON. HE SAID NOTHING WOULD BE ACCOMPLISHED BY FURTHER JETTING. SUGGESTED CITY REMOVE JET AND SAVE HIS FEE OF 9.37 PER HR. CALLED MR WUESTE. TO SEE IF THAT WAS AGREEABLE WHICH IT WAS. ORDERED LOAD OF GRAVEL MONDAY MORNING.

GRAVEL SETTLED AROUND CASING IN EXCENTRIC PATTERN



#3 well

Elevation Casing 324.2
as reported by Darby 11/19/48 - M.P.V.

	FINE SAND AND SILT SIMILAR TO SURFACE MATERIAL
15 FT	SAND COARSENED LESS SILT
20 FT	NOT AS COARSE AS AT 20 FT.
30 F	COARSENED SHOWED FINE GRAVEL
35 FT.	% OF GRAVEL INCREASED
45 FT	SIZE OF GRAVEL INCREASED TO 1/4 x D
50 FT	WATER BEARING GRAVEL 1" x D
55 FT	GRAVEL & DECOMPOSED GRANITE & CLAY
65 FT	DG & CLAY
80 FT	
85 FT.	DG. AND ROCK

Hodges # 3 Well

In Pasqual Valley - 2± mi East Bernardo Bridge

DEPTH OF HOLE 85 FT

LENGTH OF 16" CASING 84'5"

LENGTH OF 12" LINER 70'5"

PERFERATIONS 16" CASING - 67 ROUNDS OF 8 HOLES TO AROUND APPROX 10" APART STARTING AT 77 FT. LEVEL AND ENDING AT 19 FT LEVEL FOR A TOTAL OF 532 HOLES 5/16 X 2½

SLOTS IN 12" LINER 6 SLOTS TO AROND 10" APART STARTING AT 69 FT LEVEL ENDING 7 FT LEVEL TOTAL 418 SLOTS

GRAVEL USED APPROX 14 871 lbs

WELL LEANS 6" TO 82 FT. TO THE EAST

WELL JETTED 2½ DAYS 600-700 GALLON PER MIN

SEE DRAWING FOR LOCATION

APPROX ¼ MILE EAST AND 400 FT NORTH OF WELL # 2

55

Part of N.W.1/4 of N.E.1/4, Sec. 31 T. 12 S., R 1 W.
"James King"
Tract Nº 32

Shorey
Kemp
Kellhofer
Holahart

7/29/54
Clear & Hot

56

0+00 = N.W.1/4 of N.E.1/4 Sec. 31

S. 0° 34' E.

9+20.22 = S/L of 20' Easement

Note: Several small round tanks & assorted sheds west of chicken house but within prop. line

13+15.88 △ Pt. { 1. 89° 28' / 2. 178° 56' Lt

N. 89° 58' E.

24+83.38 △ Pt. { 1. 93° 18' / 2. 186° 36' Lt.

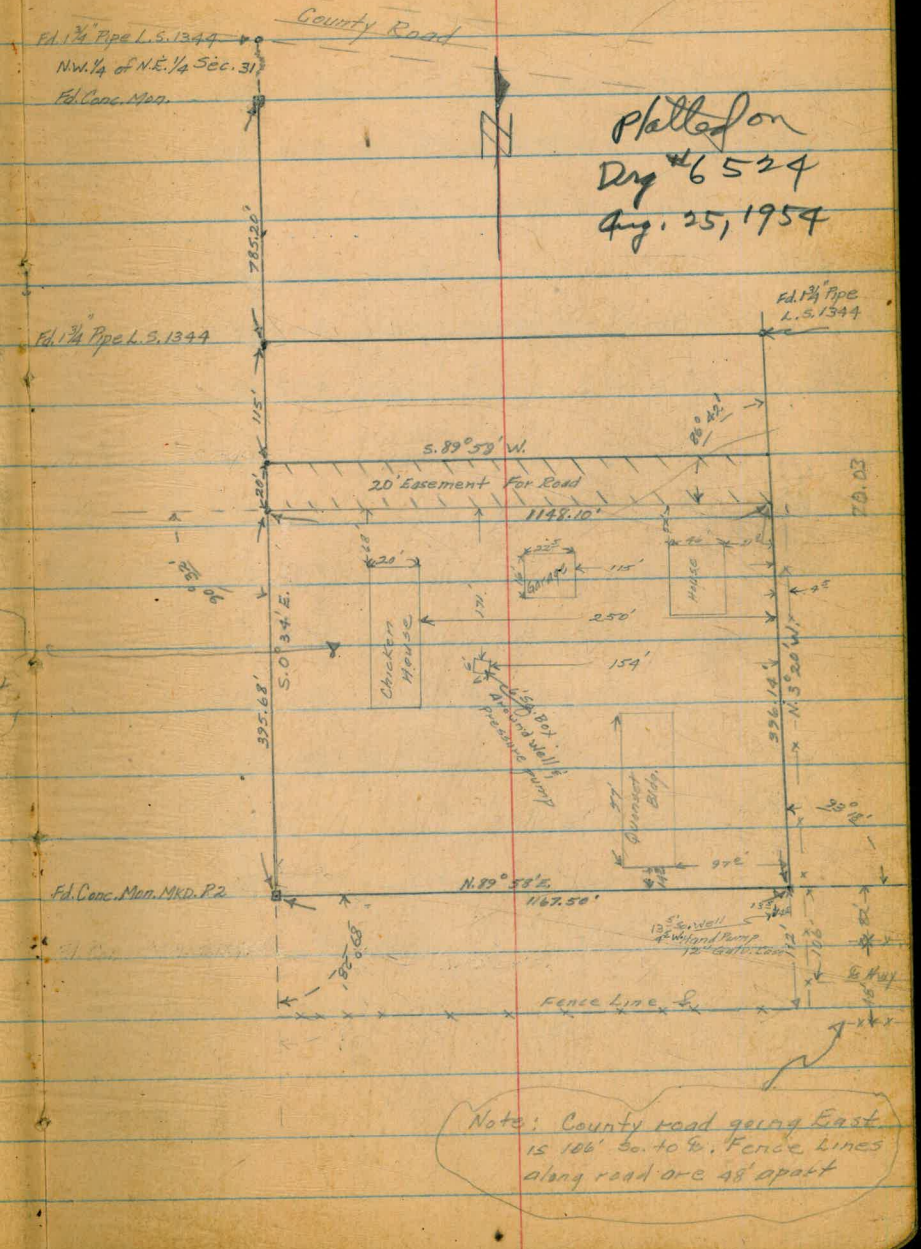
N. 3° 20' W.

28+79.52 △ Pt. { 1. 86° 42' / 2. 173° 24' Lt.

S. 89° 58 W.

40+27.62 △ Pt. { 1. 90° 32' / 2. 181° 04' Lt.

S. 0° 34' E.



Platted on Dwg #6524 Aug. 25, 1954

Nov. 4 1955
BEATTY
MARTEL

SAN. PASQUAL VALLEY
Elevs of WELLS
12S-1W-32A - 12S-1W-31A3

TBM.	3.64	377.00		373.36	Spike in Transformer pole #11637 150' So of Well
MP Bottom of pump Stand			3.62	373.38	= MP 12S-1W-32A
Ground elev.			4.1	372.9	
CK TBM			3.64	373.36	
TP	6.30	375.90	7.40	369.60 = 369.45	Top 2" TEST WELL S/S ROAD 250' SWly of well
CK TBM			2.53	373.37	
TP	3.73	357.28		353.55	Top casing 12S-1W-31A2 pg 7 FB 780-24
CK TP			1.94	355.34 = 355.35	Top casing 12S-1W-31A1 pg 8 FB 780-24
TP	4.75	357.75	4.28	353.00	
			1.30	356.45 ✓	Top casing 12S-1W-31A3
Ground			3.55	354.20	Ground elev.
TP	2.49	358.94		356.45 ✓	
TP	4.48	361.82	1.60	357.34	
TP	1.87	356.13	7.56	354.26	
CK BM			2.80	353.33 = 353.29	Chis a E end S Hdwll Conc Box Culv 150' E "T" intersn.

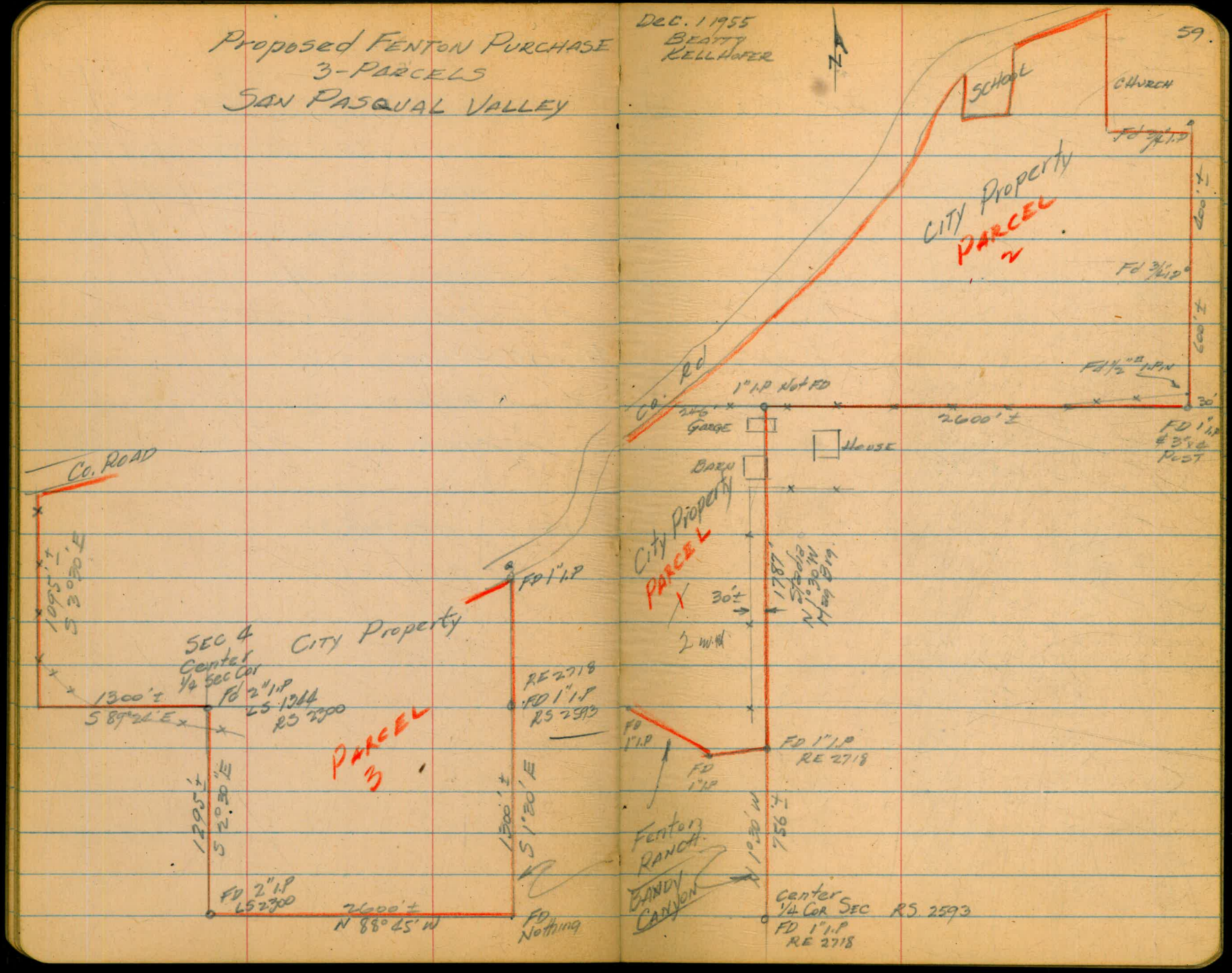
11/4/55 Beatty Martell

San Pasqual Valley
Elevs of Wells.
New Wells on Mrs. Fentons Bandy Canyon Ranch.

		402.21			
BM.	1.00	415.17	413.77	½" I.P	13S-1W-3E 520'E of bridge N or S road.
				60d deck spike	top 1st Wing pile SE Cor bridge
Well #1	195'Ely of Bridge, 50' So of road				
	12.60	402.57		Top 12" Well Casing S/S	
	16.00	399.2		Ground elev.	
Well #2	400' Ely of Bridge, 50' So of road			(13S-1W-3E2) AK.	
	12.50	403.67		Top 14" Well Casing S/S	12.0 to water 4:30 PM 11-4-55
	14.0	401.2		Ground elev.	
CK		12.98	402.19 = 402.19	½" I.P	13S-1W-3E

Proposed Fenton Purchase
3-Parcels
San Pasqual Valley

Dec. 1 1955
Beatty
Kellhofer

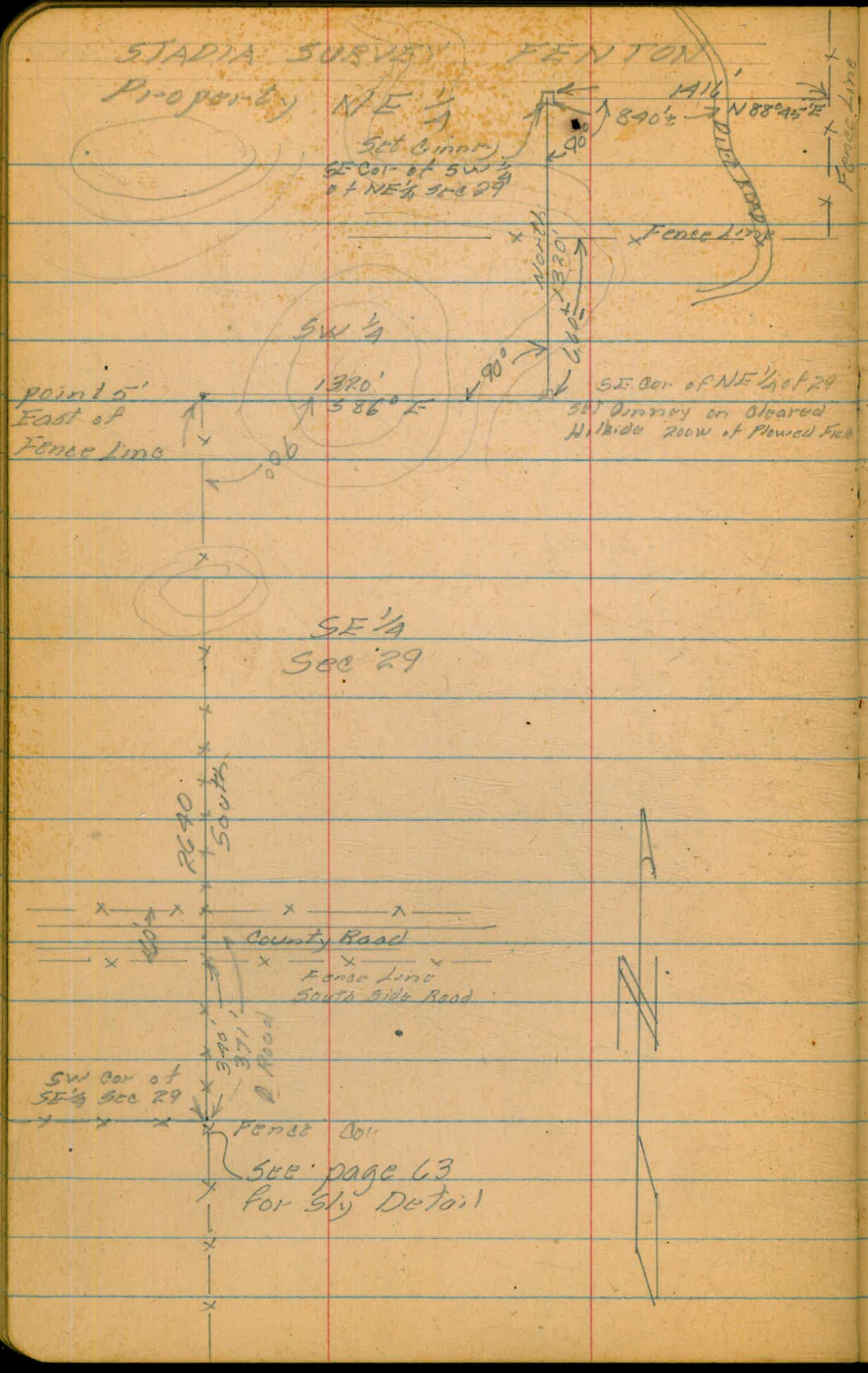


West
Williams
Wellhotel

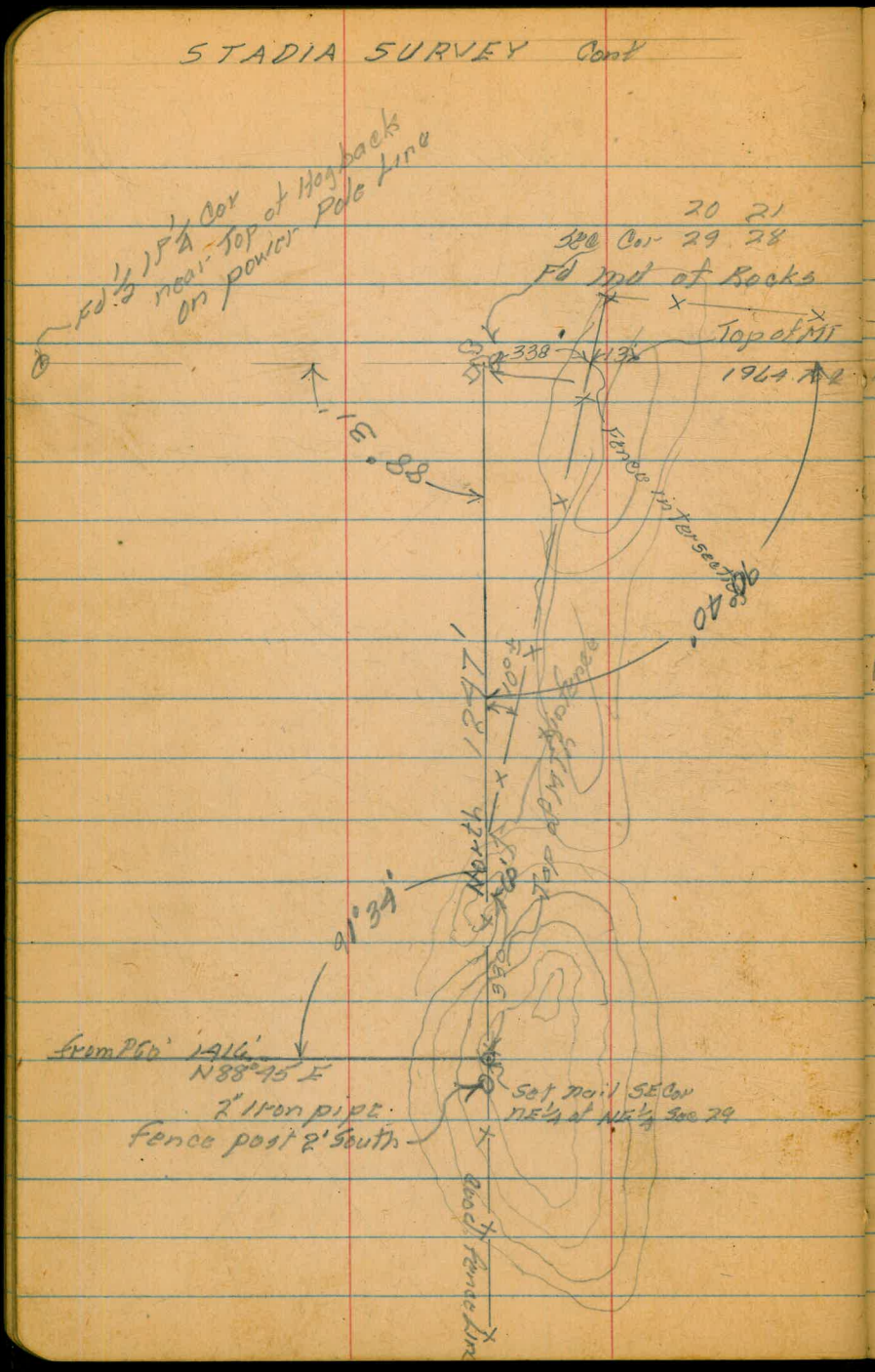
618/56

STADIA SURVEY FENTON

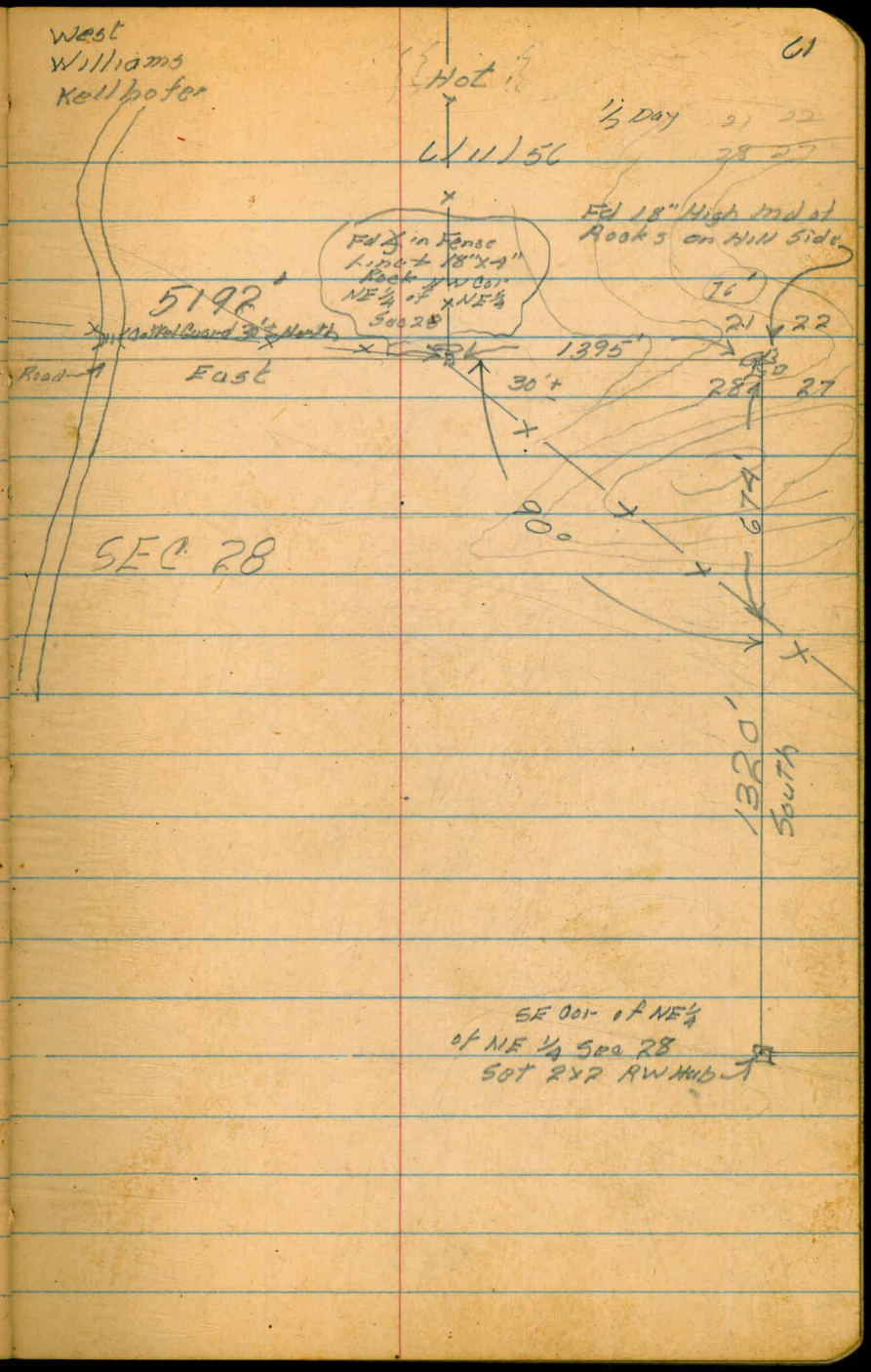
Property NE ¼



STADIA SURVEY Cont



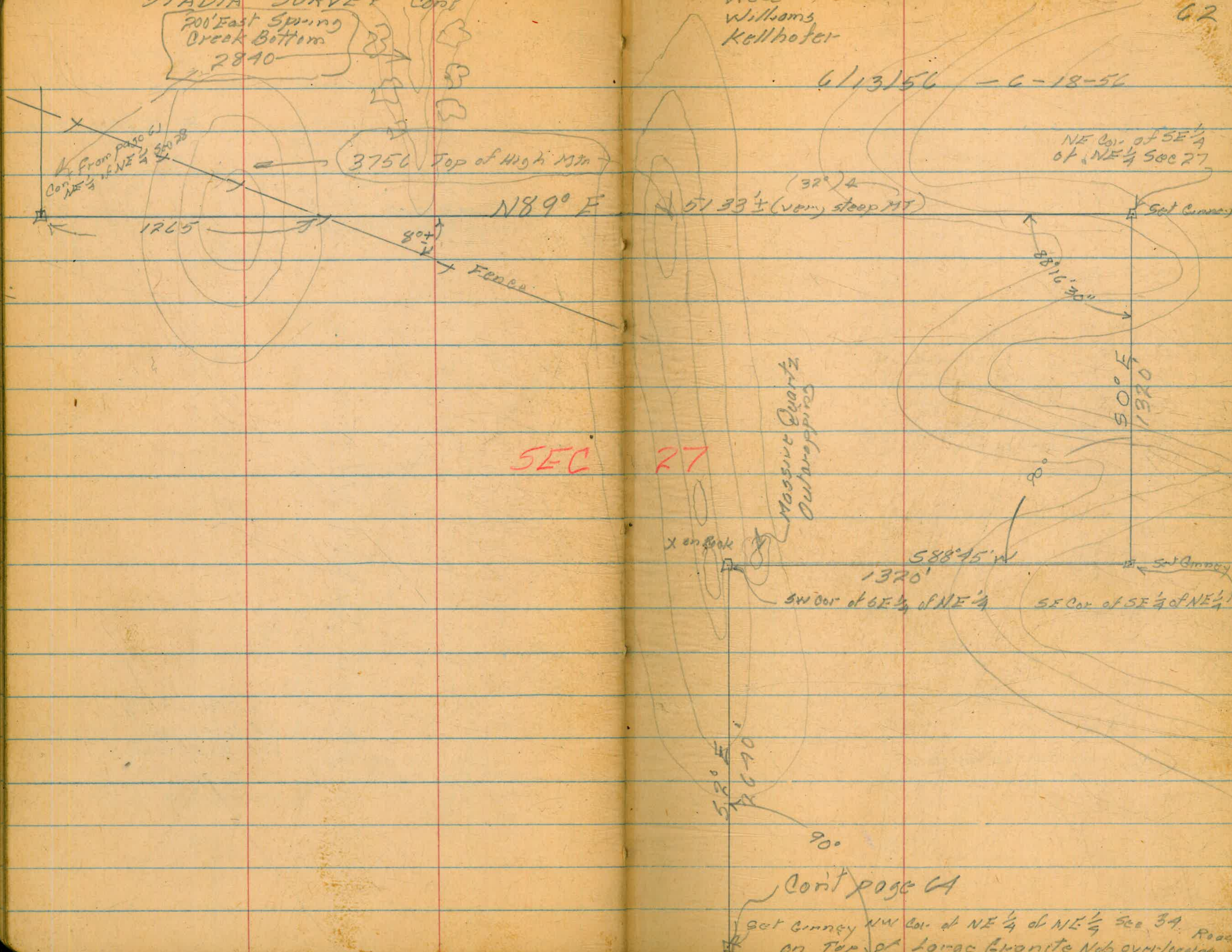
West
Williams
Kellhofer



STADIA SURVEY Cont

West Williams Kellhofer

6/13/56 – 6-18-56

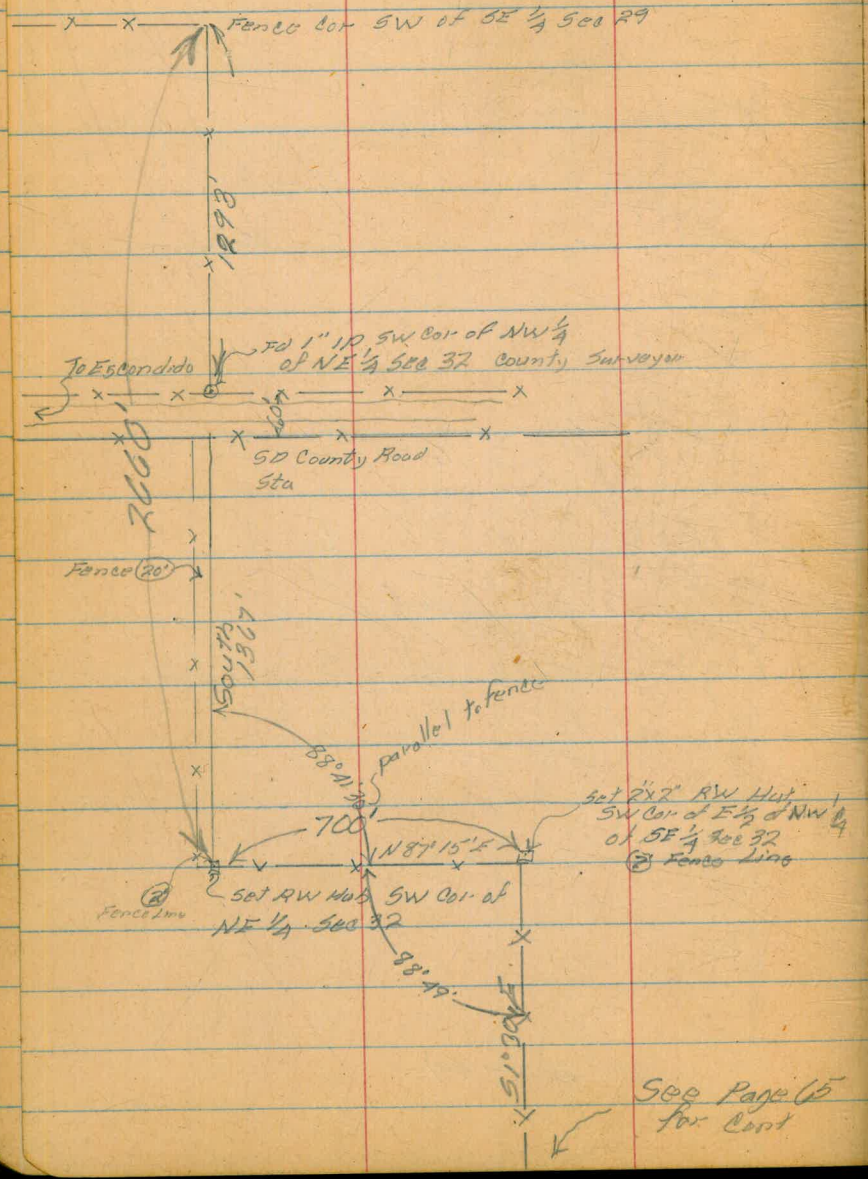

200' East Spring Creek Bottom 2840
Cor. from page 61 NE 1/4 of NE 1/4 Sec 28
3756 Top of High Mtn
1265
N 89° E
80°±
Fence
51 33 ± (very steep MT)
(32°)
NE Cor. of SE 1/4 of NE 1/4 Sec 27
Set Ginney
88°16'30"
S 0° E
1320
SEC 27
Massive Quartz Outcropping
X on Rock
S 88°45' W
1320'
SW Cor of SE 1/4 of NE 1/4
SE Cor. of SE 1/4 of NE 1/4
Set Ginney
8°
S 2° E
670'
90°
Cont page 64
Set Ginney NW Cor. of NE 1/4 of NE 1/4 Sec 34
on Top of Large Granite Nob over-looking Road

STADIA SURVEY
Fenton Ranch

West
Williams
Kellhofer

63

6/24/56

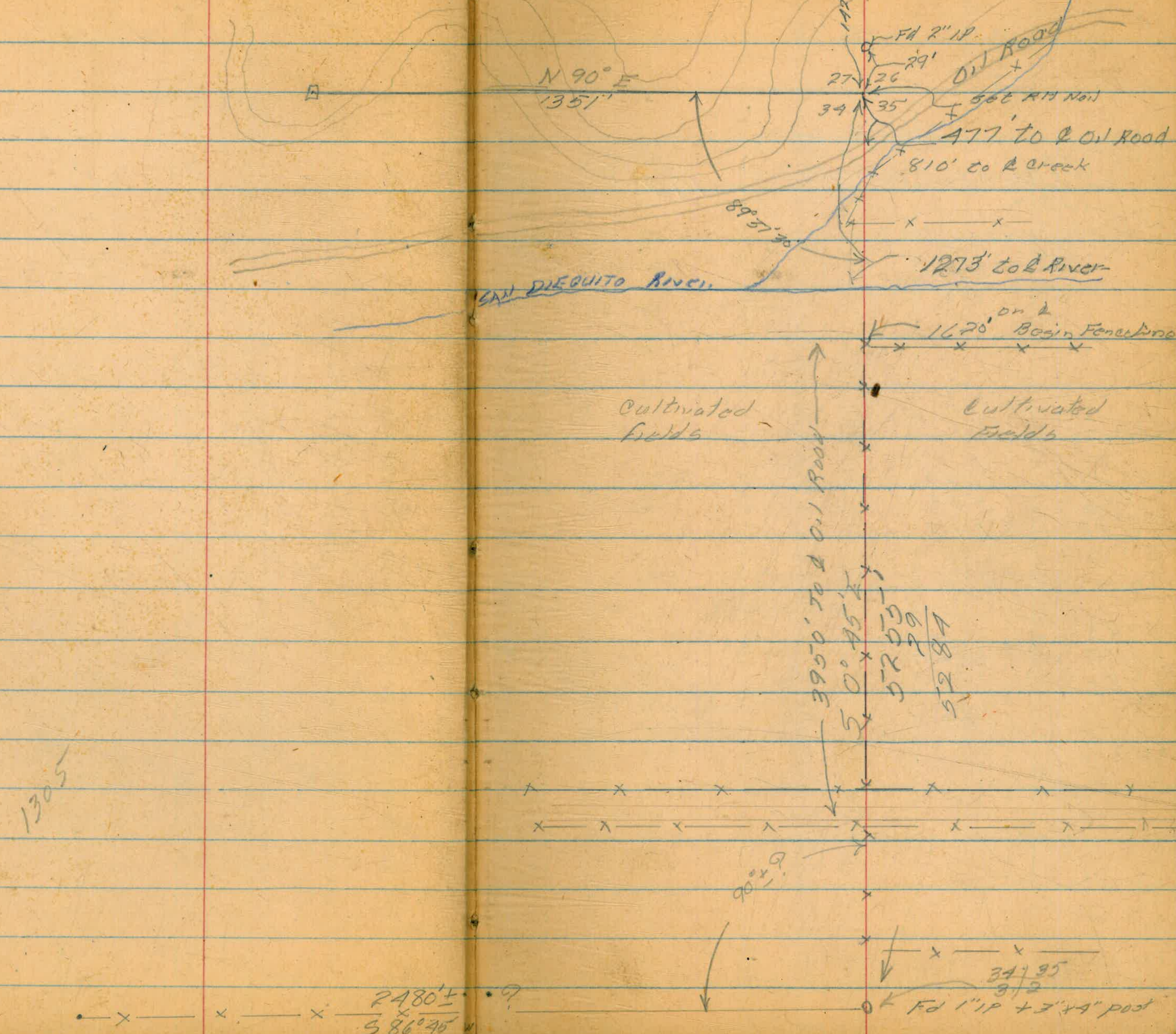


STADIA SURVEY
Fenton Ranch Cont

West
Williams
Kellhofer

6/19/56

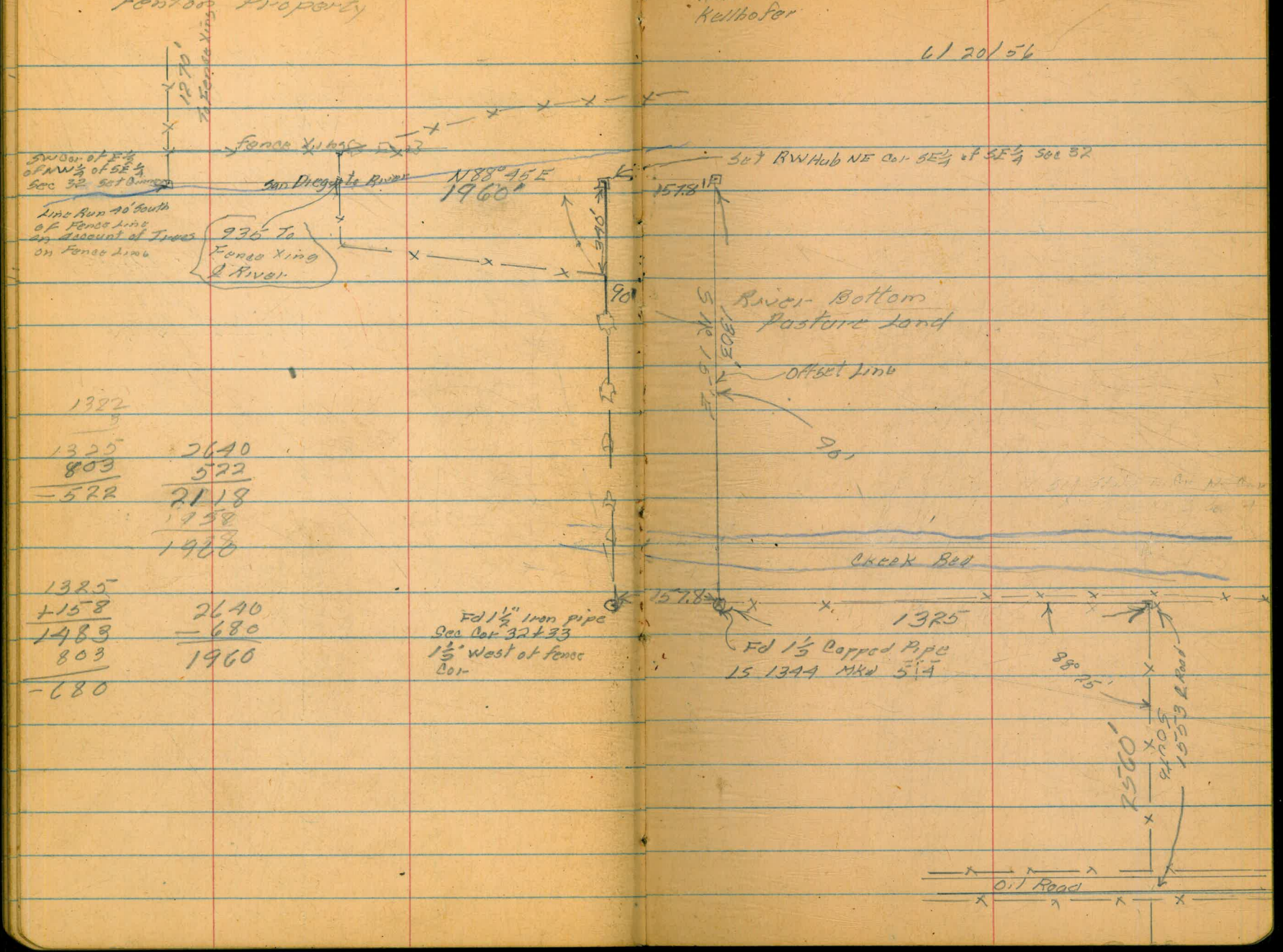
6A



STADIA SURVEY
Fenton Property

Waist
Williams
Kellhofer

6/20/56



1382

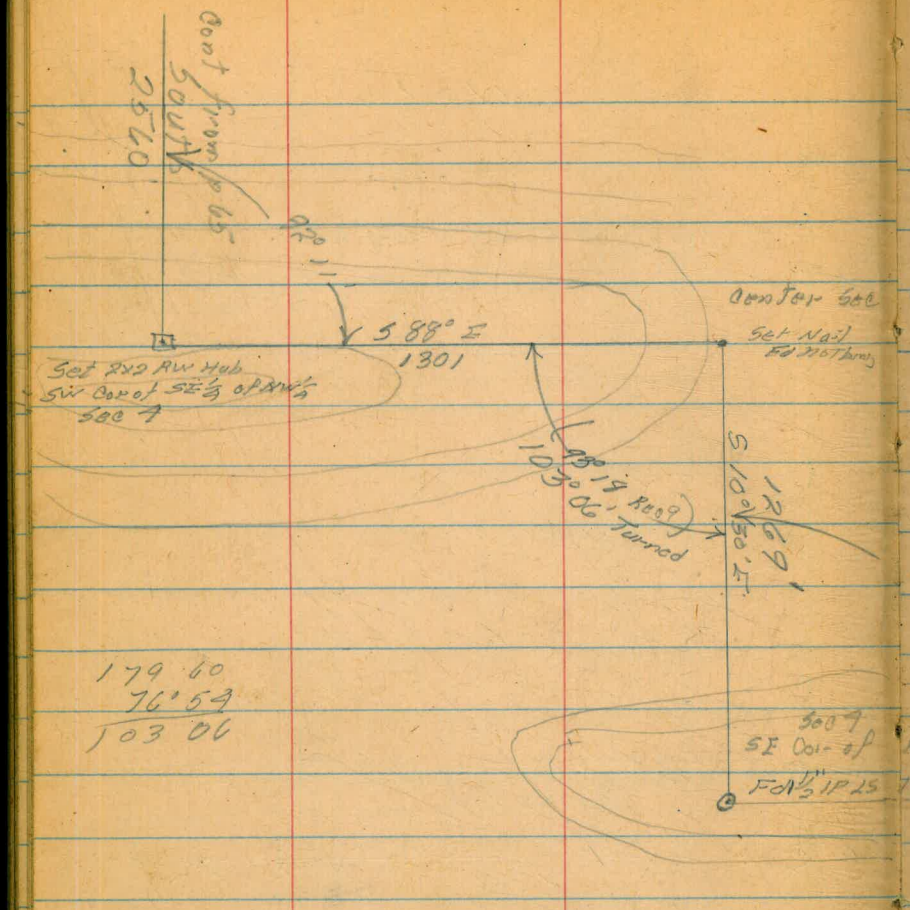
1325
803
−522

2640
−522
2118
−158
1960

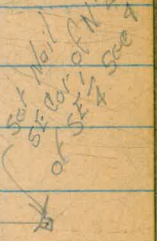
1325
+158
1483
803
−680

2640
−680
1960

STADIA SURVEY Cont



13 of 5 ½ 2300

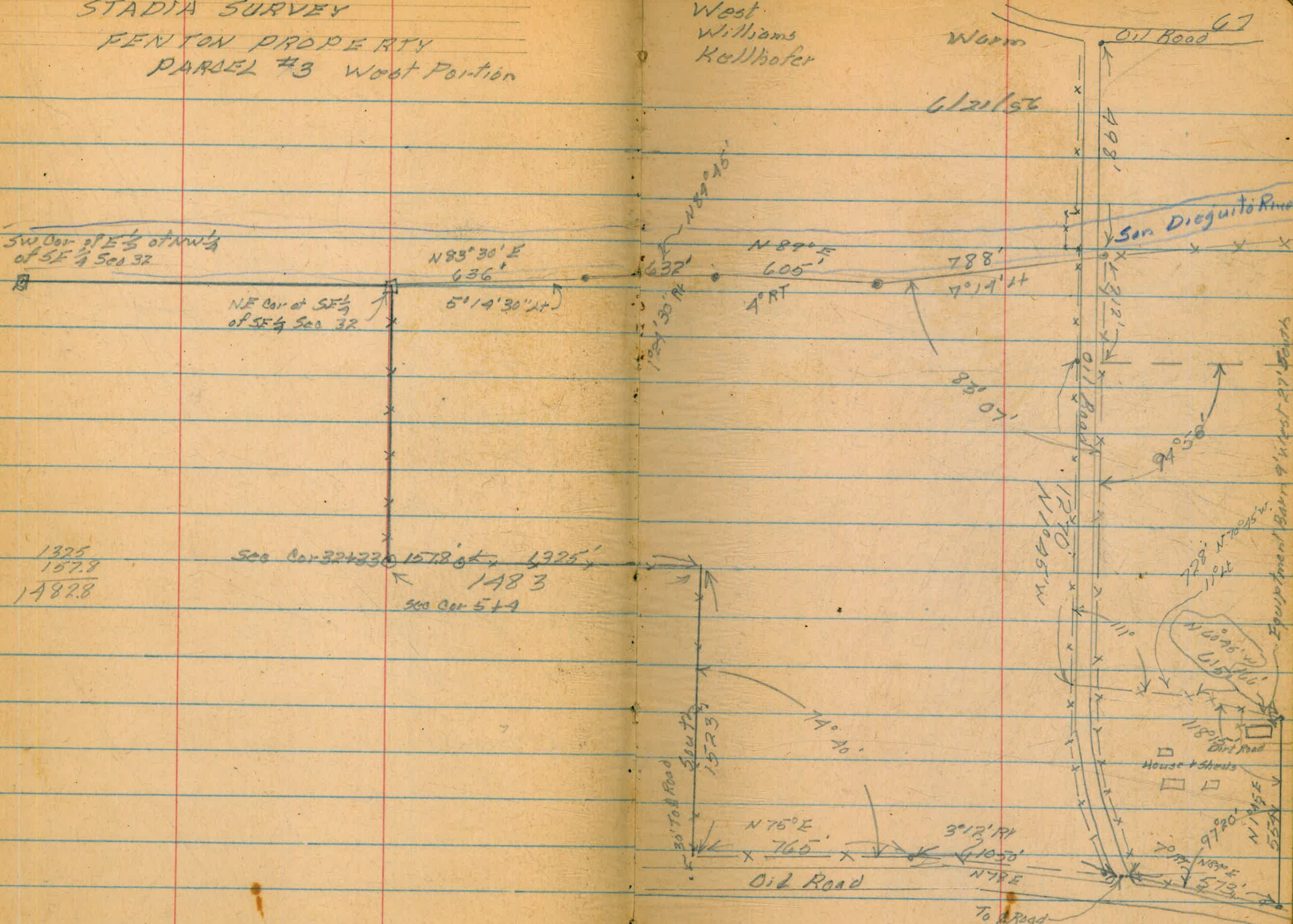


STADIA SURVEY
FENTON PROPERTY
PARCEL #3 West Portion

West
Williams
Kallhofer

Warm

6/21/56


SW Cor of E½ of NW¼ of SE¼ Sec 32
NE Cor of SE¼ of SE¼ Sec 32
N 83°30'E
636'
5°14'30" Lt
N 89°45'
632'
1°34'30" Rt
N 89°E
605'
4°RT
788'
7°14' Lt
San Dieguito River
Oil Road
498'
212'
83°07'
94°55'
Oil Road
N 1°56' W
1240'
111°
Sec Cor 32+33
157.8'
1325'
1483
Sec Cor 5+4
1325
157.8
1482.8
74°40'
South
1523'
30' To Oil Road
N 75°E
765'
3°12' Rt
1050'
N 78 E
Oil Road
To Oil Road
728' N 70°15' W.
11° Lt
N 60°16' W
615.66'
118°15'
Dirt Road
House + Sheds
97°20'
N 1°05' E
554'
70°
N 89 E
573'
Equipment Barn 9' West 27 South

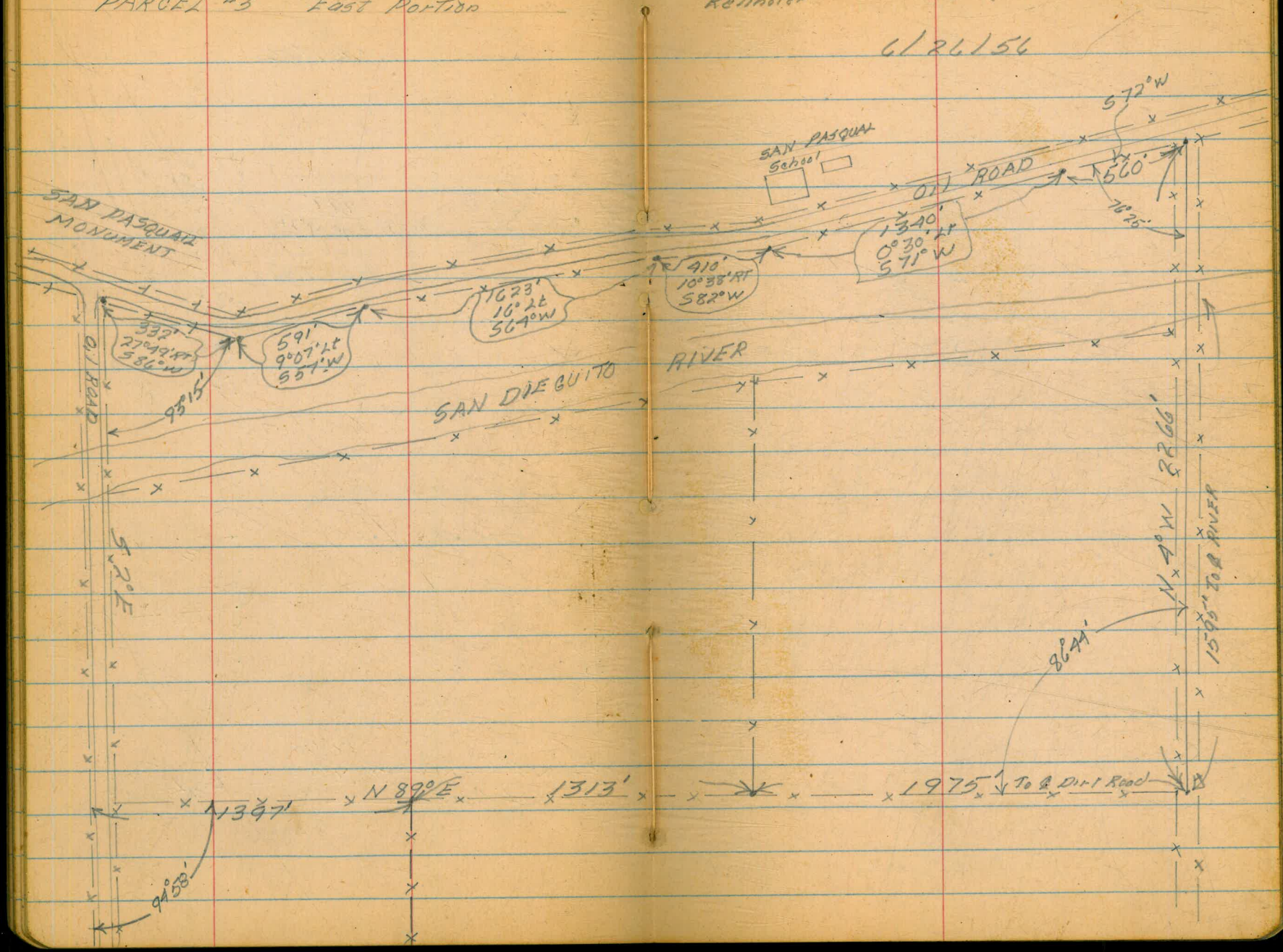
STADIA SURVEY FENTON RANCH
PARCEL #3 East Portion

West
Williams
Kellhofer

Warm

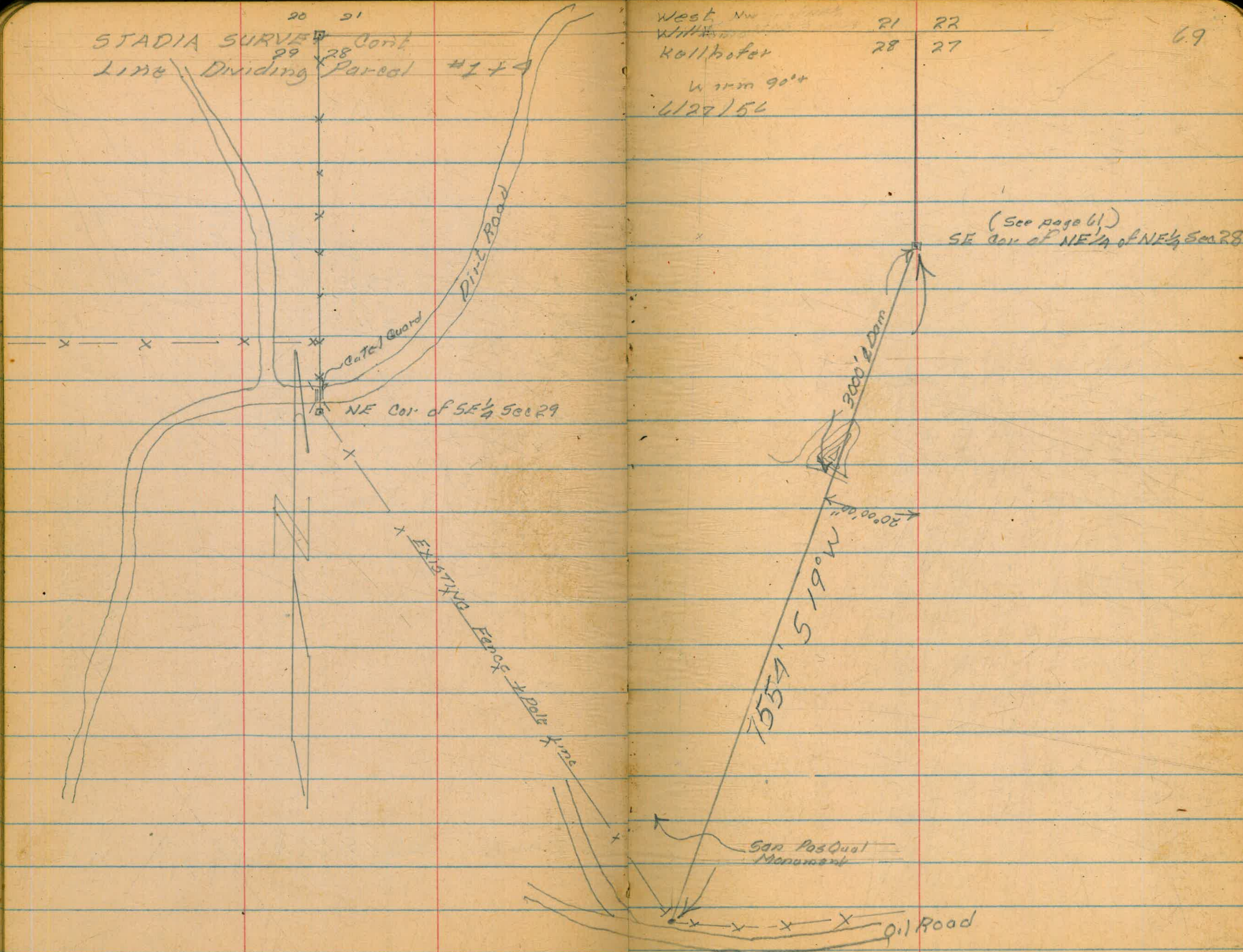
68

6/26/56



STADIA SURVEY Cont
Line Dividing Parcel #1+4

West
Kollhofer
W rm 90°+
6/27/56

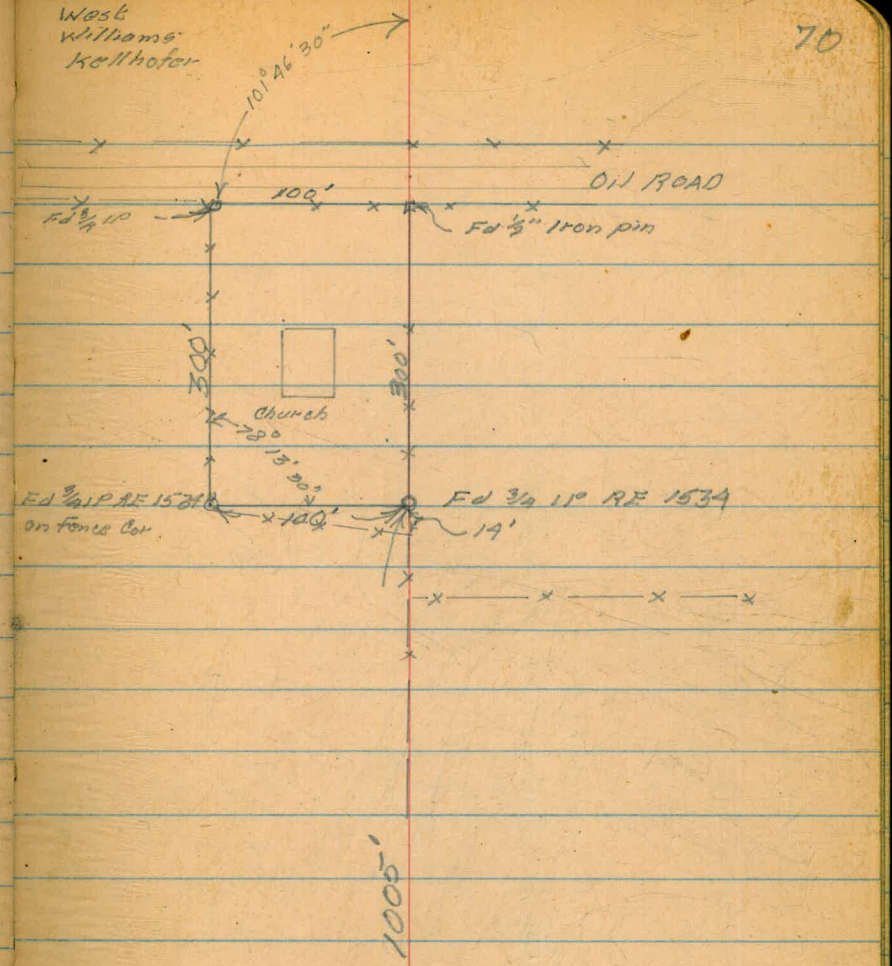


STADIA SURVEY Cont

3959
20
3979
300
4279
~~5265~~
~~4279~~
~~986~~
5281
~~4279~~
1005

179° 59' 60"
101 46 30
78° 13 30

West
Williams
Kellhofer



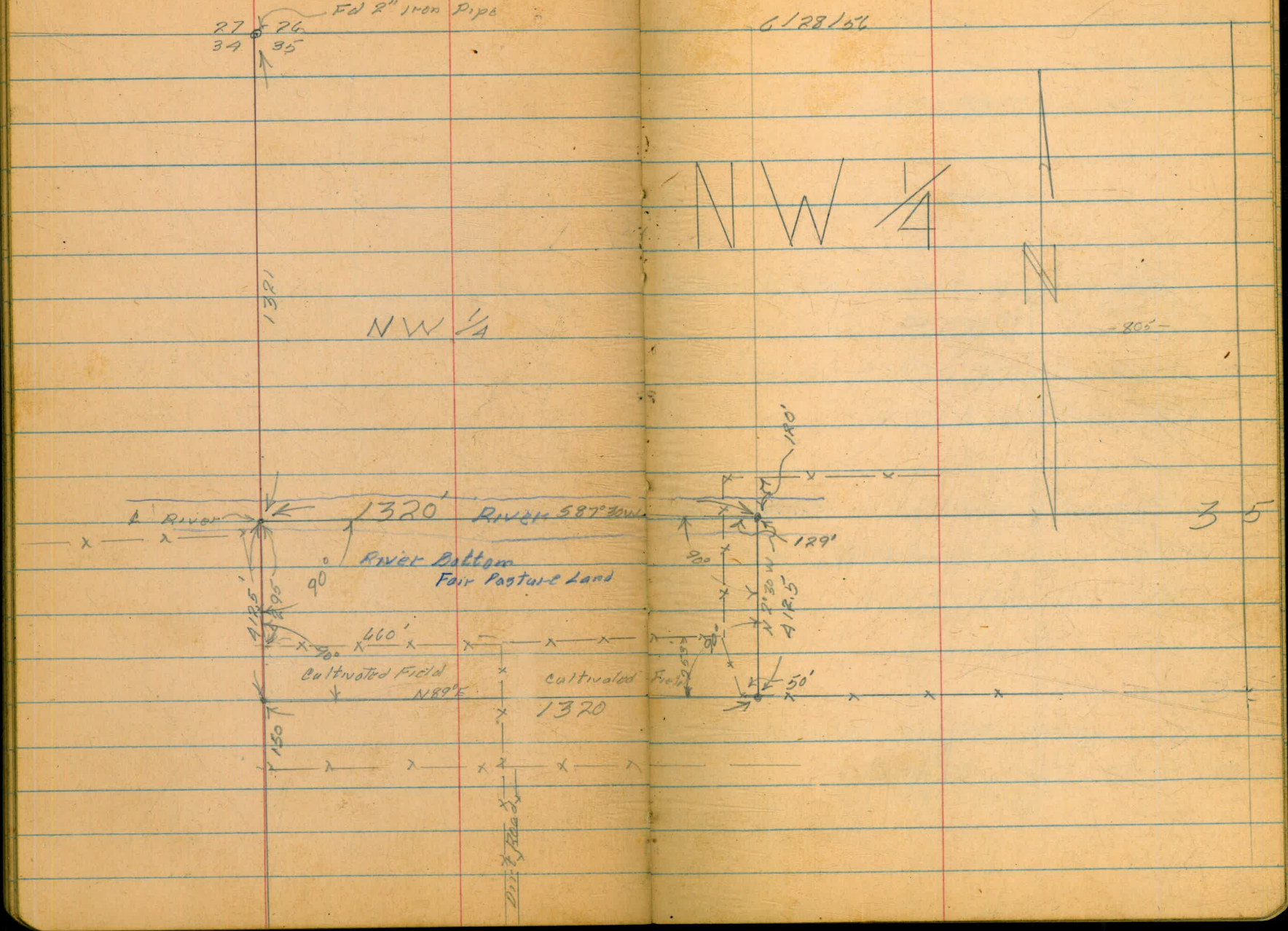
34 35
3 2

STADIA SURVEY Cont

N½ of SW¼ of NW¼ Sec 35

West
Williams
Kellhofer

6/28/56

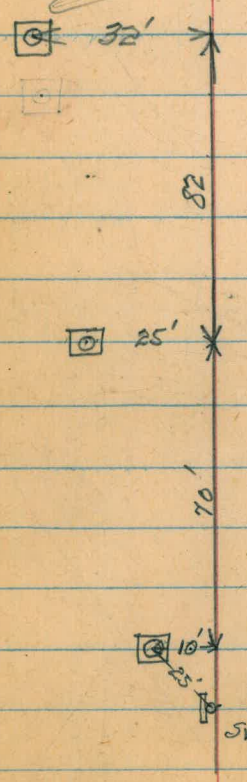


7/13/56
Beatty
Smith.

Stanley Trussel Wells. Copied from Field Notes dtd. 8/24/56.

SEE BEATTY'S SKETCH IN F.B. 780-72 (OUR.) P. 43.

– Drilled by Godfrey. Reported



12 S., 1 W. 35 B_2

M.P. Marked on base of Pump base on NW'ly. Cor. El. 438.72. No opening for Measurement.

Deduced Location:- 1128' S. x 1352' W. of NE Cor.

14" Casing, 15 HP U.S. Motor. (Pumping 7/13/56)

12 S. 1 W. 35 B_1

M.P. = Bottom of cut hole in 16" casing. El. 438.05

10 HP. U.S. Motor. (Pumping 12:30 PM 7/13/56)

Deduced Location:- 1210' S. x 1345' W. of NE Cor.

Original Well (12 S. 1 W. 35 B)

B.M. El. 438.72
Switch & Meter Pole.

M.P. = Top of 14" casing. El. 437.29

Location Original Well:- 1280' S. x 1330 W. of NE Cor.

No Pump 7/13/56

H.I.		
2.50	431.74	429.24
	1.34	430.4

U.S.G.S. B.M. S/S Hwy 78, Opp. Rockwood Driveway
Top 14" Casing. No Pump. No Power.
Location:- From bridge across Guejito Creek, 275' E'ly x 300' N'ly & Hwy. #78
Owner:- Hilabrick
Drilled by:- Al Godfrey Drilling Co.
6/56 2875 Cherry Ave.,
Long Beach, Calif.
Well No
(12S., 1W. 26W.) MP Void see p 76

431.74		
	8.75	422.99

(Well No 12S., 1W., 35 D)
Top of 14" Casing. No Pump. No Power.
Location:- From bridge across Guejito Creek, 480' E'ly x 960' S'ly.
Owner:- Mrs. H.G. Fenton.
Drilled by:- Godfrey - 6/56

	2.50	429.24

Check B.M.

NOTE:- Abt. 7 new wells in upper S.P. Valley incl. one for 7th Day Adventists.

San Pasqual Valley
Elev. of Wells & Measuring Points.

Aug. 9 1956 - Hot!
Beatty
Smith

BM	7.41	460.41		453.00	Chis ☐ on Hdwll near Diver. ditch drop weir. See pg. 10 FB 780(2)
TP	2.77	460.46	2.72	457.69	
TP	2.52	456.48	6.50	453.96 ✓	
TP	9.36	464.19	1.65	454.83	
TP	2.78	466.56	0.21	463.78	Nail in fen. post
Set TBM,1	5.38	470.42	1.52	465.04 ✓	Nail in Pa. Pole #31853, 45 NEly - pump & well
12 S - 1W - 36 G			3.65	466.77	{Base of Vert. pump. Peerless 15 HP Elect. motor Top of " Well Casing
			6.2	464.2	Mean. ground elevation.
TP	2.91	471.84	1.49	468.93	
12 S - 1W - 36 H.			3.47	468.37	{Base of Vert. pump - Johnson Turbine pump Top of 14" Casing. 15 HP Westinghouse Elect. Motor.
			4.7	467.1	Mean ground elev.
Set TBM 2	3.45	470.50	4.79	467.05	Nail in Pa. Pole #316908 75' SWly of pump & well.
CK TBM. 1	2.18	467.22	5.46	465.04 = 465.04	
TP	1.00	464.79	3.43	463.79	
TP	1.53	456.67	9.65	455.14	
CK TP	7.09	461.05	2.71	453.96 = 453.96	
TP	3.98	460.20	2.83	456.22	
CK BM			7.23	452.97 = 453.00	Chis II on Hdwll (see above)

✓

San Pasqual Valley
Elev of Wells & Measuring Points

Aug. 10 1956
Beatty &
Smith &

BM	11.02	440.26		429.24
H. rock	12.16	451.61	0.81	439.45
H. bob	1.89	453.45	0.05	451.56
H. rock	5.92	448.80	10.57	442.88
H. bob	11.84	455.56	5.08	443.72
H.	1.07	454.99	1.64	453.92
SET TBM.	0.67	444.74	10.92	444.07
12S-1W-26Z			3.65	441.09
			7.6	437.1
TBM	12.97	457.04	0.67	444.07
H. Cor Adobe W811	0.03	452.25	4.82	452.22
H.	3.66	448.25	7.66	444.59
CK H.	10.64	453.51	5.38	442.87 = 442.88
H.	1.72	451.71	3.52	449.99
CK H.	1.22	440.67	12.26	439.45 = 439.45
CK BM			11.44	429.23 = 429.24

✓

USC & GS BM. A-308- 145' SWly San Pasqual Store (FB. 780-2) pg 26.)

E. end Hdwll. 100' Wly of pump & well

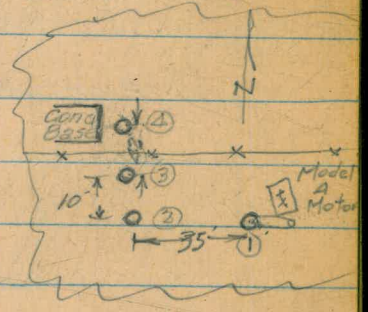
Top of 8" Casing; Base of 5 HP Jacuzzi Vert pump & GEN. ELECT Motor

Mean ground elev.

E. end Hdwll.

San Pasqual Valley
Elev. of Wells & Measuring Points

BM.	3.11	432.35		429.24	USC&GS A-308
			3.16	429.19	Well No 125.-1W.26W. Top 3/2" Nipple in Top 16" Well casing = M.P.
			5.7	426.7	Mean ground elev
TBM(set)	6.20	433.76	4.79	427.56	SW. Cor. Conc. 3/26
H	7.07	439.76	1.07	432.69	
			3.13	436.64 = 436.42	Top 2" Test well #55 (FB 780-(2) pg. 48)
H	7.22	444.03	2.95	436.81	
H	6.11	447.16	2.98	441.05	
125-1W-26F(1)			3.44	443.72	MP Hole in 12" casing. Vert. Peerless pump. Model "A" Motor.
			4.06	443.10	Mean Ground elev.
Battery of Wells (2)			5.94	441.72	Top 12" casing.
Battery of Wells (3)			5.24	441.92	Top 12" casing.
Battery of Wells (4)			4.46	442.70	Top 12" casing.
H	3.78	447.50	3.44	443.72	
H	1.37	442.92	5.95	441.55	
H	2.16	439.90	5.18	437.74	
H	2.88	435.58	7.20	432.70	
H	4.39	433.60	6.37	429.21	
H	3.12	434.01	2.71	430.89	
			4.88	429.13 = 429.24	✓



San Pasqual Valley
Elev. of wells &
Measuring points

BM	5.30	434.54		429.24
Mean ground.			8.7	425.8
MP on Well.			11.16	423.38
12S-1W-35C-1			NEW WELL #11.	
TP	12.74	436.12		423.38
TP Fdn post	2.60	437.58	1.14	434.98
TP	1.14	435.34	3.38	434.20
MP on well.			4.82	430.52
Mean ground			5.8	429.5
12S-1W-35F.2			NEW WELL #5.	
TP Top fdn post	1.36	436.25	0.45	434.89
MP on well 12S-1W-35U			6.25	430.00 = 429.98 FB 780 #2 pg. 36
TP. Mean ground			2.81	433.44
ck TBM			5.32	430.93 = 430.90
TP	1.23	435.43		434.20
Well 12S-1W-35F1			4.77	430.66 NEW WELL #6.
Mean ground.			5.8	429.6
ck TP			1.23	434.20

Aug 27, 1956
Beatty
Paulson

USC&GS A-308

on Ely rim of 12" casing - 6" casing inside
Johnson Turbine Pump
Pressure system 10 HP. 220 V Elect. vert. Motor
500'± Sly of USC&GS BM

Two Wells
Painted on Cone Standpipe ½ way between
Abandoned.
on Ely side top of 12" Casing 10' Sly of
Sly Well House, 500' Sly Trussel Dairy
on Wly side of N/S road.
43 ½ down to water. Well in pump
house 75' Nly of Sly well house
pumping at this time. For elev.
see below.

- 10" well casing - opening on west side

Marked MP see FB

Nail in Pole 5' wly of well

8/29/56

MP hole on wly side 14" casing. in
Nly pumphouse w. side of road 425' Sly Trussle dairy

50 HP US Motor
Peerless vert. pump.
(not pumping)

San Pasqual Valley
Elevs of Wells & Measuring Points

BM.	5.23	415.87		410.64	USGS BM #410-T in schoolyard FB 780 #2 pg 34
"	5.41	415.88	5.40	410.47	
"	5.05	417.66	3.27	412.61	
"	5.40	419.76	3.30	412.36	
Set TBM	3.99	419.10	4.15	415.61	SW Cor, S. end, Wly side Conc div. ditch struct. 60' Nly of well
			NEW WELL #15.		
Well 125-1W-34S		3.62		415.48	MP Hole N. side 16" Casing with 10" Casing inside — 50 HP GE Vert pump — (pumping) Peerless. Wly side of ditch
See Sketch pg. 80					
Mean ground		5.1		414.0	
Set TBM	4.01	419.76	3.35	415.75	Lrg Boulder 35' NWly of well
			NEW WELL #14.		
Well 125-1W-34H		1.13		418.63	MP Hole N side 16" Casing 10" Casing inside — 50 HP US Motor — Peerless vert pump (pumping) Wly side of ditch
Mean ground		4.9		414.9	
"	3.07	415.99	6.84	412.92	
"	1.93	413.63	4.29	411.70	
"	6.19	413.64	6.18	407.45	
			NEW WELL #13.		
Well 125-1W-34T		3.44		410.20	MP Hole SW side 16" Casing with 12" Casing inside — 50 H.P. Peerless vert pump Ely side of ditch (pumping)
Mean ground		5.8		407.8	
Set TBM	2.94	411.99	4.59	409.05	nail w side Swatch pole 20' SWly of well
"	5.08	412.29	4.78	407.21	
			NEW WELL #34.		
Well 125-1W-34T1		0.29		412.00	MP. pole. SE side 12" Casing with 6" Casing inside — 60 HP Peerless vert pump Ely side of ditch. (pumping)
Mean ground		3.5		408.8	
Set TBM	3.56	413.22	2.63	409.66	#214543 Nail in Transf. pole 50' SEly of Well

San Pasqual Valley
Elev. of Wells & M.P.s

		413.22		
TP	5.11	415.02	3.31	409.91
CK Orig. BM.			4.36	410.66 = 410.64
BM	7.48	410.82		403.34
CK BM			2.53	408.29 = 408.33
TP	3.18	409.87	4.13	406.69
TP	4.02	405.96	7.93	401.94
TP	4.74	405.47	5.23	400.73
				NEW WELL #2.
Well 12S-1W-34X			4.48	400.99
Mean ground elev.			6.3	399.2
TP	5.33	406.05	4.75	400.72
TP	7.87	410.42	3.50	402.55
TP	1.37	410.92	0.87	409.55
CK BM			2.62	408.30 = 408.29

USGS BM in school-yard

Top Test well 13S-1W-3d FB 780 #2 pg. 31

Top of flange 24" Cross culvert 200' E of Test well

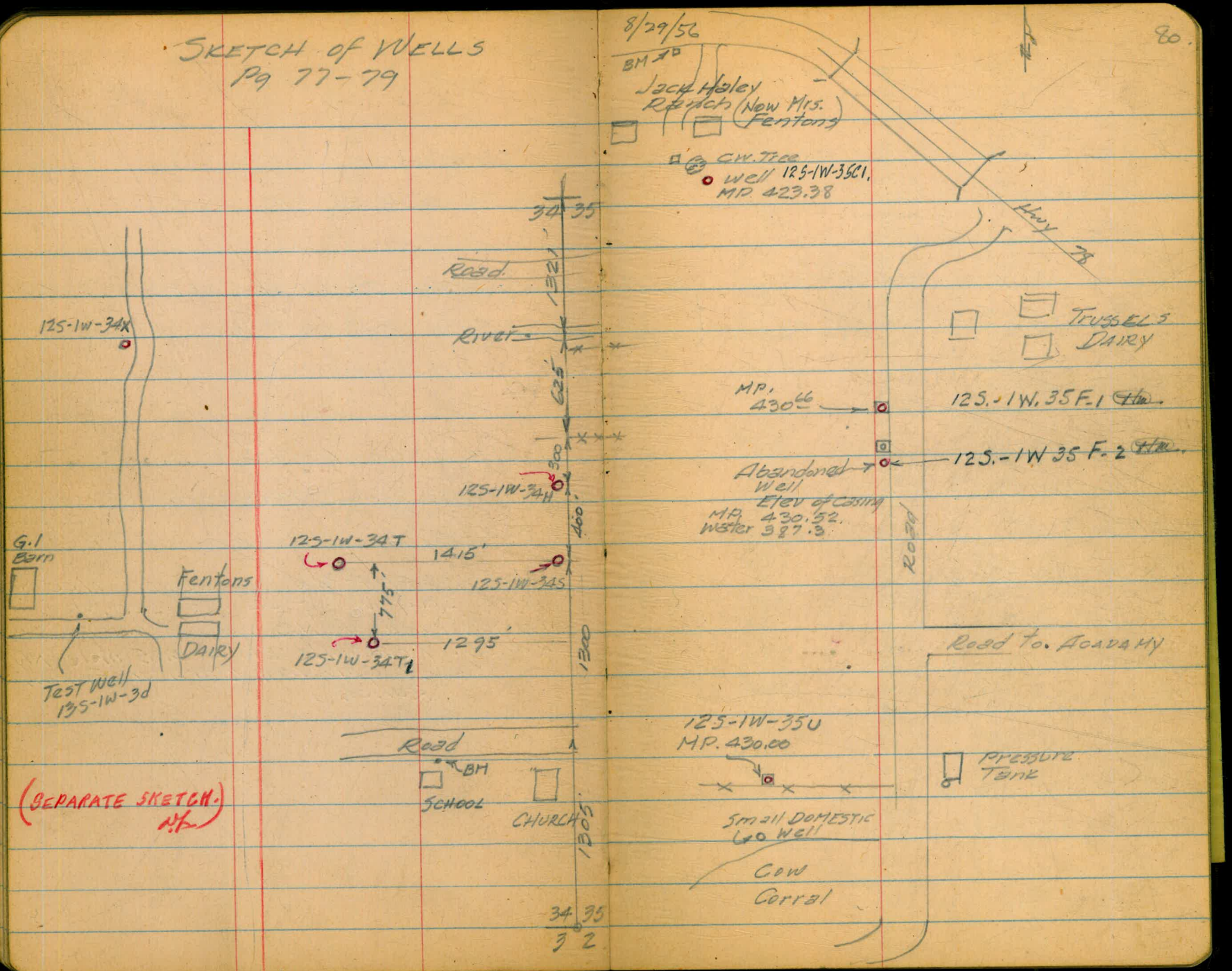
MP hole on SE side 12" Casing with 8" Casing inside

15 H.P US Motor Elect motor Peerless pump (pumping.)

Well 12S-1W-34X is about 1100 N'ly and 3000' W'ly of SE Cor Sec. 34 on W'ly side of N/S Lane thru Fenton Ranch. (0.16 mile E'ly & 0.35 mile N'ly of Galv. Iron Barn on Fenton Ranch)

Sketch of Wells
Pg 77-79

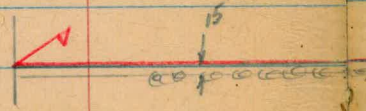
8/29/56



San Pasqual Valley

Triangulation of Wells Sec. 34 & Flagged "Lease Line"

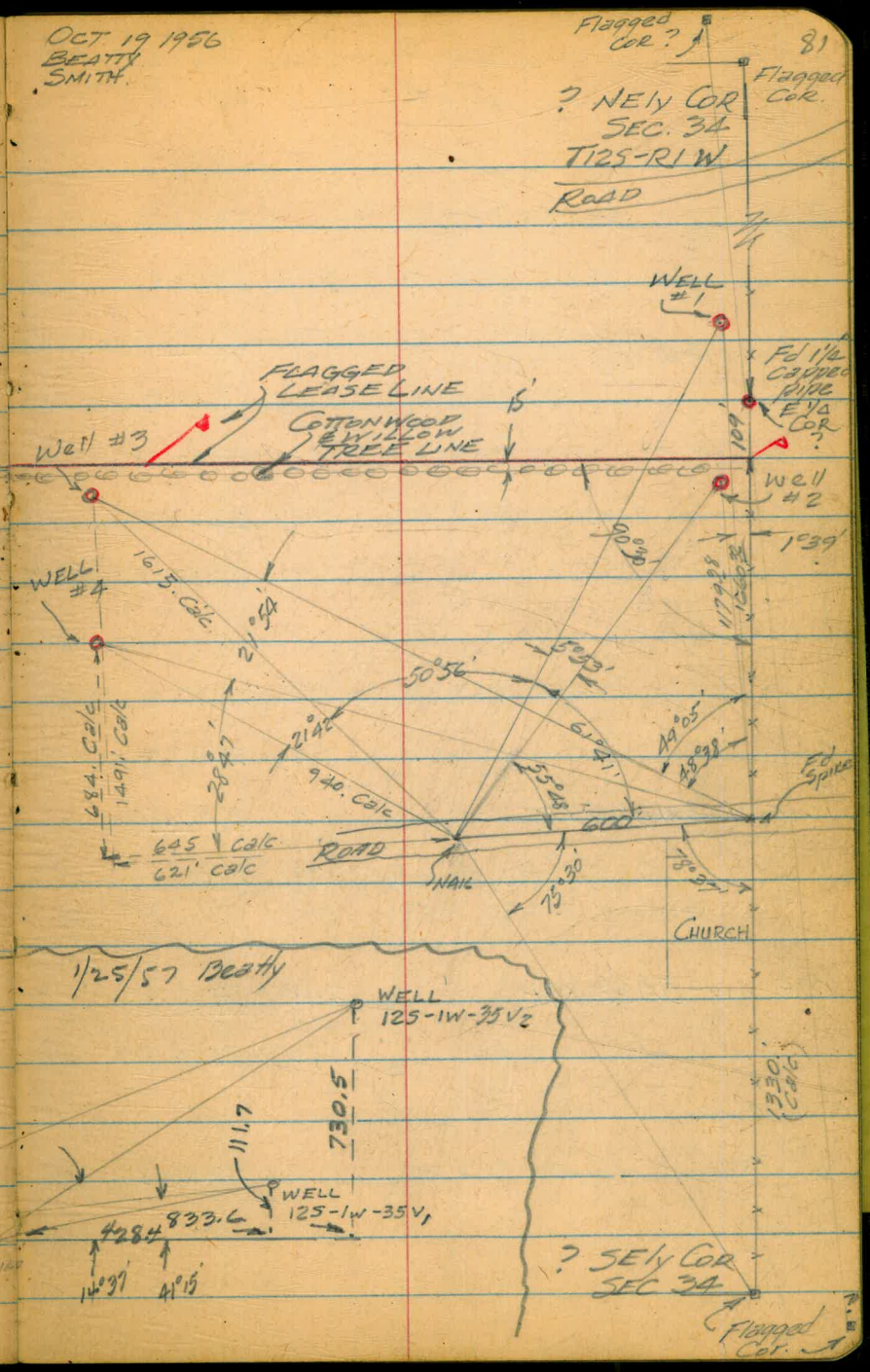
T at Spike E line Sec 34	
600' W'ly - Well #4	1) 28°47' 2) 57°35'
Well #4 - Well #3	1) 21°54' 2) 43°47'
Well #3 - Well #1	1) 48°38' 2) 96°16'
Well #1 - Well #2	1) 0°27' 2) 0°54'
Well #2 - NE Cor	1) 1°39' 2) 3°18'
600' W'ly - SE Cor	1) 78°37' 2) 157°14'
T at 600' W'ly	
Well #4 - Well #3	1) 21°42' 2) 43°25'
Well #3 - Well #1	1) 50°56' 2) 101°52'
Well #1 - Well #2	1) 5°53' 2) 11°46'
Well #2 - Spike	1) 55°48' 2) 111°36'
Spike - SE Cor	1) 75°30' 2) 151°00'



T @ 600' W'ly	
Well 125-1W-35V	1) 6°12' 2) 12°24'
Well 125-1W-35V2	1) 27°01' 2) 54°02'
T at Spike	
125-1W-35V	1) 14°37' 2) 29°14'
125-1W-35V2	1) 41°15' 2) 82°30'

Oct. 19 1956
Beatty
Smith.

81



San Pasqual Valley
Elev. of Wells

Oct. 19 1956
Beatty
Smith

BM	3.98	387.22		383.24
TP	4.69	386.82	5.09	382.13
			NEW WELL 9.	
	MP.		4.05	382.77
13S-1W-4C*				
	Av. Ground		4.75	382.05
Set TBM	2.78	385.90	3.70	383.12
TP	5.27	387.31	3.86	382.04
CK BM.			4.06	383.25 - 383.24
BM	0.27	383.59		383.32
TP	3.01	377.74	8.86	374.73
13S-1W-5A*2. MP			0.37	377.37
	Av. Ground		3.9	373.8
13S-1W-5A*3. MP.			2.00	375.74
	Av. Ground		5.15	372.59
Set TBM	10.43	384.91	3.26	374.48
CK BM.			1.58	383.33 - 383.32

Top 3/4" PIPE TEST WELL 12-5-33x FB 780 #2 pg. 28

(Ø MP Mrk'd in white chalk.) 12" CASING 5 H.P US Motor Vert. pump

½" bolt in meter pole 75' NE well, on E/S of road

Spike in P. pole #19383 FB 780 #2 pg. 52

OLD WELL in 5x5 Wooden well house Approx 300' NNly & 100' Wly of 13S-1W-5A FB 780 #2 pg. 52

12" well casing 3 HP US Motors pump

New Well Approx. 100' Nly of above description.

14" Casing 60 HP US Motor Vert pump.

119' deep water 9' below valley floor. pumped 1800 gals/m & only lowered water to 18' below ground.

Well R.P.# 19381 100' E'ly of old well

San Pasqual Valley
Elev. of Wells

TBM	2.08	377.52		375.44
12S-1W-32S2			3.24	374.28
			4.65	372.87
			6.5	371.0
			12.82	364.70
CK TBM			2.08	375.44
BM.	0.29	429.53		429.24
12S-1W-35D			6.77	422.76
			10.14	419.4
TP	4.79	429.48	4.84	424.69
12S-1W-26W			1.53	427.95
			3.2	426.3
CK TP.	2.04	429.52	1.98	427.50 = 427.56
TP.	8.11	432.80	4.85	424.69
CK BM.			3.55	429.25 = 429.24

JAN. 25 1957
BEATTY
O'Brien.

CHIS □ NW Cor Conc. Chamber (PUMP PIT.)

MP. Top. 14" Casing (450'± Ely of Chamber)

Alternate MP. (Hole in casing)

Aver. ground line

Water elev. 1/25/57 10:40 am.

USC&GS BM 308-A. (pg. 76)

(New Pump Set)
30 HP US Motors
Vert. Pump

M.P. Hole in 14" Casing

Aver. ground line

(New pumps 20 HP Westinghouse vert. Pump)

Top of 3/4" Nipple on Sly side of 14" casing.

Aver groundline

SW Cor Conc Slab (pg. 76)

San Pasqual Valley
Elev of Wells

BM	3.05	455.88		452.83
CK TP Well PT 300' W	3.50	449.66	9.72	446.16
12S-1W-35A			3.09	446.57
			6.25	443.41
CK TP Well PT 300' W	9.29	455.45	3.50	446.16
CK BM.			2.62	452.83
BM	5.77	416.41		410.64
TP	4.43	417.02	3.82	412.59
TP	5.45	421.91	0.56	416.46
TBM set	2.17	421.16	2.92	418.99
12S-1W-35V2			1.55	419.61
TBM	3.10	422.09	2.17	418.99
TP	3.42	419.88	5.63	416.46
12S-1W-35V1			3.90	415.98
TP	1.58	417.68	3.78	416.10
			7.03	410.65 = 410.64

1/25/57

84.

Chis □ on Boulder

3/4" Capped pipe. N. Side of road near Pc Pole.

MP Hole Sly side 14" Casing 30 HP US Motor Vert. pump.

Aver. ground line 660'± Nor of ℄ of road 35'± wly of Sec. line. (7th day Adventist well)

USGS 410-T in Schoolyard pg. 78

Nail in meter pole

Hole in Sly side 8" casing. Domestic well - to Deany

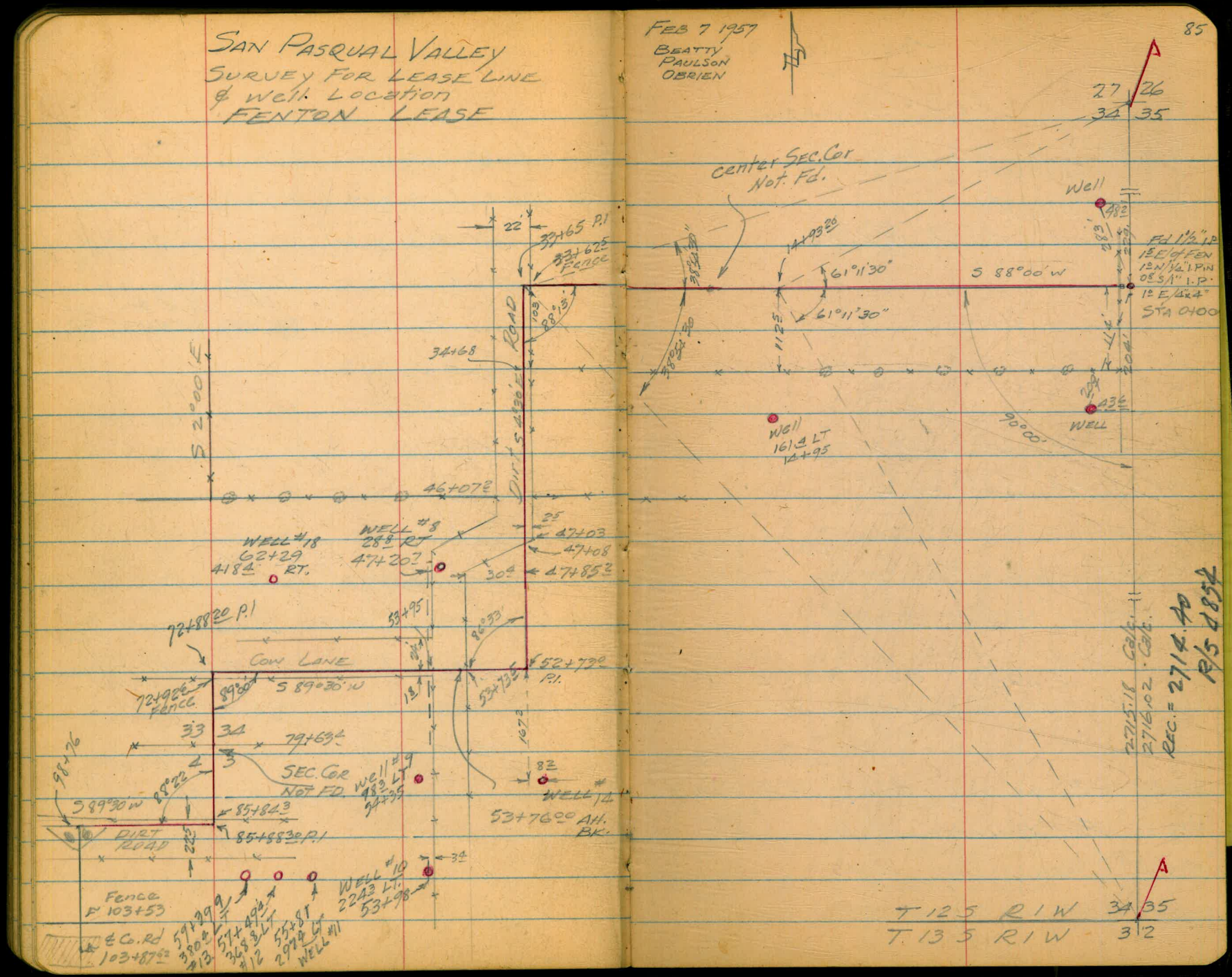
3HP Fairbank-Morse Vert pump.

Top 8" Casing Domestic well - 1/3HP GE Vert pump (No place to get into casing.)

SAN PASQUAL VALLEY

SURVEY FOR LEASE LINE
& WELL LOCATION
FENTON LEASE

FEB 7 1957
BEATTY
PAULSON
OBRIEN



San Pasqual Valley (Cont'd)

Fenton Lease

72+88.20 P.I. Δ 91°00' LT.

53+76 Ahead
52+74.08 Bk P.I. Δ = 85°23' RT

45+41.38 P.I. 8°04' RT

Alternate line (see pg. 87 sketch.)

52+73 P.I. Δ 93°27' RT

33+65 P.I. Δ 91°47' LT

33+62.5 N & S Fence { 103' LT to E&W Fence; 100 LT to 4' irrig ditch

14+94.60 116± LT to well

14+93.20 { 112.5 LT E&W. Fence; 105' LT & 6' irrig. ditch

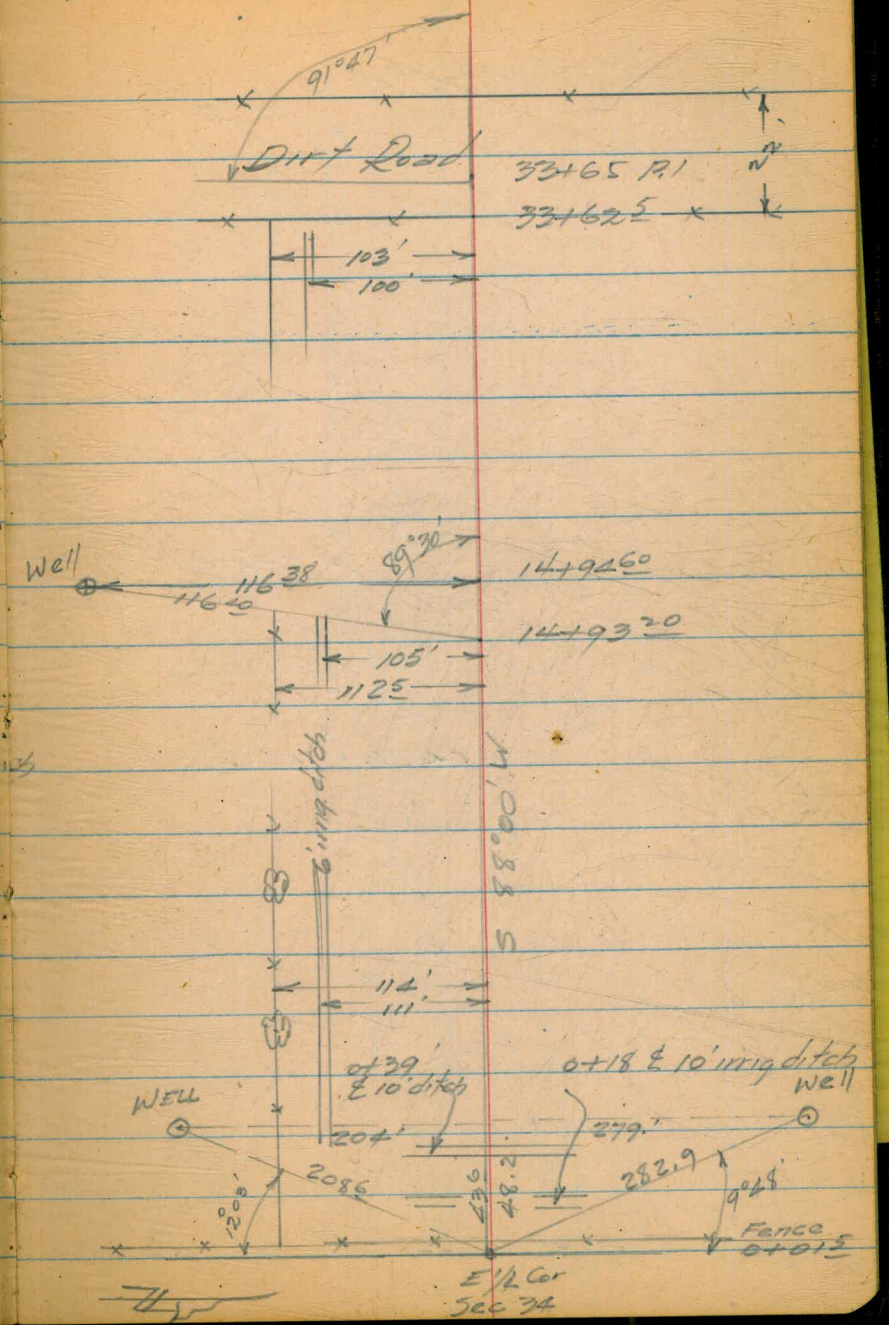
0+39 ℄ 10' irrig. ditch { 111' LT & 6' irrig. ditch; 114' LT E&W Fence

0+18 ℄ 10' irrig. ditch

0+01.5 Fence line N. & S.

0+00 at E¼ Cor Sec 34

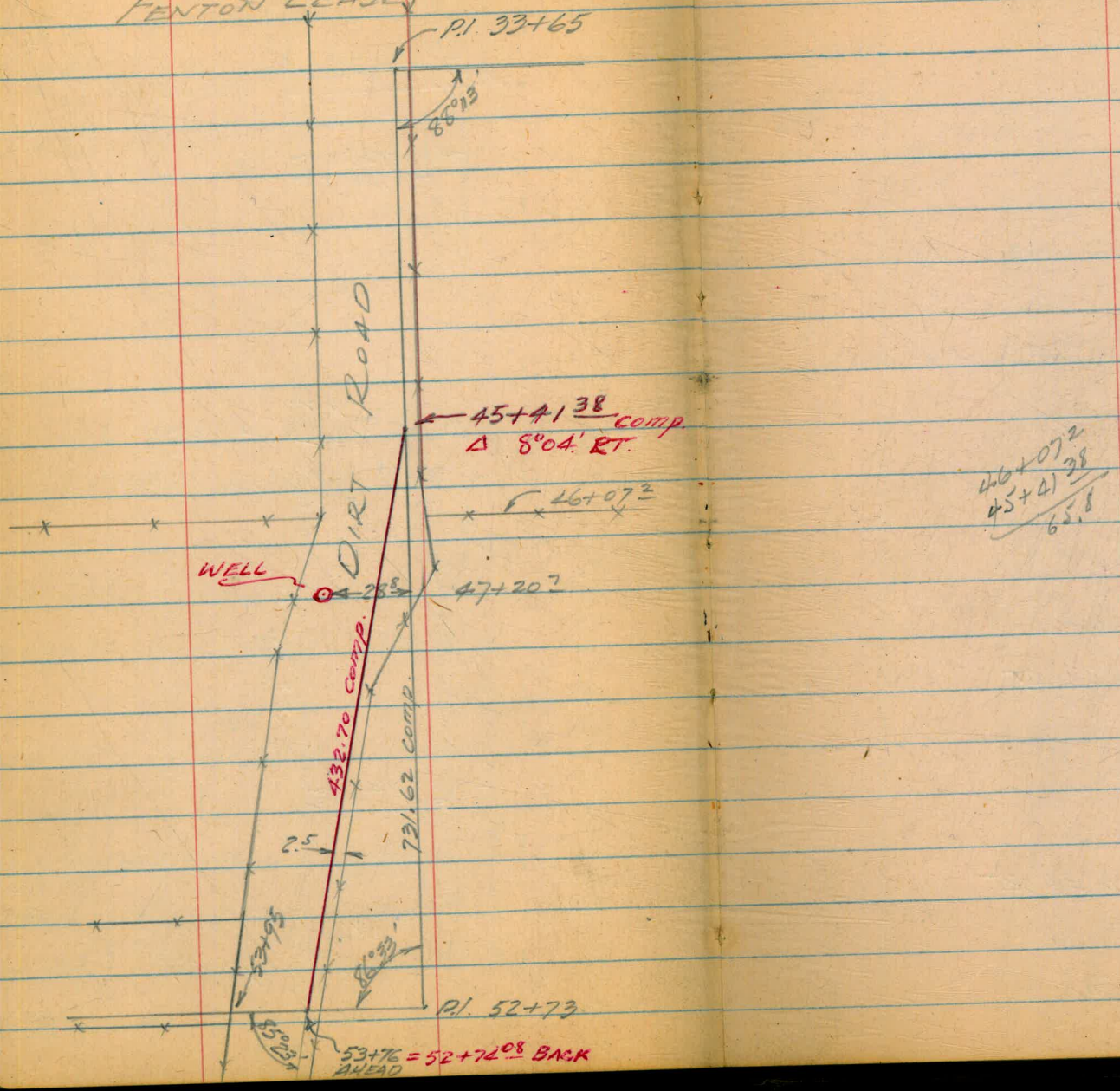
2/7/57



2/7/57

SAN PASQUAL VALLEY (Cont.d.)

FENTON LEASE



46+07.2
45+41.38
65.8

San Pasqual Valley
Conf.d

Fenton Lease

103+87.62 ℄ oiled road Highway

103+53 at fence N. bdry of road.

99+57 at Fence

98+93± at E.W. Fence

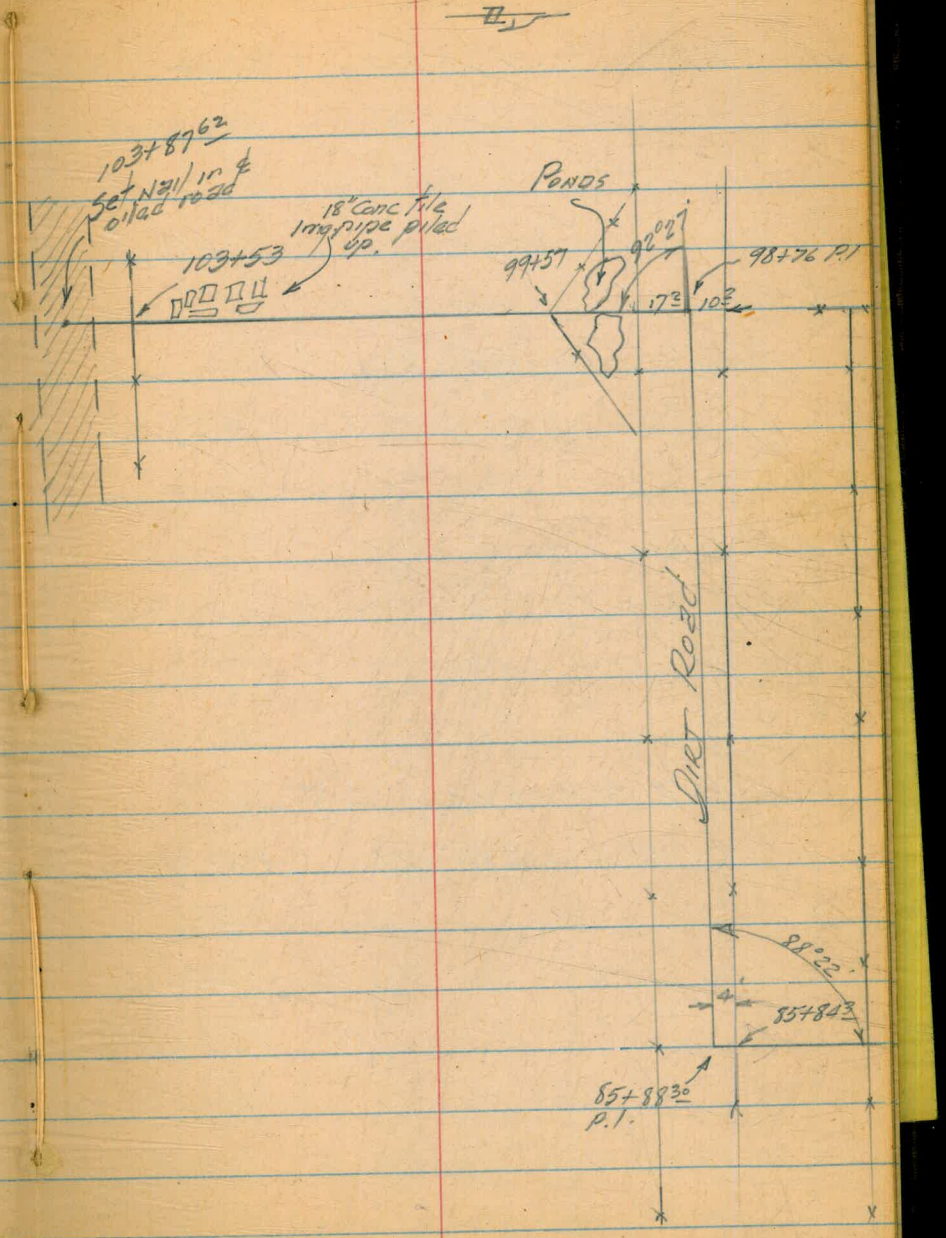
98+76 P.I. Δ 92°27' LT.

85+88.30 P.I. Δ = 91°38' RT

85+84.3 at E. & W. Fence

79+63± E. & W. Fence

72+92± E. & W. Fence



SAN PASQUAL VALLEY
Elev of Wells MP

West
Williams
Kellhofer

4/12/57

1) 12S - 1W. 35 A1 (Probably C-2)

4.32	433.56		429.24
4.25	431.51	6.30	427.26
		5.0	426.5

USGS 65 A308

On Ground outside of Pump house

A.O Smith Corp Pump 3450 RPM
1 HP 115/230 Volts System Pressure

MP on Wly Side of cast iron pump base

12S-1W-35C2. A1.

		3.59	427.92
		4.17	427.34
7.20	434.46	4.25	427.26
		5.21	429.25 =

Top of Cone Floor of pump House

429.24

12S - 1W 25 W-1 A1.

1.81	445.88		444.07
		5.1	440.8
		1.83	444.05.
		1.81	444.07 =

IBM Top of Hdw See page 75

On Ground

MP Top Wly Side 8" Casing

444.07

General Elec Motor
5 HP 3 Phase 220/440
FL Speed 60 cycle 3460

12 S - 1W - 35 H

Why Well at 7th Day Adv Press Tank

1.07	453.90		452.83
2.24	450.76	5.38	448.52
		6.5	444 3/4
		6.31	444 45/100
		6.01	444.75/100
5.36	553.88	2.24	448.52
		1.05	452.83 =

12 S - 1 W 35 G 2 Wells

#4	0.69	434.89		434.20
	5.78	435.99	4.68	430.21
	6.44	438.62	3.81	432.18
			4.16	434.46
			4.4	434.2

Cont next page

See page 84

BM Chis □ on Large Bolder under Fue Tree

Ground

on cone slab of well

MP Top end NW cor of Why R.R. Rail

Peerless Pump 15 HP 1200 RPM

3 Phase 49-1771 Serial

452.83

TP on Cone standpipe See page 77

MP on Top Ely Side 8" Casing

Ground

1 HP 1750 3 Phase Motor
on piston Type pump

San Pasqual
Ely of Wells + MP's

#5 125 - 1W 35 G-1

438.62

		2.47	436.15
		3.9	434.7
3.69	438.57	3.74	434.88
3.20	435.38	6.39	432.18
		1.18	434.80

#3 125 - 1W 34 X1

2.94	411.23		408.29
2.72	407.52	6.43	404.80
		7.00	400.52
5.86	408.47	4.91	402.61
6.78	411.10	3.65	404.82
		2.80	408.30 = 408.29

West
Williams
Kellbofer

4/11/57

Peerless 5 HP
60 Cycle 1740 RPM
Model # 254-2655 C

MP Top 8" Casing
Ground

TBM Spike in pole 3' NW pump #4

= 434.20 TBM

See page 79

TBM Top of Flange 24" Cross culvert

MP Top SE Side of 12" Well Casing
10 HP US Motor 3 phase 1800 RPM
16 1282 Serial

TBM Spike Ely side of Transformer pole Wly side of Fenton N-S Road.
pole # 11680 STA 18706

LAKE HODGES
PROFILE & X-SECTIONS of GUNNITED DITCH 1/4 MILE DOWN STREAM FROM GAGING STA.

BM	3.14	337.38 ~~336.87~~	~~333.73~~	334.24
MP Well # 133-2W-19L. water Level.	5.13	~~331.74~~	~~332.25~~	
	26.23	~~310.64~~	311.15	
	4.77	~~332.10~~	332.61	
	7.4	~~329.5~~	330.0	
ck BM.	3.74	337.98 ~~337.47~~	3.14 ~~333.73~~	334.24
	4.34	~~333.13~~	333.64	
H rock	5.80	339.15 ~~338.64~~	4.63 ~~332.84~~	333.35
H rock	11.96	351.04 ~~350.53~~	0.07 ~~338.57~~	339.08
H bob	11.68	360.37 ~~360.86~~	1.35 ~~348.18~~	349.69
H rock	11.52	372.85 ~~372.34~~	0.04 ~~360.82~~	361.33
H rock	12.20	384.87 ~~384.36~~	0.18 ~~372.16~~	372.67
H rock	8.34	392.66 ~~392.15~~	0.55 ~~383.81~~	384.32
Set TBM.	5.15	392.92 ~~392.41~~	4.89 ~~387.26~~	387.77
0+00			7.04 ~~385.37~~	385.88
1+00			7.53 ~~384.88~~	385.39
2+00			7.81 ~~384.60~~	385.11
3+00			8.07 ~~384.34~~	384.85
4+00			8.38 ~~384.03~~	384.54
5+00			8.66 ~~383.75~~	384.26
H	8.29	~~393.80~~ 392.31	6.90 ~~385.51~~	386.02

May 6 1957
Beatty
Smith.

92.

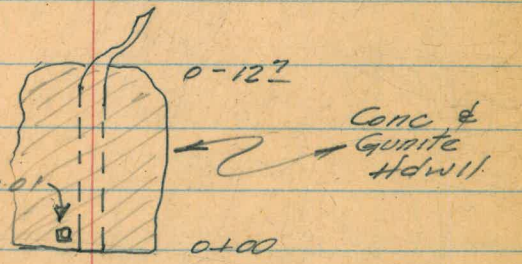
USGS. "GAGING STATION"

MP Nly side 14" casing (open) in channel 200' NEly of gaging station (21' to water.)

Top 14" casing.

Ground line

= 6.75 on gage (Should be Elev 333.64) (2' on gage = 328.89 -



9.6 15 | 5.90 5 | 6.80 3. | 7.53 2 | 6.50 2. | 5.76 4 | 5.7 7

387.0 | 387.02 | 386.07 | 384.85 | 385.72 | 388.07 | 388.8
8.9 18 | 5.9 6 | 5.90 3. | 6.85 1.5 | 8.07 2 | 7.20 1. | 4.85 4 | 4.1 9

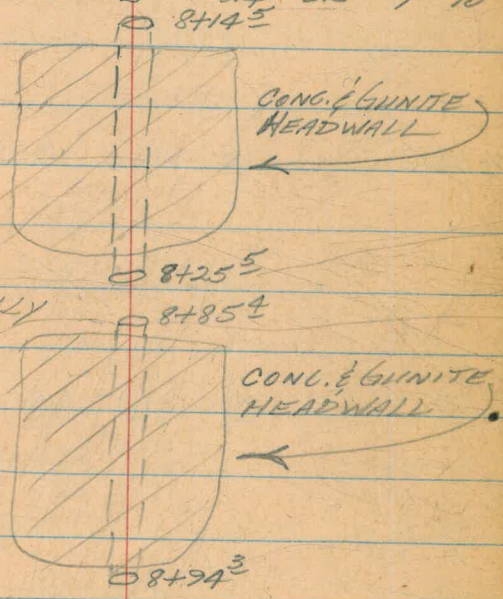
LAKE HODGES
PROFILE & X-SECTIONS
GUNITE DITCH
(CONT'D)

		394.31 / ~~393.80~~		
6+00			10.46	~~383.34~~ 383.85
7+00			10.60	~~383.20~~ 383.71
8+00			11.12	~~382.68~~ 383.19
8+14 5	INV. 1 3 DIA. PIPE		11.33	~~382.47~~ 382.98
8+25 5	INV. 1 3 DIA. PIPE		11.28	~~382.52~~ 383.03
8+85 4	INV. 1 3 DIA. PIPE		11.52	~~382.28~~ 382.79
8+94 3	INV. 1 3 DIA. PIPE		11.54	~~382.26~~ 382.77
9+00			11.36	~~382.44~~ 382.95
10+00			11.59	~~382.21~~ 382.72
TP	7.81	393.50 / ~~392.99~~	8.62	385.18 385.69
11+00			11.23	~~381.76~~ 382.27
12+00			11.53	~~381.46~~ 381.97
13+00			11.31	~~381.68~~ 382.19

5/7/57 COOL & OVERCAST

SHOREY
KEMP
O'BRIEN
SMITH

12.6 (11) 8.7 (4.5) 8.34 (3) 10.34 (0.5) 10.60 (℄) 10.40 (0.4) 7.80 (3.5) 8.2 (7) 6.7 (10)



12.1 (12.5) 8.9 (4) 11.10 (0.5) 11.59 (℄) 11.20 (0.8) 8.5 (4) 9.0 (5) 9.0 (10)

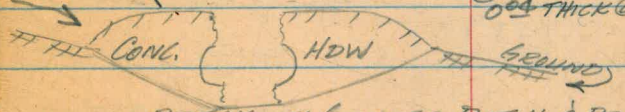
14.3 (17) 8.8 (4.5) 8.80 (4) 10.80 (0.5) 11.31 (℄) 11.00 (0.5) 8.60 (4) 8.7 (7) 7.3 (10)

LAKE HODGES
PROFILE & X-SECTIONS.
GUNITE DITCH (CONT'D)

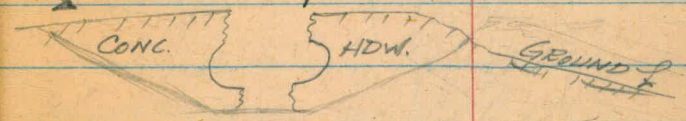
5/7/57 COOL & OVERCAST
SHOREY
KEMP
O'BRIEN
SMITH

		~~392.99~~ 393.50			
14+00			11.71	~~384.28~~	381.79
15+00			11.96	~~384.03~~	381.54
15+83			12.72	~~383.27~~	380.78
PI	7.58	~~389.81~~ 390.32	10.76	~~382.23~~	382.74
16+24			9.91	~~379.90~~	380.41
17+00			9.90	~~379.91~~	380.42
18+00			9.83	~~379.98~~	380.49
19+00			9.88	~~379.93~~	380.41
20+00			10.80	~~379.01~~	379.52
21+00			10.21	~~379.60~~	380.11
PI	3.38	~~385.46~~ ~~384.95~~	8.24	~~381.57~~	382.08
21+38					
21+55					
22+00			6.46	~~378.49~~	379.00
23+00			7.65	~~377.30~~	377.81

BREAK IN GUNITE DITCH & BREAK IN CONC. HEADWALL (GUNITE DITCH 0^{3}" THICK @ BOTTOM 0^{12} 3' UP SLOPE & 0^{04} THICK @ LIP)



BREAK IN GUNITE DITCH & BREAK IN HEADWALL



10.9 / 6	10.1 / 11	7.5 / 4	9.3 / 0.6	9.90 / 8	9.10 / 0.6	7.7 / 3	7.8 / 5	5.0 / 14

380.12	382 $\frac{32}{}$	380 $\frac{92}{}$	380 $\frac{11}{}$	381.02	382 $\frac{32}{}$	382 $\frac{3}{}$	
10.5 / 17	10.2 / 12	8.00 / 4.5	9.40 / 1	10.21 / 8	9.30 / 1	8.00 / 4	8.0 / 11

GUNITE DITCH WASHED OUT

LAKE HODGES
PROFILE & X-SECTION
GUNITE DITCH (CONT'D

5/7/57 COOL & OVERCAST
SHOREY
KEMP
O'BRIEN
SMITH

			~~384.95~~ 385.46		
24+00		7.80	~~377.15~~	377.66	7.6 7.4 5.80 7.50 7.80 7.40 5.60 3.3 3.7 / 17 8 4.5 0.8 ℄ 1.2 4 9 16
25+00		7.78	~~377.17~~	377.68	
26+00		8.37	~~376.58~~	377.09	
27+00		8.60	~~376.35~~	376.86	8.6 8.0 6.20 7.70 8.60 7.70 5.30 4.2 3.9 / 17 11 3 2 ℄ 1.5 5 8 13
TP	4.91	~~387.33~~ 386.82	3.04	~~381.91~~	382.42
28+00			10.31	~~376.51~~	377.02
28+47 }					GUNITE DITCH WASHED OUT ON SELY. SIDE
28+56 }					
29+00			10.72	~~376.10~~	376.61
30+00			11.17	~~375.65~~	376.16 — 13.2 374.9 12.4 377.63 9.70 376.68 10.70 376.16 11.17 376.73 10.60 378.13 9.30 379.3 8.1 8.5 / 20 13 5 2 ℄ 2 3 8 13
31+00			11.57	~~375.25~~	375.76
32+00			11.71	~~375.11~~	375.62
33+00			11.61	~~375.21~~	375.72
TP	4.45	~~381.59~~ 381.08	10.19	~~376.63~~	377.14
34+00			6.02	~~375.06~~	375.57 — 6.1 376.8 4.8 377.69 3.90 377.19 4.40 375.57 6.02 377.42 4.10 378.3 3.3 377.9 3.7 / 15 8 4 2 ℄ 3 8 10
35+00			6.48	~~374.60~~	375.11
36+00			6.83	~~374.25~~	374.76
37+00			7.51	~~373.57~~	374.08
37+55 END GUNITE DITCH			7.26	~~373.82~~	373.33 — 8.3 8.1 5.40 6.87 7.26 6.10 5.20 5.5 5.4 / 15 8 4 1.5 ℄ 2 3 7 10
38+77 INTERSECTION OF GUNITE DITCH LINE & WLY. BARREL OF AQUEDUCT 305' L.T. TO CONC. M.H. S 684+75					

LAKE HODGES
PROFILE & X-SECTIONS
GUNITE DITCH (CONT'D)

5/7/57
SHOREY
KEMP
O'BRIEN
SMITH

		~~381.08~~ 381.39			
TP	0.28	~~389.26~~ ~~368.75~~	12.61	368.47	368.98
TP	1.95	~~358.21~~ ~~357.70~~	13.00	355.15	354.26
CK. B.M.			7.53	~~350.68~~ ~~350.17~~	=350.64

PLUG IN CONC. M.H. S 684+75 } W'LY. BARREL OF AQUEDUCT
305' LT. (S'LY) 38+77 ℄ of GUNNITE DITCH EXTENDED

B.M.	12.85	333.67		320.82
			3.93	329.74
			0.67	333.00
CK. B.M.			12.85	320.82 =320.82

W'LY. BARREL OF
CONC. CHAMBER B.O. S 661+65 AQUEDUCT

TOP OF PIPE FROM M.H. SO. EDGE OF ROAD TO STANDPIPE NORTH OF ROAD

BOTTOM OF WELDED CIRCLE NORTH SIDE OF STAND PIPE (488' W'LY. OF CONC. CHAMB. B.O. S 661+65 W'LY BARREL OF AQUEDUCT)

San Pasqual Valley
Profile & X-Sections of Diversion Ditch
(For original sections see FB 814-45)

OCT. 15 1957
Beatty
Courtney

TBM	7.05	459.40	452.35	
3+18.10			7.93 451.47	= 451.47
			8.46 450.94	= 450.94
3+40			9.1 450.3	
3+83 Ground line			9.0 450.4	
3+83 ℄ 36 RCP			9.55 449.85	= 449.88
4+03.20 Ground line			9.1 450.3	
4+03.20 ℄ 36" RCP.			9.97 449.43	= 449.40
4+22			8.6. 450.80	
(1)	4.01	455.13	8.31 451.09	
4+35			4.4 450.7	
5+00			4.65 450.48	
5+20			4.4 450.7	
6+00			4.8 450.3	
6+31			5.2 449.9	
6+37			5.1 450.0	

. Cor. Conc. Weir SE'ly 3+18.10 67' RT
Top of 2"x8" weir board 3+18.10 ℄
Top Conc. Weir 3+18.10 ℄

8.9 / 3	℄	8.6 / 4
8.8 / 3	℄	8.0 / 1.5
8.3 / 2	℄	8.4 / 2
8.3 / 1.5	℄	8.4 / 3
4.2 / 1	℄	4.2 / 3
4.6 / 3	℄	4.4 / 1
4.8 / 1.5	℄	4.7 / 3
5.1 / 1		5.0 / 3
5.0 / 1.5		5.1 / 2.5

San Pasqual Valley
Diversion Ditch (Cont'd.)

455.13

7+00			5.25	449.88	5.2 / 15	C	5.2 / 25
8+00			5.0	450.1	4.9 / 1	C	5.0 / 3
(1)	4.63	455.10	4.66	450.47			
8+73			5.0	450.1	4.9 / 3	C	5.0 / 1
9+00			5.1	450.0	5.0 / 2	C	5.0 / 2
9+11			4.95	450.15	4.8 / 2	C	4.9 / 2
9+26			4.15	450.65	4.3 / 2	C	4.4 / 10
9+31			4.5	450.6			
9+33.2			4.35	450.75 = 450.76	Crest of weir box		Discoloration of wood indicate high water 0.85 higher; El. 451.60
CK BM			2.11	452.99 = 453.00	Chis □ on Hdwll		

San Pasqual Valley Diversion Ditch (Cont.d)

TBM	7.05	459.40	452.35
		8.46	450.94
		8.45	450.95
		8.61	450.79
		8.64	450.76
		8.52	450.88

Con. conc weir Sta 3+18.0

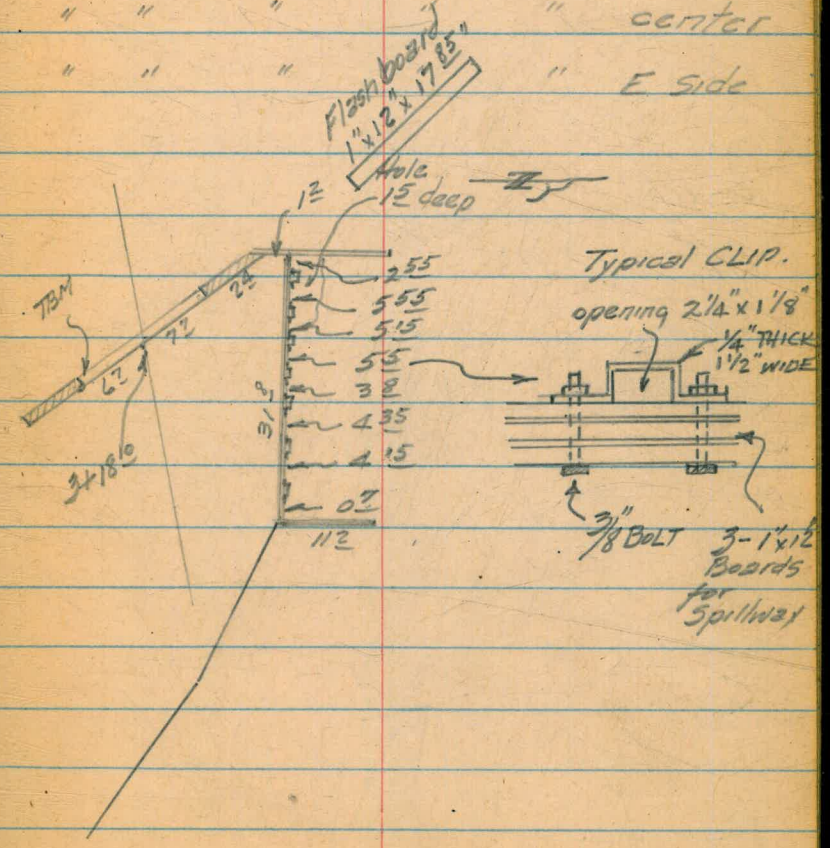
Top of weir, ℄ 3+18.0

Top of weir 7' RT. 3+18.0

Top of Spillway crest board W side

" " " " center

" " " " E side



JAN. 8 1958
BEATTY
SMITH.

SAN PASQUAL VALLEY
ELEV. OF WELL 300' NELY OF GAGING STATION

(SEC. 1, T 13S, R 2W.)

USGS GAGING STATION pg. 92

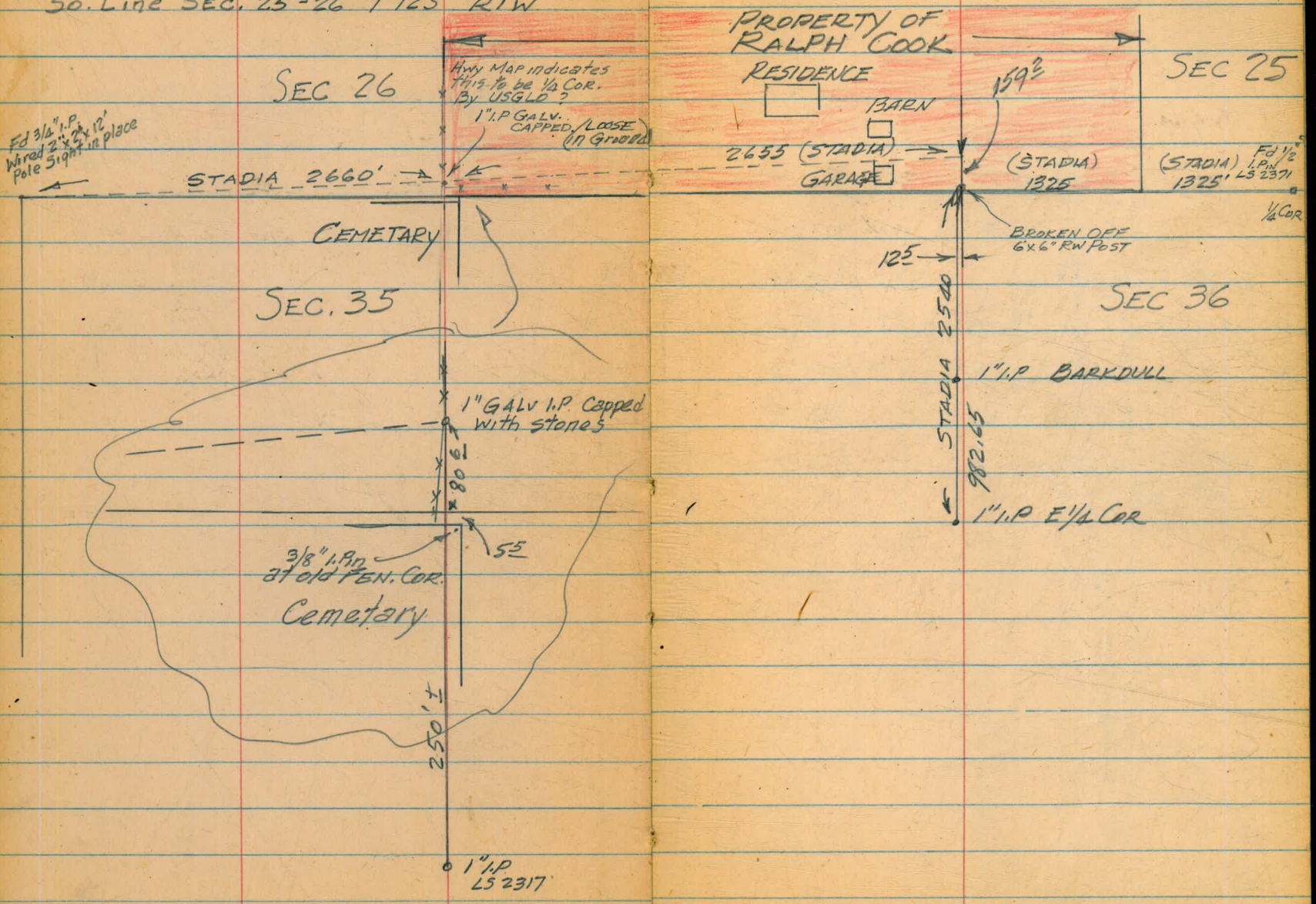
Top of gaging hole in 14" Casing

Top 14" casing WELL # 13S-2W-1S1 channel
See pg. 92

BM.	4.26	338.50		334.24
MP WELL # 13S-2W-1S2.	3.63			334.87
AVERAGE GROUND	5.2			333.3
P	5.77	338.36	5.91	332.59 = 332.61
CK BM.			4.12	334.24 = 334.24

San. Pasqual Valley
South Line of Cook Property Flagged
So. Line Sec. 25-26 T12S R1W

FEB. 9 1959
Beatty
O'Brien
Frost



257.5

MP WELL 12S-1W-31 X

April 11 1960 (BEATTY)

BM	4.50	338.74		334.24
TP	5.62	340.98	3.38	335.36
TP	6.51	343.57	3.92	337.06
TP	7.20	347.41	3.36	340.21
TP	6.80	350.07	4.14	343.27
MP Well 12-1W-31 X	3.81	350.07	3.81	346.26 Top of Casing
TBM. Pk Pole 20' wly	5.95	352.43	3.59	346.48
TP	7.40	355.12	4.71	347.72
	2.37	357.12	0.37	354.75
CK MP, 12S-1W-31 U FB 780-6A-pg 5.			3.91	353.21 = 353.00

BM

"

"

"

"

MP. We

TBM. Po
20'

"

CK MP.
FB 7

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

WELL LOCATION
DESIGNATION

Recd from
CHOLLO
OPERATION
UTILITIES
7/17/73
HEATTY

DINGO – 342.884

GAGING – 333.825
STATION ~~4.24~~

33.
34.24
33.83
.41

September 27 1948

MEMORANDUM

From: J. Patton
To : R. C. Wueste

HODGES RESERVOIR WELL NO. 3

PROBABLE Bill from San Diego Pump & Drillers

LABOR:

85 ft. depth	@	$8.00 per ft.	$680.00
8 welds		4.00 " "	32.00
12 days		75.00 a day	900.00
		Total labor	$ 1,612.00

MATERIAL:

1 Casing shoe		125.00 each	125.00
84'5" of 16" casing (steel pipe)	@	$5.50 per ft.	464.29
71'2" of 12" "	@	$4.00 per ft.	284.67
		Total material	$ 873.96

GRAVEL: There were eight (8) loads of gravel used, averaging 14,871 lbs. each, or a total of 118,968. lbs.

DATA:

Depth of hole 85'
Length of 16" casing 84' 5"
Length of 12" liner 70' 5"
Perforations in 16" casing 67 rounds of 8 holes to a round approximating 10" apart starting at 77 ft. level and ending at 19 ft. level for a total of 532 perforations;
Slots in 12 in liner - 6 slots to a round approximately 10" apart starting at 69 feet level and ending at 7 ft. level; Total 418 slots
Gravel used - approximately ~~14,871~~ 118968 lbs.
Well leans at an angle of approximately 6" in 82 ft. top toward east.
Well jetted 600 to 700 gallons per minute.

10/24/50
Burk

M/ Per..... OB

CITY OF SAN DIEGO, CALIFORNIA
WATER ACCOUNTING DEPT.

Hodges Reservoir Basin Wells.
Installation Costs.

Work Order Number	Item	Amount		
Well No. 1			64' Deep [illegible]	
1-213-5	Labor	978 32		
	Material	984 79		
	Equipment Rental	113 42	Drilling	649 88
	Other Charges	4629 20	Power Line	3132 78
		6705 73		
Well No. 2			62' deep. [illegible]	
1-232-5	Labor	518 24		
	Material	693 60		
	Equipment Rental	129 77		
	Other Charges	1173 99	Drilling -	681 88
		2515 60		
Well No. 3				
1-248-5	Labor	698 51		
	Material	2739 11	Drilling	1612 00
	Equipment Rental	55 80		
	Other Charges	813 72	85' deep. [illegible]	
		4307 14		
Well No. 4				
1-249-5	Labor	61 04		
	Material	18 45		
	Equipment Rental	2 60		

	Other Charges	18080
		26289

Engineering & Inspection All Wells

1-232-9	Labor	47455
	Material	-0-
	Equipment Rental	864
	Other Charges.	2500
		50819

	Grand Total	1429955

Attachment

CITY OF SAN DIEGO

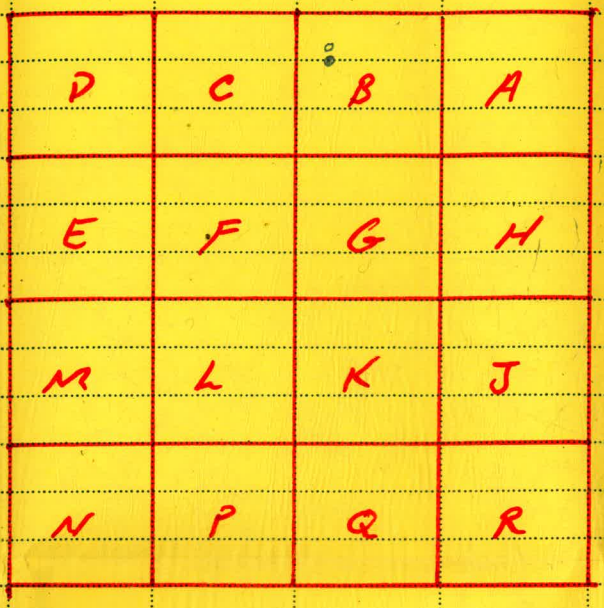
ESTIMATING SHEETS

SUBJECT To Howard Beatty

By _____

Date _____ 19 ____

No. _____



FORM CE-291

1888

1326.35
322.43
1648.78

1326.35
749.85
2076.20

333 73

2' on gage

328.89

1326.35
1190
2516.35

785.20
115
900.20

1190
4.75
22.5
333.64

1167.50
2493.85
393.32
2887.17

1167.5
918.54
248.96
22.5
271.46

1326.35
13147
11.65

8+14 5

TR 8+25 5
8+85 ℄

15+27 ℄ 5' irrig ditch

TR 15+83
16+2 ℄

14+93 20 { ℄ - 4' irrig ditch
89°30 LT 161 ± to well
LT 105 to ℄ 6' irrig ditch
LT 112.5 to Fence }

1+00 { 114 LT BW Fence
111 LT ℄ 6' irrig ditch }

0+39 ℄ 10' irrig ditch
0+18 ℄ 10' irrig ditch

37+55 end

38+77 Ad ℄
305' So to
N edge
Conc
Church

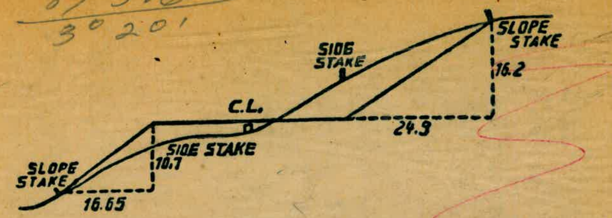
MH
5 684+75

350.64
EL

208 ℄
282 9
12°03
9°28

92 78
89 586
3° 201

161.4
.0087
11298
12912
140418



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1½ TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.20	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50