

7980

EUGENE DIETZGEN CO.

DRAWING MATERIALS, MATHEMATICAL and
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Pittsburg Toronto

Distances from Center of Roadway for Cross-Sectioning
Roadway 16 feet wide. Side Slopes 1 on 1.
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	0
1	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	1
2	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	2
3	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	3
4	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	4
5	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	5
6	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	6
7	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	7
8	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	8
9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	9
10	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	10
11	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	11
12	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	12
13	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	13
14	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	14
15	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	15
16	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	16
17	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	17
18	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	18
19	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	19
20	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	20
21	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	21
22	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	22
23	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	23
24	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	24
25	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	25
26	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	26
27	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	27
28	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	28
29	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	29
30	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	30
31	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	31
32	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	32
33	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	33
34	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	34
35	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	35
36	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	36
37	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	37
38	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	38
39	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	39
40	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 30.6. For same slopes but other widths of roadbed, correct above figures by one-half difference in width of roadbed; thus in example above, for 20 ft. roadbed distance will be $30.6 + (20 - 16) \div 2$ or 2 ft. added to 30.6 = 32.6. For slopes of 1 on 1½ see inside of back cover.

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G-201

CITY ENGINEER

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APR 12 1965

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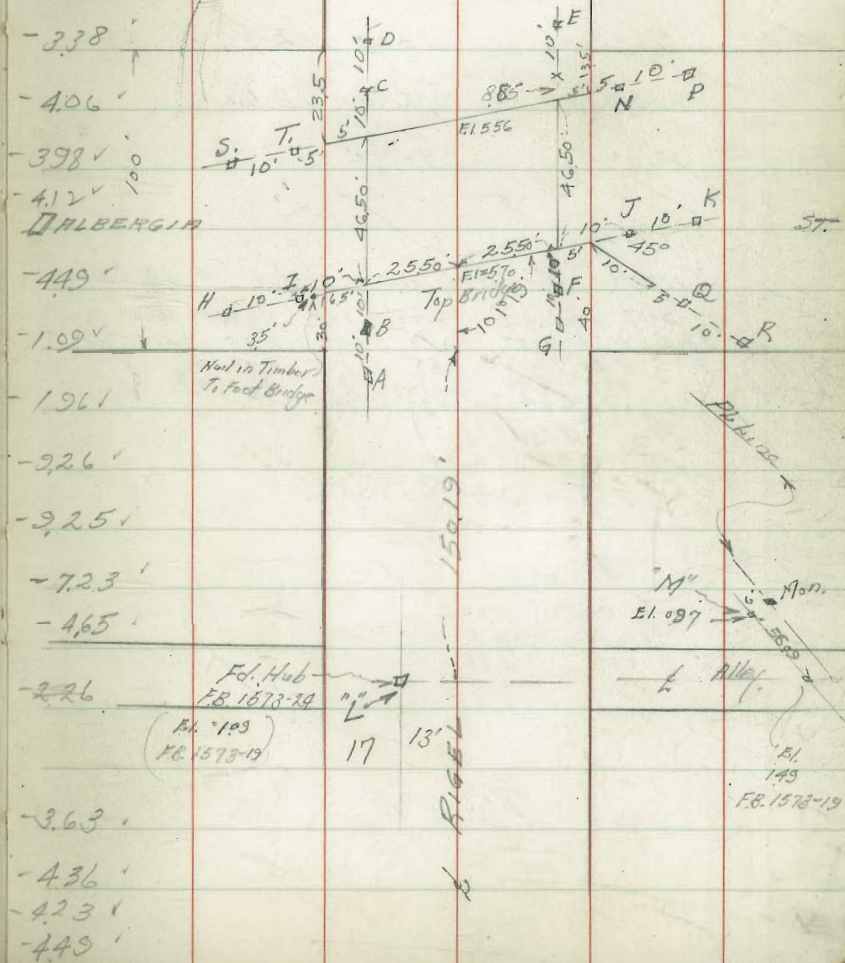
~~Indexed Completely~~
 J.P.B.

Walker
Wells
D. Farrow

RIGGL ST. BRIDGE.
Stakes for Construction.

Station	π 8.61	El. Stake	El. Top Bridge
B.M. Hub "L"	7.52	8.61	1.09
chk Hub "M"		7.63	0.98
			0.97 = Hub
			0.01
A		6.29	2.32 5.70
B		6.97	1.64 5.70
C		7.03	1.58 5.56
D		7.17	1.44 5.56
E		7.54	1.07 5.56
F		4.00	4.61 5.70
G		4.87	3.74 5.70
H		12.17	-3.56 5.70
I		12.16	-3.55 5.70
J		10.14	-1.53 5.70
K		8.56	0.05 5.70
Q (Top Wing Wall = ?)		5.17	3.44 5.70
R			
S		6.68	1.93 5.56
T		7.41	1.20 5.56
N		7.28	1.33 5.56
P		7.54	1.07 5.56

Cuts & Fills



Disposal Plant Curb Grades
Cont. from P-73

Lt. Station	El. cb.	Rt. Station	Rt. El. Curb
7+50	10.52	7+50	10.52
7+65	10.67	7+65	10.67
8+00	11.03	8+00	11.03
8+50	11.55	8+50	11.55
9+00	12.06	9+00	12.06
9+50	12.57	9+50	12.57
9+75.4	12.83	9+75.4	12.83

4pp. 1st Page

Grades for "B" Line - sketch P-39 & 44

15.35 TP	-9+50	9+00	8+50	8+00	7+50	=6+45	6+00	5+50
452	12.6	11.84	11.33	10.70	10.2	8.25	8.46	7.92
883 TP	27.5	3.41	4.02	4.65	5.15	4.00	4.5	5.03
4.127	4.08	4.25	5.42	5.78	5.6	4.83	4.95	5.2
12.95 TP	1.33	1.44	1.9	1.13	0.45	0.5	0.5	0.2
	5+00	4+50	4+00					
	7.38	6.84	6.30					
	5.57	5.1	6.85					
	✓	5.95						
		+0.2						

1000 TP
463 +
1463 TP

"A" Line

0+50	1+03
10.75	10.8
3.88	3.83
3.85	2.1
0.00	-0.3

1472 TP from P-78

443	10.52	10.67	11.03	11.55	12.06	12.57	12.83	
10.29 TP	4.20	4.05	4.32	3.80	3.29	2.78	2.52	
506 +	3.94	3.96	4.77	5.2	4.83	4.1	3.86	
15.35 TP	+0.26	+0.1	-0.45	-1.4	1.54	-1.3	-1.34	
	11	10.52	10.67	11.03	11.55	12.06	12.57	12.83
		4.20	4.05	4.32	3.80	3.29	2.78	2.52
		3.94	4.05	5.12	5.3	4.94	4.2	4.12
		+0.26	0.0	-0.8	-1.5	1.65	1.5	1.6

3

"B" Line Rough Grades for Yard Sketch P-39 & 44

3188	4100	4150	5100	5150	6200	6200	7100	7150	8100
6.2	6.3	6.84	7.38	7.92	8.46	9.00	9.50	10.2	10.70

8150 9100 9150 9175.4 Fence Line
11.32 11.94 12.6 12.86 on Harbor Drive

Mulroy
Wells
Dist. No. 1
10-15-41

check levels 68" Int. Sewer.
Original levels Grid Book 198-51

4

Grid B-19851

162 8.80

BM on top fire hydrant
1st Hydr. W of 28th
on S. side Harbor
Elev. 5.1 stakes
Grid Book 198-51

Station

Reds

Elev.
Stakes

Grid Book 198-51

Stakes
Mean Elev.

Elev.
Point

Cuts

63+337.9 = B.C. Pt.

5.04

3.76

3.76

3.76

25.50 Reference Point
on cross on cb.

4.00

4.80

4.79

4.795

63+50

4.95

3.85

3.84

3.845

64+00

4.87

3.99

3.99

3.99

750

4.71

4.09

4.09

4.09

65+00

4.87

4.43

4.43

4.43

750

3.95

4.85

4.85

4.85

66+00

3.95

4.85

4.85

4.85

65+60
Temp. BM on cb

3.24

5.56

5.56

5.56

66+50

3.78

5.02

5.02

5.02

67+00

2.68

5.12

5.12

5.12

TP 8.24 13.36

3.68

5.12

67+50

7.93

5.43

5.43

Temp BM

6.80

6.56

South
cross on cb & Colton produced

68+00

750

7.45

5.91

5.92

69+00

6.49

6.87

6.88

Check Levels 60" Int. Sence
 Cont. from P. 4
 13.36 Rod. El. Stake El. Stake Cont. 198-51 Mean El. Stake.

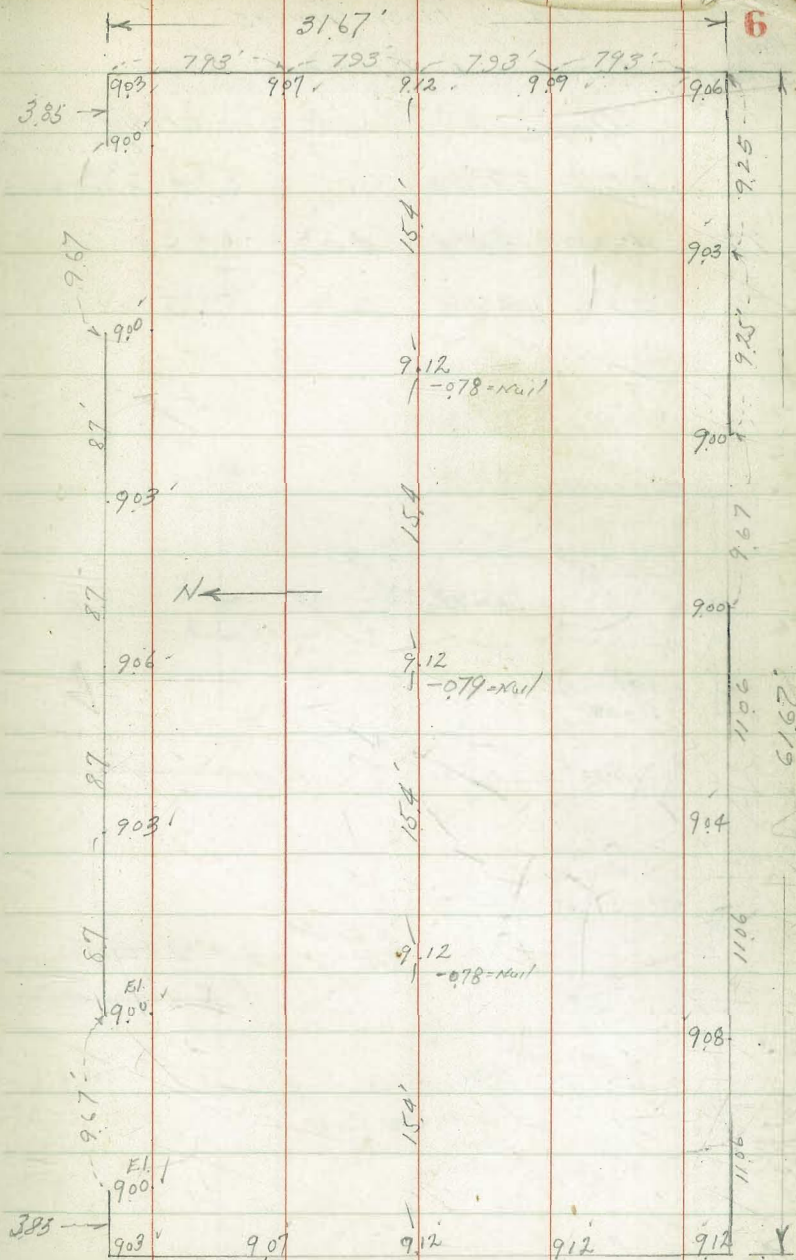
	13.36	Rod.	El. Stake	El. Stake	Cont. 198-51	Mean El. Stake.
69+50		6.96	6.40	6.40		
70+00		6.15	7.21	7.21		
Temp. 81.9 on Rod	^x 12.62	⁸⁰⁰ 21.40	8.54	4.82		35' 67 70+15
70+50		4.58	8.78	8.79		8.785
T.P.	12.62	21.40	4.58	8.78		
71+00		10.35	11.05	11.06		11.055
750		6.50	14.90	14.90		14.90
72+00		3.18	18.22	18.23		18.225
ch 4 B.M. Cross		0.80	20.60	20.61		20.605 20.62 = B.M. 0.0% Error

Walker
Wells
D. Forrest
10-17-41

Finish Grades Detritor. Std.
other Grades
DISPOSAL PLANT for Plant Grid Book 198

Grades are for Main Floor finish Conc.

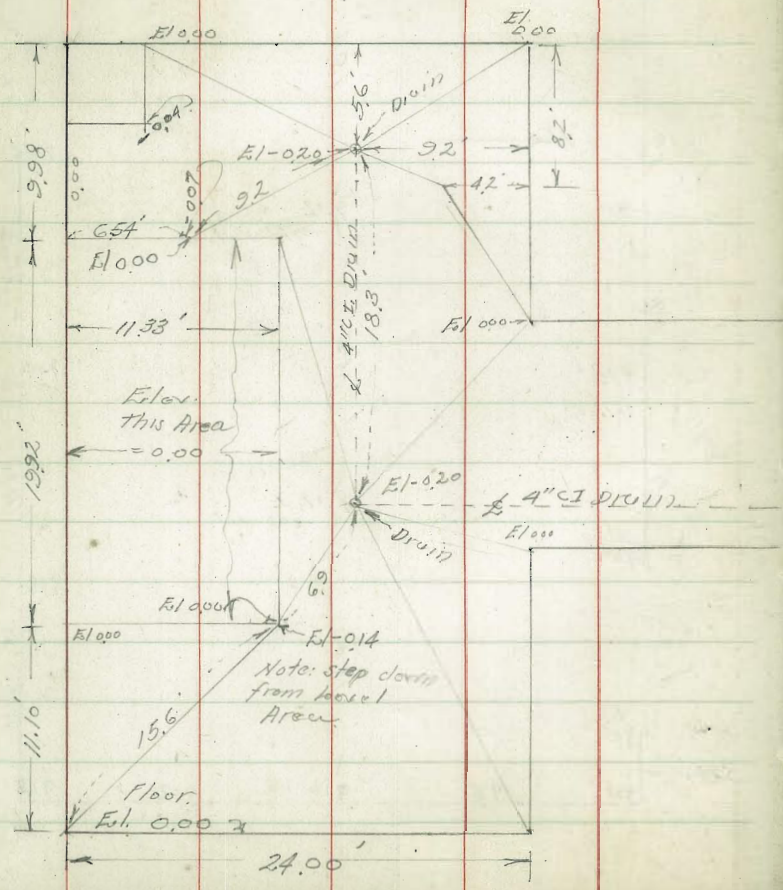
	5.30	14.14		8.24	210 Conc. Mass 18' line Unst. Kingwood
T.P.	5.00	13.39	5.75	8.39	



Water Wells
 Furrow
 10-17-41

Finish Floor Grades
 Basement Furnace Rooms
 Disposal Plant. Upr & Fisher
 2nd 13' from
 Upr & Kingswood

	4.77	13.01	8.24	
TP	4.95	13.94	4.02	8.99
TP	2.10	4.25	11.79	2.15



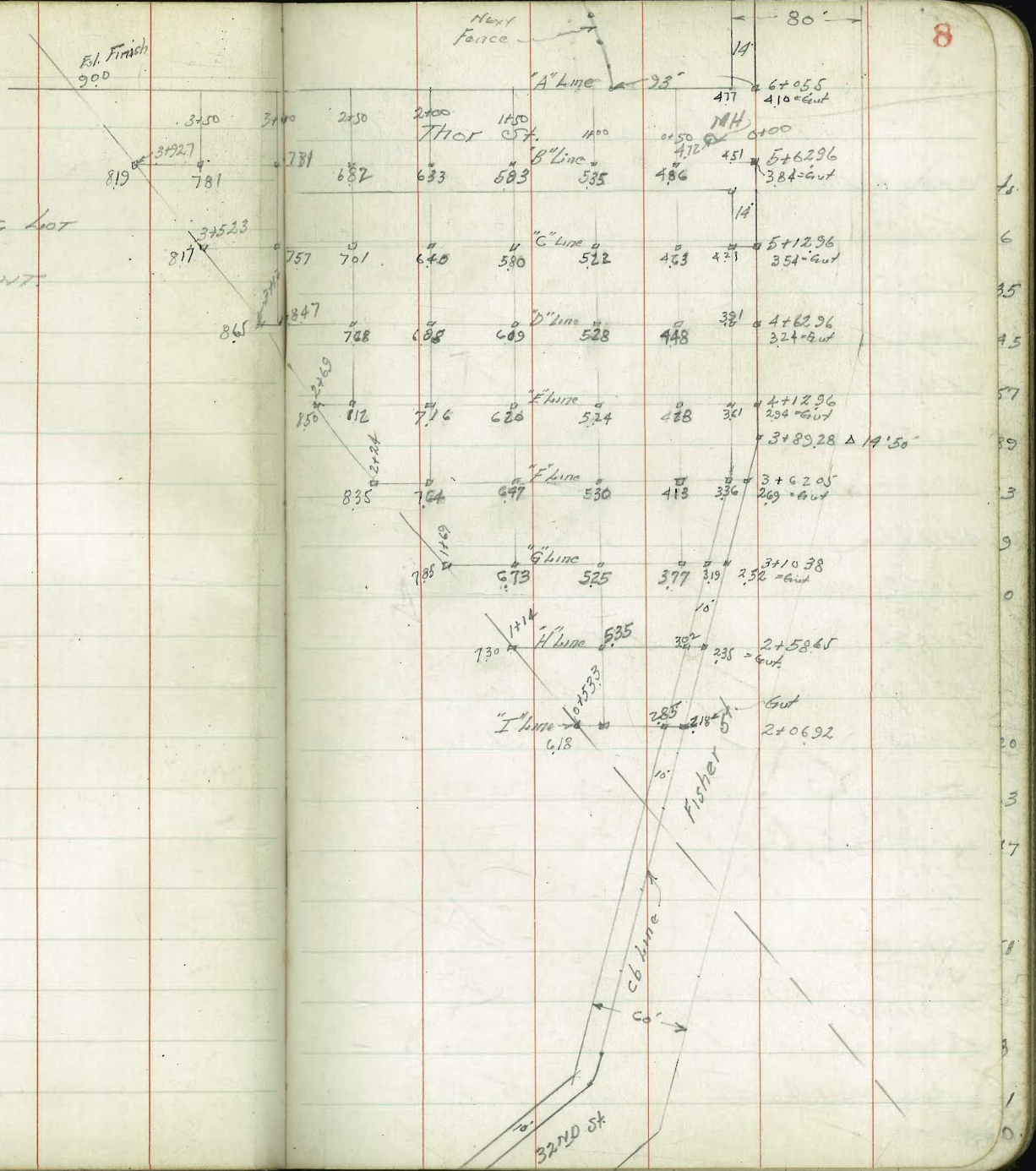
4.25

7

			Rods.	Floor Elev
			4.25	0.00
			4.15	-0.20
TP	2.00	4.15	2.10	2.15
				Est. Floor
			4.35	-0.20
			4.29	-0.14
			4.15	0.00
			4.22	-0.07

Walker
Wells
D. Farrow
- 11-4-41

GRADES FOR PARKING LOT
TREATMENT PLANT
Sketch of Layout
Cuts on P. 9-12



GRADERS for Parking Lot.
Cont. from P. 8

	4.75	6.90	2.15			
0+00 on Grading			542	1.48	1357 of 1548632 El. Grade Cont. 148	cuts 0.00
2+06.92			293	3.97		218 +179
+58.65			3.65	3.25		235 +090
T.P.	6.52	9.77	3.65	3.25		
3+10.38			6.55	3.22		252 +070
+62.05			6.43	3.34		219 +065
+89.28 = 14950.24			6.45	3.32		
4+12.96			5.56	4.21		234 +1.27
+62.96			5.39	4.38		324 +114
5+12.96			5.62	4.15		354 +061
+62.96			5.43	4.34		384 +050
6+05.5			4.91	4.86		410 +076
T.P.	6.70	11.08	5.39	4.38		
3+89.28 20' R/L in Roadway.			7.80	3.28		
6x05 20 R/L			6.50	4.58		
(7+05) 20 R/L			6.11	4.97		
N.C.B. Fisher = 0+00	"B" line					
+14 - N.L. Fisher			6.51	4.57		451 +000

Parking Lot Cont.

	11.08	11.08	11.08	11.08	11.08	11.08
Grd B-198-10 on 2 32nd.						
"B" line Cont.	11.08	11.08	11.08	11.08	11.08	11.08
0+50		6.16	4.92	4.86		+0.06
1+00		6.08	5.00	5.35		-0.35
+50		5.70	5.38	5.83		-0.45
2+00		4.18	6.90	6.33		+0.57
+50		3.37	7.71	6.82		+0.89
3+00		2.94	8.14	7.31		+0.83
3+50		3.18	7.90	7.81		+0.09
+22.7		2.89	8.13	8.19		0.00
N.C.B. Fisher = 0+00	"C" line					
+14 - N.L. Fisher		7.07	4.01	4.21		-0.20
+50		6.22	4.86	4.63		+0.23
1+00		4.39	6.69	5.22		+1.47
+50 out						
2+00		4.10	6.98	6.40		+0.58
T.P.	4.24	11.22	4.10	6.98		7.01 +0.09
2+50		3.63	7.59	7.01		+0.58
3+00		3.66	7.56	7.87		-0.01
+52.3		3.05	8.17	8.17		+0.00

"D" line Parking lot Cont.

11.22

N.C. Fisher
= 0+00E.I.
Grd. Cuts

+14	6.69	4.53	391	+0.62
+50	5.39	5.83	448	+1.35
1+00	5.03	6.19	528	+0.91
+50	5.37	5.85	609	-0.24
2+00	4.33	6.89	688	+0.01
+50	4.26	6.36	768	-0.72
3+00	2.98	8.24	847	-0.23
+12	2.29	8.93	865	+0.28

7' N on Nat. Ground

2.4 8.8

11.22

"E" line

N.C. line Fisher

= 0+00

N. line

= 0+14

+14	6.77	4.45	361	+0.84
+50	5.62	5.60	428	+1.32
1+00	5.22	6.00	524	+0.76
+50	4.57	6.65	620	+0.45
2+00 out.				
+50	3.16	8.06	812	-0.06
+69	2.75	8.47	850	-0.03
11' N on Nat. Grd.	2.80	8.42		

Parking Lot Cont.

11.2.2

"F" Line

Ncb. Fisher

=0+00

NL

=0+10.35

1+3

0+93

1+43

1+93

2+24

Pod.	El. Stake	Fl. Grd.	Cuts.
7.62	3.60	336	+0.24
6.03	5.19	413	+1.06
		416	+1.03
		530	0.00
5.92	5.30	536	-0.06
		647	+0.51
4.25	6.97	656	+0.71
		764	+0.55
3.13	8.19	776	+0.43
2.77	8.45	835	+0.10

1010 N. checked by Rabe

"G" Line

11.2.2

Ncb. Fisher

=0+00

+10.35 = NL Fisher

0+29.8

+79.8

1+29.8

+69.3

10' N on oiled lot.

8.29	2.93	319	-0.26
6.85	4.37	377	+0.53
		525	+0.92
		556	+0.61
4.33	6.89	673	+0.16
		728	-0.29
3.49	7.73	785	-0.12
3.37	7.85		

+0.6

+0.9

+0.10 checked by Rabe

"H" Line

11.2.2

Ncb Fisher

=0+00

NL

=+10.35

+66.55

1+14

10' N

6.89	4.33	302	+1.31
4.65	6.57	535	
		644	+1.22
2.68	8.54	730	+1.24
3.73	7.49		

" " "

"I" line Parking lot Cont.

"I" line	11.22			El.	Cuts
N. cb. Fisher				El.	
= 0+00				Grid	Cuts
+1+35		5.93	5.29	2.85	+2.44
+53.3		4.15	7.07	6.18	+1.34
25' N on Lot		4.04	6.18		
Walker yells Fisher 11-22-41					
Rebate Culler Grades					
from 32ND to Thor -					
E line 32ND	7.55	Red	Elmishke	File	Grade
= 0+00 on Ford Parking		6.43	1.52	1.52	
+50		6.21	1.74	1.74	
1+00		5.99	1.96	1.96	
+50		5.77	2.18	2.18	
2+00		5.55	2.40	2.40	
+50		5.33	2.62	2.62	
3+00		5.11	2.84	2.84	
+50		4.89	3.06	3.06	
3+745		4.73	3.16	3.16	
4+00		4.57	3.28	3.28	
4+50		4.45	3.50	3.50	
5+00		4.27	3.68	3.68	
+50		4.05	3.90	3.90	
5+91		3.85	4.10	4.10	

0.044%

Checked by Lake

BM Cop Disk P-9	-2.15
	5.80
	7.95
	3.87
	4.087
	5.58
	9.66

Grades For Interceptor MH

17' to Thor St.	
5' N of A MH	9.66
5' S " " "	4.76

Top MH
4.68 =

4.68 4.76
4.98 4.90

out

Walter
Wells
11-10-41

Check levels 60" Interceptor lower
from station 54+49.85
to " 60+50

Other Grades in Grid Book 198-50

							Mean Elev.
B.C.	2.67	6.75	4.08				
54+49.85		5.47	1.28				1.28
55+00		4.70	2.05	2.05			2.05
+50		4.59	2.16	2.16			2.16
57+00		4.48	2.27	2.27			2.27
+19.25-EC.		4.41	2.34	2.34			2.34
+50		4.24	2.51	2.51			2.51
58+00		3.91	2.84	2.83			2.835
TP	6.58	2.42	3.91	2.84			
+50		6.33	3.09	3.09			3.09
59+00		5.25	4.17	4.17			4.17
+50		5.00	4.42	4.42			4.42
60+00		5.24	4.18	4.18			4.18
+50		5.55	3.87	3.88			3.875
chk. Fire Hyd.	61+50	2.22	7.20				
			7.185 = Hyd.				
			0.015 Error.				

814 Conc. No. 1
25' E. E. Line 284
W.D.S. Base Line
E. 1. Per Grid
Book 198-50

Mean Elev.

Walker Wells: Grades for 36" Sewer Intake from Vacuumator Control Box to Clariflocculator Tank #3 at -

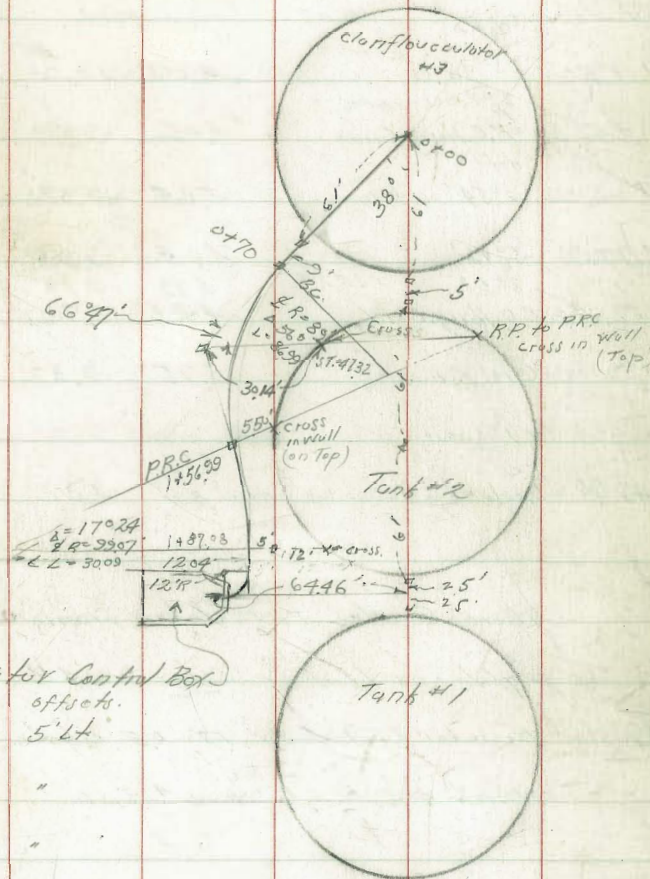
DISPOSAL Plant
Una And Fisher St.

See Grid Book 198-40-74

Grades from Vacuumator to Tanks were taken from Paper Profile as worked out by Stockman & Cole Dec. 31st 1941

Station				Elev. Flow Line
0+00	Same as Shorten Grid Book 198-74			-78.81
+50	" " " " " " " "			-11.05
+55	= P.V.C			-10.28
+70	= P.C. Horiz. Curve	π 14.02	5.07	8.95 -8.53
+80		def Δ 3° 13.13' chdb = 299'	5.48	8.54 -7.43
+90	= P.V.C	6° 26.26'	5.31	8.71 -6.45
+100		2° 39.39'	5.17	8.85 -5.60
+110		12° 52.52'	5.47	8.55 -4.75
+120		16° 05.65'	5.64	8.38 -3.89
+130		19° 18.78'	5.10	8.92 -3.04
+140		22° 31.91'	4.06	9.96 -2.19

Cont. p. 15



Station	Cuts	Offsets	Elev.
-17.48	5' Lt.		
+15.97	"		
+15.16	"		
+14.45	"		
+13.30	"		
+12.27	"		
+11.96	"		
12.15	8.5 Lt. on Wall		

13' Main Una & Kingwood
S.M. Man 8.24
5.57
13.81 x
510 -
871 TP
531.7
14.02 π

Grades for 36" line
Cont from P-14

Station	def	14.02	Elev. Stake offsets	Elev. Flowline
1+50	25°45'0"		4.02	10.00 - 1.34
	28°00'	chds=697		
+56.99	R.C. Horiz. Curve		4.05	9.97 - 0.73
	def			
1+67.02	2°54'	chds=101	4.05	9.97 + 0.25
+77.05	5°48'		4.04	9.98 + 0.96
	8°12'	15577	5.79	9.78 + 1.65
+87.08	E.C. Horiz. Curve		4.26	9.76 + 1.65
	def			
1+99.12	P.C. 12' Radius		5.75	9.82 + 2.35
	def			
2+09.03	dt 12' curve			2.67
	E.C.		5.75	
2+18.94	Inside edge Vacuum Control Box		9.82	+3.00

BM No 2

+11.34	6.5' Lt. Cross on Wall
+10.70	5.5' Lt. " " "
+9.72	5.5' Lt. " " "
+9.02	9' Lt. " " "
+8.13	
+8.11	5' Lt. Stake
+7.47	
+6.82	

Stake 1487.8 = 976
581
15.577

on 12' Radius Stake

Above Grades were taken from a paper profile as laid by Cole Dec. 4th 1941

Flow of Vacuum Control Box is .5 above plan grade
Which was +2.5, ^{Mid} Now +3.00

Walker Wells
 1-16-42
 Construction Grades
 from E 32nd St.
 to Cholla Creek
 Alignment F.B. 1607-23
 Align. F.B. 1607-23

Other Grades in Grid Book 198

Station	Equation	Elev. Stakes	Elev. Flow Line	Cuts
15+36.32	= E 32nd St. 13.98 Equation Δ 10.51434 ft	12.11	1.87	-10.54
15+48.82				
16+00		11.59	2.39	-10.49
+50		11.29	2.69	-10.44
17+00		11.35	2.63	-10.39
+55				
+58		11.33	2.65	-10.34
18+00		4.24	2.74	-10.29
+50		4.09	2.89	-10.24
19+00	14.46	4.77	2.69	-10.19
+50		5.53	2.93	-10.14
20+00		5.88	2.58	-10.09
20+40	Δ Rt. 21009'30"	6.18	2.28	-10.05
21+00		6.97	2.49	-9.99
+50		7.88	2.58	-9.94
21+35				
22+00		7.20	2.26	-9.89
22+45				
+50		7.52	2.94	-9.84
23+00	10.15			-9.79
+50		4.83	5.32	-9.74

B.M. Copper Dist 1357 ft 15+36.32
 15+48.82

= 2.15
 11.83+
 13.98 π
 4.32 -
 26.67 π
 4.80 -
 14.46 π
 9.15 -
 5.31 - TP
 48.41
 10.15 π

Cuts
 +12.41 20' ft. = Nail in Post.
 +12.88 20' ft. stake
 +13.13 " "
 +13.02 " "
 +12.99 " "
 +20.03 " "
 +20.13 " "
 +19.88 " "
 +19.07 " "
 +18.67 " "
 +18.33 " "
 +17.48 " "
 +16.52 " "
 17.15 " "
 +16.78 " "
 +15.06 " "

60" Interceptor Sewer.
Cont. from P-16

Station	10.15		Elev. Stakes	Elev. Flow Line	Cuts	offsets.	
24+00		4.81	5.34	-9.69	+15.03'	20' Pt	
+50				-9.64	left out		
25+10	9.40						
25+00		5.63	3.77	-9.58	+13.35'	20' Pt	
+50		6.12	3.28	-9.54	+12.82'	"	
25+91.23	∠ 28°54'	7.20	2.20	-9.50	+11.70'		
26+18.23				-9.47	left out.		
+60	11.49	5.94	5.55	-9.43	+14.98		
27+10		5.79	5.70	-9.38	+15.08		
+60		5.65	5.84	-9.33	+15.17		
28+10		5.02	6.47	-9.28	+15.75		
+60		4.58	6.91	-9.23	+16.14		
29+10		4.45	7.04	-9.18	+16.22		
+60		4.60	6.89	-9.13	+16.02		
30+10		4.82	6.67	-9.08	+15.75		
+60	10.06	3.68	6.38	-9.03	+15.41		
31+10		4.17	5.89	-8.98	+14.87		
+60		4.71	5.35	-8.93	+14.28		
32+10				-8.88			
32+36.13		9.31	0.75	-8.80	+9.55		

32+36.13³ Elevation
32+83.43 } East inside edge
 } Chamber to Siphon.
∠ 11°40'36" 44

Cont. Grid 198-12

Note: difference in grades due to change in Alignment.
So we are making the diff. up between 32+10 and 32+36.13
which makes 0.05 grade fall there. S.B. Walker
11-5-41

10.15T
610-
405TR
5.33-
9.40T
2.10
7.30
7.29-8M
0.01 Error

0.44
9.62T
10.06T
3.29-
6.77T.P
4.72T
11.49T
8.76-
2.73

Temp. BM →
Spike

check U.S.G.S. Mon & M.
32ND & SD+R
50' E. EL. 32ND
F.B. 1597-27

Wood Santa Fe Bridge
B.M. Bridge Spike F.B. 198 P-77

Walker
Wells
12-541

Check Levels 60" Int. Serv. St.

from 32+3613 to 26+60

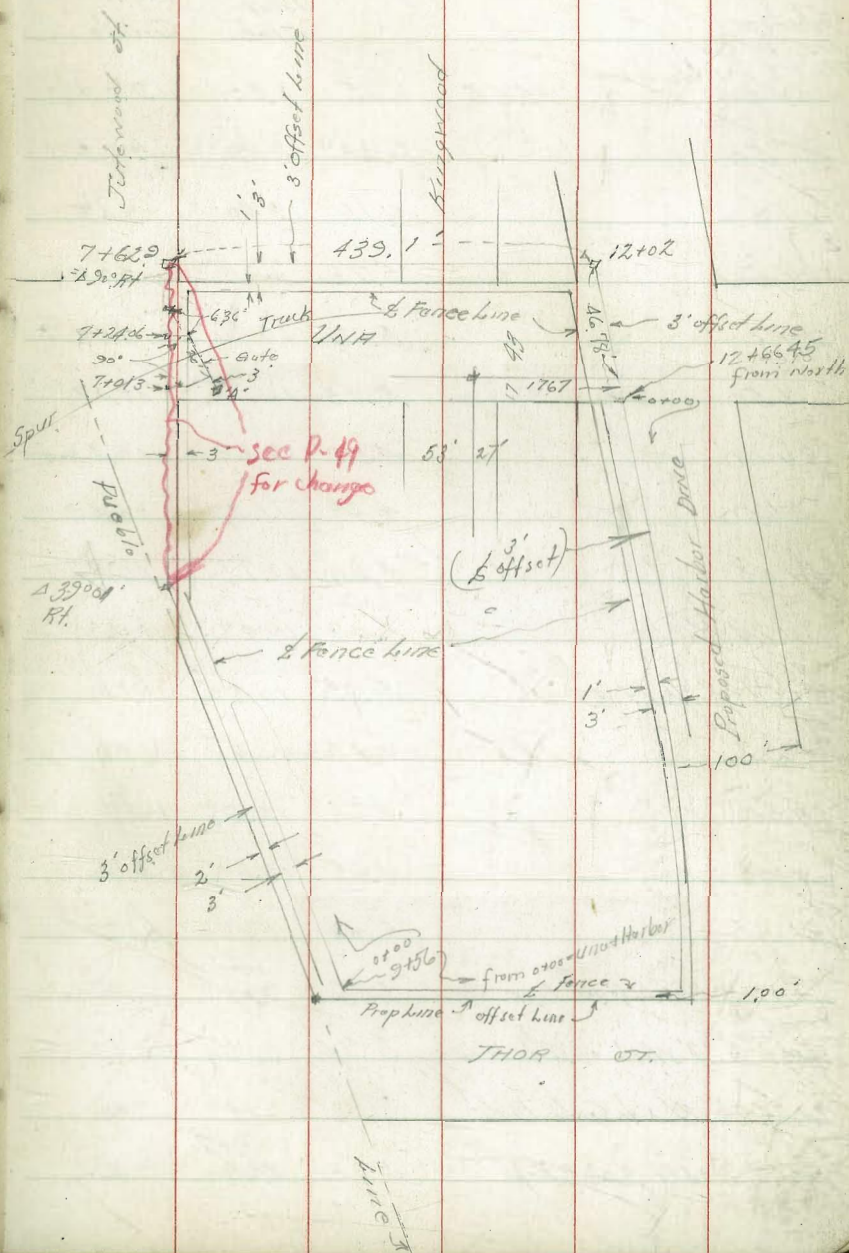
Station				BM
	10.53	10.97		0.44 P-17
32+3613			10.22	0.75
32+10				
31+60			5.62	5.35
31+10			5.08	5.89
30+60			4.59	6.38
+10			4.30	6.67
29+60			4.06	6.91 6.89 P-17
+10			3.93	7.04
28+60			4.07	6.90 6.91 P-17
+10			4.50	6.47
TP	4.80	11.27	4.50	6.47
27+60			5.44	5.83
TP	5.15	10.98	5.44	5.83
27+10			5.29	5.69
26+60			5.43	5.55
Temp	100.84	27+60		
BM Spike			8.27	2.71
				<u>2.73</u>
			Mean Elev. BM.	2.72

Walker
Wells.
12-17-41

DISPOSAL PLANT.
UNA + Fisher Streets.
" + Kingwood etc.

Grades for fence line change
from Thor St NE Along Pueblo line
to UNA + Tutwood thence south to
Harbor Drive as shown in sketch.

Grades for fence Along Harbor Drive
And Thor St. see Book 197-69-78



Walker
Mch 16
12-18-91

GRADES for FENCE.

Disposal Plant.
Sketch P-19

Elev. Hub 8100 Grade Book 195-71

Station	+	-	Elev. Stake	Elev. Grade	Cuts & Fills	offsets.	
NE. 1/4 Cor Thor & Pueblo line = 0+00	15.55	6.75	8.80	9.00	-0.20	1" W 3' N	- 8.80 6.75 + 15.55 + 5.05 - 10.50 TP 4.36 + 14.86 +
+50		6.38	9.17	9.23	-0.06	3' N	
1+00		6.15	9.40	9.47	-0.07	3' N	
+50		5.73	9.82	9.70	+0.12	"	
2+00		5.09	10.46	9.93	+0.53	"	
+50		5.23	10.32	10.17	+0.15	"	
3+00		4.93	10.62	10.40	+0.22	"	
+50		4.28	11.27	10.63	+0.64	"	
4+00		4.80	10.75	10.87	-0.12	"	
+24.46 =		5.08	10.47	11.00	-0.53	"	
+50.22 = 1st 39° 01' Bk.		5.05	10.50	11.12	-0.62	"	
5+00		14.86	0.18	14.73	10.80	+3.93	" in stock pile dirt
+50		4.21	10.65	10.47	+0.18	3' N	
6+00		4.65	10.21	10.15	+0.06	"	
+50		5.08	9.78	9.82	-0.04	"	
7+01.3 = H.A. to Gate Pier.		5.85	9.01	9.47	-0.46	"	
Stake "A" = 3' West of Gate Pier.		5.75	9.11	9.47	-0.36	3' W	
7+24.06 = H.A. to Gate Pier.		5.73	9.13	9.47	-0.34	3' N	
7+62.9 = 1st 90° = Bk.		5.88	8.98	9.22	-0.24	3' E 3' N	

Restake 7+62.9 & 8+23 on account
of slide in fill ground.

7+29 = 8+23
9.22 9.12
4.90 5.00
5.73 5.48
-0.83 -0.48

Stake 8+55
9.09
5.03
14.12

DISPOSAL PLANT FENCE GRADES

Cont. from Page 20

Station	π	Elev. Stake	Elev. Grade	Cuts & Fill	Offsets		
5+10.12	14.86					14.86 T	
8+00		6.10	8.76	9.13	-0.37	3' East	589 -
+50		5.77	9.09	9.00	+0.09	" "	8.97 T.P.
9+00		5.89	8.97	8.88	+0.09	"	5.15 T
+50	14.12	5.16	8.96	8.76	+0.20	"	14.12 T
10+00		4.79	9.33	8.64	+0.69	"	5.90
+50		5.75	8.37	8.52	-0.15	"	8.22
11+00		5.35	8.77	8.40	+0.37	"	8.24 = 8.17
+50		5.18	8.94	8.30 8.28	+0.64 +0.66	"	13' line Una
12+02 = 12+02.740"		5.48	8.64	8.20 8.15	+0.44 +0.49	3' East and 3' South	+ King Wood
+166.45 = 0+00		5.88	8.26	8.00	+0.26	3' "	8.24 - 8.17
0+50		7.13	Left out	7.83			5.90
1+00		7.13	7.01	7.67	-0.66	" "	14.14 T corrected
+35	11.18	4.97	6.21	7.56	-1.35 -0.35	" "	7.13 -
2+00		3.83	7.35	7.34	+0.01	" "	7.01 T.P.
+50		4.44	6.74	7.17	-0.43	" "	8.17
+66		3.89	7.29	7.12	+0.17	" "	11.18 T

0.24%

F. Line Una.

W. Line

0.33%

7.92 = Grade Book
0.01 Error 195.00

Highline Grades E.L. Line to 2+66 - 1' Above Grade

9.20

Walker
Wells
Hurdin
1-5-42

60" Interceptor Sewer
GRADES for Highline
from Chulla Creek East

Station	π	Red.	Elev. Stake.	Elev. Floor
32+89.43				
32+86.13	Fast inside edge Siphon			- 8.80
	3.427			
32+713		5.30'	-1.88	- 8.88
31+83		5.33'	-1.91	- 8.91
31+53		5.36'	-1.94	- 8.94
31+23		5.39'	-1.97	- 8.97
30+93		5.42'	-2.00	- 9.00
+63		5.45'	-2.03	- 9.03
733		5.48'	-2.06	- 9.06

BM.
Elev. Stake "B" 8' from S.E. Cur Chamber
to Siphon 32+35.15 = outside edge
= 0.83
2.59 +
3.427

Cuts. offsets.

+7.00	L
+7.00	L
+7.00	"
+7.00	"
+7.00	"
+7.00	"

Note, on account of change in
alignment from Plant there was
an accumulation of .06 in grade
which was adjusted at east end
Siphon, hence the -8.88 at 32+15

Walker
Osborne &
Hardin
Feas.
4-2-42

Beardsley & Colton St.

Pump Plant.

(Construction Grades on P-24)

Grades for Highline

S.M. Conc.

4.08 17.35

13.27

Mon
P-24

π 1926

T.P.

1.92

-0.73

20.00

-2.65

Elev.

Hoik

11.27

-12.00

Walker
Wells
Harden
1-10-22

Beardsley and Colton Streets

Pump Plant

Grades for Layout at Ground Elev.

Note: No Plan Layout available for Field Party.
Small tracing used as drawn by Cole.

Station	π	Elev. Stakes	Elev. Top of Conc.	
"A"	14.92	6.45	10.47	12.50 -2.03
"B"		4.99	11.93	12.50 -0.57
"C"		5.30	11.62	12.50 -0.88
"D"		6.85	10.07	12.50 -2.43
"E"		6.68	10.24	12.50 -2.26
"F"		5.82	11.10	12.50 -1.40
"G"		6.30	10.62	12.50 -1.88

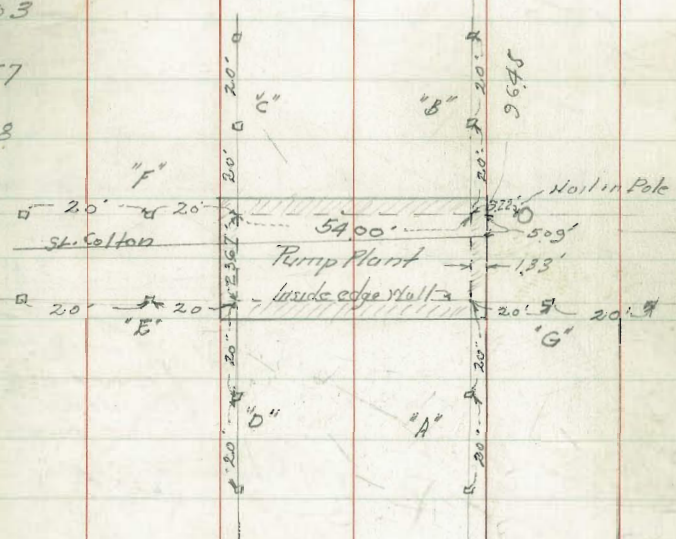
Note: for Construction Notes 60" sewer intercept for
from Beardsley St. West see Grd. Book 205 - Page 3

B.M. #2 F.B. 1597-39. Man

17' E.E.L. Beardsley = 1327
20' N.N.L. Colton = 3657
16.92 π

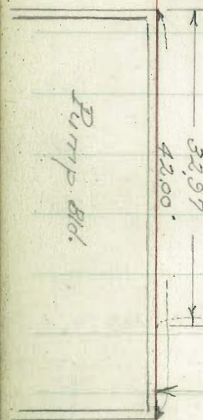
17' Man
B.M.
= 1327

Colton St.



101.54
-5.09
96.45

W. Beardsley



60.00'

Levels of OT.
P-26 CT. #4



3000'

84.50'

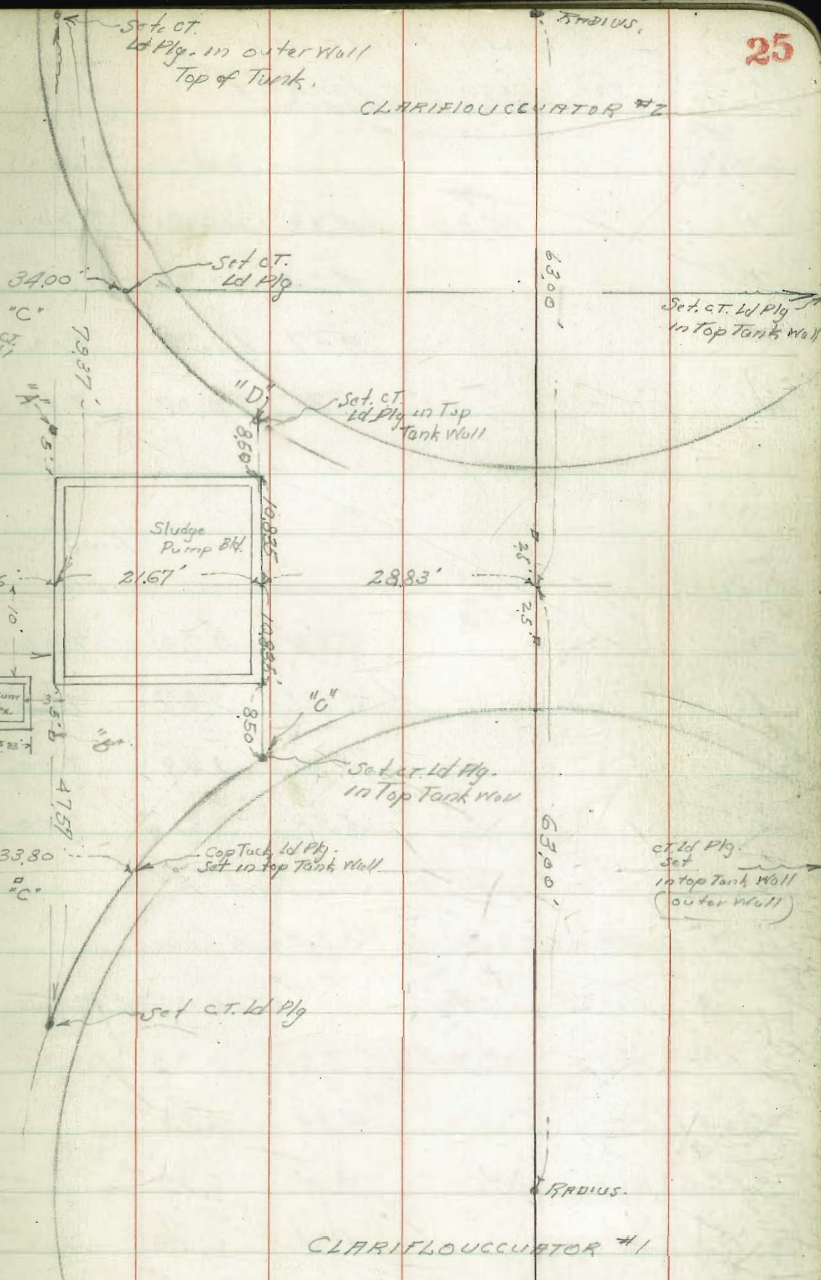
40'

3000'

60.00'



Set stake



Walker
Walk
Hurdin
2-23-42
DISPOSAL PLANT
VACUATOR Tanks Layout
for Grades see P-26

Walker
10/16
Hardin
2-29-42

Disposal Plant Grades
for Vacuumator Tank #1
Sketch P-25

Station				Finish Conc. Elev.		
"A"	π 15.39	5.18	10.21	7.00	+3.21	2.6 from Tank
"B"		4.64	10.75	7.00	+3.75	" " " "
"C"		4.47	10.92	7.00	+3.92	" " " "
"D"		5.32	10.07	7.00	+3.07	" " " "

Elev. Top Wall Tank #2
9' Lt of 1+77.5 Page 15 = 998
541.7
153.9 π

Station	Tank # 2 π 15.39			Finish Conc. Elev.		
"A"		5.66	9.73	7.00	+2.73	" " " "
"B"		5.52	9.87	7.00	+2.87	" " " "
"C"		5.51	9.48	7.00	+2.48	" " " "
"D"		5.58	9.81	7.00	+2.81	" " " "

Additional Grades Tank #2

on c.t. + 1d Pys. of Finish Conc.

11.93 Rod El. Tank

	4.63	π 14.63		10.00 - 819	Tank 5	4.95	6.98
TP	4.95	11.93	7.65	6.98	" 6	4.95	6.98
Tank #1			4.94	6.99	" 7	4.94	6.99
" #2			4.94	6.99	" 8	4.93	7.00
" #3			4.94	6.99			
" #4			4.96	6.97			

Walker
Wells
Hardin
2-22-42

Grades for SLUDGE PUMP Bld.
Disposal Plant.
Layout Sketch P-25

Station	15.39T P-26		Floor Elev.	Cuts	offsets
"A"	5.20	10.19	9.625	+ 0.57	5' West - stakes
"B"	4.71	10.68	9.625	+ 1.06	5' East - "
"C"	5.39	10.00	9.625	+ 0.38	8.50' East = CT. Ld. Ply in top Tank Wall
"D"	5.39	10.00	9.625	+ 0.38	8.50' West = " " " " " "

DISPOSAL PLANT. ^{Rough} GRADES for yards "B" line Sketch P-39-44

Walker
Hirdip
Reed
3-28-R

Grades for Odorous Air Line
from S4LY Cor Detroit Bld.
to Furnace Room

Station	3.57	13.57	J.M. Elev. Mkt 1450 Page 15		cut	offsets
			10.00 Elev.	Elev.		
S4LY Cor Detroit	4.57	9.00	4.50	dist'd Mark Floor Level	+4.50	£
S4LY Cor Furnace Room	5.57	8.00	6.00		+2.00	£

Additional Grades

	4.39	14.39	10.00			
Parley Bet. Bld.	5.78	8.61	5.25		+3.36	

Walker Moore Hardy Road 3-31-42	Grades for Sludge Pump Bldg. Scum Box Vacuator Control Box	Stakes	Floor Elev.
Fl. El. "A" Sludge Pump Bldg.	5.92	8.28	-2.36
"B"		7.85	-1.93
"C"		7.90	-1.98
"D"		6.21	-0.29
"E"		5.89	+0.03
"F"		5.96	-0.04
"G"		5.96	-0.04
"H"		5.98	-0.06
Fl. El. Scum Box			+0.25
"I"		4.37	+1.55
"J"		4.95	+0.97
"K"		2.16	+3.76
Fl. El. Vacuator Control Box	5.92		-5.25
"L"		6.69	-0.77
"M"		7.70	-1.78
"N"		9.52	-3.60
"O"		9.91	-3.99
"P"		1.29	+4.63

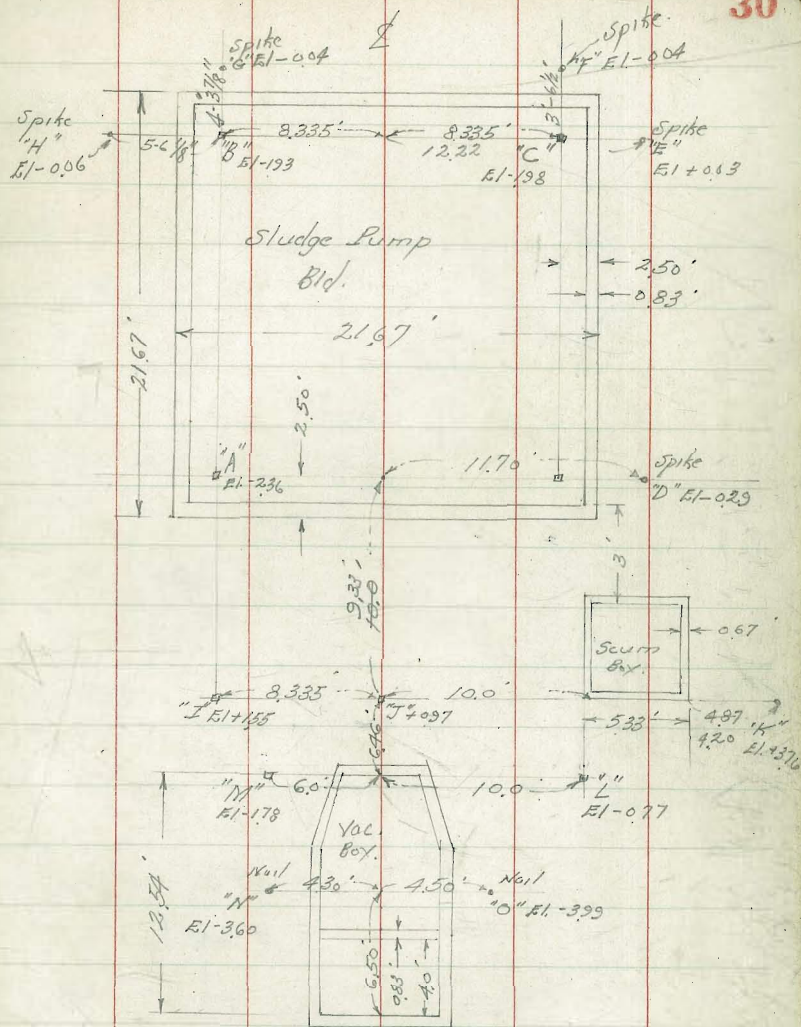
S.M. Elev. 1450 Page 15

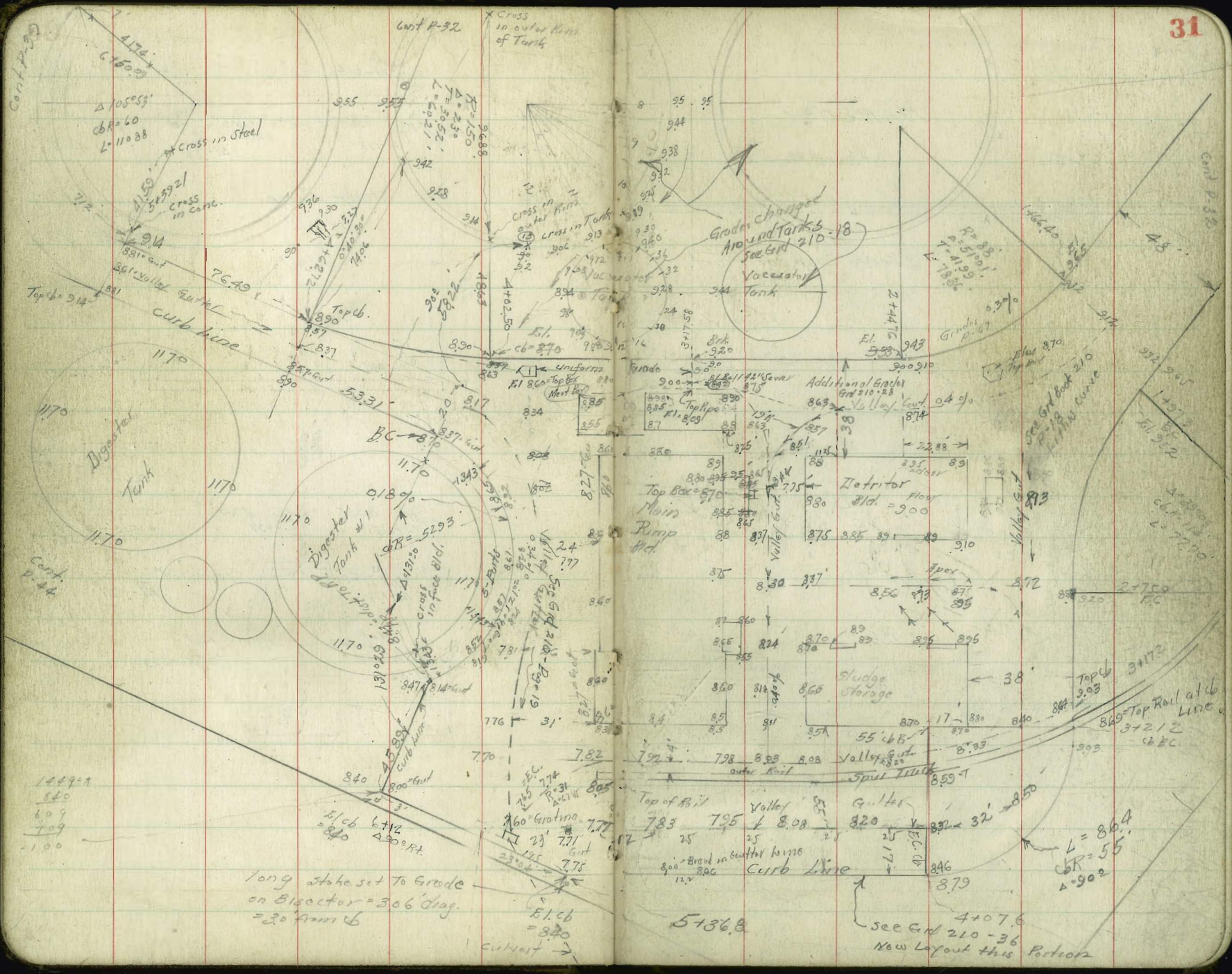
10.00
 0.13
 10.13
 5.50
 4.63
 1.29
 5.92

Walker
Moore
Hardin
Reed
3-31-42

Sketch of Reference Points
With Elevations on Same
Construction Grades P-29

30





1449-1
 840
 609
 709
 -100

Long stake set to grade
 on bisector = 306' diag.
 = 20' from C

5736.8

see Grit 210-36
 Now Layout this Portion

L = 86.4
 CR = 55
 Δ = 90.2

Harbor Drive

DRIVE

HARBOR

6780 of fence line

60
100

Disposal Plant
Finish Grades

3534' El. 11.0
Fence Disposal Plant

7176

0+00
El. 1033

0+00 - Going South
El. 70.33 = Top cb.

1025
1022 = Top
989 = Gut

1013 980 960 980
0+50
1013 = Top cb.

Curb Grades
7-67-78

New Grades
See Pages
31, 32 - in
Grade Book 210

110'

1400
970 = sidewalk
4434
14137
320
493
225
488

M.H.
13
320' Run

Cont P-29

"A" Line 3374'

For New
Grades Around Tank
See Grade Book 210-18

985
R.P. Ct. Id.

0.14
cb. Line

cb. Line

146640
4780
932 912
932 965
75'
1497.9
952

$\Delta = 39.03$
 $cb R = 114$
 $L = 77.70$

$EX = 202.76$
 $\Delta = 39.01$
 $L = 138.2$

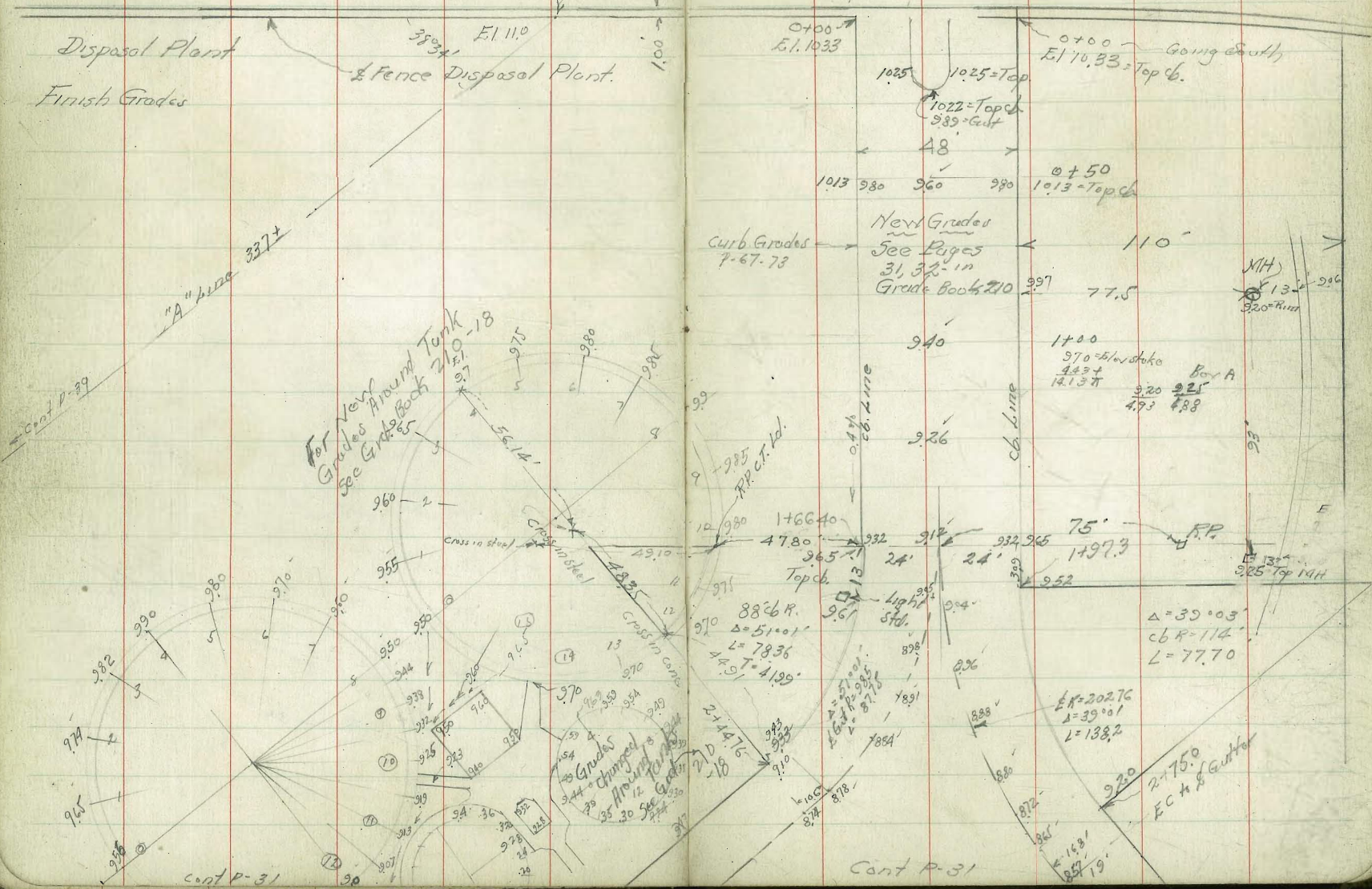
2750
Each of Gutter

Grades
changed
around
12
35 30 See Gutter

Cont P-31

Cont P-31

Cont P-29

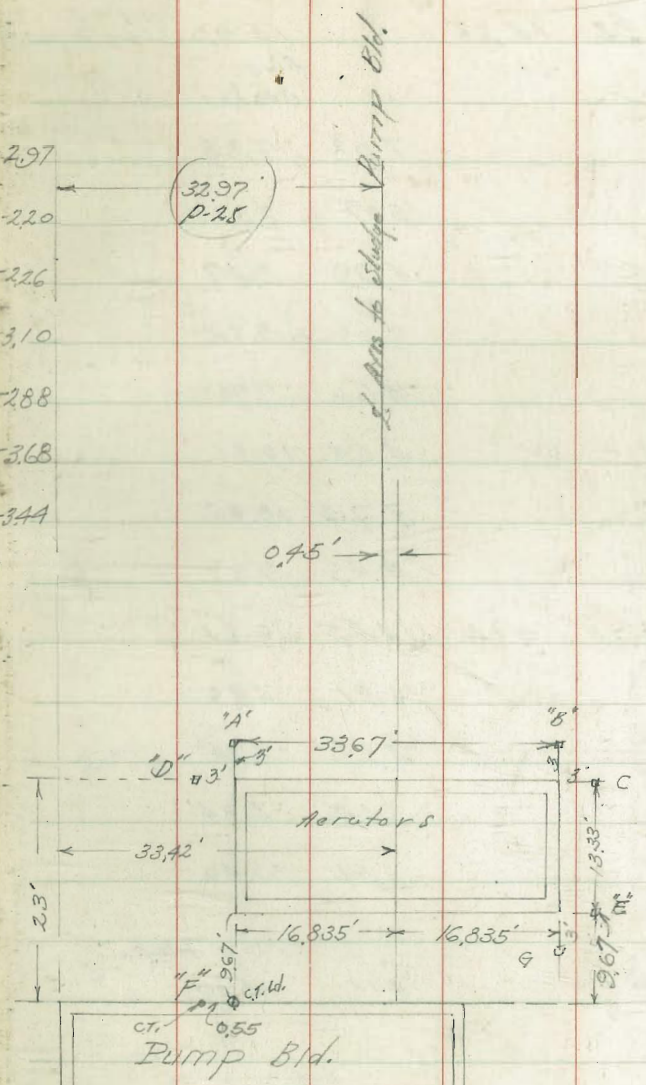


Walker
Harding
Reed.
4-14-42

DISPOSAL PLANT
- AERATORS -

	5.29	^x 15.29	10.00 = BM Elev. Top slab.	
A	5.59	9.70	+12.67	-297
B	4.82	10.47	+12.67	-220
C	4.88	10.41	+12.67	-226
D	5.72	9.57	+12.67	-310
E	5.50	9.79	+12.67	-288
F	6.30	8.99	+12.67	-368
"G"	6.06	9.23	+12.67	-344

(finish) Beuthe P. 34



4-29-42
Walker
Hurdiss
Reed.

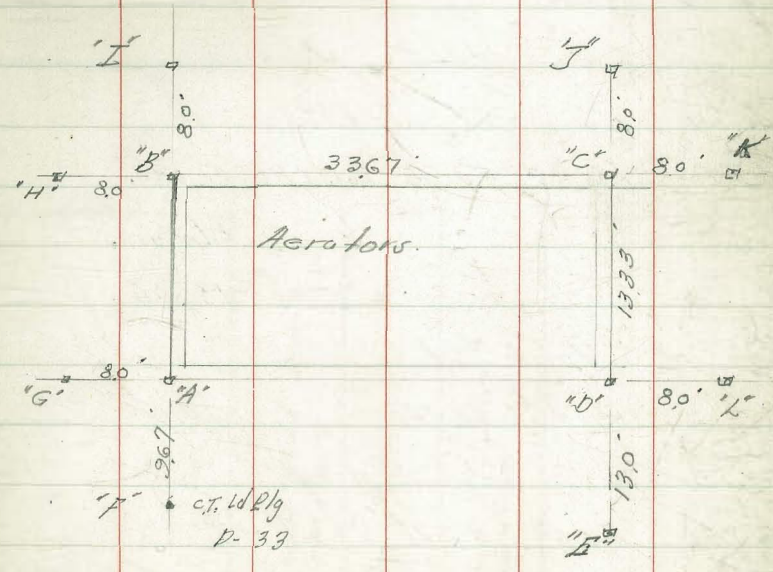
Re-stake Aerators.
Disposal Plant

4.36 14.36

B.M.
Tank #2
clariflocculation

10.00
5/16
stakes

"E"		7.08	7.28
"F"		5.37	8.99
"G"		4.99	9.37
"H"		4.66	9.70
"I"		4.60	9.76
"J"		4.05	10.31
"K"		3.74	10.62
"L"		4.49	9.87
T.P.	0.00	0.11	14.25
"A"		4.51	-4.40
"B"		4.85	-4.74
"C"		5.45	-5.34
"D"		5.51	-5.40
			Floor Block
		4.11	-4.00



Walker
Hazard
Road
5-25-42

clariflocculator Tanks
Levels for Clarifier Walkway Pedestals
and Center Piers

Tank # 2
4.393 14.393 10.00
Temp 87°
1450 1215

Reel Elev. Plate

4.893 9.500

T.P. 1.715 - 4.038 20.146 - 5.753

Elev. Nuts

9.848 - 13.886

Tank # 3
14.393

4.893

T.P. 1.632 - 4.155 20.180 - 5.787

Elev. Nuts

- 9.731 - 13.886

Tank # 1

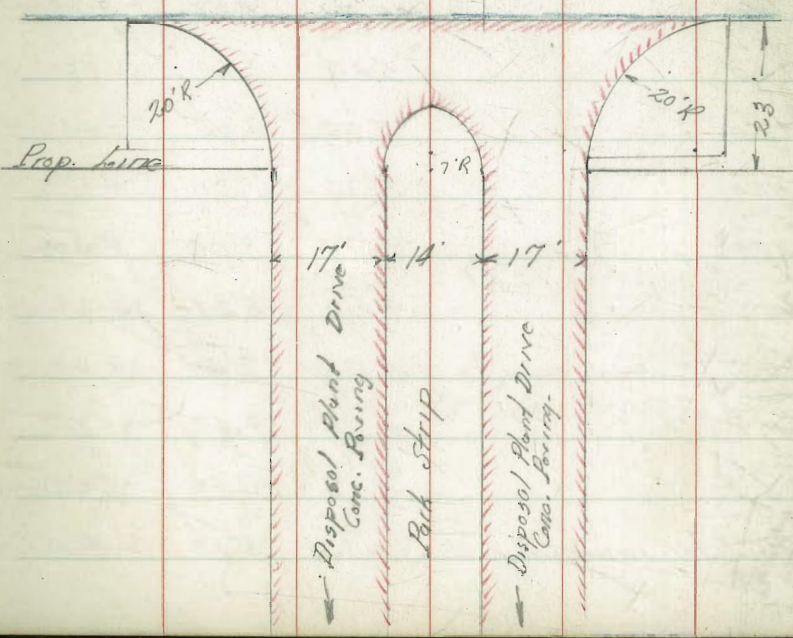
4.147 14.147 10.00 - 87°

4.647 9.50

T.P. 1.551 - 4.227 19.925 - 5.778

9.659 - 13.886

Walker Hazard Road 9-22-44
Grades - Disposal Plant.
Paving Strip to East Entrance



Walker
Hardy
Recd. 5-28-42

GRADES for 24" Sewer Outfall
from Box "D" to Box "C"
and from Box "C" to Sewer MH Box 117

Una & Fisher etc. sketch P-45

Line over E. Existing 42" Sewer

Station	Elev. Stakes	Elev. Flow Line	Cuts	offsets
East inside edge Box "D" π = 0+00	13.86	5.55	8.31	+1.00
+40	3.45	10.41	+0.69	
+80	4.27	9.59	+0.38	
1+29 = West inside edge Box "C"	4.81	9.05	0.00	

Line over E. Existing 36" Sewer

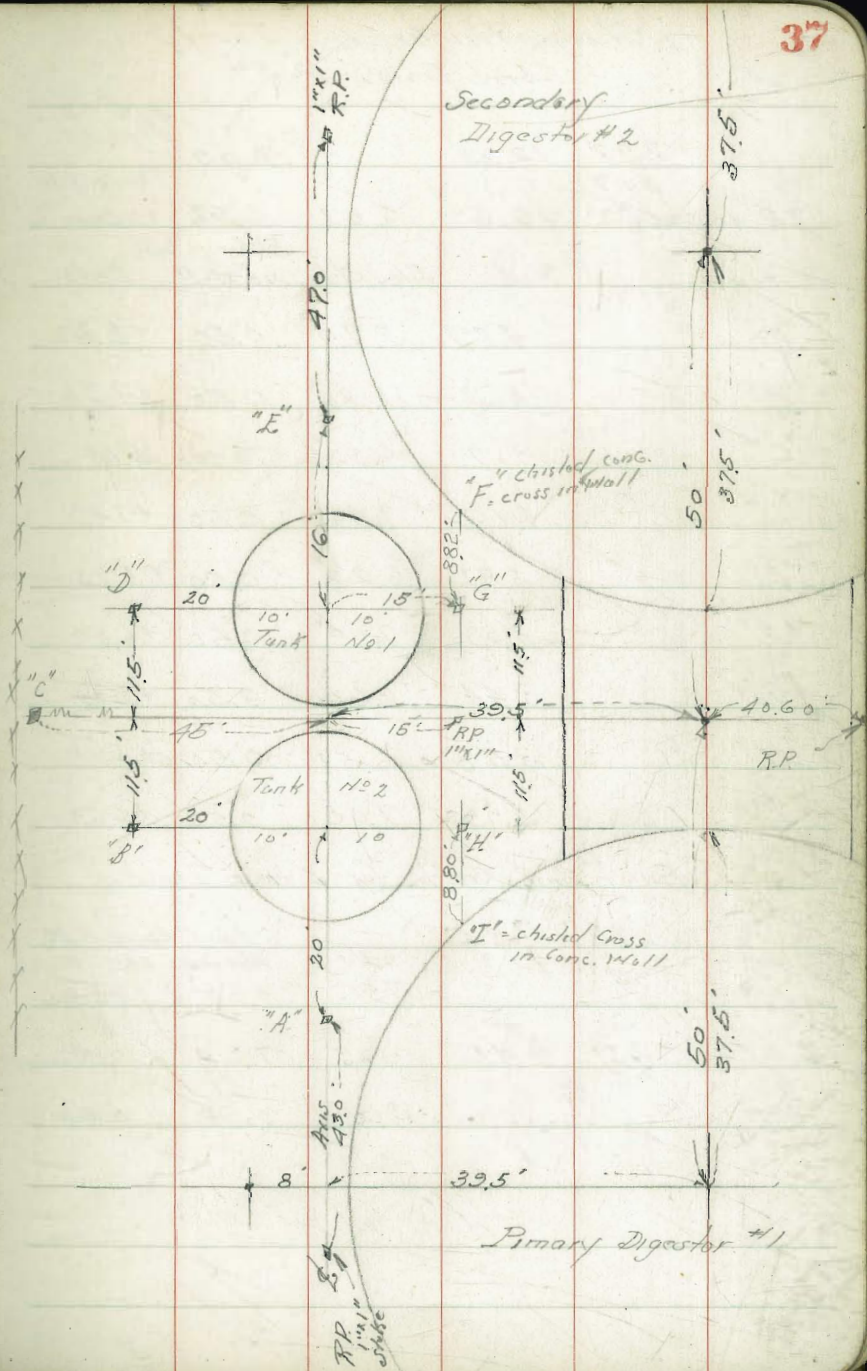
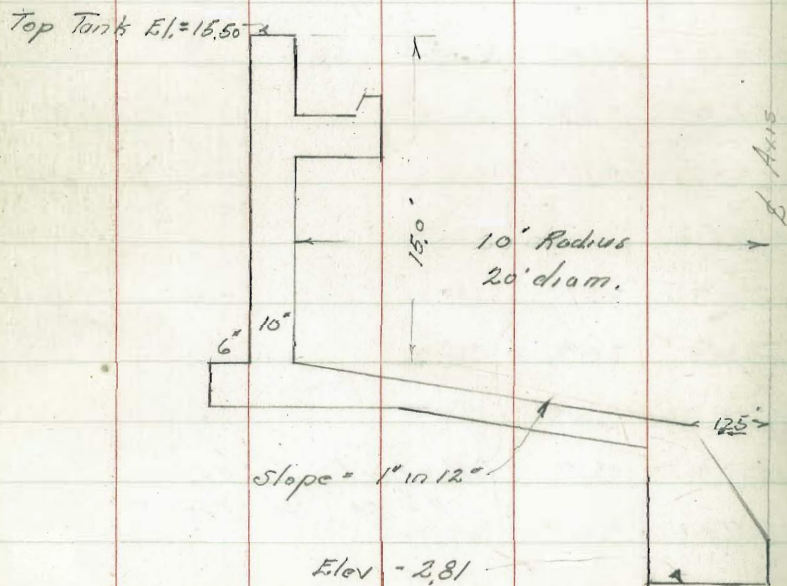
Station	Elev. Stakes	Elev. Flow Line	Cuts	offsets
South inside edge Box "C" = 0+00	13.86	4.67	9.19	-3.00
+50	5.51	8.35	-3.28	
1+00	5.43	8.43	-3.56	
+50	5.82	8.04	-3.84	
2+00	5.96	7.90	-4.12	
+50	5.77	8.09	-4.40	
3+00	12.41	4.20	8.21	-4.68
+50	4.98	7.43	-4.96	
4+00	4.94	7.47	-5.24	
+50	5.13	7.28	-5.52	
5+00, 5' = N. inside Box, Una & Fisher	6.62	5.79	-5.80	

PM on Well Tank #2 1+50 PLS = 10.00

3.86
13.86 π
5.77 -
8.09 TP
4.32 +
12.41 π
2.93
9.98
10.00
0.02 Error

Recheck from 2+50
P-54 to 5+00.5

Walker Disposal Plant
 Hurdler layout Sludge Thickening Tanks
 Recd. 7-20-42 20' diameter inside
 Plan sheet #47
 for Grades see P-38



Sludge Thickening Tanks
Cont. from P. 37

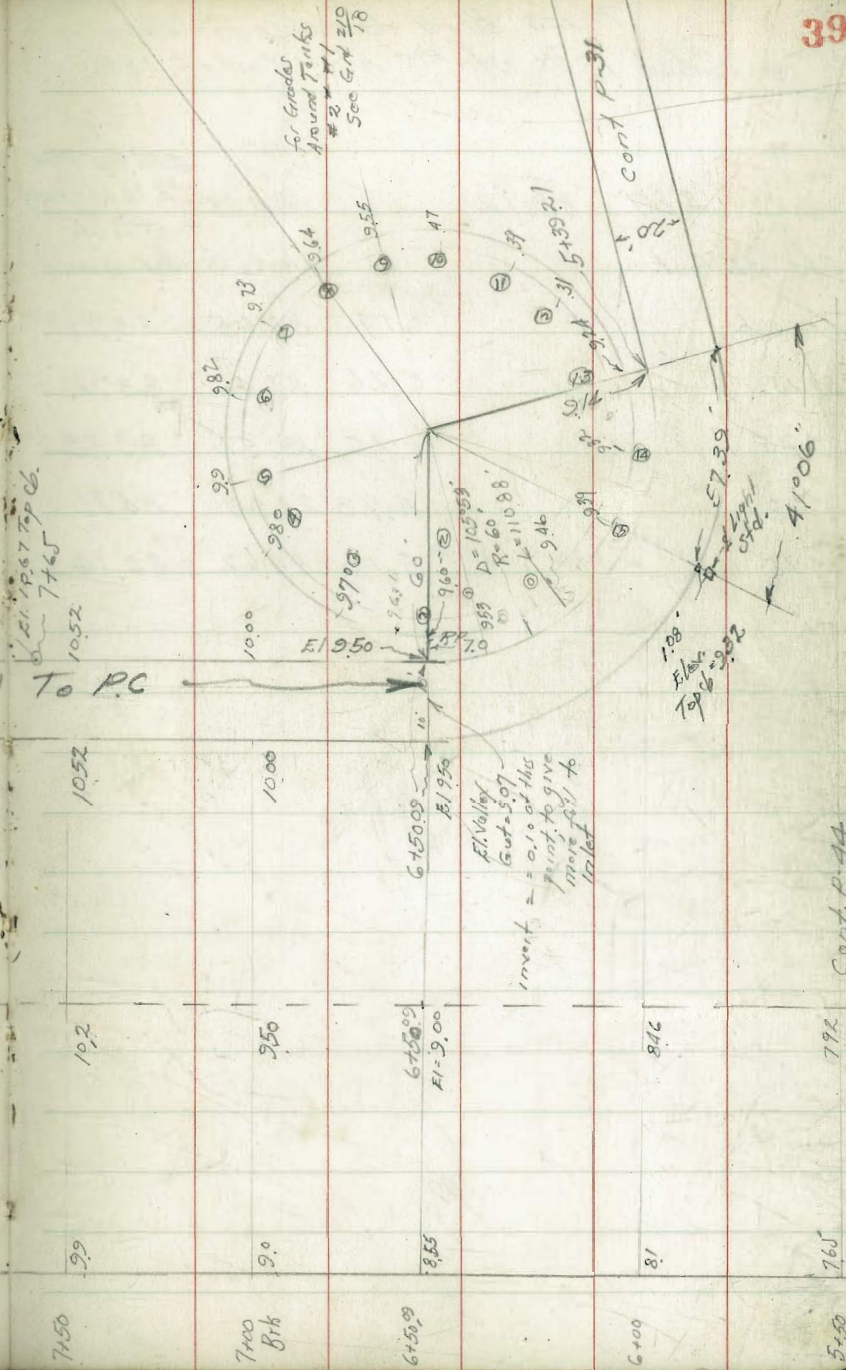
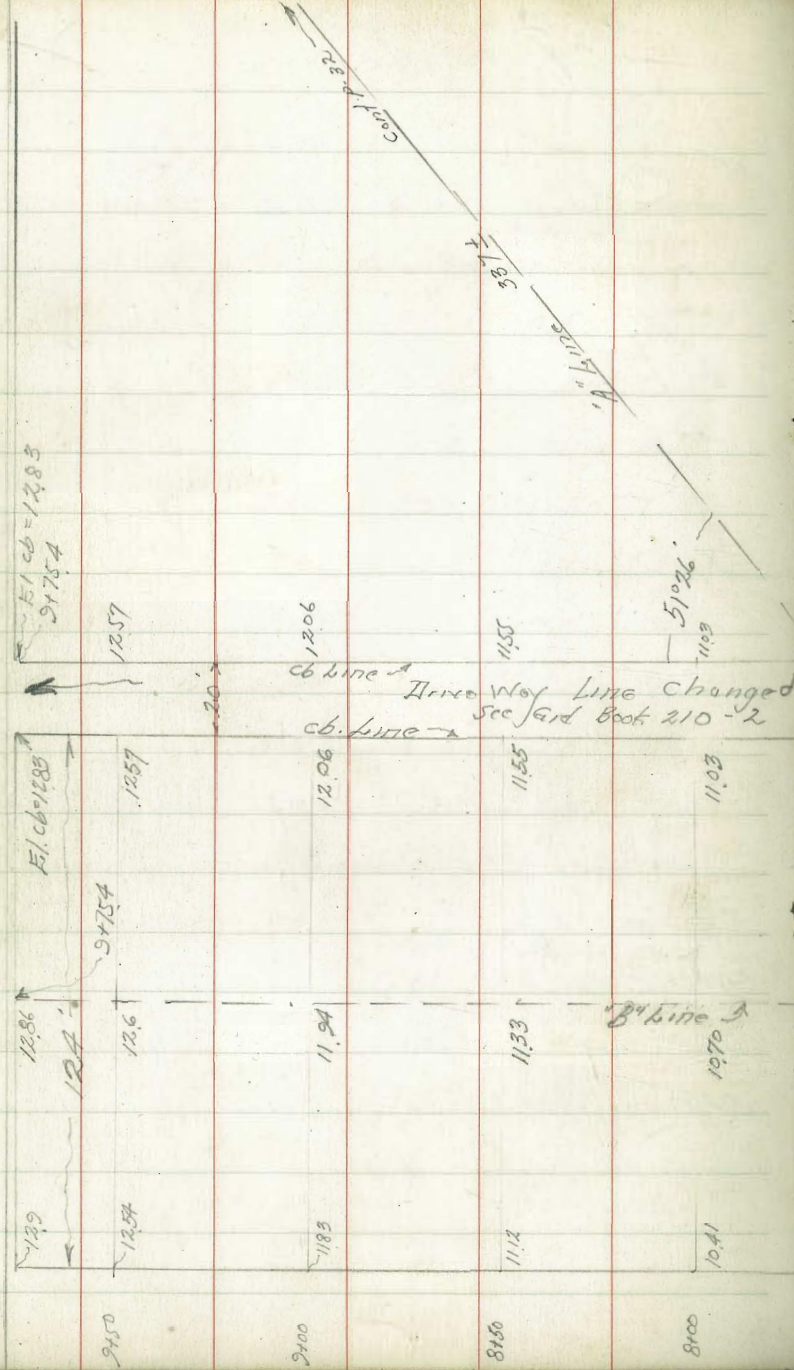
Station	TP on Stake "C"	TP	El. Stake	El. Finish Conc. at Wall	Cuts
	2.93	12.93	10.00	BM #2 Page 15	
	3.17	π		Temp BM	
	TP on Stake "C"	10.09	6.01	6.92 on Stake "C"	
	3.17	π		Temp BM	
"A"	4.39	5.70	0.50	+5.20	
"B"	2.23	7.86	0.50	+7.36	
"C"	3.17	6.92	Temp BM		
"D"	2.10	7.99	0.50	+7.49	
"E"	3.81	6.28	0.50	+5.78	
"F"	3.09	7.00	0.50	+6.50	
"G"	3.44	6.65	0.50	+6.15	
"H"	3.58	6.51	0.50	+6.01	
"I"	3.09	7.00	0.50	+6.50	

Finish Conc. Grades for Bottom Tanks

TP	TP	Rods	6.92 - Above BM	El. Stake	El. Finish	Cuts
0.93	7.85	7.35	0.50	0.50		
-2.59	4.41	0.85	7.00			0.00
		3.91	0.50	0.50		0.00

HARBOR

ARIVE



Russ Blvd Grades for Paving
 Bet. 18th St. and Alley East of 18th

cb. line
 10'

Sta.	S.L. Gut.	Flor.	Elev.	E.L. Grade
1+00.6		6.17	83.55	83.98
+15		6.26	83.46	83.77
+25		6.15	83.57	83.83
+50		5.73	83.99	84.19
+75		5.10	84.62	84.54

S.M. to Wall
 F.R. 16.15 - R.49

5 Gut
 E.L. Grade

Cuts	offsets
-0.43	15' Back Gutters
-0.31	" " "
-0.26	" " "
-0.20	" " "
+0.08	16' "

gut	10'	Alley
85.48	85.73	2101 8490 Br. 1199
85.24	84.94	1+75
84.88	84.19	1+50
84.52	83.83	1+25
84.46	83.77	1+15
84.45	83.98	1+00.6

Indexed



Russ Blvd

18th St

Walker
Harding
Road
6-8-42
(finished)

M^cKinley School
Tennis Court - Const. Grades.

Plan # 6241-L

322 310.70

307.98

Rough Grades P-42

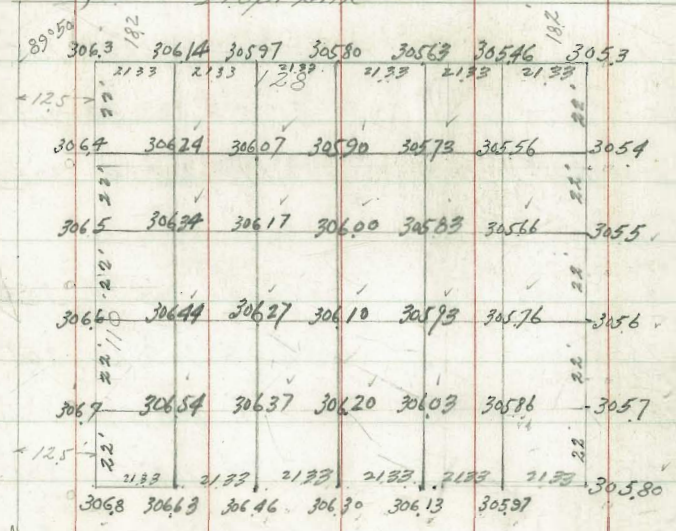
Elev. Finish
Paving.
877.54 7' h. h.
Redwood
M^cKinley

Cuts

~~Indexed~~

M^cKinley St.

Prop. Line



Redwood
Property Line

M. S. Kinley Tennis Court

Cont. from P-41

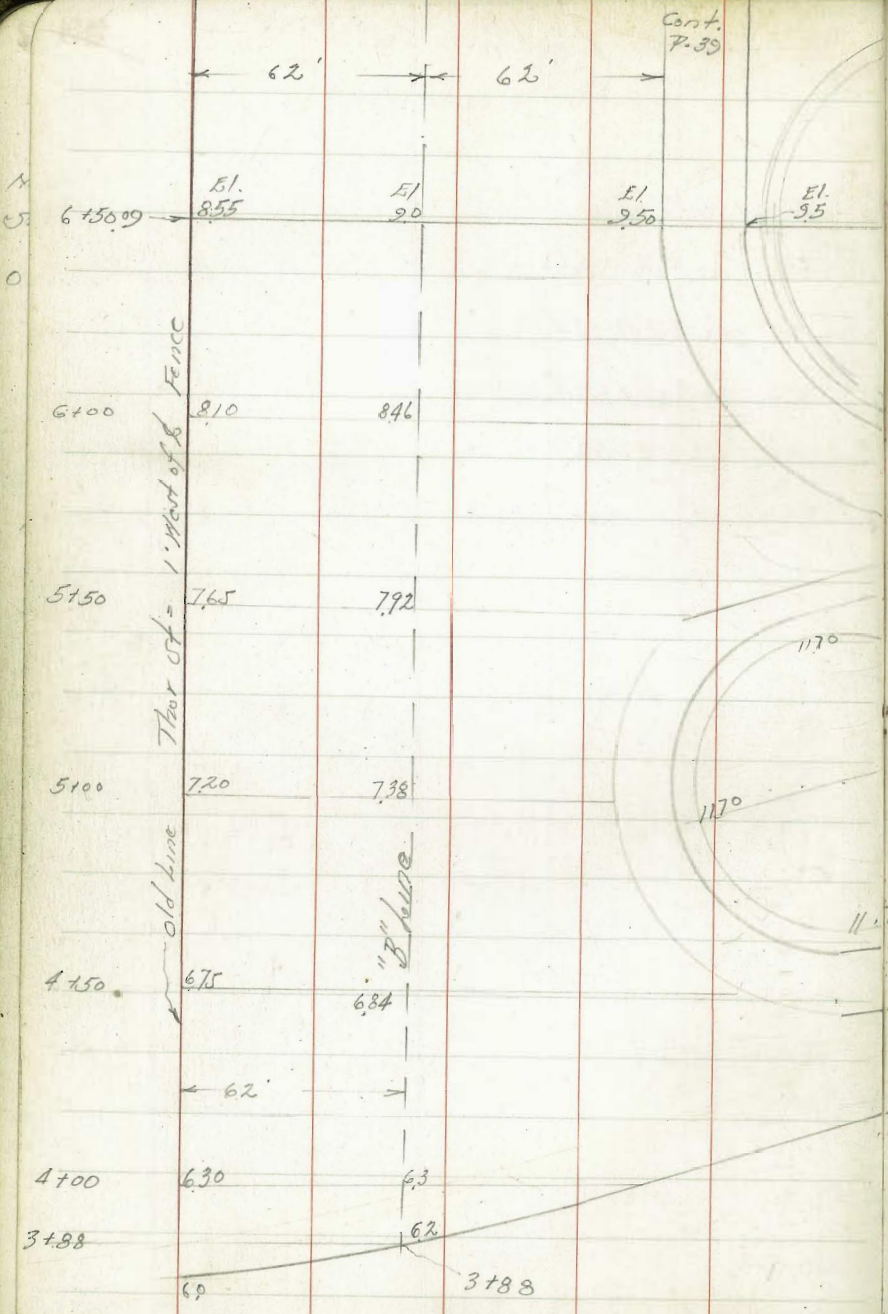
Station	π	Elev. Stakes	Elev. Finish Point	Cuts & Fills	offsets	
0+00 = NE Cor. Court	310.25	0.95 309.30	306.30	+3.00	2.70 Lt.	P.M. F.B. 1815 P-45 SW. Cap Tacks. M.S. Kinley + Redwood = 307.48 2.77 + 310.25 = π
0+27.9		3.17 307.08	306.08	+1.00	2.70 Lt.	
+52.2		3.41 306.84	305.84	+1.00	2.70 Lt.	
+89.1		3.64 306.61	305.61	+1.00	2.62 Lt.	
+99.5		3.72 306.53	305.53	+1.00	2.55 Lt.	
1+28 = SE Cor		7.11 303.14	305.30	-2.16	5' South SE Cor. on stake	
Station SE Cor = 0+00		7.11 303.14	305.30	-2.16	5' Lt. on stake	
+27.5		7.06 303.19	305.42	-2.23	5" " " "	
+55		6.67 303.58	305.55	-1.97	5" " " "	
+82.5		6.24 304.01	305.67	-1.66	5" " " "	
1+10 = SW Cor. NW Station		5.28 304.97	305.80	-0.83	5" " " "	
0+00 = SW Cor.		5.28 304.97	305.80	-0.83	5" " " "	
+28		4.51 305.74	306.02	-0.28	" " " "	
+53		3.52 306.66	306.22	+0.44	" " " "	
+78		2.76 307.42	306.41	+1.08	" " " "	
1+03		2.34 307.91	306.61	+1.30	" " " "	
1+28 = NW Cor.		1.65 308.60	306.80	+1.80	" " " "	

Cont. P-43

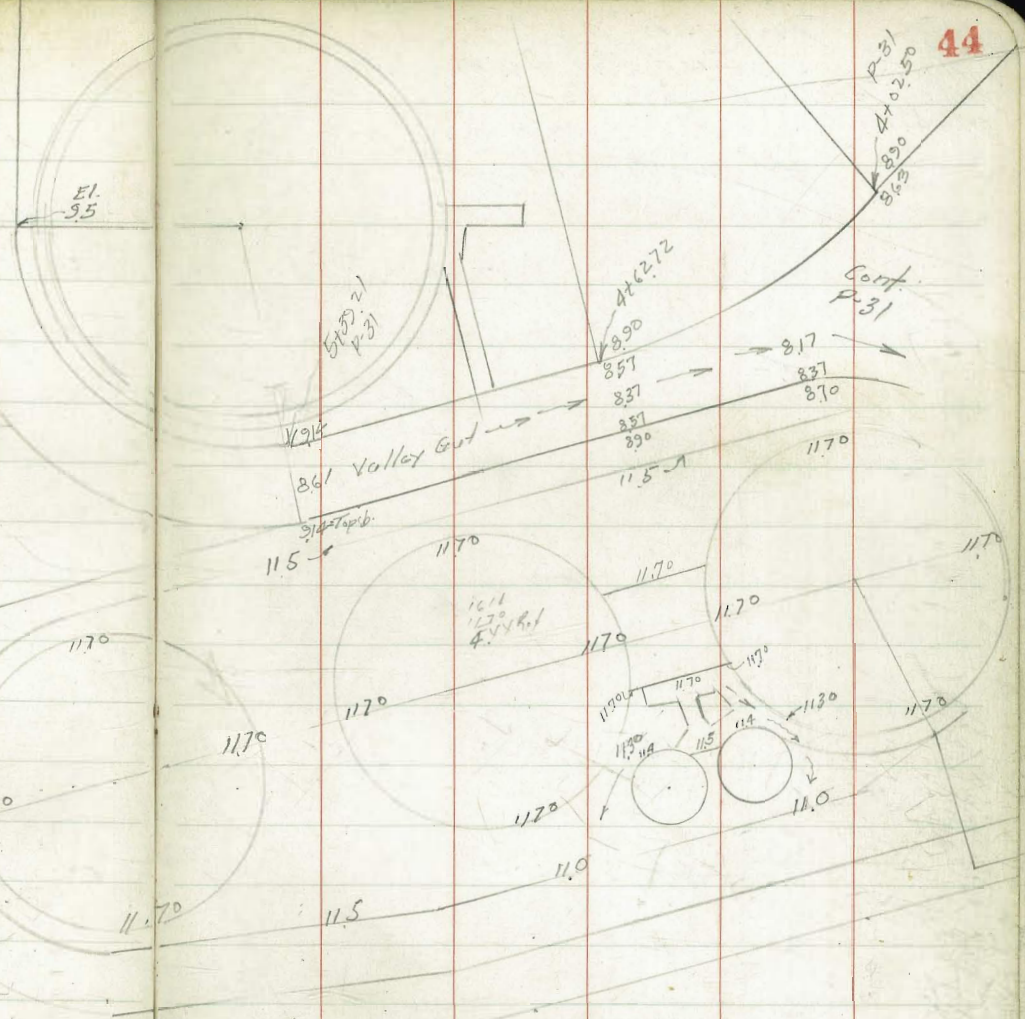
NE Kinley Tennis Court.

Cont. from P. 42.

NK Station	X	Elev. Stakes	Elev. Bench. Pev.	Cuts & Fill	offsets
0+00 = NW Cor.	310.25	0.95	309.30	306.30	+3.00 2.72 ft.
726.6		0.83	309.42	306.42	+3.00 2.85 ft.
757.1		0.69	309.56	306.56	+3.00 2.90 ft.
787.2		0.55	309.70	306.70	+3.00 2.90 ft.
1+10 = NW Cor.		1.65	308.60	306.80	+1.80



Cont. P. 39



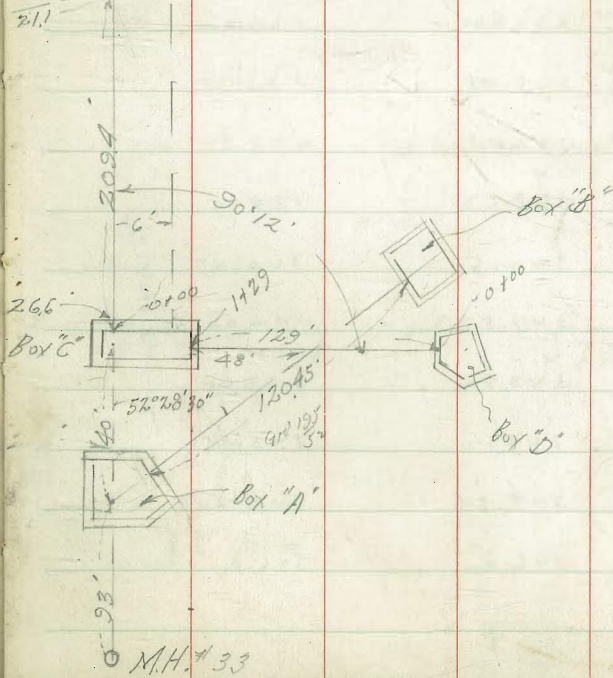
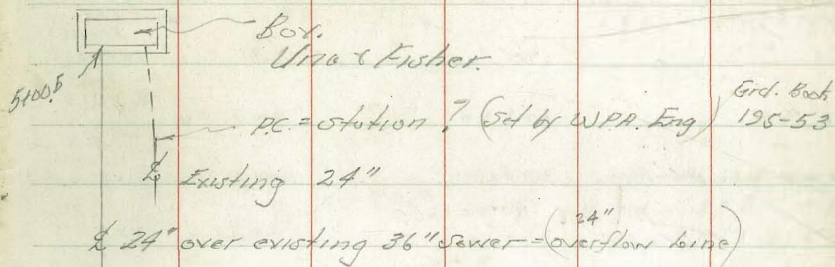
16117
 000
 16117 TP
 0797
 1699
 565
 1128 TP
 489
 16.17 K

Disposal Plant
 Finish Grades Cont. from P-39

Walker
 Hardin
 Reed
 5-26-42

Location 24" Sewer Outfall
 DISPOSAL PLANT
 from Box "D" to Box "C" and
 from Box "C" to M.H. Box Under Fisher.
 for Grades see P-36

Grades = P-36 this line



M.H. # 33
 42.165.38 Grd. Book 195-51

Moore
Walker
Hardin
Reed
L-15-44

Estrella Ave.
Polk to Orange

Curb & Sidw

Griffith Co. Orange
SE Cor ESTRELLA
8P CHURCH
STEPS

46

	W		E	348.45 0.30 <u>348.75</u>
1/2 Polk		323.40		323.50
				<u>NOON</u>
0 + 09.5 RC. Pot		323.84		348.45 0.30
				PLAN N.G.
0 + 12.5 Break		324.0		324.0
				348.75 11.75
0 + 17.30		327.10		327.28
				337.00 0.08
1 + 21.15 PVC		330.00		337.08 13.08
				324.00
1 + 41.15		331.27		331.71
				4.38
				<u>348.38</u>
1 + 61.15		332.25		332.70
1 + 81.15		333.09		333.55
2 + 01.15 EVC		333.80		334.25
+ 50		335.38		335.78
3 + 00		337.00		337.34
+ 50		338.63		338.90
4		340.25		340.47
+ 50		341.87		342.03
5		343.50		343.50
+ 50		345.14		345.16
+ 74 RC. Pot.		345.84		345.84
5 + 77 S/O Orange		346.0		346.0

W	346.0 2.75	45.84 2.91	45.10 3.63	43.50 5.25	41.87 6.88	40.25 8.50	38.63 10.12
old H-1 IN H.M.							
E	346.0 2.75 2.71 0.00	45.84 2.91 2.89 WATER 9.4	45.10 3.63	43.50 5.15	42.03 6.74	40.27 8.28	38.90 9.85
grade o.k.							
W	37.0 11.75	35.38 1.70	33.80 3.28	33.09 3.97	32.25 4.83	31.22 5.86	30.20 6.88
7.17							
E	37.34 11.41	35.78 1.30	34.25 1.83	33.55 3.53	32.70 4.38	31.71 5.37	30.56 6.52
W	27.10 9.98	24.0 13.08	23.84	323.40 4.98			
RC. POT OUT							
E	27.28 9.80	24.0 13.08	23.85	323.50 4.88			
RC. POT R 20'							

Walker
Harding
Reed
7-6-42

GRADES 29th Street
Between Ocean View Blvd.
And Marcey St. (Grades shown - Top of)
Profile #3023 (Prop. line = 0.10 Higher)

Indexed
98

Station	East Line Grades	West Line Grades
Sta. Ocean View Blvd = 0+00		
0+10 = PG. Top Rad.	96.38	96.69
+20 = Bk.	96.24	96.37
+40 = F.V.C.	95.73	95.73
+80	94.46	94.46
1+20	93.19	93.19
+60	91.93	91.93
2+00	90.66	90.66
+40 = P.V.C.	89.40	89.40
+60 = Sta.	88.79	88.79
+80 = "	88.21	88.21
3+00 = "	87.67	87.67
+20 = "	87.16	87.16
+40 = "	86.70	86.70
+60 = "E.V.C.	86.27	86.27
4+00	85.45	85.45
+50	84.43	84.43
5+00 = End Grading from North	83.40	83.40

Cont. P-48

97.45 = NE. BP Ocean View 29th

47

Station	0110	0120	0130	0140	0150	0160	0170	0180
0.80								
98.25T	EL. 96.38	96.24	95.73	94.46	93.19	91.93	90.66	
12.48	1.87	2.01	2.52	3.79	5.06	6.32	7.59	
85.77-TP	1.23	1.02	1.37	2.69	4.26	5.20	6.29	
3.53T	1.64	1.10	1.15	1.11	1.27	1.12	1.13	
89.30T	0.10	0.10	0.10					
10.75	WL. 96.38	96.24	95.73	94.46	93.19	91.93	90.66	
78.55TP	1.87	2.01	2.52	3.79	5.06	6.32	7.59	
0.65T	1.08	1.31	2.45	2.62	4.26	6.0	7.33	
79.20	1.87	2.01	2.52	3.79	5.06	6.32	7.59	
7.53	N.L. Marcey Page 50 - stub	2.11	2.11	2.11	2.11	2.11	2.11	
71.47	EL. 89.40	88.79	88.21	87.67	87.16	86.70	86.27	
71.70	8.85	3.46	10.04	10.58	11.03	11.55	11.98	
0.03 diff.	1.80	0.30	7.66	10.28	10.82	11.37	11.98	
	1.06	1.06	1.038	1.03	1.027	1.018	0.00	
	2.10							
	WL. 89.40	88.79	88.21	87.67	87.16	86.70	86.27	
	8.85	3.46	10.04	10.58	11.03	11.55	11.98	
	8.35	3.88	9.43	8.94	11.52	11.37	11.37	
	1.06	1.06	1.06	1.014	1.047	1.03	1.06	
	EL. 85.45	84.43	83.40	5100	FB. 1615-43			
	13.85	4.87	5.90					
	3.32	4.30	5.47					
	0.1	1.057	1.043					
	WL. 85.45	84.43	83.40					
	12.80	4.87	5.90					
	12.48	4.67	5.47					
	1.032	1.02	1.033					
8-28-42								
90.66	El. Grack 2460 El.							
1.3 cut								
91.96	El. Stake	P.V.C.						
1.324 Rad								
93.29-T	89.40	88.79	88.21	87.67	87.16	86.70	86.27	85.45
	3.9	4.5	5.1	5.6	6.1	6.6	7.0	7.5
	3.3	4.2	4.7	4.9	5.2	6.4	7.0	7.5
	1.06	1.03	1.04	1.07	1.09	1.07		1.01

29TH St. Grades
Cont. from P-97

78.63 - π

48

Station	W.L. Grade cb	E. Line Grade cb
N.L. Morsey Ave = 0+00		
+10 = E.C. Ret.	70.30	70.30
+19	70.41	70.41
+58.2	70.86	70.86
+045	71.41	71.41
+45	71.88	71.88
+77.62 = D.C. Ret.	72.27	72.27
+87.62 = End Grading.	72.37	72.37

W.L.	7030	7041	7086	7141	7188	7227	7237
	8.33	8.22	7.77	7.22	6.75	out	6.26
	7.70	7.61	7.58	7.3	6.69		6.55
	+0.63	+0.61	+0.2	-0.1	+0.1		-0.3
E.L.	7030	7041	7086	7141	7188	7227	7237
	8.33	8.22	7.77	7.22	6.75		6.26
	7.43	7.35	7.37	7.09	6.90		6.70
	+0.80	+0.87	+0.4	+0.13	-0.2		-0.44

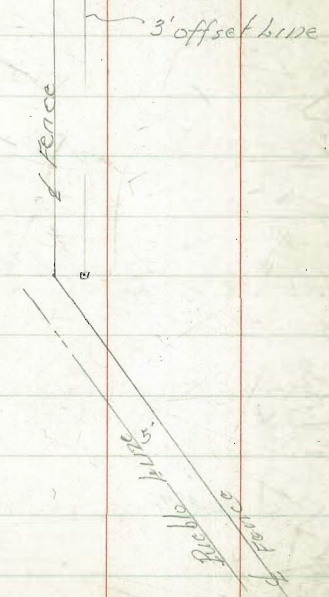
GRADES for Fence Along Jutewood
from WLY end Jutewood to UNA St

Station			Elev. Stakes	Elev. Grades
4+28.5 = A.H.	1602	539	10.63	11.02
750		424	11.78	10.90
5+00		392	12.10	10.62
750	Void see p. 61 1425π	540	10.62	10.36
6+00		590	10.12	10.08
750		435	9.90	9.80
7+00		500	9.25	9.52
750		541	8.84	9.23

10.00 = B.M. #2 P-15	
6.02	
16.02π	16.02π
-0.39	6.05
	9.977P
+0.88	4.28π
	14.25π
+1.48	5.22
	9.03
+0.26	
+0.04	
+0.10	
-0.27	
-0.39	

7+536
7+50 = stake

Void
see p. 61



Walker
Hordin
Reed
7-6-42

Grades - Marcey Ave
60' wide = 43' Roadway 7' cb on N, 10' cb - South
from Eline 25th to W. 30th streets

Profile #621
Grades = Top cb.
Prop. = .10 Higher
N.L. S.L.

Station	E Grade = ACrown	Grades	Grade
0+00	69.58 69.78 → 0+25 → 69.87 = full crown Roads &	70.20	69.90
+50	69.97	70.39	70.09
1+00	70.16	70.58	70.28
+50	70.35	70.77	70.47
2+00	70.53	70.95	70.65
+50	70.72	71.14	70.84
3+00	70.90	71.32	71.02
+50	71.05	71.47	71.17
+80 = Sid	71.20	71.62	71.32
4+20 Sid	71.46	71.88	71.56
+70	71.91	72.33	71.96
5+20	72.32	72.78	72.36
+60	72.66	73.14	72.68
5+94 = RC. 20' cb R		73.95	72.95
6+00 = W. 30th		73.50	73.00
Part 1		73.59	73.01
" # 2		73.79	72.95
E.C. on both		73.88	72.83

50
77.127

844
6845 - NW 1/4 BP Polygon 29th
788 +

Rough Grades

N.L.	70.20	70.39	70.58	70.77	70.95	71.14	71.32	71.47
7633π	502	513	534	575	556	578	519	501
7131πP	519	563	522	584	525	463	502	566
501 +	+0.94	+1.31	+1.5	+1.72	+1.13	+0.56	550	+0.00
77.12π								
S.L.	69.90	70.09	70.28	70.47	70.65	70.84	71.02	71.17
	643	624	605	586	568	549	531	535
	573	584	40	158	468	449	431	495
	+1.00	+0.9	+2.1	+2.2	+1.0	+1.0	+1.00	+1.00
N.L.	71.62	71.88	72.33	72.78	73.14	73.50		
	550	524	479	434	398	362		
	533	500	424	348	338	314		
	+0.2	+0.2	+0.55	+0.36	+0.6	+0.5		
S.L.	71.32	71.56	71.96	72.36	72.68	73.00	72.89	
	580	556	516	476	444	412	423	
	487	544	488	446	400	377	410	
	+0.93	+0.12	+0.28	+0.3	+0.4	+0.2	503	chk cb.

Outline 29th
E Grades 69.33 69.53 69.87
4.92 4.72 4.38

71.31 + P
786
7917π
502

74.15 = E.L. Floor Boys Club
NW 1/4 Polygon 29th
Curb Grades

N.L.	70.20	70.39	70.58	70.77	70.95	71.14	71.32	71.47	71.62
6845	5307	553	553	553	553	553	553	553	553
7425π	405	386	367	348	330	311	293	274	255
7072πP									
603 +									
7675π									
407									
72.581π									
501 +									
7749π									
N.L.	71.88	72.33	72.78	73.14	73.45	73.59	73.79	73.88	
	487	442	397	301	429	410	396	381	
S.L.	71.56	71.96	72.36	72.68	72.95	73.01	72.95	72.83	
	519	470	433	407	494	463	474	486	

Indexed

Walker
Hardip Set
Reed
7-10-42
GRADES for Grounds - BOY'S CLUB
29TH & 30th St
And North of Marcey Ave

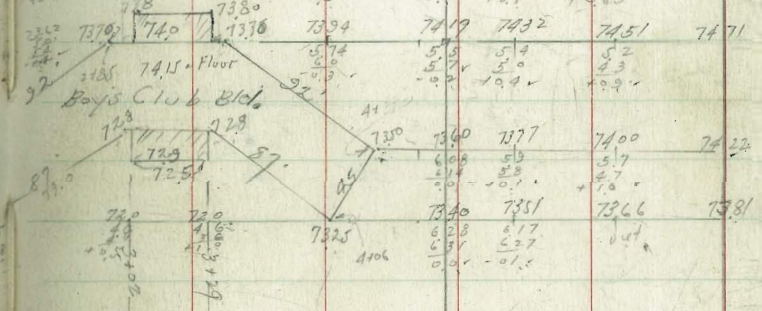
Indexed
92

	29TH ST	0700	0750	1000	1450	2100
2160	7333 530 475 +0.6	7275 488 385 +1.0	7417 446 398 +1.5	7260 408 325 +1.7	7500 363 322 +1.8	
2100	7263 600 -0.6	7304 559 -0.5	7345 518 0.0	7385 478 0.0	7426 437 -0.4	
1445	7198 434 +0.8	7239 383 +0.6	7280 343 +0.7	7320 303 +0.6	7358 263 +0.6	
1404.5	7151 661 +0.5	7202 611 +0.4	7253 570 +0.4	7305 530 +0.2	7355 488 -0.3	
0+582	7126 703 +0.5	716 653 +0.5	7224 613 +0.7	7288 575 +0.8	7350 535 +0.5	
0+19	705 74 +0.8	712 67 +0.3	719 61 +0.4	726 60 +0.6	731 55 +0.5	
0+00						

Marcey Ave

BM.
72.08 = Elev. cut stake 2120 on N.W. Marcey P. 50
655 +
78.43 K -
463 -
74.00 TP
568 +
79.68 - K
76.60 = K

2450	3100	3450	4100	4517	4160	15100	5150	6100
7514 349 36 +0.9	7521 335 37 +0.6	7542 321 28 +0.4	7557 306 319 +0.87	7572 291 249 +0.51	7580 281 262 +0.6	7590 271 247 +1.2	7500 363 327 +1.2	7458
7442 421 490 -0.81	7458 405 508 -1.0	7474 387 468 -0.8	7490 373 484 -0.6	7509 357 593 -0.4	7517 346 374 -0.3	7527 336 333 0.0	7500 363 327 +1.2	7458
7376 457 43 +0.3	7394 514 58 -0.6	7412 56 52 -0.5	7430 62 59 -0.5	7451 72 63 +0.9	7469 82 73 +0.9	7492 92 83 +0.9	7500 363 327 +1.2	7458
7370 447 43 +0.3	740 514 58 -0.6	7412 56 52 -0.5	7430 62 59 -0.5	7451 72 63 +0.9	7469 82 73 +0.9	7492 92 83 +0.9	7500 363 327 +1.2	7458
7370 447 43 +0.3	740 514 58 -0.6	7412 56 52 -0.5	7430 62 59 -0.5	7451 72 63 +0.9	7469 82 73 +0.9	7492 92 83 +0.9	7500 363 327 +1.2	7458



opening gate

4160

30TH ST

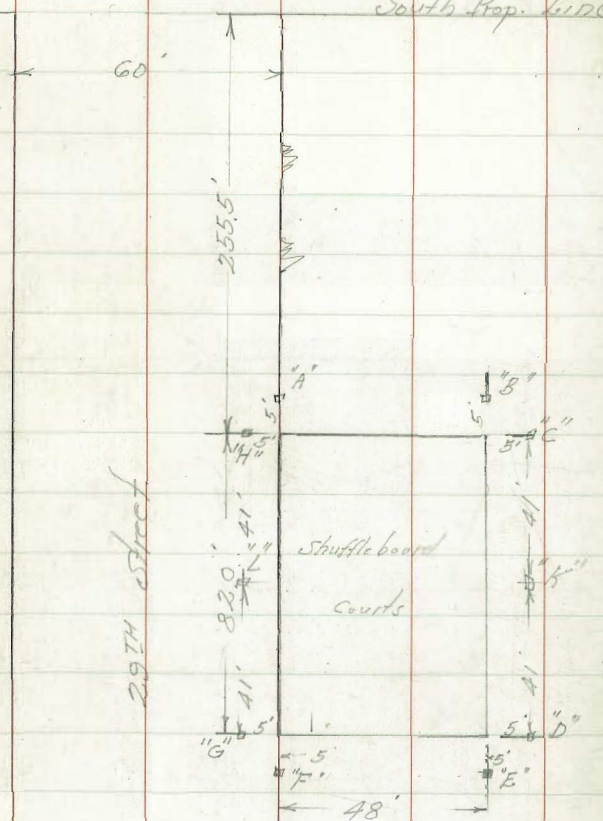
60

Walker
Hardy
Road
9-11-42

GRADES for SHUFFLE BOARD COURT
on 29TH ST.
South of Ocean View Blvd.

OCEAN VIEW BLVD.

South Prop. Line



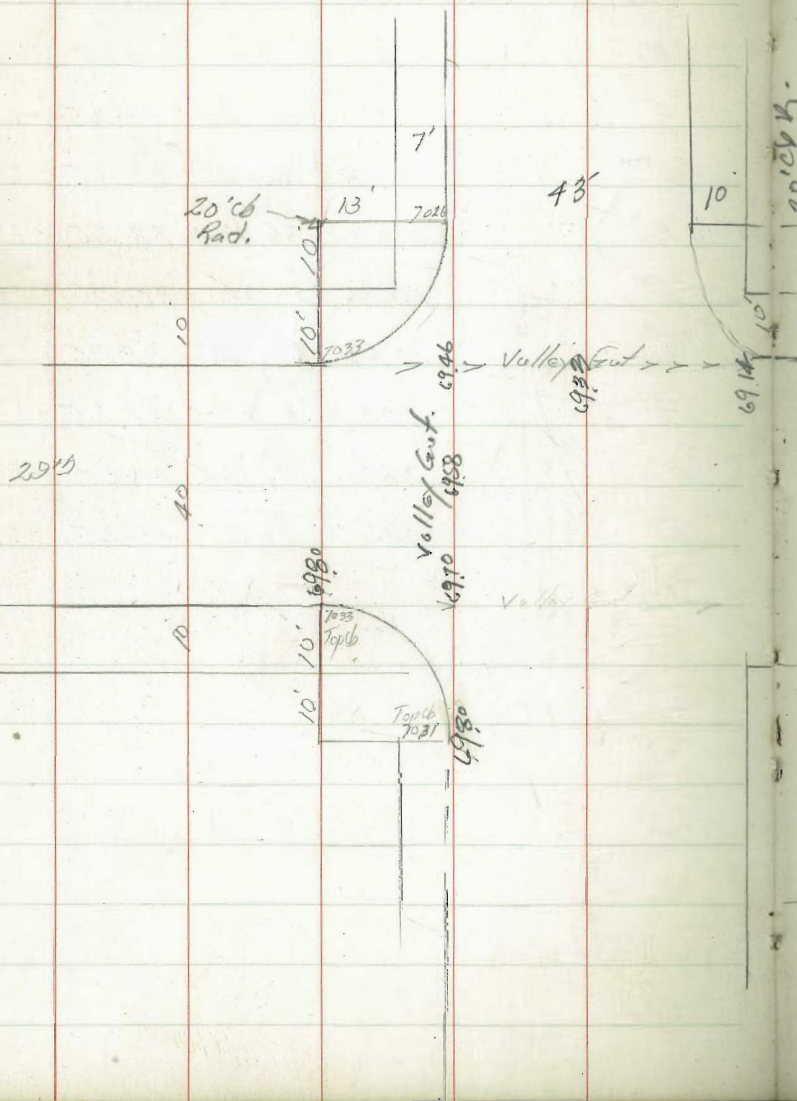
~~Indexed~~

Grades for Finish Concrete

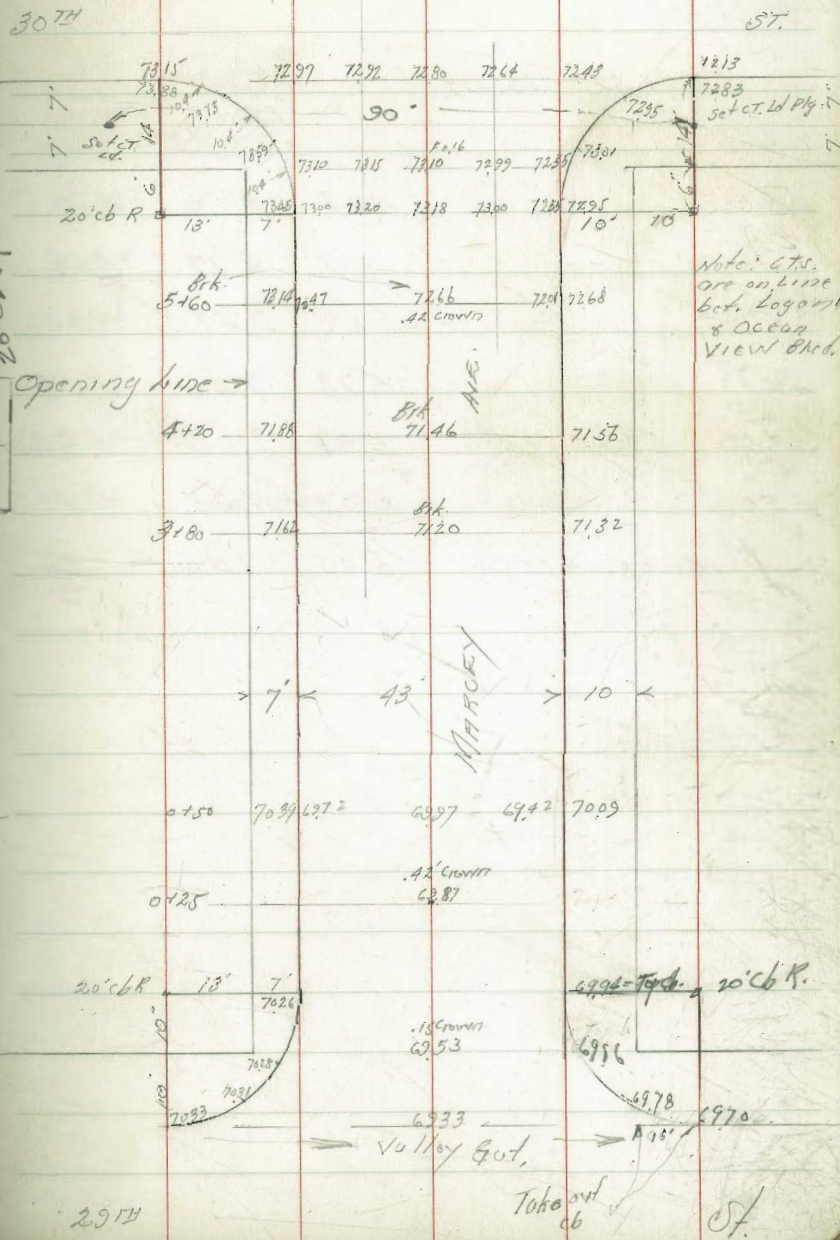
Station	Rods	Elev. Stakes	Finish Conc. Elev.	Cuts or Fills
BM 012	97.57		97.45	+129.45
"A"	7.88	89.69	88.25	+1.44
"B"	7.96	89.61	88.25	+1.36
"C"	8.18	89.39	88.25	+1.14
"D"	11.08	86.49	88.25	-1.76
"E"	11.09	86.48	88.25	-1.77
"F"	10.85	86.72	88.25	-1.53
"G"	10.65	86.92	88.25	-1.33
"H"	7.93	89.64	88.25	+1.39
"K"	9.82	87.75	88.25	-0.50
L	9.42	88.15	88.25	-0.10

Walker. Paving (cited) Grades
Hurdin
Reed
7-21-42
Murphy Ave. 29th to 30th

Curb Grades see P 50



Johned
B



Note: Cts. are on line bet. Logan & Ocean View Blvd.

Take out curb ST.

Walker
Bliss
Hurdin
Beggs 8-6-42

Re stake 24" offset from station 2+50
original stakes P-36 to " 5+00.5

54

Station	6.32	13.24	6.92	Fl. Stakes	Fl. Flows	Cuts	offsets.
2+50			5.24	8.00	-4.40	+12.40	5' RT
3+00			5.07	8.17	-4.68	+12.85	" "
4+50			5.83	7.41	-4.96	+12.37	" "
4+00			5.78	7.46	-5.24	+12.70	" "
TP 4+50	5.30	12.56	5.98	7.26	-5.52	+12.78	" "
5+00.5			8.36	4.20	-5.80	+10.00	N. face 2 chiseled cross in corner box
chk stake 4+00			5.00	7.46	✓		

Walker
Hordin
Virt
8-28-42

Re-Stake Shuffle Board Court
Page 52 - Location.

Station	Σ 93.17	Elev. Stakes	Elev. Finish Conc	Cuts & Fills
"A"	3.60	89.57	88.25	+1.32 -
"B"	3.36	89.81	88.25	+1.56 -
"C"	3.80	89.37	88.25	+1.12 -
"D"	6.60	86.57	88.25	-1.68 -
"E"	6.64	86.53	88.25	-1.72 -
"F"	6.11	87.06	88.25	-1.19 -
"G"	5.66	87.51	88.25	-0.74 -
"H"	3.64	89.53	88.25	+1.28 -
"K"	5.29	87.88	88.25	-0.37 -
"L"	4.54	88.63	88.25	+0.38 -

old
Elev. Stake B" P. 52 = 89.61
356
93.17 -
398
P. 52 alt. old stake "A" 89.69 -

55

Walker-x
Hardin
Wirt
Beegs
Hazard
3-8-42

Construction Grades
VALENCIA PARK SEWER (TRUNK LINE)
From VESTA & HARBOR
To Treatment Plant at Utah St.
Location FB 1610-59
Drawing 936-D

Indexed
99

B.M. 13' Mon Vesta & Juterwood 3.88
10.367
14.247

Note: Line to Valencia Park
Notes in Ord. 211

Station		Elev. stakes	Elev. Flowline	Cuts	offsets
	14.24				
99 + 57.83	20° 15' 10"	9.72	4.52	-8.27	+12.79 ✓ 20' Rt.
	Total Δ				
+ 79.28	8° 11' 36"	8.08	6.16	-8.30	+14.46 ✓ "
100 + 00	16° 23' 12"	8.96	5.28	-8.33	+13.61 ✓ "
	22° 34' 48"	9.37	4.87	-8.36	+13.23 ✓
	32° 46' 24"	9.07	5.17	-8.39	+13.56 ✓
	40° 58'				
100 + 65.08	MH #53	8.48	5.76	-8.43	+14.19 ✓
	50° 06' 46"	8.02	6.22	-8.46	+14.68 ✓
101 + 12.96	59° 15' 20"	8.24	6.00	-8.50	+14.50 ✓
	68° 24'	8.50	5.74	-8.53	+14.27 ✓
	77° 32' 40"	10.34	3.90	-8.57	+12.47 ✓
	86° 41' 26"	5.18	9.11	-8.60	+17.71 ✓
	95° 50' 15"				
102 + 08.73	P.P.C	4.97	9.27	-8.64	+17.91 ✓
	3rd Δ in this curve				
+ 50	0° 12' 77" 41.48' chd 20' st.	3.00	11.24	-8.70	+19.94 ✓
103 + 00	0° 28' 24" 50.18' chd "	4.64	9.60	-8.77	+18.37 ✓
	"				
+ 50	0° 43' 71" "	4.20	10.04	-8.85	+18.89 ✓
104 + 00	0° 53' 18" "	4.06	10.18	-8.92	+19.70 ✓
	"				
+ 50	1° 14' 65" "	4.70	9.54	-9.00	+18.54 ✓

Cont. p. 57

VALENCIA PARK TRUNK SEWER
Cont. from P-56

Station	def	14.24	Elev. Stakes	Elev. Flow line	Cuts	offsets
105+00	TR def ^a 6.39	159.2	4.71	9.53	-9.07	+18.60 - 20' Rt.
+25	1°30.12	50.18' chd w/pt	7.51	8.41	-9.11	+17.52 - "
+75	1°53.52	"	3.01	12.91	-9.19	+22.10 - "
105+95.88	1°59.3					
(2-46.08)	ERC 50'R	46.06' chd w/pt	1.59	14.33	-9.22	+23.55 - "
106+35.96	Curve		6.65	9.27	-9.28	+18.55 - "
	EM 54					
106+76.05	FC		6.74	9.18	-9.34	+18.52 - "
	71' 6"					
107+11.69			7.32	8.60	-9.39	+17.99 - "
107+47.33	PC M 50'R		7.45	8.47	-9.45	+17.92 - "
	(2-29.52)					
107+76.85			7.40	8.52	-9.49	+18.01 - "
108+06.38	Inside Edge Box A		7.11	8.81	-9.54	+18.35 - "

Sketch View P-58

chk. Top Clarifloculator 5.94 $\frac{9.98}{10.00}$
0.02 diff

Restake (see P-60)

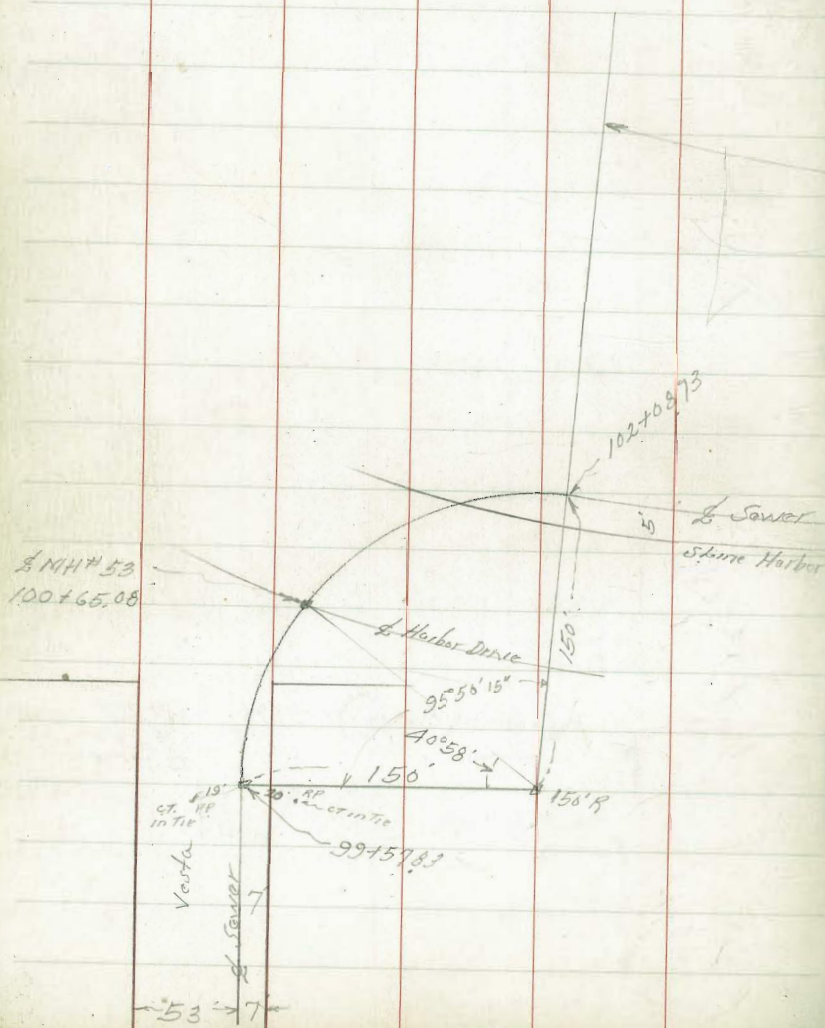
105+75 14.25 -9.19
195.88 }
Voice This Portion }
-9.22
chk 5.83 8.37
4.74 9.57

Elev. of 106+35.96 = 9.27
 $\frac{4.98}{14.25}$

Construction Ties
Valencia Park Sewer

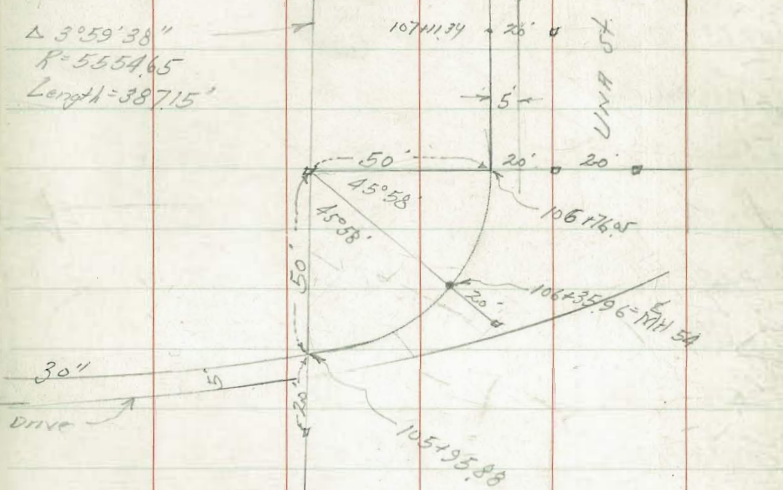
8-8-42

Grades P. 56, 57, -60



Sewer Data

$\Delta 3^{\circ} 59' 38''$
 $R = 5554.65$
 Length = 387.15'



Wulber
Hurdin K.
Wint

Check Levels
Valencia Park Trunk Survey
on Harbor Drive, Vista to Uva.

Grades P 56

99+57.83	9.93	13.81	3.88	
+79.28			2.28	4.53 01
100+08.73			7.65	6.16 ✓
+22.18			8.55	5.26 02
74.63			8.95	4.86 01
76.58 - MH #53			8.65	5.16 01
+89.02			8.04	5.77 01
101+12.96			7.59	6.22 ✓
+36.96			7.82	5.99 01
760.84			8.06	5.75 01
+84.78			9.91	3.90 ✓
102+08.73 - PRC			4.70	9.11 ✓
750			4.56	9.25 02
103+00			2.56	11.25 01
750			4.22	9.59 01
104+00			3.76	10.05 01
750			3.63	10.18 ✓
105+00			4.26	9.55 01
			4.28	9.53 01

T.P.	6.30	13.81	15.83	4.28	9.53 ✓
105+25				7.43	8.40 01
+75				2.93	12.96 01
+25.88				1.52	14.31 02
106+35.96				6.56	9.27 ✓
+76.05 - EC				6.66	9.17 01
107+11.69				7.24	8.59 01
+47.33				7.33	8.50 02
+76.85				7.32	8.51 01
108+06.38 - Inside edge box "A"				7.02	8.81 ✓

Walton
Harden
Wirt 9-23-42 Restake Portions
Valencia Park Trunk Sewer
on Harbor Drive

Station			Elev. Stake	El. Floor	Cuts	offsets
103+50	4.21	14.25	10.04			
104+00		4.07	10.18	-8.92	-119.10	20' RT
750		4.81	9.44	-9.00	+118.44	"
105+00		4.74	9.51	-9.07	+118.58	"
+25		5.89	8.36	-9.11	+117.47	"
775		4.17	10.08	-9.19	+119.27	"
105+25.88 = P.C.		3.86	10.39	-9.22	+119.61	"
106+15.92		5.03	9.22	-9.25	+118.47	
+35.96 = M.H.		4.98	9.27	-9.28	+118.55	
+56		5.16	9.09	-9.31	+118.40	
106+76.04 = E.C.		5.08	9.17	-9.34	+118.51	

Sketch P-58

see 2nd Restaking Page 64

Highline Grades

		Rod.	Elev. Stake	El. Floor	Cuts	offsets
106+60	14.22 14.19	12.51	1.68	-9.32	+11.00	5'
783		12.54	1.65	-9.35		

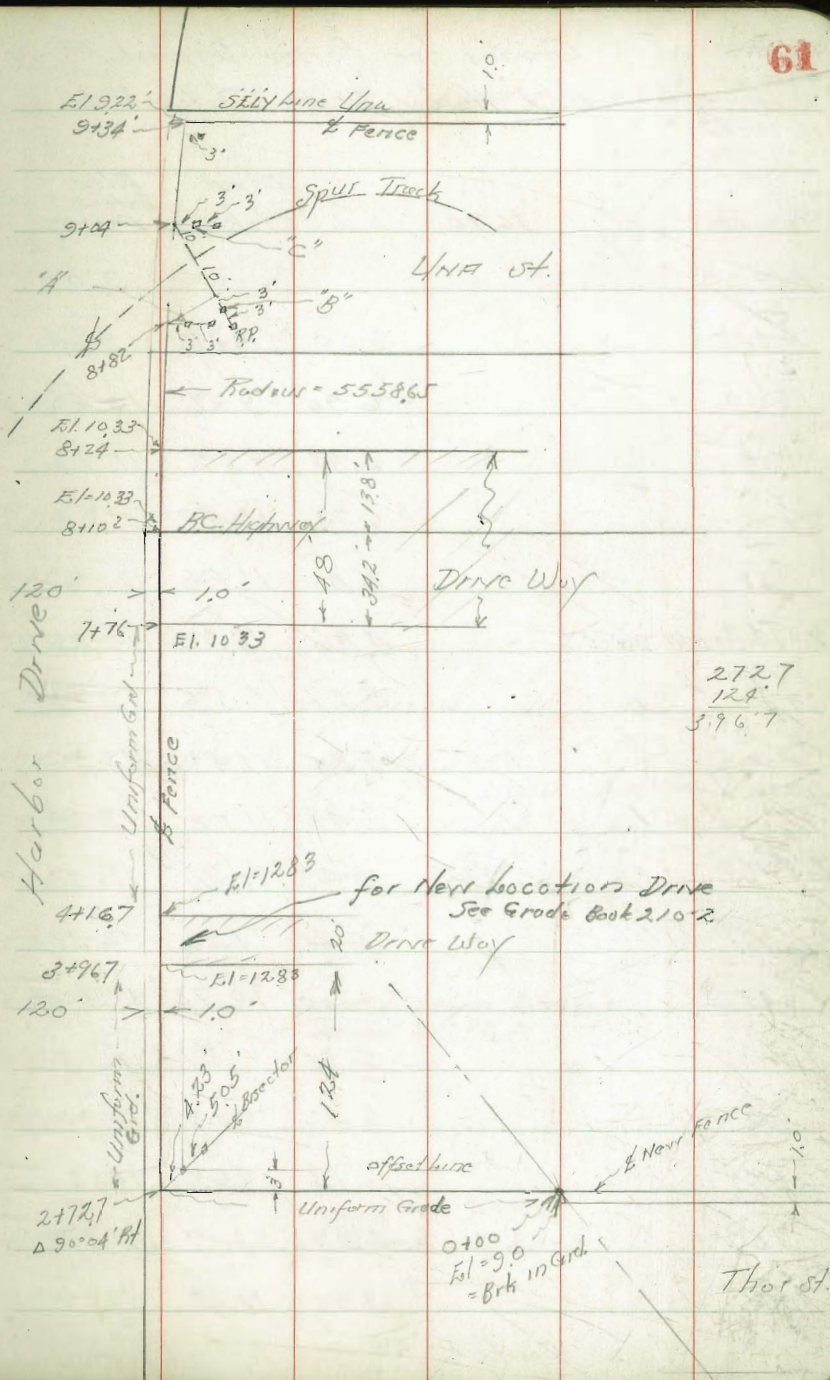
Elev. Stake 106+76.04 = 9.17
~~5.85~~
 14.22 - 7
 811 P.64
 7.53
 6.66 +
 14.19

Walker
Hordin
Wirt
10-15-22

Disposal Plant
Fence Grades on NY Boundary.
Along Harbor Drive
from Thor. St. To Una St.

Grades P-62

~~Indexed~~



Walker
Hardin
Wirt
10-16-42

Grades for Fence Disposal Plant
St. Harbor Drive Sketch P-61

Tank #2 BM#2 - 10.00

6.76
16.76
4.69
12.07 TP
2.96
15.03 TP

Station	16.76	Elev. Stakes	Elev. Bottom of Fence		
0+00			9.00		
745		8.00	8.76	9.64	-0.88 3 ft.
1+00		6.90	9.86	10.42	-0.56 "
750		6.84	9.92	11.13	-1.21 "
2+00		6.33	10.43	11.84	-1.41 "
750		5.50	11.26	12.55	-1.29 "
2+72.7 - Aft. 90°04		4.86	11.90	12.89	-0.99 "
3+00		5.21	11.55	12.88	-1.33 "
750		5.35	11.41	12.86	-1.45 "
		5.48	11.28	12.84	-1.56 "
3+96.7 - W. Side of Drive		5.49	11.27	12.83	-1.56 "
4+16.7 - ELY		5.46	11.30	12.83	-1.53 "
4+44		6.00	10.76	12.70	-1.94 "
5+00		5.55	11.21	12.30	-1.09 "
750		6.42	10.34	11.94	-1.60 "
6+00		6.14	10.62	11.58	-0.96 "
750	15.03	2.96	12.07	11.22	+0.85 " Reset to Grade 11-9-42
7+00		3.90	11.13	10.86	+0.27 "

Reset 11-7-42

11.41 = E/ 3+50
 $\frac{4.20}{16.317} = 3+96.7$ 4+16.7 4+44
 12.83 12.83 12.70
 3.48 3.48 3.61
 5.58 4.81 5.56
 1.60 -1.33 -1.95

For
Next Location Driveway
See Grd. 2+10-2,3

Cont. P-63

Disposal Plant Fence
Cont. from P. 62

Station								
7450	15 ^T 03	431	1072	1050	+022'	3 RT	chk Tank	1503 508
176 = Wcb. Drive		489	1014	1033	-019	"		995 1000 005
8+102 B.C. Highway		515	988					
8+24 E. cb. of Drive		515	988	1033	-045	"		
750		548	955	994	-039	"		
8+82 = "A" stake		589	914	947	-033	"		
"B" "		602	901	947	-046	"		
9+04 "C" "		596	907	947	-040	"		
9734				924		Meet exist fence	"	

Walker
Harding
Wirt
10-23-42

Restate Portion Valencia Park
Sewer on Harbor Drive
Between Vista & Una.

64

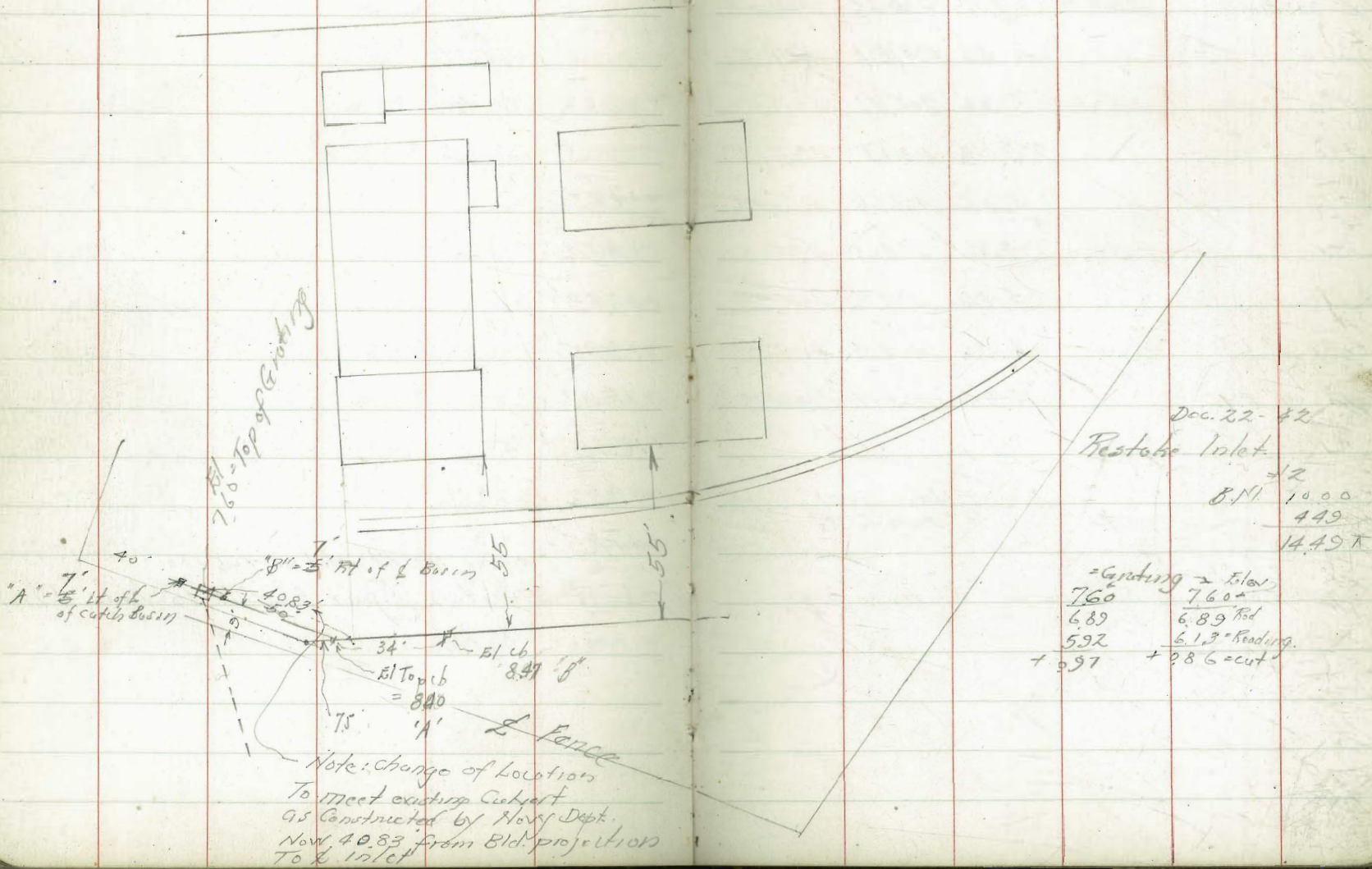
Station				Elev Stake	Elev Flow Line	Cuts	Offsets
	4.88	14.88		10.00			
T.P.	4.11	14.49	4.50	10.38			
105+95.88			411	10.38	-9.22	+19.60	20' Rt.
+75			443	10.06	-9.19	+19.25	"
+25			6.15	8.34	-9.11	+17.45	"
105+00			5.00	9.49	-9.07	+18.56	"
104+50			5.06	9.43	-9.00	+18.43	"
104+00			4.46	10.03	-8.92	+18.95	"
103+50			4.47	10.02	-8.85	+18.87	"
103+00			4.93	9.56	-8.77	+18.33	"
102+50			3.27	11.22	-8.70	+19.92	"
102+08.73 = PRC			5.28	9.21	-8.64	+17.85	"
	6.85	14.38	6.96	7.53 = BM on	Temp.		
							Approx 150' Rt station 105+00
103+76			10.26	4.12	-8.88	+13.00	Spite To Switch Spur AT&SF To help Plant. = Highline

Grades for Top Finished Curb
Near Navy Sewer M.H. for
Connection With 60" Interceptor

2.78 12.78 10.00

"A" = $\frac{860}{418}$ → 8.40
 "J" = $\frac{844}{414}$ → 8.47 - Top cb

Grades were lowered on cb 95
To give more fall in Valley Curb
Around Detritor Bld to inlet



Walker
Hardin
Wirt
9-16-42

Curb Grader 54th St.
South of E/Coyon Blvd.
in Front of Andrew Jackson School

face of curb ^{2.0'} of ^{of} East line 50' Street
25' from E 54th St.

Station		Elev. Stakes	Elev. Curb Grade
30+90 = Bk.		408.31	7.86 400.45 400.45
31+10 "		6.80	401.51 401.51
+30 "		5.90	402.41 402.41
+50 "		5.18	403.13 403.13
+70 "		4.65	403.66 403.66
+90 "		4.31	404.00 404.00
32+10 "		4.19	404.12 404.12
+30 "		4.30	404.01 404.01
+50 " E.V.C.		4.54	403.77 403.77

Note: see Revised
Grades to Rt.

See Cross Sections for Stationing
or Profile

~~Indexed~~

B.M. SW. 7' back = 401.90
E/Coyon + 54th = 641.7
408.31 T

Note: Grades Revised 9-23-42
To Elev. shown in block

Cuts + Fill	offsets	(New Grades)	Am't. Stakes saved off
Grade	3' Back	399.97	0.48
"	"	401.03	0.48
"	"	402.01	0.40
void "	"	402.83	0.30
"	"	403.52	0.14
"	"	403.97	0.03
"	"	404.12	0.00
"	"	404.01	0.00

Left out.

Walker
Hardin
Wirt
10-22-42

GRADE for Catch Basin
Disposal Plant
Sketch P-65

3.91	13.91	10.00
"A" = 5' H. of Basin	6.03	7.88
"B" = 5' H. "	5.64	8.27

Catch Elev. stakes.

Note: Stations are on curb lines
Disposal Plant curb Grades

for 48' Roadway Sketch P-32

Left Station	Left Curb Lt.	Right Station	Right Top of Curb Rt.
0+00	10.33	0+00	10.33
+25	10.23	0+25	10.23
+50	10.13	0+50	10.13
+75	10.03	0+75	10.03
+100	9.93	1+00	9.93
+125	9.85	1+25	9.82
+150	9.71	1+50	9.71
+175	9.62	1+75	9.62
1+97.3 = B.C. 9.52		1+85.99	9.57
2+16.72	9.44	2+05.58	9.49
2+36.15	9.36	2+25.17	9.41
2+55.59	9.28	2+44.76 = E.C. 9.33	
2+75.00 = E.C. 9.20		2+75	9.21

set cb stakes 5 Parts this Curve

Cont. P-73

1000 = BM Track #2
351.7
15.51 T
5.59 -
3.92 TP
4.32 T
14.24 T
4.40 -
28.4 TP
5.52 T
15.36 T
4.87 -
10.49 T.P.
2.56
13.95 - T

Rough Grades

Rt 10.33	10.13	9.93	9.71	9.65	9.49	9.33
5.38	5.58	5.80	4.6	5.27	6.05	
5.18	5.54	5.07	3.6	4.17	4.3	
+0.2	00	+0.7	1.0	+1.7	1.7	

1400

Lt 10.33	10.10	9.93	9.75	9.52	9.36	9.20
5.41	5.58	4.5	5.84	6.0	3.85	
5.27	5.80	4.1	4.87	5.52		
+0.24	-0.2	+0.4	+1.0	+1.5		

Finish Grades

13.95 - T

10.00	Rt 10.33	10.13	9.93	9.79	9.65	9.61	9.57	9.52	9.48	9.43
3.82	3.49	3.69	3.89	4.03	4.17	4.21	4.25	4.30	4.34	4.39
3.55	3.51	3.82	3.37		4.10	4.41	4.45	4.68	4.75	
13.82 T	-0.06	+0.18	+0.07	+0.06		+0.11	-0.16	-0.15	-0.34	-0.36
4.75 -										
9.07 - TP										
4.06 -										
13.13 T										

13.13 T

Lt 10.33	10.13	9.93	9.79	9.65	9.52	9.46	9.40	9.33	9.27	9.20
3.49	3.69	3.89	4.03	4.17	4.21	4.36	4.42	4.49	4.55	4.62
3.89	3.58	4.12	4.53	3.73	5.03	4.11	4.55	4.69	5.50	5.17
-0.40	+0.11	-0.23	-0.50	+0.44	-0.72	+0.25	-0.13	-0.20	-0.35	-0.55

1000 = BM
4.11 - T
14.11 - T

Re-stake Lt from 1+97.3 to Tracks

9.52	9.46	9.40	9.33	9.27	9.20	9.12	9.03
4.57	4.65	4.71	4.78	4.84	4.91	4.99	5.08
4.22	4.36	4.38	4.38	4.38	4.37		4.39
-0.22	-0.16	-0.20	-0.25	-0.52			-0.11

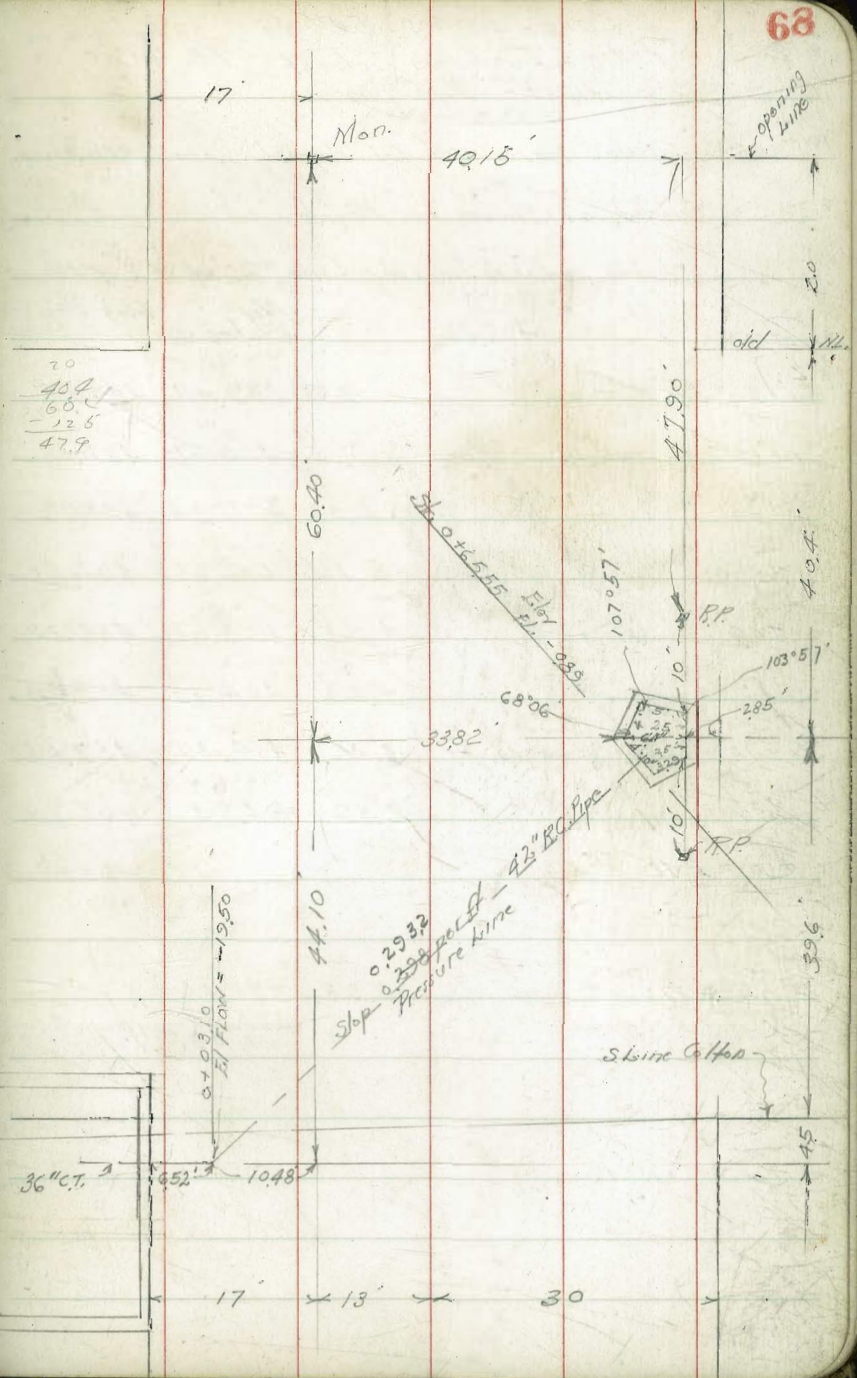
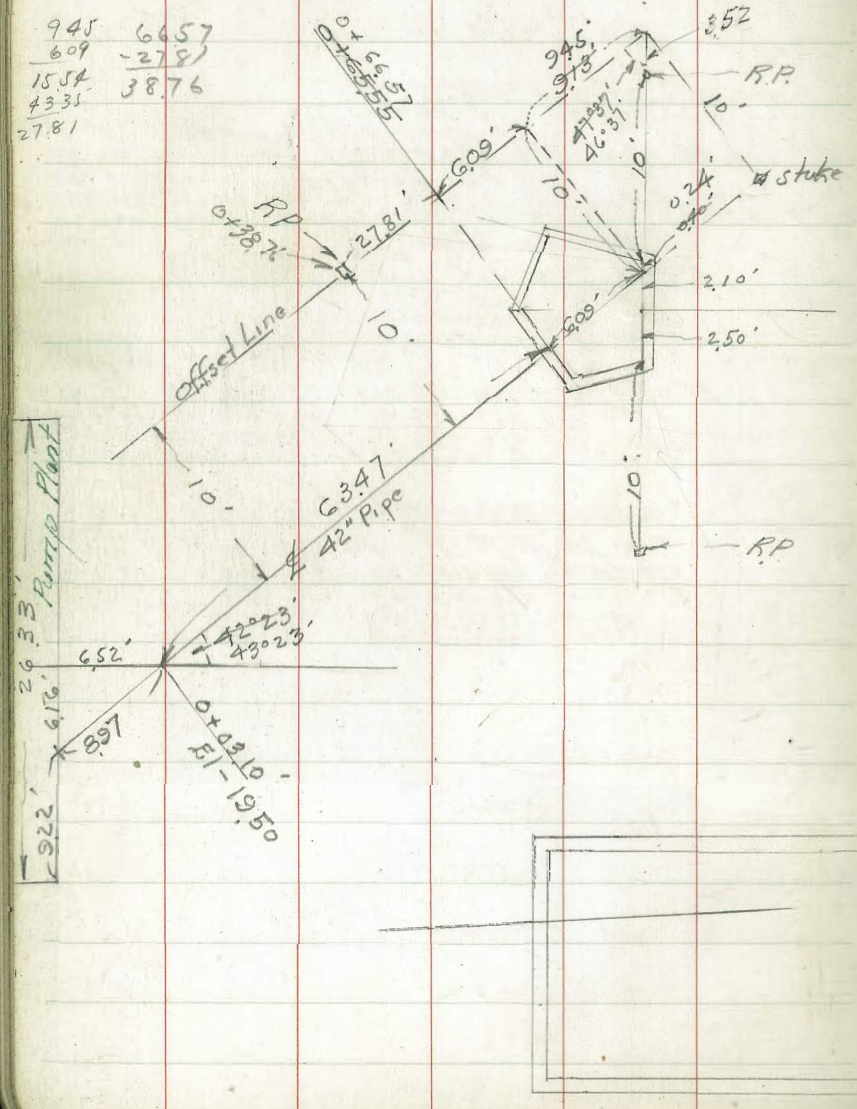
Walker
Hardin
Wirt
9-15-43

Construction Grades
Special M.H.
Beardsley & Colton

Detail: Ties To Box & Line of 42" Pipe

945
609
1554
4335
27.81

6657
-2781
3876



20
404
605
225
47.9

Walker
Bliss
Harden
Bryce
Whit

Curb Grades 54th St. X Sections in
Andrew Jackson School FB. 1619
South of El Cajon.

8-15-42 Grades were set for Property line = 910 Above

Grades as shown on Profile

Stakes set on Property line = 25' W. of E. 54th

Station	407.42	File Stakes	Elev. Prop. Line
30+90 = Bit.	7.95	399.47	400.08
31+10 "	7.15	400.27	401.08
730 "	6.08	401.34	401.92
750 "	5.16	402.26	402.60
770 "	4.35	403.07	403.32
790 "	3.23	404.19	403.48
82+10 "	3.26	404.16	403.68
730 "	2.89	404.53	403.73
750 = E.V.C.			403.62

See New Grades
p. 66
Grade changed by
to Meet Existing
& Conduit to
School
to 9-15-42

Cuts	offsets set on Prop. line
-0.61	" " "
-0.81	" " "
-0.58	" " "
-0.34	" " "
-0.25	" " "
+0.71	" " "
+0.48	" " "
+0.80	" " "

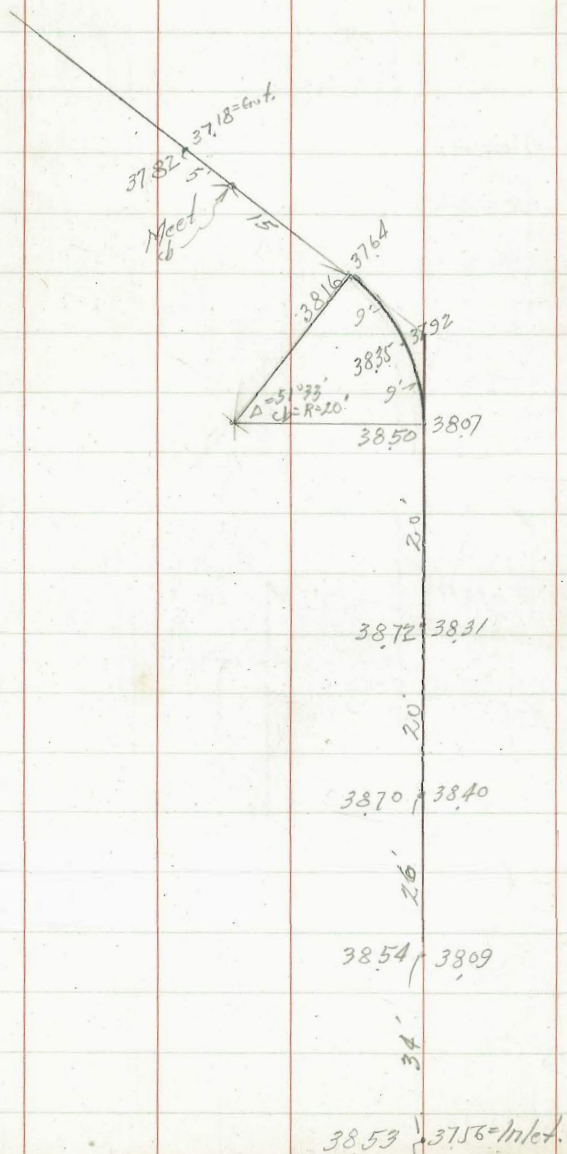


30+79.60
21' CT. 1619

54th

Walker
Bliss
Hutch
Buggs
8-10-42.

GRADES, N.E. Return
Main to 32ND ST.



511.2 P 32ND Main = 38.86 (1)
444
43.30 T

80'	100'	50'	20'N	40'N
38.16	38.35	38.50	38.72	38.70
5.14	7.95	4.80	4.58	4.60
5.78	5.54	5.32	4.38	4.92
0.64	0.59	0.52	0.40	0.32

N.W. Ret. Logon 845th
cont from P-72

90.90

0+65	21' Lt. of lb.			86.25
1+00	21' Lt. " "	5.17	85.73	86.18
+25	" Lt. " "	5.28	85.62	86.10
+50 = 600	17' Lt. " "	5.43	85.47	85.95
763.8	14' " "	5.57	85.33	85.75
+77.6	12' Lt. "	5.58	85.32	85.50
+91.4	10' Lt.	5.83	85.07	85.35
2+05.2	10' Lt.	6.12	84.78	85.15
719	11' Lt.	6.33	84.57	85.03
+32.8	14' Lt.	6.40	84.50	85.00
+46.6	18' Lt.	6.62	84.28	84.75
+60.48	21' Lt.	6.93	83.97	84.45
+80	24' Lt.	7.13	83.77	84.25
3+00	24' Lt.	7.26	83.64	83.96
+25	24' Lt.	7.53	83.36	83.60
3+50		7.76	83.14	83.30
+75 - Meet Pev.		7.98	82.92	83.00

71

Grade

+ to this
-0.45 Lower -0.35

C.T. & Logon 845

85.03-81)

5.87

90.90x

-0.48 0.38

-0.48 0.38

-0.44 0.42

-0.18

-0.28

-0.37

-0.46

-0.50

-0.47

-0.48

-0.48

-0.40 0.32

-0.29

-0.16

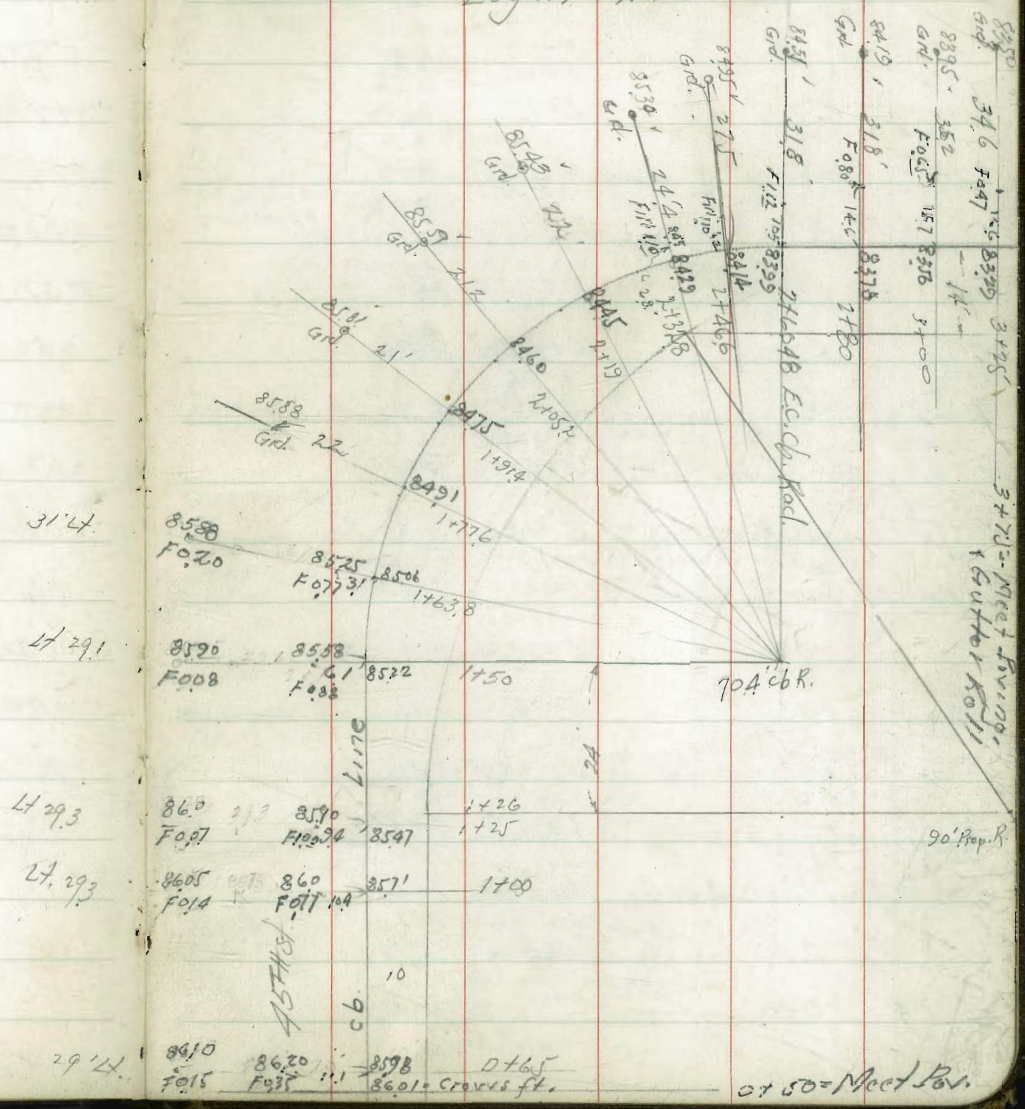
Walker
Bliss
Hurdin
Boggs
8-8-12

Grades for Patch Works
NW. Cor. Logan x 45th
E.B. 1637-2/

Grades taken from Working Profile by Evans

0+65 21

Logan AYC



31' 4"

17' 29.1"

17' 29.3"

27' 29.3"

29' 4"

0+50 = Meet Pav.

Disposal Plant Cutb Grades

Cont. from P. 67 Sketch P. 32

Left Station	Left El. Curb	St. Station	El. Curb
3+00	9.12	3+00	9.11
3+16.8	9.03	3+17.58	9.20 = Bk.
3+30	9.03	3+25	9.01
3+36.0	9.01	3+50	9.08
3+50	8.97	3+65	8.91
3+64.0	8.92	3+75	8.96
3+78.8	8.88	3+80	8.90
3+93.20	8.83	3+85	8.90
4+076.8	8.79	4+0250	8.70 = Bk.
4+150.8	8.66	(15.5) 4	8.90
4+194.0	8.53	4+117.57	8.75
5+36.8	8.40	4+32.62	8.80
5+74.4		4+47.67	8.90
6+12.0 = 90°		4+62.72	8.95
6+57.89 = 90°		4+88.21	8.98
7+00	10.00	5+113.71	9.06
		5+139.21	9.14
		5+157.69	9.20
		5+76.17	9.26
		5+24.65	9.32
		6+13.13	9.38
		6+31.61	9.44
		6+45.94	9.50
		6+50.99	9.50
		7+00	10.00

1536 x P. 67

536-T	3+00	4+02.7	4 Curve	EC	4+62.72	4 Curve	EC
10.00 = 8.11	3.11	8.91	8.70 = 8.14	8.80	8.90	9.02	9.14
472.7	6.25	6.45	6.66	6.56	6.41	5.58	5.72
14.72 T	5.0	5.8	5.8	5.82	5.87	5.76	5.2
Cont P-3	+1.25	1.27	+0.84	+0.74	+0.8	-0.2	0.0
13.05 T	7.00	7.00		3+17.2			
2.50	10.00			9.03	9.03	8.79	8.40
5.22	9.72			9.02	9.02	4.26	4.65
5.37	3.92			1.48	1.43	5.26	
0.2	1.08			-0.5	-0.4	-1.0	

10.00 = 8.11

3.13

13.13 T

Rough Grades Around Digester #1 P-31

8.90	8.70	8.65	8.61	8.57	8.52	8.47	8.40
4.23	4.93	4.48	4.52	4.56	4.61	4.66	4.73
3.71	3.70	2.41	1.77	2.36	1.98	1.75	5.85
+0.52	+1.73	+2.02	+2.5	+2.20	+2.63	+2.71	-1.12

Finish Grades

13.13 T P. 67	8.84	8.20	8.08	8.99	8.90	8.90	8.90	8.90	8.98	9.06	9.14
	3.79	3.93	4.05	4.14	4.24	4.34	4.34	4.34	4.34	4.34	4.34
	2.54	2.05	1.48	2.51	2.26	2.07	3.33	3.50	3.38		
	-0.75	-0.12	0.43	+0.63	+0.68	+0.87	+0.61	+0.94	+0.61		
13.82 T from P. 67	9.12	9.08	9.03	9.01	8.97	8.92	8.88	8.83	8.79		
5.67 T	4.70	4.79	out	4.21	4.85	4.90	4.94	4.99	5.03		
4.48 T	out	4.92		5.35	5.40	5.17	5.92	5.93	5.67		
12.63 T		-0.13		-0.54	-0.45	-0.27	-0.38	-0.24	-0.64		

10.00 = 8.11

2.84

12.84 T

12.84 T	8.40	8.53	8.40	8.40	8.47	8.52	8.67	8.65	8.70
	3.99	4.10	4.23	4.23	4.29	4.37	4.32	4.27	4.23
	1.48	1.86	2.1	1.52	5.34	1.45	1.76	3.46	1.57
	-0.51	-0.76	1.02	0.29	-1.11	+2.52	1.26	+0.81	2.66
10.00 = 8.11	8.80	8.90	8.98	9.06	9.14				
2.27 T	8.53	8.40	8.40	8.40	8.43	8.47			
12.27 T	3.74	3.87	3.87	3.87	3.84	3.80			
	4.84	3.90	4.21	3.09	4.16	2.65			
	1.10	-0.97	0.34	-1.13	-0.32	1.15			

21st Street Grades
Cont. from Page 76

74

Station

5+00

80.2

80.2

4+00

80.7

81.0

3+50

81.0

81.4

81.7

81.7

GRADES - 2.15^t from B.S.
to Switzer Dam.
Double Deck Street.

Station

1+80 Upper Road

1+60 Upper Road

150 - lower side

1+40 - PVC Upper Roadway

1+00

0+75

0+40

0+15

0+10

0+00 = N.B.S.

$$\begin{aligned} \text{Elev. } \Delta \#2 \text{ FB1615} &= 108.68 \\ P &= 62 \\ &12.68 \\ \hline &121.36 \text{ T} \end{aligned}$$

$$\begin{aligned} 108.68 &= \text{Stake} \\ 101 & \\ \hline 109.69 \text{ T} \\ &1.50 \\ &119.86 \text{ TP} \\ &5.55 \text{ T} \\ &125.41 \text{ T} \\ &12.87 \\ &112.54 \text{ T.P.} \\ &1.55 \\ \hline &114.09 \text{ T} \end{aligned}$$

58

Grades - Top Curb.
distance out on West are from West Line

75

West Line	Ech. of W. Roadway	Web. of E. Roadway	East Line
38'	17'	25'	
17	55		
5.5	7.2	109.6	109.6
		185.	

102.7 T

$$\begin{aligned} 37.9 & & 98.1 \\ 4.8 & & 27.0 \\ 12.2 & & 10.5 \\ \hline -7.4 & & 116.5 \end{aligned}$$

111.65 111.65

112.9 112.9

$$\begin{aligned} 104.7 & & 105.2 & & 114.6 & & 114.6 \\ 5.0 & & 20.2 & & & & 10.8 \\ 8.4 & & 2.4 & & & & 3.6 \\ \hline -3.4 & & +10.8 & & & & 17.2 \end{aligned}$$

$$\begin{aligned} 108.1 & & 108.6 & & 118.7 & & 118.7 \\ 1.6 & & 12.76 & & & & 5.66 \\ 5.5 & & 2.22 & & & & 1.8 \\ \hline -3.9 & & 3.1 & & & & 14.16 \end{aligned}$$

112.9 113.4 117.2 117.2

116.5 118.2

117.5 119.56

116.85 118.67

Note: upper road station
 cap to 1+00
 under this job.

21st Cont from P-75

Station

West
LineE. 16.
W RoadWeb
E RoadE Line
E Road

76

Cont. on Page 74

3+35

82.8

82.8

3+15 Upper Road.

85.1

85.1

3+10 Lower Road.

78.97

81.2

81.7

+ 2.3

+ 2.8 Road

- 2.1

- 4.6 Road

- 12.1

- 7.4 = Fill

St. A. Station W
3+00 Upper Road.

87.4

87.4

Chk. 9E. BP. 20th + B

9.23

70.28

70.17

6.11

2+90

81.6

85.1

89.25

89.25

TR 9.32 79.51 12.82 70.19

(out)

2+70 = 8th Lower Road.

(82.8)

83.25

TR 9.74 83.01 5.66 73.27

Not in

7.1

- 7.6

- 0.5

2+50 = 8th Lower Road

84.6

85.1

97.3

97.3

TR 0.26 78.93 11.67 78.67

+ 1.6

5.2

- 11.0

3.0

+ 7.2

2+30 = PVC Lower Road

- 87.0

+ 4.0

- 7.6

- 11.6

87.5

10.7

10.3

+ 1.9

2+20 Upper Road PVC.

103.3

103.3

TR 0.79 102.71 12.17 101.92

2+00 114.09

91.1

91.6

106.8

106.8

- 8.1

22.5

- 2.1

12.3

- 10.2

+ 10.3

7990 Sub
322
83.17

7017 BM
511 +
7028 K
147 -
7381 TP
1038 -
84.19 K

35
20th St

8419 K
1162 -
7257 TP
868 +
7625 K
607
7018 ch NEBP 20th St

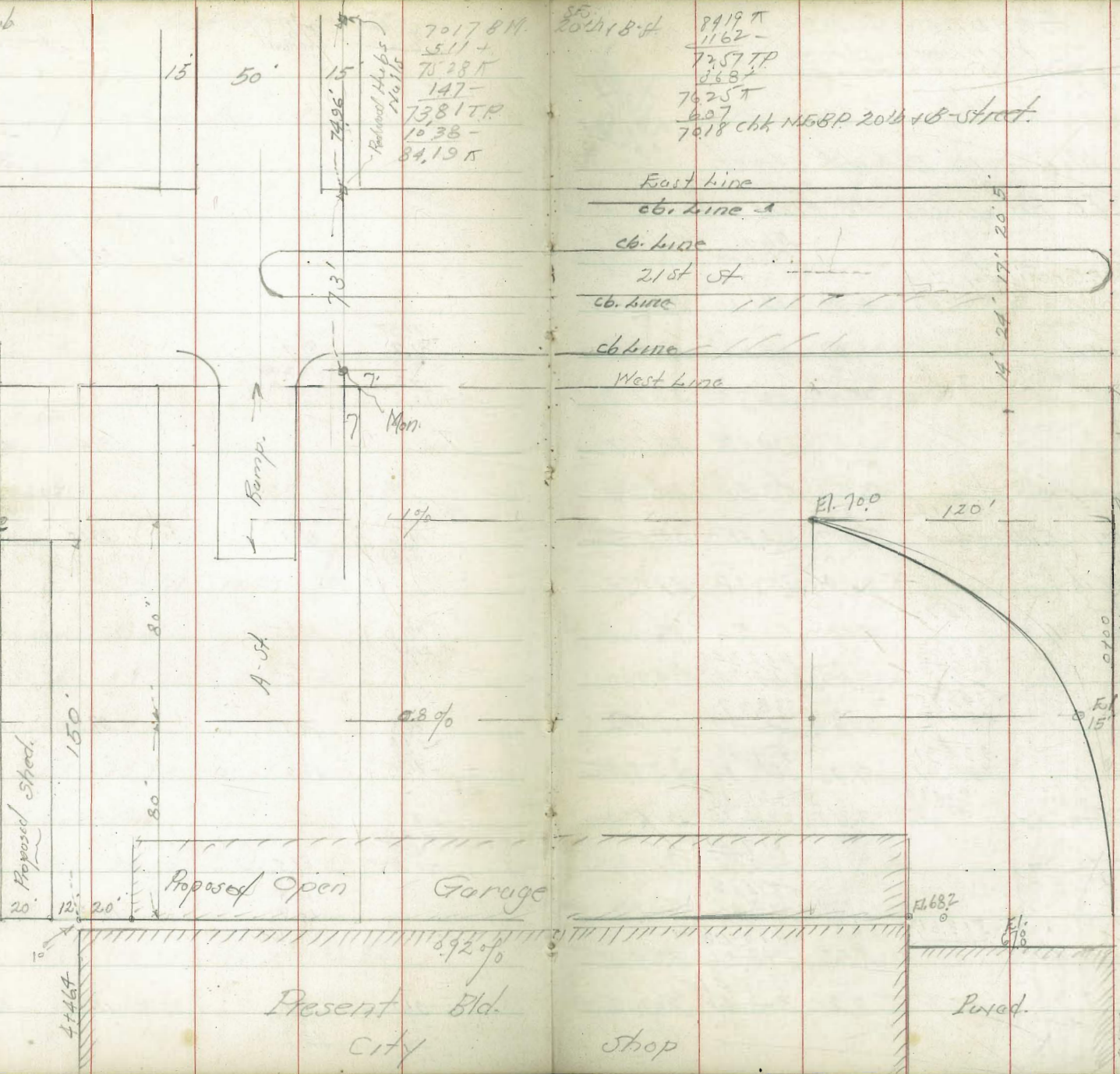
El. 80.2

El. 80.2

El. 73.7

El. 72.75

El. 72.0



El. 70.0

120'

14' 24' 17' 20.5'

2571

White
B-St

El. 69.0

El. 68.2

El. 67.0

Proped.

0100

Walker
Hardip
Reed
6-3-42

GRADES - 6" Water Main
on Winnett street
from Scimitar St.
to Tooley St.

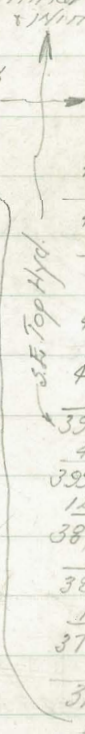
Indexed

Main - 10' East of E Street.
#1214-714
F.B. References - F.B. #1225-76 T. Book 24

Station	Stakes	Elev. of Stakes	Elev. of Bottom of Ditch	Cuts
= 0 + 00	399.85	8.55	391.30	387.50
+30 = Bk.		6.27	393.58	387.4
+50 = "		5.07	394.78	387.3
+70 = "		5.37	394.48	386.7
+90 = N.E. Eider St. T.P.	387.12	6.27	393.58	383.4
1 + 34.7 = N.W. Eider St.		2.57	384.55	375.9
+50 = Bk.		6.84	380.28	372.5
2 + 00	374.70	8.18	366.52	360.8
+50	362.03 365.03	9.09	352.94 355.94	349.0
3 + 00	349.75 352.75	11.38	338.37 341.37	337.2
+50	336.91 339.91	7.75	329.16 322.16	325.4
+90 = Bk. = P.C.	324.88 327.88	3.68	321.15 324.15	316.0
4 + 10		7.02	317.81 320.81	311.6
+30		10.81	314.02 317.02	307.7
+50	312.81	3.55	310.06 313.06	304.5
+70		8.20	305.41 308.41	301.8

P.M. 1/2" Galv. Iron Pipe F.B. 1214-1
" " " " 1225-1
S.W. Cor. Klauber & Scimitar = 430.84

Station	Stakes	Elev. of Stakes	Elev. of Bottom of Ditch	Cuts
				442.82 π
				462 -
				396.20 = NE. Top Hyd.
				Scimitar
				Winnett
				440.20 π
				10.48 -
				429.72 T.P.
				0.47 +
				430.19 T
				13.04 -
				417.31
				5.44 +
				423.69 π
				13.07 -
				8.49 -
				442.67 T.P.
				0.25 +
				416.0 π
				12.37 -
				414.51 π
				13.11 -
				399.23 T.P.
				2.59 +
				401.40
				0.53 +
				401.95
				6.2 -
				402.7 T.P.
				13.11 +
				395.33
				4.52 +
				413.8 T
				0.25 -
				399.85 π
				12.81 -
				415.13 T.P.
				3.49 +
				387.47 T.P.
				0.08 +
				423.62
				5.44 -
				387.12 π
				12.59 -
				418.3 = Hub
				417.31 = Hub
				0.87 High
				0.17 +
				374.70 π
				12.86 -
				362.84 T.P.
				0.19 +
				326.92 = T.P.
				0.91 +
				313.61 π
				327.85 π
				12.90 -
				314.93 = T.P.
				1.68 +
				314.61 = T.P.
				352.75 π
				13.01 -
				399.74 T.P.
				0.17 +
				387.91 π
				12.99 -
				376.92 T.P.



Winnett St. Water Main
Cont. from P-78

Station			Elev. of Stakes	Elev. of Bottom Ditch
4+90 = Brk.	306.99	3.29	300.00	299.6
5+10 "	303.99	11.18	292.81	298.0
+30 "		13.90	290.09	297.0
+50 "		12.16	291.83	296.6
+85		8.61	295.38	296.4
6+20.7 = Sl. Radio on East Rt Δ to N.E. Radio Rd = 0+00	312.13	5.72	298.27	296.6
+67.8 = Brk. P.I.C.		10.47	301.66	299.7
+87.8 "		9.39	302.74	300.6
1+07.8 "		6.77	305.36	301.7
+27.8 "		6.77	305.36	302.8
+47.8 "		5.53	306.60	304.0
+97.8		5.53	306.60	304.0
+97.8		2.82	309.31	307.2
2+47.8	323.89	11.52	312.37	310.4
+97.8		8.93	315.45	313.6
3+47.8		5.24	318.65	316.8
3+57.8 - P.C. Ret on E 10' S.S.L. Springfield Fire Hyd. 3+64.8 - Cross Line to East		0.29	322.95	320.2
+92.8 (former St. George St.) 336.13		9.35	326.78	323.5
4+37.8 - 10' x N.E. Springfield		4.89	331.24	328.2

Cont P-80

Cuts	Offsets
313.61	P-78 = 316.61
12.64 -	12.64 -
300.97 - TP	303.97 TP
3.02 +	3.02 +
303.99	306.99
3.39 -	3.39 -
300.60 = BM	303.60
300.64 = B.M. Hub	
114.27	N.E. Winnett
312.13	to Radio Rd.
0.48 -	FB 1225-77
311.65 TP	
12.24 +	
323.89	
0.02 -	
323.87 TP	
12.26 +	
336.13	

+3.4 +0.4 4' West
-2.2 -5.2
-3.9 -6.9
-1.8 -4.8
+2.0 -1.0
+4.9 +1.9
+2.7
+2.0
+2.2
+3.7 left out
+2.6
+2.6
+2.1
+2.0
+1.9
+2.8
+3.3
+3.1

Winnett St. Water Main
Cont. from P-79

Station	Σ 336.13	Elev. Stakes	Elev. Bottom Ditch	Cuts	Offsets		
5+50		1.28	334.85	332.0	+2.9	4' West of Pipe	336.13 600 T.P. 336.13 12,921 349.05
6+00	349.05	10.88	338.17	335.7	+2.5		0.05 T.P. 349.00 12,731 361.73
7+50		7.26	341.79	339.5	+2.3		437.8 920.24 13,68.09 361.73 0.11 351.62 T.P. 12,571
7+00		3.29	345.76	343.2	+2.6		374.19 T.P. 0.38 373.81 T.P. 13,021
8+50	361.73	11.85	349.88	347.0	+2.9		386.83 T.P. 0.40 386.43 T.P. 13,221
8+00		7.62	354.05	350.8	+3.3		399.65 T.P. 0.18 399.47 T.P. 13,021
9+50		2.97	358.76	354.5	+4.3		412.49 T.P. 1.59 410.90 T.P. 8.94
9+00	374.19	12.24	361.95	358.3	+2.7		416.48 T.P. 3.36 416.52 0.04 Error
10+50		2.72	364.47	362.0	+2.5		419.84 T.P. 3.36 416.48 T.P. 0.04 Error
10+00		6.31	367.88	365.8	+2.1		419.84 T.P. 4.86 414.98
+67.8 = Bk = PVC		0.80	373.39	371.0	+2.4		3.88 420.66 T
11+07.8 = Bk.	386.83	10.20	376.63	374.3	+2.3		
147.8		6.44	380.39	378.2	+2.2		
+37.8		2.00	384.83	382.9	+1.9		
12+27.8 = Bk = EV.C.	399.65	9.73	389.92	388.1	+1.8		
13+00	412.49	12.32	400.17	398.1	+2.1		
+67.7 = P.C. Ret. on E		1.90	410.59	407.6	+3.0		
Grades For Fire Hydr.							
13+67.7 = P.C. Ret.	420.66						
		3.79	410.87	403.80			

B.M. Set by Hub
N.W. Tooley & Winnett
F.B. 1214 P-78

Mon. & Tooley & E. Line Winnett

Walker
Road
6-22-42

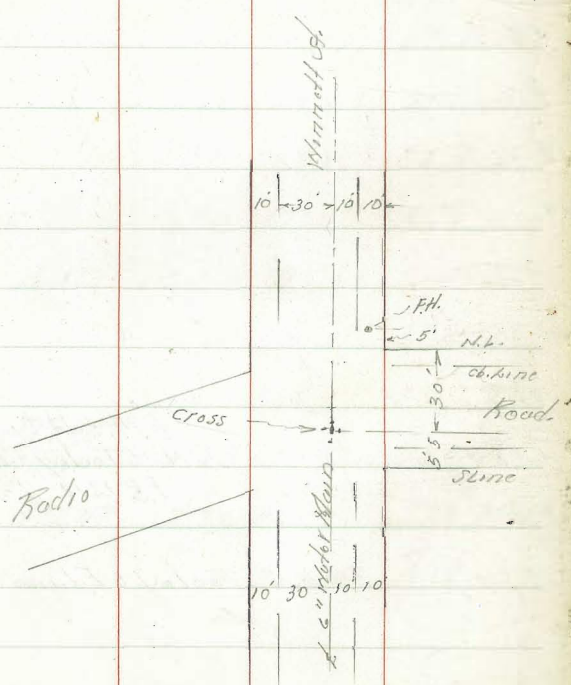
Winnett St. Cont.
Grades for Fire Hydr.
N.E. Cor. Winnett's Radio Road.

3.25 303.89 300.64

Station 3.00
5' N of N.E. Radio Rd.
= 6 Fire Hydr.
10' N of S.E. Radio Rd. on E
= 6730.7 P-79 = 2 Cross

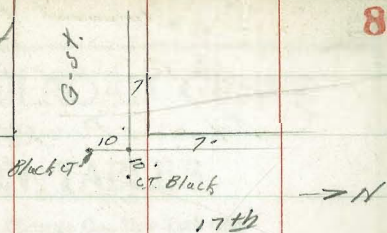
2.20 301.69 300.40
5.30 298.59 = 296.4

B.M. Hub
N.E. Cor. Winnett
E.L. Top cb.



1-12-42 - Walker

Tie out for NW Red
17th + G St.



+ 1.29 Stake B.M. E.L.
+ 2.2 " 4' West E Pipe

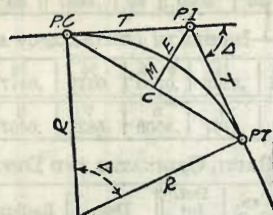
Disposal Plant.
 Grader Valley Gutter
 Between Pump Bld. & Digester Tank
 Sketch P-31

10.00 B.M.
 4.00'
 14.55-T

8.08	7.97	7.81	7.76
5.37	6.08	6.24	6.29
4.44	4.55	4.93	4.63
+1.53	+1.53	+1.8	+1.66

DIETZGEN'S RAILROAD CURVE AND REDUCTION TABLES

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2.85
 16.33
 9.18
 43.00
 33.82
 96.90
 47.50
 491.0

CURVE FORMULAS

- Radius= $R = \frac{50}{\sin \frac{D}{2}}$ (1) Degree of Curve= D and $\sin \frac{D}{2} = \frac{50}{R}$ (2)
- Tangent= $T = R \tan \frac{\Delta}{2}$ (3) Length of Curve= $L = 100 \frac{\Delta}{D}$ (4)
- Middle ordinate= $M = R(1 - \cos \frac{\Delta}{2})$ (5) $= R \text{vers} \frac{\Delta}{2}$ (6)
- External= $E = T \tan \frac{\Delta}{4}$ (7) $= R \div \cos \frac{\Delta}{2} - R$ (8) $= R \text{exsec} \frac{\Delta}{2}$ (9)
- Long Chord= $C = 2 R \sin \frac{\Delta}{2}$ (10) $\Delta = \text{Central Angle}$

EXPLANATION AND USE OF TABLES

Stations.—Given P. I.—Sta. 161+60.35 to find Sta. of P. C. and P. T. $\Delta = 62^\circ 10'$ $D = 8^\circ 20'$. From Table IV for 1° curve $T = 3454.1$ and $+8\frac{1}{2} = 414.49$ ft. From Table V correction = .36 or $T = 414.85$ ft. P. C.—Sta. P.I.— $T = 157 + 45.50$. Also from (4) $L = 746.00$ and P. T.—Sta. P. C. + $L = 164 + 91.50$.

Offsets.—Tangent offsets vary (approximately) directly with D and with square of the distance. Thus tangent offset for Sta. 158 on above curve is 2.16 ft. found as follows. From Table III tangent offset for 100 ft. = 7.27 ft. Distance = $158 - \text{Sta. P. C.} = 54.50$, hence offset = $7.27 \frac{(54.50 \div 100)^2}{1} = 2.16$ ft. Also square of any distance divided by twice the radius equals (approximately) the distance from tangent to curve. Thus $(54.50)^2 \div (2 \times 688.26) = 2.16$ ft.

Deflections.—Deflection angle = $\frac{1}{2} D$ for 100 ft., $\frac{1}{4} D$ for 50 ft., etc. For c ft. = (in minutes) $.3 \times C \times D^\circ$ or = defl. for 1 ft. from Table III $\times C$. For Sta. 158 of above curve = $.3 \times 54.5 \times 8\frac{1}{2} = 136.2'$ or $2^\circ 16.2'$, or = $2.50 \times 54.5 = 136.2'$ from Table III. For Sta. 159 deflection angle = $2^\circ 16.2' + 8^\circ 20' \div 2 = 6^\circ 26.2'$, etc.

Externals.—May be found in similar manner to tangents. Thus E for curve above is 91.37. For from Table IV for 1° curve $E = 960.6$ for $8^\circ 20' = 960.6 \div 8\frac{1}{2} = 91.27$ and from Table V correction = .10 or $E = 91.37$ ft. Or suppose $\Delta = 32^\circ$ and E is measured and found to be 42 ft. What is D ? From Table IV $E = 230.9$ and $\div 42 = 5.5$ or $D = 5^\circ 30'$.

TABLE VI.—CORRECTIONS FOR SUB-CHORDS AND LONG CHORDS.

Table with columns for 'FOR SUB-CHORDS ADD' (D 10-90) and 'LONG CHORDS' (D 200-500). It contains numerical correction values for various angles and distances.

NOTE.—When a chord of less than 100 ft. is used the corrections given in the above table should be added to the nominal length of chord to get the length which should be used in order that the 100 ft. points will check with those obtained by using the standard 100 ft. chord.

TABLE VII.—MIDDLE ORDINATES FOR RAILS IN FEET.

Table with columns for 'DEG. OF CURVE' and 'LENGTH OF RAILS'. It provides middle ordinate values for curves of various degrees and rail lengths.

SLOPE REDUCTIONS.

When distances are measured on a slope they may be reduced to the equivalent horizontal distance by the following approximate rule:—subtract from the slope distance the square of the rise divided by twice the slope distance.

TRIGONOMETRICAL FORMULAS.

See fig. (a). sin. A = a/c, cos. A = b/c, tan. A = a/b, cot. A = b/a, sec. A = c/b, cosec. A = c/a. Includes diagrams (a) and (b) of right and oblique triangles.

FORMULA FOR SOLVING TRIANGLES.

Given Sought. Right triangles. See fig. (a). a, c A, B, b sin. A = a/c, cos. B = b/c, b = sqrt((c+a)(c-a)). Includes formulas for oblique triangles and area calculations.

TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Table with columns for Angle, Sine, Tan., Cotg., Cosin., and corresponding values for angles 0 to 90 degrees. Includes header information and a secondary header row at the bottom for Cosin., Cotg., Tan., Sine, and Angle.

534
76
26

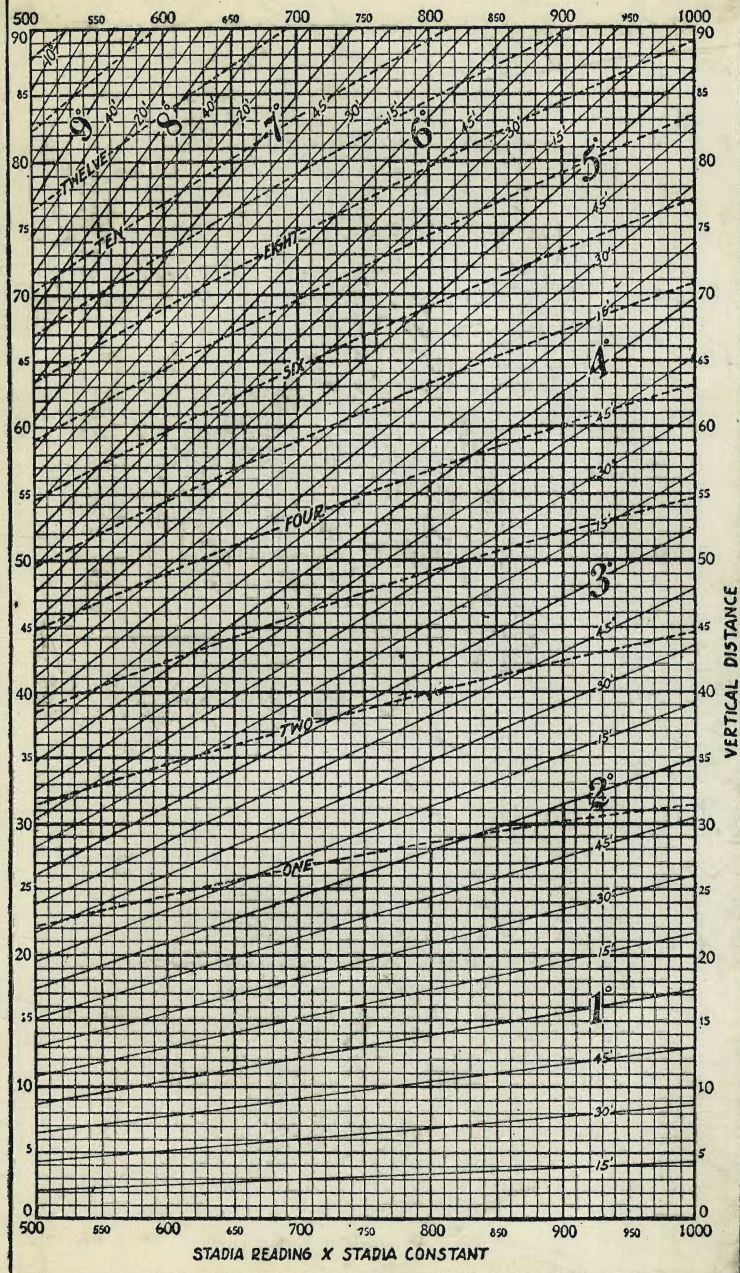
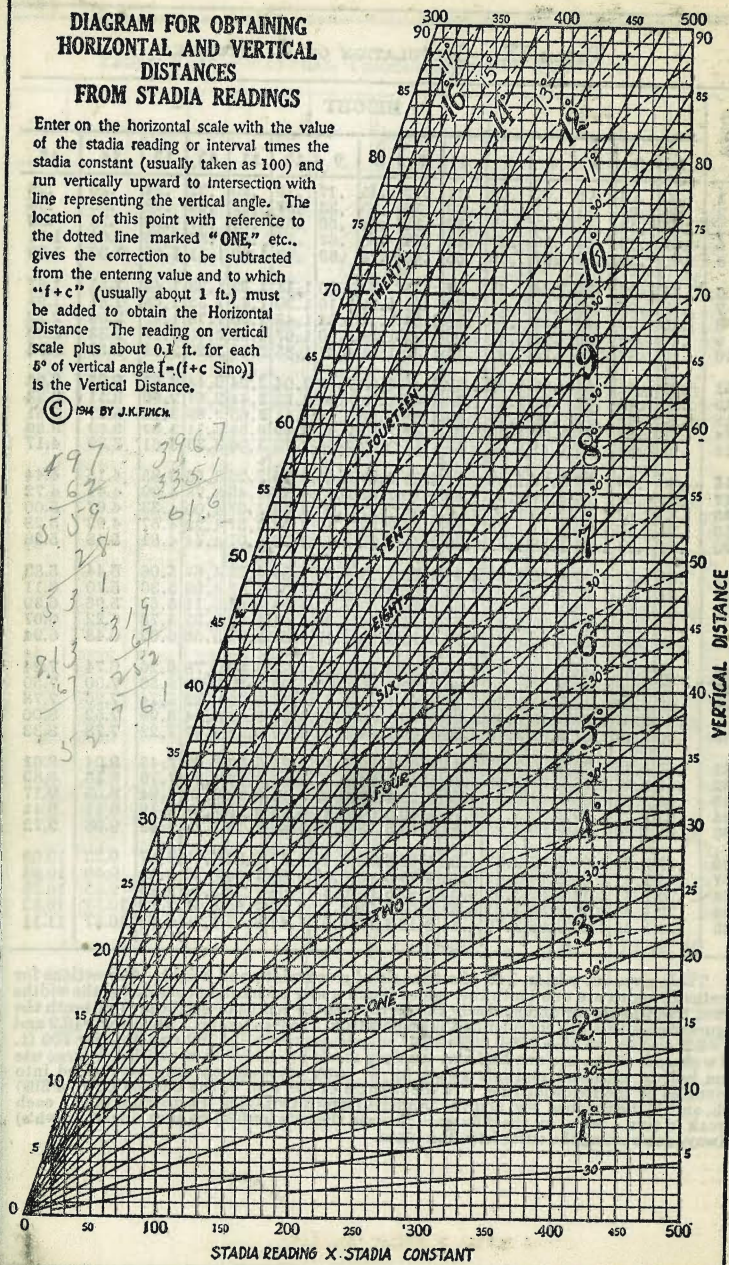
TABLE VIII.—NATURAL TRIGONOMETRICAL FUNCTIONS.

Table with columns for Angle, Sine, Tan., Cotg., Cosin., and corresponding values for angles 16 to 86 degrees. Includes header information and a secondary header row at the bottom for Cosin., Cotg., Tan., Sine, and Angle.

DIAGRAM FOR OBTAINING HORIZONTAL AND VERTICAL DISTANCES FROM STADIA READINGS

Enter on the horizontal scale with the value of the stadia reading or interval times the stadia constant (usually taken as 100) and run vertically upward to intersection with line representing the vertical angle. The location of this point with reference to the dotted line marked "ONE," etc., gives the correction to be subtracted from the entering value and to which "f+c" (usually about 1 ft.) must be added to obtain the Horizontal Distance. The reading on vertical scale plus about 0.1 ft. for each 5° of vertical angle [$= (f+c \text{ Sino})$] is the Vertical Distance.

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272.7
~~624~~
3135.1
~~387~~

272.7
~~62~~
234.7

15619
3411
49
4650
888
10
25455
3411
270.14

3382
633
40.15

322
498
820 x
293
527

651
126
527

520
244
7.64

60.4
12.5
47.9

1487.7

1767.7
11.7

1333
8
21.33
3430
13.00

9757
8825
932

401
395
406

2/2167 colorous
1083 Air Lines

+4.5 Fl^{or} SW Cor Detritor to Furnace

+6.0 " 437.8 = 10 N.H.L. Springfield

427.8 - N.H.L.

318.7.8 = 10' 5' L " 38.57.40

1357
809
Fl^{or} 5.5
420.86
407.6
409.24
406.2
14/360

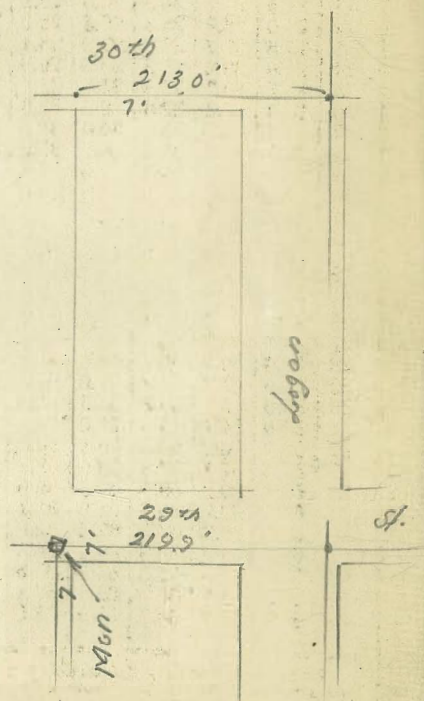
1436
- 404
1002
1000
76

1436
- 1002
400
7005
6975

1436
- 300
1136
42

7020
6757
67.53
6978
6938
69.93
69.23

31416
6253 20
7561
3141
0.875



DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.

Roadway 16 feet wide. Side Slopes 1 on 1 1/2
For Single Track Embankment.

H	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	H
0	8.0	8.2	8.3	8.5	8.6	8.8	8.9	9.1	9.2	9.4	0
1	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.6	10.7	10.9	1
2	11.0	11.2	11.3	11.5	11.6	11.8	11.9	12.1	12.2	12.4	2
3	12.5	12.7	12.8	13.0	13.1	13.3	13.4	13.6	13.7	13.9	3
4	14.0	14.2	14.3	14.5	14.6	14.8	14.9	15.1	15.2	15.4	4
5	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	16.9	5
6	17.0	17.2	17.3	17.5	17.6	17.8	17.9	18.1	18.2	18.4	6
7	18.5	18.7	18.8	19.0	19.1	19.3	19.4	19.6	19.7	19.9	7
8	20.0	20.2	20.3	20.5	20.6	20.8	20.9	21.1	21.2	21.4	8
9	21.5	21.7	21.8	22.0	22.1	22.3	22.4	22.6	22.7	22.9	9
10	23.0	23.2	23.3	23.5	23.6	23.8	23.9	24.1	24.2	24.4	10
11	24.5	24.7	24.8	25.0	25.1	25.3	25.4	25.6	25.7	25.9	11
12	26.0	26.2	26.3	26.5	26.6	26.8	26.9	27.1	27.2	27.4	12
13	27.5	27.7	27.8	28.0	28.1	28.3	28.4	28.6	28.7	28.9	13
14	29.0	29.2	29.3	29.5	29.6	29.8	29.9	30.1	30.2	30.4	14
15	30.5	30.7	30.8	31.0	31.1	31.3	31.4	31.6	31.7	31.9	15
16	32.0	32.2	32.3	32.5	32.6	32.8	32.9	33.1	33.2	33.4	16
17	33.5	33.7	33.8	34.0	34.1	34.3	34.4	34.6	34.7	34.9	17
18	35.0	35.2	35.3	35.5	35.6	35.8	35.9	36.1	36.2	36.4	18
19	36.5	36.7	36.8	37.0	37.1	37.3	37.4	37.6	37.7	37.9	19
20	38.0	38.2	38.3	38.5	38.6	38.8	38.9	39.1	39.2	39.4	20
21	39.5	39.7	39.8	40.0	40.1	40.3	40.4	40.6	40.7	40.9	21
22	41.0	41.2	41.3	41.5	41.6	41.8	41.9	42.1	42.2	42.4	22
23	42.5	42.7	42.8	43.0	43.1	43.3	43.4	43.6	43.7	43.9	23
24	44.0	44.2	44.3	44.5	44.6	44.8	44.9	45.1	45.2	45.4	24
25	45.5	45.7	45.8	46.0	46.1	46.3	46.4	46.6	46.7	46.9	25
26	47.0	47.2	47.3	47.5	47.6	47.8	47.9	48.1	48.2	48.4	26
27	48.5	48.7	48.8	49.0	49.1	49.3	49.4	49.6	49.7	49.9	27
28	50.0	50.2	50.3	50.5	50.6	50.8	50.9	51.1	51.2	51.4	28
29	51.5	51.7	51.8	52.0	52.1	52.3	52.4	52.6	52.7	52.9	29
30	53.0	53.2	53.3	53.5	53.6	53.8	53.9	54.1	54.2	54.4	30
31	54.5	54.7	54.8	55.0	55.1	55.3	55.4	55.6	55.7	55.9	31
32	56.0	56.2	56.3	56.5	56.6	56.8	56.9	57.1	57.2	57.4	32
33	57.5	57.7	57.8	58.0	58.1	58.3	58.4	58.6	58.7	58.9	33
34	59.0	59.2	59.3	59.5	59.6	59.8	59.9	60.1	60.2	60.4	34
35	60.5	60.7	60.8	61.0	61.1	61.3	61.4	61.6	61.7	61.9	35
36	62.0	62.2	62.3	62.5	62.6	62.8	62.9	63.1	63.2	63.4	36
37	63.5	63.7	63.8	64.0	64.1	64.3	64.4	64.6	64.7	64.9	37
38	65.0	65.2	65.3	65.5	65.6	65.8	65.9	66.1	66.2	66.4	38
39	66.5	66.7	66.8	67.0	67.1	67.3	67.4	67.6	67.7	67.9	39
40	68.0	68.2	68.3	68.5	68.6	68.8	68.9	69.1	69.2	69.4	40

Example—If point is 22.6 ft. above grade, how far should it be from center line to be a slope stake point? Ans. from Table 41.9. For same slopes but other widths of roadbed correct above figures by one-half difference in width of roadbed; thus in example above for 20 ft. roadbed distance will be 41.9 + (20 - 16) ÷ 2 or 2 ft. added to 41.9 = 43.9. For slopes of 1 on 1 see inside of front cover.