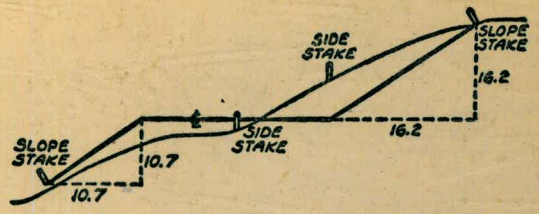
W929



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 to 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.

MICROFILMED JAN 20 1965

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

FB 929

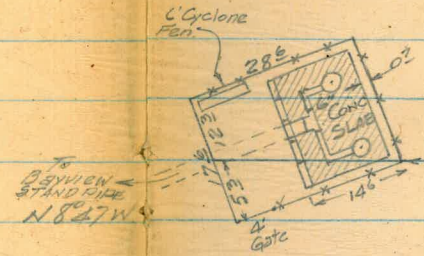
INDEX
CEMENT LINING R/W
& OTAY 2nd Main Pipeline 1-24
Alice

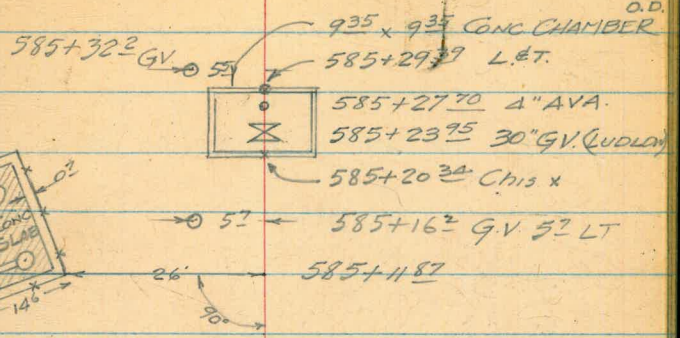
OTAY 2ND. MAIN TIES. 51
Alice

FEB. 21 1956
SHOREY
MARTELL
KEMP
SMITH.

℄
OTAY 2nd Main, Pipeline

PROFILE STATION	Appurtenance
585+29.39 P.O.T.	L & T.
585+27.70	4" AVA.
None Given	30" G.V. (Ludlow)
585+23.95 *	
585+20.34 P.O.T.	(Chis x)
583+95.76 P.C.	
583+~~50~~ +53.8 *	P.O.
	Δ. 34°52'RT
	T. 112.81
582+90.65 P.I.	L. 217.92
581+77.84 B.C.	
579+10	4" A.V.A.





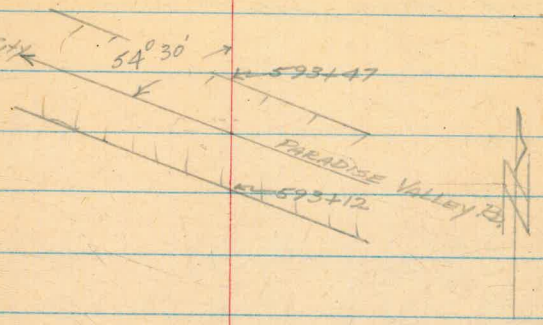
P.I. Fd. (Orig.?)

N 43°39'W

NOTE! * Indicates Station of Field Measurement

OTAY 2nd ℄ Main, Pipeline

PROFILE STATION	Appurtenance
	N11°47'W
593+38 30 *	Approx. ℄ Paradise Valley Road.
592+25	4" B.O.
	N 11°47' W
588+13 29	P.I. Δ 3°00' LT.
	N 8°47' W
587+90 71 * 90 66 *	2 - 4" AVA.

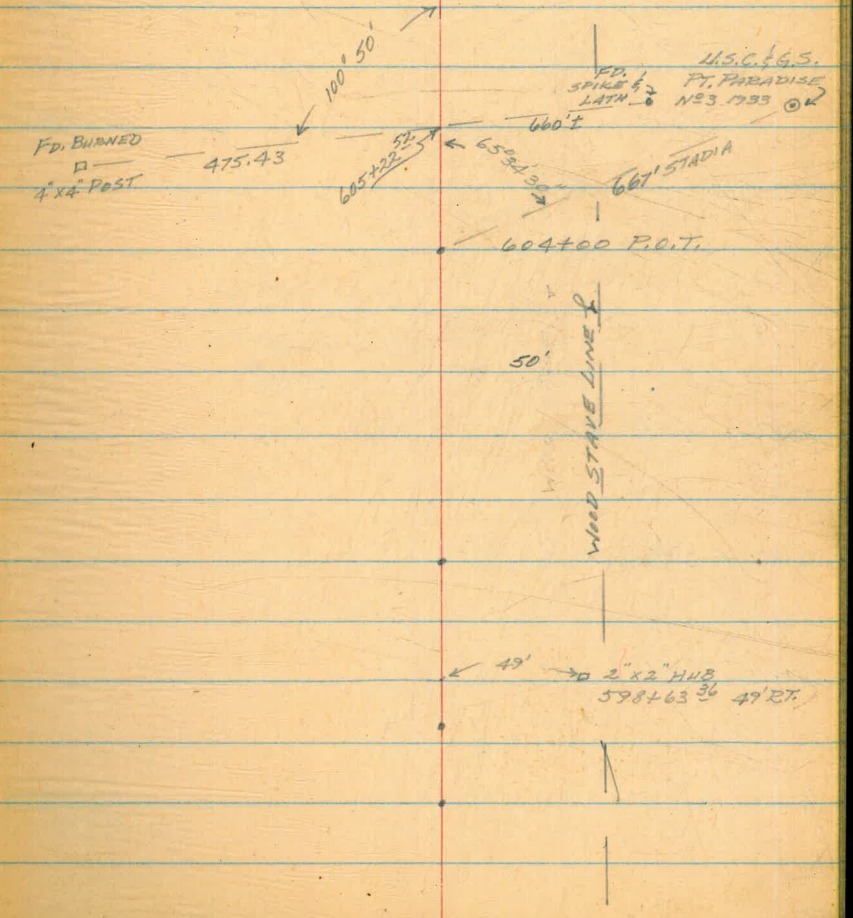


NOTE: * Indicates Station of Field Measurement

℄ OTAY 2nd Main, Pipeline

PROFILE STATION	Appurtenance
607+08 ~~03~~ 1 *	4" B.O.
604+00 P.O.T. *	
601+50	2 - 4" AVA.
	~~N 7°29' W~~ N. 7° 31' W. *
601+27 18 P.I.	Δ 0° ~~54'~~ 57' RT *
	N 8°28' W
598+00 P.O.T. *	
594+77 20 P.I.	Δ 3° 19' RT.
	N 11°47' W

Note: * Indicates Field Measurement



OTAY 2nd ℄ Main Pipeline

PROFILE STATION	Appurtenance	
		~~N. 9° 36' W~~
		* N. 9° 38' W.
614+29.59	EC.	
		Δ 30°28' RT
		T 97.83
613+37.00	P.I.	L 190.42
612+39.17	BC.	
		~~N 40°00' W~~
		* N. 40°06 W.
611+86.02	EC.	
		Δ 32°35' LT
		T. 105.00
		L. 203.65
610+87.37	P.I.	
610+~~50~~+52	* 4" A.V.	
609+82.37	B.C.	
		~~N 7°29' W~~
		* N. 7°31' W.

Note: * Field Measurement

OTAY 2nd ℄ Main Pipeline

Profile Station		Appurtenance	
628+24.51	*	P.O.T	
623+00	*	P.O.T.	
~~621+40~~ (621+42.8)	*	4" BO.	
616+30	*	P.O.T.	* N.14°29'W. ~~N14°27'W~~
616+06		*1/3 - 4" AVA	
615+94		Δ 4°51' LT	
615+08		1" Coupling	* N.9°38'W. ~~N9°36'W~~

Note * Indicates Field Measurement

℄

OTAY 2nd Main Pipeline

* N. 1° 01' E
~~N 1° 00 E~~

635+10.39 E.C.

634+66.57

634+41.6 *
~~634+35~~
634+38.8 * 2-4" AVA.

634+25 1" Coupling

634+09.54 P.I. Δ 16°16' RT.
T 102.48
L 203.33

633+07.06 B.C.

* N. 15° 15' W.
~~N 15° 16' W~~

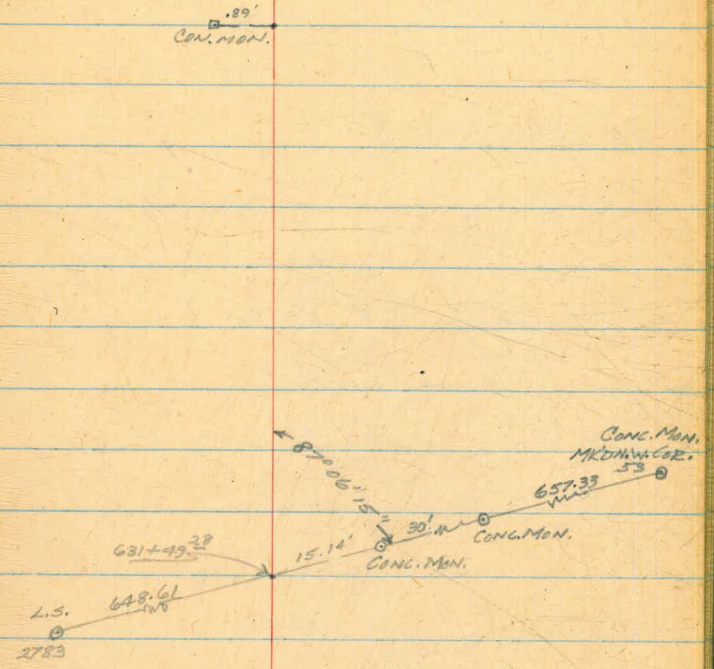
631+49.28 * SOUTH LINE DIVISION ST.

631+48.20 P.I. Δ 1°37' LT.

* N. 13° 38' W.
~~N 13° 39' W~~

630+00 P.I. Δ 0°51' RT.

* N. 14° 29' W.
~~N 14° 27' W~~



℄

OTAY 2nd Main Pipeline

* N. 12° 45' W.
~~N. 12° 46' W.~~

649+28.43 P.I. — Δ 13°15'LT, T 83.25', L 165.62'

648+45.18 B.C.

648+00.01 * — 4" AVA

646+25 * — 4" B.O.

644+25 * — 4" AVA

643+14.89 * — * N. 0° 30' E., ~~N 0° 29' E~~

643+13.55 — Δ 0°31' LT

636+65 * — 4" B.O.

636+00 * — P.O.T. — * N. 1° 01' E, ~~N 1° 00' E~~

29.82'

643+14.89

CITY MON & WOODMAN & DETROIT

℄

OTAY 2nd Main Pipeline

* N.6° 38' W.
~~N.6° 39' W~~

659+18 54 E.C. Δ 6°03' RT
T 37.88'
L 75.62'

658+80 79 P.I.

658+42 21 B.C.

658+~~00~~ 02 * 4" AVA

657+~~93~~ +95 19 * 30" G.V.

657+91 72 P.O.T. CHIS'L MK. IN CHAMBER OF 30" G.V.

656+00 P.O.T.

654+51 ℄ *

~~654+50~~ 4" AV.A.

* N.12° 41' W.
~~N12° 42'W~~

(CK'D OUR CHAINING BACK TO)
643+13 53 - OK.

652+48 20 Δ 0° 4' RT

* N.12° 45' W
~~N12° 46' W~~

650+10 80 E.C.

650+00 4" B.O.

℄

Otay 2nd Main Pipeline

666 + 75.79 E.C. * N. 22° 20' W. ~~N. 22° 21' W.~~

666 + 22.07 P.I. Δ = 21° 52' Lt.
R = 287.90'
T = 55.61
L = 109.33

665 + 66.46 B.C.

664 + ~~50~~ 54 4" AVA *

* N. 0° 28' W. ~~N. 0° 29' W.~~

664 + 14.52 E.C.

Δ = 6° 10' Rt.
T = 38.61'
L = 77.08'
R = 716.78'

663 + 76.05 P.I.

663 + 37.44 B.C.

660 + 85 P.O.T. *

* N. 6° 38' W. ~~N. 06° 39' W.~~

660 + ~~25~~ 26.5 4" B.O. *

2x2 HUB & TACK
℄ 79.12

664 + 15.35
19.45'

690+32 33 *
~~690+27~~ 84 E.C.

* N.48° 48' W.
N.48° 54 W.

689+94 11 *
~~689+93~~ 08 P.I.

Δ = ~~24° 13'~~ LT. 24° 08' LT
T = ~~38.92'~~ T = 38.79
L = ~~76.68~~ L = 76.41
R = ~~181.40~~ R = 181.40

689+55 22 *
~~689+54~~ 16 B.C.

* 24° 40' W.
N.24° 41 W

687+03 5 A.V.A.
~~688+85~~ Δ = 5° 00' RT.
688+62 05 *

683+68 87 * ℄ 65th ST.

680+20 B.O.
680+23 * B.O.
679+32 65 * ℄ S.D. & A.E.R.R.

* N29° 40' W.
N.29° 41' W.

678+21 89 CHIS'L + IN WALK

675+00 P.O.T. *

674+36 82 E.C.

Δ = 7° 20' LT.
R = 716.78'
T = 45.93
L = 91.67

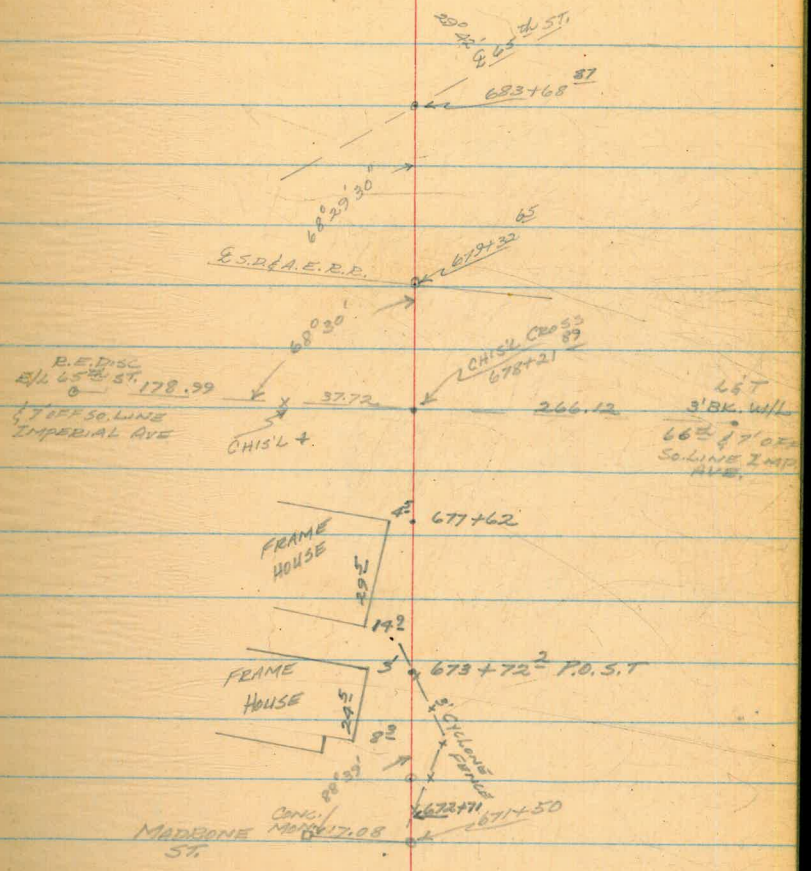
673+91 08 P.I.

673+45 15 B.C.

668+00 P.O.T. *

667+56 8 * 2 AVA.
~~667+55~~ 54 5 *

* N.22° 20' W.
N.22° 21' W



$704+12^{\underline{04}}$ * ℄ BROADWAY

*N. 59° 36' W.
~~N. 59° 42' W.~~

~~703+84~~ $^{\underline{34}}$ ~~E.C.~~ $703+87^{\underline{64}}$ *

$703+54^{\underline{10}}$ *

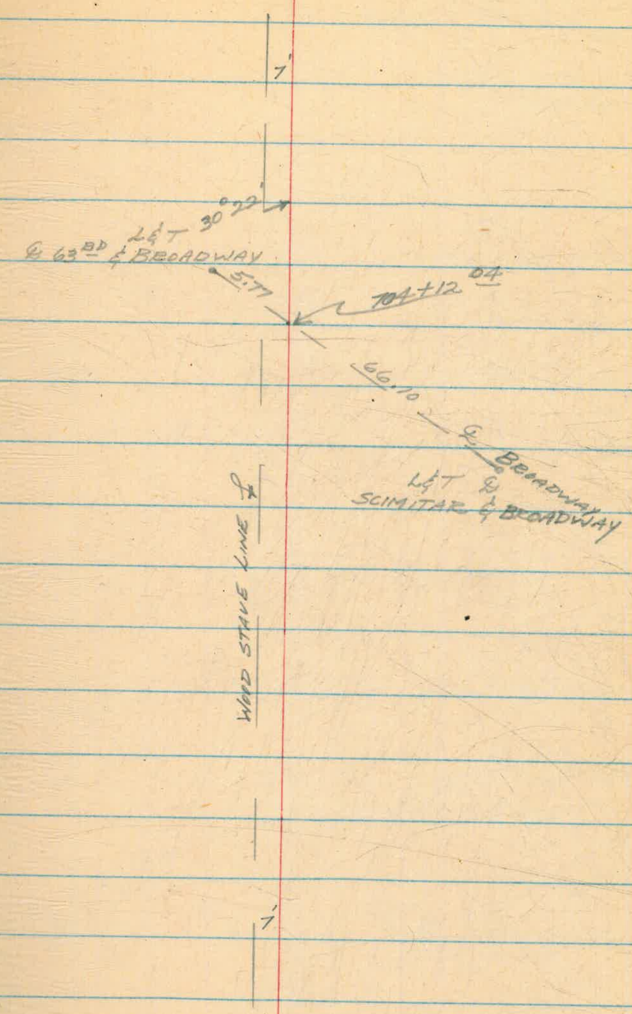
~~703+50~~ $^{\underline{80}}$ ~~P.I.~~

$\Delta = 10°48'$ LT.
$T = 33.96'$
$L = 67.50$
$R = 359.26$

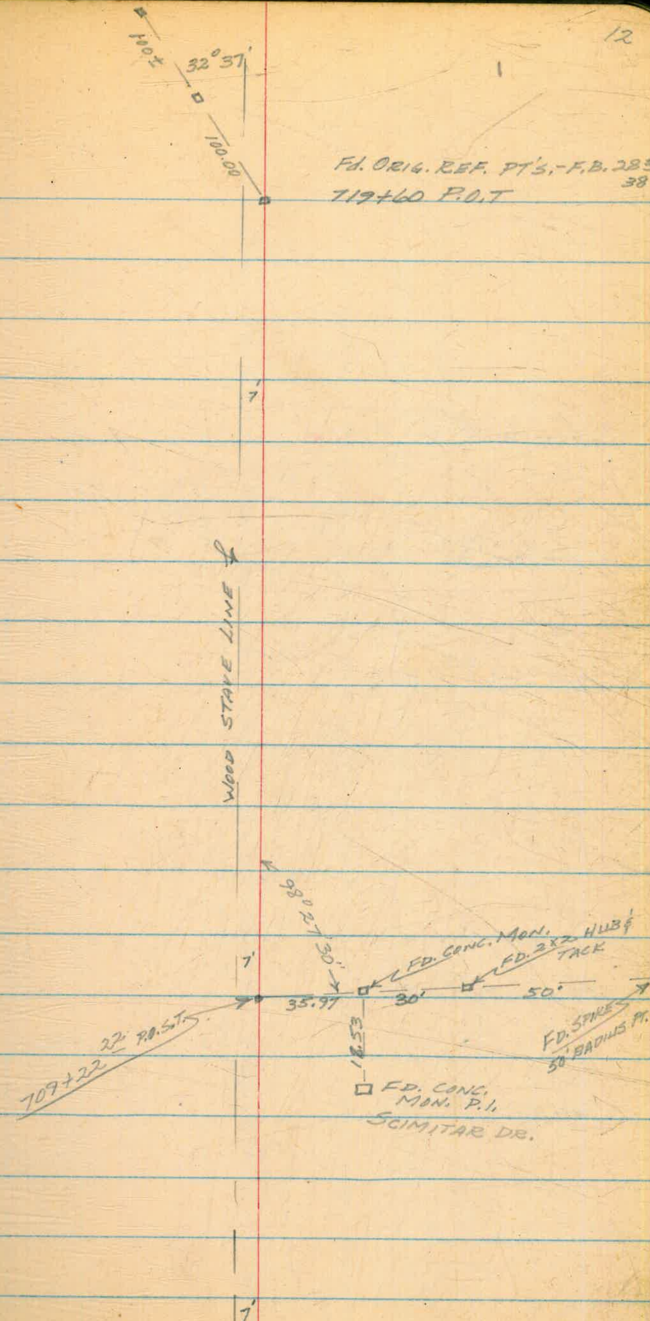
~~703+16~~ $^{\underline{84}}$ B.C. $703+20^{\underline{14}}$ *

~~700+48~~ 4" AV.A
03 *

*N. 48° 48' W.
~~N. 48° 54' W.~~



$719+63^{3}$ BK 719+60 AH. } = EQ. *		
~~716+00~~ B.O. 716+04 *		
		* N.19°56'15" ~~N.20°05'W.~~
~~712+40~~ ^{29} ~~E.C.~~	* $712+42^{99}$	
$711+81^{32}$ *	Δ = ~~17°17' RT.~~ T = ~~62.48'~~ L = ~~123.69~~ R = ~~410.28~~	17°21'45" RT. 62.66 124.33 410.28
~~711+79~~ ^{08} ~~P.I.~~		
~~711+16~~ ^{60} B.C.	* $711+18^{66}$	
		* N.37°18'W. ~~N.37°24'W~~
~~709+69~~ ^{97} ~~E.C.~~	$709+73^{27}$ *	
		709+50 * 4" AVA.
$709+33^{56}$ *	Δ = 22°18' RT.	
~~709+20~~ ^{26} ~~P.I.~~	T = 51.65' L = 101.36 R = 262.04	
~~708+68~~ ^{61} B.C.	$708+71^{91}$ *	
		* N.59°36'W. ~~N.59°42'W.~~



N. 5° 34' 45" E.
~~N. 5° 26' E.~~

727 + 21.41 E.C. *

Δ = 8° 38' RT.
T = 27.12
L = 53.96
R = 359.26

726 + 94.57 P.I. *

726 + 67.45 B.C. *

* N. 3° 09' 15" W.
~~N. 3° 12' W.~~

725 + 09.56 E.C. *

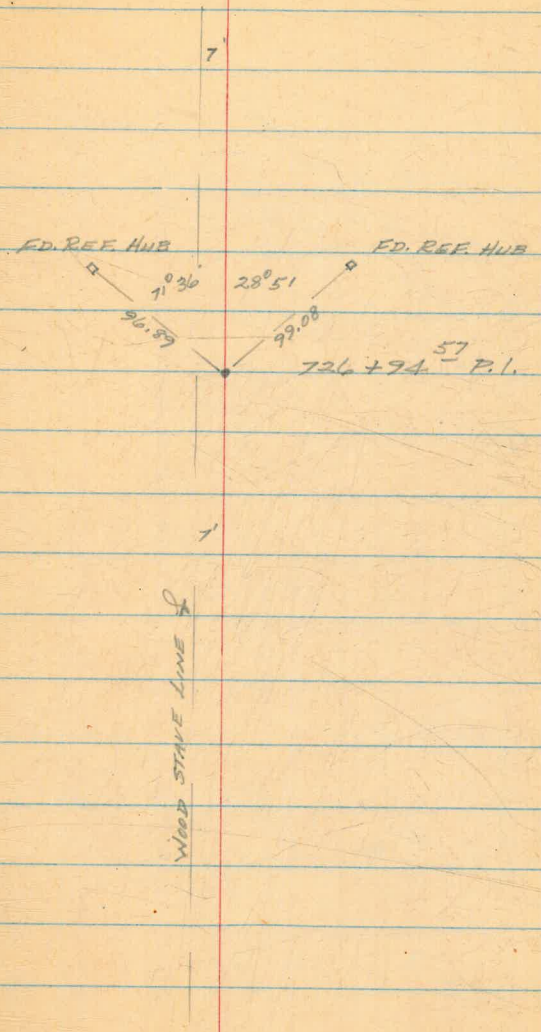
Δ = 16° 53' RT.
T = 53.32
L = 105.52
R = 359.26

724 + 57.36 P.I. *

724 + 04.04 B.C. *

724 + 00 * 2 - 4" A.V.A.

* N. 19° 56' 15" W
~~N. 20° 05' W~~



N. 58° 35' W.
~~N. 58° 41' W.~~

735+43 58 E.C.

~~Δ = 31° 48' Lt.~~ 31° 48' 45"
T = 163.42'
L = 318.00'
R = 573.69

733+89 00 P.I.

732+50 4" AVA

732+25 58 B.C.

N. 26° 46' 15" W.
~~N. 26° 53' W.~~

730+29 36 E.C.

~~Δ = 32° 18' Lt.~~ 32° 21' Lt.
T = 92.61'
L = 179.54
R = 319.62

729+42 43 P.I.

728+49 82 B.C.

N. 5° 34' 45" E.
~~N. 5° 26' E.~~

1'

95° 28'

733+89 00 P.I.

98.56

FD. REF. HUBS 100' ℄

WOOD STAVE LINE ℄

1'

FD. REF. HUB

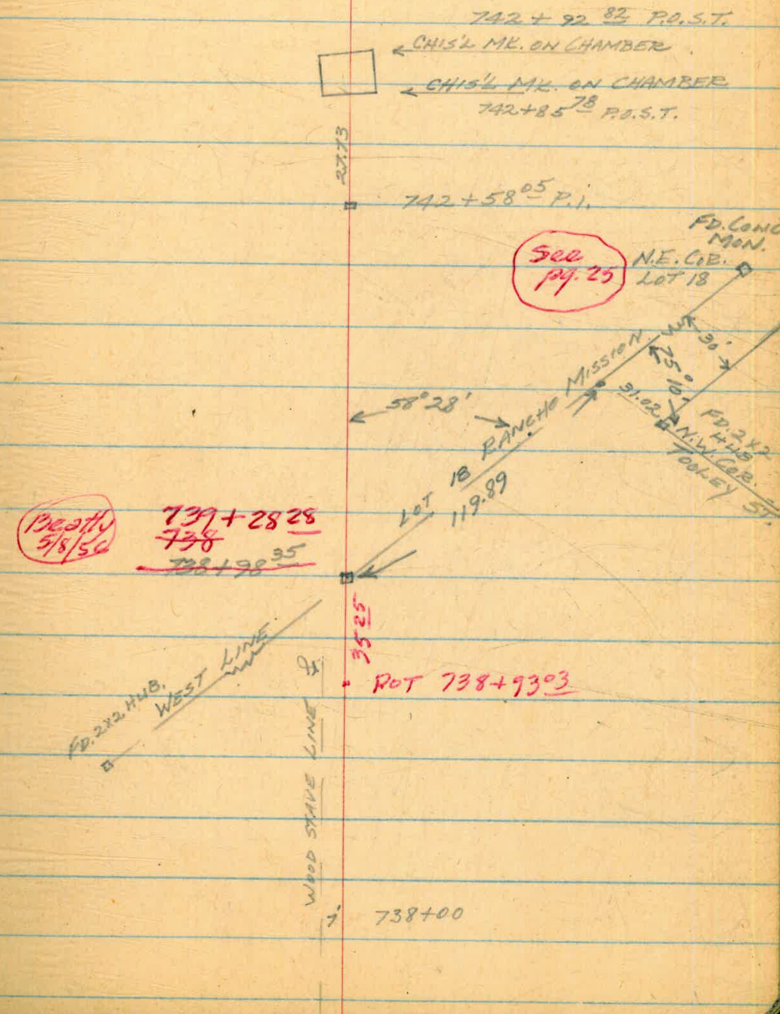
56° 07'

56.99

729+42 43 P.I.

1'

		*N. 10°27' W.
		~~N. 10°33' W.~~
743+37.64 E.C. *		
	Δ = 48°08' RT.	
	T = 92.31	
742+58.05 P.I. *	L = 171.90	(-L 173.63)
	R = 206.68	
742+28 * 4" AVA		
741+65.74 B.C. *		
741+00 * 4" AVA		
738+93.03 P.O.T. *		
~~736+85~~		
736+83 * B.O.		
		*N. 58°35' W.
		~~N. 58°41' W.~~



* N. 31° 01' W.
~~N. 31° 07' W.~~

$753+74^{20}$ P.I. Δ = 1° 43' LT.

752+~~58~~ 51 * 4" B.O.

* N. 32° 44' W.
~~N. 32° 50' W.~~

$751+18^{18}$ P.I. Δ = 1° 43' LT.

* N. 31° 01' W.
~~N. 31° 07' W.~~

$749+18^{08}$ P.I. Δ = 1° 43' RT.

* N. 32° 44' W.
~~N. 32° 50' W.~~

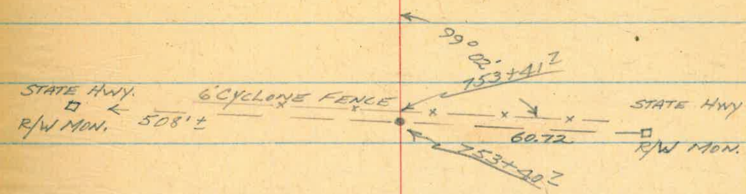
{ $748+02^{5}$ * 4" AVA
{ $748+00^{5}$ * 4" AVA

$747+40^{24}$ E.C. *

$746+85^{53}$ P.I. * Δ = 22° 17' LT.
T = 56.71'
L = 111.42
R = 287.94
(L - 111.98)

$746+28^{82}$ B.C. *

* N. 10° 27' W.
~~N. 10° 33' W.~~



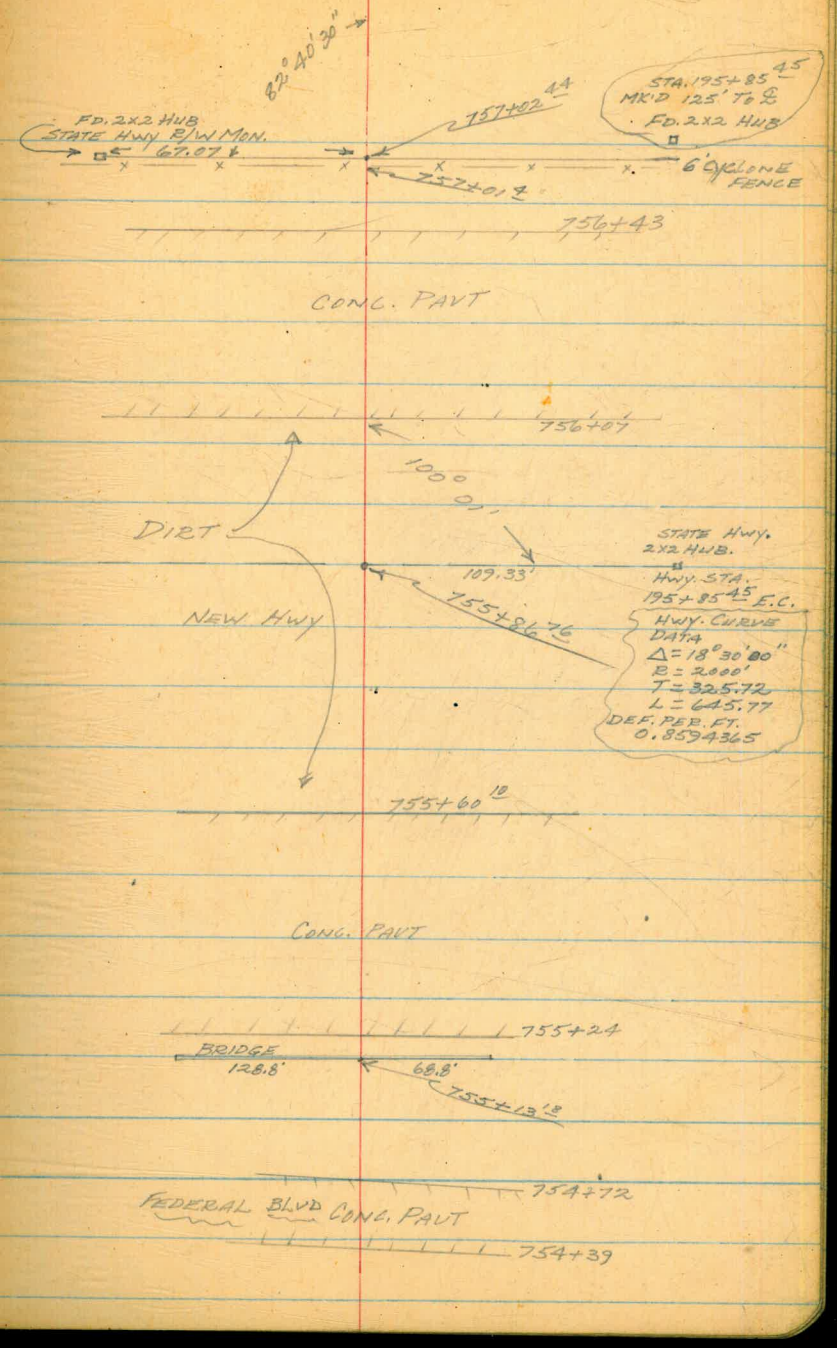
757+30 P.O.T.

755+74.18 P.I. Δ = ~~1°45' RT.~~ 1°51'30" RT.

Equa. 755+74.18 = 755+74.00

754+39

*N. 31° 01' W.
~~N. 31° 07' W.~~



767+20 P.O.T.

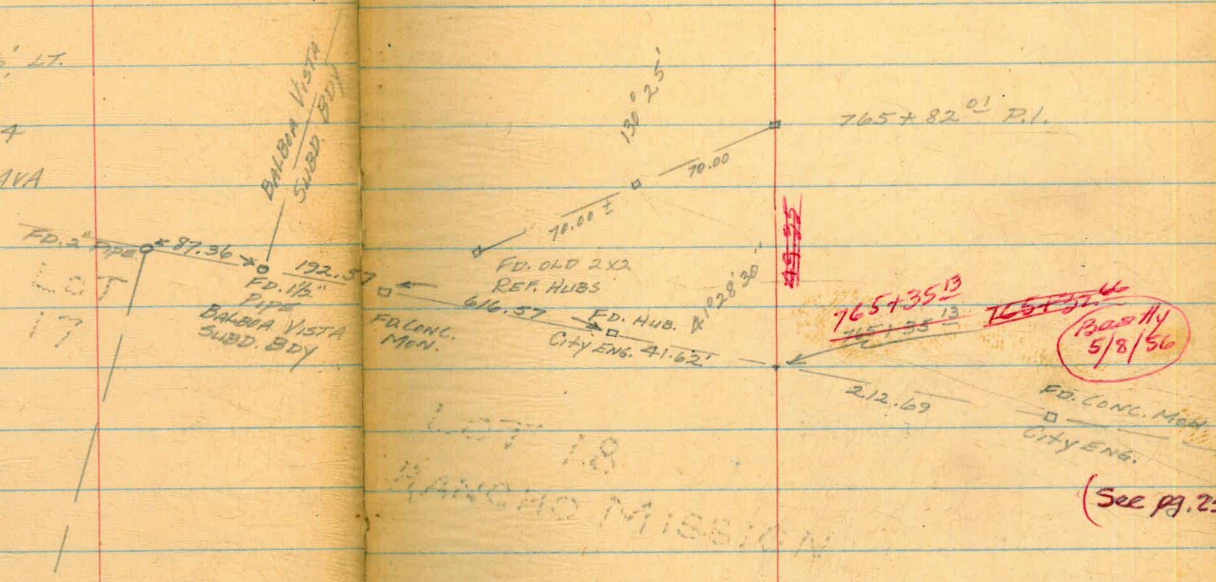
766+17 ^{03} E.C.

Δ = 8°26' LT.
T = 35.26'
L = 70.28
R = 478.34

765+82 ^{01} P.I. — 765+82 ^{01} P.I.

765+50 4" AVA

765+46 ^{75} B.C.



(See pg. 25

A^{2} 763+49.88 } EQ
A^{4} 763+22.51 }

763+00 2 AVA

762+78 ^{45} E.C.

Δ = ~~15°14' LT.~~ 15°21'30" LT.
T = 29.72
L = 58.59   L = 58.55
R = 222.27

762+49 ^{58} P.I.

762+49 ^{58} P.I.

762+19 ^{86} B.C.

774+75 18 P.I. Δ = 0° 15' RT.

774+~~05~~ 06 4" B.O.

772+00 P.O.T.

770+~~92~~ 92.6 4" AVA

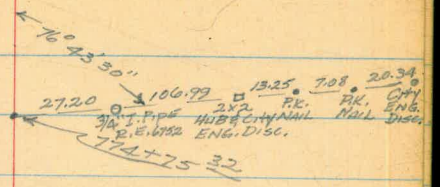
770+58 71 E.C.

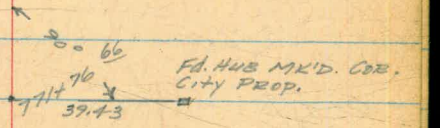
770+18 35 P.I.

Δ = 19° 25' LT.
T = 41.14
L = 80.90
R = 240.49

769+77 81 B.C.

768+~~26~~ 26.2 4" B.O.





784+55.75 END CONC. PAVT.

782+91.75 ℄ LAUREL ST.

782+57.68 City ENG. DISC.

782+10.5 4" B.O.

779+25 (2.6) 4' AVA.

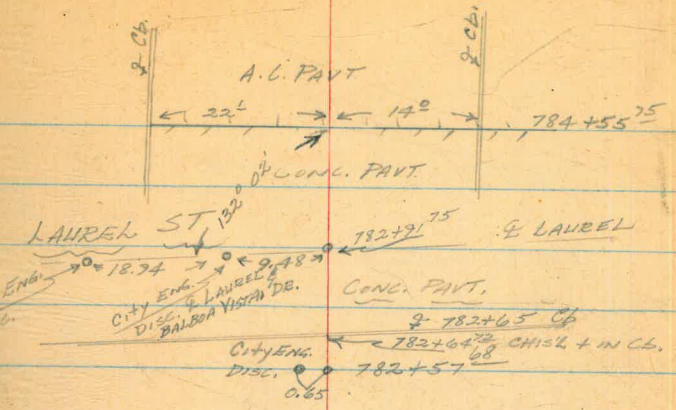
779+16.79 E.C.

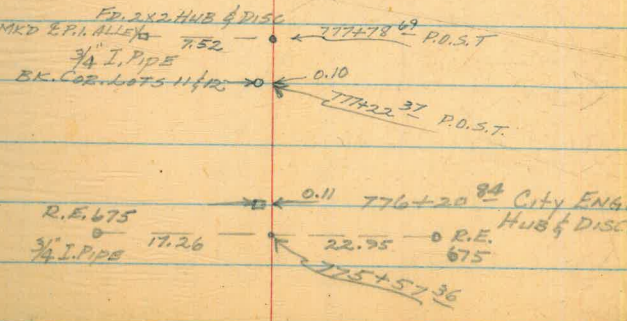
777+98.27 P.I. Δ = 75° 49' RT. T = 173.08' L = 291.60 R = 222.27

776+25.19 B.C.

776+20.84 City ENG. HUB & DISC. 0.11 LT.

775+50.2 4" AVA





789+62 50 CHISL MK. IN CURB

789+17 4" AVA

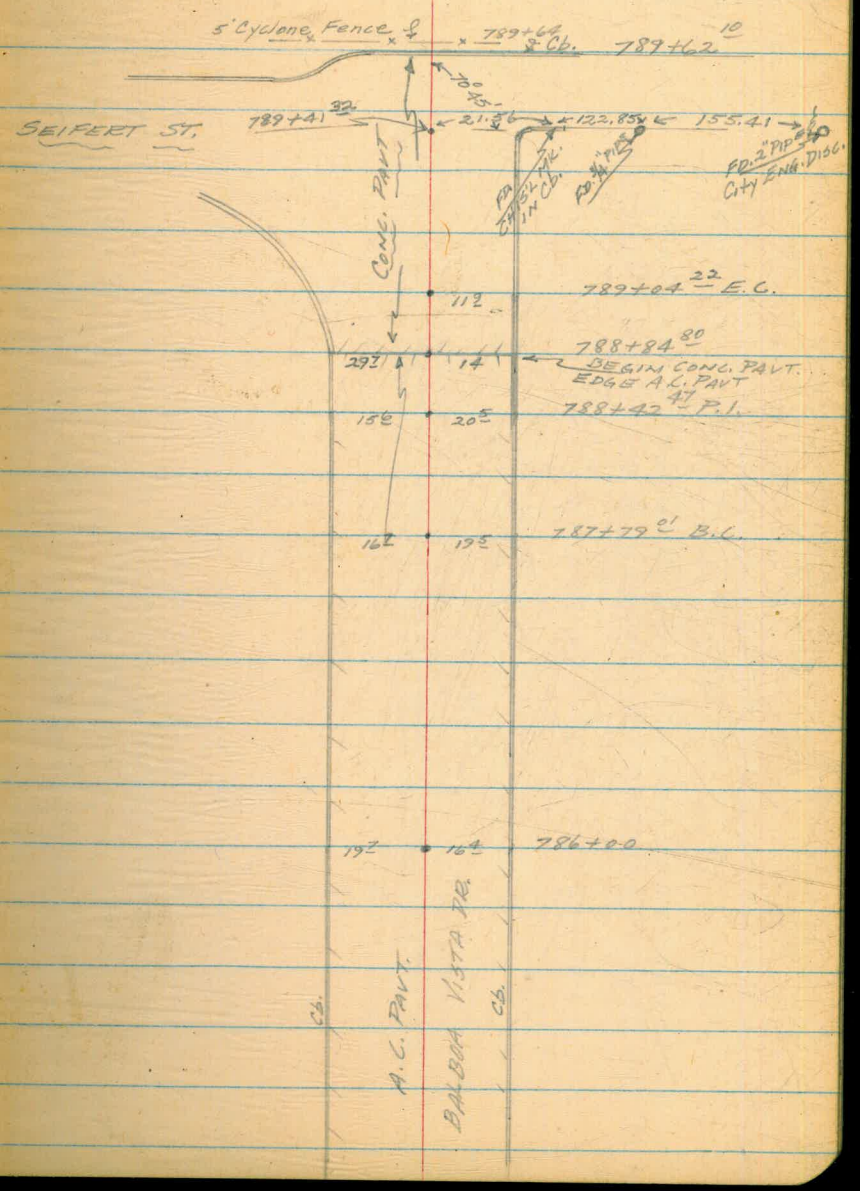
789+04 22 E.C.

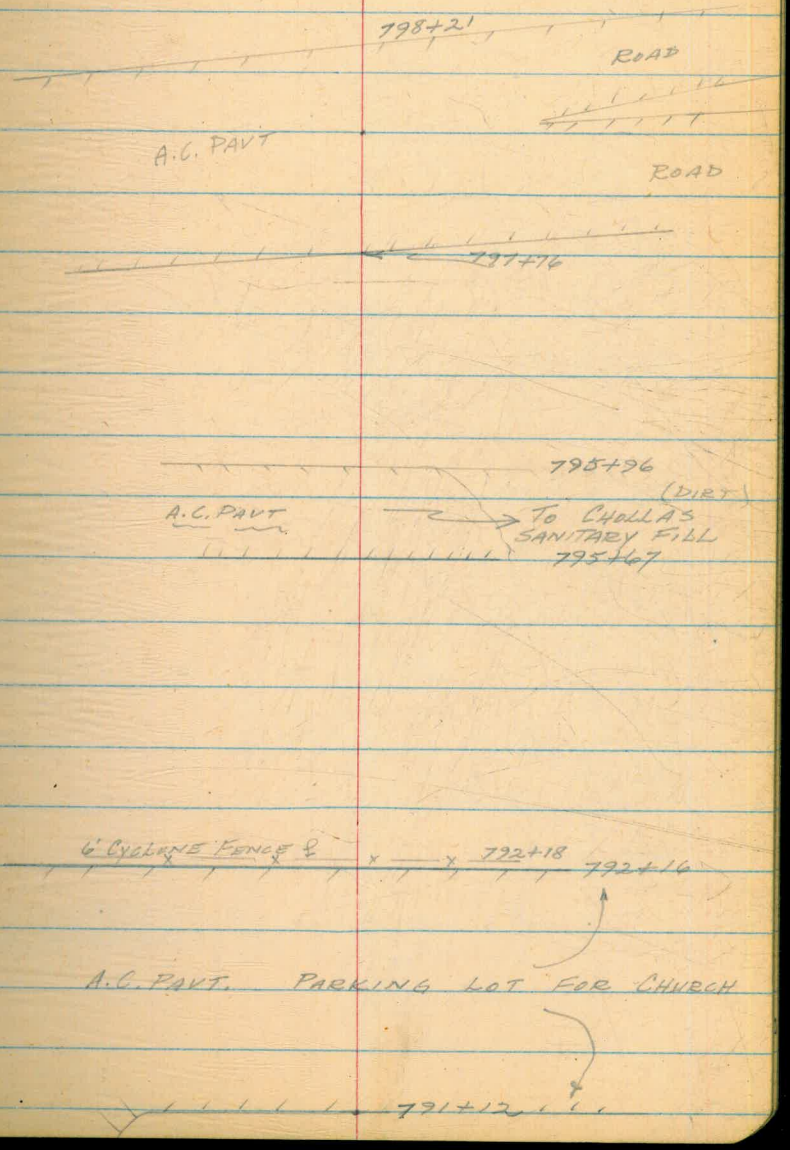
Δ = 20° 02' RT.
T = 63.46
L = 125.21
R = 359.27

788+42 47

787+79 01 B.C.

785+00 4" AVA




798+21
ROAD
A.C. PAVT
ROAD
797+76
795+96
(DIRT)
A.C. PAVT
TO CHOLLAS SANITARY FILL
795+67
6' CYCLONE FENCE &
792+18
792+16
A.C. PAVT. PARKING LOT FOR CHURCH
791+12

793+00 ± 4" B.O. ?

$802+09^{66}$ E.C.

$\Delta = 27^\circ 48'$ RT.
T = 44.89'
L = 86.88'
R = 181.40

$801+67^{67}$ P.I.

$801+22^{78}$ B.C.

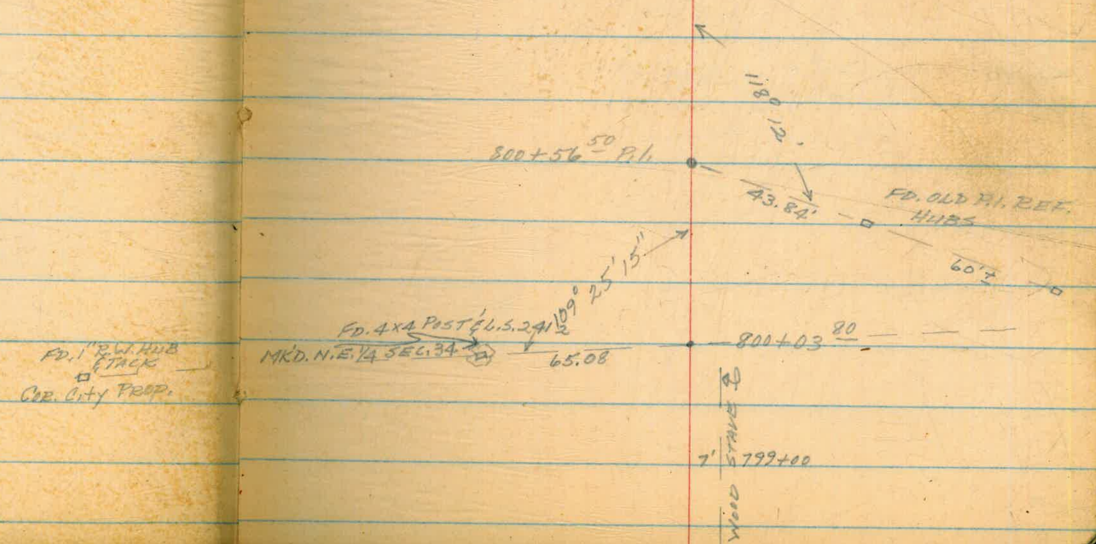
$801+03^{96}$ E.C.

$\Delta = 19^\circ 16'$ LT.
T = 48.87
L = 96.33
R = 287.94

$800+56^{50}$ P.I.

800+23 4" A.V.A.

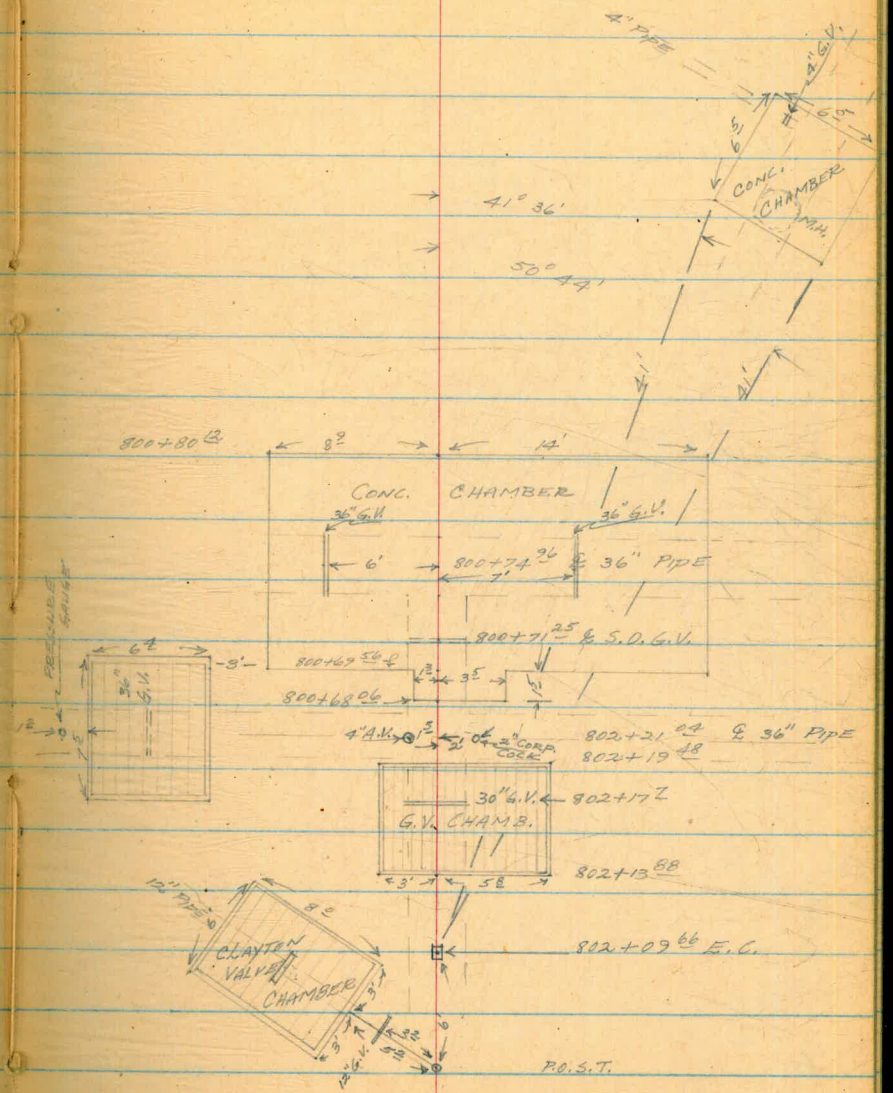
$800+07^{63}$ B.C.



Otay 2nd Main Pipeline

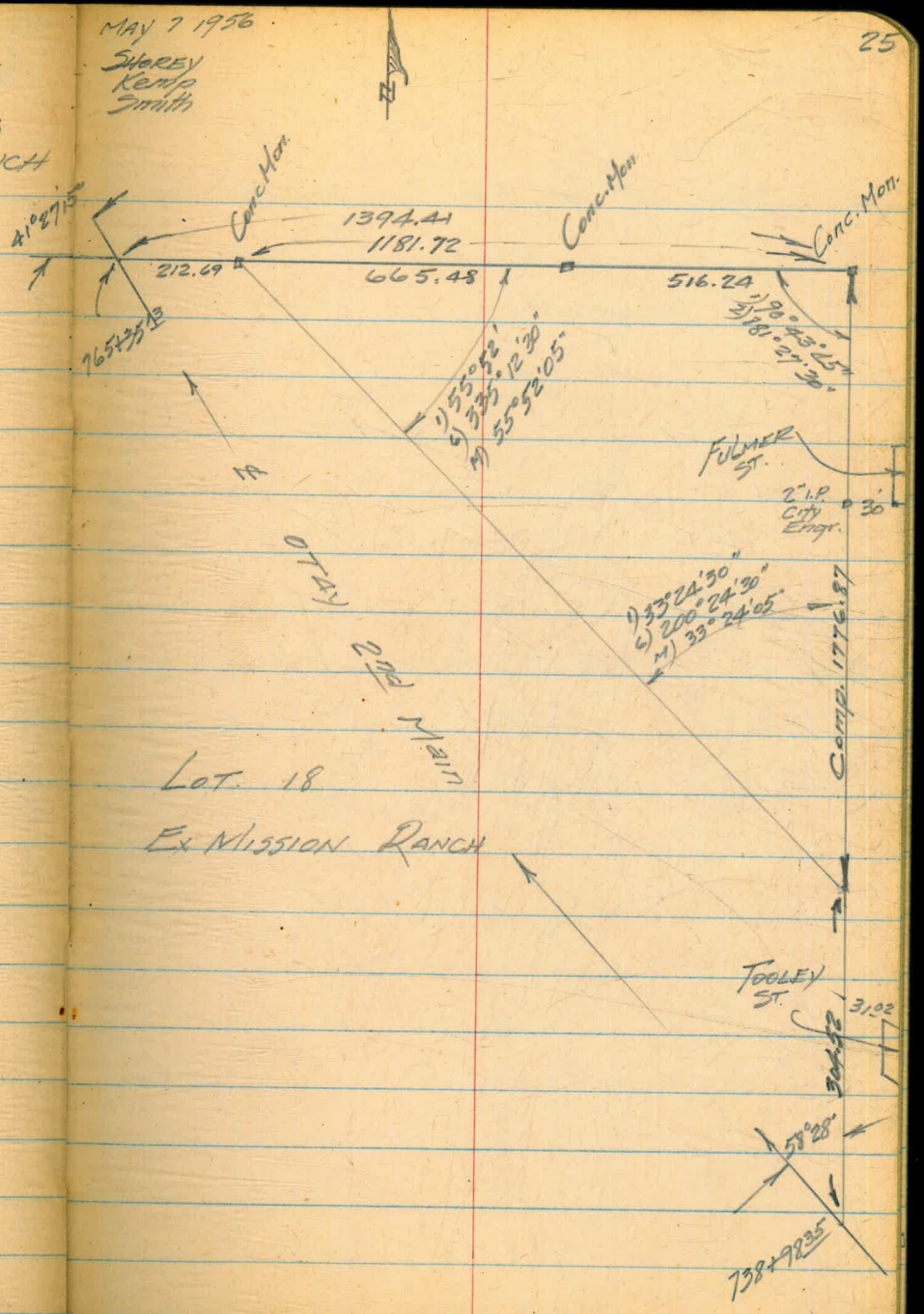
3/20/56
Shorey.
Martell.
Kemp.
Smith.

800+66.29 AH. } EQ.
802+21.04 BK. }



OTAY 2nd Main P.L
Additional & REVISED TIES
LOT 18 Ex MISSION RANCH

MAY 7 1956
SHOREY
Kemp
Smith



OTAY 2nd MAIN

note RP's are from forward Tangent

579+03 70 P.O.T.

575+55 07 EC

575+04 80 Pi Set 1¼"×1¼" H+T Δ = 12°08' Rt

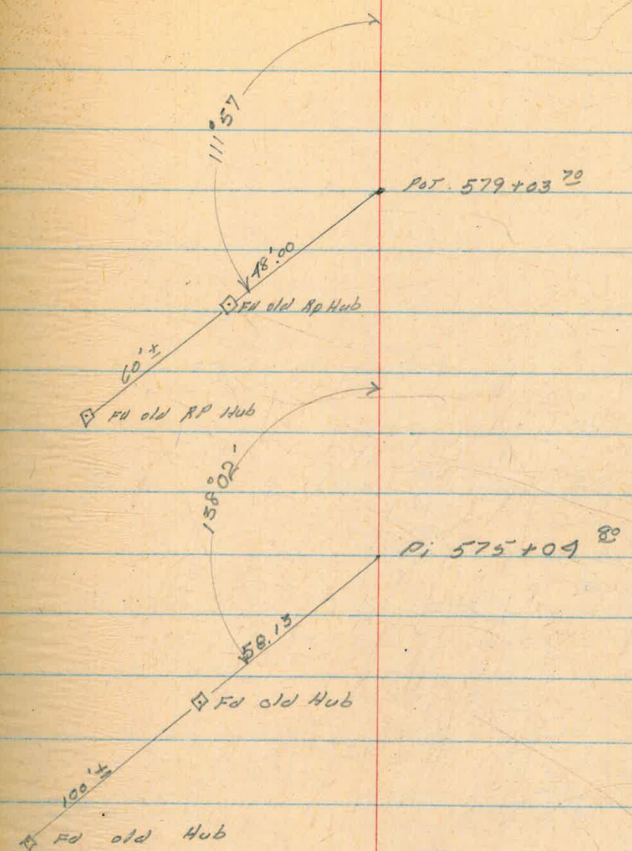
T = 50.84

574+57 96 ℄ 4" AV. R = 478.34

L = 101.11

574+53 94 BC

West
Williams
Kellhofer



571+27 — Last pier of Trestle

+15 3

4" BO

571+12 2 — first pier of Trestle

570+70 31 EC

570+02 1 — BO?

Δ = 24°48 Lt

T = 78.99

R = 359.26

L = 155.0

569+94 33 PI

569+15 31 BC

567+77 Last pier of Trestle

567+31 9 First " " "

566+80 34 EC

566+18 67 PI

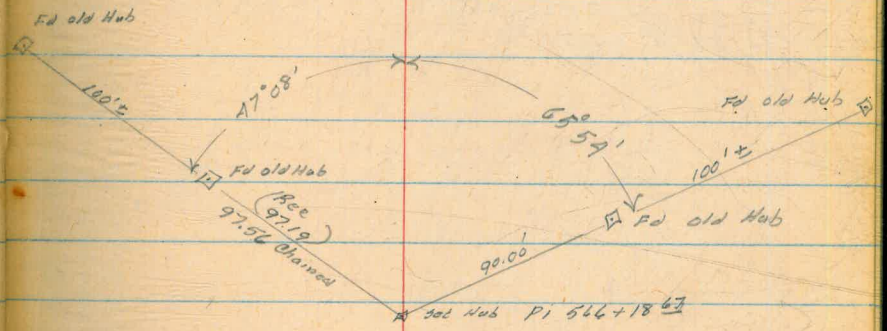
565+77 9 4" AV

565+75 1 4" AV

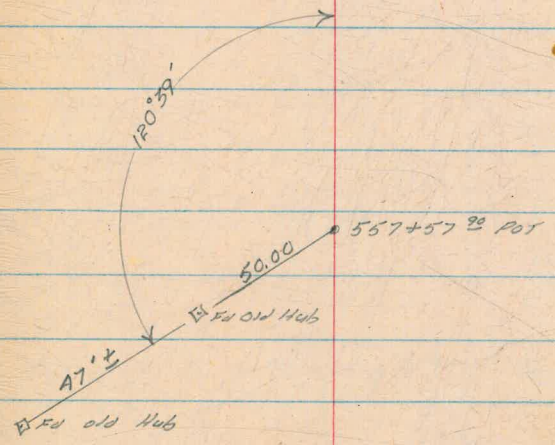
565+56 59 BC

Rec.
Δ = 9° 54 Lt
T = 62°08'
R = 716.78

Turned according to RP Hubs
Δ = 9°50'40" Lt



560+64.2	LAST PIER OF TRESTLE
560+34.2	FIRST PIER OF TRESTLE
560+32.5	4" B.C.
557+57.92 POT	
556+77.38	4" A.V.
556+75.4	4" A.V.



OTAY 2nd MAIN Cont

556+16.90 EC

555+66.81 PI

555+16.48 BC

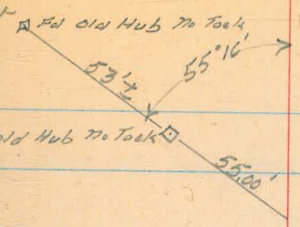
Δ = 8°02'
T = 50.33
R = 716.78
L = 100.42

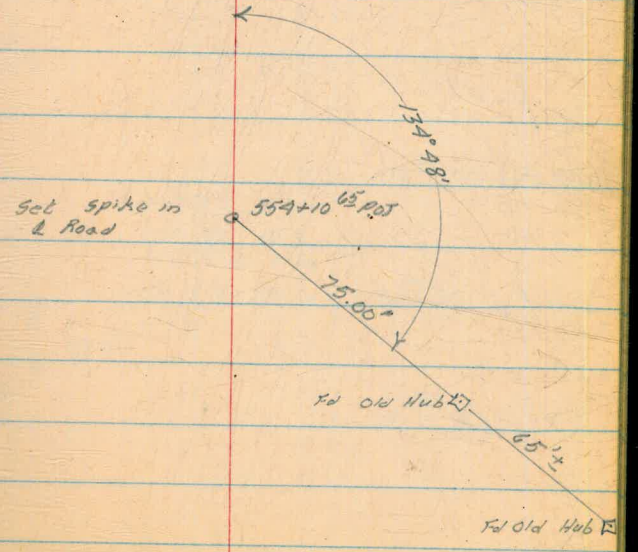
554+10.65 POT

West
Williams
Kellhofer

30

2/15/57





549+87 LAST PIER of TRESTLE

+59.5 4" B.O.

+42 FIRST PIER of TRESTLE

548+79 LAST PIER of TRESTLE

+66 FIRST " " "

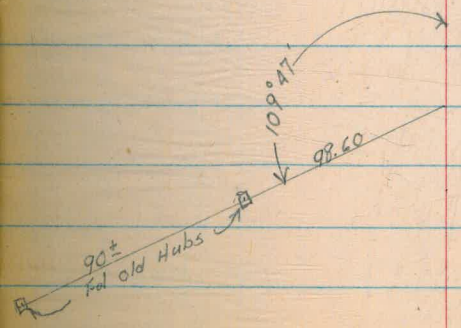
548+40.17 EC

Δ = 25°14'L
T = 80.41
R = 359.26
L = 157.71

547+62.81 PI

546+82.96 BC

544+98.53 A.Y.



540+86	4" B.O.	
+67	Beg. Cultivated Field	
539+60.38 EC		
	Δ = 17°43' Rt T = 111.71 R = 716.76 L = 221.46	(Turned 17°42'20" Calc 2/20/57)
538+50.53 PI		
537+38.82 BC		
535+83.10 P.O.T. Set	2"x2" Hub + Tack	
535+76.9	4" A.V. With 2" Wat. Met.	Outlet
535+73.6	4" A.V. With 2" Wat. Met.	Outlet

535+63.1 FENCE XING & PROP. LINE

527+00.00 SLY SIDE DIRT ROAD. BEGIN LEMON ORCHARD

526+27.5 ℄ 4" B.O

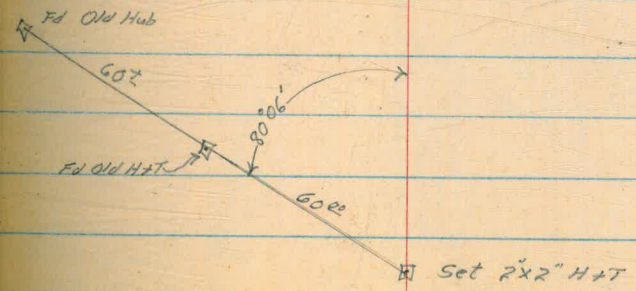
524+25		END LEMON ORCHARD
522+28.82	POT.	SET 2X2 HUB
522+24.2	4" A.V.	
522+22.2	4" A.V.	

516+91.1 LAST PIER OF TRESTLE

516+73.2 4" B.O.

516+46.2 FIRST PIER OF TRESTLE

P.O.T.
515+95.26 SET 2X2 HUB & T. WE MARK THIS 515+94.79



West
Williams
Kellhofer

(cold)

3/21/57

OIL ROAD

513+72.44 SET NAIL POSSIBLE @ AVENIDA SANMIGUEL

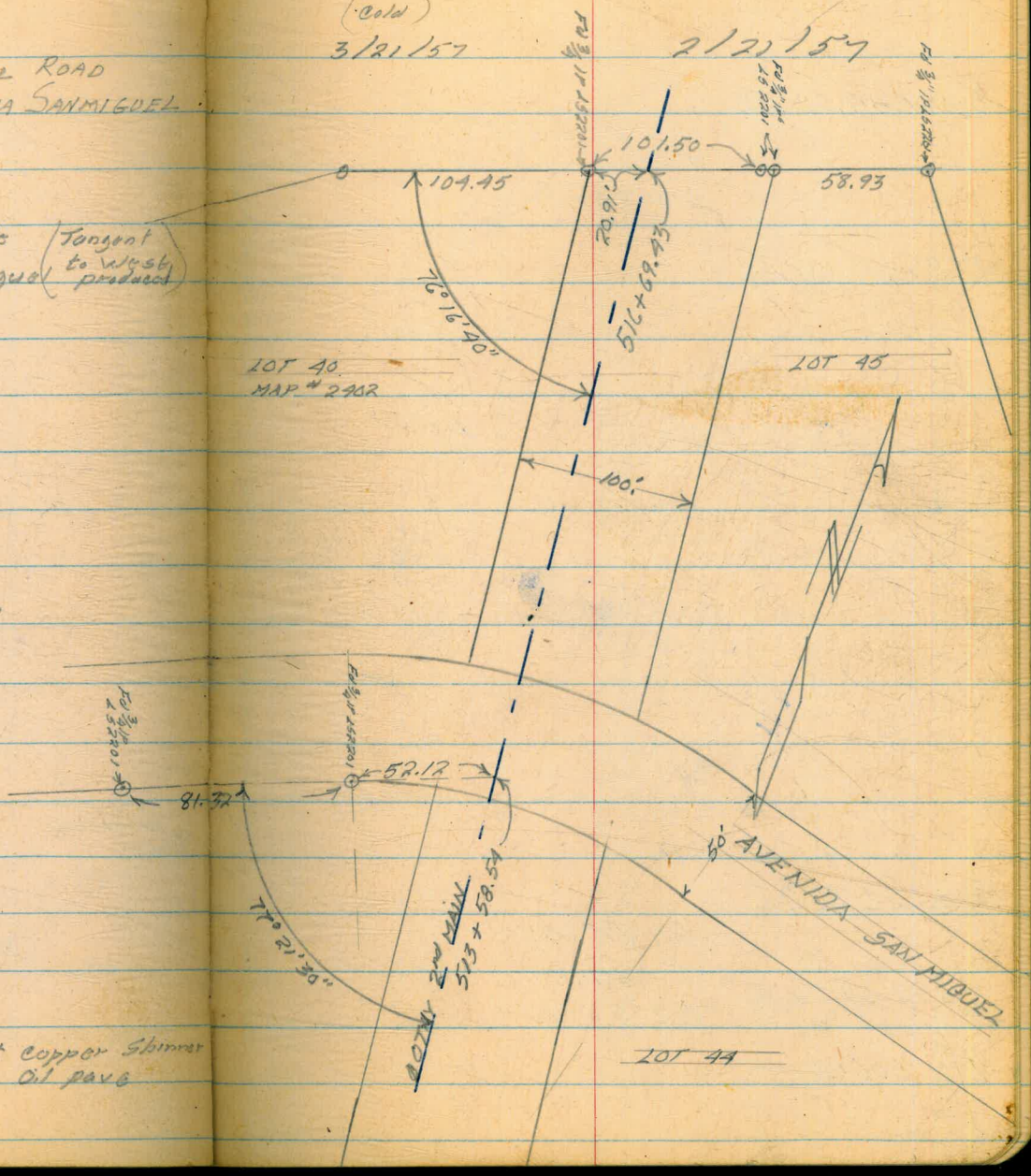
513+58.54 inter with Sly Side of Avenida San Miguel (Tangent to wigst produced)

512+11 69 POT Set 3/4 IP

512+10 4 4" AV

=510+36.49 AH
510+46.73 BK

508+93.24 ∠ 49° 35' Lt Set copper Skimmer in Oil pave



508+44.10 EC

Δ = 5°53' Rt
T = 18.46
L = 36.77

508+07.33 BC

EC 507+55.95

Δ = 11°00' Rt
T = 34.59
L = 68.75

507+21.79 Pi

BC 506+87.20

△ 507+21.79 Pi Set 1"x1" Hub

West
Williams
Kellhofer

3/20/57

506+53.58 EC

Δ = 17° 00' Rt
T = 39.16
L = 77.27

505+76.31 AH
BC 505+79.57 BK

506+09 E

505+57 I
505+53.68 AH
= 505+54.10 BK

4" BO'

PP 1 E Lt # 183727

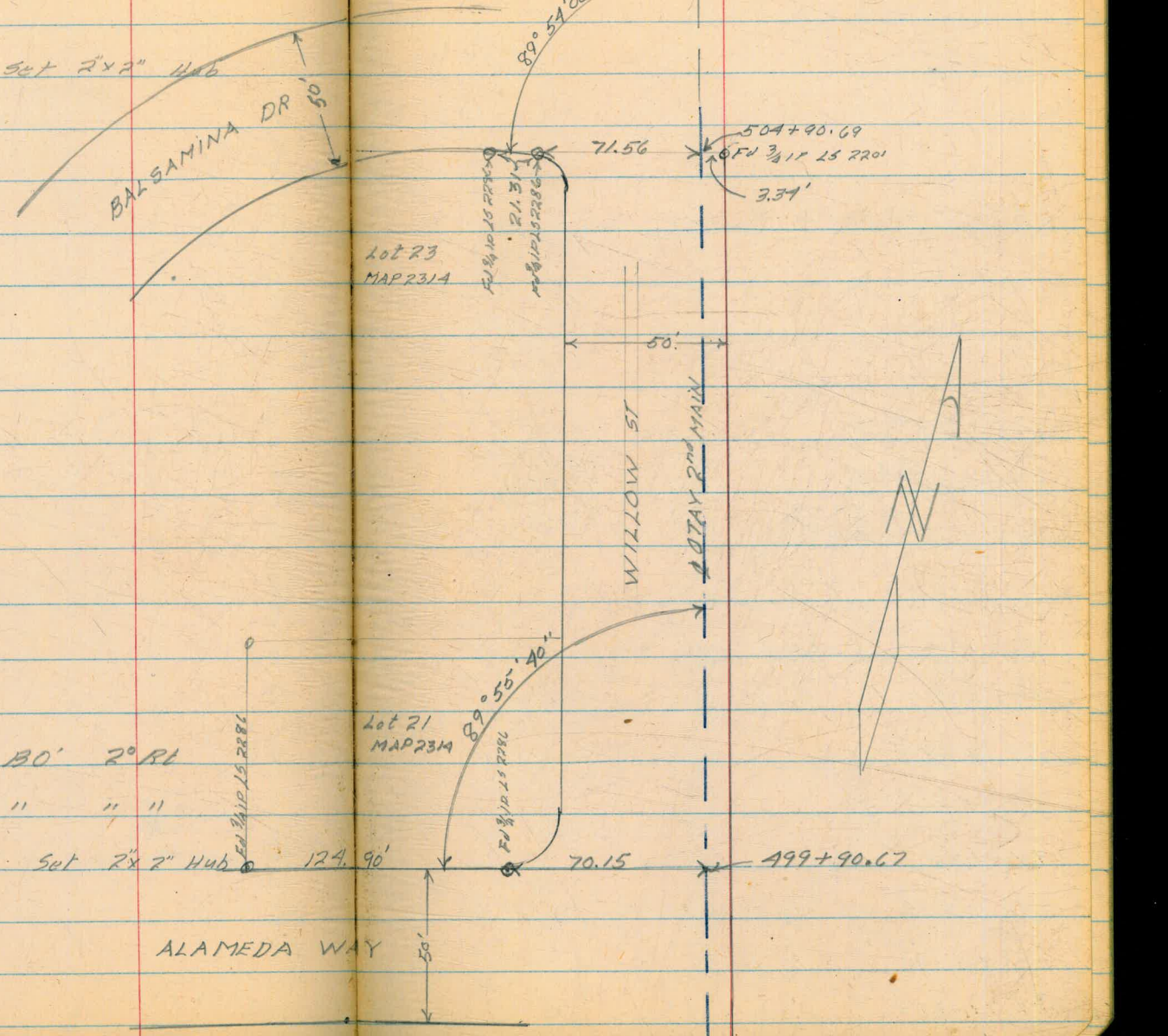
Δ 28° 20' Rt (Old 505+52.48)

502+78.79 POT Set 2"x2" Hub

498+26 4" BO' 2° RL

498+22 " " " "

498+05.43 POT Set 2"x2" Hub

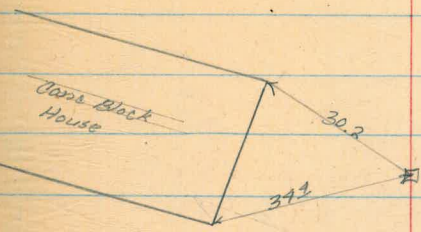


OTAY 2nd Main Cont

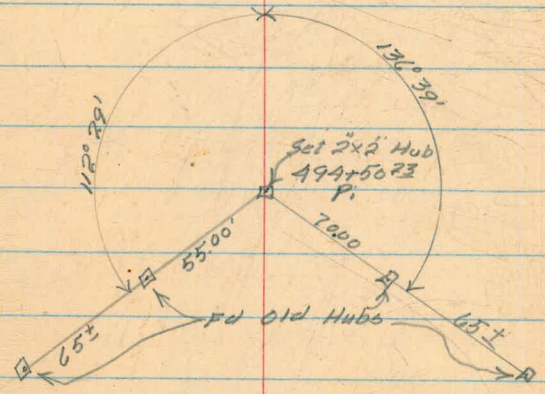
West
Williams
Kellhofer

3/18/57

495+63.48 P.O.J Set 2"x 2" Hub



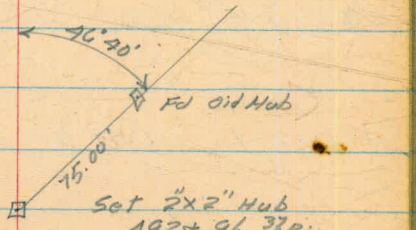
494+79.51 EC Δ = 7°03' Lt
494+50.23 Pi T = 29.47
494+20.76 BC R = 478.34
  L = 58.75



493+70.7 Last pier of Trestle

493+09.3 First pier of Trestle

493+39.62 EC Δ = 6°56' Rt
492+96.37 Pi T = 43.42
492+52.95 BC R = 716.78
  L = 86.67

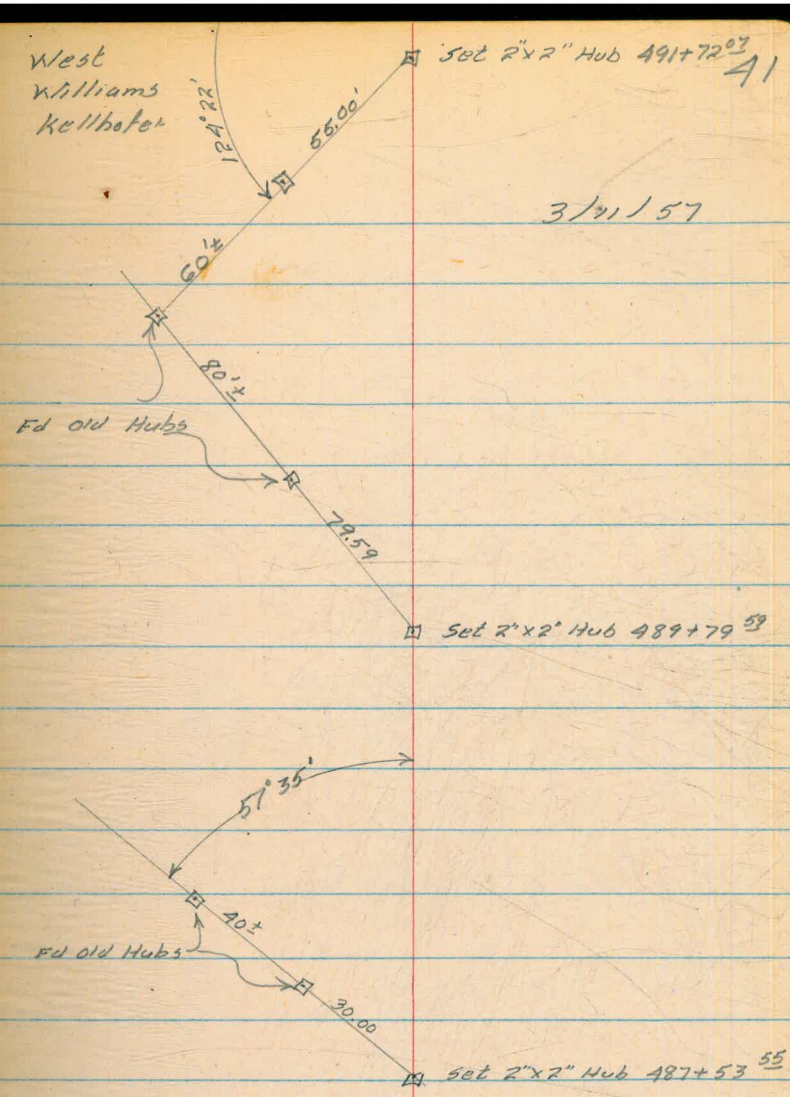


492+52.9 Last pier of Trestle

492+47± Calif Water + Tel 24" riveted Steel Xing

492+41.7 first pier of Trestle

West
Williams
Kellhofer



491+72 07 P.O.I

491+54 4" AV

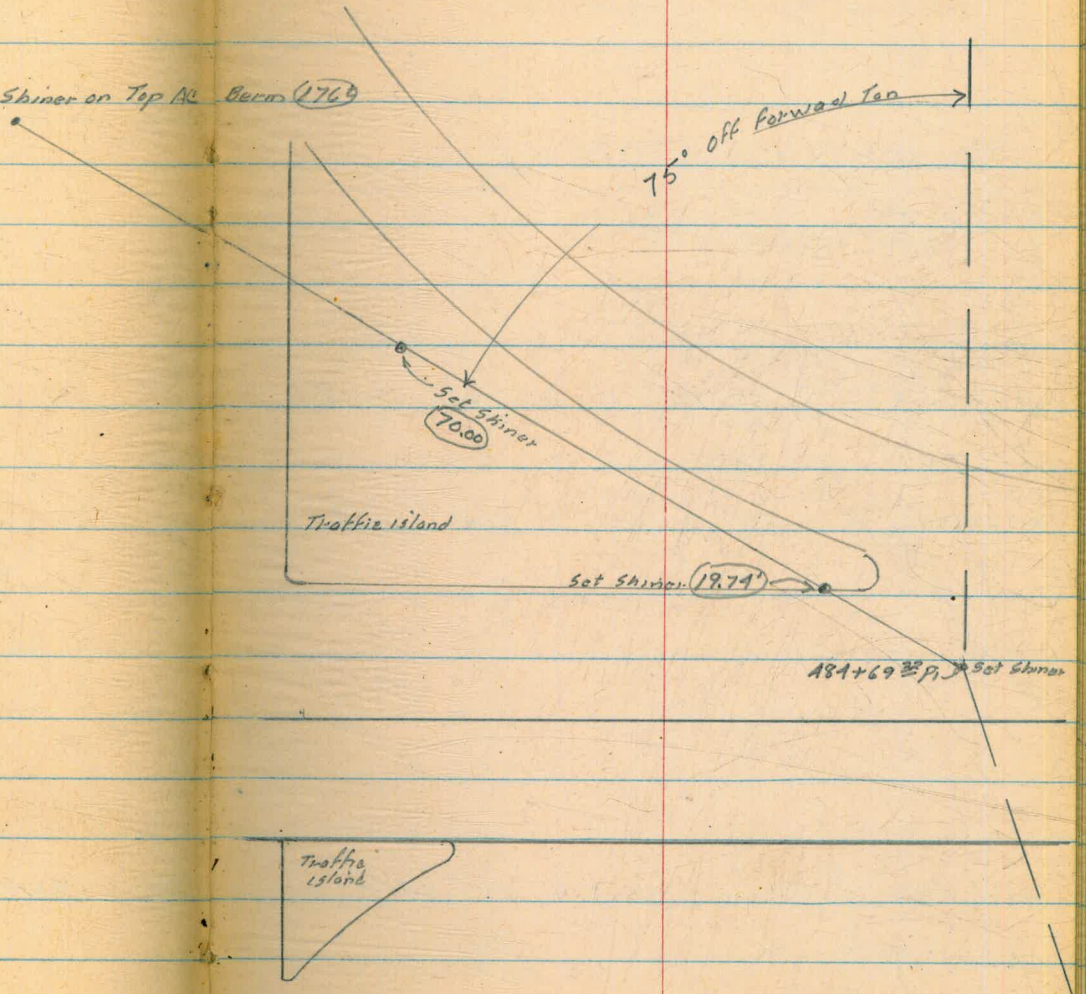
491+52 4" AV

489+78 59 P.O.T

487+53 55 P.O.T

485+37± 6" GV on ℄ 9° Rt 10" TRIDENT COMPOUND METER

06 01
49.96
56 05



485+43 75 EC
484+69 32 PI
483+92 08 BC

Δ = 24° 16' Rt
T = 77.24
R = 359.26
L = 151.67

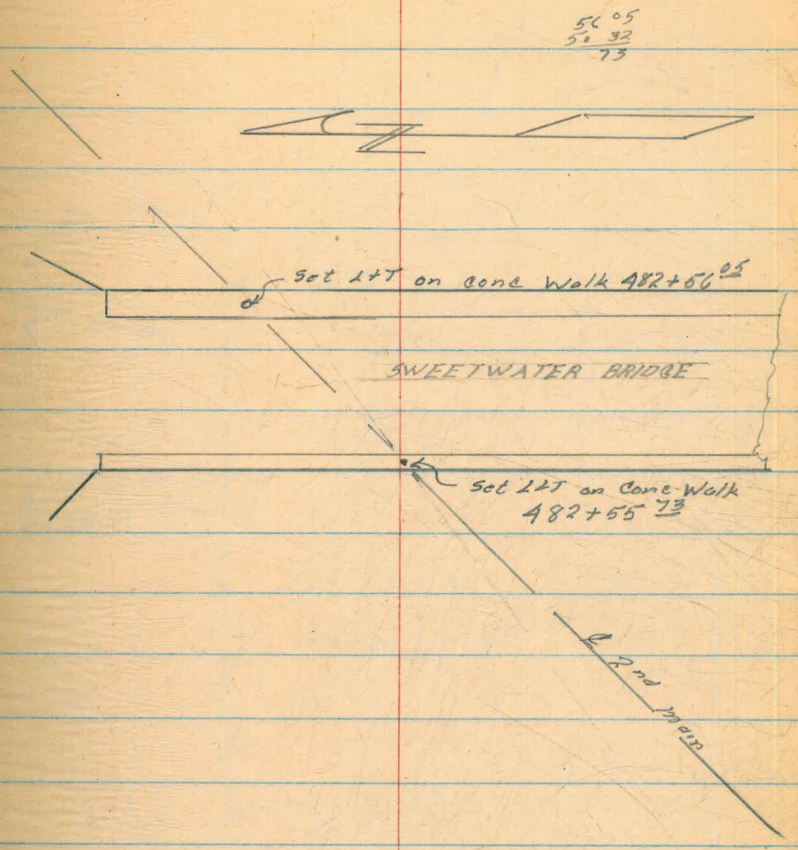
EC
(483+06.16 Rec)
483+06.01 PI
BC

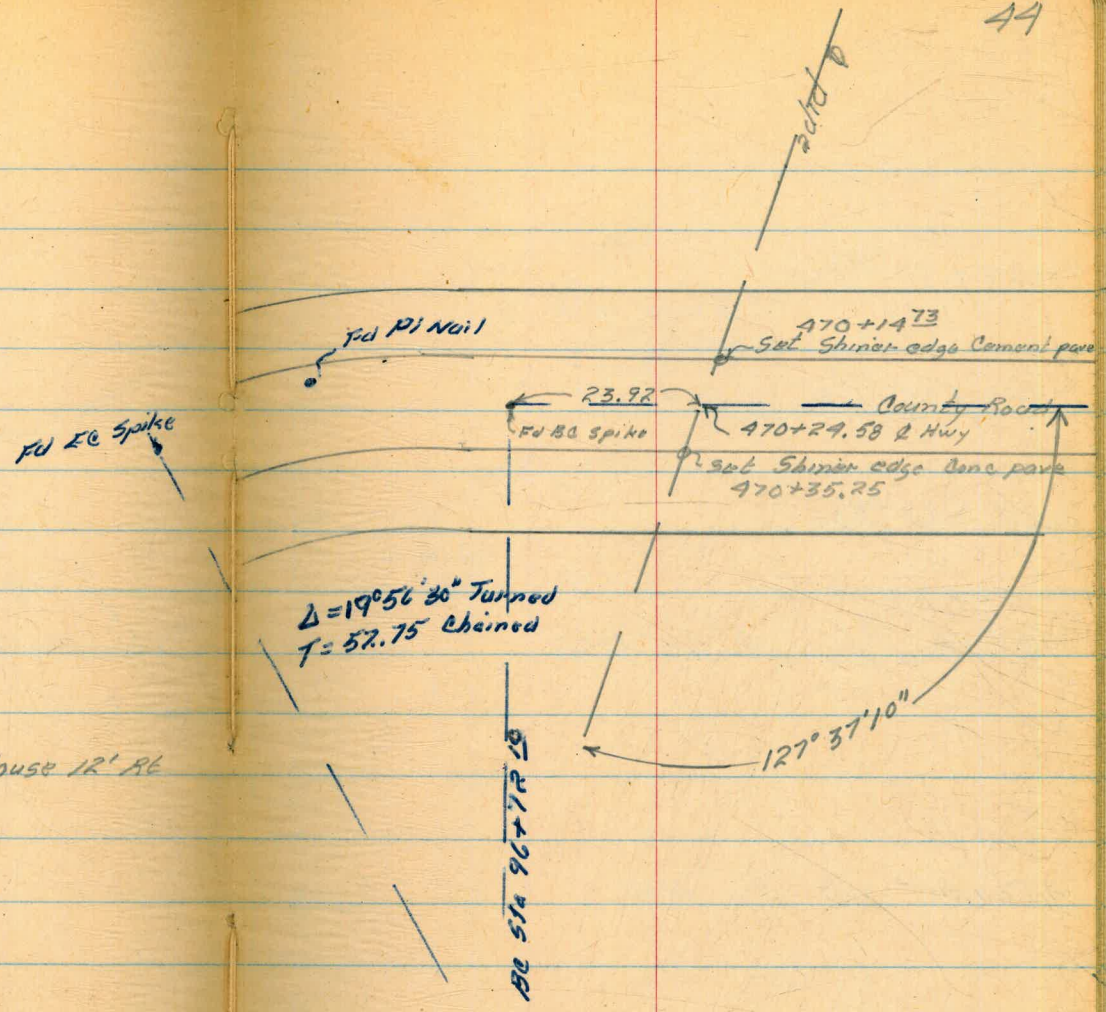
(24° 47' Lt Rec)
24° 51' 15" Lt

482+57 6" BO

482+00 20° Rt to 20" Steel Pipe Line
475+00 20° " " " " " "
473+90 81 20° " " " " " "

474+55 18 EC Δ = 20°54'46
473+90 81 PI T = 66.26
473+24 55 BC R = 359.26
L = 130.63





470+00

469+25 4" Air-Valve

468+96.7 NW Cor. Stucco House 12' Rt

468+79.42 EC

Δ = 10°39' Rt
T = 33.48'
R = 359.26
L = 63.65

468+46.33 Pi

468+12.86 EC

467+79.7 Conc Support For Pipe

190° 11'
148° 57'
41° 14'

466 + 36 $\frac{98}{}$ EC

Δ = 10° 11' R
T = 32° 01
R = 359.26
L = 63.65

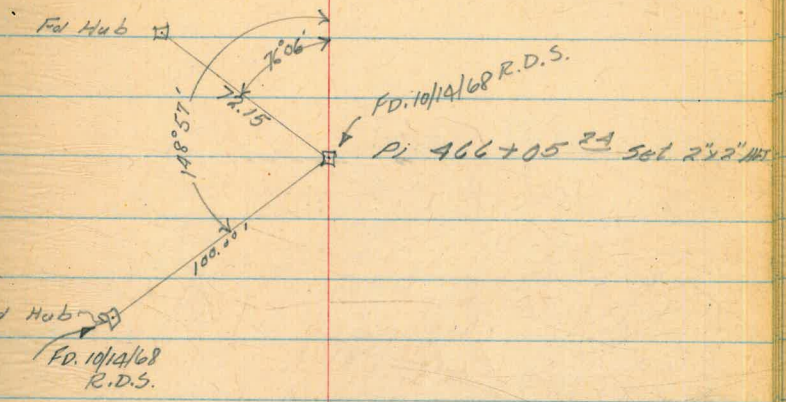
466 + 05 $\frac{24}{}$ PI

465 + 73 $\frac{23}{}$ BC

464 + 43 $\frac{59}{}$ 4" Air Valve

458 + 00 $\frac{00}{}$ POT Set Nail

457 + 02 $\frac{86}{}$ 4" Air Valve



456 + 08 $\frac{26}{}$ POT

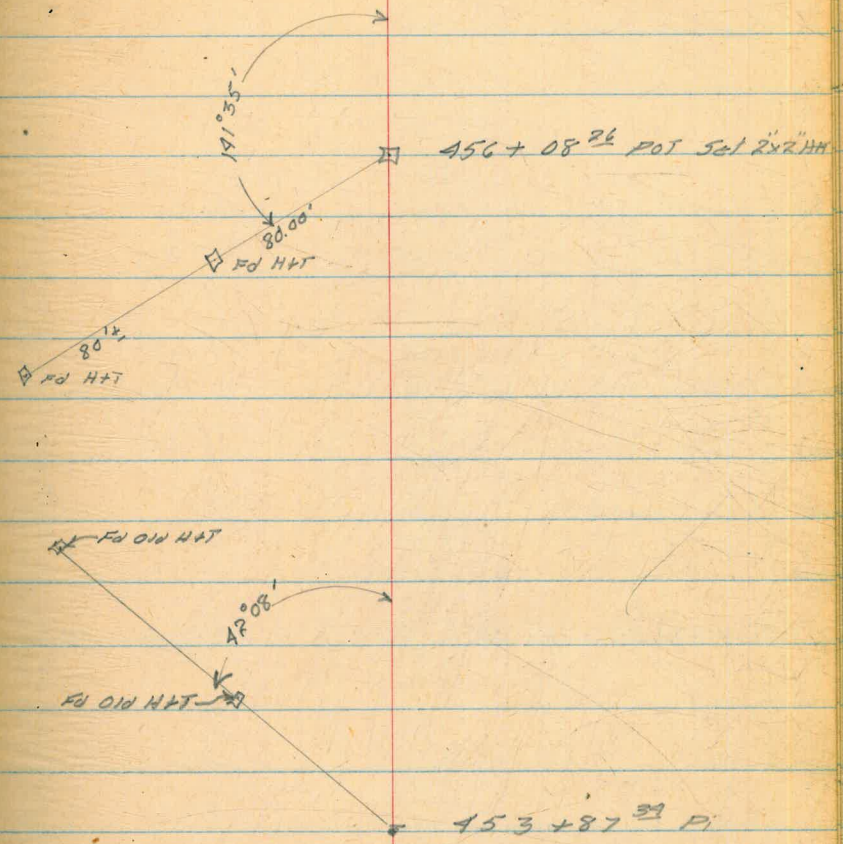
454 + 22 $\frac{91}{}$ EC

453 + 87 $\frac{39}{}$ PI

Δ = 5° 42' RT
T = 35.68
R = 716.78
L = 71.25

453 + 51 $\frac{66}{}$ BC

453 + 18 $\frac{14}{}$ BO



450+00.00 POT Set spike on NWly side AC Road

448+34.56 POT Set 2"x2" Hub & Tack

447+50.00 POT Set Spike on SWly edge AC Road

OTAY 2nd Main Retracement

West
Williams
Kellhofer
Smith

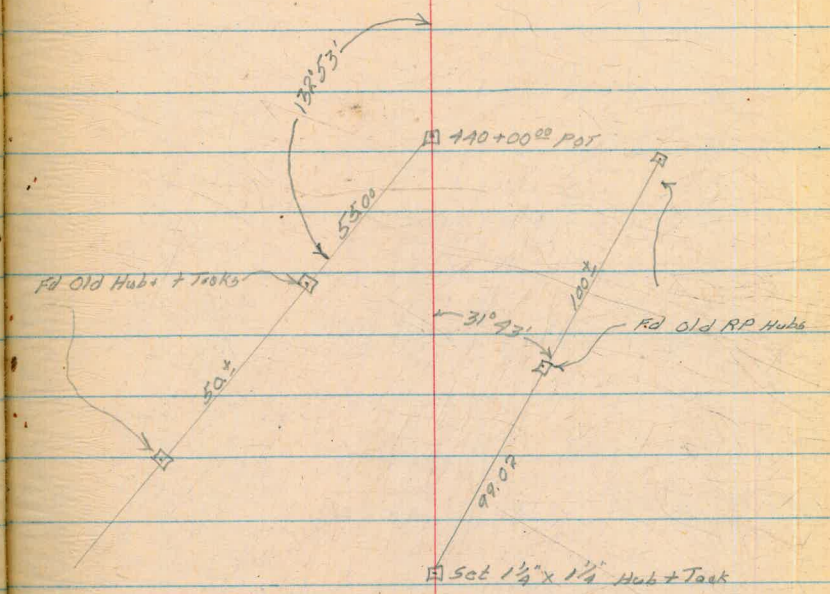
444+29.51 EC	
443+86.5	4" AV
443+82.3	4" AV
443+76.1	4" AV now has water Meter Manifold
443+68.17 PI	Δ = 14° 50' L T = 62.27 R = 478.34 L = 123.21
443+05.90 BC	

140+00.00 POT

136+79.2 4" Air Valve on ℄

436+09.33 ℄ 0° 40' Lt

430+61.12



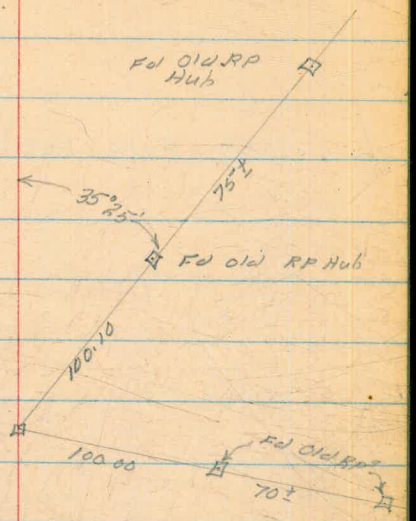
West
Williams
Kellhofer
Smith

3/4/57

430+73 $\frac{64}{}$ Δ 0° 57' 00 Rt

430+61 $\frac{12}{}$ ℄ Air Valve

430+51 $\frac{67}{}$ ℄ 30" GV in Conc Chamber



OTAY 2ND. MAIN TIES

West
Williams
Kellhofer

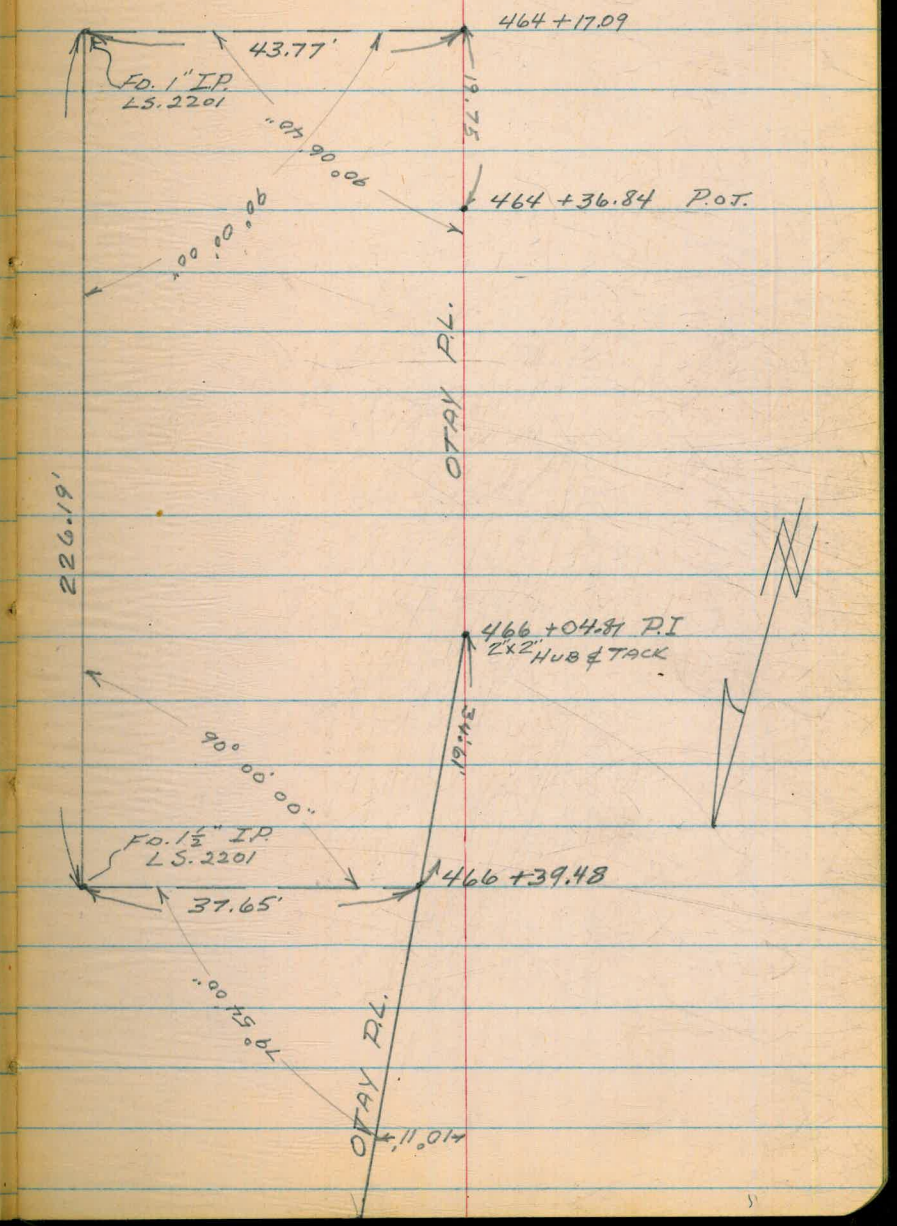
3/26/57

464 + 17.09

464 + 36.84 P.O.T.

466 + 04.87 P.I
10° 11' Rt.

466 + 39.48



179 60
16 53
163° 07

28.42
9.48
18.94

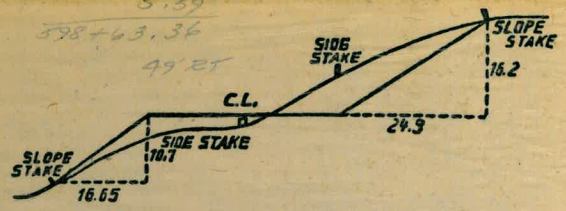
71 36
8 38
62° 58'

446.57

678+28
678+76
So. EDGE A.C. ON IMP. AVE.
NOR. EDGE A.C.

40.21
22.95
17.26

598+68.95
5.59
598+63.36
49' RT



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

THE NATIONAL BLANK BOOK COMPANY
HOLYOKE MASSACHUSETTS
NEW YORK CHICAGO BOSTON SAN FRANCISCO