

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.

City of S.D.

Water Eng
9th Floor

Please Return to
City of San Diego Water Dept.
Room 903 Civic Center

MICROFILMED

JAN 16 1965

168
2005
840

145
2004
580

125
0067
875
750
8375

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	.79	.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	.771	.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	.885	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		

Suth-SV Composite of line

reference

by Tes King

Pages - 2-19

New Profile Sutherland SV

PL. 28+41.14 to 30+86.05

TRaverse From End of SUTHERLAND CONDUIT TO MAIN SAN VICENTE CREEK

Continued above Ham

& Profile Hamlet Crossing

& Profile KIMBALL Crossing

Add'l benches are found in FB 816
 Pgs 56-60

50' 30°39'

35' 16°37'

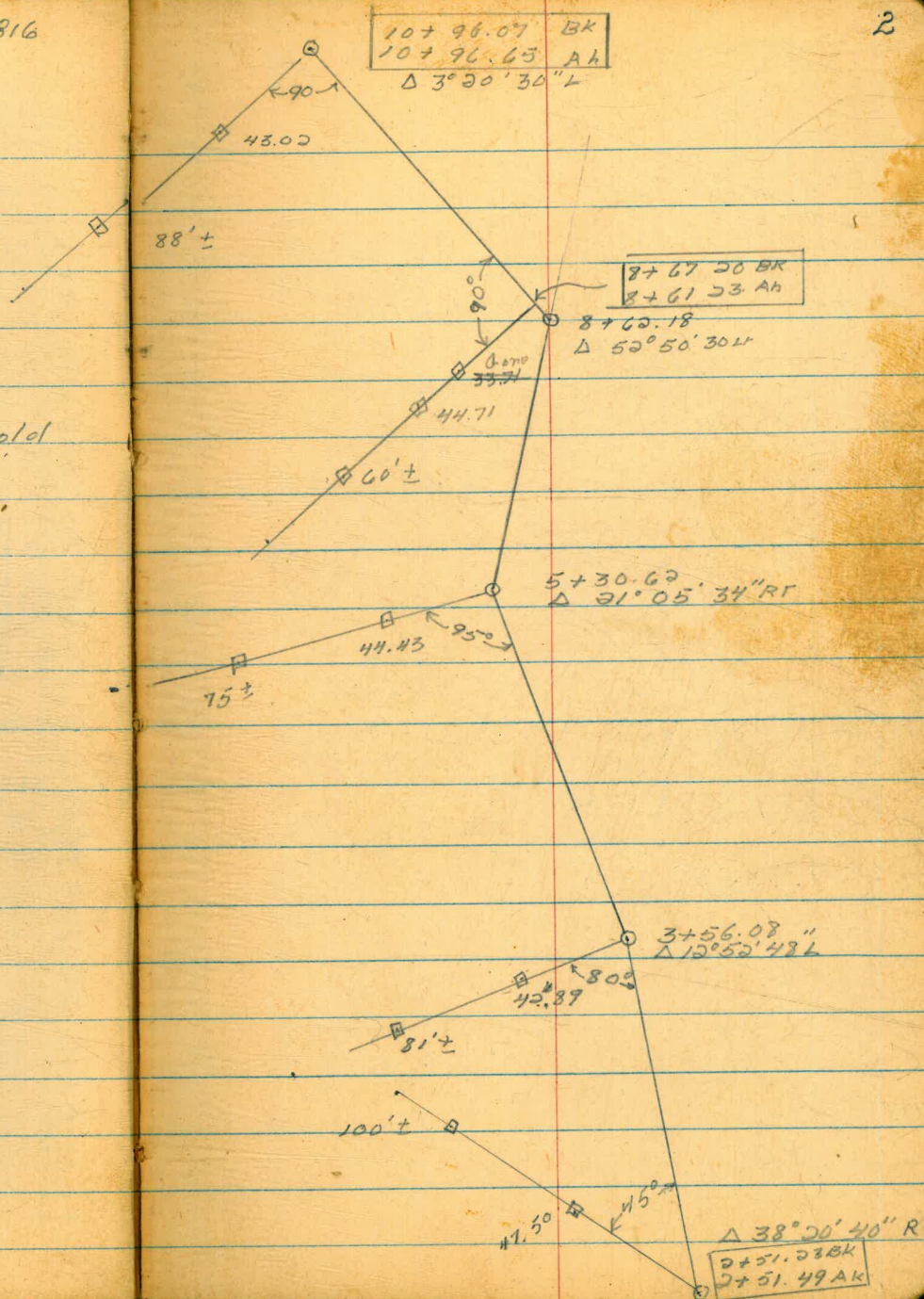
46' 15' 15°20'

□ BM 10+96 90'± LT Along old
 fence line Painted on rock,
 Elev 1985.00

50' 27°18'

50' 30°56'

50' 18°10'



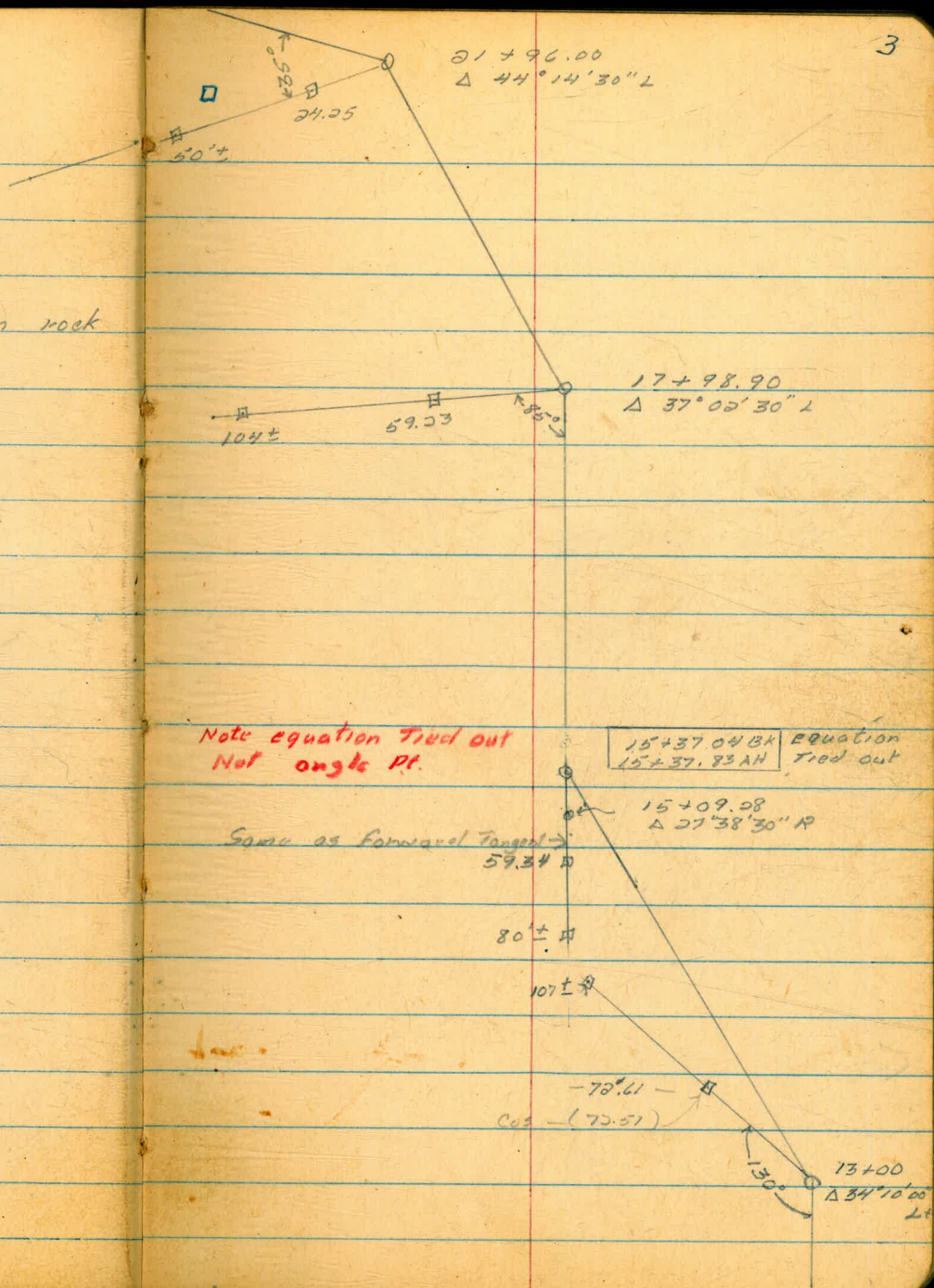
25' 14° 02'

□ BM 22+30 30' Lt Painted on rock
Elev 1946.98

60' 17° 10'

60' 8° 29'

75' 14° 49'



70 13° 15'

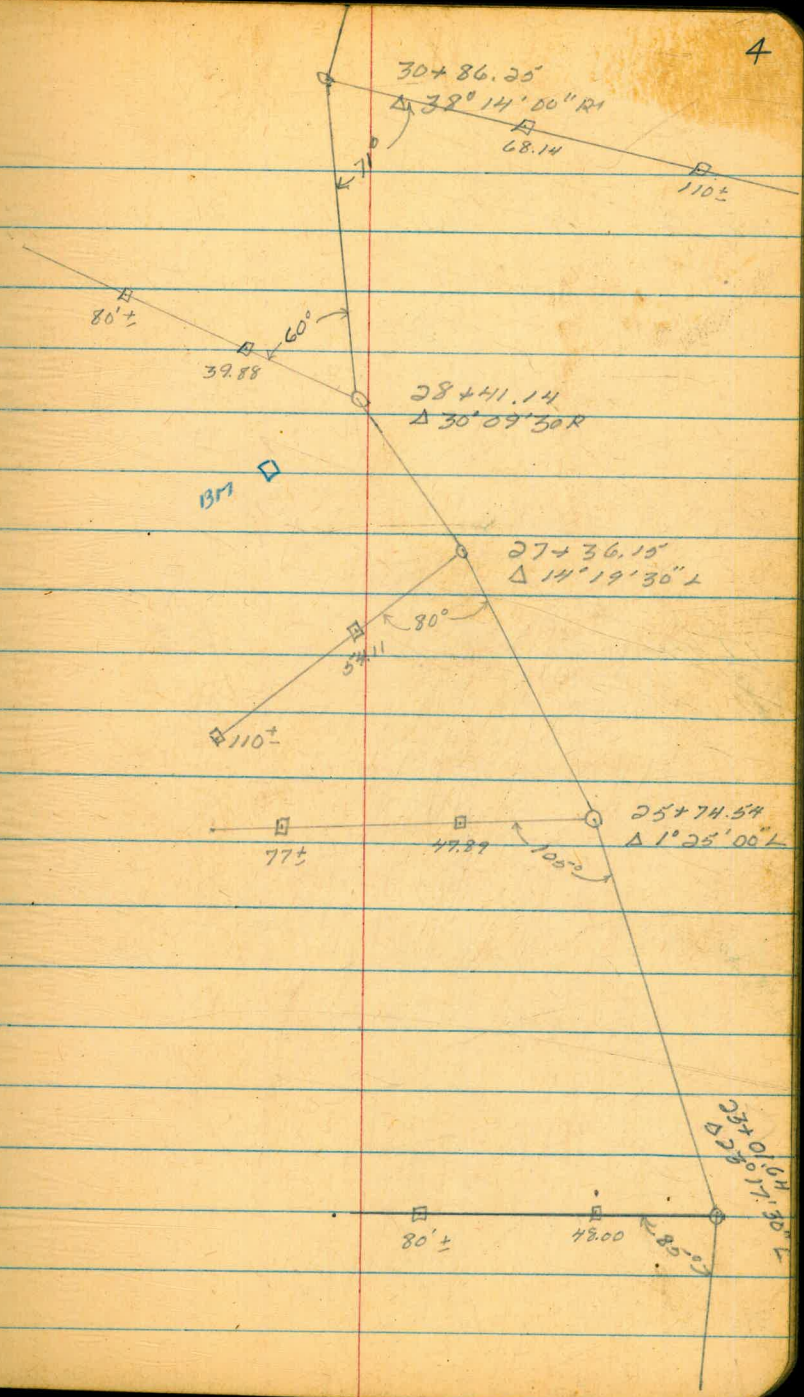
40 4° 27"

□ BM 63' 21" 28+41 Pointed on
Rock □ Elev 1921.77

60' 25° 36'

55' 29° 27'

50' 22° 38'



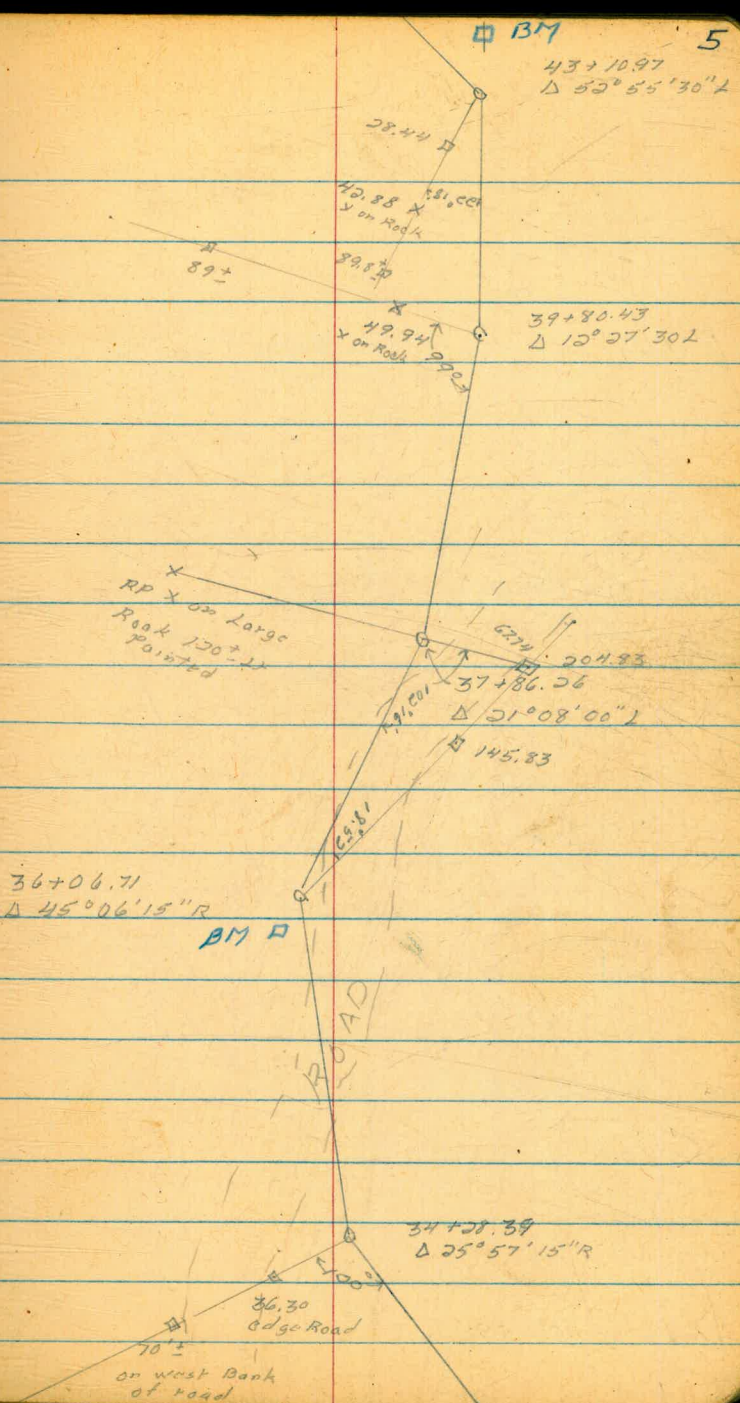
BM \square 40[±] Along bank Top 43+10.97
 painted on Rock 1910.95

59 32° 10'

71.74 19° 13'

BM [#] 3 painted on rock by
 side of road.

44 34° 25'



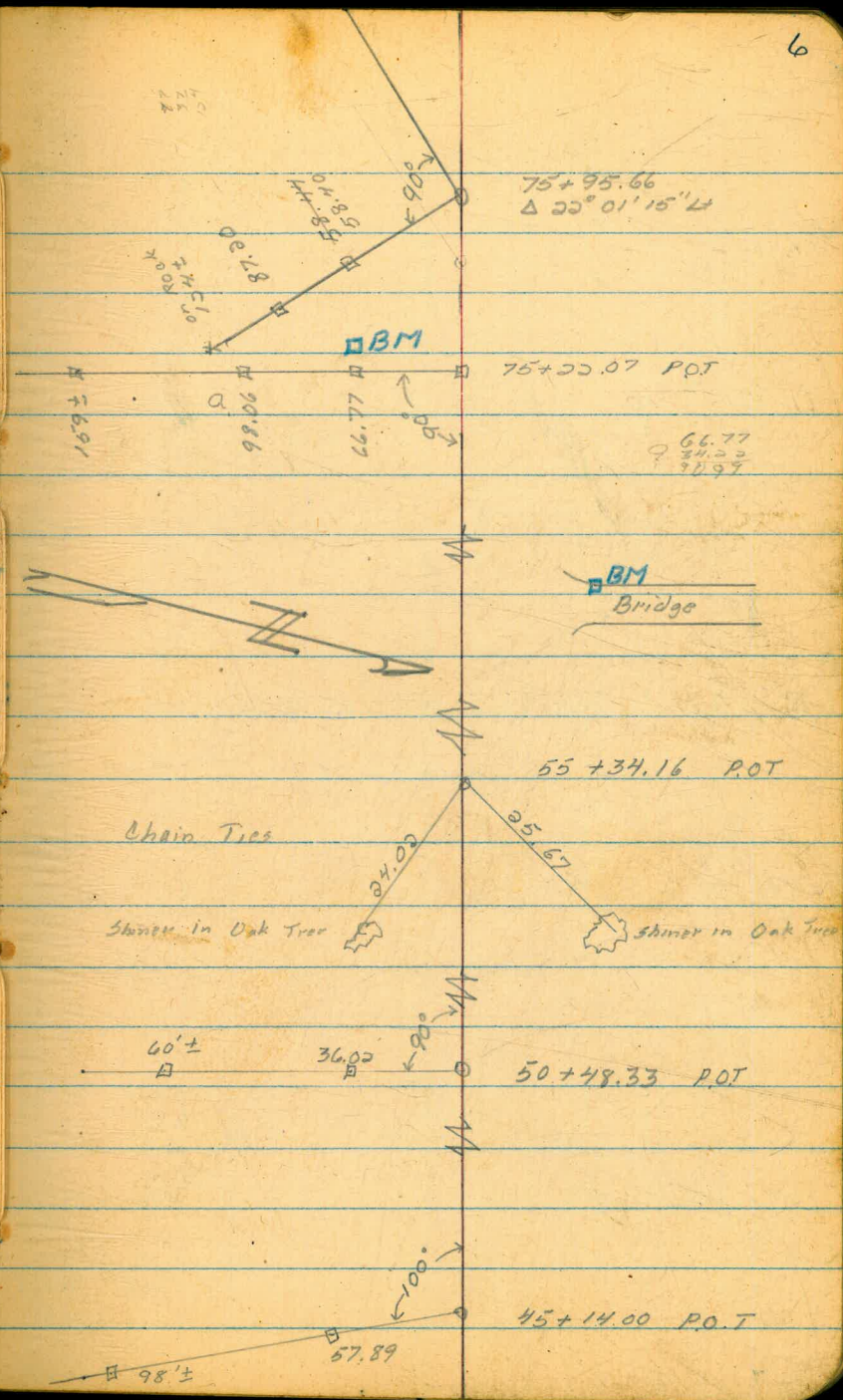
30' 16° 32'
 60' 13° 15'
 BM □ 60' Lt 75+25 painted on rock Elev 1943.81
 33.50 15° 26'
 70' 17° 28'

Dis. Betw Hubs
 Dist. Betw Hubs

BM □ BM #6 S.W. Cor. Bridge
 Elev 1718.82

40' 25° 46'

60' 20° 59'



65 12° 49'
39.82 9°

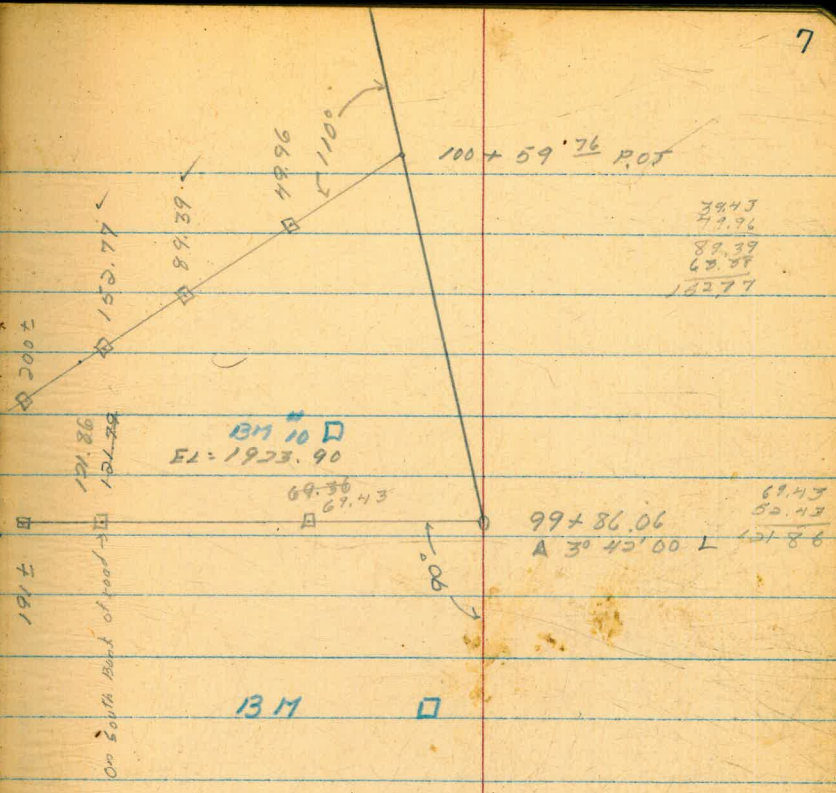
2nd + 3rd Hubs
1st + 2nd Hubs

□ BM # 10 on south edge road painted on rock

52.87 7° 03'
70' 7° 44'

betw 1st + 2nd Hubs

□ BM 90 + 35 ± 20 ± ft Painted on rock
Elev 1678.16

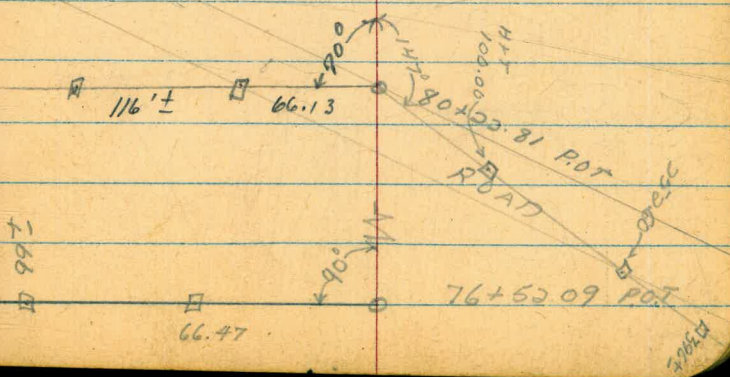


39.43
42.96
89.39
67.39
122.77

69.43
52.43
98.14
A 30.45
100.00
101.86

153' 4° 08'

Between first hub + Sec



68' 12° 11'

66.47

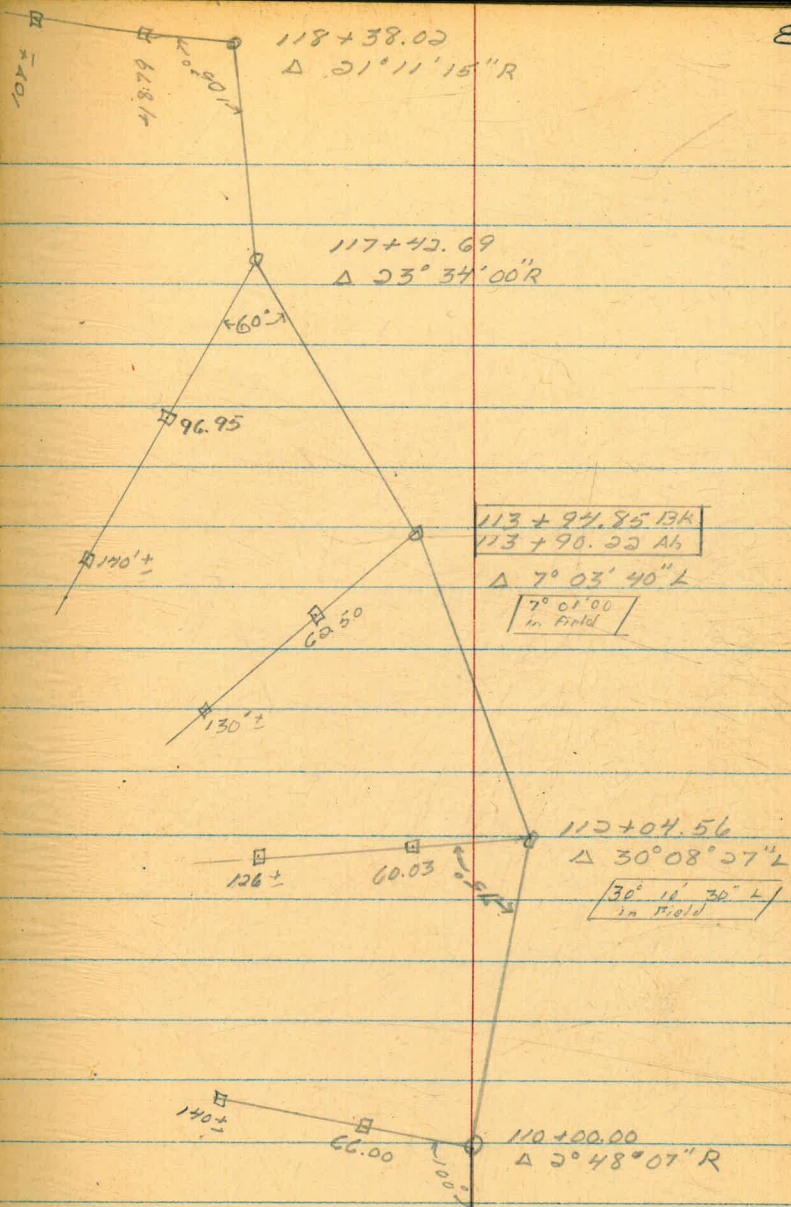
55 27° 29'

101 16' 17"

66 18° 45'

65 22° 33'

70' 19° 26'



52' 26° 22'

60.92 24° 46'

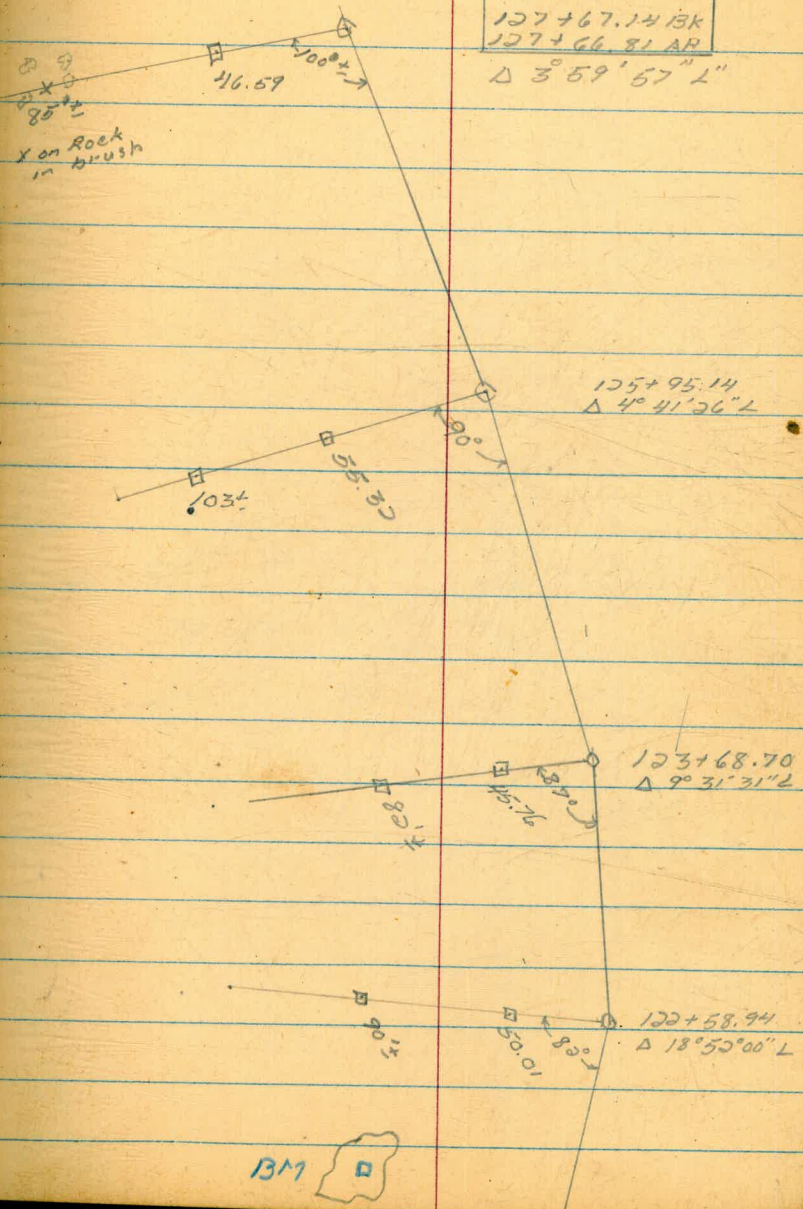
54' 32° 04'

57' 28° 41'

BM □

60' ± Lr 119+00
Elev 1903.87

pointed on Large Rock



BM □

143+52.4

Sta 144+40
North Portal

144+19.44 Old Hub

93.97

Line Only

51.64



BM nail in
Large Oak Tree

143+68.19
 $\Delta 9^{\circ}23'20''$

EI 1935.90

70.01

70.01

100±

143+00.00 AH
130+55.53 BK

BM A

78' 26° 10'

60± East of BM in Oak

tree A painted on rock

EI 1943.66

BM 160° Right 223+51.95

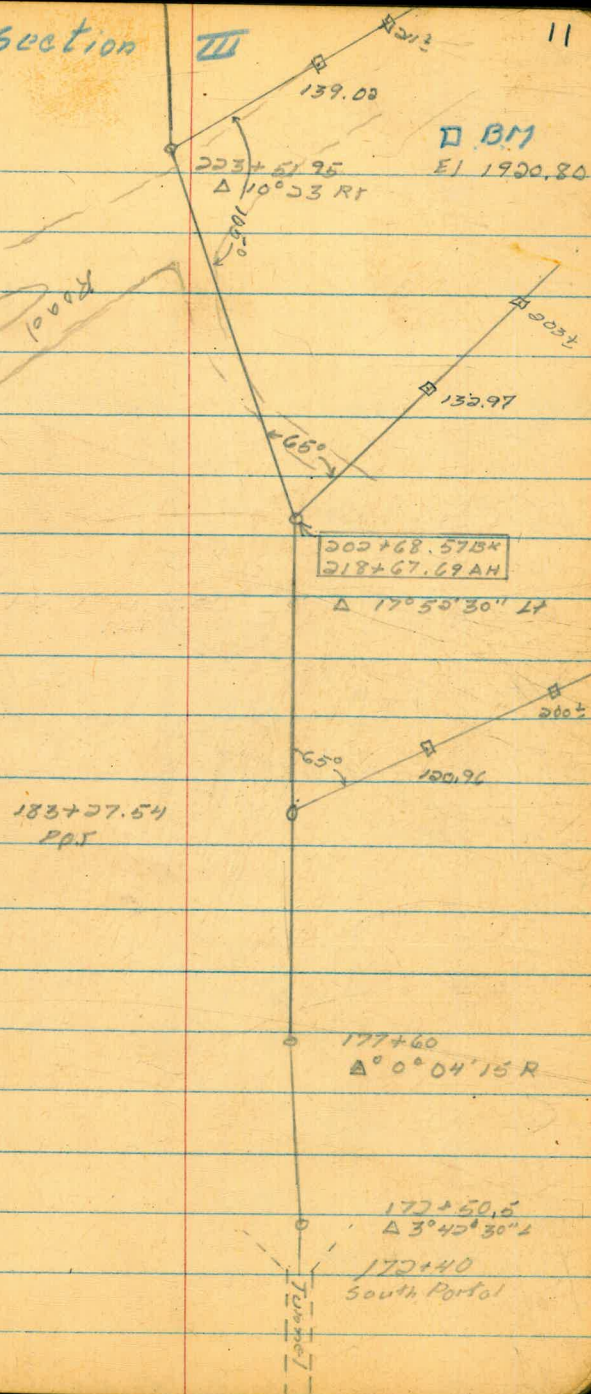
140' 6° 47'

133 1° 13'

121' 1° 30'

Section III

11

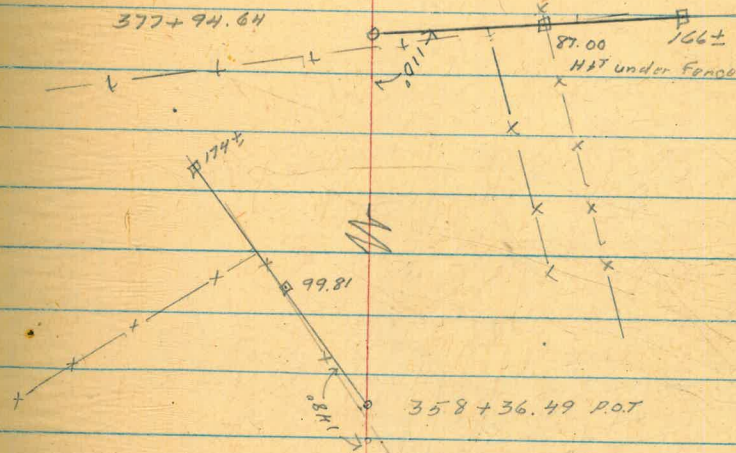


BM D 120' ± RT 380+37
 Painted on Large rock
 EL 1461.13

397+65.12 PI
 200.00 100.00

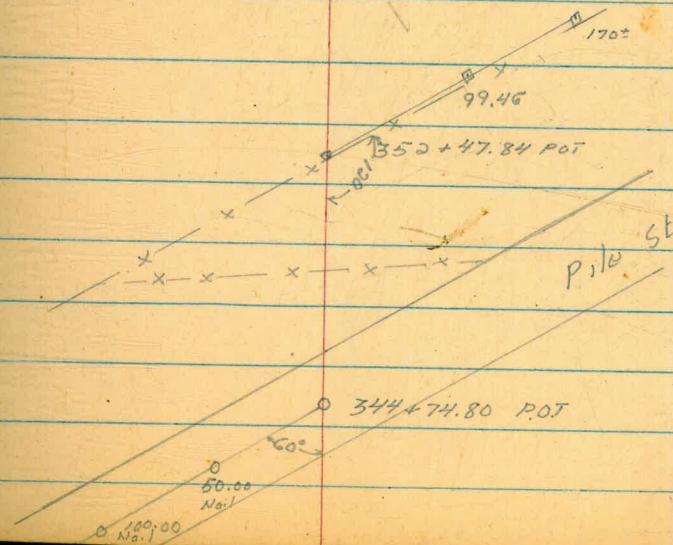
Δ $1^\circ 28' RT$
 $R = 2000'$
 $T = 112.98$
 $L = 225.74$

BM



100 3° 31'

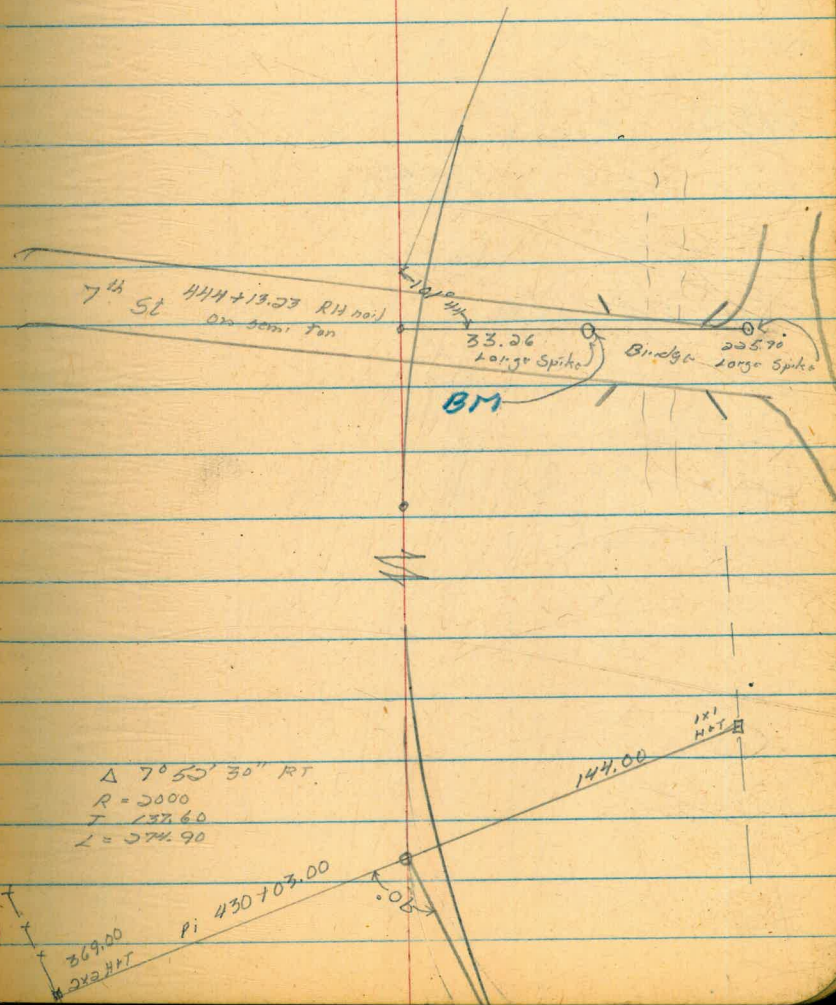
100 5° 59'



50.00 Nail
 100.00 No. 1

BM BM on First Large R.P. Spike

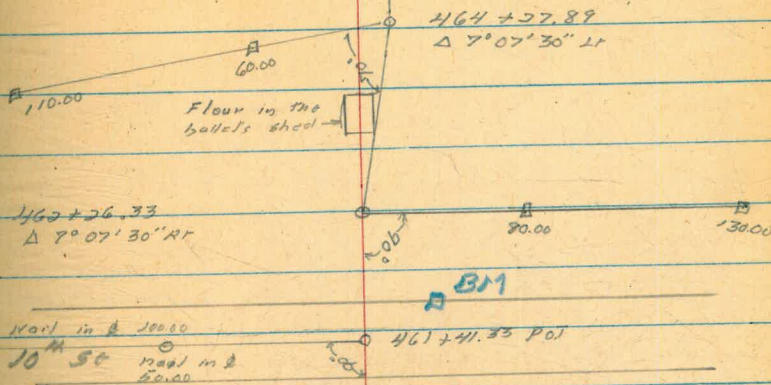
El 1409.88



BMD SW. Cor. Cond Spillway
 EI 1420.76

464+50
 $\Delta 7^{\circ}07'30'' \text{L}$

65.00
 115.00
 15
 100' Fence Lim



456+00.00 AH
 456+69.02 BK
 $\Delta 5^{\circ}05'23'' \text{RT}$

455+38.69
 $\Delta 5^{\circ}05'23'' \text{L}$
 Well Sump

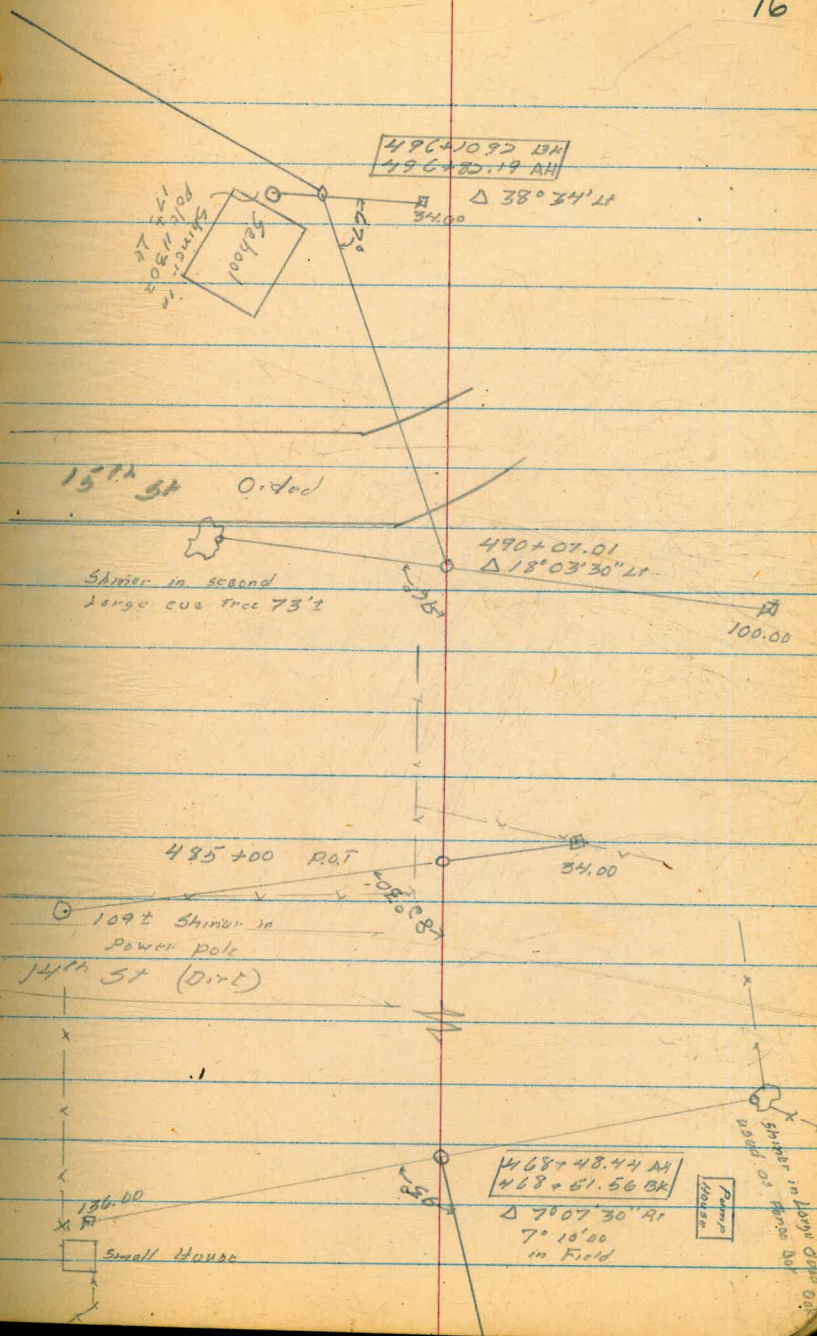
454+78.09 L
 $\Delta 30^{\circ}00'35'' \text{L}$

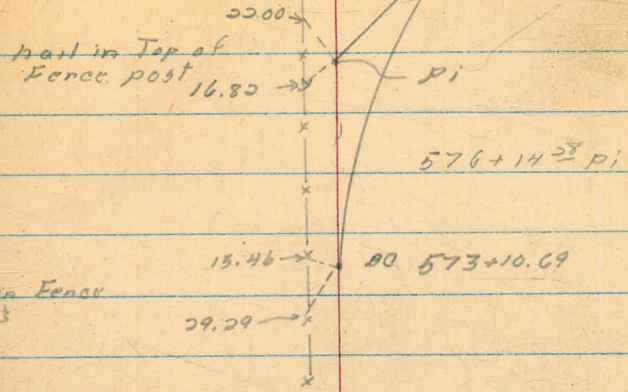
$\Delta 30^{\circ}00'35'' \text{RT}$

451+80.00

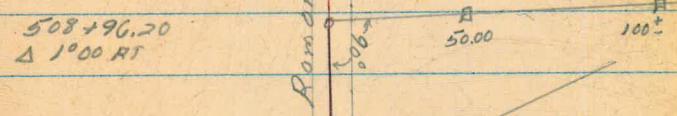
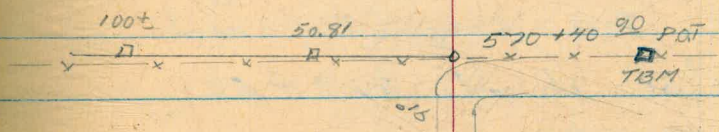
Sub under Fence
 Line only

90.00 under Fence





4°54' 51'
 TBM Fence post 70' Right 570+40.70
 spike in post 1474.74



State Highway #78

BM U.S.G.S
 Nail in Tree 27.00

Chain Ties

nail in post 11706 2.55

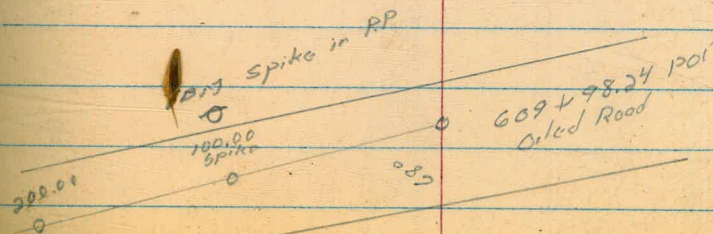
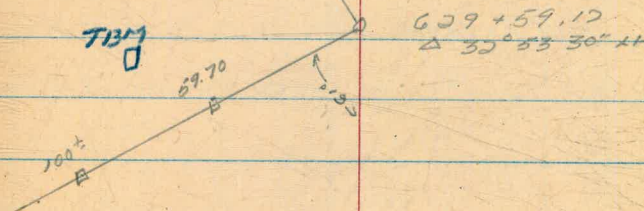
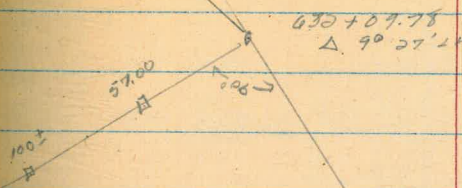
BM 0 U.S.G.S. 20' Lt. 506+10
 E1 1416.80

506+00
 Δ 1°00 Lt

5°45' 60

TBM Top Large Flat rock
 100' Lt of Sta 629+59
 1467.92

TBM Spike in power pole # 215402
 100' Lt of 609+98 1429.08



TBM's

19

Sta	+	H ₁	-	Elev
	0.91	1482.63		1481.72
			7.89	1474.74 ✓

2" IP 570+40.90

TBM 70' Right of 570+40.90

Spike in Fence post

	4.88	1433.13		1428.25
			4.05	1429.08 ✓

609+98.24 P&T in road

Spike in Power pole #215402

100' Lt of sta

	11.25	1460.47		1449.22
	9.96	1470.38	0.05	1460.42 ✓
			2.46	1467.92 ✓

Sta 629+59¹² 1" IP

TBM Top large flat rock

100 Lt of sta 629+59

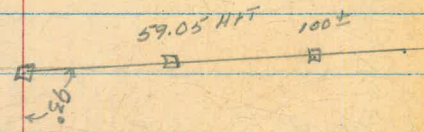
21.21
2.01
19.70

2.51

10.20	271
11.81	0.60
22.01	3.31
331	
1970	

60' @ 10° 14'

Sta 637+96.76
End of Pipe Line



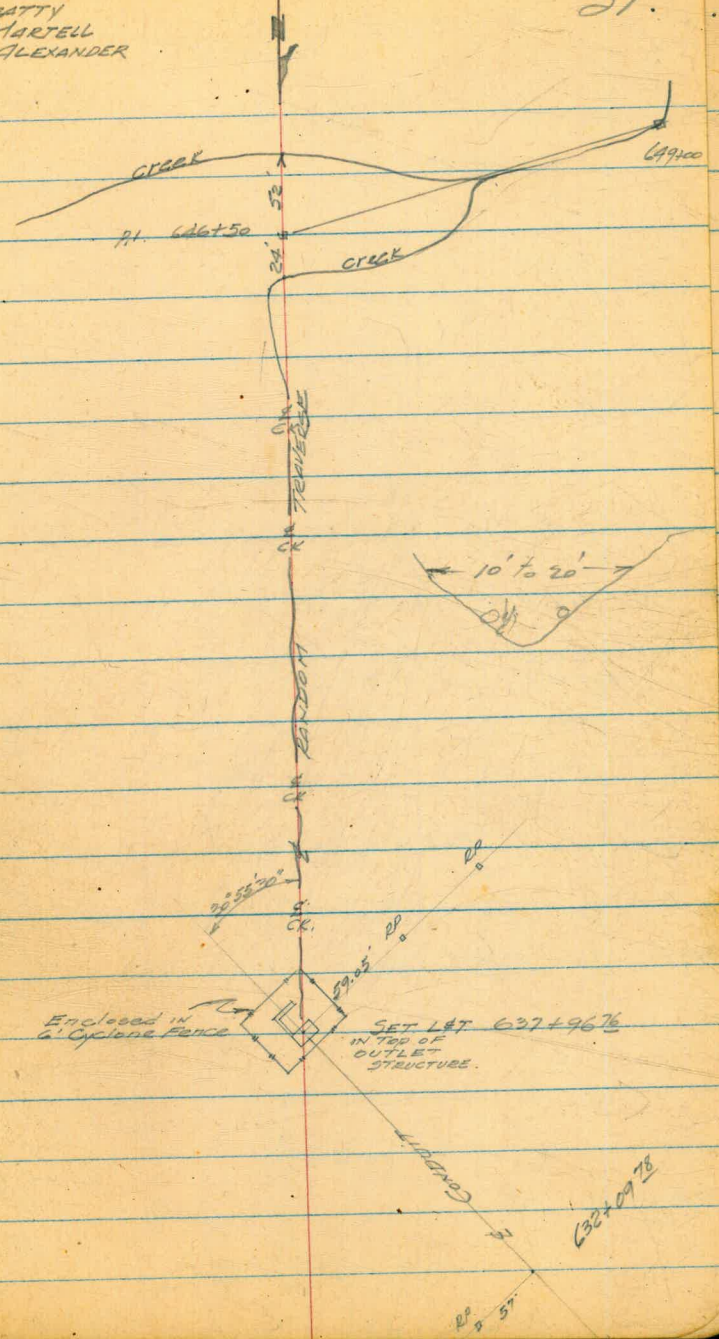
Ø Pipe Line

TRAVERSE FROM END OF
SUTHERLAND CONDUIT TO
MAIN SAN VICENTE CREEK

OCT. 28, 1953
BEATTY
MARTELL
ALEXANDER

51.

STATION	DEF. \angle	MAG. BRG.
646+50 P.I.	1. $63^{\circ}22'30''$ RT 2. $126^{\circ}45'$	$544^{\circ}00'W$ Comp. $43^{\circ}43'$
(647+02 $\frac{1}{2}$ CREEK.) (646+26 $\frac{1}{2}$ CREEK.)		
644+66 ⁰¹ POT.	85.02 95.37 $100' @ 17^{\circ}30' = 95.37$	$519^{\circ}25'E$ $19^{\circ}29'30''$
644+03 ⁴³ P.I.	63.18 1. $41^{\circ}25'$ LT. 2. $82^{\circ}56'$	
643+67 ³⁷ POT.	36.06 $38' @ 18^{\circ}26' = 36.96$	
642+90 P.I.	1. $25^{\circ}48'30''$ RT 2. $51^{\circ}37'$	$521^{\circ}30'W$ $21^{\circ}45'30''$
639+00 P.I.	1. $15^{\circ}37'30''$ LT. 2. $31^{\circ}15'$	$54^{\circ}15'E$ $4^{\circ}03'$
637+96 ⁷⁶ P.I.	1. $30^{\circ}55'30''$ RT 2. $61^{\circ}51'$ (Double)	$511^{\circ}30'W$ Comp. $11-34-30$
CONDUIT ROW. File 5662-W Sheet 28.		($519^{\circ}21'E$)
632+09 ⁷⁸		



SUTHERLAND CONDUIT - Creek Traverse
(Cont'd.)

10/28/53

22.

STATION

(CONTINUED ON Pg 24)
DEF X

MAG. BRS

656+00 P.O.T.

656+30 @ CK 50' RT
655+50 @ CRK 59' RT

654+93 P.O.T.

1. 15°20' LT.
2. 30°20'

653+10 P.I.

90' @ 10.15' = 88.56

650+98 P.O.T. (NAIL IN LARGE BOULDER)

1. 31°13' LT.
2. 62°20'

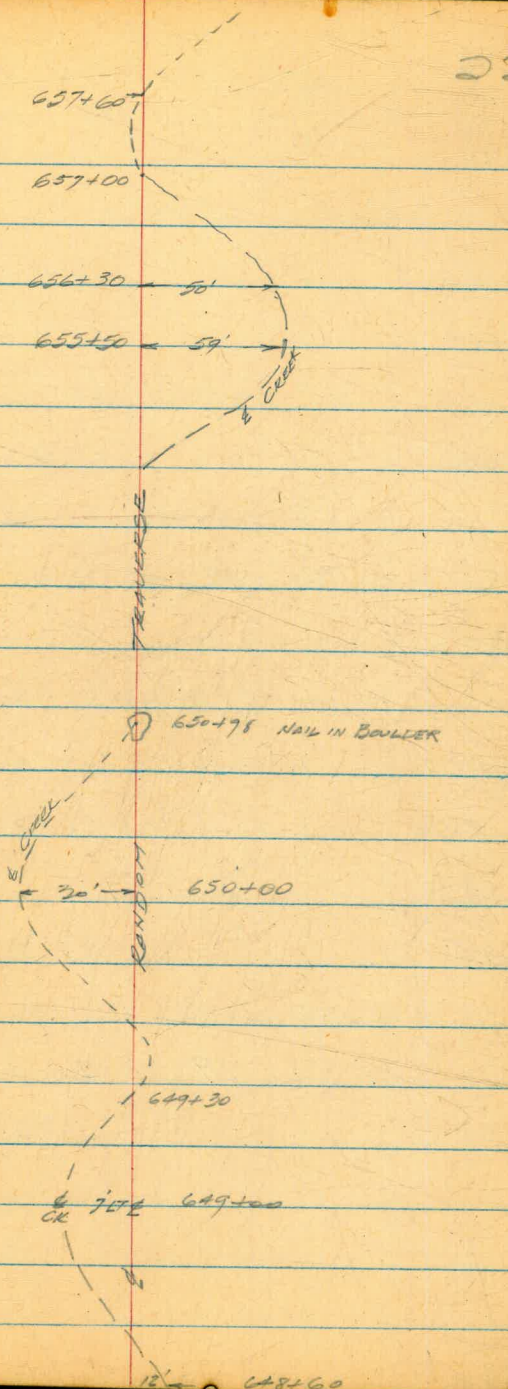
649+00 P.I.

100' @ 9.25' = 925.00

5°3'15" E
Comp. 2°50'

12°30'
512°30' W

Comp. 43°43'
544°00' W



New Profile Sutherland SV P2.

Sta 28+41.14 to 30+86.25

(This area has been bonched by
American Pipe) - Elev

West
Williams
Varanfakis
Kemp

7-8-53

23

Sta	0.17	1921.94		1921.77
28+41.14		7.3		1914.6
+50		10.1		1911.8
	0.75	1909.62	13.07	1908.87
29+00		12.9		1896.7
	0.87	1898.49	12.00	1897.62
+50	0.30	1887.37	11.42	1887.07
+50		5.0		1882.4
	0.11	1876.43	12.05	1875.32
30+00		5.15		1870.2
+50		16.0		1859.4
+75		18.6		1856.8
30+86 ²⁵		17.3		1858.1
	12.84	1887.51	0.76	1874.67
	12.88	1898.79	1.60	1885.91
		0.76	1898.03	=

BM # Painted on rock

1898⁰⁷ BM #3

SUTHERLAND CONDUIT - Creek Traverse
(Cont'd.)

10/29/53

24



3 10' 00" W
Comp. 10' 32"
1. 20° 22' RT.
2. 40° 44'
664+14 P.I.

664+25
2. 663+95
663+37 E CRK

1. 30' 40" LT.
2. 61° 20'
5 9' 45" E
9' 50"
662+60 P.I.

20. 662+90
662+60 E CREEK
662+60

25. 662+00
661+58 E CREEK

25. 661+00

659+65 E CREEK

5 20' 15" W
20' 50"

659+65 E CREEK

1. 23° 40' RT.
2. 27° 20'
659+46 P.I.

659+03 30' CREEK

658+03 P.O.T.

Comp. 2° 50'
9 30' 15" E

658+03 21'

(Continued from pg. 22)

657+00

SUTHERLAND CONDUIT
CREEK TRAVERSE
(Cont'd.)

10/29/53

25.

671400 P.I.
1. 2°15' LT.
2. 4°30'

31°5'E
Comp 0°35'

668400 P.I.
1. 8°08' RT.
2. 16°16'

51°0' W
1°40'

666+28 P.I.
1. 17°00' LT.
2. 34°00'

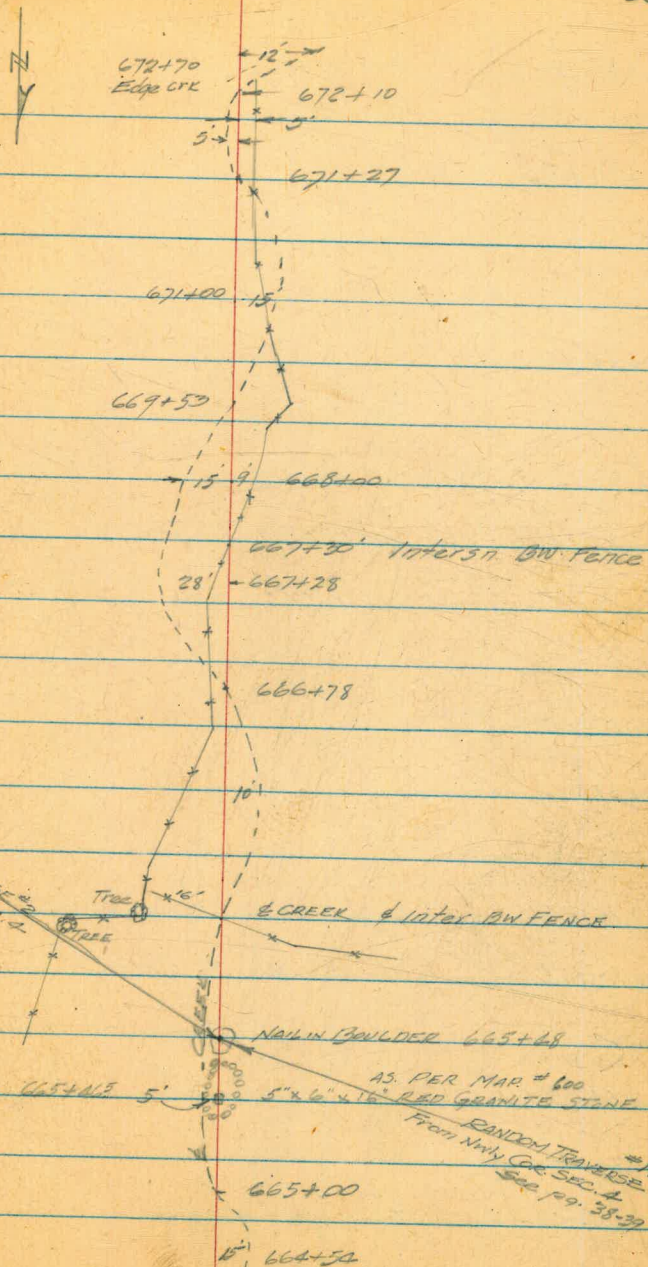
57°30'E
6°58'
Fen. Close

665+69 Intersectn of Creek & 4-STRAND BW FEN

665+48 P.O.T.

665+46.5 P.O.T. 5"x6"x16" Red Granite Stone

Comp. 10°35'
51°00' W



SUTHERLAND CONDUIT
CREEK TRAVERSE (Cont'd)

11-12-53
BEATTY
SHREVEY
MARTELL
ALEXANDER

26

681+00

Intersn. & Creek

1. $12^{\circ}10'30''$ Lt.

$57^{\circ}30'$ W.

2. $38^{\circ}21'$

Comp. $8^{\circ}09'30''$

680+55 P.I.

678+57

677+20

Intersn. & Creek

$526^{\circ}45'$ W.

$27^{\circ}20'$

1. $24^{\circ}25'$ Rt.

2. $48^{\circ}50'$

677+00 P.I.

675+75

Intersn. & Creek

$52^{\circ}15'$ W.

$2^{\circ}55'$

675+37

Intersn. & Creek

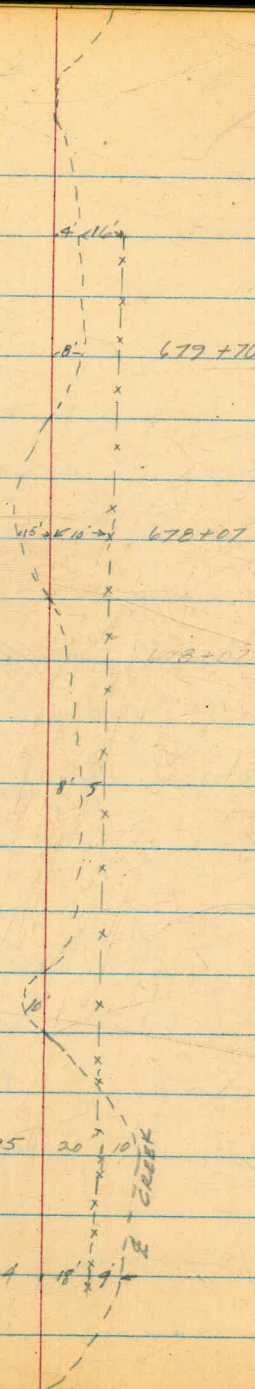
1. $3^{\circ}30'$ Rt.

2. $7^{\circ}00'$

674+54 P.I.

673+34 P.O.T.

$51^{\circ}15'$ E
Comp. $0^{\circ}35'$



JUTHERLAND CONDUIT
CREEK TRAVERSE
(Cont'd)

11-12-53

27

689+50 P.O.T.

S 6°00' E
Camp 5°33'

687+00

P.T. P.T.

1. 13°42'30" Lt.
2. 27°25'

S 27°15' E
5°33'

(Too Close
to Fence)

686+28

Intersect. E. Creek

685+75

685+00

P.O.T.

684+71

Intersect. E. Creek

683+78

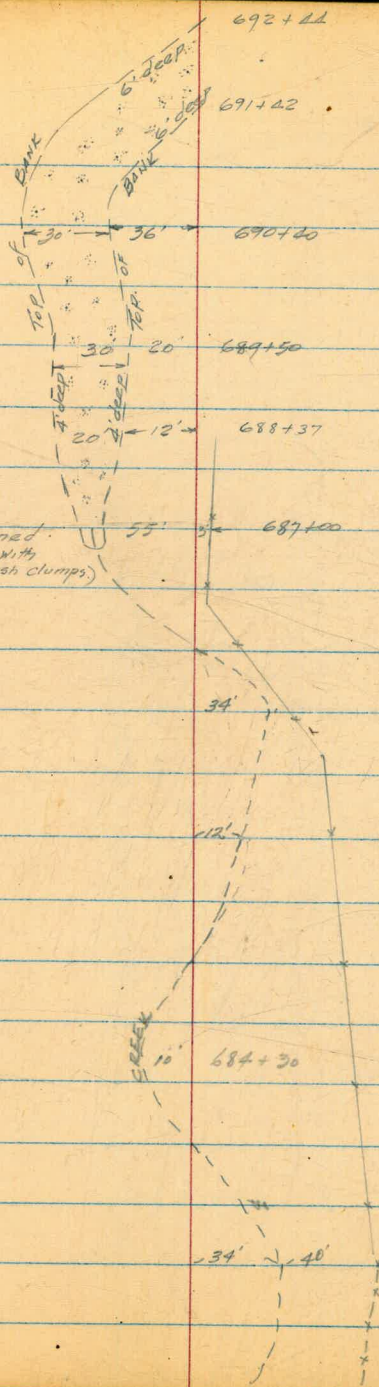
Intersect. E. Creek

682+72

P.O.T.

Camp 8°49'30"
S 7°30' W

Begin Defined
CHANNEL (with
Willow & brush clumps)



SUTHERLAND CONDUIT
CREEK TRAVERSE
(Cont'd.)

1. $26^{\circ}44'15''$ LT
2. $33^{\circ}28'30''$

699+88 P.I.

$522^{\circ}29'E$
Comp $22^{\circ}21'45''$

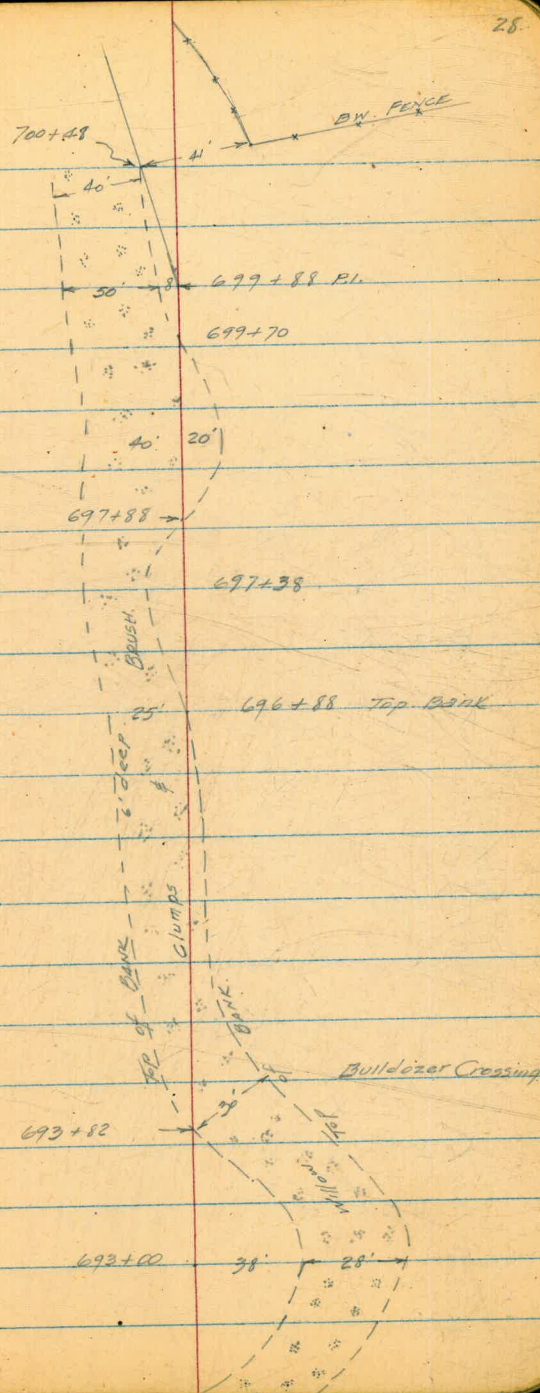
1. $10^{\circ}15'30''$ RT
2. $20^{\circ}31''$

693+00 P.I.

$54^{\circ}15'W$
Comp $4^{\circ}42'30''$

11-12-53

28



SUTHERLAND CONDUIT
CREEK TRAVERSE
(Cont'd.)

11-13-53

29

713+00 POT

1. 4° 21' RT.
2. 9° 22'

706+00 P.I.

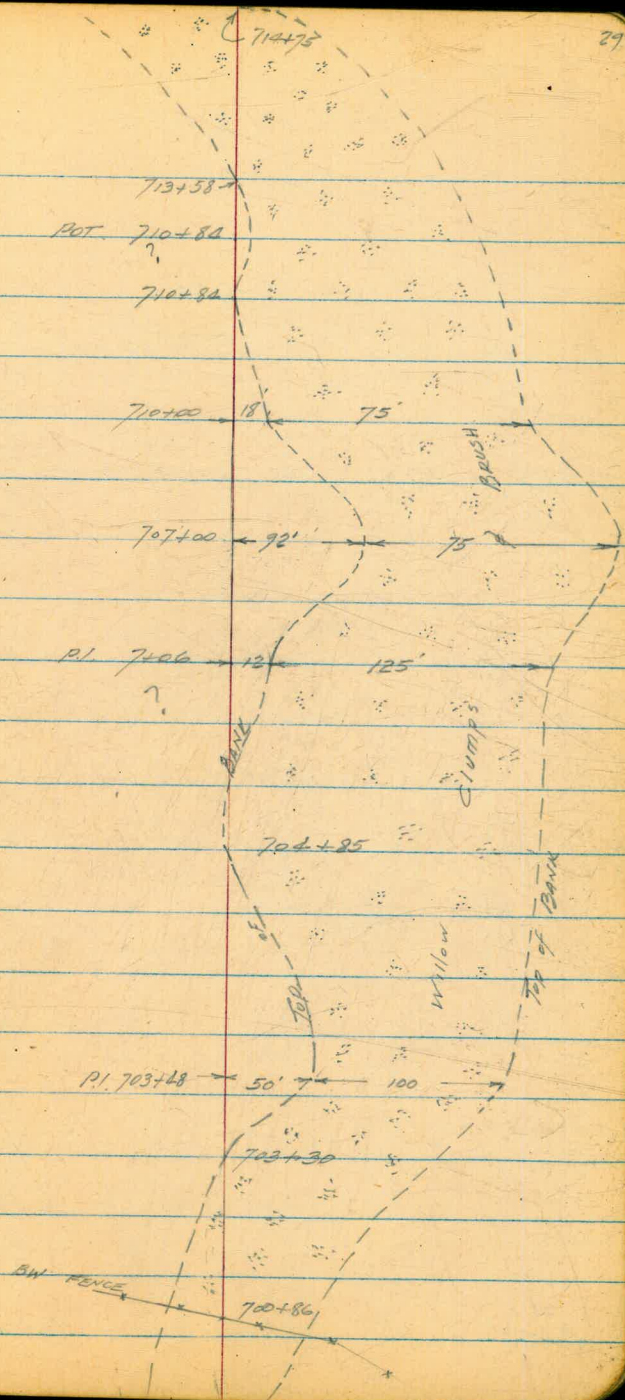
1. 16° 27' 30" RT.
2. 33° 35'

703+48 P.I.

Comp. 22° 1' 25"
322° 29'E

51° 00' E
0° 34' 15"

35° 25' E
5° 14' 15"



SUTHERLAND CREEK TRAVERSE
(Cont'd)

1. 2°09' LT
2. 6'18"

725+77 P.I.

724+00 P.O.T.

1. 12°52' RT
2. 25"

721+00 P.I.

718+00 P.O.T.

1. 33°27'30" LT
2. 67'15"

715+00 P.I.

524°50'E
Comp 24°28'

521°45'E
21°19'45"

21°19'45"
521°45'E

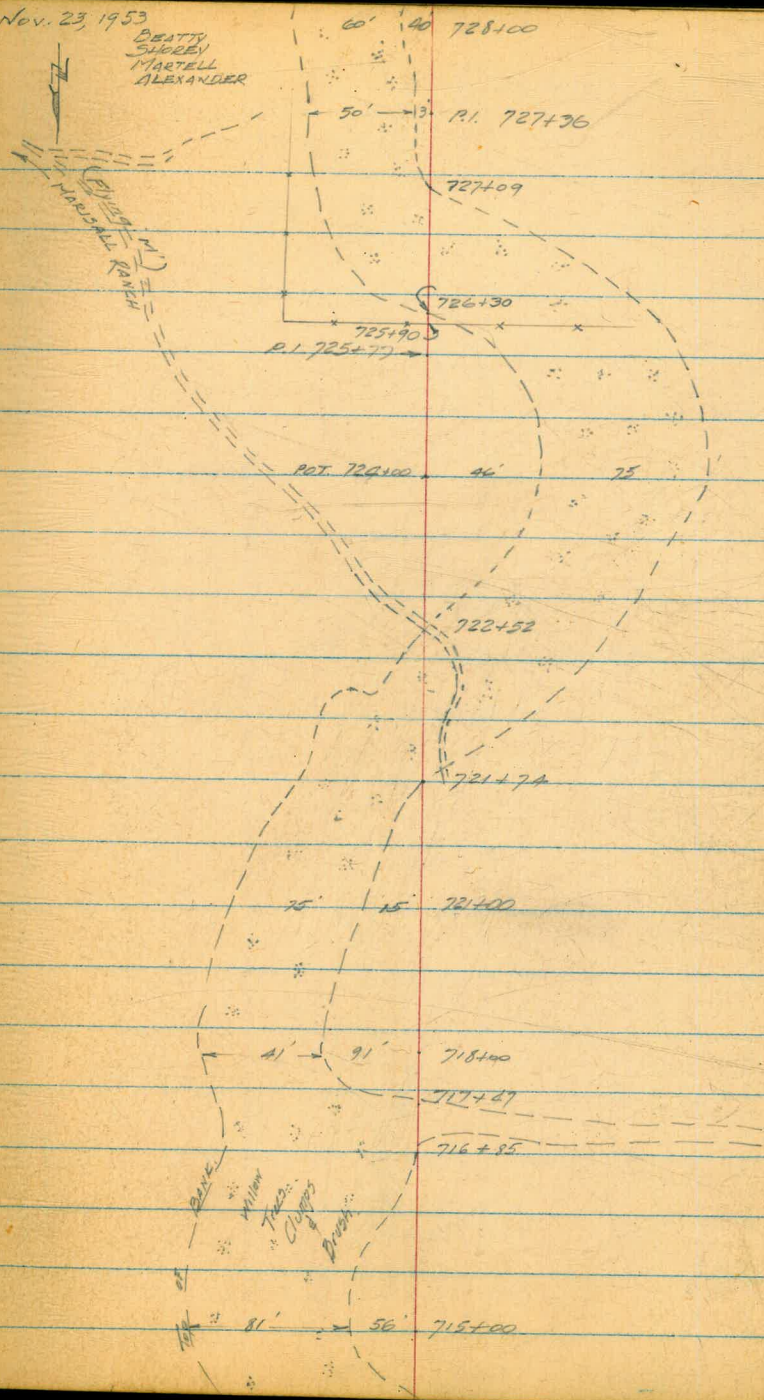
534°25'E
24°11'45"

24°11'45"
534°25'E

Comp 51°00'E
09°41'15"

Nov. 23, 1953

BEATTY
SHOEN
MARELL
ALEXANDER



JUTHERLAND CONDUIT
CREEK TRAVERSE
(Cont'd)

11/23/53

31

738+00 POT.

1. $91^{\circ}26'$ RT
2. $182^{\circ}52'$

735+12 P.I.

S $31^{\circ}20'$ W
Comp $31^{\circ}10'30''$

733+27 P.I.

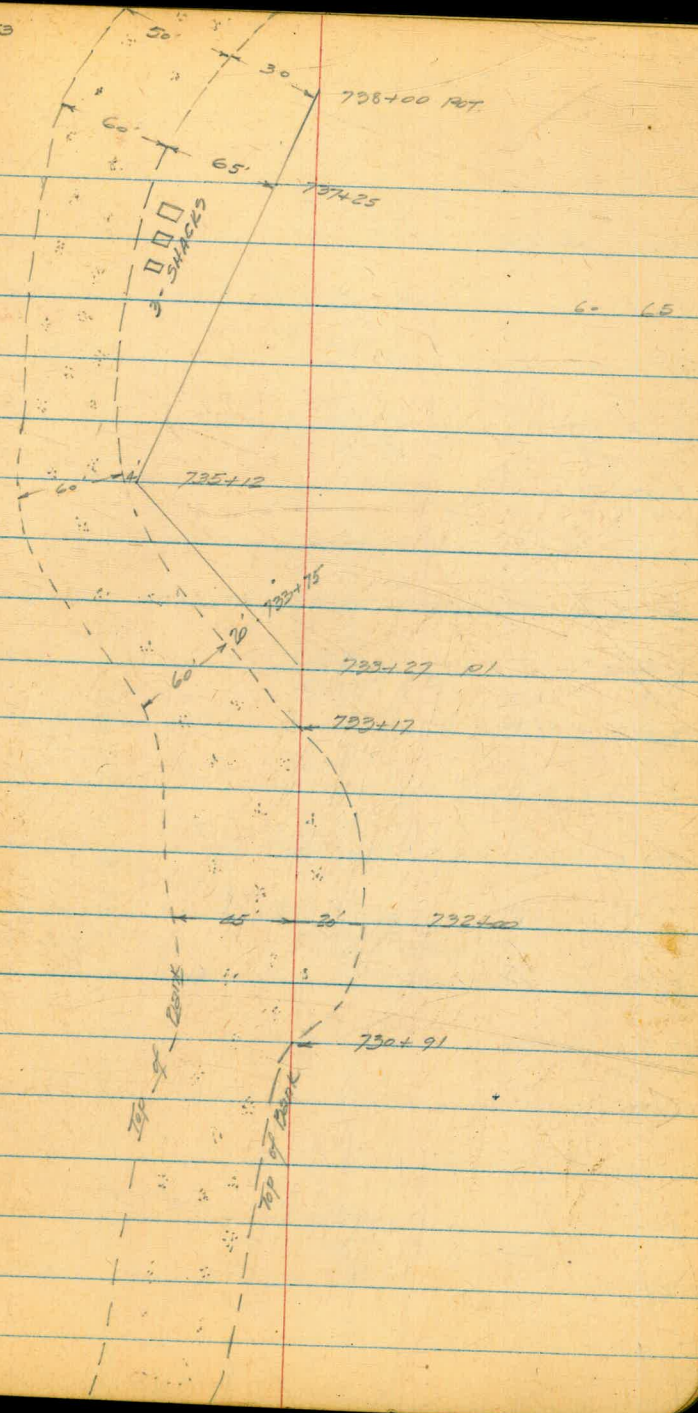
1. $79^{\circ}27'$ LT
2. $158^{\circ}54'$

S $60^{\circ}36'$ E
Comp $60^{\circ}15'30''$

727+36 P.I.

1. $43^{\circ}40'15''$ RT
2. $87^{\circ}20'30''$

Comp $19^{\circ}25''$
 $519^{\circ}00'$ W



SUTHERLAND CONDUIT
CREEK TRAVERSE
(Cont'd.)

11/24/53

32.

751+65 P.I. 1. 26°33' LT.
2. 53°06' 561°45' W
Comp. 61°42'30"

749+65 POT 588°15' W
88°15' 30"

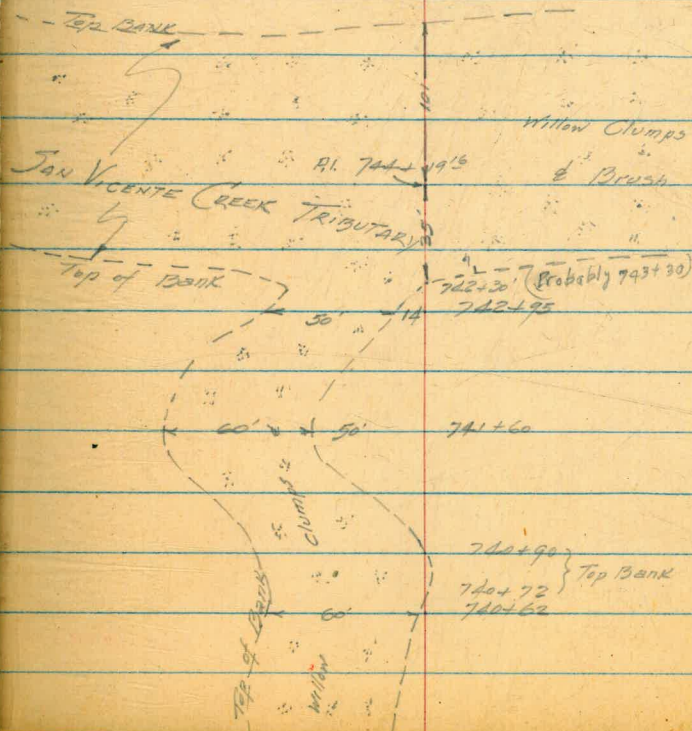
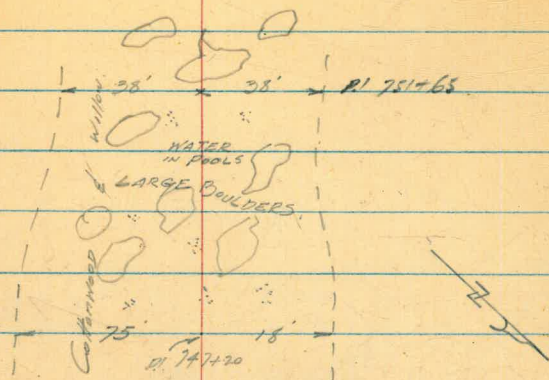
747+20 P.I. 1. 33°49'15" RT
2. 61°28'30"

744+19¹⁰ P.I. 1. 48°51'15" RT
2. 77°42'30" 554°30' W
54°26'15"

125' @ 6°39' = 119.16 55°15' W
5°35'

742+95 P.I. 1. 16°12' LT
2. 32°24' 521°45' W
21°47'

740+62 P.I. 1. 9°23'30" LT
2. 18°47' Comp. 31°10'30"
5 31°00' W



SUTHERLAND CONDUIT
Creek Survey
(Cont'd)

763+16 P.O.T.

S. 44° 15' W.
Comp. 43° 57'

1. 17° 36' 30" Lt.
2. 35° 93'

760+60²⁹ P.I.

(238 @ 4° 16' = 237.33)

S. 61° 45' W
61° 33' 30"

1. 19° 46' 15" Rt.
2. 39° 52' 30"

758+23⁶¹ P.I.

(2.97 @ 73° 55' = 205.03)

S. 42° 00' W
41° 47' 15"

1. 4° 00' Lt.
2. 8° 00'

756+18⁵⁸ P.I.

S. 46° 00' W
45° 47' 15"

1. 23° 12' 15" Lt.
2. 46° 26' 30"

754+76⁵⁸ P.I.

145.00 @ 5° 20' = 142.40

S. 69° 00' W
Comp. 69° 03'

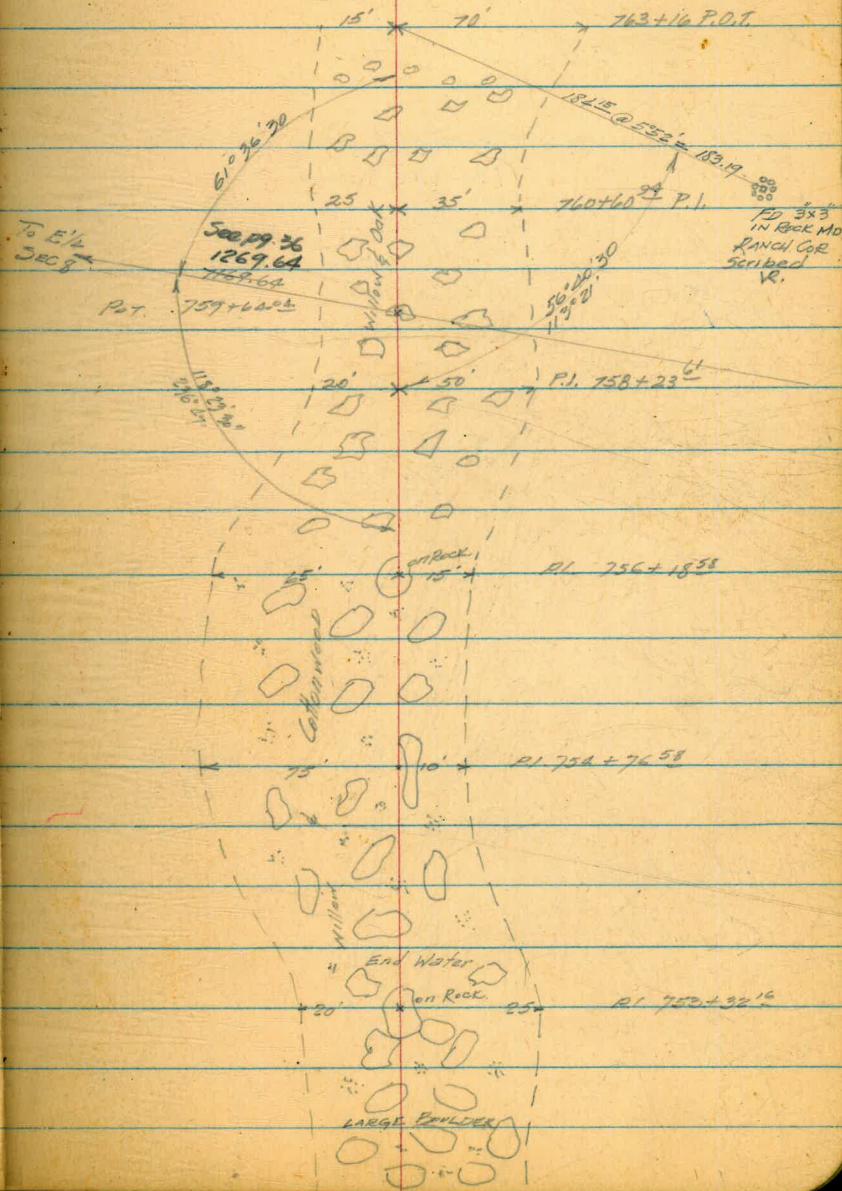
1. 7° 15' Rt.
2. 14° 36'

753+32¹⁶ P.I.

168 @ 5° 39' = 167.16

11-25-53

BRADY
SHIPLEY
MARTELL
ALEXANDER



Sutherland Conduit
Creek Survey
(Contd)

MAG. DEG

775+06 ³³

END CREEK SURVEY TRAVERSE

(183.70 @ 10°13' = 180.78)

S. 3° 45' E.

4° 22' 30" Comp

1. 36° 20' 30" Lt
2. 72° 41'

773+25 ⁵⁵ P.I.

S. 32° 30' W.

31° 58' Comp

1. 37° 31' Lt
2. 75° 02'

771+82 ⁵⁵ P.I.

(121 @ 4° 55' = 120.55')

770+62 P.O.T.

S. 70° 00' W.

69° 29' Comp

1. 25° 32' Rt
2. 51° 04'

768+30 P.I.

766+16 P.O.T

S. 44° 15' W

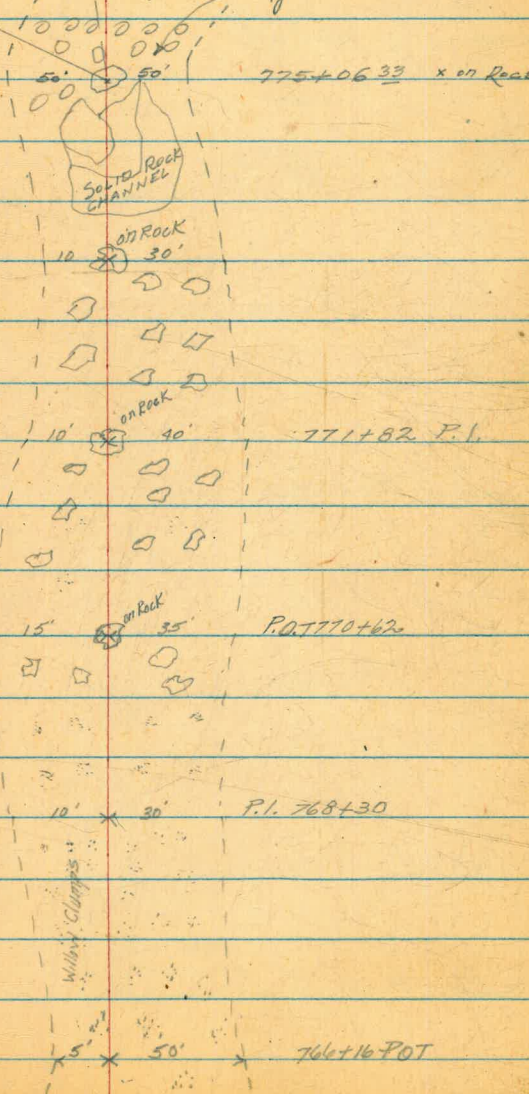
43° 57' Comp

11-25-53

Beatty
Sherry
Martell
Alexander

To E. 1/4 Sec 8

To S. 1/4 Sec 8



775+06 ³³ x on Rock

771+82 P.I.

P.O.T 770+62

P.I. 768+30

766+16 P.O.T

SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd)

DEC. 2 1953

35

Random traverse from end of creek
Traverse to E/4 Cor Sec. 8, T145 R1E

103° 16' 45" (To Close
Quality)

1. 105° 19' 30" LT.
2. 210° 39'

{ To Random Traverse
To NE Cor Sec. 8.
& P.O.T. 759+64.22

785+72 ⁴⁴

@ E/4 Cor Sec. (STONE)

785+55 ⁵⁴

(300' @ 5° 30' = 270.62)

782+56 ²² P.O.T.

779+57 ⁰¹ P.O.T.

1. 00° 01' 15" Rt
2. 00° 22' 30"

S. 75° 50' E.

76° 46' 15"
Comp.

776+57 ⁰¹ P.I.

(151.27' @ 5° 02' = 150.68)

S. 76° 00' E.

76° 27' 30"
Comp.

775+06 ³³ P.I.

1. 72° 25' Lt
2. 149° 50'

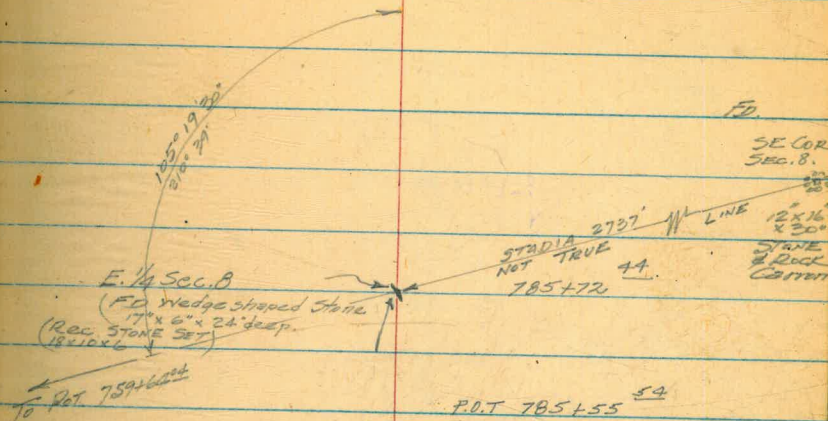
RANDOM TRAVERSE TO E/4 COR SEC 8

1066.11

P.I. 776+57 ⁰¹

P.I. 775+06 ³³

P.I. 771+82



SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd)

Random traverse from E 1/4 Cor. SEC 8
To NE Cor. SEC 8 also 4, 5, 9

23+89³³ POT

152' @ 36°09' = 122.74

22+~~99~~^{69 59} POT

300' @ 18°16' = 252.88

19+80⁷¹ POT

202' @ 23°53' = 184.71

18+00 POT

57' @ 29°30' = 49.61

17+50³⁹ POT

300' @ 23°48' = 274.50

14+75⁸⁹ POT

500' @ 2°27' = 499.2

14+25⁹⁵ POT (271.74 from 14+50¹⁷)

13+00
~~12+00~~⁷⁹ POT

(160.0 @ 23°36' = 146.62 from 11+50¹⁷)

12+69^{31 15}

11+69⁶² POT = 759+62.04 (118°23'20" LT To Fwd Tan 760+60⁹²)

11+50¹⁷ POT

(100' @ 15° = 96.23)

10+57⁵⁸ POT

(91.0 @ 9°00' = 84.95)

9+67⁶⁰ POT

8+91⁰⁷ POT

(296.28 @ 15°55' = 285.02)

6+06⁰² POT

(300' @ 5°56' = 285.02)

3+07⁶⁰ POT

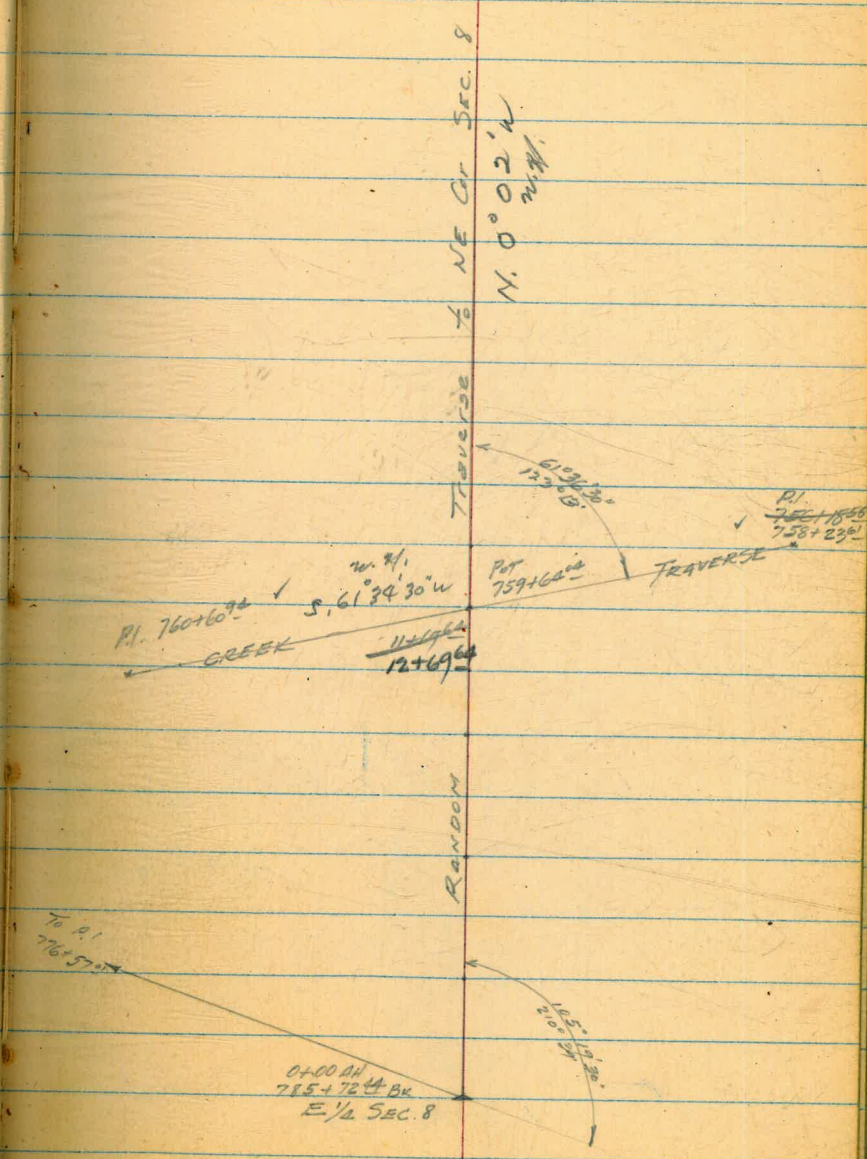
0+00 AH

785+72⁴² BK @ E 1/4 Cor. SEC 8.

N 1°00' W

12/2/59

26



SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd.)

12/2/53.

37.

↑

30¹⁸, 96°15' to old cross in Ridge rock

61.00, 30°07'30" LT to stone 17x12x6"
NW COR. SEC. 8

26+45 1/2 P.I.

(129¹² @ 27'55" = 108.77)

25+36 3/4 POT

170. @ 32'05" = 144.04

N 1°00' W

NOTE: Although this stone,
checks fairly good for
line & distance, it does
not have the appearance
of being the Sec. Cor.
as does SE Cor of Sec. 8.
It is 17x12x6"
stone, an edge
in NE's direction
(REC. STONE SET.
16"x12"x7")

For old * on
Ridge Rock
possibly sight
referred to on
Map R.S. 600.

E 1/2 COR SEC. 8

SE COR SEC. 8

26+45 1/2

STONE
23 E of line

Remain to
Cor. 4589

149-52'30"

SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd.)

10/30/53
Deathy
Marlett
Alexander

38

No. 1. RANDOM Traverse from NW Cor Sec 4
to POT. 665+68. (see pg 25.)

5885E

17+36⁹⁵ POT

50' @ 18°36' = 47.39

16+89⁵⁶ P.I.

1. 13°29' RT.
2. 30°58'

16+86⁷⁶

= Charred 4x4" RW RANCH COR.?
POST IN ROCK MD.
120' @ 9°51' = 118.24 N 80°15'E

15+71³² P.I.

1. 1°42' LT.
2. 3°25'

(172' @ 5°30' = 171.14)

N 81°25'E

14+00¹⁸ P.I.

1. 3°42' LT
2. 7°28'

(250' @ 1°15' = 249.95)

11+50²³ POT

(120' @ 10°53' = 117.84)

10+62.39 POT

(100' @ 17°05' = 95.59)

9+36⁸⁰ POT

(289.85 @ 6°39' = 287.9)

6+48⁹⁰ POT

(300. @ 8°53' = 296.4)

3+52⁵⁰ POT

1. 1°28' LT
2. 2°56'

N 85°30'E

2+91²⁰ P.I.

N 87°00'E

0+00

= SEC COR 4, 5, 32, 33
T14S, R1E.

BN FENCE
16+86⁷⁶
Charred 4x4" RW on fence line
IN ROCK MD.
scribed & faintly
discernible
COR of VICENTE RANCH

P.I. 14+00¹⁸

P.I. 2+91²⁰

NWly Cor
SEC 4
T14S R1E.

FO. STONE CARRON
4 base 2 1/2' high 25
per Map. # RS 600

SEE ALSO pg. 41

JUTHERLAND CONDUIT
CREEK SURVEY
Cont'd

10/20/53

22

39

Comp
S 10° 00' W

1. 75° 39' 30" RT To P.I. 666+28
2. 131° 19'

665+48 POT
20+48 76 =

179.15 @ 21° 33' = 166.61

S 65° 45' E

1. 18° 33' RT
2. 37° 06'

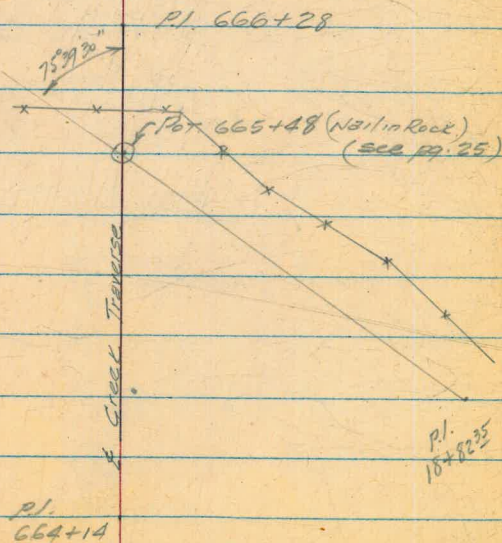
To POT
665+68

18+82³⁵ P.I.

163.0 @ 26° 52' = 145.40

S 84° 15' E

17+36⁹⁵ POT



SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd)

10/30/53

40

No 2 Random Traverse from NE 1/4 Cor.
SEC. 4 TO POT 665+28 (see pg 25)

665+28 $\frac{21}{21}$ =
28+44 $\frac{21}{21}$ =

1. $117^{\circ}17'15''$ LT To POT 666+28
2. $232^{\circ}34'30''$ (see pg. 25)

$151.28 @ 16^{\circ}04' = 145.29$ N $52^{\circ}15' W$

1. $43^{\circ}38'30''$ RT. - To POT 665+48
2. $87^{\circ}17'$

76+99 $\frac{18}{18}$ P.I.

$201. @ 25^{\circ}08' = 272.40$ S $84^{\circ}15' W$

1. $3^{\circ}00'$ RT.
2. $6^{\circ}00'$

24+26 $\frac{78}{78}$ P.I.

$198 @ 7^{\circ}57' = 196.02$ S $81^{\circ}50' W$

1. $4^{\circ}00'$ LT
2. $8^{\circ}00'$

22+30 $\frac{76}{76}$ P.I.

$297.18 @ 438' = 296.29$
100' Horiz
300' Horiz
 $300 @ 653' = 297.9$ S $85^{\circ}45' W$

1. $4^{\circ}00'$ RT
2. $8^{\circ}00'$

12+36 $\frac{57}{57}$ P.I.

$300.9 @ 434' = 300.00$
 $300.00 @ 830' = 296.40$ S $82^{\circ}00' W$

1. $16^{\circ}03'$ LT
2. $32^{\circ}06'$

6+40 $\frac{17}{17}$ P.I.

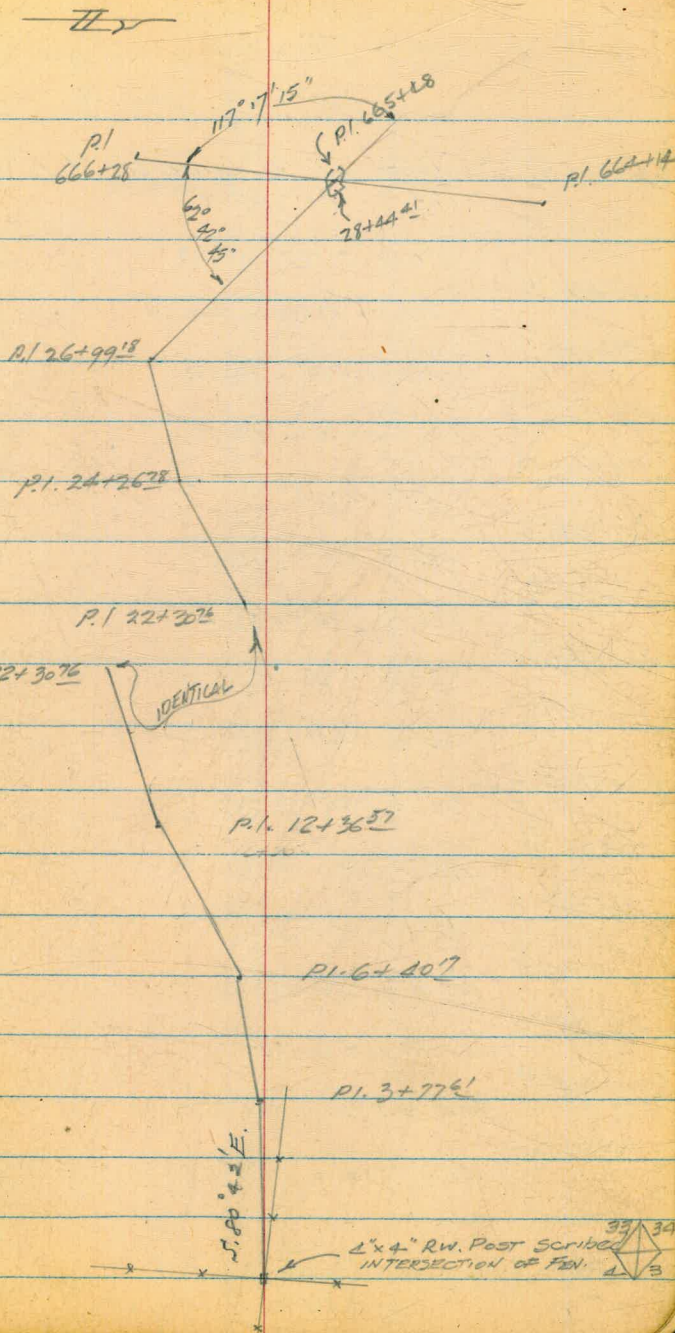
$262.80 @ 2^{\circ}23' = 262.56$ N $82^{\circ}00' W$

1. $2^{\circ}04'15''$ LT
2. $4^{\circ}08'30''$

3+77 $\frac{61}{61}$ P.I.

$123 @ 9^{\circ}18' = 121.40$
 $268 @ 17^{\circ}10' = 256.21$ N $79^{\circ}45' W$

0+00 = SEC. Cor 33, 34, 4, 3; TIAS, RIE



JUTHERLAND CONDUIT
RANDOM TRAVERSE from NW COR. SEC. 4
TO
SW COR. SEC. 4

2/25/54
DEATY
MARTELL

41

117

CHARRED
3"x3" IN
STONE MD.

1660
← STA 30+1655

30+1655 = 1660 LT to Charred 3"x3" in MOUND
122' @ 11°54' = 119.38
28+97¹⁷
71' @ 21°02' = 66.27
28+30⁹⁰
300' @ 12°30' = 292.89
25+38⁰¹
198' @ 9°49' = 195.39
23+42⁶²
173' @ 9°41' = 170.55
21+72⁰⁷
18.40 Horiz
21+53⁶⁷
295' @ 1°0' = 294.94
18+58⁷³
170' @ 7°14' = 168.64
16+90⁰⁹
229' @ 11°15' = 224.60
14+65⁴⁹
145' @ 0°44' = 144.99
13+20⁵⁰
300' @ 6°45' = 297.92
10+22⁵⁸
172' @ 0°53' = 171.98
8+50⁶⁰
165' @ 14°19' = 159.89
6+90²¹
300' @ 12°53' = 292.50
3+98²¹
120' @ 1°18' = 119.97
2+78²⁴
200.0' @ 17°22' = 190.88
0487³⁶
90.0' @ 13°54' = 87.36

5000'

0+00 = NW COR. SEC. 4

Mag. Brq. N 88°45'E

N 87°44' 30" E

STONE
MD.

(SEE Pg. 38) 0400
NW COR. SEC. 4

91010'

SUTHERLAND CONDUIT
Random Traverse Cont'd.
WLY LINE SEC 4
(Cont'd.)

2/26/54
BEATTY
MARTELL

42.

72

(Cont'd pg. 43.)

48+40 ⁵⁶	300' @ Horiz.
45+40 ⁵⁶	39.3 Horiz
45+01 ²⁶	300' @ 6°53' = 297.84
42+03 ⁴²	59.0' Horiz
41+44 ⁴²	300' @ 3°29' = 299.34
38+45 ⁰⁸	146' @ 0°50' = 145.99
36+99 ⁰⁹	241' @ 10°05' = 237.28
34+61 ⁸¹	58' @ Horiz
34+03 ⁸¹	52.50 @ 12°25' = 51.27
33+52 ⁵⁴	300' @ 9°19' = 296.04
30+56 ⁵⁰	163' @ 12°11' = 159.33
28+97.17	50°00'

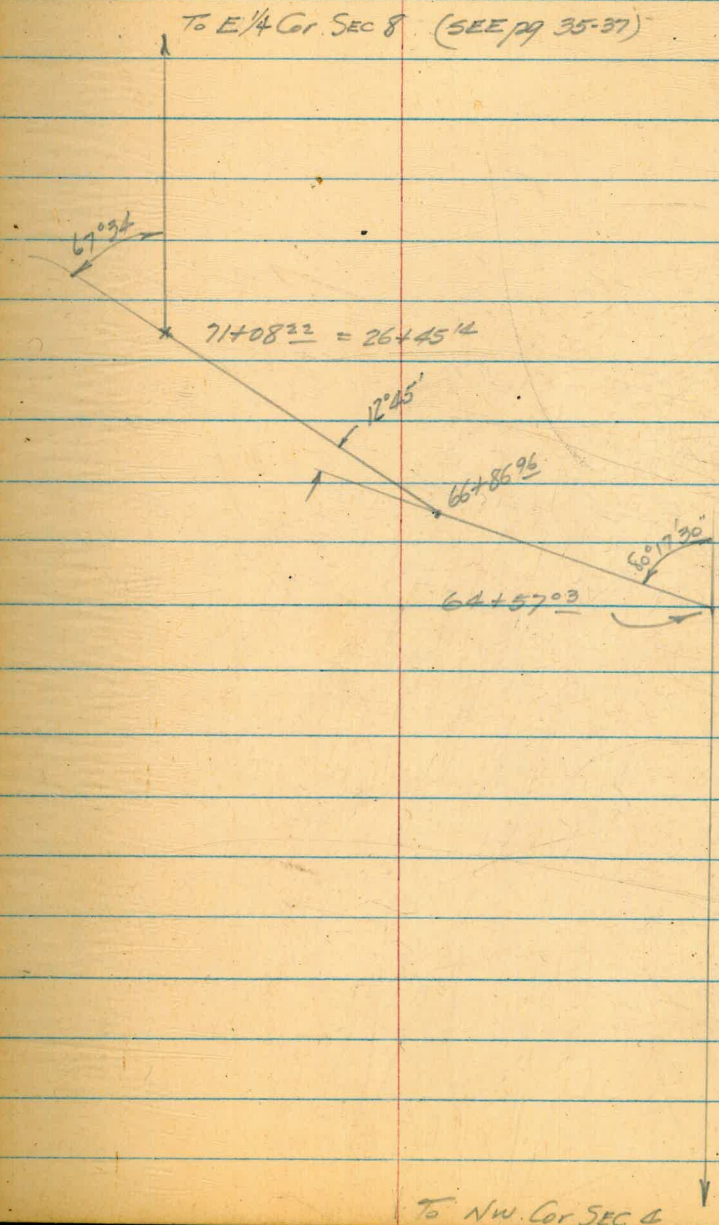
ASSORTED: SHOULDERS,
HEAVY BRUSH
POISON OAK
RATTLE SNAKES
ETC.

(Marty steps on Rattler!)

JUTHERLAND CONDUIT
RANDOM TRAVERSE Cont'd
WLY LINE SEC. 4.

3/9/54
BEATTY
STONEY
MARTELL
ALEXANDER

		5° 0' 00"
	67° 34' RT	To E/4 Cor SEC 8
71+08 ²²	= 26+45 ¹⁴	pp. 37
70+42 ²⁷	65.95 @ Horiz	
69+74 ²¹	67.93 @ 6° 00' = 67.56	
66+86 ⁹⁶	300' @ 16° 26' = 287.75	S 67° 30' E
	12° 45' RT 25° 30'	
64+57 ⁰³	230' @ 1° 29' = 229.93	S 80° 15' E
	80° 17' 30" LT 160° 35'	
61+57 ⁰³	300' Horiz	
59+29 ²⁴	238' @ 17° 11' = 227.29	
58+27 ⁰²	107' @ 16° 14' = 102.72	
55+73 ⁸⁵	261' @ 13° 58' = 253.17	
54+50 ²⁹	125' @ 8° 21' = 123.56	
52+43 ⁸²	206.66 @ 2° 04' = 206.47	
51+57 ⁹⁰	88.40 @ 13° 39' = 85.92	
49+96 ⁶⁸	176' @ 23° 42' = 161.22	
48+40 ⁵⁶	173.85 @ 26° 09' = 156.12	
		5° 0' 00"



To NW Cor SEC 4



sketch by Martell

501

A-23

53 AP 1695 PICKETT'S POCKET SLIDE RULE \$10.50
 53-A-2164 3 RING SPLIT COWHIDE ZIPPER 3.30
 BINDER 24.95
 62-A-4329 M GEIGER COUNTER, SHOOPER
~~TRUMPET CASE~~
 53-A-8678, L TRUMPET CASE 9.98

over

5 lbs.
 3 lbs.
 1 lb.

SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd.)

801+50 P.O.T. HAMLET CROSSING
TEMPORARY BRIDGE S 21°30' W

1) 15°20'30" LT
2) 30°41'

795+81 P.I.

S 36°30' W

1) 40°52'30" LT
2) 81°45'

790+66⁹³ P.I.

S 76°30' W

1) 19°17' RT
2) 38°30'

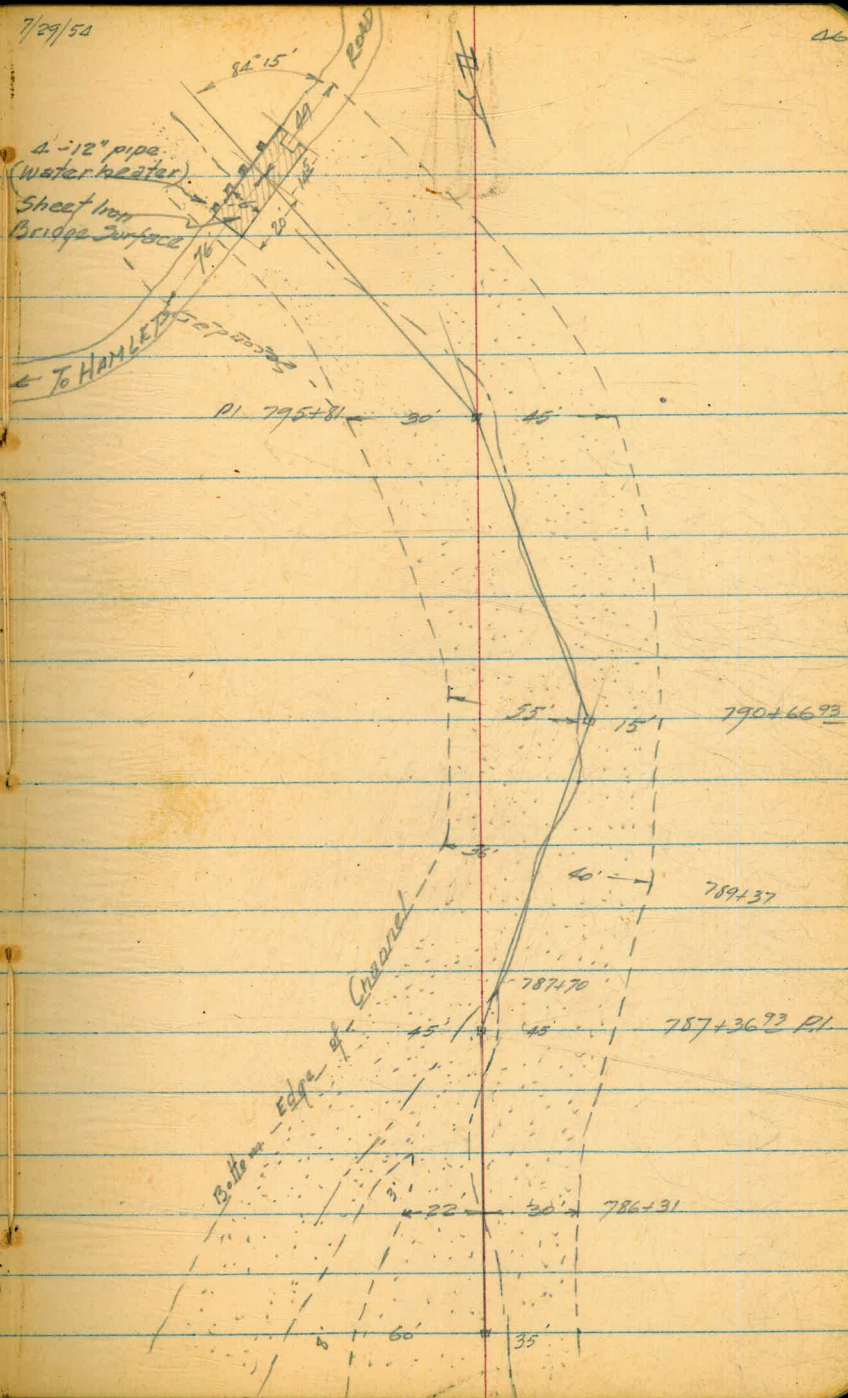
787+36⁹³ P.I.

S 57°00' W

784+31⁹³ P.O.T.

7/29/54

26



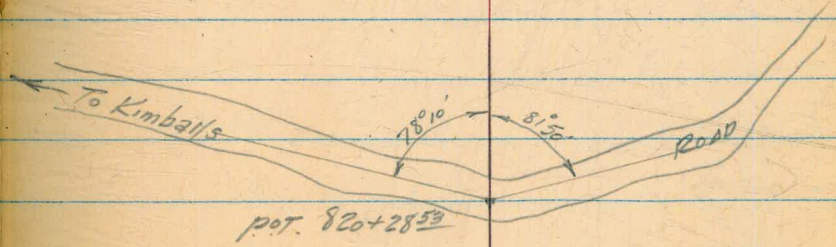
SUTHERLAND CONDUIT
CREEK SURVEY
(Cont'd)

7/30/54

48.

820+28.53 P.O.T.

S 32° 45' N



SUTHERLAND Conduit
CREEK SURVEY

E Profile HAMLET CROSSING

BM	3.50	798.50	795.00
135 SELY	4.5	794.0	
125 SELY	9.0	789.5	
85' SELY	9.1	789.4	
73' SELY	11.4	787.1	
58' SELY	12.6	785.9	
42' SELY	11.4	787.1	
33 SELY	12.2	786.3	
21 SELY	13.2	785.2	
19' SELY	14.3	784.2	
E = 801450	Creek Survey	14.4	784.1
10' NWly	14.3	784.2	
20 NWly	13.0	785.5	
50' NWly	10.5	788.0	
57 NWly	9.0	789.5	
76 NWly	5.0	793.5	
85 NWly	5.0	793.5	
92 NWly	2.4	796.1	
CK BM	3.50	795.00	

7/30/54

49

Assumed Elev. of Nail set in Oak Tree RT. side of road Wly side Hamlet Crossing.

SUTHERLAND CONDUIT
CREEK SURVEY

7/30/54

50

Profile Kimball Crossing

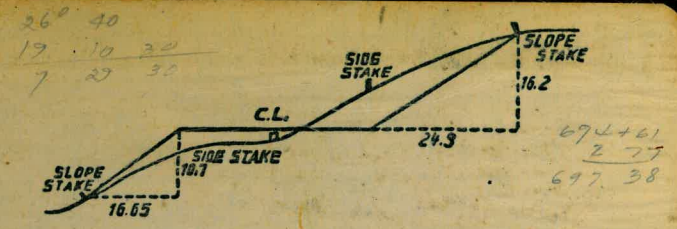
BM	0.54	795.54	795.00
200' Sely		+50	800.0
180' Sely		0.0	795.5
140' Sely		3.0	792.5
100' Sely		5.4	790.1
36' Sely		7.2	788.3
22' Sely		7.7	787.8
7' Sely		9.3	786.2
$\frac{1}{2} = 820 + 28.53$	Creek Survey	9.4	786.1
8' Nwly		9.1	786.4
17' Nwly		8.1	787.4
40' Nwly		5.9	789.6
80' Nwly		2.1	793.7

Assumed Elev. R.H. Nail set in Oak Tree W. side
of road, Wly side Kimball Crossing

180
147
33

BM # 8 - Book # 816
BM # 3 - STA 364

Please Return to
City of San Diego Water Dept.
Room 903 Civic Center



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.
SLOPE 1 1/2 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	71.25	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

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