

153
Grades

FAST

LEVEL BOOK

No. 380

Ingram.
Carnet to Horn Shade
Horn Shade to Grand

Our Leather Bound Engineers Note Books are carried in the following rulings:

- No. 380 LEVEL BOOK. Left and Right Hand Page the same as Left Hand Page of this Book.
- No. 382 FIELD BOOK. Left Hand Page as in this Book, Right Hand Page 4 x 4 to the inch, Center Line Red.
- No. 384 MINING TRANSIT BOOK. Left Hand Page as in this Book, Right Hand Page 8x8 to the inch, Center Line Red.
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THE FREDERICK POST CO.
ENGINEERING and DRAFTING SUPPLIES
IRVING PARK STATION
CHICAGO, ILL.
MICROFILMED

APR 8 1965

Journal

4/17/28

Sewer Grades College Ave
La Jolla
Did Not Start

Drop Mn. Hole
to East
7-93-51

41
42
43
44
45
46
47 Mn. Hole
to West

Connect
to existing
to hole

Sewer Grades

Mn. Hole
to Prospect
Place

BM Top Handwell
Thousand Cal 5.51 157.13 151.62

SE Return	157.13	PC	#2	#3	#4
	155.29	157.13	157.13	157.13	157.13
	1.84	159.20	153.55	152.90	152.25
		2.93	3.58	4.23	4.88

#5 PT					
157.13					
151.60					
5.53					
Prop.		PC	#2	#3	End on Prop
NE 157.13		157.13	157.13	157.13	157.13
155.74		159.60	153.55	152.50	152.00
1.39		2.33	3.58	4.63	
157.13					
5.63					
151.50					

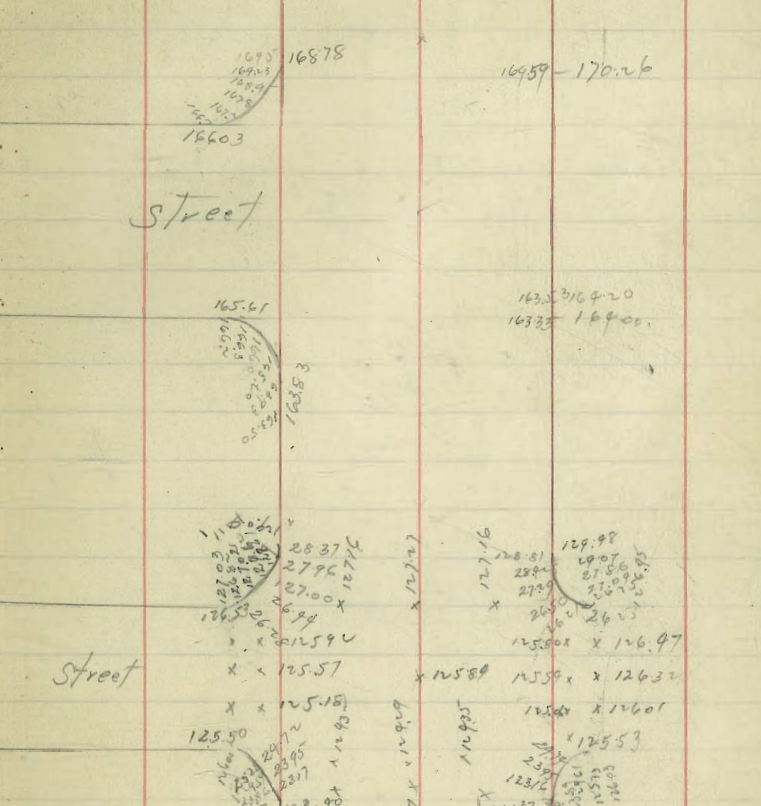
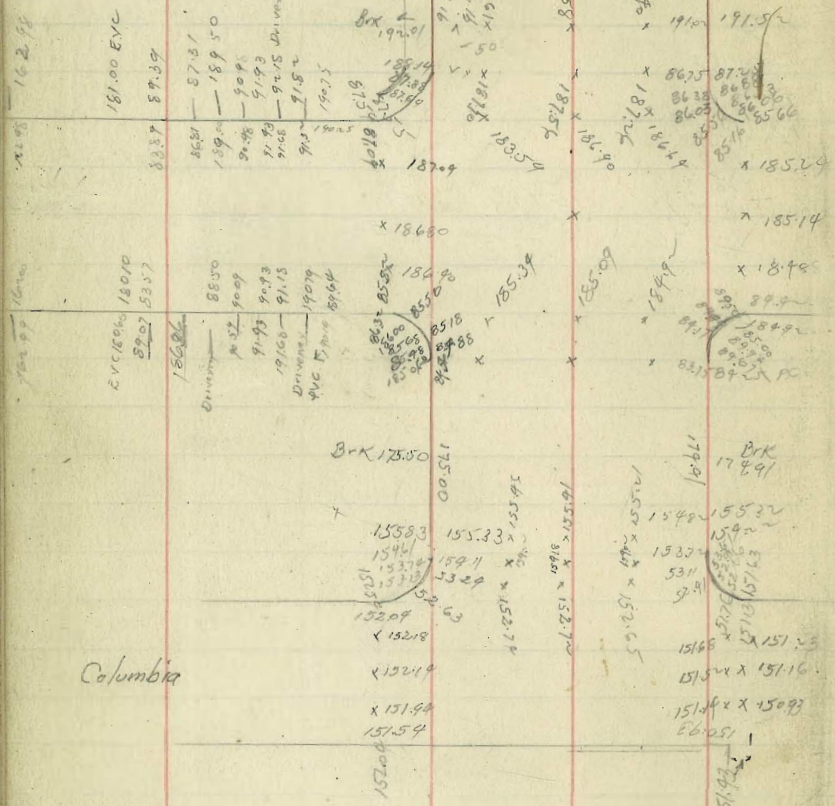
Union

20593

Street
207.95

2

State, Sassafras, Thorn, Columbia Paving
BM



Columbia

Thorn

Street

Street

BM NW Top
Wall

+ 212 - Elev
127 189.63 188.36

3 parts

Left out

SE Return

PC 1
189.63
187.20
2.43

#2
189.63
186.75
2.88

#3 Prof
189.63
186.20
3.43

#4
189.63
185.50
4.13

#5
189.63
184.85
4.78 Left out

SW Return

189.63 PC #1
184.25
5.38

#2
189.63
189.25
4.88

#3
189.63
185.00
4.63

#4
189.63
184.85
4.78

NW Return

PC #1
189.63
185.07
4.56

#2
189.63
85.36
9.27

#3
89.63
85.66
3.97

#4
89.63
85.95
3.68

#5 PC
189.63
186.25
3.38

NE Return

PC #1
189.63
188.11
1.52

#2
189.63
87.88
1.75

#3
189.63
87.61
2.02

#4
89.63
87.54
2.09

#5 PC
189.63
187.58
2.05

Curb Stakes Sassafras & Columbia 3

BM NW Top
Sassafras
& Columbia

130 131.01 129.71

NE Return

PC
131.01
127.00
4.01

#2
131.01
126.70
4.31

#3
131.01
126.50
4.51

#4
131.01
123.90
3.61

#5 PC
131.01
125.57
2.79

131.01
129.00
2.01 Prof

SE Return

Prof
131.01
129.50
1.51

#2 PC
131.01
129.07
1.94

#3
131.01
127.85
3.16

#4
131.01
127.00
4.01

#5 PC
131.01
126.75
4.26

131.01
4.00
127.01

135 131.06 129.71

NW Return

PC
131.06
5.05
126.01

#2
131.06
125.27
5.79

#3
131.06
124.54
6.52

#4
131.06
123.81
7.25

#5 PC
131.06
7.95
123.11

East Side State from N line
+ Thorn North

West Side State From N line
of Thorn North

4

BM N. v. top
W. v. N.

5.67 194.03 188.36

East Side

Prop. 194.03	90	pvc 20	#1	#2	#3	194.03
187.00	194.03	194.03	194.03	194.03	194.03	194.03
7.03	6.48	190.25	91.79	192.18	192.18	192.18
	7.55	2.28	2.28	1.85	1.85	1.85
#4	#5	#6	#7	#8		
194.03	194.03	194.03	194.03	194.03		
191.93	191.03	189.50	87.31	89.68		
2.10	3.00	4.53	6.72	9.35		

194.03	#1 PVC	#2	#3
86.26	194.03	194.03	194.03
7.77 pc	190.25	191.29	191.68
	3.78	2.74	2.35
	3.86		

#4	#5	#6	#7
194.03	194.03	194.03	194.03
191.43	190.53	189.00	186.31
2.60	3.50	5.03	7.22

#8	#9 PVC
194.03	185.00
83.98	180.50
10.05	4.50

Prop. N.W. Co. Upon + State
172.95 HI
162.50
8.95

TP 1.01 185.00 10.04 183.99

185.00 PVC
181.00 -
4.00

TP 0.28 172.45 12.83 172.17

Prop. S.W. Co. Upon

172.95
163.00 -
9.95

12/8/28

Rough Grades on Sassafras Columbia

8 ft. N. of Top
N. of Columbia escape

	To Stake	HI	North Side	Elev	Elev Grade
	11.01		140.72	129.71	
0700			12.21	128.51	129.00
0750			11.04	129.68	137.60
1400			3.56	137.16	146.24
TP	10.11	150.52	0.31	140.41	
1750			5.77	147.75	154.86
TP	12.02	162.15	0.39	150.13	
2100			1.70	160.40	163.50
TP	13.19	174.84	0.50	161.65	

South Side

	+	HI	-	Elev	Elev
				129.71	138.12
	10.27	139.98		129.71	138.12
			10.49		
			0.78	134.20	
TP	12.74	152.64	0.08	139.90	
0750			4.86	147.78	138.12
TP	12.61	163.02	2.23	150.91	
1400			7.13	155.89	146.74
TP	13.25	174.84	1.43	161.59	
1450			9.81	165.03	155.36
2100			0.94	173.90	169.00

97 19
35 62
6.2 17

Grade

0700	0750	1100
129.00	137.62	146.24
128.51	129.68	137.16
F. 0.5	F. 7.94	F. 9.08

Grade

1450
154.86
147.75
F. 7.11

2100 W. line Stake

Grade	163.50
Stake	160.40
	F. 3.10
	166.20
	160.40
	5.80

E. line stake

1836.00
1695.00
141.2
9.98
9.68
183.6
160.70
16.90
2.60
12.48

0700	0750	1100	1150
129.50	138.12	146.74	155.36
139.20	147.78	155.89	165.03
9.70	9.66	9.15	09.67

2100
173.90
169.00
173.90
09.90

173.90
9.70
183.60
170.00
13.60
4.68
8.94

173.90
166.20
7.70

Sewer Grades
Columbia to state

BM NE Top Hy Cal. Sass	+	HI	HI	State	Elv		
	12.65	142.36			129.71		
E line 0400 Col 4-9750 #1			13.99		128.87	120.60	8.27
TP	12.35	154.38	0.33		142.03		
#2			5.76		136.60	129.01	7.59
#3	13.19	166.99	1.13		153.25	145.82	7.43
#4			9.63		161.81	154.23	7.58
1-10 Bk L100	9.52	173.29	2.72		163.72	156.00	7.72
2135 State	12.91 SE		4.18		169.06	159.00	8.56
						160.50	10.00

Sewer & State

S line Sassafraz r State set West	6.02		167.22		161.50		5.72
N line " r State set West	3.37		169.87		159.28		7.059
TP checkout on NE cut stake.	12.91	184.34	1.81		171.43		
			5.15		179.19		
					179.18		
					0.01		

cb Grades Sassafraz r State

#				
	174.22	174.24	174.24	179.18 BM
	3.58	9.00	3.99	300.25
	170.70	170.20	170.30	158.27 State
	156.70	167.20	167.30	10.26
	0.00	0.00	0.50	171.31
				2.93
				174.29
N.R. Return				
	179.24	174.24	179.24	
	3.79	169.23	169.50	
	170.45	5.01	4.72	
	168.95	9.01 grade	3.74	
	0.00	0.00	0.00	
	174.24	174.24	174.24	
	170.00	169.43	169.00	
	4.24	9.81	10.24	
NW Return				
	174.24	174.24	174.24	
	163.50	163.00	165.00	
	10.74	10.31	9.09	
				179.24
	174.24	174.24	174.24	
	166.30	166.20	166.00	
	7.94	8.04	8.24	

Water Main, Sassafras St.
Columbia to State

	H.I.				
	9.98	139.69		129.71	
At Connection		13.41		126.28	
From Columbia		10.77		128.92	
#1		3.21		136.48	134.66
TP.	12.50	152.09	0.10	139.59	
#2		7.12		144.97	143.07
TP.	11.67	163.65	0.11	151.98	
#3		9.68		153.97	151.48
#4 TP	10.73	173.36	1.02	162.63	159.89
#5 6" T.		4.46		168.90	163.89
Line Statesl.		3.26		170.10	
N. Line		2.76		170.60	167.24
Statesl. Sassafras.					
	4.99	174.86		169.87	
5' No. of Main Sassafras		4.26		170.60	164.28
1' Fire Hydrant.		4.03		170.83	
2' E. Fire Hydrant.		3.95		170.88	166.70

Cats

~~1.92~~ 1.82

~~1.86~~ 1.90

~~2.31~~ 2.49

~~2.42~~ 2.74

~~4.67~~ 5.04

~~6.36~~

6.32

12.00

173.36

139.69

4.30

128.92

169.06

129.87

10.9

120.00

10.86

9.27

7

Feb. 7, 1902

Grades Mar Street La Jolla

BM 56 BP College
& Exchange Place

SL Exchange = 00	224.0
0 + 20	226.30
0 + 65	231.47
1 + 10	236.65
1 + 55	241.82
2 + 00 = BREAK	247.0
436.85	250.31
2 + 73.71 c.p.c.	250.63
1° 03' 07"	255.17
3° 06' 15"	256.71
3° 09' 21"	258.25
4° 12' 30" = P.V.C.	259.80
5° 22' 50"	261.30
6° 33' 22"	262.50
7° 43' 40"	263.20
8° 54' 14"	263.60
10° 04' 40"	263.50
11° 15' 10" = E.V.C.	263.10
12° 18' 52"	264.50
13° 22' 34"	261.90
14° 26' 16"	261.30
15° 29' 58"	260.70
16° 33' 40"	260.10
17° 37' 24" = P.C.C.	259.50
5° 07' 00" EL chords = 13.44	259.30
10° 14" = end curb	259.20

EL chords = 17.8
S = 0.1826
det = 1° 03' 07"
S = 0.1826
det = 1° 03' 07"
S = 0.1826
det = 1° 03' 07"
S = 0.1826

185.01	221.01 HZ
12.67	143
197.77 HZ	219.58 BM
0.52	SW Exchange + BM
197.25 TP	244.35
12.33 +	0.57
209.58 HZ	243.78
0.23 -	12.78
209.35 TP	256.56
11.66 +	0.28 -
221.01 HZ	256.28 TP
0.53	22.86 +
220.48 TP	269.14 HZ
12.34 +	1.64 -
23 2.82	267.50 TP
0.18 -	12.32 +
232.69 TP	279.82
11.71 +	4.55 -
244.35	268.24
	1.03
	269.27
	1.03 -
	268.24 TP
	13.054
	281.29
	1.51 -
	279.78
	9.51 +
	289.73
	10.99 -
	278.79 TP
	1.30 -
	280.09
	12.99
	267.10
	1.23 +
	268.33
	13.16
	255.17
	1.05
	256.22
	10.93
	245.79

5° 25' 30" web ch = 19.04
10° 51'

28129 HZ
663 - BM 56 T10 out
274.66 BT Curve on East

0700	232.82	9.94	223.38 Topch Existing
0720	2328	22630	652
			452
			62.00
	1755		2700
	256.56		256.56
	291.82		247.0
	14.74		9.56
	8.76		1.88
	5.98		C7.68
#1	269.14		269.14
	255.17		256.71
	13.97		12.43
	3.23		2.3
	C10.76		C10.1
#1	279.8		279.8
	261.3		262.5
	18.5		16.6
	6.2		5.0
	C12.3		C11.6
#6	279.8 E.V.C.		279.8
	263.1		262.5
	16.7		17.3
	6.5		5.9
	C10.2 E.V.C.		C9.6
#5	279.8		279.8
	260.10		261.9
	19.70		17.9
	10.3		7.7
	9.40		C9.6
#6	P.C.C.		279.8
	279.8		259.3
	259.5		20.5
	20.3		11.6
	11.0		0.89
	C9.3		C10.0
#1	279.8		279.8
	259.3		259.20
	20.5		20.60
	11.6		11.60
	0.89		C9.00

cb inlet #1
Send ^{cb} 259.00

Nend ^{cb} 249.27

FL Box 240.00

cb inlet #2
Send ^{cb} 258.90

Nend ^{cb} 259.00

Box = 249.00 outlet = 239.00

268.24	269.10	269.10
0.85 +	589.0	258.20
269.10 H2	792.0 W side	9.90
	11.05	
	F 0.85	

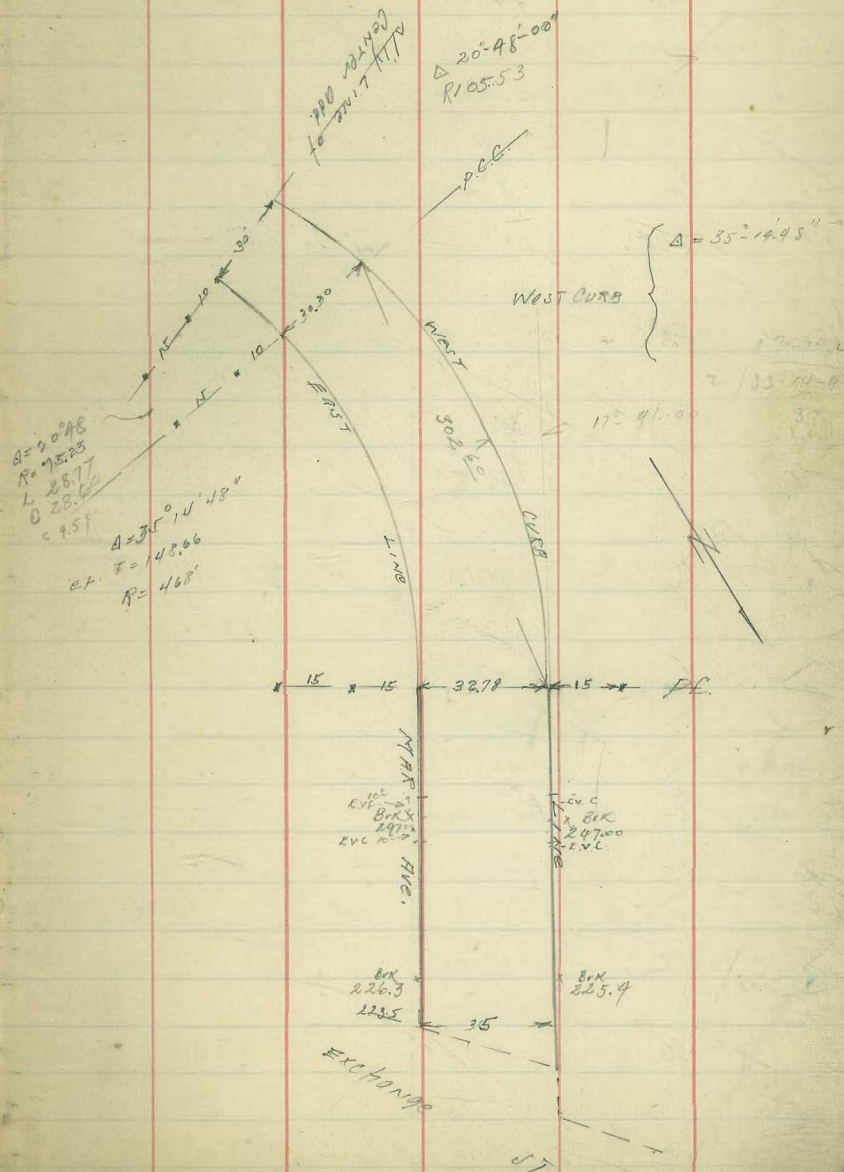
269.10	269.10
11.05	259.27
258.05	9.83
249.00	9.83
C 9.05 Flow Line Box	0.00 Grade
	C 9.00 Flow Line Box

269.10
259.00
10.10

269.10 H2
12.09 -
257.01 TP
2.98 +
259.99 H2
13.21 -
246.78 TP
1.86
248.19
239.00
9.19
7.61
1.53

R.P. for MAR Ave.

087.
3
4.70



Grades for West Curb on Mar Ave

	W of
-32.11 = SL Exchange	221.50
opposite otro on east = otro	225.40
0+65	230.80
1+10	236.20
1+55	241.60
2+00 = BREAK	247.0
+36.85	250.14
rx + 7.57 = P.C.	253.29
0	254.92
0	256.55
0	258.18
0 = P.Y.C.	259.80
0	261.30
0	262.40
0	263.30
0	263.60
0	263.60
0 = E.V.C.	263.30
0	262.70
0	262.10
0	261.50
0	260.90
0	260.30
0 = P.C.C.	259.70
Middle Comp Curve	259.10
END JOB	258.90

0+00	0+32.11 = 0+20.5	163	1+10	9
232.82	232.82	232.82	244.35	
	225.40 grade	230.80	236.20	
	17.42	202	8.15	
	8.41	1.63	9.57	
	F 0.99	60.39	F 1.42	
	17.55	2+00	2+36.85	
244.35	256.56	247.00	256.56	
241.60	247.00	9.56	250.14	
2.75	12.20	6.42	6.42	
3.16	F 2.64	9.88	F 3.46	
10.41				
2+73.71 P.C.	#1	#2	#3	
256.56	256.56	256.56	256.56	
253.29	259.92	256.55	1.25	
3.27	1.04	0.01	255.31	Stake
6.87	9.9	3.14	258.18 grade	
F 3.60	F 3.3	F 3.1	F 2.9	
P.Y.C. 269.14	#1	#2	#3	#4
259.8	269.1	269.1	269.1	269.1
9.3	261.3	162.5	263.3	263.6
11.9	7.8	6.6	5.8	5.5
F 2.6	10.3	10.0	10.2	10.4
	F 2.5	F 9.6	F 4.4	F 9.9
#5.	#6.	#1	#2	#3
269.1	269.1	269.1	269.1	269.27
263.6	263.3	262.7	262.1	261.50
5.5	5.8	6.4	7.0	7.8
11.8	11.4	12.3	13.1	13.6
F 6.3	F 5.6	F 5.9	F 6.1	F 5.8
#4	#5	#6 P.C.	#1	#2
269.27	269.3	269.3	269.3	269.3 End
260.90	260.9	259.7	259.1	258.9 Job
8.4	8.4	9.6	10.0	10.0
15.0	15.1	14.2	12.0	12.3
F 6.6	F 6.7	F 4.6	F 1.8	F 1.9

Bill Blis
 Joe Duermitt
 J. Jacobs Zoon
 P. Kierman
 Feb. 1929
 8M 388 Brass St.
 Exchange Place
 #29
 Manhole
 #2

Mr. St. Seners

Elev

cuts

1099	230.52		219.58		
11.51	242.11	0.92	229.60		
		4.65	237.96	235.00	2.96
TP 4-41-25	12.20 253.80	0.51	241.60		
#1		11.44	292.36	239.05	3.31
#2		7.01	246.79	243.10	3.69
TP		0.97	250.83		
#3		3.24	250.56	247.15	3.41
TP	12.74 265.57	0.97	250.83		
#4 Bk 2-50		11.40	254.17	251.20	2.97
#1		7.69	257.88	251.70	6.18
2165 Manhole #2 #1 A 27° 10' 11" 4-93-20		3.90	262.17	252.20	9.97
#1		2.15	263.92	252.56	10.86
#2		2.92	263.15	252.92	10.23
#3		4.31	261.26	253.08	7.98
#4 451		6.17	259.40	253.69	5.76
#5 DE		6.78	259.39	259.00	5.39
check out on ob. Stake Mand.		6.51	259.06		
			259.00		
			0.06		

41.34
765.00

481
265
216

Water Grades Mar

SWOP BM Mar. Exchange 0100	1222	231.80		219.58	
0128 Brk			7.10	229.70	223.30
0153 TP	1188	293.22	3.27 0.96	228.53 231.34	226.4
1703			8.82	234.40	232.10
1753 TP	1240	255.50	3.01 0.12	290.20 293.10	237.90
2103 Brk			9.22	246.30	244.00
2176 PC	1050	264.99	1.01	259.99	250.63
#1			8.39	246.60	253.70
#2 PVC			5.40	259.6	256.80
#1			2.48	262.5	259.50
#2			0.88	264.10	260.60
#3 opp PVC			1.59	263.40	260.10
#1			3.14	261.85	258.90
#2			4.74	260.22	257.70
#3 opp PVC	922	268.35	5.86	259.13	256.50
#1 opp. End job			8.72	259.63	256.20
check out on site			9.28	259.07	

185.01 3M SE EX + Co/169
 11.57 +
 196.58
 1.21 -
 195.37 TP
 12.11 +
 207.48 HI

Drain Tile Grades 0/1 vet
 HL
 207.98

11

3M SE
 BR EX 20/169

5.60 0100.5X	5.97	201.51	200.16	135
0125	5.83	201.65	199.91	174
0150	5.74	201.79	199.66	2.08
0175	5.63	201.85	199.41	2.44
1100	5.52	201.96	199.16	2.80
1415 $\Delta R_{4000000}$	5.45	202.03	199.03	3.00
Naked Pipe	7.90	199.58		
sewer	9.02	198.96		
Flowline Elev		197.90		

Paving Grades Olivet.

BM S. B.P.
BX College

	+	HI	-	Elev
	11.57	196.58		185.01
TP	10.53	205.90	1.21	195.37
TP	5.06	207.24	3.72	202.18
T.P.	1.45	196.75	11.94	195.80

Set BM SE Top of Ivanhoe East 3.90 193.35

TP 11.80 207.10 1.95 195.30

BM 11.33 230.91 219.58

TP 12.41 242.75 0.57 230.34

TP 13.19 255.62 0.32 242.43

Set BM without 260.11 276 247.86

TP 7.42 267.22 0.31 259.80

check out 11.97 270.55 8.16 259.06

check out on BM 2.27 268.26

9.04 267.19 263.10

267.19 263.60 3.59
 267.19 263.30 3.89
 5. of BVC #1 267.19 #2 267.19 #2
 267.19 262.10 5.09
 4.99

#3 267.19 261.50 5.69
 #4 267.19 260.90 6.29
 #5 267.19 260.30 6.89
 #6 267.19 259.70 7.49
 PCC

267.19 259.10 8.09
 267.19 258.00

Break 20590 20157 4.33 -
 Break P.V.C. 207.24 202.20 5.04

#1 207.24 202.91 4.33

#2 207.24 202.62 4.62

#3 207.24 201.70 5.54

196.75 190.00 6.75

#4 B.V.C. 207.24 200.70 6.54

Break 196.75 190.77 5.98

Break S. End Ivanhoe East 196.75 140.30 6.45

230.91 229.00 1.91
 230.91 E. of 120 226.30 4.61

230.91 Break 270 225.90 5.51 W

255.62 247.00 8.62 Break on W

255.62 253.63 1.99
 #1 260.11 255.17 4.94

#1 260.11 254.92 5.19

#2 260.11 256.71 3.90

#2 260.11 256.55 3.59

255.62 Break 247.00 on E 8.62

255.62 253.29 2.33

#3 260.11 258.25 1.84

#3 260.11 258.18 1.93

260.11 P.C. 253.29

6.82 East

#4 B.V.C. 260.11 259.80 0.31

#4 260.11 259.80 0.31

267.22 261.30 5.92
 #2 267.22 262.50 4.72
 #3 267.22 263.00 4.02
 #4 267.22 263.50 3.62
 #5 267.22 264.00 3.72
 #6 B.V.C. on East 267.22 263.10 4.12

267.22 261.30 5.92
 267.22 262.50 4.72
 267.22 263.30 3.92
 267.22 263.60 3.62
 267.22 263.90 3.32

East #1 S. of B.V.C. #2 267.22 261.90 5.32
 #3 267.22 261.30 5.92
 #4 267.22 260.70 6.52
 #5 267.22 260.10 7.12
 #6 267.22 259.50 7.72

April 4, 1929
Bill Bliss

Floyd & Barnes Const. Co.

Paving Stakes Alley Block 45
City Heights - Van Dyke + 9359 Univ. Park

East

West

13

BM	5.45	366.98		361.03	NW 8P Van Dyke + 9359
	1.86	366.79	1.55	369.93	
TP	4.34	365.53	5.60	361.19	
TP	5.05	363.92	6.66	358.87	
TP	6.12	364.42	5.62	358.30	
TP	5.36	367.07	2.71	361.71	
TP	4.58	366.28	5.37	361.70	
check out starting BM			5.25	361.03	

0100	0140	0180	0100	0140	0180
36679	36679	36679	36679	36679	36679
361.00	361.16	361.33	361.00	361.16	361.33
5.79	5.63	5.46	5.79	5.63	5.46
5.41	5.45	4.87	5.14	5.27	4.88
00.38	00.18	00.59	00.65	00.36	00.58
1120 BK	1460 BK	2100 BK	1120 BK	1560 BK	2100 BK
36679	36679	36679	36679	36679	36679
361.50	361.60	361.50	361.50	361.60	361.50
5.29	5.19	5.29	5.19	4.73	5.29
4.49	4.91	5.21	4.89	00.26	01.00
00.80	00.28	00.08	00.40		Teddy
2140 BK	2180 BK	3120	2140 BK	2180 BK	3120
36679	36553	36553	36679	36553	36553
361.30	360.40	360.45	361.20	360.80	360.30
5.49	4.63	5.08	5.59	4.73	5.23
4.99	3.98	4.99	4.42	4.59	5.04
01.00 + Teddy	00.65	00.09	00.65	00.14	00.19

3160 BK	4107 BK	3760 BK	4103 BK
36553	36553	36553	36553
360.00	359.83	367.80	359.69
5.53	5.70	5.73	5.87
4.83	4.70	5.17	5.64
00.70	00.91	00.56	00.15

4155 BK	5103 BK	4155 BK	5103 BK
36553	36553	36553	36553
359.65	359.97	359.57	359.43
5.88	6.06	5.96	6.08
5.30	5.50	5.34	5.08
00.58	00.56	00.62	01.00
			Teddy

5156 BK	5103 BK	5150 BK	5103 BK
36553	36553	36553	36553
359.32	359.10	359.33	359.20
6.21	6.43	6.20	6.33
5.73	6.33	5.20	6.30
00.48	0-1.042	01.00	00.03

35920
358.78

Map 16 1929

Grades Newton Ave 35th to 34th
35th Newton to Alley

	#1	Elev		
EM 35 Top Hi	0.29	44.47	44.18	
35 th + Notional		S 06	N 06	
W Line 34 th	1.90	1.90		
E Line 34 th = 00	2.80	2.80		
of 20	3.60	3.65		
of 90	5.00	4.95		
of 60 = E.V.C.	6.70	7.00		
1710	11.95	12.00		
1760 P.V.C.	16.20	17.00		
1780	17.90	18.80		
2700	19.30	20.30		
2720	20.90	21.40		
2740 E.V.C.	21.30	22.20		
2740	22.65	23.51		
3720	24.01	24.82		
3760	25.36	26.13		
4700	26.72	27.44		
4740	28.07	28.75		
4780	29.43	30.09		
5720	30.78	31.37		
5760	32.14	32.68		
6000 W Line 35 th	33.50	34.00		
E Line 35 th	34.50	35.00		

5760	5720	4150	5760	5720	4180
35.54	35.54	35.54	35.54	35.54	35.54
30.78	30.78	30.78	30.78	30.78	30.78
7.81	7.81	7.81	7.81	7.81	7.81
5.44	5.44	5.44	5.44	5.44	5.44
F 0.68	F 0.68	F 0.68	F 0.68	F 0.68	F 0.68
10.56	10.56	10.56	10.56	10.56	10.56
1.77	1.77	1.77	1.77	1.77	1.77
4400	4400	4400	4400	4400	4400
30.14	30.14	30.14	30.14	30.14	30.14
26.72	26.72	26.72	26.72	26.72	26.72
3.42	3.42	3.42	3.42	3.42	3.42
8.33	8.33	8.33	8.33	8.33	8.33
F 4.91	F 4.91	F 4.91	F 4.91	F 4.91	F 4.91
2780	2780	2780	2780	2780	2780
30.14	30.14	30.14	30.14	30.14	30.14
22.65	22.65	22.65	22.65	22.65	22.65
7.49	7.49	7.49	7.49	7.49	7.49
7.90	7.90	7.90	7.90	7.90	7.90
F 0.41	F 0.41	F 0.41	F 0.41	F 0.41	F 0.41
2700	2700	2700	2700	2700	2700
30.14	30.14	30.14	30.14	30.14	30.14
19.30	19.30	19.30	19.30	19.30	19.30
10.84	10.84	10.84	10.84	10.84	10.84
4.40	4.40	4.40	4.40	4.40	4.40
+ 6.40	+ 6.40	+ 6.40	+ 6.40	+ 6.40	+ 6.40
1780	1780	1780	1780	1780	1780
30.14	30.14	30.14	30.14	30.14	30.14
17.70	17.70	17.70	17.70	17.70	17.70
12.24	12.24	12.24	12.24	12.24	12.24
3.92	3.92	3.92	3.92	3.92	3.92
+ 8.32	+ 8.32	+ 8.32	+ 8.32	+ 8.32	+ 8.32
9.80	9.80	9.80	9.80	9.80	9.80
+ 4.37	+ 4.37	+ 4.37	+ 4.37	+ 4.37	+ 4.37
1710	1710	1710	1710	1710	1710
18.11	18.11	18.11	18.11	18.11	18.11
6.70	6.70	6.70	6.70	6.70	6.70
1.50	1.50	1.50	1.50	1.50	1.50
7.91	7.91	7.91	7.91	7.91	7.91
F 6.41	F 6.41	F 6.41	F 6.41	F 6.41	F 6.41
0720	0720	0720	0720	0720	0720
8.20	8.20	8.20	8.20	8.20	8.20
3.60	3.60	3.60	3.60	3.60	3.60
4.60	4.60	4.60	4.60	4.60	4.60
7.97	7.97	7.97	7.97	7.97	7.97
F 3.37	F 3.37	F 3.37	F 3.37	F 3.37	F 3.37
0700	0700	0700	0700	0700	0700
8.91	8.91	8.91	8.91	8.91	8.91
8.20	8.20	8.20	8.20	8.20	8.20
2.80	2.80	2.80	2.80	2.80	2.80
5.00	5.00	5.00	5.00	5.00	5.00
8.91	8.91	8.91	8.91	8.91	8.91
F 3.51	F 3.51	F 3.51	F 3.51	F 3.51	F 3.51
5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop
8.06	8.06	8.06	8.06	8.06	8.06
1.90	1.90	1.90	1.90	1.90	1.90
6.16	6.16	6.16	6.16	6.16	6.16
8.31	8.31	8.31	8.31	8.31	8.31
5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop
8.06	8.06	8.06	8.06	8.06	8.06
1.90	1.90	1.90	1.90	1.90	1.90
6.16	6.16	6.16	6.16	6.16	6.16
7.16	7.16	7.16	7.16	7.16	7.16
F 1.08	F 1.08	F 1.08	F 1.08	F 1.08	F 1.08
07 East	07 East	07 East	07 East	07 East	07 East
5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop
8.06	8.06	8.06	8.06	8.06	8.06

1186	1186	1186	1186	1186	1186
5760	5760	5760	5760	5760	5760
35.54	35.54	35.54	35.54	35.54	35.54
30.78	30.78	30.78	30.78	30.78	30.78
7.81	7.81	7.81	7.81	7.81	7.81
5.44	5.44	5.44	5.44	5.44	5.44
F 0.91	F 0.91	F 0.91	F 0.91	F 0.91	F 0.91
11.79	11.79	11.79	11.79	11.79	11.79
11.86	11.86	11.86	11.86	11.86	11.86
F 0.07	F 0.07	F 0.07	F 0.07	F 0.07	F 0.07
9700	9700	9700	9700	9700	9700
35.54	35.54	35.54	35.54	35.54	35.54
25.36	25.36	25.36	25.36	25.36	25.36
4.78	4.78	4.78	4.78	4.78	4.78
6.84	6.84	6.84	6.84	6.84	6.84
3.97	3.97	3.97	3.97	3.97	3.97
F 4.73	F 4.73	F 4.73	F 4.73	F 4.73	F 4.73
+ 3.37	+ 3.37	+ 3.37	+ 3.37	+ 3.37	+ 3.37
74.09	74.09	74.09	74.09	74.09	74.09
74.32	74.32	74.32	74.32	74.32	74.32
2780	2780	2780	2780	2780	2780
35.54	35.54	35.54	35.54	35.54	35.54
23.51	23.51	23.51	23.51	23.51	23.51
12.08	12.08	12.08	12.08	12.08	12.08
70.76	70.76	70.76	70.76	70.76	70.76
6.55	6.55	6.55	6.55	6.55	6.55
+ 3.92	+ 3.92	+ 3.92	+ 3.92	+ 3.92	+ 3.92
1780	1780	1780	1780	1780	1780
30.14	30.14	30.14	30.14	30.14	30.14
21.30	21.30	21.30	21.30	21.30	21.30
8.84	8.84	8.84	8.84	8.84	8.84
3.59	3.59	3.59	3.59	3.59	3.59
2.51	2.51	2.51	2.51	2.51	2.51
12.08	12.08	12.08	12.08	12.08	12.08
70.76	70.76	70.76	70.76	70.76	70.76
6.55	6.55	6.55	6.55	6.55	6.55
+ 3.92	+ 3.92	+ 3.92	+ 3.92	+ 3.92	+ 3.92
1780	1780	1780	1780	1780	1780
30.14	30.14	30.14	30.14	30.14	30.14
17.70	17.70	17.70	17.70	17.70	17.70
12.24	12.24	12.24	12.24	12.24	12.24
3.92	3.92	3.92	3.92	3.92	3.92
+ 8.32	+ 8.32	+ 8.32	+ 8.32	+ 8.32	+ 8.32
9.80	9.80	9.80	9.80	9.80	9.80
+ 4.37	+ 4.37	+ 4.37	+ 4.37	+ 4.37	+ 4.37
1710	1710	1710	1710	1710	1710
18.11	18.11	18.11	18.11	18.11	18.11
6.70	6.70	6.70	6.70	6.70	6.70
1.50	1.50	1.50	1.50	1.50	1.50
7.91	7.91	7.91	7.91	7.91	7.91
F 6.41	F 6.41	F 6.41	F 6.41	F 6.41	F 6.41
0720	0720	0720	0720	0720	0720
8.20	8.20	8.20	8.20	8.20	8.20
3.60	3.60	3.60	3.60	3.60	3.60
4.60	4.60	4.60	4.60	4.60	4.60
7.97	7.97	7.97	7.97	7.97	7.97
F 3.37	F 3.37	F 3.37	F 3.37	F 3.37	F 3.37
0700	0700	0700	0700	0700	0700
8.91	8.91	8.91	8.91	8.91	8.91
8.20	8.20	8.20	8.20	8.20	8.20
2.80	2.80	2.80	2.80	2.80	2.80
5.00	5.00	5.00	5.00	5.00	5.00
8.91	8.91	8.91	8.91	8.91	8.91
F 3.51	F 3.51	F 3.51	F 3.51	F 3.51	F 3.51
5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop
8.06	8.06	8.06	8.06	8.06	8.06
1.90	1.90	1.90	1.90	1.90	1.90
6.16	6.16	6.16	6.16	6.16	6.16
8.31	8.31	8.31	8.31	8.31	8.31
5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop	5' West of Prop
8.06	8.06	8.06	8.06	8.06	8.06
1.90	1.90	1.90	1.90	1.90	1.90
6.16	6.16	6.16	6.16	6.16	6.16
7.16	7.16	7.16	7.16	7.16	7.16
F 1.08	F 1.08	F 1.08	F 1.08	F 1.08	F 1.08
8.06	8.06	8.06	8.06	8.06	8.06

Grades 35th National to Newton

BM 56 to 44	0.20	44.47	44.18
35 th National		WCB	506
N Line Newton		390	2500
0750		3508	3616
1700		3616	37.32
17 to S Line Alley		3703	38.27

Current Station

226	9.06	680	
77	456	7.76	5.86 3.20

0700	1.25	0758 Δ	0775 10
1.00	10.62	10.24	-0.10
676	7.14	752	7.86
3.84	604	552	52.3
2.77	1.19	2.00	7.63

0798.70	1721.20 Δ	Current Box	847
-0.94	=0.80		776
8.20	856		071
8.79	847		
F 0.59	+0.09	792	
1131	End	804	

-1.00	7.76	7.76
8.76	7.90	1.90
7.91	Grade Rod 5.86	Grade Rod 5.86
+0.85	7.94	8.04
	F 2.08 N.E. end	F 2.18 S.E. end cb inlet

W

1740 S Line Alley	1100
44.47	44.47
37.03	36.16
7.46	8.31
7.46	6.13
0.00	+2.18
020.0750	10100
44.47	44.47
35.08	39.00
9.39	10.97
7.87	9.95
+1.52	00.52
N Line on South	44.47
44.47	33.80
33.45	10.67
11.02	9.95
9.50	00.7
C 1.52	

44.47	33.37
11.10	9.50
1.60	

BM 44.18	39.90
613	39.70
44.31	5.20
544	2.30
	C 1.90
38.87	39.90
103	12.23
39.90	27.57
	305
	30.62

1790.700	38.40
30.90	30.90
9.00	9.00
6.60	6.60
2.90	2.90

1150	1100
39.90	39.90
28.85	29.24
11.95	12.70
8.70	10.80
2.35	C 1.90

E

44.47	44.47
38.27	38.27
6.20	6.15
0.05	0.05
1700	0750

44.47	44.47
37.32	36.16
7.15	8.31
5.80	7.78
+1.35	+0.53

0700	ELINE on S
44.47	44.47
35.00	39.50
9.47	9.97
6.76	7.32
+2.71	+2.65

Grade	1140
1100	39.90
39.90	39.90
32.40	31.50
7.50	8.40
5.15	6.30
2.35	2.10

Value on E.	Value on S.
39.90	39.90
31.90	30.70
5.50	9.20
3.50	4.90
C 5.00	C 4.80

2700	2150	3100
3062	30.62	30.62
2390	22.25	20.00
67	8.37	10.00
49	6.04	7.80
C 2.00	2.35	C 2.20

NE
#1 6.00 PC
#2 5.50
#3 5.00
#4 4.78

SE
8M+ap
6.66
7.58
0.88
6.70
12.50
14.20
2.40
18.80
7.45
26.25

#1
7.58
360
3.98
11.10
19.20
11.95
7.75
21.00
26.25
19.30
6.95

S
#2
7.58
500
2.58
1160 PVC
19.20
19.20
16.20
3.00
27.20
26.25
20.40
5.85

N
#3
7.58
670
0.88
4.78
#3 PVC
11.80
7.58
7.00
0.58
11.80
19.20
18.80
0.40

#1
7.58
365
3.93
11.10
19.20
12.00
7.20
24.00
26.25
20.30
5.95

#2 16
7.58
495
2.63

Returns at 39th

8M 0.92
5.67
6.59 11.

SE PC
#1 3.2
#2 2.9
#3 2.7
#3 2.6
#4 PC 2.55

NE
#1 3.2
#2 2.97
#3 2.74
#3 2.55 Prop
#4 2.60

SE PC

#1
6.59
3.20
3.39

#2
6.59
2.90
3.69

27.40 EVC
26.25
22.20
9.05

#3 Prop
6.59
3.60
3.99

NE
PC

#1
6.59
3.22
3.37

#2
6.59
2.97
3.62

#3 Prop
6.59
2.74
3.85

SW
2.00
1.95
1.90

#1 2.00
#2 1.95
#3 1.90

SW
#1
6.59
2.00
4.59

#2
6.59
1.95
4.64

#3 Prop
6.59
1.90
4.69

NW

#1
6.59
3.00
4.59

#2
6.59
1.95
4.64

#3 Prop
6.59
1.90
4.69

49th Street Improvements
Orange to El Cajon

337.32
332.40
sd → 4.92

337.92
4.78
check on existing cb → 3.14
337.92
9.57
check cbi Block & NW Window → 328.35

BM SE 8P
Orange 4474
332.95
4.37
337.32

P.C.
335.65
331.37
4.28

#1 7.06 on A.C.
335.65
331.20
4.45

#2 7.06 on A.C.
335.65
331.15
4.50

#3 7.06 on A.C.
335.65
331.00
4.65

332.95
2.70
335.65

P.C. 8.23 on A.C.

#4
335.65
330.94
4.71

BM SE 44th Orange 5.11

338.06

332.95

0.18

337.88

S.E. Return

332.95
4.71
337.66

P.C. #1
337.66
332.85
4.81

#2
337.66
332.55
5.11

#3
337.66
332.10
5.56

#4
337.66
331.90
5.76

#5 P.C. E.C.
337.66
331.88
5.78

- 194
✓ B.R. 350.90
K 52.55
✓ B.R.
L 66.45
✓ B.R.

S.W. Return

#1 P.C.
337.66
333.64
4.02

#2
337.66
333.40
4.26

#3
337.66
333.20
4.46

#4
337.66
333.25
4.41

#5 E.C.
337.66
333.64
4.02

N.W. Return

#1
337.66
332.69
4.97

#2
337.66
332.20
5.46

#3
337.66
332.00
5.66

#4
337.66
331.95
5.71

#5
337.66
332.04
5.62

49^B Orange to El Cajon

	E.C.B.	W.C.B.
PC 200	331.37	332.04
0760 PVC	332.20	332.50
0780	332.50	332.80
1400	333.30	333.40
1420	334.40	334.20
1740	335.80	335.30
1460	337.50	336.70
1480	339.90	338.90
2400	349.00	

Return 49^B + Trojan

#1 PC	#3	#4	#5 E.C.
356.10	356.10	356.10	356.10
353.80	353.90	353.20	353.00
2.30	2.20	2.90	3.10

W. Side

0760	0780	1400	1420	1740	1740	1740
340.65	340.65	340.65	340.65	340.65	340.65	340.65
332.50	332.80	333.40	334.20	335.30	337.50	337.50
8.15	7.85	7.25	6.45	5.35	3.15	12.31
1760	1780					347.21
340.65	340.65					126
336.70	335.40					341.55
3.95	2.25					6.37
						354.92
						2.08
						357.00

E. Side

0760	0780	1400	1740	1740	1740
340.65	340.65	340.65	340.65	340.65	340.65
331.78	332.20	332.50	333.30	334.90	335.80
8.87	8.45	8.15	7.35	6.25	4.85
331.37					
9.28					

1160	1480	1740	2400
340.65	340.65	340.65	340.65
337.50	339.40	338.70	
3.15	1.25	1.95	
	1.30		
	0.05/oz		

Returns 49^B + Trojan

#1	#2	#3	#4	#5
356.10	356.10	356.10	356.10	356.10
353.80	353.90	353.15	352.90	352.70
2.30	2.20	2.95	3.20	3.40

SW

#1 PC	#2	#3	#4	#5
356.10	356.10	356.10	356.10	356.10
352.40	352.35	352.20	352.00	351.80
3.70	3.75	3.90	4.10	4.30

NW

#1 PC	#2	#3	#4	#5
356.10	356.10	356.10	356.10	356.10
351.90	351.85	351.80	351.75	351.70
4.20	4.25	4.30	4.35	4.40

B.M. S.F.

0760	0780	1400	1740	1740	1740
340.65	340.65	340.65	340.65	340.65	340.65
332.08	332.27	333.40	334.20	335.30	337.50
8.57	8.38	7.25	6.45	5.35	3.15
					12.31
					347.21
					126
					341.55
					6.37
					354.92
					2.08
					357.00

July 10, 1929

Polk Ave Paving Swift
to E Alley West 34th to Wabash

BM SW Top pc6	8.85	345.82		336.97	Lincoln 33 rd
TD	9.73	353.83	172	344.10	
TP	11.45	363.53	175	352.08	
Set BM N.E. Top 1/4			5.81	357.72	Wabash + Polk
Paving N.E. Polk Wabash			8.31	355.22	
Paving S.E. Polk Wabash on curve			9.13	354.40	
Top S.E. PC of Polk S.E.			7.36	356.17	
" " directly opposite on N			6.39	357.14	
Break N. alley R.			4.31	359.22	
" " E " "			3.55	359.98	
Break 118' W of 34 th			4.21	359.32	
" " 33 rd " " 34 S side			1.57	361.96	
TP	7.12	369.19	146	362.07	
Break 33 rd N. side			6.63	362.56	
Set BM N.E. Top 1/4			2.40	366.79	
N.E. Alley R/L			2.31	366.88	
S.E.			2.65	366.44	
TP	5.60	372.79	200	367.19	
Break 67' W of Swift N			5.22		
" " " " " S			4.88		
Paving SW Swift to Polk			4.63	368.16	
" " " " " "			4.55	368.24	

3224 Unit SWED 35191

Boundary

21

Swift

ST

34th

Street

Wabash

118

67

TPC6

67

4150

Eto Paving

Paving

Eto

Sewers - 6th St. Extension

	H.1			Even. Flow Line		
	4.91	225.13		220.22	B.M.	
M.H. #5	0.54	215.45	10.22	214.91		
1+10 ⁰⁰	Connect to Exist. Sewer. West of M.H. #5		8.95	206.50	195.90	10.60 ✓
#1 1+50 ⁰⁰			5.23	210.22	199.50	10.72 ✓
TP	12.70	222.51	5.64	209.81	Estub M.H. #4	
M.H. #4	14.90 ⁰⁰		9.44	213.07	203.07	10.00 ✓
TP	12.79	233.91	1.39	221.12	Sub. Est.	
2+29 ⁰⁰ Brk.			10.78	223.13	217.00	6.13 ✓
2-51 ⁰⁰						
#1			5.05	228.86	219.50	9.36 ✓
D.M.H. #3			4.66	229.25	222.50	East 7.25 North 6.75 ✓
2-40 ⁰¹						
#1			5.61	228.30	224.29	4.06 ✓
M.H. #2			2.55	231.36	225.98	5.38 ✓
TP						10 East
1 40 ⁰⁰	12.46	246.15	0.22	233.69		
TP	13.00	258.69	0.46	245.69		
TP	12.61	270.14	1.16	257.53	257.44	
#1 3-20 TR	11.53	281.25	10.42	259.72	251.44	8.28
#1 P.V.C.			0.42	269.72		
#2 Brk			10.41	270.84	264.17	6.67 ✓
TP	10.29	288.56	1.72	279.53	276.90 Brk	10 E.
#3 E.V.C.			2.93	278.32	273.82	5.71 ✓
			3.18	285.88	277.40	7.98 ✓
1-40 ⁰²						6 W. Con. Cb.
#1			3.30	285.26	278.40	6.86 ✓
1-60 ⁰⁰						6 W. Con. Cb.
E. Rim Exist. M.H.			4.56			
M.H. #1			3.37	295.19	279.90	5.29 ✓
TP	5.71	289.35	4.92	293.64		
TP	3.98	289.65	3.68	290.67		
			1.70	287.95	287.96 B.M.	Washington & Hillcrest Dr.

22
276.90
225.98
150.92

279.90
276.90
3

Sewers - Canyon east of Mercy Hospital.

2354.40
50.63

23

	+	H.I.	-	Elev.	Elev. Flow Line	Cuts.	
M.H. #8	4109 0+00	153.15		149.06	142.00	7.06 ✓	
4-4060 TP	8.80	159.85	2.10	151.05			
#1			8.47	151.38	145.13	6.25 ✓	12 East
#2			5.67	154.18	148.25	5.93 ✓	15 West
#3			3.30	156.55	151.38	5.17 ✓	20 "
TP	10.85	169.96	0.74	159.11			
M.H. #7	1462 ⁴³		6.76	163.20	159.50	8.70 ✓	10220 W.
7-50 ⁶³							
#1			2.37	167.59	158.04	9.55 ✓	10 W
TP	11.66	179.29	2.33	167.63	161.59		
#2			10.67	168.62	161.59	7.03 ✓	"
#3			9.80	169.49	165.13	4.36 ✓	"
#4			3.49	175.80	168.68	7.12 ✓	"
TP	9.53	185.33	3.49	175.80			
#5			3.16	182.17	172.22	9.95 ✓	10 E.
#6			1.54	183.79	175.77	8.02 ✓	10220 E.
TP	8.72	193.32	0.73	184.60			
M.H. #6	5+16 ²⁰		4.85	188.47	179.31	9.16 ✓	
2-55 ⁷⁵							
#1			1.60	191.72	182.65	9.07 ✓	10. W.
M.H. #5	6+27 ³⁰				186.00		
TP	11.80	203.44	1.76	191.56	Con. Culvert.		
TP	18.12	216.39	0.17	203.27			
TP	9.78	225.91	0.26	216.13			
			5.74	220.17	220.22		BM. East Side Canyon.

BM. Elev 89.84
Tie Hub Sta 33+30⁷²

across Canyon
220.22 BM. from Hosp.

	+	H.I.	-	Elev.	Elev. Flow Line	Cuts	
	12.48	102.32			Sta. 33+30 ²²		
	9.70	104.47	7.55	94.97	89.84 BM.		
					Flow Line		
M.H. #90 176 ²² Mission Valley Sewer Connect.			14.54	89.93	90.14		
4-44 ²² TP	12.09	106.27	10.29	94.18			
#1			11.27	95.00	91.02	3.98	10' E.
#2			7.93	98.34	91.90	6.44	10' W.
#3			8.28	97.99	92.78	5.21	10' W.
			4.83	101.44	Top Ring. M.H. #90 Mission Valley Sewer		
M.H. #14 117 ²² 3-39 ²²			7.57	98.70	93.64	5.04	Tied 10820 SW
#1			5.70	100.57	94.44	6.13 ✓	10' W.
#2 TP	7.88	109.15	5.00	101.27	95.22	6.05 ✓	10' East.
Δ 22°54 RT. (21°40)							
M.H. #13 264 ²² 6-44 ²²			6.47	102.68	96.01	6.67 ✓	10820 East
#1			4.55	104.60	97.68	6.92 ✓	10' E.
#2			4.30	104.85	99.35	5.50 ✓	10' W.
#3			2.81	106.34	101.02	5.32 ✓	15' E.
TP	10.00	118.95	0.20	108.95			15' E.
#4			9.58	109.37	102.69	6.68 ✓	15' W.
#5			7.35	111.60	104.36	7.24 ✓	10' W.
Δ 6°29' Lt. M.H. #12 135 ²² 3-45 ²²			5.03	113.92	106.04	7.84 ✓	
#1			1.35	117.60	107.75	9.85 ✓	10' E.
#2	8.42	126.22	1.15	117.80			"
			7.16	119.06	109.46	9.60 ✓	

	+	H.I.	-	Elev.	Elev. Flow Line.	Cuts.	
#3	Connected to Ex. Sewer	126.22 See p. 16 m 1092 28	7.38	118.84	111.18	7.66 ✓	15 W.
25674	10.14	134.54	1.82	124.40			
Connected to Ex. Sewer			5.61	128.93	120.94	7.99 ✓	10 W.
87.96 2-43 98							
#1			4.55	129.99	122.61	7.38 ✓	"
M.H. #10 14632 4-49 02			3.79	130.75	124.28	6.47 ✓	10.20 W.
#1 TP.	11.50	144.45	1.59	132.95	126.15	6.80 ✓	10' W.
#2			9.28	135.17	128.01	7.16 ✓	"
#3			7.54	136.91	129.88	7.03 ✓	10 W.
M.H. #9 213 00 5-42 26			5.23	139.12	131.74	7.38 ✓	10.20 East
#1			4.37	140.08	133.79	6.29 ✓	10 East.
#2			1.97	142.48	135.84	6.64 ✓	"
TP.	9.55	153.15	0.85	143.60			
#3			8.91	144.24	137.89	6.35 ✓	"
#4			6.85	146.30	139.94	6.36 ✓	10 West.
Δ 48 59' rt. M.H. #8			4.09	149.06	142.00	7.06 ✓	10.20 S.E.

SEWERS - from Ex. Sewer south of M.H. #5 south to M.H. #17 & Washington, east to M.H. #16 & 7th St then south to D.E.

Cal

	H.I.	Elev.	Elev.	Flow Line		
	11.46	203.02	191.56	TP. Con. Culvert.		283.35 SW 7 th & 2 nd Av.
TP.	11.07	213.61	0.48	202.54		284.38 8 th & " NW
M.H. #5 24280				186.00		
6-47 ¹³						
#1				189.67		
#2		8.43	205.18	193.33	11.85	10 East
#3		10.48	203.13	197.00	6.13	8 W. Hdwall.
#4		5.70	207.91	200.66	7.25	15 W.
TP.	12.70	224.39	1.92	211.69		
#5		12.54	211.35	204.33	7.52	10 W.
Δ 78° 45' Lt.						
M.H. #17 & Washington		9.40	214.99	207.99	7.00	10 & 20 So.
TP	12.34	236.19	0.54	223.35		
1-58 ⁷⁸ TP	11.54	247.01	0.72	235.47		
Δ M.H. #16 & 7 th & Wash		10.42	236.59	228.03	8.56	10 & 22' East
141.20						
3-47 ⁰⁷ TP	7.90	254.81	0.15	246.86		
#1			4.89	249.92	231.04	18.88
#2			7.94	246.87	234.05	12.82
M.H. #15		10.13	244.68	237.07	7.61	
113.73 TP	12.56	267.04	0.33	254.48		
2-36 ⁰⁹ TP	13.05	279.12	0.97	266.07		
#1			7.04	272.08	253.57	18.51
#2 D.E.			3.91	275.21	270.07	5.14
TP.	9.42	288.30	0.24	278.88		
			3.90	284.40		
				284.38		
				0.02		8 th & 2 nd Av.

7.79%
 Ex. Sewer

Sewer - on Washington St. from
M.H. #17 west to D.E.

	St.							
Δ								
M.H. #17 1-41 ^{SD}	12.92	227.91		214.99	207.99	7.00	✓	1022050
#1 PVC. 2-10			4.83	223.08	213.24	9.84	✓	10 No
T.P.	11.87	239.64	0.14	227.77	214.50 Brk.			23045
#1 Brk.			9.66	229.98	215.75	14.23	✓	"
#2 EVC. 1-17 ^{SD}	12.32	249.67	5.82	233.82	220.77	13.05	✓	"
#1 PVC. 2-10			2.29	237.35	231.74	11.79	✓	"
#2 Brk.			6.14	243.53	238.00 Brk. 236.61	6.79	✓	"
#3 EVC. 1-17 ^{SD}			5.70	243.97	238.170	5.27	✓	6' N. "X" in Pavement.
T.P.	12.41							
#1 Lower Sect. C.I. Pipe.	261.23	0.85	248.82	242.00	6.82	✓	11220 No. "X" in Steps of Walk	
1-1 ^{SD}	13.11	273.66	0.68	260.55				
#1 C.I. Wye Branch 1-51 ^{SD}	12.98	285.20	6.57	266.08	262.00	4.08	✓	10220 No.
#1 Brk. 2-50 ^{SD}			1.44	272.22	272.00	9.77	✓	
#1 TP	4.46	286.71	3.43	281.77	273.49	8.76	✓	
Δ 20" R.H. M.H. #19			2.95	283.25	279.98	6.66	✓	

Std. C.I. Dead End
Cover - Elev. 266.00

P.O.T. "X" in pavement.
103.56 West of M.H. #17

286.71

182²²
9-9563

#1	5.36	281.35	275.44	5.91	✓
#2	5.56	281.15	275.89	5.26	✓
#3	5.41	281.30	276.35	4.95	✓
#4 D.C. 45' East of E. line 5 th St.	5.22	281.49	276.80	4.69	✓
	2.69	284.03 284.02 0.01	B.M. 5 th St Washington		

Sewer Between M.H.^s 10112

0700 Existing 2-35-28	11.06	129.90	118.84	111.18	15 W.
#1	9.65	120.25	112.53	7.72	10 E.
#2	9.44	120.46	113.89	6.57	"
M.H. #3 #11 3-50	7.14	122.76	115.27	7.52	10 20 E.
#1	2.65	127.25	117.14	10.11	10 W.
#2	3.78	126.42	119.04	7.38	"
connect existing #3 sewer	0.98	128.92	120.94	7.98	"

	+	H.I.	-	Elev.	Elev. Flow. Line	Cuts
		237.15				
#1 Connect. C.I. Pipe	13.13	249.77	0.51	236.64	227.25	9.39 ✓
1-31.21						
#1						
#1 Connect. to Sump.			2.57	247.20	245.20	2.00 ✓
TP.	12.65	261.67	0.75	249.02		
TP.	13.09	274.44	0.32	261.35		
TP.	12.44	286.33	0.55	273.89		
TP.	4.48	289.88	0.93	285.40		
			4.77	285.11		
				285.19		
				0.08 ✓	M.H. #1	

Sewer from M.H. #8, Main Interceptor, to
 exist. sewer on Vermont St.

+ H.I.

$\Delta 49^{\circ}48'30''$ Lt.

M.H. #8 11.03 160.09 149.06 142.00 7.06

197 23

4-49 22

#1 10.94 149.15 143.75 5.40

10 50

#2 9.95 150.14 145.50 4.64

10 No

#3 7.62 152.47 147.25 5.22

10 50

$\Delta 140^{\circ}58'$ Rt.

M.H. #35 & Lincoln

216 27

5-43 00

#1 2.37 157.72 150.80 6.92

#2 T.P. 12.18 171.72 0.55 159.54 152.60 6.94

#3 10.57 161.15 154.40 6.75

#4 5.98 165.74 156.20 9.54

M.H. #39 6.82 164.90 158.00 W. 6.90

294 00

6-49 25

#1 T.P. 12.69 181.41 0.73 170.99 160.75 10.24

#2 8.00 168.72 162.50 9.76

#3 9.15 172.26

#4 6.80 174.61 164.25 10.36

#5 8.40 173.01 166.00 7.01

#6 2.00 179.41 167.75 11.66

$\Delta 47^{\circ}56'20''$ Lt. Int. L.

M.H. #33 Teeth St. 3'E. of W. line. 2.67 178.74 169.51 W. 9.23

170.00 E. 8.74

M.H. Grade
31-526 #33
162.28
4-40²²

11.51	190.25		178.74		
#1			7.1	183.13	173.51
TP	12.03	202.60	0.28	180.97	9.62
#2			7.65	194.95	177.01
TP	12.81	215.14	0.27	202.33	17.94
#3			1.12	214.02	180.52
					33.50

See Bottom Page 31 L Hand Page

Δ 90° 21' Rt.
D.D.M.H. #32
2-30²² TP

12.36	227.21	102.4	204.90	184.02	2088-
		0.29	214.85	190.20	14.90-
				194.50	10.40-

10220 S.E.

#1
TP
#2
1-40²²

			7.04	220.17	208.35
TP	12.95	239.73	0.43	226.78	11.82
#2	12.01	251.08	0.66	239.07	222.21
			4.37	239.71	16.86

#1 P.V.C.
2-10²²

			2.55	248.53	233.30
					15.23

#1 Brk.
TP

			2.25	241.23	236.07
TP	12.39	263.19	0.28	250.80	12.76

#2 E.V.C.
TP
1-50²² TP
M.H. #31
132²²
1-34²²

			9.74	253.45	242.39
			0.26	262.93	11.06
	53 ²² 9/126	274.19	0.52	273.65	
	9.14	282.79	4.05	278.74	274.00
					4.74

#1
TP
1-54²² T.R.

			2.15	280.64	275.13
TP	3.53	284.73	1.59	281.20	5.51
1-54 ²² T.R.	5.34	288.06	2.01	282.72	

#2
1-44²²

			4.60	283.46	276.26
					7.20

#3 Connect to C.I. Pipe!

277.39

TP	+	HI	-	Elev Stake	Elev Flowline	CUT			Elev. Footing.
	680	288.06	373	284.33					
48 ⁰⁰									
4-12 ⁰⁰									
# Pier #1	2.5770				277.70				267.00
Pier #2					278.01				264.00
Pier #3					278.32				267.00
# 4 Connect C.I. Pipe.			558	285.55	278.63	6.92		10.2 1186 No	
90 ⁰⁰									
E-40									
# 1			486	286.27	279.66	6.61		9' 52	
M.H. #30			413	287.00	280.68	6.32			
253 ⁵³									
5-50 ²¹									
# 1			3.01	288.12	281.54	6.58			
# 2			159	289.54	282.40	7.14			
# 3	546	295.71	0.88	290.25	283.26	6.99			
# 4			493	290.78	284.12	6.66			
D.D.M.H. #29			5.08	290.63	284.99	5.64		288.57	Flow Line Ex. Sewer.
75' S. of D.E. Check Point			7.16	290.66	283.55				
2-37 ²⁰									
# 1			561	290.10	285.51	4.59			
# 2 D.E.			595	289.76	286.04	3.72		28	

Sewer - from D.D.M.H. #32, North 118.12 07 10th St. to D.E.

34

D.D. M.H. #32	10.09	214.99		20490	190.00		10820 SE.
1-20							
#1 P.V.C.			15.42	199.57	193.40	6.17	10' East.
2-10							
#1 Brk. TP			10.82	204.17	196.07	8.10	"
#2 F.V.C.			56.4	209.35	200.65	8.70	"
1-35 TP	12.01	226.86	0.14	214.85			
#1 Brk. 1-35 ¹³	13.23	239.77	0.32	226.54			
#1 D.E.			10.27	229.50	220.08	9.42	
deck B.M.			0.00	239.77	231.00	8.77	
			0.05	239.72			
				239.77			
				0.00			

Sewer - M.H.#33 South to D.E. in Alley in
Bk. 16 Estudillo & Caprons Addition.

M.H.#33 192 27	2.67	181.91		178.79	169.51 170.00	9.25 West. 8.74 East.	10 220 S.
4-48 ¹² TP	12.98	194.18	0.21	181.20			
#1			9.85	184.33	178.71	10.62	10 N.
#2			9.26	184.92	177.42	7.50	10 50.
#3			4.66	189.52	181.13	8.39	"
Δ 47°56'20" Rt.	12.53	205.39	1.32	192.86			
M.H.#28 198 15			12.64	192.75	184.84	7.91	10 220 E.
4-47 ⁰²							
#1			5.16	200.23	189.54	10.69	10 E.
TP.	12.04	216.87	0.56	204.83			
#2			11.48	205.39	194.25	11.14	"
#3			10.07	206.50	198.95	7.85	"
Δ 40°49'30" Rt.							
M.H.#27 113 24	12.37	227.98	1.26	215.61	203.66	11.95	10 220 E.
3-37 ⁰²							
#1			5.30	222.68	207.44	15.24	10 W.
TP.	12.85	239.92	0.91	227.07			
#2			9.20	231.72	211.22	20.50	
					215.00 N 222.00 223.00 S	19.30 12.50 11.30	15 225 NW.
D.D. M.H.#24 129 26			5.62	234.30			
3-43 ⁰²							
#1			4.43	235.49	226.33	9.16	10' W.
#2	12.61	249.38	3.15	236.77	229.66	7.11	"

+ 7 E1

249.88

Δ 40° 53' 00" Lt.
M.H. # 25
8923
2-4465

7.26 242.12 233.00 N 9.12
234.00 S 8.12 10 220 NW

1 2.05 247.33 240.48 6.85

12.29 259.62

2 D.E. 0.54 259.08 246.95 12.13

TP 003 247.36 12.29 247.33

TP 13.05 234.31
234.30
0.01 Check M.H. # 24

Sewer - M.H. #24 Washington St. to 10th St. south
to Hendricks, east to D.E.

37

ODMH #24	2.50	236.80		234.30	223.00 227.00 215.00		
2-31 ¹²							
#1			12.43	224.37	216.00	8.37	10 So.
$\Delta 90^{\circ}03'30''$ Lt.							
D.M.H. #23	Washington		5.83	230.97	216.99 222.00	13.98 8.97	10 220 SE
2-43 ⁷⁸ TP	12.83	248.41	1.22	235.58			
TR	13.04	260.82	0.63	247.78			
#1			10.83	249.99	241.31	8.68	10 E.
TP	13.15	273.81	0.16	260.66			
#2 P.V.C.			3.65	270.16	260.61	9.55	"
2-10							
#1 Brk			2.06	271.75	265.02 Brk 264.40 ✓	7.35	"
#1 E.V.C. TP	12.46	245.65	0.62	273.19	266.92	6.27	"
1-20							
#1 P.V.C.			9.77	275.88	270.72	5.16	"
2-10					272.62 Brk		
#1 Brk			7.81	277.44	272.42 ✓	5.42	"
#2 E.V.C.			6.06	279.59	272.71	6.88	"
2-30							
#1			3.06	282.59	272.98	9.61	"
$\Delta 106^{\circ}44'30''$ Lt.							
M.H. 22	to the Hendricks.		3.05	282.60	273.25	9.35	10 220 W.
270 ²²							
5-54							
#1			3.54	282.11	273.74	8.37	10 N
#2			3.82	281.83	274.22	7.61	"

	+	H.I.	-	Elev.	Elev. Flow Line	Cuts.	
# 3		285.65	4.10	281.55	274.71	6.81	
# 4			4.27	281.38	275.19	6.19	
# 5 D.E.			4.35	281.30	275.68	5.62	
TP	4.54	288.40	1.79	283.86			
			6.40	282.00			
				282.02	B.M. 10th 27th		
				0.02			
D.D. M.H. # 24 - Washington St. west to D.E.							
D.D. M.H. # 24	12.26	246.56		234.30	222.00	12.30	158250 NW.
130th 3-4333							
# 1 TP.	12.86	259.00	0.42	246.14	239.64	6.50	10 NW.
TP.	12.20	271.14	0.14	258.86			
# 2			5.45	265.69	257.28	8.41	"
TP.	12.88	283.27	0.75	270.39			
M.H. # 26			1.83	281.44	274.91	6.53	10820 No.
209th 5-4122							10820 No.
# 1 TP.	6.06	288.06	1.27	282.00	275.33	6.67	10 No.
# 2			5.92	282.14	275.75	6.39	"
# 3			5.38	282.68	276.17	6.51	"
# 4			5.09	282.97	276.58	6.39	"
# 5 D.E.			4.75	283.31	277.00	6.31	"
TP	4.52	288.55	4.03	284.03			
			4.83	283.72			
				283.76	B.M. 9th 27th		

Sewer - M.H. #34 to S. Line Johnson St.

39

M.H. #34 189.36 4-47-92	12.09	176.99		164.90	158.00	6.90-		
#1			8.90	168.09	162.25	5.84-	10-W.	
#2			3.13	173.86	166.50	7.36-	"	
T.P.	11.08	187.75	0.32	176.67				
#3			6.01	181.74	170.75	10.99-	"	
49°57'15" Rt. M.H. #41 210.22 4-52-92 T.P.	12.27	199.70	5.13	182.62	175.00	7.62-	10.20 W	Tap M.H. #41 Nov. 1892
#1			0.32	187.43				
#1			7.38	192.32	181.00	11.32-	10 E.	
#2			4.15	195.55	187.00	8.55-	"	
T.P.	13.00	212.06	0.64	199.06				
#3			7.69	204.37	193.00	11.37-	"	
#4 Bk. 90.75 2-49-92 T.P.	11.15	222.91	0.17	211.89	199.00	12.89-	"	
#1			0.30	211.76				
#1			10.28	212.63	202.00	10.63-	"	
D.D. Δ 50°03'30" Lt. D.D. M.H. #40 T.P.	12.31	234.71	5.52	217.39	205.00 208.00	12.39- 9.39	10.820 N.E.	
1-27-92			0.51	222.40				
#1 Bk.			7.46	237.25	220.00	17.25-	10 E.	
T.P.	12.43	246.78	0.36	234.35				

	+	HZ 246.78	-	Elev Stake	Elev floorline	cut	
75 ⁰⁰ 2-37 ⁰²							
#1			4.69	242.09	230.14	11.95	10 East
TP	12.43	258.84	0.37	246.41			
#2 P.V.C. 2-10			8.56	250.28	241.30	8.98	"
#1 B.K.			5.68	253.16	243.00 244.14	10.16 9.02	"
#2 E.V.C. 1-15			2.67	256.17	249.26	6.91	"
TP	12.46	271.09	0.21	258.63			
#1 P.V.C. 2-10			5.31	265.78	258.68	7.10	"
TP	11.09	281.80	0.38	270.71			
#1 B.K.			8.97	272.83	265.00 263.72	7.83 9.11	"
#2 E.V.C. 1-31 ²¹			5.76	276.04	266.20	9.84	"
M.H.# 39 & Hayes 190 ⁸⁵ 4-47 ⁰⁶			5.07	276.73	270.00	6.73	10 & 20 W.
#1			4.73	277.07	272.25	4.82	10 E.
TP	11.17	292.51	0.46	281.34			
#2			7.90	284.61	274.50	10.11	10 W.
#3			6.42	286.09	276.75	9.34	"
M.H.# 38			5.28	287.23	279.00	8.23	10 & 20 W.

150.65

3-50²³

#1

10 W.

#2

"

Connect to Sewer
3 S. Line Johnson Ave.

+

#I
292.51

-

Elev
slopeElev floor
line

cut

10.220 W.

M.H. #38

279.00

5-47²⁰

#1

4.83

287.68

279.33

8.35-

6 N.

#2

3.84

288.67

279.67

9.00-

#3

3.23

289.28

280.00

9.28-

#4

2.61

289.90

280.34

9.56-

M.H. #37

1.59

290.92

280.67

10.25-

10.820 N.

4-40²²

#1

6.81

298.59

0.73

291.78

280.95

10.83-

6 N.

#2

7.19

291.40

281.23

10.17-

#3

7.36

291.23

281.51

9.72-

#4 D.E.

5.83

292.76

281.79

10.97-

J.P.

1.92

295.91

4.60

293.99

5.25

296.88

4.28

291.63

checkout

6.22

290.66

	+	H.I.	-	Elev. stake	Elev floor line	cut	
$\Delta 40^{\circ}19'45''$ Rt.							
M.H.#40	11.79	229.18		217.39	209.00	9.39	10' 20" NE
3-46 ²							
#1			4.65	224.53	212.00	12.53	10' N.
#2			1.18	228.00	216.00	12.00	"
M.H.#36			3.05	226.13	220.00	6.13	10' 20" N.
100 ²							
4-45TR	12.60	241.63	0.15	229.03			
#TP	12.00	253.41	0.22	241.41			10' N.
#1			7.67	245.74	235.00	10.74	
TP	12.89	265.59	0.68	252.73			
#2			2.48	263.11	250.00	13.11	
T.P.	12.71	278.21	0.09	265.50			
#3	13.27	289.88	1.60	276.61	265.00	11.61	
#1 PVC.			3.49	286.39	276.67	9.72	
2-30							
#1 Brk			2.76	287.12	280.00 279.33	7.79	
#2 EVC.			2.74	287.14	280.63	6.51	
2-30							
#1	6.71	296.31	0.28	289.60	282.81	6.79	
#2 D.I.E.			5.73	290.58	285.00	5.58	
check out			4.66	291.67	291.63	0.04	

	+	HZ	-	Elev Stake	Elev Floorline	cut
M.H.#10	12.53	143.28		130.75	129.28	
4-40 ⁵⁰						
#1			6.64	136.64	132.21	4.43
TP	13.17	156.39	0.06	143.22		
#2			10.41	145.98	140.14	5.84
TP	13.20	169.48	0.11	156.28		
#3			11.41	158.07	148.07	10.00
#1 Brk			1.53	167.95	156.00	11.95
3-35 ⁶⁸	12.83	181.58	0.73	168.75		
#1			8.78	172.80	160.34	12.46
#2			4.23	177.35	164.67	12.68
#Δ 10'06'00" Δt.					169.00	12.50
300 M.H.#44	12.50	194.00	0.08	181.50	172.00	9.50
2-31 ⁰²						
#1	12.89	206.60	8.29	193.71	182.76	10.95
#2 PVC	12.67	218.44	0.83	205.77	193.53	12.24
2-40 ⁰²						
#1 Brk			9.92	208.52	197.00 Brk. 196.40	12.51
#2 EVC			9.55	208.89	198.10	10.79
4-45 ⁰²						
#1			1.33	217.11	203.07	14.04

		H.I.		Elev Stake	Elev flow line	cut
T.P.	12.52	230.43	0.53	217.91		
#2			12.06	218.37	208.04	10.33
#3			6.49	223.94	213.02	10.92
T.P.	11.29	241.20	0.52	229.91		
D.D.M.H.#43			6.03	235.17	218.00 223.00	17.17 12.17
2-26 ¹⁵ T.P.	12.59	253.52	0.27 0.30	240.93		
#1			6.97	246.55	237.27	9.28
T.P.	12.93	265.84	0.61	252.91		
#2 PVC.			8.26	257.58	251.54	6.04
2-10 T.P.			0.32	265.52		
#1 Btk.			4.85	260.99	257.00 256.03	4.96
#2 EVC.			2.37	263.47	258.57	4.90
2-27 ⁵⁰ T.P.	12.45	277.97	0.32	265.52		
#1			6.11	271.86	262.88	8.98
# Connect to Sower 2 S. Line Johnson.			0.36	277.66	267.20	10.46
check out on DE & Boyd South of M.H.#45			5.07	272.95		
				272.97		
				0.02 error		

used this
stake to set
line south of M.H.#43

	+	HZ.	-	2/lev Stake	2/lev flowline	cut
Δ 61°15'00" N. Int. L.						
D.D.M.H. #43	11.64	240.81		235.17	223.00	
2-26 ^{TP}	9.88	256.26	0.43	246.38		
#1			10.98	245.28	230.50	14.78-
#2 Brk.			7.93	248.33	238.00	10.33-
3-36 ⁶²						
#1			1.56	254.70	244.42	10.28-
TP	13.17	268.86	0.57	255.69		
#2			10.73	258.13	250.83	7.30-
#3 PVC.			2.07	266.79	257.25	9.54-
2-10 TP	12.23	280.17	0.92	267.94		
#1 Brk.			10.23	269.94	257.00 Brk. 258.59	11.35-
#2 E.V.C.			7.78	272.39	259.11	13.28-
4-42 ⁶²						
#1			4.70	275.38	254.58	13.80-
#2			4.87	275.30	260.05	15.25-
#3			5.74	274.43	260.52	13.91-
D.D.M.H. #42 & Hayes			9.28	270.29	261.00 265.00	9.89 5.29
east. 2-51 ²⁵						
#1			5.68	274.49	268.00	6.49-
#2 DE.			3.22	276.95	271.00	5.95-
check out on. Next to last Stake						
online running N. from M.H. #43			8.30	277.87		
see page 44				271.86		

	H.I.		Elev Stake	Elev Horrise	Cut
	280.17				
M.H. #42 weol.				261.00	
2-33 ⁷⁰					
#1		11.23	268.94	261.50	7.44
#2 D.E.		12.17	268.00	262.00	6.00
Seyrer Paralleling Lot 97 B4 for 127'					
and then Δ 77° 24' 30" Across Lots 96, 95 & 94. to D End					
	Δ 61° 14' - 30 ft from F. Wood				
D.D.M.H. #44	12.73	194.23	181.50	172.00	9.50
2-34 ⁵¹ TP	13.07	206.58	193.51		
#1			5.12	201.46	195.58
TP	13.10	219.37	0.31	206.27	5.88
TP	13.43	231.79	0.51	218.86	
#2 PVC.			7.18	224.61	219.17
2-10					
#1 Brk	13.75	244.07	0.47	231.32	226.00 Brk 225.39
#2 E.V.C.			7.29	236.78	230.37
1-38 ⁰⁰ TP	13.01	256.90	0.18	242.89	6.41
Δ 77° 24' 30" RT					
M.H. #51			4.87	252.03	246.98
2-49 ⁷⁰					
#1			6.64	250.26	247.49
TP	6.47	263.08	0.29	256.61	
#2 D.E.			6.10	256.98	248.00
Check out on Brk No of M.H. #43					
See page			2.09	260.00	
				260.11	

Sixth Street Sewer from
M.H #14 SE

M.H #14	13.08	111.78		9870	93.66	5.04 -
2-30						
#1			980	101.98	96.83	5.15 -
# ~ Brk			485	106.93	100.00	6.93 -
3-43 ⁵⁰ T.P.	12.97	124.22	0.53	111.25		
#1			9.14	115.08	109.00	6.08 -
# ~	12.95	136.52	0.65	123.57	118.00	5.57 -
# 3 Brk			3.18	133.34	127.00	6.34 -
2-47 ⁵⁰ T.P.	12.95	149.16	0.31	136.21		
#1			7.88	141.28	133.50	7.78 -
T.P.	13.21	161.98	0.39	148.77		
# ~ DM.H #50	Δ 46-44' 30" R.		7.12	154.86	140.00 145.00	14.86 - 9.86 -
3-32 ¹⁰						
#1			3.96	158.02	148.33	9.69 -
# ~			3.62	158.36	151.67	6.69 -
T.P.	13.17	174.89	0.26	161.72		
#3 Brk			8.38	166.51	155.00	11.51 -
2-41 ⁵⁰ T.P.	9.19	183.93	0.15	174.74		
#1			3.19	180.74	164.50	16.24 -
T.P.	12.46	196.06	0.33	183.60		
# ~ M.H #49	Δ 27-11' 00" L		10.7	185.34	174.00	11.34 -

	+	H.I.	-	Elev stake	Elev flowline	
		196.06				cut
TP 2-4253	12.91	208.73	0.24	195.82		
#1 TP	13.10	221.70	6.21 0.13	202.52 208.60	193.22	9.30
T.P.	12.97	234.21	0.46	221.24		
M.H. Δ 76° 30' 00" R						
#1 #48			11.16	223.05	212.45	10.60
TP	10.47	246.32	0.36	233.85		
1-44 ³⁰ TP	11.55	257.50	0.37	245.95		
#1 PVC 2-10			9.91	247.39	234.95	12.64
#1 Brk			4.29	253.21	239.24 240.00	13.97
#1 E.V.C. 1-5			1.45	256.05	242.00	14.05
#1 PVC 2-10	10.71	267.43	0.78	256.72	243.00	13.72
#1 Brk			9.07	258.36	245.90 245.00	12.46
#1 E.V.C. 1-20 TP	10.71	278.01	2.44	264.99	250.63	14.36
#1 #47			0.13	267.30		
M.H. 4-4 ⁵⁰			8.56	269.45	261.88	7.57
#1			5.33	272.68	263.03	9.65
#1			2.67	275.34	264.18	11.16
#3			4.55	273.46	265.32	8.14
#4 DE			5.04	270.97	266.47	6.50

48 behavior Name of Johnson

Survey from M.H. 49 to Dead End
in Alley South of M.H. # 45

49

cuts

M.H. #49=00	10.59	195.93			185.32	174.00	
2-21 ⁵⁹							
#1 T.P.	12.83	208.52	3.34 0.24	192.59 195.69	182.52		10.07-
#0 PVC			5.32	203.20	191.05		12.15-
2-10							
#1 ^{OK}	12.31	220.30	0.53	207.99	195.00 195.51		12.48-
#2 E.V.C			7.84	212.46	201.00		11.46-
TP	13.22	232.86	0.66	219.64			
1-35	12.60	244.33	1.13	231.73			
M.H. #46							
#1 #46			7.77	236.56	222.00		14.56-
2-33 ³³							
#1			9.75	234.58	226.50		8.08-
Drop							
#2 M.H. #45	13.08	256.64	0.77	243.56	231.00 235.00		12.56- 8.56-
3-26 ²⁹							
#1			2.83	253.81	243.00		10.81-
TP	13.13	269.53	0.24	256.40			
#2			9.95	259.58	251.00		8.58
#3 D.E			3.32	266.21	259.00		7.21
TP	9.03	278.18	0.38	269.15			
check D.End							
South of M.H. # 47 & B.yd			5.22	272.96			

Billings
 Joe Duemml
 J. Jacobsen
 Nov. 23, 1919

Parving Stokes Alley Block 63

Olive Hill. Between 41st & Central
 Made #1

Stake	Grade	Elev.	Stake	Grade	Elev.
374	4.11	373.98			
	1.64	371.51			
0700	7.01	369.13	00.00		
0143	4.96	369.02	00.18	✓	
0185	5.91	368.07	00.50	✓	
1731	4.55	366.39	01.19	✓	
1151	3.77	367.17	01.10	✓	
1171	4.00	366.94	01.30	✓	
1191	4.34	366.60	01.62	✓	
2211	4.63	366.31	01.88	✓	
2231	4.58	366.36	01.80	✓	
2251	4.47	366.47	01.66	✓	
2271	4.37	366.57	01.53	✓	
2291	3.47	367.47	00.61	✓	
3111	3.49	367.45	00.60	✓	
3131	3.28	367.66	00.02	✓	
3151	3.47	367.47	00.99	✓	
3171	3.47	367.47	00.49	✓	
3191	3.64	367.30	00.64	✓	
4111	4.43	367.47	00.44	✓	
4131	5.14	366.76	01.12	✓	
4151	5.03	366.87	00.98	✓	
4171	4.76	367.14	00.68	✓	

Rate of Grade 0.0481%

#1
 37398

Elev
 Stake

Elev
 Grade

Cut
 or Fill
 50

371.51

2.23
 474
 2.33
 482

369.28
 369.24
 369.18
 369.10

369.23
 368.92

485 370.94

582
 3.31
 7.39
 5.07
 4.58

368.16
 366.59
 366.36

368.61
 368.30
 368.27

Rate of Grade 0.1159%

4.50
 4.36
 4.31
 4.43

366.44
 366.58
 366.63
 366.51

368.24
 368.22
 368.19
 368.16

4.30
 4.14
 3.74
 5.03

366.64
 366.80
 367.20
 365.91

368.13
 368.08
 368.05
 368.02

4.91
 4.40
 4.81

366.03
 366.54
 366.13

367.99
 367.96
 367.94

525 371.90

4.20
 5.13
 5.12
 5.01

366.65
 366.77
 366.78
 366.89

367.91
 367.88
 367.85
 367.82

X in corner
 0.7000

E Line

	HI 371.90		Elev. Stake	Elev. Grade	Cut or Fill
X in center 30 approx 4491 070 Back		474	367.16	367.79	F 0.63
Stake 30 in front of George's place 5411 TP 525 372.88		483	367.07	367.77	F 0.70
4.27 367.63		581	367.07	367.74	F 0.67
5451 30		512	367.76	367.71	C 0.05
5471 30		499	367.89	367.68	0.00 21
check BM.			2.44		
TP 672	374.12	548	367.40		
check 80 Center Monroe		423	369.89		

W Line

	HI 371.90		Elev. Stake	Elev. Grade	Cut or Fill
		4.77	367.13	367.79	F 0.66
		4.58	367.32	367.77	F 0.45
525 372.88		4.27	367.63	367.74	F 0.11
		5.14	367.74	367.71	C 0.03
		5.09	367.79	367.68	0.00
check BM.		2.44	370.44		
TP 672	374.12	548	367.40		

367.79
19
367.60

367.60

Nov 25, 1929
Bill Bliss

Water stakes Alley Block 63 Olive

Hill

8+7	4.05	373.92	369.87		
0+00 <small>Sline Meads</small>			498	368.94	366.14
0+55			5.33	368.59	365.79
1+31 ³⁰ B.K.			7.55	366.37	365.30
2+11 ³⁰			7.78	366.14	365.22
2+91 ³⁰	6.67	372.65	7.94	365.98	365.14
3+71 ³⁰			6.51	366.14	365.06
4+51 ³⁰			5.79	366.86	364.98
5+31 ³⁰			5.08	367.57	364.90
5+71 ³⁰ N Line Meads			5.07	367.58	364.87
N Line Paving			4.86	367.79	-
E Paving			5.09	367.56	-
E Line Paving			4.76	367.89	-
Set SM <small>Stability</small> <small>Block</small> <small>Meads</small> <small>+ Alley</small>			2.24	370.41	

366.14
35
365.79
48
365.39

131.3
550
763
64
3052
4578
5883.2

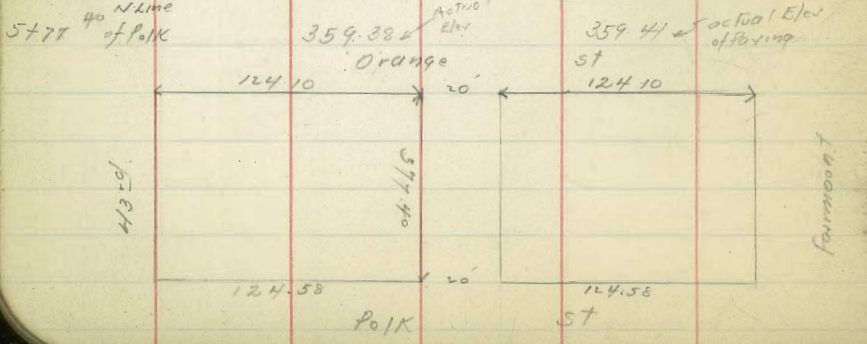
366.14
365.39
84
367.56
28
367.56
367.67
2.80
0.64
364.87

131.840
786
540
524
131.8
64
520
188
838.2

B. Phas
Dec 4, 1929

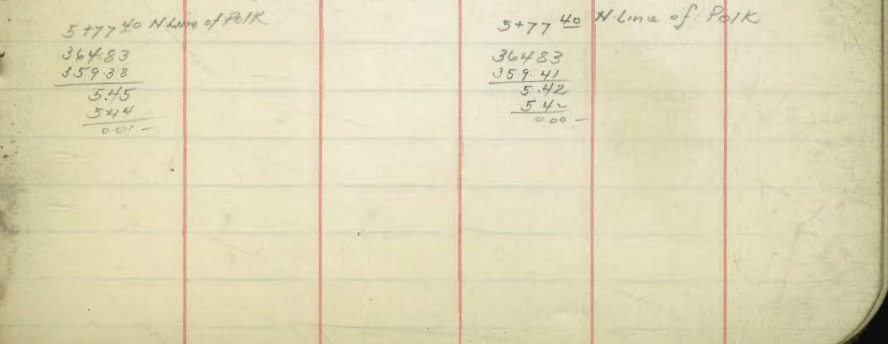
Paving Stakes Alley Block 20 Teralta
Between 43rd & Fairmount. Orange & Polk
"Back" Contractor

	E Side	W Side
0400	359.60	359.80
0716 ⁸⁰	361.30	361.30
0736 ⁸	362.60	362.60
0756 ⁸⁰	363.25	363.20
0776 ⁸⁰ EVC	363.15	363.10
1406 ⁸⁰	362.38	362.70
1436 ⁸⁰ PVC	361.60	361.70
1456 ⁸⁰	361.15	361.30
1476 ⁸⁰	360.80	361.00
1496 ⁸⁰	360.60	360.80
2116 ⁸⁰ EVC	360.45	360.65
2166 ⁸⁰	360.30	360.40
3116 ⁸⁰	360.15	360.31
3166 ⁸⁰	360.00	360.14
4116 ⁸⁰	359.85	359.97
4166 ⁸⁰	359.70	359.80
5116 ⁸⁰	359.55	359.63
5146 ⁸⁰	359.46	359.52



East West 53

	East	West
0400	367.39	367.39
0716 ⁸⁰	361.30	361.30
0736 ⁸⁰	362.60	362.60
0756 ⁸⁰	363.15	363.10
0776 ⁸⁰	362.38	362.70
1406 ⁸⁰	361.60	361.70
1456 ⁸⁰	361.15	361.30
1476 ⁸⁰	360.80	361.00
1496 ⁸⁰	360.60	360.80
2116 ⁸⁰ EVC	360.45	360.65
2166 ⁸⁰	360.30	360.40
3116 ⁸⁰	360.15	360.31
3166 ⁸⁰	360.00	360.14
4116 ⁸⁰	359.85	359.97
4166 ⁸⁰	359.70	359.80
5116 ⁸⁰	359.55	359.63
5146 ⁸⁰	359.46	359.52



12/4/27

Water Grades Alley Block 20 Toronto

54

N Line 0700 of George	
0180 ^{skin}	356.70
0796 ⁸⁰	358.40
1416 ⁸⁰	359.70
1436 ⁸⁰	360.30
1456 ⁸⁰	359.20
2116 ⁸⁰	358.70
2736 ⁸⁰	358.20
2756 ⁸⁰	357.90
2796 ⁸⁰	357.50
3496 ⁸⁰	
4496 ⁸⁰	
5496 ⁸⁰	
6456 ⁸⁰ ^{N Line} ^{Polk}	

Pennsylvania Ave Servers
 from M.H. & Kite 267.50 West to D.End

BM	12.15	278.20	266.05	North East Kite + Penns	266.05	Hyacinth Ave
M.H. 0700 Kite			12.30	265.90	258.00	7.90 -
6-4458						
#1			12.40	265.80	260.05	5.75 -
#2			10.17	268.03	262.10	5.93 -
#3			7.55	270.65	264.15	6.50 -
#4			5.20	273.00	266.20	6.80 -
#5			3.48	274.72	268.25	6.47 -
#6 D.End			1.64	276.56	270.30	6.26 -

N.C.S

S.C.S

B.V.C
~~5735~~⁵² 271.20
 5770⁶⁶ 268.00

280.18
~~11.28~~
 268.90

57

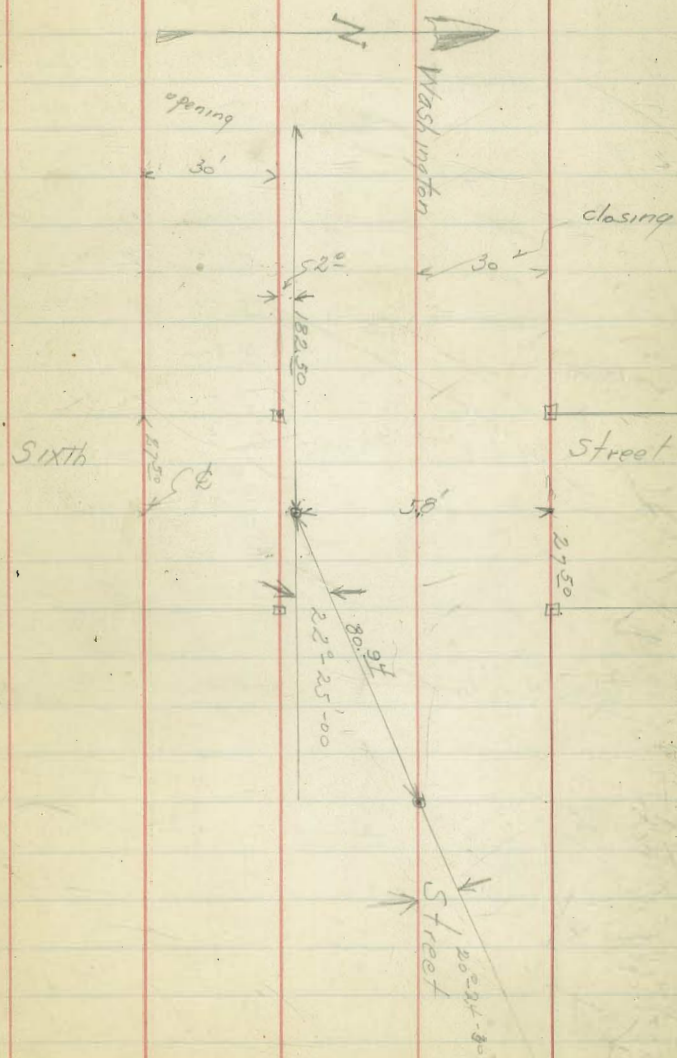
Water Grades Pennsylvania

BM	Ave W of	W of	W of	W of	W of
	10 21	276.26		266.05	Cut
	W. Line	10.54	265.72		
	ctos of Tenn				
0+15		10.60	265.66	263.98	1.68
0+60		8.24	268.02	266.82	1.20
0+80		6.92	269.34	267.92	1.42
1+00		5.59	270.67	268.87	1.80
1+60		2.76	273.50	271.23	2.27
1+80	6.71	^{1.93} 281.04	274.33	271.98	2.35
2+00		6.29	274.75	272.63	2.12
2+20				273.13	
2+37 ⁵⁰ Δ R.		4.46	276.58	273.28	3.30
3+02 ⁶⁰ Δ L	3.10	^{3.96} 280.18	277.08	273.10	3.98
3+36 ⁵⁶		3.17	277.01	273.10	3.91
4+09 ⁰⁶ P.V.C.		4.57	275.61	272.40	3.21
4+29 ⁰⁶		5.08	275.10	271.90	3.20
4+49 ⁰⁶		5.87	274.31	270.90	3.41
4+69 ⁰⁶		7.18	273.00	269.50	3.50
4+80 ⁰⁸ E.V.C.		8.80	271.38	267.90	3.48
5+18.06 Δ		11.91	268.27	265.00	3.27
5+37 ⁰⁶ connect existing					
4" Main					

B. Bliss
Sept. 12 1929

Washington Street Sewer Realignment
Profile Levels

BM				
0700			5.2	
0720			5.2	
0745			5.6	
0765			5.3	
768			5.5	
0780			5.3	
0792			5.6	
1700			5.0	
1750			5.5	
TP	476	28705	5.18	28229
2700			5.2	
2750			5.2	
			5.3	



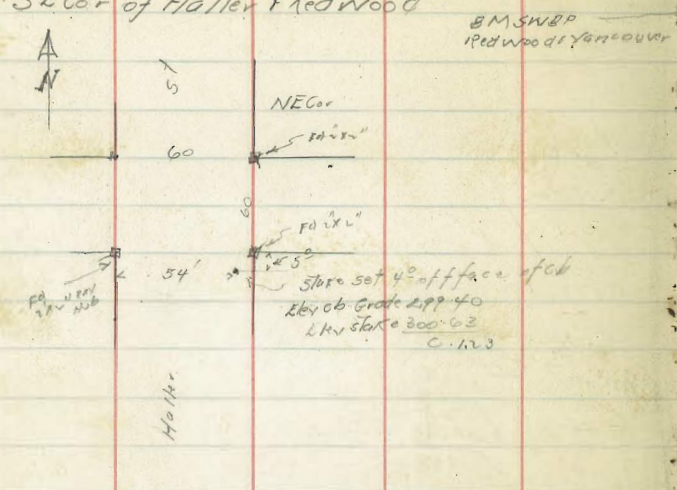
Washington Street Sewer
Realignment. Grades for construction

BM	Going West	570	287.47	281.77	for break	outside	
#585	M.H. 15 East	-	-	583	281.64	270.72	8.92
2-40	#1	-	-	521	282.26	273.85	8.41
#2	M.H. 16	222.25	-	533	282.14	274.98	7.16
4-45	#1	-	-	533	282.14	275.43	6.71
T.P.	4.76	287.05	5.8	505	282.00	275.89	6.11
#2	-	-	-	5.13	281.92	276.34	5.58
#3	45% line st	-	-	4.9	282.13	276.80	5.33
#4	check map	-	-	3.0	284.03	284.0	-
M.H. 15	541	287.05	-	528	281.64	272.72	8.92
0125	B.K.	-	-	1133	275.72	267.15	8.57
0750	R.V.C.	-	-	-	-	24.00	-
0776	50 connect C.I. Pipe	-	-	-	-	-	-

10/2
23/23

Nov 25, 1929

Fire Hydrant - SE Cor of Haller & Redwood



B.M. SWBP
Redwood of Vancouver

299.96
43.2 +
304.30 HI.
299.40
4.90
5.67
0.73

304.30
5.67
300.63 Elev stake
299.40 Elev Grade
1.23 C

273.46

60

B.M. 294.66

+ 2.77
= 297.43 HI.
- 5.07 -
292.36 Elev stake

NW

NE

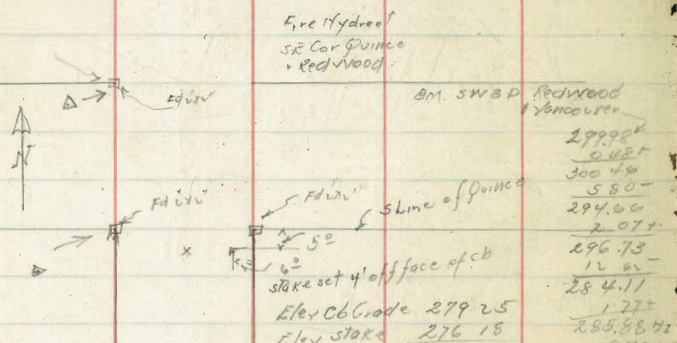
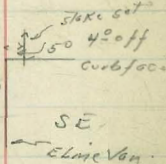
297.43 HI

5.42
292.01 Actual Elev of cb

Elev Grade 292.08

Elev stake 292.86

SW 0.28



B.M. SWBP Redwood
of Vancouver

299.96
0.48 +
300.44
5.80 -
294.64
2.07 +
296.71
12.00 -
284.71
1.77 +
286.48 HI.
9.70 -
276.78

276.23

276.18 Elev F.H. stake

12.86 +
289.04
0.56 -
288.48
10.16 +
298.64
13.15
285.49
0.63
286.12

279.65 B.M. NE BP Nile + Quince

279.67
0.02 -

285.88 HI.
4.88 -
281.00 Elev
276.23
4.77 =

Meters out
stake for water

48.0K
281.00
7.24
288.24
7.34
295.58
273.48
9.87



Nothing found

4/16/80
Loudon

Paving stakes Alley BIK 63 Olive Hill

Note: These stakes set 11/23/29 by W.E. Bliss. Rains etc had changed Elev. (P 50)

61

	371.51	El	grade			371.51	El	grade	
0+00				RM SW MORRO = Central	2+31 ³⁰				
E			369.12		E	504	366.47	368.17	F 1.70
W			369.23		W	4.86	366.65	368.17	F 1.52
0+43 ²⁷				1.64	2+51 ³⁰				
E	2.44	369.07	368.84	0.23	E	4.93	366.58	368.15	F 1.56
W	2.34	369.17	368.92	0.25	W	4.77	366.74	368.15	F 1.41
0+85 ⁷⁴					2+71 ³⁰				
E	3.37	368.14	368.57	F 0.43	E	4.85	366.66	368.12	F 1.46
W	3.31	368.20	368.61	F 0.41	W	4.77	366.74	368.12	F 1.38
0+K 1+31 ³⁰					2+91 ³⁰				
E	5.07	366.44	368.30	F 1.86	E	3.99	367.52	368.09	F 0.57
W	4.88	366.63	368.30	F 1.67	W	4.63	366.88	368.09	F 1.21
1+51 ³⁰					3+11 ³⁰				
E	4.27	367.24	368.27	F 1.03	E	3.97	367.71	368.07	F 0.36
W	5.10	366.41	368.27	F 1.86	W	4.26	367.25	368.07	F 0.82
1+71 ³⁰					3+31 ³⁰				
E	4.50	367.01	368.24	F 1.23	E	3.83	367.68	368.04	F 0.36
W	4.99	366.52	368.24	F 1.72	W	5.44	366.07	368.04	F 1.97
1+91 ³⁰					3+51 ³⁰				
E	4.88	366.63	368.22	F 1.59	E	4.05	367.46	368.02	F 0.56
W	4.84	366.67	368.22	F 1.55	W	5.36	366.15	368.02	F 1.97
2+11 ³⁰					3+71 ³⁰				
E	5.06	366.45	368.20	F 1.75	E	4.00	367.51	367.99	F 0.48
W	4.80	366.71	368.20	F 1.49	W	4.97	366.54	367.99	F 1.45
					3+91 ³⁰				
					E	4.15	367.36	367.96	F 0.60
					W	4.90	366.51	367.96	F 1.45

Red stakes
This Alley

4+11 ³⁰	371.51	EI	grade	371.51	
E	3.98	367.53	367.94	F0.41	TP 4.30
W	4.87	366.64	367.94	F1.34	367.21
A+31 ³⁰					5.77
E	4.66	366.85	367.91	F1.16	372.98
W	4.68	366.83	367.91	F1.08	2.55
A+51 ³⁰					370.43
E	4.53	366.98	367.88	F0.90	372.98
W	4.69	366.82	367.88	F1.06	5.56
A+71 ³⁰					367.42
E	372.98 5.84	367.14	367.86	F0.72	
W	4.58	366.93	367.86	F0.93	
A+91 ³⁰	372.98				
E	5.83	367.15	367.83	F0.68	
W	5.80	367.18	367.83	F0.65	
5+11 ³⁰					
E	5.90	367.08	367.81	F0.73	
W	5.65	367.33	367.81	F0.48	
5+31 ³⁰					
E	5.86	367.12	367.78	F0.66	
W	5.33	367.65	367.78	F0.13	
5+51 ³⁰					
E	5.24	367.74	367.76	F0.02	
W	5.20	367.78	367.76	C0.02	
5+71 ³⁰					
E	4.93	368.05	367.73	C0.38	
W	4.94	368.04	367.73	C0.39	

373.655 = T
6205 -
367.450 = TP
4747
372.19 = T

Station.	R.L.	L	H.L.
2+31.3		4.145 368.598	368.70
+40		4.167 368.578	368.68
+51.3		4.19 368.553	368.65
+60		4.212 368.533	368.633
+71.3		4.237 368.508	368.61
+80		4.255 368.29	368.590
+91.3		4.280 368.263	368.56
3+00		4.302 368.243	368.543
+11.3		4.323 368.22	368.52
+20		4.345 368.20	368.50
+31.3		4.370 368.174	368.47
+40		4.391 368.154	368.45
+51.3		4.416 368.129	368.43
+60		4.435 368.110	368.410
+71.3		4.471 368.084	368.38
+80		4.500 368.065	368.36
+91.3		4.533 368.040	368.34
4+00		4.575 368.020	368.320
+11.3		4.618 367.995	368.300
+20		4.620 367.975	368.28
+31.3		4.643 367.951	368.25
+40		4.665 367.93	368.23
+51.3		4.690 367.905	368.21
+60		4.710 367.885	368.185
+71.3		4.735 367.860	368.16

GRADES SHOWN AT FIRST STAKE

EL	36870	6865	6861	68560	6852	6847	6843	6838
	495J	5085	5045	5095	5127	372	376	381
	595J	7105	7055	6205	765	253	475	470
	-700	-210	-201	111	-938	-81	-999	-691
W	36870	6865	6861	68560	6852	6847	6843	6838
	495J	5085	5045	5095	5127	372	376	381
	7105	6205	7055	6205	499	618	665	562
	-715	-194	-188	163	-132	-246	-229	-181
EL	6834	6830	6825	6821	6816			
	385	389	394	398	403			
	485	467	539	526				
	-100	-78	-145	-128				
W	6834	6830	6825	6821	6816			
	385	389	394	398	403			
	477	458	538	540	529			
	-92	-69	-144	-142	-126			

372.545 = T
3.780 -
368.765 = TP
35304
373.395 = T

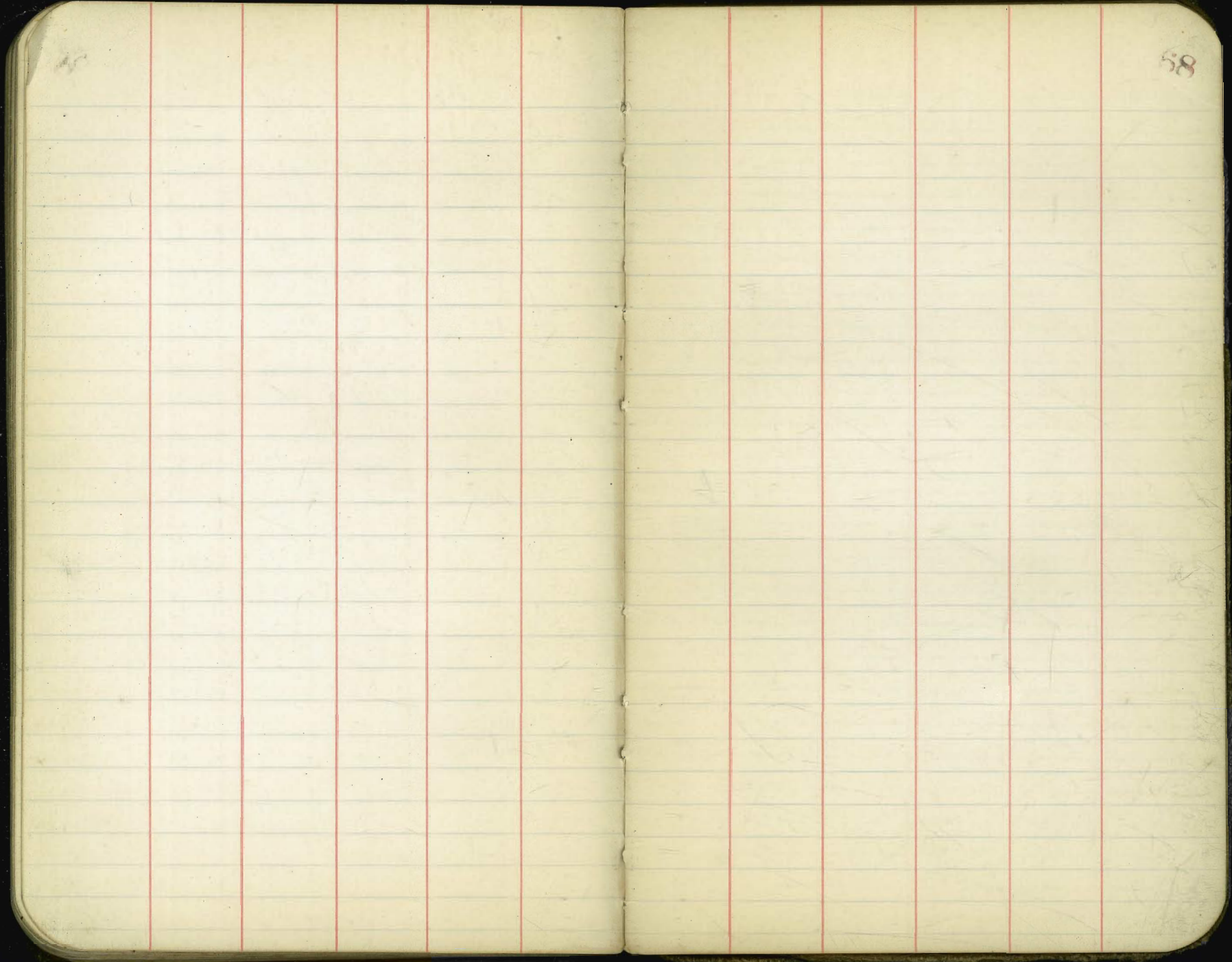
Station	Elev.	L	W.L.
4+80		4.455 367.840	4.155 368.140
4+91.3		4.478 367.815	4.20 368.12
5+00		7.500 367.795	4.20 368.10
4+11.3		4.525 367.770	4.245 368.07
4+20		4.545 367.750	4.245 368.05
4+31.3		4.560 367.735	4.28 368.04
4+40		4.580 367.715	4.28 368.02
4+51.3	367.99	4.605 367.790	4.345 367.99
4+60	4.325 367.970	4.625 367.670	4.345 367.950
4+70.6 = N.E. Road cre.	367.94	4.650 367.645	4.345 367.90

Elev. same as West end

372.19⁺

E	368.12	68.07	68.04	67.99	367.94
	4.07	4.12	4.15	4.20	4.25
			4.36	4.46	
			0.21	0.26	
M	368.18	68.07	68.04	67.99	367.90
	4.07	4.12	4.15	4.20	4.25
	5.03	4.38	4.55	4.42	
	0.96	0.26	0.40	0.22	

372.285⁺ Finish stakes



Bill Bliss
May 27, 1949

Bench Levels El Cajon from
Radio Drive East

BM	11.95	415.72		403.77	S. E. BP	Radio Drive
TP	8.28	423.11	0.89	414.83		
check BM			3.80	419.31	Dayton	TP
TP	8.77	429.95	1.93	421.18		TP
			7.76	422.19	55 th	TP
TP	12.68	442.38	0.25	429.70		TP
BM			4.86	437.77	56 th	67 th St
TP	12.985	454.395	0.47	441.91		TP
TP	12.715	466.850	0.26	454.135		68 th St
BM			9.51	457.340	El Carrito Drive	TP
TP	11.22	477.34	0.73	466.12		69 th St
BM			6.06	471.28	58 th	
TP	3.58	476.96	3.96	473.38		
Set BM	2.59	469.77	9.78	467.18	NE Top	Hy. 59 th
Set BM			1.33	468.94	NE	" Esther
Set BM	1.01	470.53	0.25	469.52	NE Top	Hy. 60 th
Set BM			5.26	465.27	N.W. BP	Gilcher St
check	1.89	468.77	3.65	466.88	NE Top	Hy. "
TP	5.66	470.56	3.87	464.90		
TP	3.61	470.02	4.15	466.91		
check			1.93			
Set BM			4.36	465.66	N.W. BP	63 rd or Catalina Drive
TP	4.23	468.46	5.79	464.23		
Set BM			2.05	466.41	NE Top	Hy. Chocoma
Set BM						
TP	1.17	465.65	3.98	464.48	NE "	" ?
TP	1.05	457.61	9.09	456.56		

+ HI - Eley

957.61

70

check out
on BM SW BP
El Cajon & Bardo
Blvd

check BM
SW BP 67th
Alice

check BM SW
BP Olive: 68th

check out
on BM SW
69th St
B.P. Victoria

10-2-37.

Miller.
Walker.
Bliss.

Bench Marks, El Cajon Blvd.

✓ B.M. B.P.	8.32	465.07		456.75
T.P. set B.M.	11.08	475.83	0.32	464.75
T.P.	9.93	485.02	0.74	475.09
Set B.M.			8.90	476.12
T.P.	12.98	497.44	0.56	484.46
Set B.M. T.P.	12.35	505.11	4.68	492.76
Set B.M.			4.47	500.64
T.P.	13.07	518.07	0.11	505.00
T.P.	12.87	530.80	0.14	517.93
T.P.	5.42	533.66	2.56	528.24
Set B.M.			5.66	528.00

Chk. Levels from above Mon S.W. Cor Lot 6 Blk 16 L.M. Colony

to B.M. B.P. S.W. 67th + El Cajon Blvd. (Error 0.01) arc in

Water Development Field Book # 547.

71

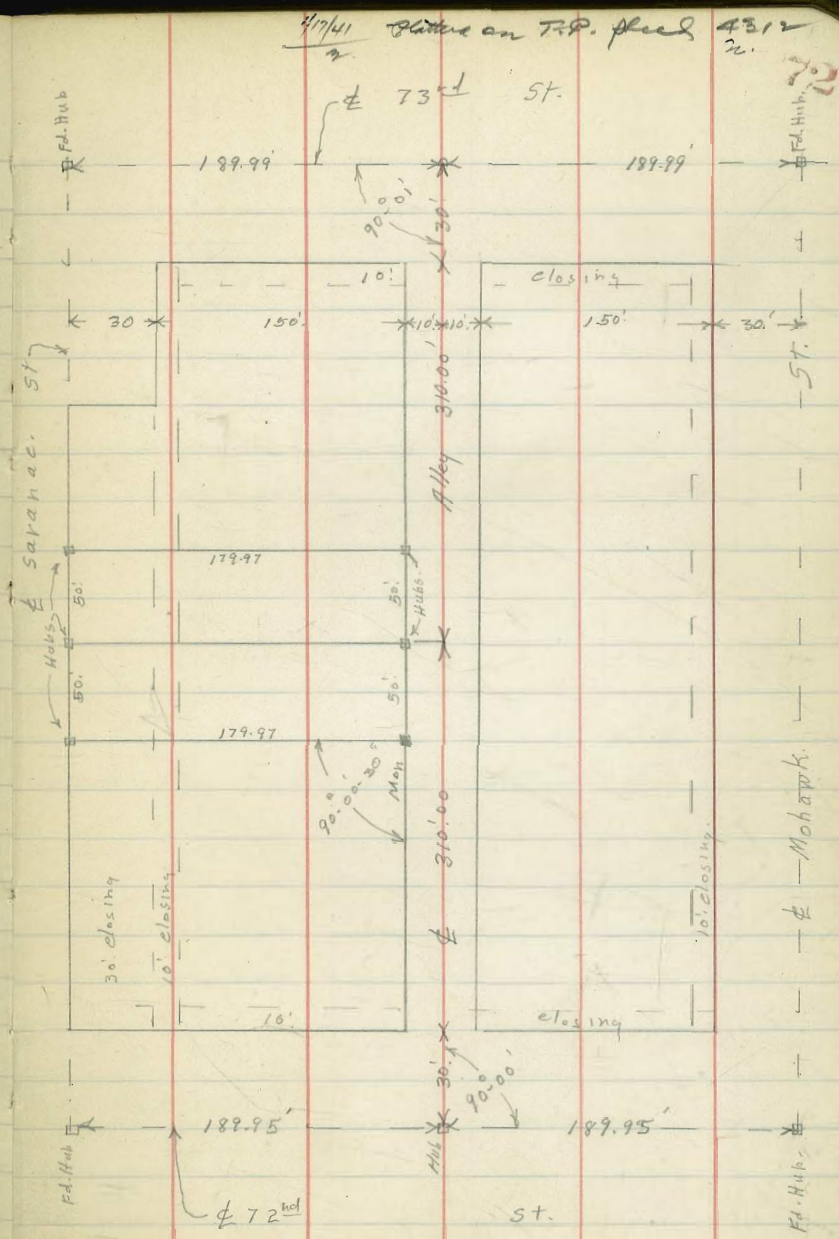
S.W. El Cajon + 69th St (Victoria).S.W. 69th + Mohawk. Top. Fire Hydt.S.E. 70th + Mohawk. Top. Fire Hydt.S.W. 71st + Mohawk. Nails in PoleCtr. 72nd + Mohawk. center Hub.

Mon. S.W. Cor. Lot 6 Blk 16 La Mesa Colony.

10-1-37

Miller
Walker
Bliss

Survey of Lots 6 + 7 BK 16.
La Mesa Colony.



4312
20

Hub

Mohawk

Hub

1/14/29
Bliss

Bench levels for check on
Main Street B.M.s

	+	HI	-	Elev
BM S.E. BP. 36 th + National	10.77	97.77		37.00 ✓
T.P.	5.63	53.15	0.25	47.52
T.P.	0.11	40.17	13.09	40.06
T.P.	0.84	31.16	9.85	30.32
T.P.	0.33	18.54	12.95	18.21
T.P.	9.01	10.18	12.37	6.17
T.P.	6.66	13.44	3.90	6.78
T.P.	9.74	22.28	0.90	12.54
T.P.	5.73	21.34	6.67	15.53

check out
on BM Vestar Main

5.77
15.57
15.52
0.05

Bench Levels on 32nd

	+	HI	-	Elev
BM SW. BP. in Mon. 32 nd Main	5.87	44.46		38.59
T.P.	12.65	55.87	1.24	43.22
T.P. check	7.55	62.77	0.65	55.22
BM N.W. BP. 32 nd + National			1.77	61.00

Bench Levels on National from

32nd East to close Circuit on Main

	+	HI	-	Elev
	0.00	61.01		61.01
T.P.	0.31	48.25	13.07	47.94
T.P.	0.37	35.71	12.91	35.34
T.P.	0.25	23.67	12.29	23.42
check BM SW BP National 32 nd	1.14	12.75	12.06	11.61
T.P.	5.72	11.44	7.03	5.72

R

+ HI 11.94 - Elev

75

check BM SE
BP in Ch 39th National

			9.64	6.80
T.P.	9.87	20.20	1.11	10.33
T.P.	11.06	30.44	0.82	19.38
T.P.	11.97	42.22	0.19	30.25
T.P.	9.87	51.36	0.73	41.49
Set BM S.E. Toply 35 th + National			7.18	94.18 ✓
T.P.	1.12	98.19	4.29	47.07

check BM S.E. BP
National + 36th

11.19 37.00

W.E. Bliss Jan 11/1909
 Duermit
 Jacobson Rod
 Nieman Chain

Bench Levels on Main Street
 from 32nd East

BM SW BP Mon	0.31	38.90		38.59
T.P.	0.21	26.19	12.92	25.98
T.P.	0.29	15.11	11.37	14.82
Set BM East End of Bridge BP on S Side	2.15	7.15	10.11	5.00
T.P.	5.97	6.82	6.30	0.85
Set BM RR Spike in Pole S Side of Main. About 75' West of Notroodle Hump in Main St. Facing close to East Side Co's Robbish dump			3.23	3.59
T.P.	6.16	8.27 12.98	4.71	2.11
T.P.	8.23	13.64	2.86	5.41
Set BM SW BP in Curb Thor & Main			7.02	6.62
T.P.	7.17	17.36	3.95	10.19
check BM NW Bolt Una & Main in Pole			2.83	19.53
Set BM S.E. BP Una & Main			3.90	13.46
T.P.	5.54	18.90	4.00	13.36
check on BM NW B.P. Main & Vesta			3.38	15.52

t.	4.1	-	18.90	Elev	77
check on BM SW SPIKE in Pole Vesta & Main		2.43		16.47	
T.P.	4.36	19.88	3.38	15.52	
T.P.	2.79	13.25	9.42	10.96	
check BM NW BP. West of Main		2.79		10.46	
T.P.	2.91	10.65	5.51	7.74	
check on Mr. Holt's Yema check BM RR spike in Pole NW Yema & Main		4.05		6.60	
		4.07		6.58	
Set BM NW BP Division & Main		1.77		8.88	
T.P.	6.68	13.92	3.91	7.24	
T.P.	8.24	20.29	1.87	12.05	
check on BM NW Main & Vesta		4.75		15.54	
				15.52	
				0.02	

Bench Levels on National to check
 Division Street Circuit

	+	-	Elev.	
BM.	7.06	44.06	37.00	S.E.B.P. 36 th + National
T.P.	4.28	54.16	1.18	42.88
check BM		7.27	46.89	SW 37 th B.P.
T.P.	12.565	66.355	0.37	53.79
T.P.	13.00	78.645	0.71	65.645
check BM		2.12	76.525	S.E. 38 th B.P.
T.P.	7.67	84.87	1.445	77.200
check BM	2.01	85.095	1.835	83.035 SW B.P. 39 th
T.P.	0.59	75.055	10.58	74.465
T.P.	1.435	65.970	10.52	64.535
check BM		0.65	65.32	SW Top of 40 th
T.P.	1.94	57.44	10.42	55.55
T.P.	1.19	46.235	12.445	45.045
check BM		11.085	35.150	N.W. B.P. Boundary + National
T.P.	0.11	33.485	12.86	33.375
T.P.	3.85	30.85	6.485	27.000
T.P.	8.70	37.33	2.22	28.63
T.P.	12.025	44.125	5.23	32.10
T.P.	12.485	55.925	0.685	43.490
T.P.	9.93	64.355	1.50	54.425
T.P.	10.505	72.090	2.77	61.555
check BM		1.40	70.690	SE Top of Newton + Hill ←

1100
101

78

54375
 8/935
 40
 33
 32
 56
 40

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope 1 1/2 to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body

**IMPROVED TABLES
 AND
 INFORMATION**

TABLE No. 2.

To find Tangent and External for curve of any other degree, divide by degree of curve and add connection found in column of connection. Degree of curve with a given L may be found by dividing tangent (or external), opposite L by given tangent (or external). The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope $1\frac{1}{2}$ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. 9.

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections.

Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

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

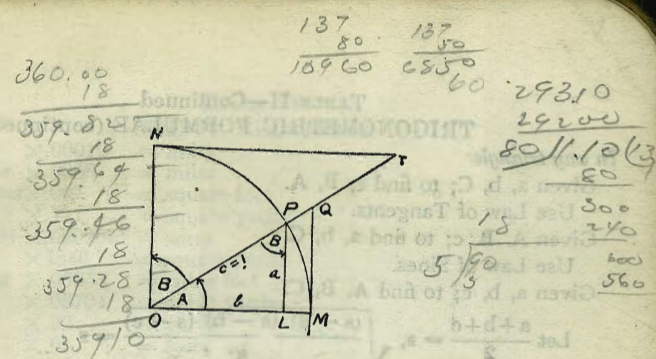


TABLE II
TRIGONOMETRIC FORMULÆ.

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

$$R = OB = c = 1$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Handwritten calculations on the right side of the page, including: 359.80, 359.20, 2.60, 360.80, 389.80, 1.00, 5/60, 359.80, 359.68, 359.56, 359.44, 359.32, 359.20.

TABLE X.
MIDDLE ORDINATES OF RAILS
Length of Rail (feet)

C o /	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch	C o	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch
0-20	17189	.08	.07	.06	.05	.04	.03	8	716.8	1.88	1.64	1.42	1.20	1.01	.84
0-40	8594	.16	.14	.12	.10	.08	.07	9	637.3	2.12	1.84	1.60	1.35	1.14	.94
1-0	5730	.24	.20	.18	.15	.13	.10	10	573.7	2.36	2.05	1.78	1.50	1.27	1.04
1-20	4297	.31	.27	.23	.20	.17	.13	11	521.7	2.59	2.26	1.95	1.65	1.39	1.15
1-40	3438	.39	.34	.29	.25	.21	.17	12	478.3	3.83	2.47	2.15	1.81	1.54	1.26
2-0	2865	.47	.41	.35	.30	.25	.20	13	441.7	3.05	2.66	2.30	1.96	1.66	1.36
2-20	2456	.55	.48	.41	.35	.29	.23	14	410.3	3.30	2.87	2.48	2.10	1.78	1.46
2-40	2149	.63	.55	.47	.40	.33	.27	15	383.1	3.54	3.08	2.68	2.26	1.91	1.57
3-0	1910	.71	.62	.53	.45	.38	.31	16	359.3	3.76	3.28	2.83	2.40	2.04	1.67
3-20	1719	.78	.68	.59	.50	.42	.35	17	338.3	4.00	3.48	3.02	2.57	2.16	1.78
3-40	1563	.86	.75	.65	.55	.46	.38	18	319.6	4.21	3.67	3.18	2.70	2.28	1.87
4-0	1433	.94	.82	.71	.60	.50	.42	19	302.9	4.45	3.89	3.36	2.86	2.41	1.98
4-20	1323	1.02	.89	.77	.65	.55	.45	20	287.9	4.70	4.09	3.55	3.00	2.54	2.09
4-40	1228	1.10	.96	.83	.70	.59	.48	22	262.0	5.16	4.44	3.84	3.30	2.80	2.29
5	1146	1.18	1.03	.89	.75	.63	.52	24	240.5	5.64	4.92	4.20	3.59	3.04	2.50
6	955.3	1.41	1.23	1.06	.90	.76	.62	26	222.3	6.07	5.29	4.58	3.88	3.29	2.70
7	819.0	1.65	1.44	1.24	1.05	.89	.73								

TABLE XI.
SHORT RADIUS CURVES

Radius Feet	Chord Feet	Central Angle	Deflection Angle	Deflection for 1 Foot
35	10	16-26	8-13	49.3
45	10	12-46	6-23	38.3
50	15	17-16	8-38	34.5
60	15	14-22	7-11	28.8
75	15	11-30	5-45	23.0
100	20	11-30	5-45	17.3
120	20	9-34	4-47	14.3
150	20	7-39	3-49	11.5
190	25	7-32	3-46	9.15
200	25	7-10	3-35	8.6
225	25	6-25	3-12	7.7
240	25	5-58	2-59	7.2
250	25	5-44	2-52	6.9
275	25	5-12	2-36	6.2
288	50	9-58	4-59	6.0
300	50	9-32	4-46	5.7
350	50	8-12	4-06	4.9
376	50	7-40	3-50	4.6
400	50	7-10	3-35	4.3
410	50	7-00	3-30	4.2

To find length of curve divide angle from P. C. to P. T. by central angle of chord, and multiply by length of chord.

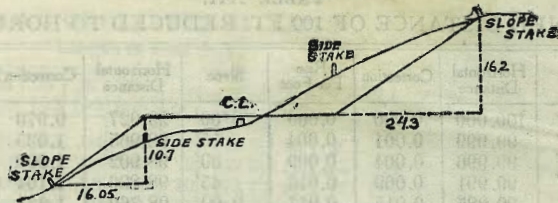
TABLE XII.
INCLINED DISTANCE OF 100 FT. REDUCED TO HORIZONTAL

Slope	Horizontal Distance	Correction	Rise Per Foot	Slope	Horizontal Distance	Correction	Rise Per Foot
0°00'	100.000	0.000	0.000	8°00'	99.027	0.973	0.139
15'	99.999	0.001	0.004	15'	98.965	1.035	0.143
30'	99.996	0.004	0.009	30'	98.902	1.098	0.148
45'	99.991	0.009	0.013	45'	98.836	1.164	0.152
1 00	99.985	0.015	0.017	9 00	98.769	1.231	0.156
15	99.976	0.024	0.022	15	98.700	1.300	0.161
30	99.966	0.034	0.026	30	98.629	1.371	0.165
45	99.953	0.047	0.031	45	98.556	1.444	0.169
2 00	99.939	0.061	0.035	10 00	98.481	1.519	0.174
15	99.923	0.077	0.039	15	98.404	1.596	0.178
30	99.905	0.095	0.044	30	98.325	1.675	0.182
45	99.885	0.115	0.048	45	98.245	1.755	0.187
3 00	99.863	0.137	0.052	11 00	98.163	1.837	0.191
15	99.839	0.161	0.057	15	98.079	1.921	0.195
30	99.813	0.187	0.061	30	97.992	2.008	0.199
45	99.786	0.214	0.065	45	97.905	2.095	0.204
4 00	99.756	0.244	0.070	12 00	97.815	2.185	0.208
15	99.725	0.275	0.074	15	97.723	2.277	0.212
30	99.692	0.308	0.078	30	97.630	2.370	0.216
45	99.657	0.343	0.083	45	97.534	2.466	0.221
5 00	99.619	0.381	0.087	13 00	97.437	2.563	0.225
15	99.580	0.420	0.092	15	97.338	2.663	0.229
30	99.540	0.460	0.096	30	97.237	2.763	0.233
45	99.497	0.503	0.100	45	97.134	2.866	0.238
6 00	99.452	0.548	0.105	14 00	97.030	2.970	0.242
15	99.406	0.594	0.109	15	96.923	3.077	0.246
30	99.357	0.643	0.113	30	96.815	3.185	0.250
45	99.307	0.693	0.118	45	96.705	3.295	0.255
7 00	99.255	0.745	0.122	15 00	96.593	3.407	0.259
15	99.200	0.800	0.126	15	96.479	3.521	0.263
30	99.144	0.856	0.131	30	96.363	3.637	0.267
45	99.087	0.913	0.135	45	96.246	3.754	0.271

TABLE XIII.
MINUTES IN DECIMALS OF A DEGREE.

0 30"	.00833	10' 30"	.17500	20' 30"	.34167	30' 10"	.50833	40' 30"	.67500	50' 10"	.84167
1 00	.01667	11 00	.18333	21 00	.35000	31 00	.51667	41 00	.68333	51 00	.85000
30	.02500	30	.19167	30	.35833	30	.52500	30	.69167	30	.85833
2 00	.03333	12 00	.20000	23 00	.36667	32 00	.53333	42 00	.70000	52 00	.86667
30	.04167	30	.20833	30	.37500	30	.54167	30	.70833	30	.87500
3 00	.05000	18 00	.21667	23 00	.38333	33 00	.55000	43 00	.71667	53 00	.88333
30	.05833	30	.22500	30	.39167	30	.55833	30	.72500	30	.89167
4 00	.06667	14 00	.23333	24 00	.40000	34 00	.56667	44 00	.73333	54 00	.90000
30	.07500	30	.24167	30	.40833	30	.57500	30	.74167	30	.90833
5 00	.08333	15 00	.25000	25 00	.41667	35 00	.58333	45 00	.75000	55 00	.91667
30	.09167	30	.25833	30	.42500	30	.59167	30	.75833	30	.92500
6 00	.10000	16 00	.26667	26 00	.43333	36 00	.60000	46 00	.76667	56 00	.93333
30	.10833	30	.27500	30	.44167	30	.60833	30	.77500	30	.94167
7 00	.11667	17 00	.28333	27 00	.45000	37 00	.61667	47 00	.78333	57 00	.95000
30	.12500	30	.29167	30	.45833	30	.62500	30	.79167	30	.95833
8 00	.13333	18 00	.30000	28 00	.46667	38 00	.63333	48 00	.80000	58 00	.96667
30	.14167	30	.30833	30	.47500	30	.64167	30	.80833	30	.97500
9 00	.15000	19 00	.31667	29 00	.48333	39 00	.65000	49 00	.81667	59 00	.98333
30	.15833	30	.32500	30	.49167	30	.65833	30	.82500	30	.99167
10 00	.16667	20 00	.33333	30 00	.50000	40 00	.66667	50 00	.83333	60 00	1.00000

C	R
o /	Fee
0-20	171
0-40	85
1-0	57
1-20	42
1-40	34
2-0	28
2-20	24
2-40	21
3-0	19
3-20	17
3-40	15
4-0	14
4-20	13
4-40	12
5	11
6	9.5
7	8.1



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.

SLOPE 1 1/2 TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

Computed by L. Leland Locke.

Handwritten calculations and notes on the right page, including various arithmetic problems and slope-related values.

128.92
2.67
136.25
134.66

47.5
17.7
382.5
43.5
840.75
9.41 18

126.15
9.41
134.56
8.55
143.11
8.55
151.66
8.55
160.21

0.71 488
375
2440
3918
1469.1770
1830085500

134.66
8.41
143.07
8.41
151.48
8.41
159.89

190 0.375
23990/090000
71220
131800
167580
142200

97.68
103.75
23840
33376
14304
1788000

95.52
63.75
22700
31864
13656
1707000

To find len

250
 2374A / 06000
 4788
 12120
 11970
 01500

0.5 455
 0.5
 2760
 9104
 1138.00

97.8
 25
 2385
 95.4
 11925

9205
 67.8
 736.40
 6443.5
 5230
 6240990

8829
 53
 26787
 44145
 46.7937

62.41
 46.90
 109.21

300.97.N

Jo. La Mesa 590

438 E/4

146 4667

3 140

8 54.37

128.52

2.67

126.2

28

9399613

46139

BM. S.E. 807.68

3 140

46297

4 30.75

438

28

+ 536

438.05

27

11.78

Top

4 315

12.30

Flow

46228

4.66

457.62

Type G - Curb Inlet

75699 +

90.28

11.28

78.50

6.86

