NAME CAUSEWAY
Alignment.
Class ..... Course ..... Party Crote

Book 61

WATSON, VALLE & GOUGH, INC.

~~350~~
1457

FIELD NOTES

No. 403P

ESPECIALLY ADAPTED

TO THE USE OF

ENGINEERING STUDENTS

EUGENE DIETZGEN CO.
MANUFACTURERS
DRAWING MATERIALS
MATHEMATICAL AND SURVEYING INSTRUMENTS
MEASURING TAPES

CHICAGO SAN FRANCISCO NEW YORK
NEW ORLEANS PITTSBURGH

MISSION BAY

CAUSEWAY

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DEC 23 1964

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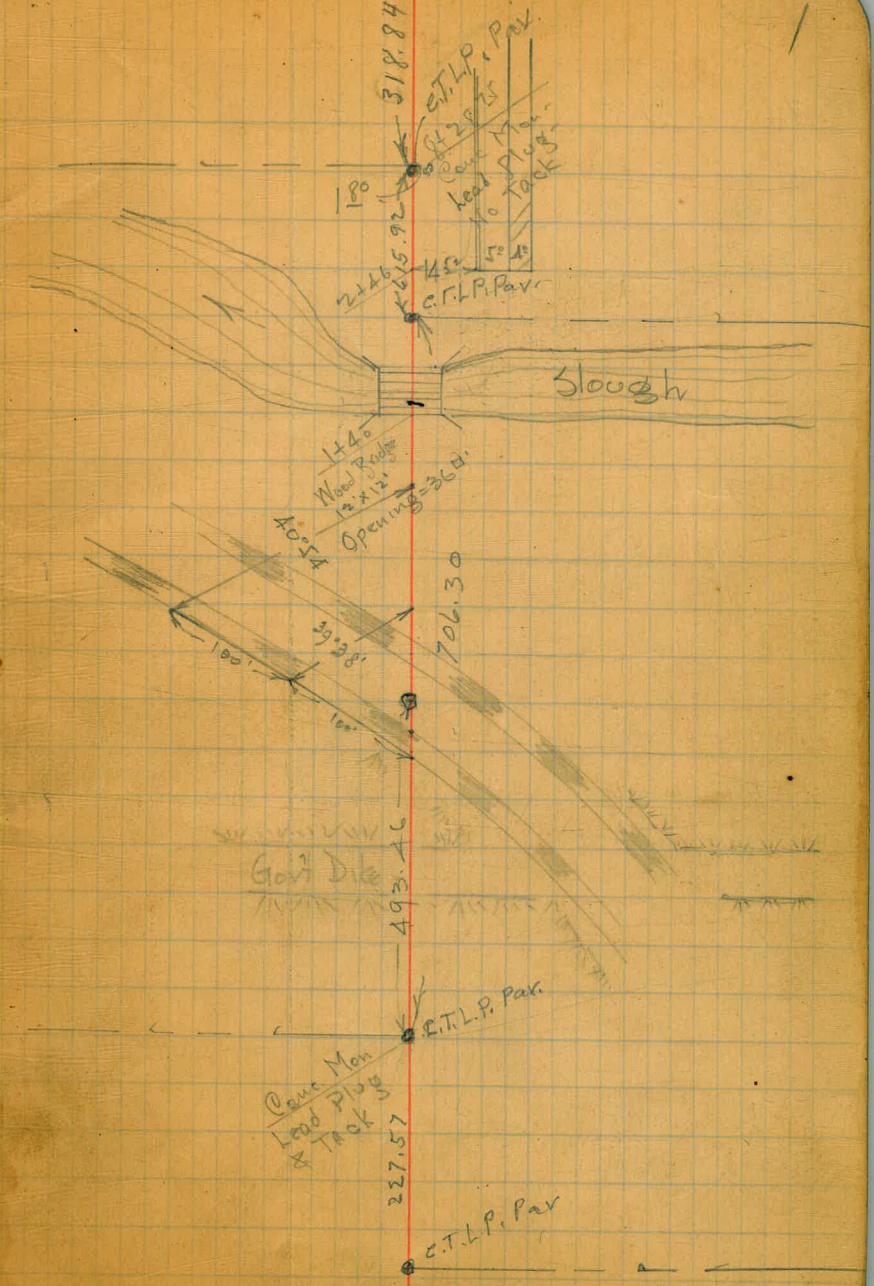
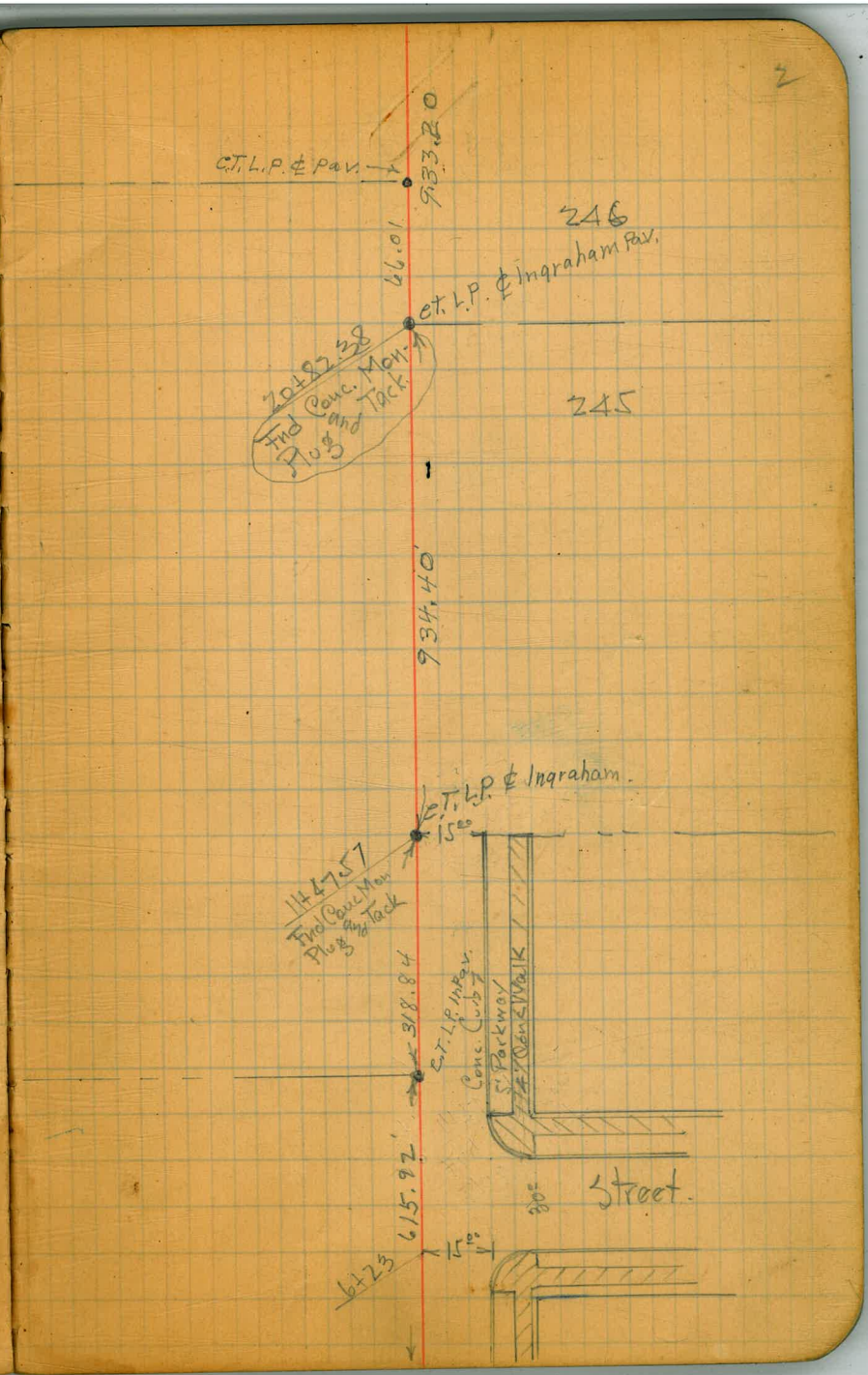
Sta.	Dist.	Angle Az.	Angle Def.
0+00	1147.01		

N.t. T. in Guy Pole

Set N.E. T. 6569

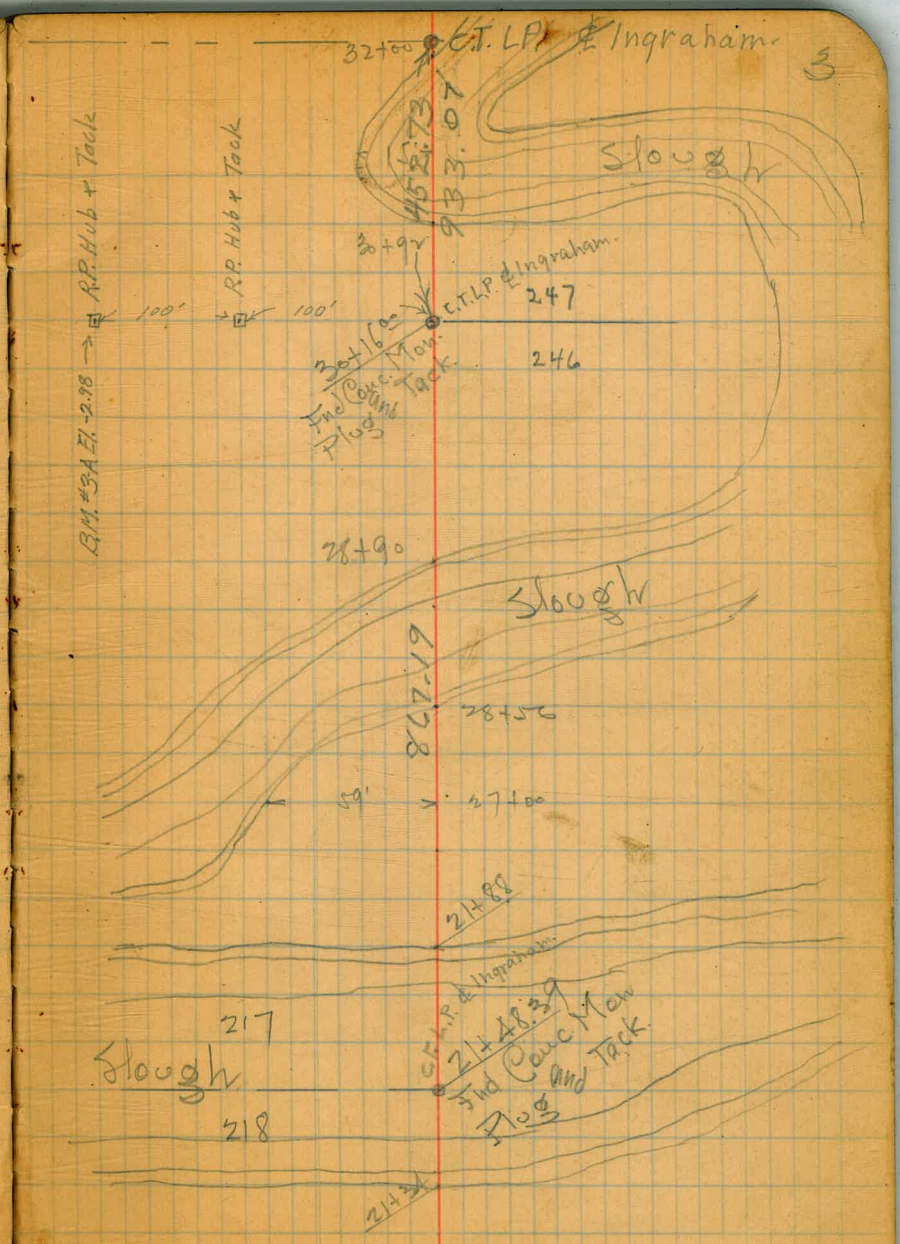


Sta.	Dist.	Angle Az.	Def.
20+82.38 P.I.		180°10' 360°20	0°10'Rt.
	934.81		
11+47.57 P.I.		179°59' 359°57½	0°01'Lt.

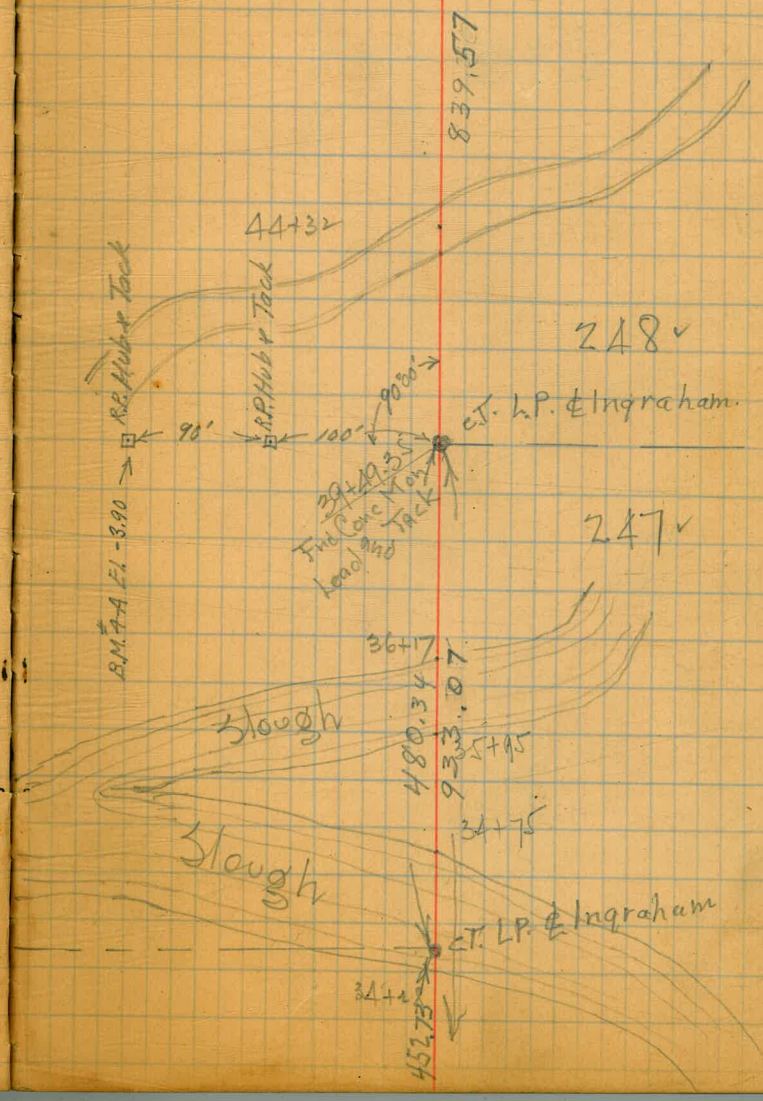


Sta.	Dist	Angle Az	Def.
30+16.00 P.I.		179°50'	
		359°40'	
21+48.39 P.O.T.			

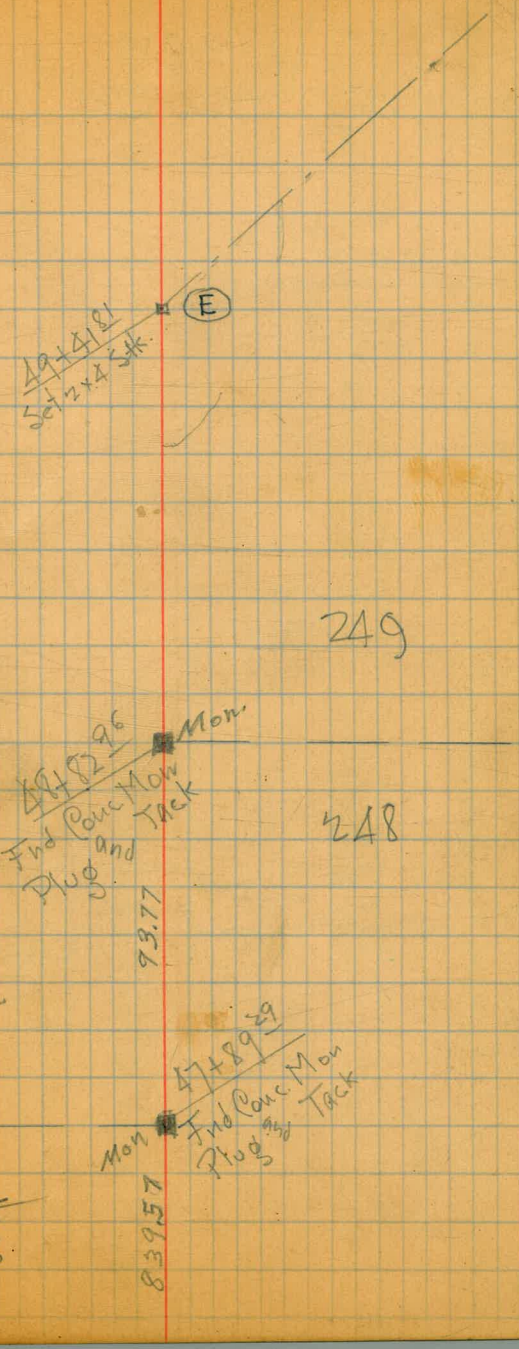
933.67
933.20



Sta.	Dist.	Angle Az.	Def
39+49.35 P.O.T.			
	98.81		



Sta.	Dist.	Angle Az.	Def.
49+41.81 P.I.		223°36' + 87°12	43°36' Rt.
48+82.96 P.O.T.	59.87		
47+89.29 P.O.T.			



Sta.	Dist	Angle Az.	Def.
69+73.85			
69+75.63 P.O.T.			

6

74+00
64+73
4 27

1247.0
427.0
820.0
750.00
70.0 ft

Traing. Sta. A

69+75.63
Set 7+A+L.b

R.P. Hub + Tack

85'

100'

R.P. Hub + Tack

Approx 3' Conc. Mon.

Sta. 62+90 ±

55+04

54+37

54+60

50

Sta	Dist	Angle Az	Angle Def.
111+69.09 P.O.T.			
111+08.89 POT			

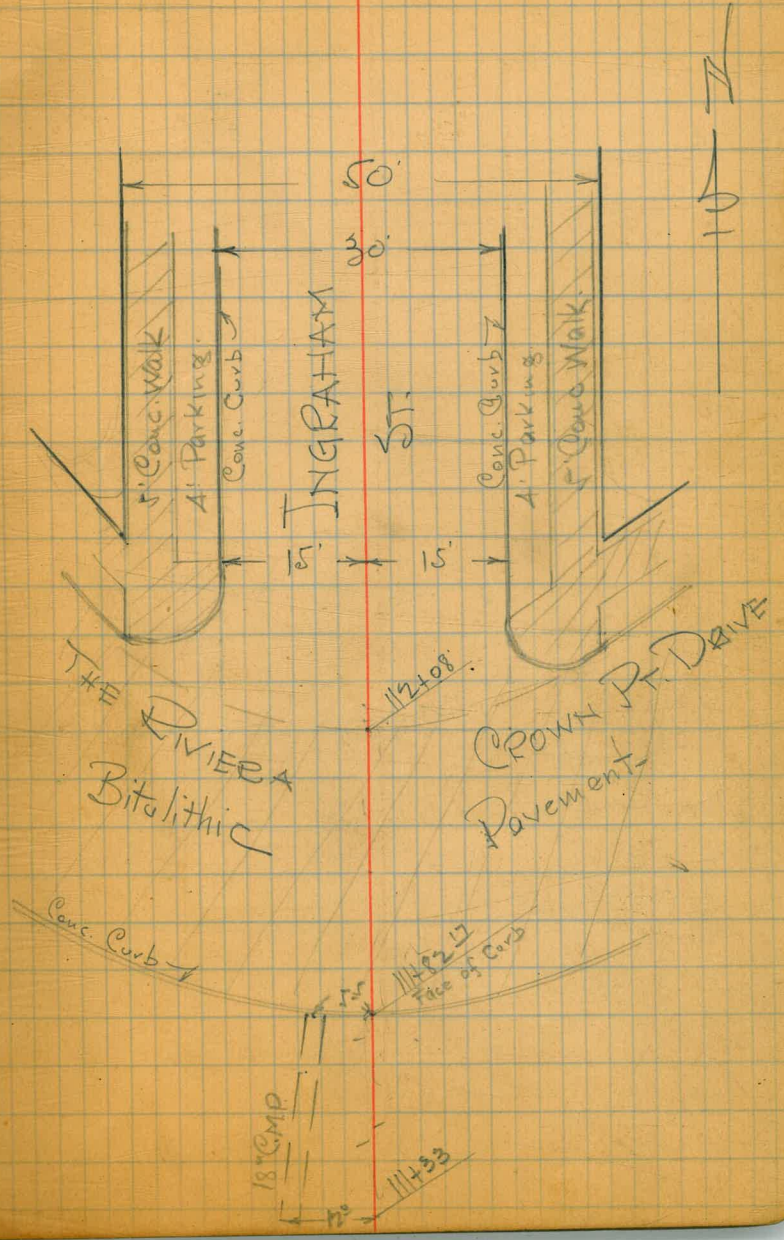
Triang. Sta "B"

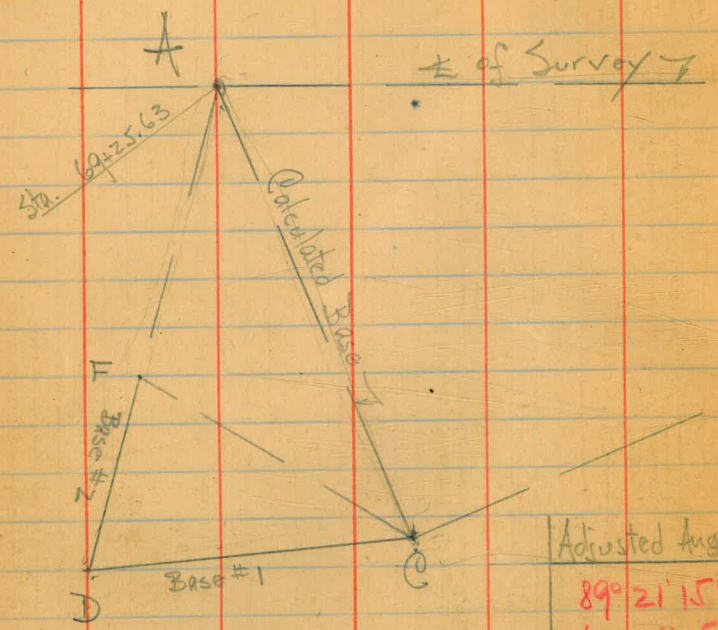
111+69.09 Set 2x24 tub

111+08.89 Set 2x24 tub on Beach

111+41 - Nail in first Bent - & False Work

111+81.83
Set head of Tack
in Curb.



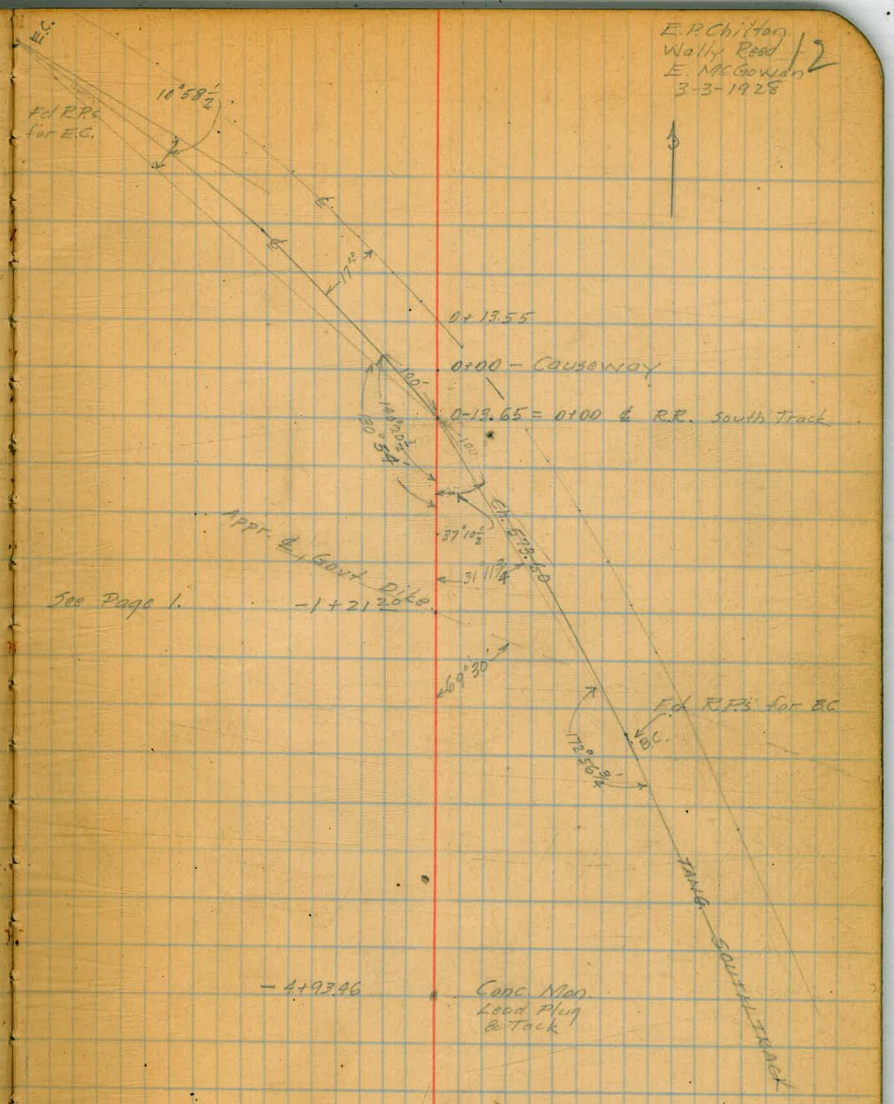


				Adjusted Angle
				89° 21' 15"
				42° 14' 05"
				79° 22' 30"
Base #1	1st Measmt	1729.52	Stiff Breeze	73° 24' 15"
	2nd "	1729.39	Light "	64° 21' 40"
	3rd "	1729.38	" "	38° 29'
				88° 25' 35"
				52° 09' 45"
Base #2	1st Measmt	1213.10	Light Breeze	36° 15' 50"
	2nd "	1213.09	" "	

Station	Angle	8 Times	1/8 Total
ACB	89° 21'	714° 50' 15"	89° 21' 17"
FCD	42° 14'	337° 53'	42° 14' 07½"
ACD	79° 22'	634° 58' 30"	79° 22' 18"
CFD	73° 24	587° 14	73° 24' 15"
ADC	64° 22'	514° 53'	64° 21' 37½"
ABC	38° 29'	307° 52"	38° 29'
BAD	88° 25½"	707° 24'	88° 25' 30"
BAC	52° 10'	417° 18'	52° 09' 45"
CAD	36° 16'	290° 06' 30"	36° 15' 49"

E. P. Chilton
Wally Reed
E. McGowan
3-3-1928

1/2



E.P. Chilton 3
3-3-1928

SOUTH FROM 0+00

E. W.

6.8	6.9	1.8	3.4	3.8	3.4	-2.1	-2.2
3	3	8	6	6	6	12	12
84	69	22	11	1	13	44	75

6.4	1.0	6.6	6.8	5.6	5.4	4.9	2.0	-1.7	-1.6
3	5	3	3	4	4	5	7	11	14
76	64	45	15	5	5	14	37	62	90

6.5	6.3	1.7	4.3	6.4	5.8	6.0	6.8	5.5	3.1	.9
2	3	8	5	3	4	3	3	4	6	9
90	69	48	31	14	4	4	24	33	78	100

6.7	5.9	0	2.2	5.6	5.9	6.0	5.3	7.1	6.9
3	4	9	7	4	4	3	4	2	3
94	58	35	14	5	2	10	23	42	80

5.9	5.8	.5	5.3	5.5	5.1	-.2	2.1	4.6	4.9	6.8
4	4	9	4	4	4	10	7	5	5	3
84	95	19	5	1	8	20	26	41	75	95

Top of Dike 8 75

5.9	5.7	4.6	5.2	4.8	-.7	-1.5	.5	1.2	2.1
4	4	5	4	5	10	11	9	8	7
75	17	9	7	8	18	25	54	57	67

-.7	5.3	5.6	5.3	0	-1.6	-2.0
10	4	4	4	9	11	11
75	55	3	7	20	43	75

.7	-.1	-.1	5.5	5.7	5.1	-.3	-1.3
9	10	10	4	4	4	10	11
75	69	48	28	2	48	44	75
					24		

Brass Cap in Conc. Mon.
U.S.C. & G.S. BM #61 in Ch. R.R. R/W 50' E 0+00

-1+57

-1+34

-1+18

-1+00

-0+75

-0+50

-0+21

-0+00

3.61 9.21

B.M. 6.30 City Elev

E W

-5+00

-4+50

-4+00

-3+64

-3+37

-3+00

-2+50

4.73 5.89

8.75 1.16

-2+00

-1+78

			-1.7	-.6	.1	.2	.2	-.3	-1.0	-3.1
			76	65	58	51	57	62	69	9e
			75	47	10		18	53	70	83
0	.2	-2.1	-2.2	.6	.6	.8	-.8	-1.6	-2.8	-2.8
59	57	8e	81	53	53	51	67	75	87	87
82	68	47	25	4		17	32	66	70	83
	-.3	.4	-1.5	.6	.4	.2	-.6	-3.3	-3.4	-2.8	-3.3
	62	55	74	53	55	51	65	92	93	87	92
	75	58	26	7		16	28	43	59	66	75
-.2	-2.4	-3.1	-1.0	.4	.4	.4	-.6	-2.8	-1.6		
61	82	95	69	55	55	55	65	87	75		
75	60	36	22	8		15	27	67	77		
-.2	-.5	-2.1	-2.3	-3.0	-.6	.9	.8	.6	-1.2	-1.9	-.9	-1.1	-2.1
61	62	8e	82	89	65	5e	51	52	71	78	68	7e	8e
80	64	54	45	38	26	7		15	26	37	42	58	69
		-2.7	-2.9	.1	.9	1.0	.6	-4.0	-4.0	-.8	-.3
		86	88	58	5e	49	53	99	99	67	62
		75	65	26	9		17	31	46	56	80
-3.0	-2.4	-.3	.3	1.0	1.2	1.0	-3.3	-1.3	-.9		
89	83	62	56	49	47	49	92	72	68		
85	60	50	17	8		19	41	68	83		
		-.4	-.2	1.7	1.8	1.8	-3.0	-2.8	-1.9	-1.8	-3.2
		103	101	82	81	81	129	121	118	117	131
		75	25	12		15	32	43	61	71	90
		2.1	.4	.3	2.4	2.5	2.5	-3.8	-2.2	-1.7	
		78	95	96	95	74	74	137	121	116	
		85	60	26	10		13	40	65	75	

E W

BM. U.S.C&G.S. '61		3.17	6.30	=	6.30
	8.22	9.47			
		4.64	1.25		

See P. 13

-8+00

-7+50

-7+00

-6+50

-6+00

-5+50

-.3 / 6.2 / 75	-.3 / 6.2 / 43		-.5 / 6.1 / 15	-.1 / 6.2	-.2 / 6.1 / 16	-.5 / 6.4 / 20	-.5 / 6.4 / 75
-.2 / 6.1 / 75	-.3 / 6.2 / 44	-.6 / 6.5 / 16	-.1 / 6.2 / 11	0 / 5.9	-.3 / 6.2 / 16	-.7 / 6.6 / 23	-.5 / 6.4 / 57	-1.5 / 7.4 / 84
			-.3 / 6.2 / 75	0 / 5.9	-.2 / 6.1 / 16	-.6 / 6.5 / 23	-.4 / 6.3 / 60	-1.3 / 7.2 / 80
			-.8 / 6.7 / 75	0 / 5.9	0 / 5.9 / 15	-.6 / 6.5 / 21	-.6 / 6.5 / 57	-1.8 / 7.7 / 75
		-.1 / 6.0 / 75	-.2 / 6.1 / 10	0 / 5.9	-.1 / 5.8 / 15	-.5 / 6.4 / 24	-1.2 / 7.1 / 35	-2.0 / 7.9 / 75
-.1 / 6.0 / 75	.3 / 5.6 / 60	-.2 / 6.1 / 45	.2 / 5.7 / 10	.2 / 5.7	.3 / 5.6 / 15	-.8 / 6.7 / 22	-.5 / 6.4 / 57	-2.7 / 8.8 / 82

Extended Sections North of R.R.
See Book #391

1+91

1+67

1+50

1+33

1+00

0+70

0+56

0+25

0+00 See 3.17 See P.13 9.47

B.M. 6.30

W. E. P. Clifton 3-3-'26 E

-1.1 10⁶ 100 | -2.5 12⁰ 70 | -2.2 11⁷ 78 | -3.5 13⁰ 39 | -3.6 12⁵ 19 | .2 9⁵ 7 | .5 9⁰ | .9 9⁴ 6 | -3.0 12⁵ 13 | -3.2 12⁹ 23 | -1.5 11² 27 | -.2 9⁷ 52 | -1.5 11⁰ 100

-.5 10⁰ 93 | -3.0 12⁵ 56 | -2.3 11⁸ 39 | -3.0 12⁵ 26 | -2.8 12³ 20 | -2.8 12³ 12 | .5 9² 5 | .8 8⁷ | .8 8⁷ 9 | -3.0 12⁵ 15 | -3.5 13² 23 | -2.7 12² 35 | -2.6 12¹ 38 | -1.3 10⁸ 40 | -2.6 12¹ 56 | -.5 10⁰ 65 | -1.3 10⁸ 100

.7 8⁸ 100 | -1.5 11² 86 | -1.1 10⁶ 70 | -1.9 11⁴ 49 | -3.3 12⁸ 45 | -3.1 12⁶ 75 | -3.4 12⁹ 100

.4 5¹ 105 | .8 8⁷ 90 | -1.4 10⁹ 81 | -1.9 10⁹ 45 | -2.6 12¹ 45 | -2.5 12⁰ 80

5.1 4⁴ 90 | 4.7 4⁸ 63 | .6 9⁹ 45 | -.4 9⁹ 58 | .3 9² 75

5.1 4⁴ 81 | 4.5 5⁰ 31 | 1.2 8⁹ 16 | 3.7 5⁸ 8 | 3.8 5⁷ | 3.6 5⁷ 6 | .7 8⁸ 17 | .9 8⁶ 40 | .3 9² 63 | 1.6 7⁹ 85

4.8 4⁷ 86 | 5.5 4⁰ 28 | 4.3 5² 12 | 4.2 5³ | 4.2 5³ 2 | .9 8⁶ 17 | .4 9¹ 69 | 1.7 7⁸ 84

.3 9² 84 | 5.3 4² 57 | 5.4 4¹ | 5.2 4³ 8 | -.3 9⁰ 27 | .7 8⁸ 87

See P.13

EP Chilton 17
3-3-28

3+00

2+42

2+17

2+00

5.5

5.5

5.5

-2.7 / 12⅝ / 100 -2.5 / 12⁰ / 89 .4 / 9¼ / 67

-3.0 / 12⅝ / 100 -2.8 / 12⅜ / 27 -.8 / 10⅜ / 14 -.5 / 10⁰ / -.5 / 10⁰ / 18 -.5 / 10⁰ / 37 -.2 / 9⅞ / 55 1.3 / 8⅝ / 100

-2.5 / 12⅝ / 100 -3.6 / 13¼ / 78 -3.7 / 13⅜ / 53 -3.3 / 12⅞ / 19 -.4 / 9⅞ / 7 -.3 / 9⅞ / -.2 / 9⅞ / 6 -2.8 / 12⅜ / 15 -2.8 / 12⅜ / 39 -3.3 / 12⅞ / 97

-1.8 / 11⅜ / 100 -2.3 / 11⅞ / 58 -3.7 / 13⅜ / 32 -3.0 / 12⅝ / 18 -.1 / 9⅝ / 10 .1 / 9¼ / .2 / 9⅜ / 6 -3.0 / 12⅝ / 13 -2.8 / 12⅜ / 21 -.1 / 9⅝ / 43 -.5 / 10⁰ / 53 -3.0 / 12⅝ / 68 -2.4 / 11¼ / 75 -3.6 / 13¼ / 100

E.P. Chilton 18
3-3-'28

PROFILE RR = EAST

Shots on South rail

S.E. on Curve appr. 0°23

0+00 = 0-13.65 Causeway Sta

			1.36	6.31 = 6.30
10+00			4.44	3.73
9+00			4.33	3.34
8+00			4.30	3.37
7+00			4.21	3.46
6+00			4.22	3.45
5+75.00	B.C.		4.13	3.54
5+00			3.70	3.97
4+00			2.58	5.09
	1.92	7.67		
			3.72	5.75
3+00			3.39	6.08
2+50			2.70	6.77
2+00			2.07	7.40
+50			2.35	7.17
1+00			2.92	6.55
0+00			3.71	5.76
	3.17	9.47		
BM				6.30

See p. 13

E.P. Chilton
Wally Reed
E. McGowan
3-3-1928

19

PROFILE R.R. — West

Shots on South rail

3.E on Curve appr. 0°23

0+00 = 0-13.65 Causeway Sta.

North rails of each track appr. Same Elev

South " " " " " " "

B.M.			3.03	6.30 + 6.30
	4.70	9.33		
			3.75	4.63
10+00			4.08	4.30
9+00			3.92	4.46
8+42.55	EC		3.80	4.58
8+00			3.85	4.53
7+00			3.73	4.65
	3.80	8.38		
			4.35	4.58
6+00			4.03	4.90
5+00			3.92	5.01
4+00			3.92	5.01
3+00			3.89	5.04
2+00			4.00	4.93
1+00			3.84	5.09
0+00			See P. 18	
	2.63	8.93		
B.M.				6.30

See P. 13

Exhibit 20
3-3-28

PROFILE OF DIKE

B.M.			630
0+00		5°	
1+00	East	4 3/4	
2+00	"	4 3/4	
3+00	"	4	
1+00	West	4 3/4	
1+72	"	3 9/4	

0+00 = -1+21 20

End of Dike

TOPOG

N1+08.89 – N1+81.83

West	H.I.
69	0.66
50	0.83
36	1.06
20	1.30
12	1.70
6	1.75
0	1.76

0 = N1+08.89 P.O.T.

See Sketch P 24

E.P. Chilton
Anderson
Reed.
4-28-29

21

— S — 0 — N —

-6.44	-4.34	-2.34						
7 1/2	5°	3°	+12°35'	+18°25'	+23°05'	+25°20'	+24°05'	
30		24	29	47	66	75	82	
-6.67	-6.07	-3.97	-2.47					
7 1/2	6 3/4	4 1/2	3 3/4	+20°35'	+28°20'	+30°45'	+32°30'	+30°40'
40	31		14	22	32	42	50	62
-6.74	-5.64	-3.74	-2.44					
7 3/4	6 1/4	4 1/2	3 1/2	+22°10'	+28°30'	+32°35'	+30°00'	
50	30		14	21	30	56	64	
-6.4	-5.1	-3.7	-1.8					
7 1/4	6 1/2	5°	3'			+26°20'	+22°55'	+34°10' +31°45'
50	30		15			22	31	51 60
-6.3	-5.1	-3.8	-1.9	+1.1				
8'	6 3/4	4 1/2	3 1/4	0 1/2	+16°25'	+22°40'	+28°25'	+33°40' +31°50'
50	30		15	27	25	31	40	53 59

F.L. 18" CLAY (Not ground clay)

-6.25	-5.05	-3.05		-0.95				
8'	6 3/4	4 1/2		2 1/4	+22°50'	+32°25'	+35°00'	+32°05'
50	30			12	19	47	50	59
-6.44	-5.14	-4.54	-3.04	-1.94	-0.24	+1.14		
8 1/2	6 3/4	6 1/2	4 1/2	3 1/2	2°	0 1/2	+27°00'	+30°35' +32°25' +33°50
50	33	17		8	12	13	22	41 49 59

FL Angles to
Sta. 11+03.89
See P. 7

East

8	1.77
25	1.73
50	1.83
60	1.63
73	1.61

See Sketch P. 24

5

N

-6.23	-5.23	-3.23			-6.73					
8° 50	7° 36	5°			25 13	+22°55 18	+26°00 25	+31°10 36	+34°40 53	
-6.47	-5.37	-3.07	-0.47	+1.53						
8° 54	7° 41	4°	2° 12	0° 14	+20°50 19	+29°30 31	+32°50 39	+33°10 46	+34°50 53	+32°40 57
	-5.67	-2.97	-0.97	+0.63						
	7° 48	4°	2° 9	1° 11		+18°50 21	+24°00 27	+30°00 44	+32°20 54	+30°00 62
	-5.47	-3.17	-1.27	+.03						
	7° 46	4°	2° 6	1° 9	+18°15 20	+26°25 34	+31°35 45	+31°20 57	+29°20 64	
	-5.69	-3.19	-1.49	+0.43						
	7° 50	4°	3° 5	1° 11	+21°40 16	+24°50 36	+29°05 46	+31°05 54	+28°20 67	

Ref. Angles to Sta. 11+70 & 8.89 See P. 7

B.M. #9 should be 27.50 See page 32 → Book #391
All Elevs. should be 0.30 higher.
E.B.H.

	H.I.	
	5.63	32.83
69		
50		
36		
20		
12		
6		
0 = E 1814 81.83		
8		
25		
50		
60		
73		

See Sketch P. 24

27.20

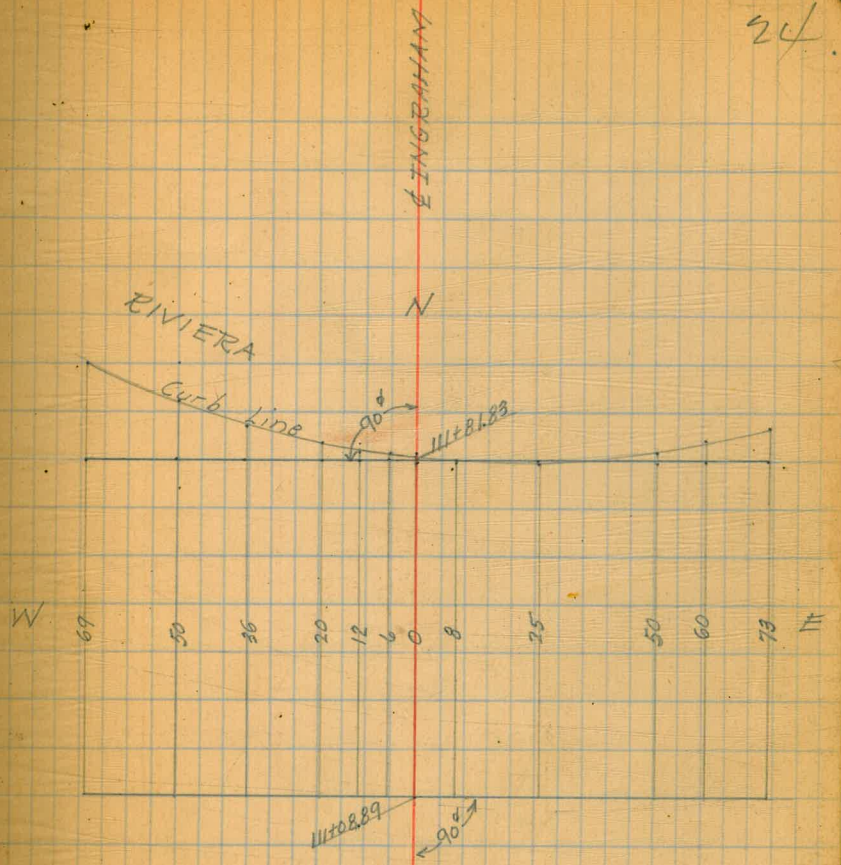
BM Tack in Curb

S	W	N		
		29.03	28.53	28.04
		38	43	497
		2	6	20
27.63	28.83	27.58		
5	4	525		
19	6	12		
27.83	28.73	27.48		
5	4	535		
175	135	71		
27.63	28.23	27.31		
5	46	552		
218	16	34		
27.83	28.23	27.22		
5	46	561		
221	16	12		
28.03		27.19		
4		564		
228		1		
29.33	28.13	27.20		
35	47	563		
249	17	035		
26.73 27.93	27.29			
6 49	557			
208 23	03			
27.43	27.44			
5	539			
246	04			
	27.73	27.62		
	5	521		
	193	20		
	28.03	27.71		
	4	512		
	17	40		
	28.03	27.84		
	442	477		
	142	67		

Most southerly shots are on same point as most northerly shots shown on pages 21 & 22.

Most northerly shots are on Curb - Dist. to face

Ft Angles to Sta 1814 81.83 - See P. 8



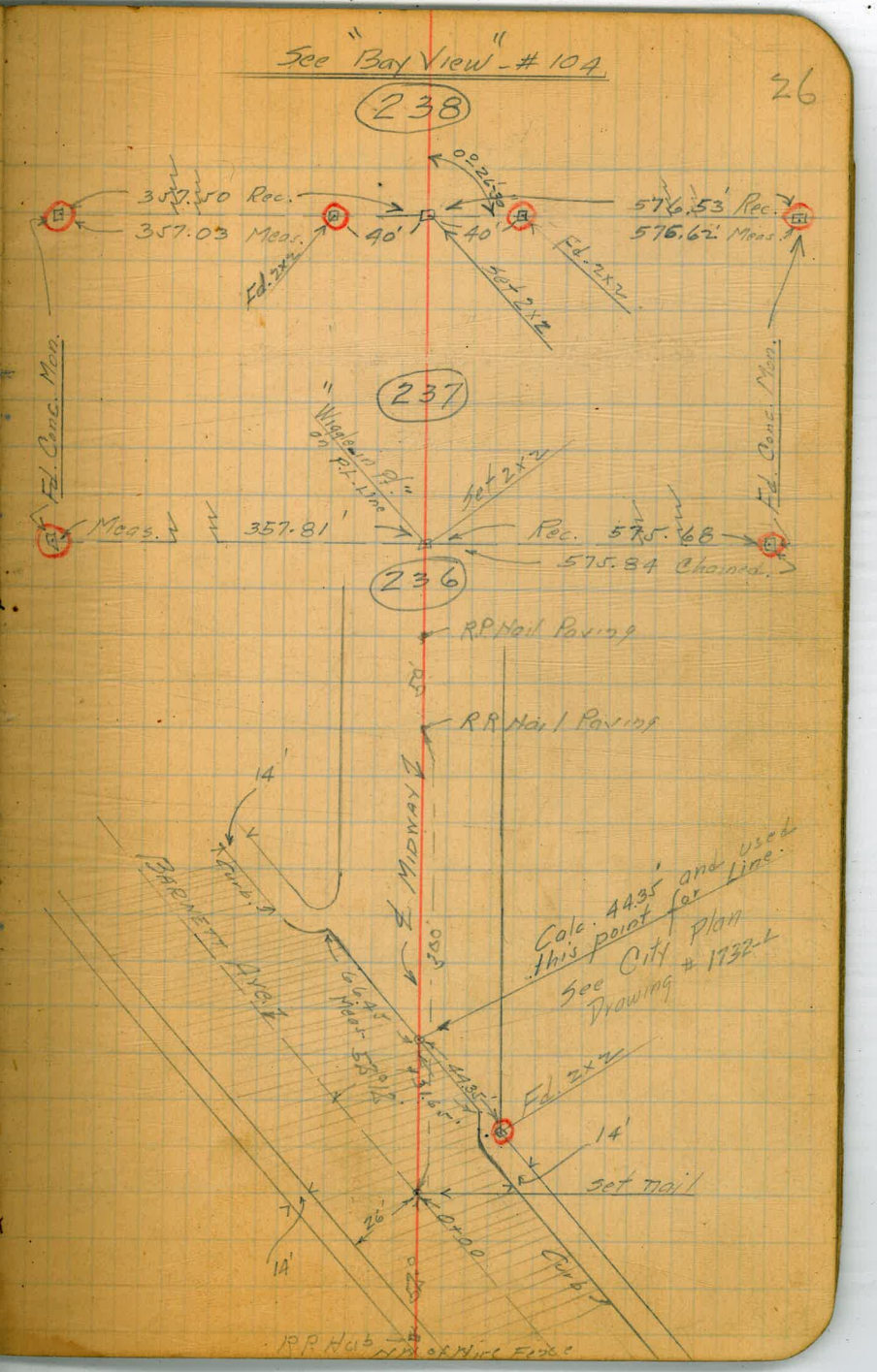
5

Mission Bay

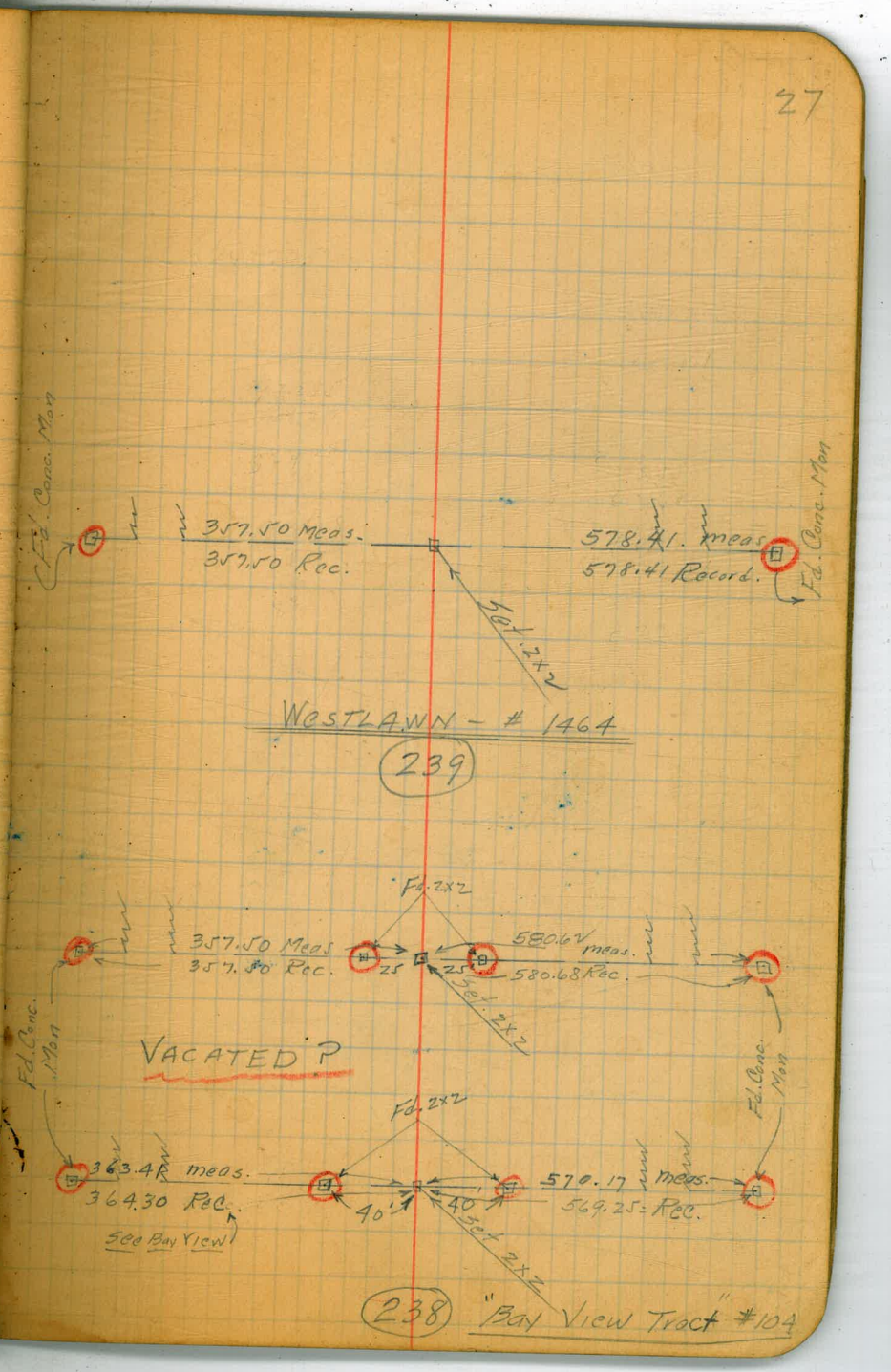
Sketch showing sections on pages 21-22-23 were taken.

Sta.	L Lt.	L Rt.	Bearing
14+36.32	—		N 0°26'-30" E
5+02.73	P.O.T.		
0+00	Assumed Position as shown.		

O.J. Thompson
June 13-14



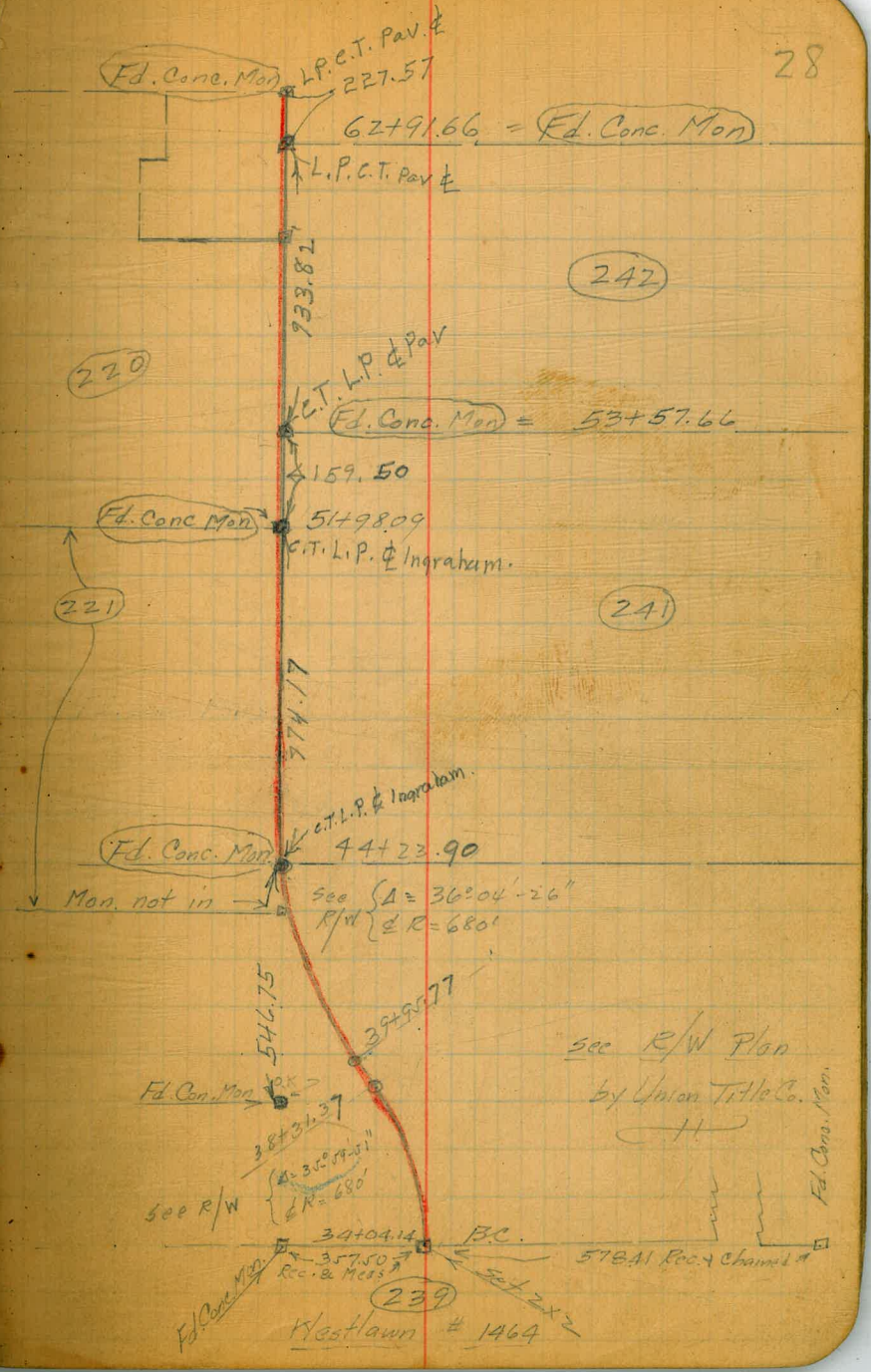
Sta.	∠ Lt.	∠ Rt.	Bearing
34+04.14	BC.	-	See following Page.
24+70.46	—		7°09'
23+68.63	7°30'	—	



Sta.	∠ Lt.	∠ Rt.	Bearing
53+57.66	P.O.T.		
51+98.09	P.O.T.		
44+23.90	E.C.		
39+95.77	B.C.		
38+31.37	E.C.		
34+04.14	B.C.		

See R/W Plan

— Note —
Controls are Referenced 100' either way from ℄ of Improvement



Sta. ∠ Lt. ∠ Rt. Bearing

0400 ↗
= Equation.
70+12.93 ↘

See Page 1 →

c.T. L.P. ℄ Ingraham

615.92

set. c.T. L.P. Pav.
mills 9-1-35

Fd. Rod Hd + Shiner
See Coates Notes

Controls are referenced 100' Either way from ℄ of Improvement

70+33.30
933.87'

219

Fd. Conc. Mon.

65+19.28

35.00

set. c.T. L.P. Pav.
Miller 9-1-35

Fd. 3/4" P.

227.57

220

set. c.T. L.P. ℄ Ingraham Pav.

Stg.	+	H.I.	−	Elev
B.M.	3.60	~~5.35~~		1.75
⊙			5.13	0.22
⊙	5.16	~~5.38~~		
⊙			4.81	0.57
⊙	5.24	~~5.81~~		
			4.90	0.91
⊙	4.55	~~5.46~~		
			4.98	0.48
⊙	5.24	~~5.72~~		
			5.62	0.10
⊙	5.15	~~5.25~~		
Temp. B.M.			4.83	0.42
	3.47	3.89		1.58
		=		
		5.47		1.58

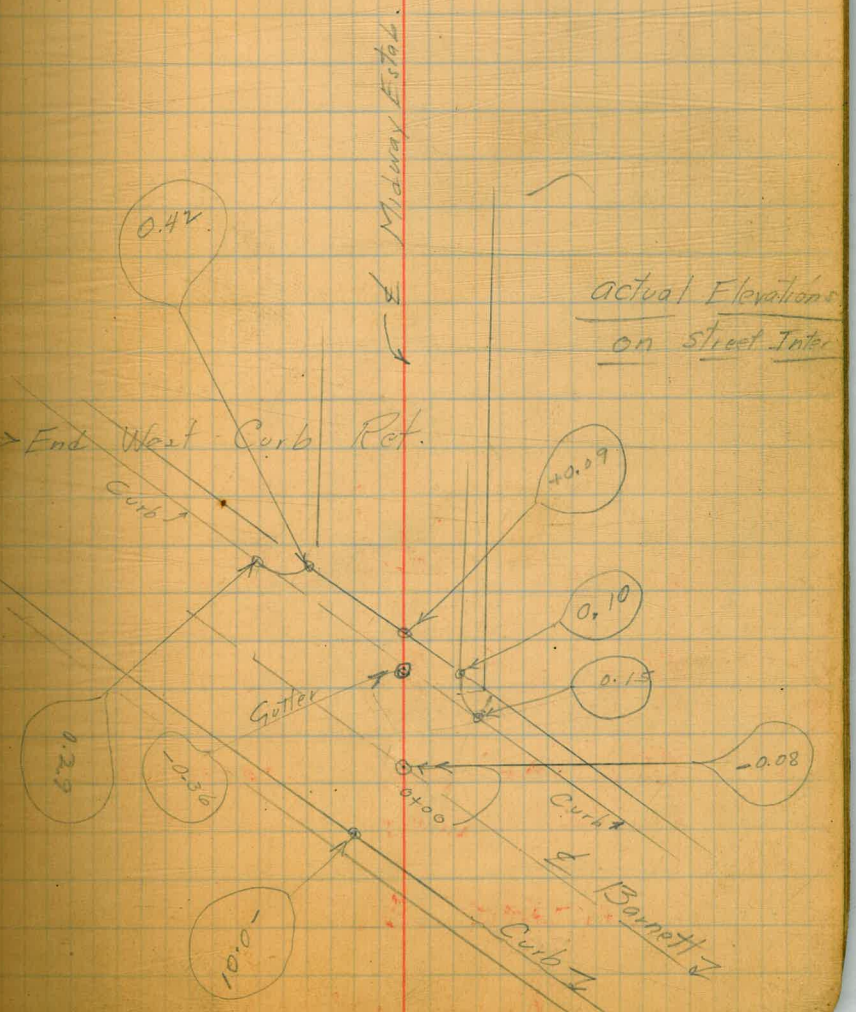
Original B.M. = 1.58 High

Crossed out original H.I.'s and added 1.58'

Circled H.I.'s Correct.

June 14-28

Lytton & Barnett



Sta.	+	H.I.	−	Elev
11+00		3.26		
10+00				
9+00				
8+00				
7+00				
6+00				
5+00		3.89		
4+00				
3+00				
2+50				
2+00				
1+50				
1+00				

Left ℄ Right

4.84

HI
~~3.26~~
4.70
− 1.44
+ 4.48
+ 3.04

5.47

HI
~~3.89~~
− 5.27
− 1.38
+ 4.65
3.26

Sta.	+	H.I.	−	Elev
23+69.63				
23+00				
22+00				
21+00				
20+00				
19+00				
18+00				
17+00				
16+00				
15+00				
14+00				
13+00				
12+00				

Left

Right

H.I.
~~3.41~~
4.99

4.77
H.I
~~3.19~~
-4.00
-0.81
4.22
3.41

4.62
H.I
~~3.04~~
-4.16
-1.12
+4.31
3.19

Sta.	+	H.I.	−	Elev.
35+00				
34+50				
34+04.14 BC				
33+00				
32+00				
31+00				
30+00				
29+00				
28+00				
27+00				
26+00				
25+00				
BM				−1.79
24+70.46				

Left — Eight

Sta.	+	H.I.	−	Elev
		Cmt in Book #480		
BM				-0.11
44+00				
43+50				
43+00				
42+50				
42+00				
41+50				
41+00				
39+95.77				
39+00				
38+00				
37+00				
36+00				

R. Thompson
Jan 13-14

-0.11
-4.58
1.47

Left 4 Right 34

On Monument 44+25 1.90

6.57

H.I.
~~4.99~~

5.57

HI
~~3.99~~
3.48
+0.51
4.08
4.99

245/246/218/ Mon 4

1 Gal White Paint — Flag at 218/219
Brush
Material for Sights.
Crown Point Notes. 26-7-8-9
Stake 2x4x4
~~Sledge~~
Field Glasses
Bench Marks - Both Sides -
Transit.
Drill & Lead

69+25.63
49+41.81
19 83.82

19.60
9.80
2 sta.

180-10

69+25.63
42.35.46
111+61.09

39-38
40-54
1-16
2-32

17.39

30+16.00
20+83.38
9 33.62

49+41.81
30+16.00
19 25.81

Mon 18-East

20+82.38
11-41.57
9 31.81

111+69.09
13.72
111+81.81

41-41-57
39-39-37
1-92-52