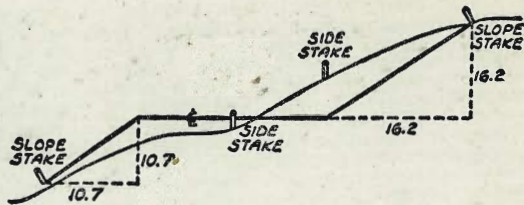






G-387



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING  
SLOPE 1 TO 1. ROADWAY OF ANY WIDTH

	0	.1	.2	.3	.4	.5	.6	.7	.8	9	
0	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0
1	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	1
2	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	2
3	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	3
4	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	4
5	5.00	5.10	5.20	5.30	5.40	5.50	5.60	5.70	5.80	5.90	5
6	6.00	6.10	6.20	6.30	6.40	6.50	6.60	6.70	6.80	6.90	6
7	7.00	7.10	7.20	7.30	7.40	7.50	7.60	7.70	7.80	7.90	7
8	8.00	8.10	8.20	8.30	8.40	8.50	8.60	8.70	8.80	8.90	8
9	9.00	9.10	9.20	9.30	9.40	9.50	9.60	9.70	9.80	9.90	9
10	10.00	10.10	10.20	10.30	10.40	10.50	10.60	10.70	10.80	10.90	10
11	11.00	11.10	11.20	11.30	11.40	11.50	11.60	11.70	11.80	11.90	11
12	12.00	12.10	12.20	12.30	12.40	12.50	12.60	12.70	12.80	12.90	12
13	13.00	13.10	13.20	13.30	13.40	13.50	13.60	13.70	13.80	13.90	13
14	14.00	14.10	14.20	14.30	14.40	14.50	14.60	14.70	14.80	14.90	14
15	15.00	15.10	15.20	15.30	15.40	15.50	15.60	15.70	15.80	15.90	15
16	16.00	16.10	16.20	16.30	16.40	16.50	16.60	16.70	16.80	16.90	16
17	17.00	17.10	17.20	17.30	17.40	17.50	17.60	17.70	17.80	17.90	17
18	18.00	18.10	18.20	18.30	18.40	18.50	18.60	18.70	18.80	18.90	18
19	19.00	19.10	19.20	19.30	19.40	19.50	19.60	19.70	19.80	19.90	19
20	20.00	20.10	20.20	20.30	20.40	20.50	20.60	20.70	20.80	20.90	20
21	21.00	21.10	21.20	21.30	21.40	21.50	21.60	21.70	21.80	21.90	21
22	22.00	22.10	22.20	22.30	22.40	22.50	22.60	22.70	22.80	22.90	22
23	23.00	23.10	23.20	23.30	23.40	23.50	23.60	23.70	23.80	23.90	23
24	24.00	24.10	24.20	24.30	24.40	24.50	24.60	24.70	24.80	24.90	24
25	25.00	25.10	25.20	25.30	25.40	25.50	25.60	25.70	25.80	25.90	25
26	26.00	26.10	26.20	26.30	26.40	26.50	26.60	26.70	26.80	26.90	26
27	27.00	27.10	27.20	27.30	27.40	27.50	27.60	27.70	27.80	27.90	27
28	28.00	28.10	28.20	28.30	28.40	28.50	28.60	28.70	28.80	28.90	28
29	29.00	29.10	29.20	29.30	29.40	29.50	29.60	29.70	29.80	29.90	29
30	30.00	30.10	30.20	30.30	30.40	30.50	30.60	30.70	30.80	30.90	30
31	31.00	31.10	31.20	31.30	31.40	31.50	31.60	31.70	31.80	31.90	31
32	32.00	32.10	32.20	32.30	32.40	32.50	32.60	32.70	32.80	32.90	32
33	33.00	33.10	33.20	33.30	33.40	33.50	33.60	33.70	33.80	33.90	33
34	34.00	34.10	34.20	34.30	34.40	34.50	34.60	34.70	34.80	34.90	34
35	35.00	35.10	35.20	35.30	35.40	35.50	35.60	35.70	35.80	35.90	35
36	36.00	36.10	36.20	36.30	36.40	36.50	36.60	36.70	36.80	36.90	36
37	37.00	37.10	37.20	37.30	37.40	37.50	37.60	37.70	37.80	37.90	37
38	38.00	38.10	38.20	38.30	38.40	38.50	38.60	38.70	38.80	38.90	38
39	39.00	39.10	39.20	39.30	39.40	39.50	39.60	39.70	39.80	39.90	39
40	40.00	40.10	40.20	40.30	40.40	40.50	40.60	40.70	40.80	40.90	40
41	41.00	41.10	41.20	41.30	41.40	41.50	41.60	41.70	41.80	41.90	41
42	42.00	42.10	42.20	42.30	42.40	42.50	42.60	42.70	42.80	42.90	42
43	43.00	43.10	43.20	43.30	43.40	43.50	43.60	43.70	43.80	43.90	43
44	44.00	44.10	44.20	44.30	44.40	44.50	44.60	44.70	44.80	44.90	44
45	45.00	45.10	45.20	45.30	45.40	45.50	45.60	45.70	45.80	45.90	45
46	46.00	46.10	46.20	46.30	46.40	46.50	46.60	46.70	46.80	46.90	46
47	47.00	47.10	47.20	47.30	47.40	47.50	47.60	47.70	47.80	47.90	47
48	48.00	48.10	48.20	48.30	48.40	48.50	48.60	48.70	48.80	48.90	48
49	49.00	49.10	49.20	49.30	49.40	49.50	49.60	49.70	49.80	49.90	49
50	50.00	50.10	50.20	50.30	50.40	50.50	50.60	50.70	50.80	50.90	50

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

MICROFILMED

APR 19 1965

*[Faint, illegible text]*



S.E. Carr 16<sup>th</sup> + B.

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DIRECTIONS FOR USE OF TABLES  
TABLE NO. XIV  
Distance of slope stake from side of roadway  
stake for any width roadway, slope 1% to 10%  
If ground is nearly level the cut or fill at side  
TABLE NO. XV  
To find tangent and lateral for curve of  
any other degree divide by degree of curve and  
add correction found in column of correction  
Degree of curve with a given tangent is found  
by dividing tangent (or external) by  
TABLE NO. XVI  
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

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## IMPROVED TABLES AND INFORMATION

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TABLE XIII—CORRECTIONS FOR TANGENTS AND EXTERNALS

These corrections are to be added to the approximate values, found by dividing the tangent, or external, for a 1° curve (Table VIII) by the degree of curve, in order to obtain the true tangents, or externals. Intermediate values may be obtained by interpolation.

FOR TANGENTS ADD

Central Angle	DEGREE OF CURVE														
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	
10°	.03	.06	.09	.13	.16	.19	.22	.25	.28	.31	.34	.38	.42	.46	
15°	.04	.10	.14	.19	.24	.29	.34	.39	.45	.51	.53	.58	.63	.68	
20°	.06	.13	.19	.26	.32	.39	.45	.51	.58	.65	.72	.79	.84	.90	
25°	.08	.16	.24	.33	.40	.49	.58	.67	.75	.83	.90	.99	1.06	1.14	
30°	.10	.19	.29	.39	.49	.59	.69	.79	.89	.99	1.09	1.20	1.29	1.39	
35°	.11	.22	.34	.47	.58	.69	.79	.81	.92	1.04	1.29	1.42	1.54	1.66	
40°	.13	.26	.40	.53	.67	.80	.93	1.06	1.20	1.34	1.49	1.64	1.79	1.94	
45°	.15	.30	.44	.60	.76	.91	1.06	1.21	1.37	1.52	1.70	1.87	2.04	2.21	
50°	.17	.34	.51	.68	.85	1.02	1.19	1.36	1.54	1.72	1.91	2.10	2.29	2.48	
55°	.19	.38	.57	.76	.95	1.14	1.32	1.52	1.72	1.92	2.14	2.35	2.56	2.77	
60°	.21	.42	.63	.84	1.05	1.27	1.49	1.71	1.94	2.17	2.38	2.60	2.83	3.07	
65°	.23	.46	.69	.93	1.16	1.40	1.64	1.88	2.13	2.38	2.63	2.88	3.13	3.39	
70°	.25	.51	.76	1.02	1.28	1.54	1.80	2.06	2.33	2.60	2.88	3.16	3.44	3.72	
75°	.27	.56	.83	1.12	1.40	1.69	1.98	2.27	2.57	2.87	3.16	3.47	3.78	4.09	
80°	.30	.61	.91	1.22	1.53	1.84	2.15	2.46	2.78	3.10	3.44	3.78	4.12	4.46	
85°	.33	.66	1.00	1.33	1.68	2.02	2.36	2.70	3.05	3.40	3.77	4.14	4.55	4.89	
90°	.36	.72	1.09	1.45	1.83	2.20	2.57	2.94	3.32	3.70	4.10	4.50	4.91	5.32	
95°	.39	.79	1.19	1.55	2.00	2.40	2.80	3.20	3.61	4.02	4.40	4.98	5.38	5.83	
100°	.43	.86	1.30	1.74	2.18	2.62	3.06	3.50	3.95	4.40	4.88	5.37	5.85	6.34	
110°	.51	1.03	1.56	2.08	2.61	3.14	3.67	4.21	4.76	5.31	5.86	6.43	7.01	7.60	
120°	.62	1.25	1.93	2.52	3.16	3.81	4.45	5.11	5.77	6.44	7.12	7.80	8.50	9.22	

FOR EXTERNALS ADD

Central Angle	DEGREE OF CURVE														
	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	
10°	.001	.003	.004	.006	.007	.008	.009	.011	.012	.014	.015	.017	.018	.020	
15°	.003	.007	.010	.014	.018	.023	.027	.029	.032	.035	.039	.043	.047	.051	
20°	.006	.011	.017	.022	.028	.034	.038	.045	.051	.057	.063	.070	.076	.083	
25°	.009	.018	.027	.036	.046	.056	.065	.074	.083	.093	.106	.120	.127	.135	
30°	.013	.025	.038	.051	.065	.078	.090	.103	.116	.129	.149	.170	.179	.188	
35°	.018	.035	.054	.072	.086	.109	.131	.153	.175	.197	.213	.230	.247	.264	
40°	.023	.046	.070	.093	.117	.141	.172	.203	.234	.265	.277	.290	.315	.341	
45°	.030	.060	.093	.119	.153	.184	.216	.254	.289	.325	.351	.378	.411	.445	
50°	.037	.075	.116	.151	.189	.227	.266	.305	.345	.384	.425	.467	.508	.550	
55°	.046	.093	.142	.188	.236	.283	.332	.381	.420	.479	.530	.582	.641	.700	
60°	.056	.112	.168	.225	.283	.340	.398	.457	.516	.575	.636	.697	.774	.851	
65°	.067	.135	.204	.273	.343	.412	.483	.554	.625	.697	.711	.845	.922	1.01	
70°	.080	.159	.240	.321	.403	.485	.568	.652	.735	.819	.906	.994	1.08	1.17	
75°	.095	.182	.286	.383	.480	.578	.678	.777	.877	.977	1.07	1.18	1.29	1.39	
80°	.110	.220	.332	.445	.558	.671	.787	.903	1.02	1.13	1.25	1.38	1.50	1.62	
85°	.128	.259	.391	.524	.657	.790	.926	1.06	1.20	1.34	1.47	1.62	1.76	1.91	
90°	.149	.299	.450	.603	.756	.910	1.07	1.22	1.38	1.54	1.70	1.87	2.03	2.20	
95°	.174	.350	.522	.706	.885	1.06	1.25	1.43	1.62	1.80	1.99	2.18	2.38	2.58	
100°	.200	.401	.604	.809	1.01	1.22	1.43	1.64	1.85	2.06	2.28	2.50	2.73	2.96	
110°	.268	.536	.806	1.08	1.35	1.63	1.91	2.20	2.48	2.76	3.05	3.35	3.66	3.96	
120°	.360	.721	1.08	1.45	1.82	2.19	2.57	2.95	3.33	3.72	4.11	4.50	4.91	5.32	

9.41

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INDEX



Walker  
Taylor  
Hamilton  
Meyer

# BENCH MARKS

SWITZER CREEK STORM DRAIN

from CALBOH PARK

6-7-1957

To SD BAY Plan 3614-D  
To 3627-D

NO 21269

Cont. on P-3

TP #13 71705 7765 ~~7775~~ 742 6394  
~~6421~~

chk again on BM #1 - Iron Pin, see below

TP #12 140 7136 ~~7163~~ 129 6996  
~~7023~~

chk. starting BM OK

TP #11 731 7125 ~~752~~ 6185 6394  
~~6421~~

TP #10 0865 70125 ~~70395~~ 1192 6926  
~~6953~~

-chk. on TP #2

TP #9 005 8118 ~~8145~~ 212 8113  
~~8140~~

chk on BM #2

TP #8 730 8325 ~~8352~~ 1029 7595  
~~7672~~

TP #7 025 8634 ~~8661~~ 569 8609  
~~8676~~

double Hd. - Nail  
in Pole Radio Tower

TP #6 1313 9178 ~~9205~~ 1318 7865  
~~7872~~

BM #3 on Russ Blvd & City Elec. Shop

TP #5 5475 9183 ~~9210~~ 585 8635  
~~8652~~

TP #4 9795 92205 ~~92475~~ 085 8241  
~~8268~~

TP #3 214 8326 ~~8353~~ 023 8129  
~~8156~~

BM #2 chiseled in conc. stop.  
N.E. Cor. Sewer Dept. Bld on A-st.

TP #2 1209 81351 ~~8162~~ 086 6926  
~~6953~~

Guard South  
Nail in Rail End Post opp N end Carpenter shop

TP #1 618 7012 ~~7039~~ 667 6394  
~~6421~~

BM #1 Iron Pin in Conc. Walk 2' N. N. of B-st.  
18' East of cb in Drive Way  
To city Carpenter Shop

TP #0 065 7088 ~~7115~~ 334 6996  
~~7023~~

This same cor But Not Brass Plg.

307 7330 ~~7357~~ 7023  
~~7050~~

BM #5 E. B.P. B-st & 20th  
(BRASS PLG)



BENCH MARKS  
SWITZER CREEK STORM DRAIN

TR # 23	Cont. P-4 5105	875 64.86	2795 3805	765 59.755	BM # 10 NW 7' tack Bredwy. & 13th St.
TR # 22	476	62.560	4975	57.80	N.W. B.P. BM # 9 Bredwy. & 14th St.
TR # 21	594	62.775	5670	56.835	<del>BM # 8</del> Dble. Hd Nail Bredwy & 15th St. SW Pole Bredwy. & 16th St.
TR # 20	680	62.505	5465	55.705	BM # 7 SE DISC. <sup>7' lds</sup> Bredwy. & 16th
TR # 19	388	61.17	732	57.29	
TR # 18	263 2570	64.61 <del>67.55</del>	6565	61.98	Dble Hd Nail BM # 6 Pole NW 16th & C-st.
TR # 17	3660	68.545	10535	64.885	
TR # 16	0105	75.42 75.59	109	75.315 75.585	Dble Hd Nail in Pole BM # 5 N.E. B-st & 16th St
TR # 15	4175	76.405 76.675	340	72.23 72.50	Dble Hd Nail in Pole BM # 4 N.E. B-st & 17th St.
TR # 15		340			
TR # 14	8225	75.63 75.90 71.705 71.975	430	67.405 67.675	TR is on SE Edge Walk S-side - B-st.
	Cont. from P-2				



BENCH MARKS

SWITZER CREEK STORM DRAIN

TP #	019	24235	11735	24,045	
TP #31	019	24235	11735	24,045	
TP #30	0215	35780		35,565	= BM #16
<del>TP #32</del>			2975	14,155	BM #17 S.E. Top Fire Hydr. K ST & 13 <sup>TH</sup>
<del>TP #31</del>	0125	2413	1230	24,005	
TP #30	076	36325	1100	35,565	BM #16 NE 7' tack, J-ST & 13 <sup>TH</sup> ST.
TP #29	013	46,565	2,125	46,435	BM #15 S.E. Top Fire Hydr. ISLAND & 13 <sup>TH</sup>
TP #28	497	48,56	795	43,59	BM #15 = NE 7' tack ISLAND & 13 <sup>TH</sup>
TP #27	381	51,54	748	48,73	BM #14 = PK mail spine MKT E 7' Line 13 <sup>TH</sup> SE COR MKT & 13 <sup>TH</sup>
TP #26	127	56,21	577	54,94	BM #13 SE Top Fire Hydr. G-ST & 13 <sup>TH</sup> ST.
TP #25	4615	60,71	646	56,095	BM #12 NE 7' tack F-ST & 13 <sup>TH</sup>
TP #24	166	62,585	3,98	60,88	BM #11 SE Top F. Hydr. E - 13 <sup>TH</sup>
		64,875			
		64,86			
				60,895	

Cont.



Walker BENCH MARKS  
 Taylor  
 Hamilton SWITZER CREEK STORM DRAIN  
 Meyer  
 6-10-57

5

				0.01	= Elev. by Osborne
TP #36 = chk. on Osbornes BM	589	3.30	3.29		Large DBL #1 W side 13 <sup>th</sup>
					BM #21 Nail in Pole opp 77+63
TP #35	555	9.18	<del>4.59</del> 4.59	3.63	Large Nail in Pole
					BM #20 NE NEWTON AVE & 13 <sup>th</sup>
TP #34	5.24	8.22	6.54	2.98	BM #19 Brass Peg. NE Imp. @ 13 <sup>th</sup>
TP #33	3.30	9.52	8.61	6.22	DBL #1 Nail in Pole
					BM #18 NE 1 <sup>st</sup> & 13 <sup>th</sup>
TP #32	0.62	14.83	10.25	14.21	BM #17 SE Top Fire Hydr. K-ST + 13 <sup>th</sup>
		24.235			
		Cont. from p. 4			



SWITZER CREEK STORM DRAIN  
GRADES - FOR OPEN CHANNEL  
FROM 77+62.10 TO 83+21.85

Walker  
Taylor  
Hamilton  
Mayer 6-24-57  
PLAN # 3624-D 140 21269

	Elev. Stakes	Elev. invert	Cuts	offsets
80 +95	2.50	-777	C 10.27	25' Lt.
80 +50	1.79	-772	C 2.31	"
79 +60	-0.12	-767	C <sup>7.55</sup> 7.79	"
T.P. on stub 79 +00	1.86	-761	C 9.47	"
78 +50	2.01	-756	C 2.57	"
78 +00	2.26	-751	C 9.77	"
+75	2.12	-748	C 9.60	"
Δ 10° 17' 20" } Beg. Open Channel	2.39	-747	C 9.86	"
77+62.10 } End Conc. Box				
Cont. from P. 12		3.29	B.M. # 21 - Page 5	
	2.39	- Elev.	Above stake 77+62.10	



SWITZER STORM DRAIN

OPEN CHANNEL GRADES

	Elev. stakes	Elev. Invert	Cuts.	offsets
83 + 21.85 Top Hd wall	2.40	- 8.06		chk on Invert
83 + <del>20.85</del> <sup>19.35</sup>	1.12	- 8.03	C 9.15	at Conc. Partition on the Iron Plate to Channel
82 + 81.8 = Nail South Edge	4.52	- 7.96	C 12.48	on $\frac{1}{2}$
82 + 69.15 = Δ RT 15° 14'		- 7.94		
TD		- 0.04		
82 + 45	- 5.12	- 7.92	C 2.80	25' Lt
81 + 95	- 1.60	- 7.87	C <del>2.47</del> <sup>6.27</sup>	" "
81 + 45	- 0.39	- 7.82	C <del>8.31</del> <sup>7.43</sup>	" "



SWITZER CREEK DRAIN

BOX CULVERT SECTION

Walker  
Taylor  
Hamilton  
Meyer 6-25-57

GRADES

		Elev. Stake	Elev. Invert	Cuts	Offsets
62+0		<sup>63</sup> 8.64	-3.18	C 11.82	14' Kt
TR		9.53	<del>-</del>		
+75		<sup>18</sup> 9.19	-2.78	C 11.97	19' Kt.
+50		<sup>72</sup> 9.73	-2.37	C 12.10	"
+25		10.12	-1.97	C 12.09	"
61+00		10.60	-1.56	C 12.16	"
+75	162' 0"	11.07	-1.16	C 12.23	"
+50		11.60	-0.75	C 12.35	"
+25		12.17	-0.35	C 12.52	"
60+00		12.77	0.06	C 12.71	"
+74.93		13.03	0.46	C 12.57	"
+50 = 1/2 cleanout		<sup>39</sup> 14.34	0.87	C 13.47	"
59+17 = Beg. Dble		16.61	1.40	C 15.21	"
			14.21	= B.M. #17 - Page 5	

Sta. Top F. Hydts.  
13th + K-st



SMITZER CREEK DRAIN

BOX CULVERT SECTION - GRADES

		Elev. Stake	Elev. Invert	Cuts	offsets
66 + 00		<sup>92</sup> 3.91	-6.31	C 10.22	19' Rt.
+75		<sup>✓</sup> 4.14	-6.28	C 10.42	"
+50		<sup>28</sup> 4.27	-6.26	C 10.52	"
+25		<sup>53</sup> 4.52	-6.23	C 10.75	"
65 + 00	0.10	<sup>✓</sup> 4.86	-6.21	C 11.07	"
+75	0.10	<sup>12</sup> 5.11	-6.18	C 11.29	"
+50		<sup>✓</sup> 5.33	-6.16	C 11.49	"
+25		<sup>60</sup> 5.59	-6.13	C 11.72	"
64 + 00		<sup>✓</sup> 5.20	-6.11	C 11.31	"
63 + 80 - Brk		<sup>25</sup> 5.26	-6.10	C 11.36	"
CHK B.M. #18 - P.S		6.22	✓		
T.P		6.04			
+50		<sup>15</sup> 6.16	-5.61	C 11.77	"
+25		<sup>49</sup> 6.50	-5.21	C 11.71	"
63 + 00	1.62	<sup>96</sup> 6.27	-4.80	C 11.77	"
+75		<sup>27</sup> 7.28	-4.40	C 11.68	19' Rt.
+50		<sup>✓</sup> 7.69	-3.99	C 11.68	14' Rt.
62 + 25		<sup>16</sup> 8.17	-3.59	C 11.76	14' Rt.



## BOX CULVERT SECTION ; - GRADES

		Elev. Stake	Elev. Invert		offsets
70+00		<del>2.99</del> 2.98	-6.71	C 9.70 9.69	19' R.L.
+75	Recheck	<del>2.84</del> 2.82	-6.68	C 9.52	" 69+80 - 8' clearance
+50		2.64 <del>2.63</del>	-6.66	C 9.30	"
+26		<sup>73</sup> 2.74	-6.63	C 9.37	"
69+00		<sup>48</sup> 2.47	-6.61	C 9.08	"
+75		<sup>35</sup> 2.33	-6.58	C 8.91	"
+50		<sup>78</sup> 2.76	-6.56	C 9.32	"
+25		<sup>15</sup> 3.14	-6.53	C 9.67	"
68+00		<sup>61</sup> 3.60	-6.51	C 10.11	"
+75		<sup>24</sup> 3.23	-6.48	C 9.71	"
+50		<sup>✓</sup> 2.66	-6.46	C 9.12	"
+25		<sup>✓</sup> 3.07	-6.43	C 9.50	"
67+00		<sup>✓</sup> 3.27	-6.41	C 9.68	"
+75		<sup>44</sup> 3.43	-6.38	C 9.81	"
TR		3.66	-6.36		
+50		<sup>✓</sup> 3.58	-6.36	C 9.94	"
66+2.0		<sup>✓</sup> 3.83	-6.33	C 10.16	"



SWITZER CREEK STORM DRAIN  
BOX CULVERT SECTION - GIGADES

	El. stake 400	El. invert	Cuts	offsets
74+32.24 = ART. 5°04'30	4.01	-7.14	C 11.15	19' RT
74+00	3.88 <sup>✓</sup>	-7.11	C 10.99	✓
check BM #20-P-5	3.63 <sup>✓</sup>	-7.08		
+75	<sup>38</sup> 3.39	-7.08	C 10.47	✓
+50	<sup>47</sup> 3.48	-7.06	C 10.54	✓
73+25	<sup>42</sup> 3.43	-7.03	C 10.46	✓
+97.42	<sup>30</sup> 3.31	-7.01	C 10. <sup>32</sup> <del>34</del>	✓
+75	3.33	-6.98	C 10.31	✓
+50	3.46	-6.96	C 10.42	✓
+30.31	3.53	-6.94	C 10.47	✓
72+0	3.64	-6.91	C 10.55	✓
+75	3.79	-6.88	C 10.67	✓
+50 = TP	3.76 <sup>✓</sup>	-6.86	C 10.62	✓
+25	<sup>87</sup> 3.86	-6.83	C 10.69	✓
71+00	<sup>83</sup> 3.82	-6.81	C 10.63	✓
+75	<sup>59</sup> 3.58	-6.78	C 10.36	✓
+50	3.47 <sup>✓</sup>	-6.76	C 10.23	✓
70+25	<sup>16</sup> 3.14	-6.73	C 9.87	✓

Note Grade

at 71+46 = -6.85  
" 75+24 = -7.20

Change Grade to this  
To fit Pour at these Sta.  
- Walker  
9-21-57



SWITZER CREEK STORM DRAIN  
BOX CULVERT SECTION - GRADES

170

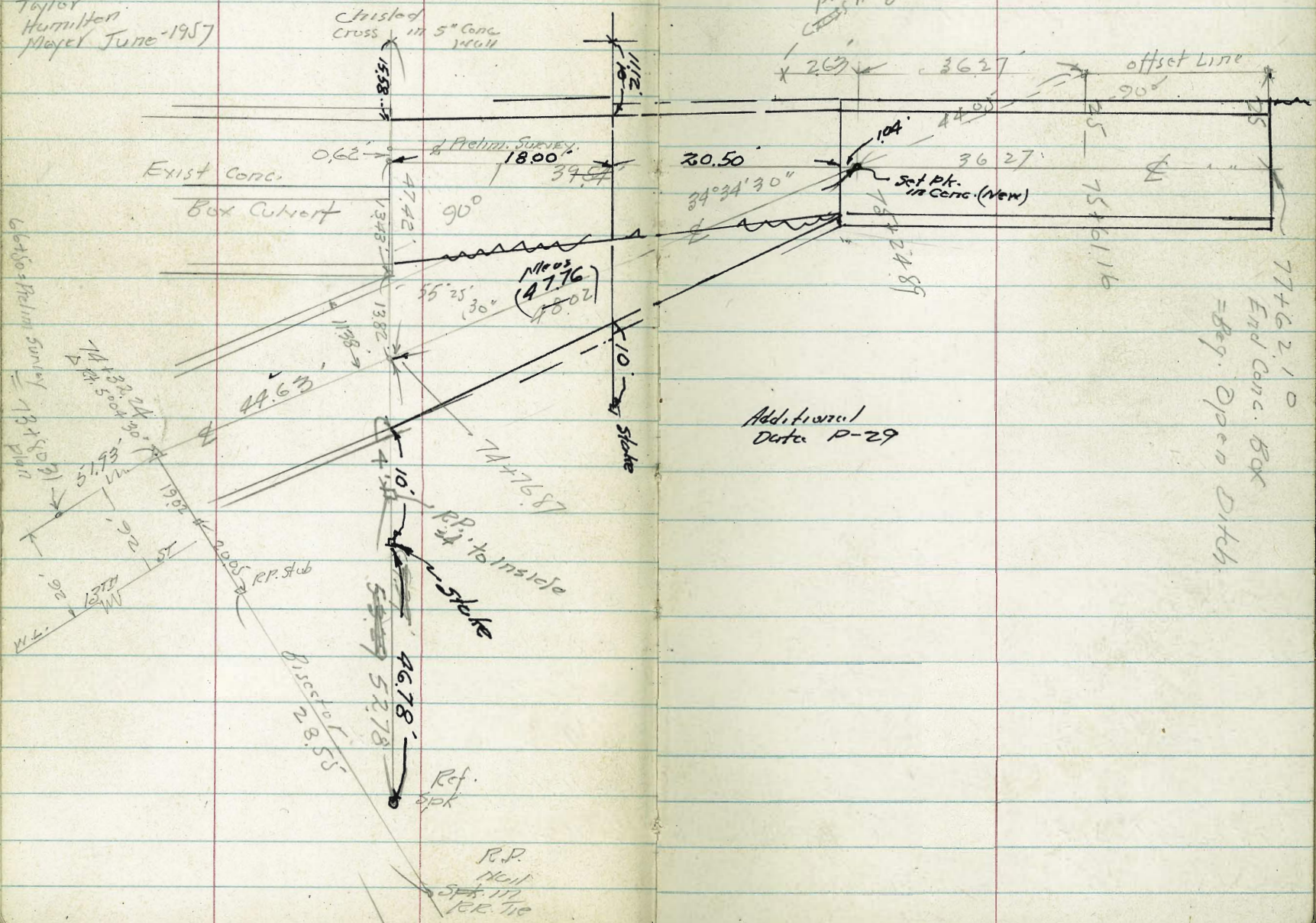
		Files stake	Files invert	Cuts	offsets
Cont. P. 6 at	0°17'20"				
	Big. Open Ditch.				
77 + 62.10	and Conc. Box	2.40	-7.47	C 9.87	2.5 ft.
+50		<sup>84</sup> 2.85	-7.46	C 10.31	"
+25		<sup>99</sup> 3.00	-7.43	C 10.43	"
77 + 00		<sup>04</sup> 3.05	-7.41	C 10.46	"
+75		<sup>07</sup> 3.08	-7.38	C 10.46	"
+50		<sup>35</sup> 3.36	-7.36	C 10.72	"
+25		<sup>31</sup> 3.32	-7.33	C 10.65	"
76 + 00		<sup>26</sup> 2.27	-7.31	C 9.58	"
+75		<sup>29</sup> 2.62	-7.28	C 9.97	"
+61.16		<sup>12</sup> 3.13	-7.27	C 10.40	"
+24.89	Sketch P. 13 - Δ Rt. 34°34'30"	<sup>23</sup> 3.24	-7.23	C 10.47	"
75 + 00		<sup>60</sup> 4.61	-7.21	C 11.82	19' Rt.
+76.87		<sup>53</sup> 4.53	-7.18	C 11.71	"
74 + 50		<sup>74</sup> 4.25	-7.16	C 11.41	"



# SWITZER CREEK STORM DRAIN

## TRANSITION BOX-TIE OUTS.

Walker  
Taylor  
Hamilton  
May 1957



Additional  
Data P-29

77+6.210  
End Conc. Box  
= Beg. Open Ditch

R.P.  
No. 1  
5/17  
Tie



8-2-57

SMITZER DRAIN

Lt.

L

Rt. 14

Mulker  
Taylor  
Stucky  
Major

LEVELS FOR FINISH GRADE  
IN DITCH  
FROM 75+2489 TO 77+6210 = END  
BOX.

76+00<sup>25</sup>

-7.33 - Finish  
-7.97  
F 0.64

76+00  
75+75

-7.31  
-8.38 ✓  
F 1.07

+75

7.28

Reset  
-7.28 -7.28  
-8.23 -8.55  
F 0.95 F 1.27

75+50

8-13-57  
Reset  
-7.26 -7.26  
-8.96 -8.61  
F 1.70 -1.35

T.P.

-3.075 =

75+50<sup>24.89</sup> Cont.

-7.23 -7.23  
-6.05 -3.08  
0.118 0.915

T.P.

0.33

14.77  
Nail

75+2489 = Ditch

3.23

Stub  
= 25' Lt 75+2489

Reset  
-7.23  
-6.79  
0.044

75+23 = Temp stake 1.9' N Angle pt



77 + 62.10

~~+50~~

~~50~~  
+27

77 + ~~25~~  
20

77 + ~~00~~  
75

+50 75

76 + ~~50~~  
25

Lt.

L

15. 15

- 747 } chk  
- 748 }

- 746 = 1  
- 9.98  
F2.52

- 743  
- 9.69  
F2.26

- 741  
- 9.45  
F2.04

- 738  
- 8.60  
F1.22

- 736  
- 8.57



SWITZER DRAIN - INVERT GRADES

Walker  
Whipple  
Meyer  
Barnes

to Bottom of Ditch

8.14.57 - am.

		El. of Nail	El. invert		offset
69 + 42.29	+0.72	-4.34	-6.65	C 2.31	Nail overhead
7.12 69 35.17	+0.73	-4.33	-6.64	C 2.31	" " "
6.59 69 + 29.58	+0.60	-4.46	-6.63	C 2.17	" " "
6.84 69 + 21.74	+0.56	-4.50	-6.63	C 2.13	" " "
7.07 69 + 14.67	+0.76	-4.30	-6.62	C 2.32	" " "
7.11 69 + 07.49 69 + 23	+0.78	-4.28	-6.61	C 2.33	" " "
6.41 69 + 01.08	+0.91	-4.15 -6.61	-6.61	C 2.46	" " "

0.51 - 5.06 13.29 - 5.57

5.25 2.97

4.74 7.72 2.98

chk 69+00 19' RT - P. 10

B.M. #19 P-5 B.P. NE. Imp. Area to 13th



Sec 17-18

+84.6

+70.6

+56.6

+42.6

+28.6

+14.6

69+01



Walker  
Whipple  
Meyer  
8-20-57

SWITZER DRAIN

FINISH GRADES

Lt.  
1038  
= Nail

2

Ft. 18

70+12.6

-6.72  
-3.97  
C 2.75

-6.72  
-4.03  
C 2.69

67+98.6

-6.71  
-3.21  
C 2.80

-6.71  
-4.14  
C 2.57

+84.6

-6.69  
-4.19  
C 2.50

-6.69  
-4.11  
C 2.58

+70.6

-6.68  
-4.30  
C 2.38

-6.68  
-4.25  
C 2.43

+56.6

-6.67  
-4.05  
C 2.62

-6.67  
-4.21  
C 2.46

+42.6

-6.65  
-4.26  
C 2.39

-6.65  
-4.06  
C 2.59

+28.6

-6.64  
-4.02  
C 2.62

-6.64  
-3.57  
C 3.07

+14.6

-6.62  
-3.92  
C 2.70

-6.62  
-3.49  
C 3.13

67+00.6

-6.61  
-4.00  
C 2.61

-6.61  
-3.67  
C 2.92

0.74 -2.73 -1.140 -3.47  
4.95 7.93 2.98  
x

-NE.B.P. Imp 113th



SWITZER DRAIN  
FINISH GRADES

Elev

70+50 5.15 -6.73  
 70+54.6 10.38 Rt. 2.12 -3.70  
 70+54.6 10.38 Lt. 1.91 -3.49  
 69+98.6 5.22 -6.80  
 Ck. on Cut Nail P-18  
 69+98.6 2.35 -3.93  
 Ck. B.M. 69+47 5.10 -6.68  
 69+08.6 5.07 -6.65  
 T.P. 4.22 -1.58K 13.08 -5.80  
 4.30 7.28  
 \* 2.98 = B.M. B.P.

= Chk. Exist Form

See Grade Change  
 Chk Exist Conc Floor To Meet this P-20

Flow  
 NLY END Exist Conc. Pour.

NE Imp + 13th

69+47± Lt. Wall Lt Box  
 P.K. Conc Floor -6.68 = T.P. = B.M.

70+61.6

-6.77  
~~-3.61~~  
 C3.16 -6.77  
~~-3.47~~  
 C3.30

+54.6

-6.76  
~~-3.63~~ -34  
~~-3.17~~ -3.70 -3.49  
 3.27

+40.6

-6.74  
~~-3.68~~  
~~-3.06~~ -6.74  
~~-3.58~~  
~~-3.16~~

70+26.6

-6.73  
~~-3.74~~  
 C2.99 -6.73  
~~-3.54~~  
 3.19

1.46 -2.75 11.41 -4.21

4.22 7.20  
 \* 2.98

NE B.P. Imp + 13th

Lt.  
 10.38

Rt.

Lt.  
 10.38

Rt.  
 19



SWITZER DRAIN  
FINISH GRADES

Lt  
1038

±

Rt.  
1038

20

71 +17.45

-6.80

71 +05.35

-1.97  
3.55

-6.80=11N+H  
-3.55  
C 3.25

-6.80=11N+H -2.60  
-4.18=11N+H -4.18  
C 2.62

7 70 +97.33

-2.03 Red  
-3.61

-6.80  
-3.61  
C 3.19

-6.80  
-3.94  
C 2.86

-2.36  
-3.94

70 +89.42

-1.92  
-3.50

-6.80  
-3.50  
C 3.30

-6.80  
-3.73  
C 3.07

-2.15  
-3.73

70 +77.6

-1.89  
-3.47

-6.80  
2.27  
C 3.33

-6.80  
-3.67  
C 3.11

-2.11  
-3.67

70 +61.6

1.91  
-3.47

-6.80  
-3.47  
C 3.31

-6.80  
-3.78  
C 3.02

-2.20  
-3.78

70 +54.6

-1.91  
-3.47

-6.80  
-3.47  
C 3.31

-6.80  
-3.69  
C 3.11

-2.11  
-3.69=Fl.

70 +50

1.91  
-3.47

-6.80

-1.587

Note: Grade Flat 70+50 to 71+17.5  
To Meet Exst. Paved Corc. 69+98.6 P19



Wulter SWITZER DRAIN  
 Schelin FINISH GRADES  
 Mejer  
 Burnes 8-30-57

Lt  
 1038

+

Rt. (2)

69 + 06

Exist Floor  
 - 6.65

69 + 00

- 0.70  
 3.65  
~~6.63~~  
 C 2.95

- 6.63

- 0.67  
 - 3.62  
 6.63  
 C 3.01

68 + 84

- 3.63  
 - 6.61  
 C 2.98

- 6.61

- 0.74  
 - 3.69  
 - 6.61  
 C 2.92

68 + 67

- 0.56  
 3.51  
 6.58  
 C 3.07

- 6.58

0.77  
 - 3.72  
 - 6.58  
 C 2.86

68 + 53

- 0.60  
 - 3.55  
 - 6.56  
 C 3.01

- 6.56

- 0.74  
 - 3.69  
 - 6.56  
 C 2.87

3.73 - 2.95 - 6.68  
 \*



Wulker  
Meyer  
Burnes  
9-5-27

SWITZER DRAIN  
FINISH GRADES

67 +18

11.34<sup>v</sup>  
-3.05

11.53<sup>v</sup>  
-3.24

-643 = invert  
-3.05 = 11.41  
C 3.38

10.38  
-643 = invert  
-3.24 = 11.41  
C 3.19

67 +09

11.50<sup>v</sup>  
-3.21

11.75<sup>v</sup>  
-3.46

-641  
-3.21  
C 3.20

-641  
-3.46  
C 2.95

66 +95

46  
11.47<sup>v</sup>  
-3.17

11.61<sup>v</sup>  
-3.32

-640  
-3.17  
C 3.23

-640  
-3.32  
C 3.08

+79

11.80<sup>v</sup>  
-3.51

11.67<sup>v</sup>  
-3.38

-639  
-3.51  
C 2.88

-639  
-3.38  
C 3.01

+64

11.17<sup>v</sup>  
-2.88

11.33<sup>v</sup>  
-3.04

-637  
-2.88  
C 3.49

-637  
-3.04  
C 3.33

+48

10.94<sup>v</sup>  
-2.65

11.14<sup>v</sup>  
-2.85

-636  
-2.65  
C 3.71

-636  
-2.85  
C 3.51

66 +32

10.84<sup>v</sup>  
-2.55

11.16<sup>v</sup>  
-2.87

-634  
-2.55  
C 3.77

-634  
-2.87  
C 3.47

5.31 8.29  
19.124  
chk. 67+100 - P-10  
5.28 8.26

2.98 = B.M.  
3.27  
3.26

2.98 = B.M. N.E.B.P. Imp. 813+4

4 2  
10.38 10.38



Walker  
Meyer  
Burnes  
7-5-57

SWITZER DICHAIN

23

+53       $\frac{117}{-335}$

$\frac{1132}{-3.70}$

-656  
~~-358~~  
C 3.01

-656  
~~3.70~~  
C 2.86

+39       $\frac{1170}{-408}$

$\frac{1179}{-4.17}$

-655  
-408  
C 2.47

-655  
-4.17  
C 2.38

+28       $\frac{1186}{-424}$

$\frac{1188}{-4.26}$

-653  
~~-424~~  
C 2.29

-653  
~~-4.26~~  
C 2.27

68+14       $\frac{1261}{-4.99}$

$\frac{1224}{-4.62}$

-652  
-499  
C 1.58

-652  
-4.62  
C 1.90

464

7.62 T

2.98 - B.M.

NE BP Imp 413



## SWITZER DRAIN

LH

L

Rt. 24

9-5-57

## FINISH GRADES

Walker  
Meyer  
Burnes

71 + 41	12.43 - 3.49	12.60 - 3.66	- 6.85 = Invert - 3.49 C 3.36	- 6.85 = Invert. - 3.66 C 3.19
71 + 34	12.48 - 3.54	12.70 - 3.76	- 6.85 - 3.54 C 3.31	- 6.85 - 3.76 C 3.09
71 + 23	12.36 - 3.42	12.62 - 3.68	- 6.84 - 3.42 C 3.42	- 6.84 - 3.68 C 3.16
71 + 13	12.51 - 3.57	12.90 - 3.76	- 6.83 - 3.57 C 3.26	- 6.83 - 3.96 C 2.87
71 + 01	12.52 - 3.58	13.15 - 4.31	- 6.82 - 3.58 C 3.24	- 6.82 - 4.21 C 2.61
End Exist conc. 70 + 94	15.71 - 6.77 Exist conc.	15.26 - 6.82	- 6.77 = Exist invert	- 6.82 = Exist. invert
chk 19' RT 71 + 25 P-11	5.07	3.87		
	5.15 8.94 x	3.79 - BM	19' RT 71 + 75 P-11	



Walker  
Meyers  
Burnes

SWITZER DRAIN - FINISH GRADES

Lt.

2

Rt. 25

9-6-57

66+32 = P-22

1084 Rods  
-2.58

1116 Rods  
-2.90

-6.34  
-2.68  
C 3.76

-6.34  
2.90  
C 3.44

+24

1116  
-2.90

1149  
-3.23

-6.33  
-2.90  
C 3.43

-6.33  
-3.23  
C 3.10

66+08

1135  
-3.09

1126  
-3.00

-6.32  
-3.09  
C 3.23

-6.32  
-3.00  
C 3.32

+76

1091  
-2.65

1109  
-2.83

-6.30  
-2.65  
C 3.65

-6.30  
-2.83  
C 3.47

+76

1075  
-2.49

1107  
-2.81

-6.28  
-2.49  
C 3.79

-6.28  
-2.81  
C 3.47

+60

1089  
-2.63

1141  
-3.21

-6.27  
-2.63  
C 3.64

-6.27  
-3.21  
C 3.06

65+44

1075  
-2.49

1153  
-3.27

-6.26  
-2.49  
3.77

-6.26  
-3.27  
C 3.79

5.28

8.26  
π

2.98



SWITZER DRAIN  
 WALKER  
 MEYER  
 BURTONS  
 KELLEY  
 INVERT GRADES  
 177 Ditch

Lt.  
 1038

2

Rt. 26  
 1038

	Lt.	Rt.		
65 + 44	1156 Rod - 2.80	1233 - 3.27	- 626 = Invert - 2.59 C 276	- 626 = Invert - 3.27 C 299
65 + 35.4	1082 - 1.76	1109 - 2.03	- 624 - 1.76 C 448	- 624 - 2.03 C 421
65 + 19.4	1172 - 2.66	1189 - 2.83	- 623 - 2.66 C 357	- 623 - 2.83 C 340
65 + 04.4	1166 - 2.60	1169 2.63	- 621 - 2.60 C 361	- 621 - 2.63 C 358
64 + 88.4	1182 - 2.76	1218 - 3.09	- 619 - 2.76 C 343	- 619 - 3.09 C 310

6.085 - 9.06

298 - 5M.

NE Imp. 8 1/2



SWITZER DRILL

Invert Grades

Walker  
Meyer  
Bartles  
9-13-57  
am.

chk on 1329  
64+884=P26-2.75

1363  
-3.09 ✓

-6.19  
-?

-6.19

+73  
12.66  
-2.12

12.90  
-2.36

-6.18  
-2.12  
C 4.06

-6.18  
-2.36  
C 3.82

+57.5  
1305  
-2.51

1307  
-2.53

-6.16  
-2.51  
C 3.65

-6.16  
-2.53  
C 3.63

+40.5  
12.91  
-2.37

12.72  
-2.38

-6.15  
-2.37  
C 3.78

-6.15  
-2.38  
C 3.77

64+245  
12.71  
-2.17

12.90  
-2.36

-6.13  
-2.17  
C 3.96

-6.13  
-2.36  
C 3.77

chk 64+25=19/107-P-9 494 560 ✓

422 10.54  
n

6.22

B.M. #18-P-5

lt  
10.38'

2

lt 27  
10.38'



SWITZER DRAIN

INVERT GRADES

St.  
10.38'

St.  
1038

28

Mulker  
Meyer  
Barnes  
9-13-57  
Ann.

chk 19' at C3+00 P-9

536  
697 OK

- 4.85 = Invert

94  
62 +97

1253  
-0.20

12.66  
-0.33

- 4.70  
- 0.20  
C 4.50

- 4.70  
- 0.33  
C 4.37

79  
+82

1251  
-0.18

12.78  
-0.45

- 4.46  
- 0.18  
C 4.28

- 4.46  
- 0.45  
C 4.01

+67

1408  
-1.75

1393  
-1.60

- 4.22 - 4.22  
- 1.75 - 1.67  
C 2.47 C 2.75

- 4.22  
- 1.60  
C 2.62

53  
62 +56

1422  
-1.89

1453  
-2.20

- 4.04 = P-35  
- 1.89  
C 2.15 - ~~35~~ Resd  
P-35

- 4.04  
- 2.20  
C 1.84

62

62 +50

Cont. P-25

- 3.99 = Page 9

Reset  
See Mem  
Cut P-35

6.11

12.33

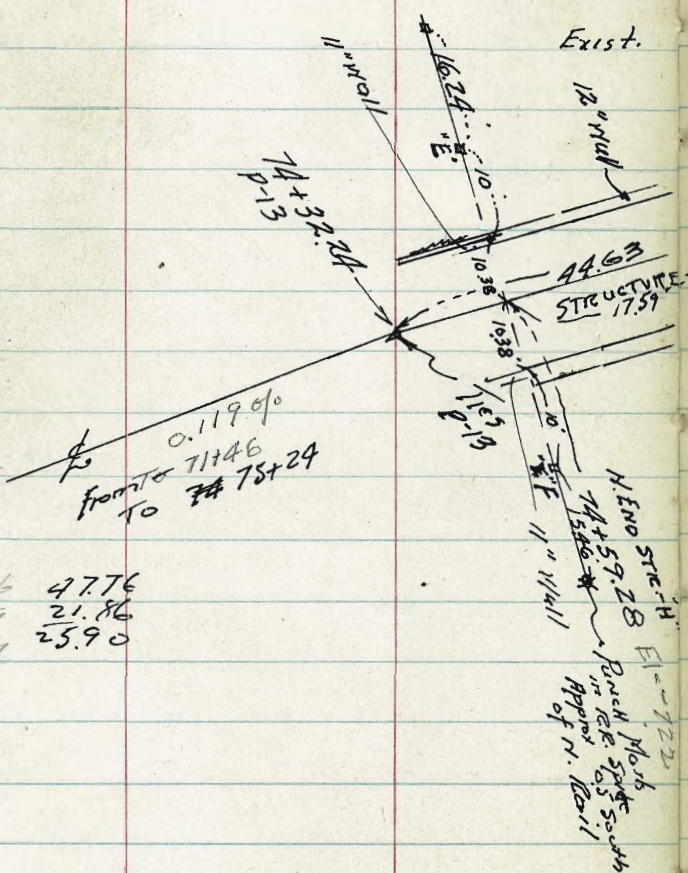
6.22

B.M. #18 - P-5



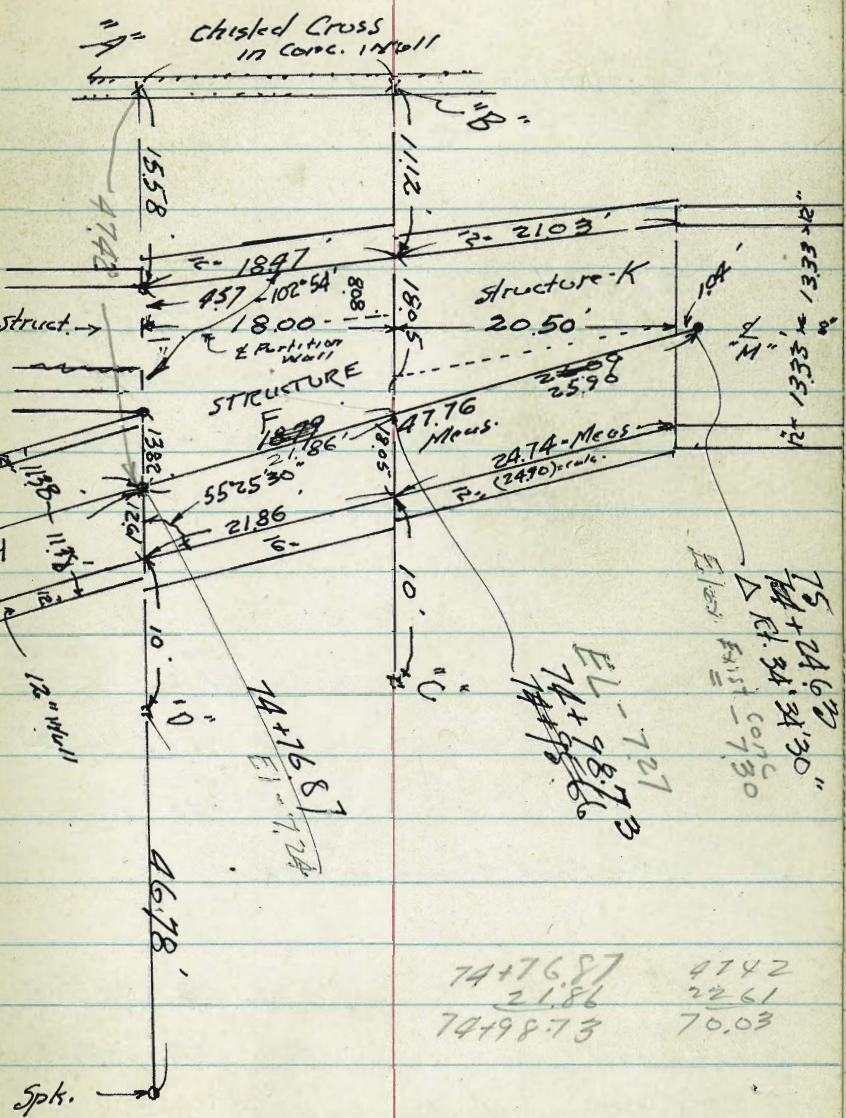
SWITZER DRAIN

TIE STRUCTURE F-K  
GRADES P-30



17.76 47.76  
18.79 21.86  
28.97 25.90

HEND ST. H  
E1-722  
Purch. Prop.  
in the site south  
Approx. of N. Wall



74+76.87 47.42  
21.86 22.61  
74+98.73 70.03



Walker  
Whipple  
Meyer  
Barnes  
8-23-57

# Spritzer Drain

30

## Grades - Structures

"F" - "K"

74+76.87 27.25' Lt of E  
 Chk. East Box End curvrt -488 -6.98  
 -5.19 -7.29  
 1.05 -2.10 -12.22 -3.15  
 5.78 9.07 3.29 B.M.

74+28± 13' Rct.  
 set B.M. Pk in Conc. Floor structure 19.

	Elev Ref-stake	Elev. Invert	Cuts.	offsets
--	-------------------	-----------------	-------	---------

"C"	5.76	4.55 -7.21	11.76	10' Rct. of inside Edge Box. = stake
-----	------	------------	-------	--------------------------------------

"B"	5.72	4.59 -7.21	11.80	11.12 Lt. " " " = chisled X in Wall
-----	------	------------	-------	-------------------------------------

9873  
 74+95.66 = Int. Structure F & K

"D"	5.94	4.37 -7.18	11.55	10' Rct. of " " " = stake
-----	------	------------	-------	---------------------------

"A"	5.69	4.62 -7.18	11.80	15.58 Lt. " " " = chisled Cross in Wall
-----	------	------------	-------	---

74+76.87 = Int. Structure F & H

7.02 10.31

3.29

B.M. 721-P-5



SWITZER DRAIN

Walker  
Moyer

STRUCTURE H - GRADES

Barnes  
Kelley  
9-10-1957

Sketch P-29

429 224  
472 381

490 853 363

chk stake "D" - P-30 = 4.37 ✓

	EL.	EL.	Cuts.	offsets
	Stakes	Invert		
"F"	4.25	- 7.17	11.42	10' <sup>10'</sup> inside Edge Box.
"E"	3.85	- 7.17	11.02	10' <sup>4'</sup> " " "

74 + 59.28 = Req. Structure "H"

3.63 = 817 #20 P-5



Spritzer Drain - Invert  
Walker  
Kelley  
Hoyer  
9-17-57

Structure F-K

74+98.73 = NL structure 15

74+76.87 = NL " F

729

B.M. = P.K. P-30

2

33

- 7.21 = Invert  
- 5.82  
F 1.39

- 7.18 = Invert.  
6.03  
F 1.15











SWITZER DRAIN

47

2

RT 25

Walker  
Kelley  
Meyer  
9-17-1957

INVERT GRADES

CHK 14 RT 62+25-P-9

241  
817 ✓

RT

62+53	12.48 -1.90	12.72 -2.14	-4.04 -1.90 C 2.14	-4.04 -2.14 C 1.90
62+40	12.12 -1.54	12.05 -1.47	-3.83 -1.54 C 2.29	-3.83 -1.47 C 2.36
62+28	12.50 -1.92	12.50 -1.92	-3.63 -1.92 C 1.71	-3.63 -1.92 C 1.71
62+16	12.36 -1.78	12.29 -1.71	-3.44 -1.78 C 1.66	-3.44 -1.71 C 1.73
62+04.5	12.13 -1.55	11.87 -1.29	-3.25 -1.55 C 1.70	-3.25 -1.29 C 1.96
62+00			-3.18 = P-8	-3.18

1.620%

4.36    10.58  
5.70    11.92  
          x

6.22

B.M. #18 P-5



Walker  
Keller  
Meyer  
Guddey 9-20-57

SMITZER DRAIN  
INNER GRADES

L1

E

TOT 36

62+04.5=P.35	$\begin{array}{r} 14.27 \\ -1.58 \\ \hline \end{array}$	$\begin{array}{r} 14.00 \\ -1.31 \\ \hline \end{array}$	$\begin{array}{r} -3.25 \\ -1.58 \\ \hline C 1.67 \end{array}$	$\begin{array}{r} -3.25 \\ -1.31 \\ \hline C 1.94 \end{array}$
+93.2	$\begin{array}{r} 14.25 \\ -1.56 \\ \hline \end{array}$	$\begin{array}{r} 14.11 \\ -1.42 \\ \hline \end{array}$	$\begin{array}{r} -3.08 \\ -1.56 \\ \hline C 1.52 \end{array}$	$\begin{array}{r} -3.08 \\ -1.42 \\ \hline C 1.66 \end{array}$
+76.8	$\begin{array}{r} 12.51 \\ 0.18 \\ \hline \end{array}$	$\begin{array}{r} 12.54 \\ 0.15 \\ \hline \end{array}$	$\begin{array}{r} -2.81 \\ 0.18 \\ \hline C 2.99 \end{array}$	$\begin{array}{r} -2.81 \\ 0.15 \\ \hline C 2.96 \end{array}$
+60.9	$\begin{array}{r} 12.50 \\ 0.19 \\ \hline \end{array}$	$\begin{array}{r} 12.48 \\ 0.21 \\ \hline \end{array}$	$\begin{array}{r} -2.55 \\ 0.19 \\ \hline C 2.74 \end{array}$	$\begin{array}{r} -2.55 \\ 0.21 \\ \hline C 2.76 \end{array}$
+45	$\begin{array}{r} 12.11 \\ 0.58 \\ \hline \end{array}$	$\begin{array}{r} 11.95 \\ 0.74 \\ \hline \end{array}$	$\begin{array}{r} -2.29 \\ 0.58 \\ \hline C 2.87 \end{array}$	$\begin{array}{r} -2.29 \\ 0.74 \\ \hline C 3.03 \end{array}$
+28.9	$\begin{array}{r} 12.60 \\ 0.09 \\ \hline \end{array}$	$\begin{array}{r} 12.42 \\ 0.27 \\ \hline \end{array}$	$\begin{array}{r} -2.03 \\ 0.09 \\ \hline C 2.12 \end{array}$	$\begin{array}{r} -2.03 \\ 0.27 \\ \hline C 2.30 \end{array}$
+11.8	$\begin{array}{r} 12.43 \\ 0.26 \\ \hline \end{array}$	$\begin{array}{r} 12.35 \\ 0.34 \\ \hline \end{array}$	$\begin{array}{r} -1.75 \\ 0.26 \\ \hline C 2.01 \end{array}$	$\begin{array}{r} -1.75 \\ 0.34 \\ \hline C 2.09 \end{array}$
61+00			-1.56=P-8	
647	12.69 π	622	BM NE Imp. 81374	



SWITZER DRAIN

Walker  
Kelley  
Meyer  
Gaddy  
9-23-57

INVERT GRADES

L.  
10.38

±

Rt.  
10.38

37

61+11.8 = P-36

14	14
<u>14.95</u>	
0.26	

61+04

14.33	14.17
<u>0.88</u>	<u>1.04</u>

+ 87.6

14.13	14.13
<u>1.08</u>	<u>1.08</u>

60+72

14.16	14.18
<u>1.05</u>	<u>1.03</u>

60+54.8

13.97	14.15
<u>1.24</u>	<u>1.06</u>

60+56 = P-8

14.15	13.97
-------	-------

1.00 15.21  
\*

14.21 = B.M.

-163 = Invert  
0.88  
C 2.51

-1.36  
1.08  
C 2.44

-1.11  
1.05  
C 2.16

-0.83  
1.24  
C 2.07

- 0.75

-163  
1.04  
C 2.67

- 1.36  
1.08  
2.44

-1.11  
1.03  
2.14

-0.83  
1.06  
C 1.89

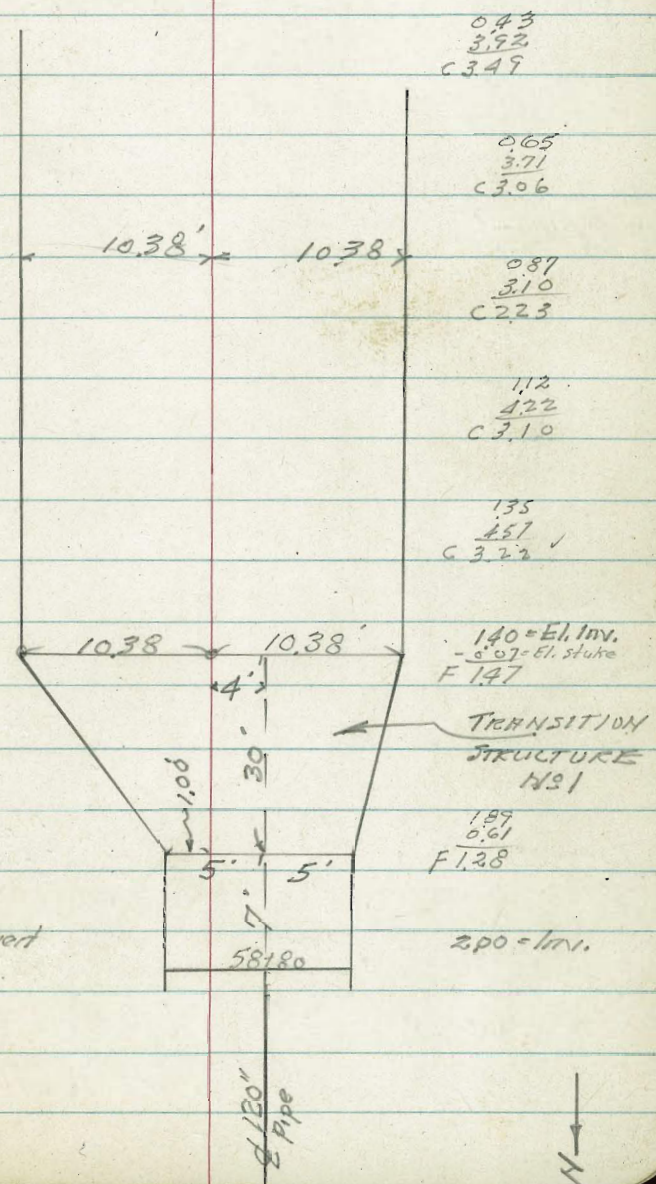
#17 - P-5 = SE. Top Five Hdt.  
K-13th



INVERT GRADES FOR BOX

Walker  
 Kelly 9-27-57  
 Meyer  
 Peropals  
 AND TRANSITION STRUCTURE NO. 1

59+77	+179 4.72	+099 3.92	0.93 4.72 C4.29
+63.5	+128 4.21	+078 3.71	0.65 4.21 C3.56
TR	-1.29 2.93π	+0.48 4.22=TR	
+50	-0.13 3.61	-0.64 3.10=Nail	0.87 0.87 -3.00 3.61 4.78 2.74
+34	+1.01 4.75=Nail	+0.48 4.22=Nail	1.12 4.75 C3.63
59+20	+1.02 4.76=Nail	+0.83 4.57=Nail	1.35 4.76 C3.41V
59+17	-2.96 Nail on 0.78=stake	3.81 -0.07=stake	1.40=El. 0.78 F 0.62
58+87	3.17 0.57=stake	5.13 0.61=stake	1.89 0.57 F 1.32
58+80 = END 180" Pipe			
TR	-0.48 3.74π 4.70	12.72 4.22	
	2.73 16.94	14.21 = BM #17 P-5	





Walker

SWITZER DRAIN

Kelley

INNER GRADES

Meyer 9-27-57

Petropolis

1038

Lt

1038

Rt

57

41

161

-5.61=Inert p-9

-5.61

63+50

63+42.5

11.68  
-1.90

11.20  
-1.42

-5.49  
-1.90  
C3.59 ✓

-5.49  
-1.42  
C4.07 ✓

63+26.5

11.87  
-1.77

11.93  
-2.15

-5.23  
-1.79  
C3.44 ✓

-5.23  
-2.15  
C3.08 ✓

63+10.5

10.34  
-0.56

10.19  
-0.41

-4.97  
-0.56  
C4.41 ✓

-4.97  
-0.41  
C4.56 ✓

CHK C2+94-P-28

3.56

9.98  
-0.20  
9.78 π

622 BM#18  
P-5

-4.70=Inert  
P-28

-4.70



SWITZER DRAIN

2

40

GRADES - INVERT 120" Pipe

Mulker  
Kelley 10-1-57  
Meyler  
Petropolis

			002
15'4 P-75		19.33	
chk 58+80	0.70	19.31	
TR	14.89	2001	+0.91 5.12

58+81 - Note; This Grade on Grade Line  
Produced from North  
for string line and  
and not to be used  
for Grade in Transition Box

1.93

58+80

2.00

58+50

3.97

+25

+1.21

5.62 → P-75  
5.12 = stake  
F 0.50

3.80 441

0.61

B.M. Elev. Stake 5'10" 58+87 - P-38



Stake Sewer - 16<sup>th</sup> + Broadway  
 Plan - 3618-D 6-4-58 - 7.0

0+00 = M.H. 6	59.38	<sup>9 38</sup> 51.62	7.76	
+35	59.01	<sup>9 01</sup> 50.82	8.19	
+70	58.80	<sup>8 80</sup> 50.01	8.79	
1+05	58.19	<sup>8 14</sup> 49.20	8.94	
+40	57.81	<sup>7 81</sup> 48.40	9.41	
+75	57.33	<sup>7 33</sup> 47.60	9.73	
2+10	56.70	<sup>6 70</sup> 46.79	9.91	
+45	56.57	<sup>6 57</sup> 45.98	10.59	
+60 = M.H. 4	56.24	<sup>6 24</sup> 45.64	10.60	
+41.1				
3+01.10 = M.H. 3	55.79	55.82	18.17	
	55.82	37.62	18.20	.37.72
+29.07				
3+30.17 = M.H. 2	55.88	<sup>55 88</sup> 37.47	18.41	37.11
Line to N. Not staked - must Meet Exist pipe				
25' N.	56.15	<sup>56 15</sup> 37.75	18.40	
40' N. = Meet. = Approx	56.36	<sup>56 4</sup> 41.7	14.7	



Curb Grades - 12<sup>th</sup> - W. Side - Bet.

E + Broadway.

42

Stakes 3' Bk.

0+00 = N.L. E.

59.38 59.97 F 0.59

+30

59.02 59.83 F 0.81

+60

59.76 59.69 C 0.07

+90

58.28 59.55 F 1.27

1+20

58.31 59.41 F 1.10

+50

58.30 59.27 F 0.97

+80

58.17 59.13 F 0.96

2+10

58.17 58.99 F 0.82

+40

58.50 58.85 F 0.35

+70 +75

cut = 57.90

58.64 58.69

3+00 = S.L. Brdwy.

58.57

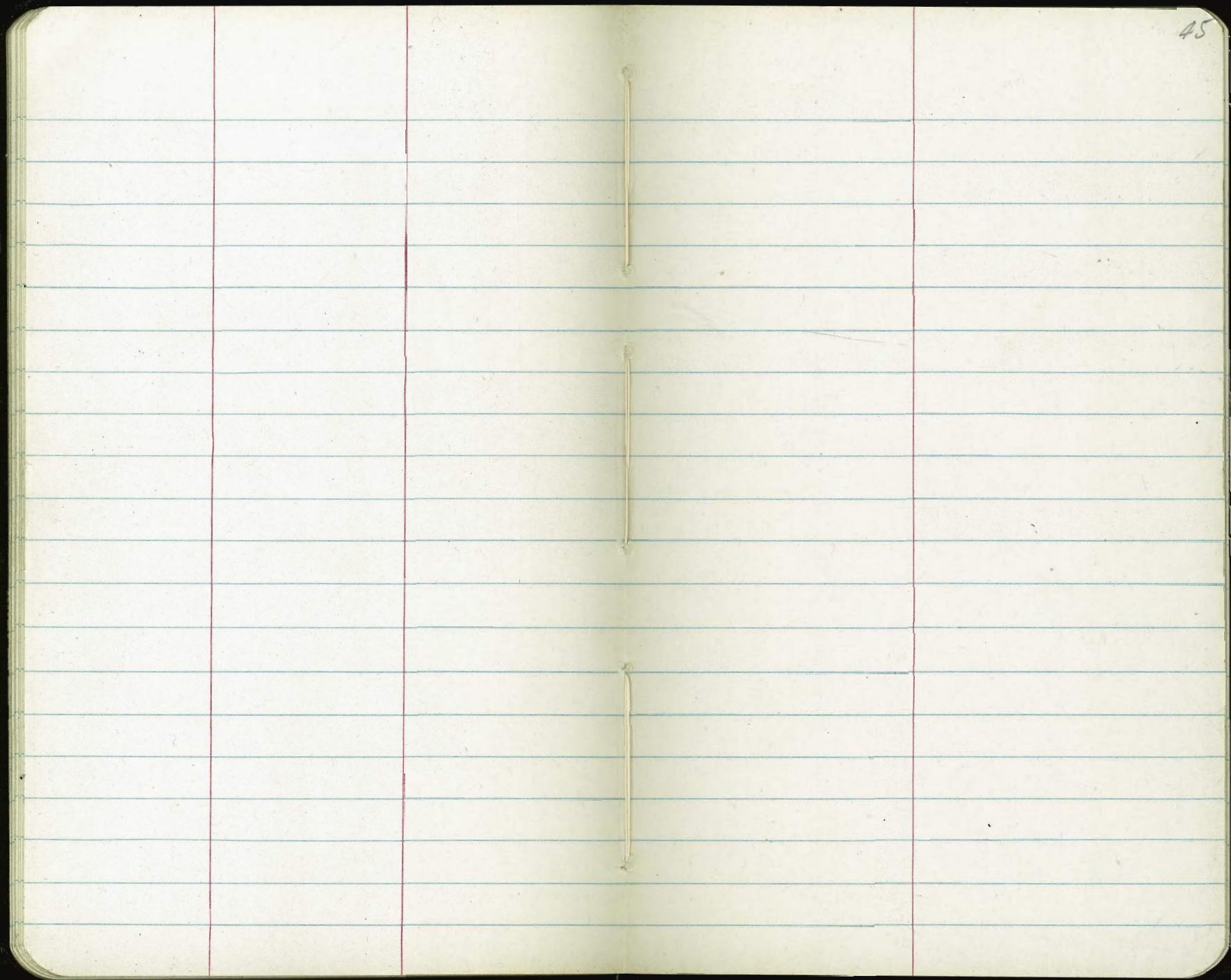






















































The image shows an open notebook with two facing pages. Both pages are cream-colored and feature a grid of horizontal blue lines. A vertical red line is drawn on each page, creating a margin. The right page has the number '56' written in the top right corner. The notebook is set against a dark background.



























8" Sewer Near 0+00

See 36 15 -D

63

0+00 = Exist M.H.

+35' 11' RT 78.14 76.41  
73.03 C 5.11

+70 10 RT 77.42 74.2  
69.66 C 7.76

1+05 10 " 70.74 70.74  
66.29 C 4.45

+18.41 -  $\phi$  M.H. 1 10 " 70.95 70.95  
65.00 C 5.95

72.50 72.50  
65.00 C 7.50



CA



0+00 =  $\pm$  inlet + Headwall - 15' Lt. + Rt.

0+04 = B.C.

0+18.97  $\pm$  ch = 14.955 5°

66.92

68.94

73.75

6.92

63.00

68.94

62.97

73.75

62.84

C 3.92

C 5.97

C 10.91

#

1



## Stakes - 15' Lt.

0+33.95	2	10°		72.84	72.84 62.71	C 10.13
0+48.92	3	15°		72.47	72.47 62.59	9.88
0+63.90	4	20°		73.10	73.10 62.46	10.64
0+78.87 = E.C. = S		25°		77.22	77.22 62.33	14.89
1+00				77.60	77.61 62.16	15.45
1+25				78.64	78.64 61.96	16.68
1+50				85.73	85.73 61.77	23.96
1+75				87.04	87.04 61.56	25.48
2+00				87.73	87.73 61.36	26.37
2+25				87.91	87.91 61.15	26.76
2+50				87.95	87.95 60.95	27.00
2+75				87.45	87.45 60.74	26.71
3+00				86.95	86.95 60.54	26.41
= 3+12.87 = Back						
3+91.39 = B.C. = Ahead.		= 8' Parts.		86.61	86.61 60.43	26.18
4+03.67 ± ch = 12.27		4° 06' 05"	1	86.23	86.23 60.33	25.90
4+15.96		8 12 10	2	85.60	85.60 60.23	25.37
4+28.24		12 18 15	3	85.04	85.04 60.13	24.91
4+40.52		16° 24' 20"	4	84.65	84.65 60.03	24.62



			stakes 15' Rt. = Line	Rad.	stakes - 15' Lt. = Grade	
4+52.81 - 5		20° 30' 25"		83.99	<sup>83 99</sup> 59.93	24.06
4+65.09 6		24° 36' 30"		82.97	<sup>82 97</sup> 59.83	23.14
4+77.38 7		28° 42' 35"		81.79	<sup>81 79</sup> 59.73	22.06
80.97 8	<sup>80.97</sup> 59.63 21.34	32° 48' 40"	4+89.66 = E.C.	81.71	<sup>1 71</sup> 59.63	22.08
		15' Rt. - E.C. ahead	<sup>20 17</sup> 5+09.83	80.30	<sup>0 30</sup> 59.46	20.84
			5+30 = Brk. - Not in	79.44	<sup>79 44</sup> 59.30	20.14
			5+50 = Brk.	79.01	<sup>9 01</sup> 59.01	20.00
			5+70 = Brk.	78.58	<sup>8 58</sup> 58.59	19.99
			5+91.28	78.28	<sup>8 28</sup> 58.00	20.28
			6+12.56 = B.C.	78.45	<sup>8 45</sup> 57.42	21.04
			6+25.47 = Mid Pt.	79.26	<sup>9 26</sup> 57.06	22.20
			6+38.39 = E.C.	79.48	<sup>9 48</sup> 56.71	22.77
			6+50	79.32	<sup>9 32</sup> 56.39	22.93
			6+75'	79.77	<sup>9 77</sup> 55.71	24.06
			7+00	80.36	<sup>80 36</sup> 55.02	25.34
			7+25'	75.62	<sup>5 62</sup> 54.34	21.28
			7+50	75.12	<sup>5 12</sup> 53.65	21.47
			7+75'	73.67	<sup>3 67</sup> 52.97	20.70
			8+00	72.45	<sup>2 45</sup> 52.28	20.17



8+30	71.85	51	<sup>85</sup> 46	20.39	11+75	68.54	<sup>854</sup> 48.48	20.06
8+60 = Brk.	71.86	50	<sup>86</sup> 64	21.22	12+00	69.07	<sup>6907</sup> 48.34	20.73
8+80 = Brk	71.78	50	<sup>78</sup> 24	21.54	12+25	69.59	<sup>959</sup> 48.20	21.39
9+00 = Brk	71.28	49	<sup>28</sup> 98	21.30	12+50	70.09	<sup>7009</sup> 48.06	22.03
9+32.44 = Brk. = B.C.	70.24	49	<sup>24</sup> 80	20.44	12+75	70.62	<sup>062</sup> 47.92	22.70
9+44.87	69.72	49	<sup>72</sup> 73	19.99	13+00	71.07	<sup>107</sup> 47.79	23.28
9+57.30 <sup>10-Parts #1</sup> set	69.21	49	<sup>9</sup> 66	19.55	13+25	71.39	<sup>139</sup> 47.65	23.74
9+69.73 <sup>from</sup> Rad.	68.80	49	<sup>80</sup> 60	19.20	13+50	71.66	47.51	24.15
9+82.16 <sup>15 Lt+Rt.</sup>	68.29	49	<sup>29</sup> 53	18.76	13+75	71.53	47.38	24.15
9+94.59	67.47	49	<sup>47</sup> 46	18.01	14+00	71.62	47.24	24.38
10+07.02	67.53	49	<sup>53</sup> 39	18.14	14+25	71.96	47.10	24.86
10+19.45	67.27	49	<sup>27</sup> 32	17.95	14+50	72.35	46.96	25.39
10+31.88	67.36	49	<sup>36</sup> 26	18.10	14+75	72.69	46.83	25.86
10+44.31 = #	67.34	49	<sup>34</sup> 19	18.15	15+00	73.00	46.69	26.31
10+56.73 = E.C.	67.39	49	<sup>39</sup> 12	18.27	15+25	73.32	46.55	26.77
10+75	67.62	49	<sup>62</sup> 03	18.59	15+48.34-80:	<sup>7369</sup> 46.42	27.27	
11+00	67.33	48	<sup>33</sup> 89	18.44	<sup>4°30.1</sup> 15+59.34	73.76	46.36	27.40
11+25	67.51	48	<sup>51</sup> 75	18.76	<sup>9°00.2</sup> +70.33	73.83	46.30	27.53
11+50	68.01	48	<sup>01</sup> 61	19.40	<sup>13°30.3</sup> 15+81.33	73.81	46.24	27.57



18° 00.4							
15+92.33	73.55	46.18	27.37				
22° 30.4							
16+03.33	73.05	46.12	26.93	19+90	59.92	59.92	18.53
27° 00.5						41.39	
+14.32	72.19	46.06	26.13	20+10	59.52	9.52	18.37
31° 30.6						41.15	
+25.32	71.76	46.00	25.76	20+43.06	59.13	9.13	18.16
36° 00.7						40.97	
+36.32	71.20	45.94	25.26	+67	58.86	8.86	18.02
40° 30.8						40.84	
16+47.31	70.65	45.87	24.78	20+92	58.57	8.57	17.87
45° 00.85						40.70	
16+58.31 = E.C.	70.10	45.81	24.29	21+17	58.28	8.28	17.72
						40.56	
16+80	69.30	45.69	23.60	+42	58.01	8.01	17.59
						40.42	
17+05	68.38	45.56	22.82	+67	57.74	7.74	17.46
						40.28	
17+30	67.49	45.42	22.07	21+92	57.47	7.47	17.32
						40.15	
17+55	66.60	45.29	21.31	22+17	57.18	7.18	17.14
						40.01	
17+80	65.73	45.15	20.58	B.C. = 22+42.06	56.81	6.81	16.94
						39.87	
18+05	64.84	45.01	19.83	1-3° 45'	56.67	6.67	16.87
						39.80	
18+30	63.94	44.87	19.07	2-7° 30' 15"	56.54	6.54	16.80
						39.74	
18+50	63.17	44.63	18.54	3-11° 15' 15"	56.40	6.40	16.72
						39.68	
18+70	62.52	44.26	18.26	4-15° 00' 15"	56.27	6.27	16.65
						39.62	
18+95	61.62	43.64	17.98	5-18° 45' 15"	56.02	6.02	16.46
						39.56	
19+20	60.77	43.01	17.76	6-22° 30' 30"	55.73	5.73	16.23
						39.50	
19+45	60.36	42.38	17.98	7-26° 15' 30"	55.36	5.36	15.92
						39.44	
19+70	60.23	41.76	18.47	8 = E.C. =	55.99	5.99	16.61
						39.38	
				-23+31.94			

10 Pairs  
Chgs. = 15.24



ch = 11.23

$\Delta = 60^\circ 01' 12''$  R = 85.8 - L = 89.88 - 8 parts

24' Tang.

BC. = 23 + 55.94	56.03	<sup>56</sup> 39. <sup>03</sup> 25	16.78
1 - 3° 45'	56.01	<sup>6</sup> 39. <sup>01</sup> 19	16.82
2 - 7° 30'	56.03	<sup>6</sup> 39. <sup>03</sup> 13	16.90
3 - 11° 15''	56.08	<sup>6</sup> 39. <sup>08</sup> 06	17.02
EC. = 4 - 15°	56.14	<sup>6</sup> 39. <sup>14</sup> 00	17.14

25 + 98	56.81	<sup>6</sup> 37.92	18.89
26 + 23	56.81	<sup>6</sup> 37.78	19.03
+ 48	57.60	<sup>7</sup> 37.64	19.96
+ 73	57.77	<sup>7</sup> 37.50	20.27
26 + 98	57.87	<sup>7</sup> 37.87	20.50
27 + 23	57.99	<sup>7</sup> 37.99	20.76
+ 48	58.12	<sup>8</sup> 37.09	21.03
+ 73	58.24	<sup>8</sup> 36.95	21.29

ch = 11.23

$\Delta = 30^\circ$  R = 85.8 - L = 44.92 - 4 parts

Curve Data - 15' offset Both sides

24 + 00.86 = EC.		39.00	
+ 23	55.60	<sup>55</sup> 38. <sup>60</sup> 88	16.72
+ 48	56.33	<sup>6</sup> 38. <sup>33</sup> 74	17.59
+ 73	56.77	<sup>6</sup> 38. <sup>77</sup> 60	18.17
24 + 98	57.05	<sup>7</sup> 38. <sup>05</sup> 47	18.58
25 + 23	57.18	<sup>7</sup> 38. <sup>18</sup> 33	18.85
+ 48	57.44	<sup>7</sup> 38. <sup>44</sup> 19	19.25
25 + 73	56.71	<sup>6</sup> 38. <sup>71</sup> 05	18.66

27 + 98	58.34	<sup>8</sup> 36.82	21.52
28 + 23	58.45	<sup>8</sup> 36.68	21.77
+ 48	58.49	<sup>8</sup> 36.54	21.95
+ 73	58.39	<sup>8</sup> 36.40	21.99
28 + 98	58.29	<sup>8</sup> 36.27	22.02
29 + 23	57.46	<sup>7</sup> 36.13	21.33
+ 48	57.77	<sup>7</sup> 35.99	21.78
+ 73	57.69	<sup>7</sup> 35.85	21.84
29 + 98	57.57	<sup>7</sup> 35.72	21.85
30 + 23	57.45	<sup>7</sup> 35.58	21.87
30 + 53	57.18	<sup>7</sup> 35.47	21.71



58.79 = N.W. 7' ct. - 13<sup>th</sup> + Bvdwy.

+73	57.24	<sup>7 24</sup> 35.30	21.94
30+98	57.14	<sup>7 14</sup> 35.17	21.97
31+23	57.43	<sup>7 43</sup> 35.03	22.40
+48	57.47	<sup>7 47</sup> 34.89	22.58
31+73	57.62	<sup>7 62</sup> 34.75	22.87
31+98	57.81	<sup>7 81</sup> 34.62	23.19
32+23	57.88	<sup>7 88</sup> 34.48	23.40
32+41.12 = B.C. +6.79 =	57.33	<sup>7 33</sup> 34.38	22.95
16	57.41	<sup>7 41</sup> 34.34	23.07
15	57.51	<sup>7 51</sup> 34.27	23.24
14	57.59	<sup>7 59</sup> 34.20	23.39
13	57.78	<sup>7 78</sup> 34.14	23.64
12	57.93	<sup>7 93</sup> 34.07	23.86
11	58.10	<sup>8 10</sup> 34.00	24.10
10	58.19	<sup>8 19</sup> 33.93	24.26
9	58.11	<sup>8 11</sup> 33.86	24.25
8	58.01	<sup>8 01</sup> 33.79	24.22
7	58.03	<sup>8 03</sup> 33.72	24.31
6	58.15	<sup>8 15</sup> 33.65	24.50

15' Rt. to E.C. 71  
12.50' Sta. from E.C. Numbered from E.C.

5	58.08	<sup>8 08</sup> 33.58	24.50
4	57.95	<sup>7 95</sup> 33.52	24.43
3	58.72	<sup>8 72</sup> 33.45	25.27
2	58.84	<sup>8 84</sup> 33.38	25.46
# 1	58.72	<sup>8 72</sup> 33.31	25.41
+12.50 +47.91 = E.C.	59.02	<sup>9 02</sup> 33.24	25.78
+53.78	59.04	<sup>9 04</sup> 33.21	25.83
+62.62	59.10	<sup>9 10</sup> 33.16	25.94
+75	59.16	<sup>9 16</sup> 33.09	26.07
35+00	59.28	<sup>9 28</sup> 32.95	26.33
+25	59.44	<sup>9 44</sup> 32.82	26.62
+50	59.60	<sup>9 60</sup> 32.68	26.92
+75	59.70	<sup>9 70</sup> 32.54	27.16
36+00	59.83	<sup>9 83</sup> 32.40	27.43
+25	59.95	<sup>9 95</sup> 32.27	27.68
+50	60.09	<sup>0 09</sup> 32.13	27.96
+75	60.07	<sup>0 07</sup> 31.99	28.08
37+00	60.65	<sup>0 65</sup> 31.85	28.20
37+25	59.78	<sup>9 78</sup> 31.72	28.06



15' Rt. = West. of E

70

+50	60.21	<sup>0.21</sup> 31.58	28.63	+25	55.67	<sup>55.67</sup> 28.97	26.70
+75	59.85	<sup>9.85</sup> 31.44	28.41	+50	55.23	<sup>5.23</sup> 28.83	26.40
38+00	59.61	<sup>9.61</sup> 31.30	28.31	+75	54.92	<sup>4.92</sup> 28.69	26.23
+25	59.34	<sup>9.34</sup> 31.17	28.17	43+00	54.52	<sup>4.52</sup> 28.55	25.97
+50	59.17	<sup>9.17</sup> 31.03	28.14	+25	54.20	<sup>4.20</sup> 28.42	25.78
+75	58.86	<sup>8.86</sup> 30.89	27.97	+50	53.85	<sup>3.85</sup> 28.28	25.57
39+00	58.58	<sup>8.58</sup> 30.75	27.83	+75	53.45	<sup>3.45</sup> 28.14	25.31
+25	58.34	<sup>8.34</sup> 30.62	27.72	44+00	53.03	<sup>3.03</sup> 28.00	25.03
+50	58.20	<sup>8.20</sup> 30.48	27.72	+25	52.73	<sup>2.73</sup> 27.87	24.86
+75	57.85	<sup>7.85</sup> 30.34	27.51	+50	52.43	<sup>2.43</sup> 27.73	24.70
40+00	57.67	<sup>7.67</sup> 30.20	27.47	+75	52.78	<sup>2.78</sup> 27.59	25.19
+25	57.33	<sup>7.33</sup> 30.07	27.26	44+98.5	52.58	<sup>2.58</sup> 27.46	25.12
+50	57.20	<sup>7.20</sup> 29.93	27.27	45+23.5	52.38	<sup>2.38</sup> 27.32	25.06
+75	57.08	<sup>7.08</sup> 29.79	27.29	+48.5	52.33	<sup>2.33</sup> 27.19	25.14
41+00	57.02	<sup>7.02</sup> 29.65	27.37	+73.5	52.03	<sup>2.03</sup> 27.05	24.98
+25	56.99	<sup>6.99</sup> 29.52	27.47	45+98.5	51.88	<sup>1.88</sup> 26.91	24.97
+50	56.65	<sup>6.65</sup> 29.38	27.27	+23.5	51.57	<sup>1.57</sup> 26.77	24.80
+75	56.33	<sup>6.33</sup> 29.24	27.09	+48.5	51.57	<sup>1.57</sup> 26.64	24.93
42+00	56.02	<sup>6.02</sup> 29.10	26.92	46+73.5	51.31	<sup>1.31</sup> 26.50	24.81



SMITZER DRAIN

120" Pipe

		INVERT	CUTS	15' Rt. offsets
51+49	45.38	5 38 23.88	21.50	
51+29	45.56	5 56 24.02	21.54	
50+99	45.91	5 91 24.16	21.75	
+74	46.08	6 08 24.29	21.79	
+49	46.67	6 67 24.43	22.24	
50+24	47.04	7 04 24.57	22.47	
49+99	47.37	7 37 24.71	22.66	
+74	47.64	7 64 24.84	22.80	
+49	TP. 48.04	8 04 24.98	23.06	
49+24	48.36	8 36 25.12	23.24	
48+98.5	48.62	8 62 25.26	23.36	
+73.5	49.52	9 52 25.40	24.12	
+48.5	50.01	0 01 25.54	24.47	
+23.5	49.60	9 60 25.67	23.93	
47+98.5	50.28	0 28 25.81	24.47	
+73.5	50.55	0 55 25.95	24.60	
+48.5	50.73	0 73 26.09	24.64	
+23.5	50.78	0 78 26.22	24.56	
46+98.5	51.15	1 15 26.36	24.79	

0.5509



55 +74		36.69	<sup>36 69</sup> 18.97	17.72
+49		37.55	<sup>7 55</sup> 19.70	17.85
55 +24	2.90%	38.19	<sup>8 19</sup> 20.42	17.77
54 +99		38.90	<sup>8 90</sup> 21.15	17.75
54 +80 Bk		39.35	<sup>9 35</sup> 21.70	17.65
+60 -E Cleanout #4		39.79	<sup>9 79</sup> 22.08	17.71
+40 -Bk		40.33	<sup>0 33</sup> 22.28	18.05
54 +24		40.70	<sup>0 70</sup> 22.37	18.33
53 +99		41.19	<sup>1 19</sup> 22.51	18.68
+74		41.96	<sup>1 96</sup> 22.64	19.32
749	TP →	42.60	<sup>2 60</sup> 22.78	19.82
53 +24		43.18	<sup>3 18</sup> 22.92	20.26
52 +99	0.55%	43.76	<sup>3 76</sup> 23.06	20.70
+74		44.12	<sup>4 12</sup> 23.19	20.93
+49		44.15	<sup>4 15</sup> 23.33	20.82
52 +24		44.84	<sup>3 84</sup> 23.47	20.37
chk B.M. #15 - P-4		46.450 46.435		S.E. Top Fire Hydr Island - 13+5
51 +99		44.80	<sup>4 80</sup> 23.61	21.19
51 +70		45.15	<sup>5 15</sup> 23.74	21.41



Mulker  
 Kelley  
 Meyer  
 Gaddy

SWITZER DRAIN

INVERT GRADES 120" Pipe

9-23-1957

18.23  
 93  
 17.30

40.01  
 17.30  
 22.71

71  
 45  
 26

75

Station		001		Cuts	offsets
Cont. P-8	Page 8 chk 59+17	16.61 16.62	140		
59 +00		17.82	1.68	16.14	This offset Variable - see sketch P-38
58 +80	END 120" Pipe	19.33	2.00	17.33	15' int.
+50	TR	21.16	3.97	17.19	"
+25		23.22	5.62	17.60	"
58 +00	9/6	25.00	7.26	17.74	"
+75	6.28	26.88	8.91	17.97	"
+50	TR	28.65	10.55	18.10	"
+25		30.48	12.20	18.28	"
57 +00		32.22	13.84	18.38	"
+80	Bk	33.65	15.16	18.49	"
+75		34.00	15.43	18.57 67	"
+60	Bk	34.56	16.23	18.33	"
+40	Bk	34.99	17.06	17.93	"
+25	3.99	35.53	17.50	18.03	"
56 +00		36.53	18.23	18.30	"
55 + 87.38			18.59		
		35.565			

B.M.#30 - P-4 N.E. 7' tack J-13th



Stake Cross Gutter - 13<sup>1/4</sup> + K.  
Plan - 5384-B. 1-17-58

4-Parts - 11° 15' - ch. = 5.85 76  
on cb. Line - 15' R.

N.W. Ret. - No Radius.

P.K. 5 - S'W. of E. edge of Conc. Cross gut.

N. = P.C. 3' bk. 13.14' 13.04<sup>TOP</sup> C 0.10

1/4 - 5' bk 13.06 12.99<sup>3 06</sup> C 0.07

1/2 " 13.07 12.92<sup>07</sup> C 0.15 12.96

3/4 " 13.08 12.94<sup>08</sup> C 0.14

+ 16.5 12.78 12.40<sup>78</sup> C 0.38

W = E.C. 13.10 12.97<sup>10</sup> C 0.13

gut. 12.50<sup>3 10</sup> C 0.60

+ 24.5 = t 12.64 12.25<sup>64</sup> C 0.39

+ 13 12.33 11.95<sup>2 33</sup> C 0.38

S.W. Ret 10.90<sup>1 55</sup> C 0.65 = gut

S = P.C. 11.55 11.40<sup>55</sup> C 0.15

+ 11.5 11.76 11.20<sup>76</sup> C 0.56

1/4 11.52 11.45<sup>52</sup> C 0.07

1/2 11.55 11.50 C 0.05 11.52

+ 16.5 = P.C. S.

3/4 11.54 11.50 C 0.04

W = E.C. 11.61 11.50<sup>61</sup> C 0.11

gut. 11.10<sup>61</sup> C 0.51

30' R.P. Cross to 7' ct. on N.

gut. = 10.55

25' " " " " on S.







SWITZER STORM DRAIN  
 24" WATER MAIN-RELOCATION  
 ON - 13th St. South  
 of Commercial St.

NO 21269

Mulker 78  
 Taylor  
 Ellmore  
 Meyer 87-57

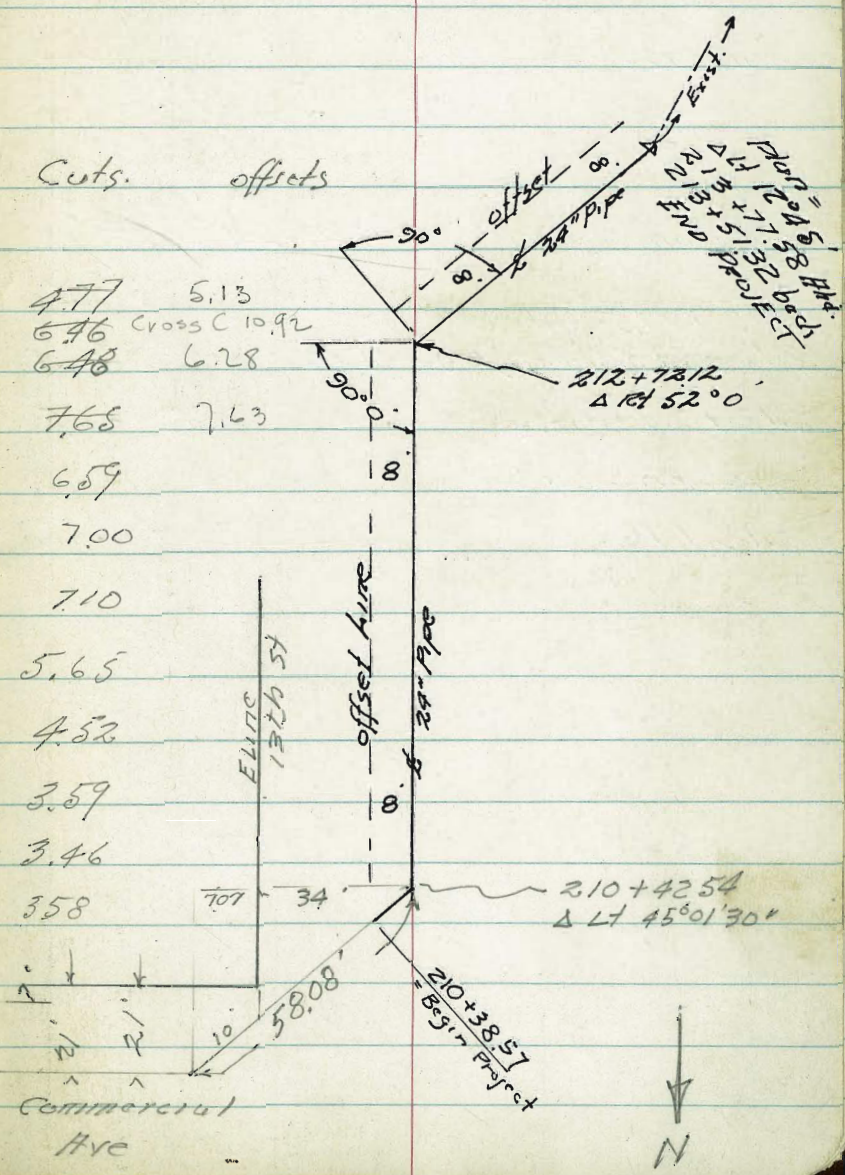
Plan 3627c-D Sheet 17

8.22  
 2.70  
 10.92

Stations

Cont. P-79

Station		Elev. Bottom of Pipe	Cuts	offsets
212+80=Bik	4.13	3.77	-1.00	4.77 5.13
212+72.12=Δ Lt 52°0'	Cross 8.22	3.76	3.58	6.46 Cross C 10.92
212+66 Bik	3.63	3.78	-2.70	6.48 6.28
212+30		3.63	-4.00	7.65 7.63
212+00		2.59	-4.00	6.59
211+64=Bik		3.00	-4.00	7.00
211+32		3.10	-4.00	7.10
211+00		2.70	-2.95	5.65
210+49		2.63	-1.89	4.52
210+42.54=Δ Lt 45°01'30"		3.38	-0.71	3.59
210+38.57=Begin Project		2.96	0.00	3.46
		3.58	0.00	3.58



BIM #30-P-5 → 3.63  
 Spk in Pole  
 N to Newton + 13th



SWITZER STORM DRAIN

79.

RELOCATION 24" WATER MAIN  
Curt. from P-78

Station

chk. on Cut No. 1 19' at T3+25 D-11 343 ✓

			Elev. Bottom Pipe	Cuts	offsets
213 + 77.58 = H.H.	} EQUATION	4.86	-4.00	8.86	8' 1/2
213 + 51.32 = Bch.					
213 + 27 = 8' 1/2	4.58	4.46	-2.50	6.96	7.08 "
<del>213 + 80 = 8' 1/2</del>					"
213 + 16	2.69	4.47	-1.00	5.47	3.69 "



13 16  
02 72 .12  
43.88

8.03

240  
1046  
8.06

5/17

chk

213

213

213

213

213



9.25  
895  
30

36.95

38.95

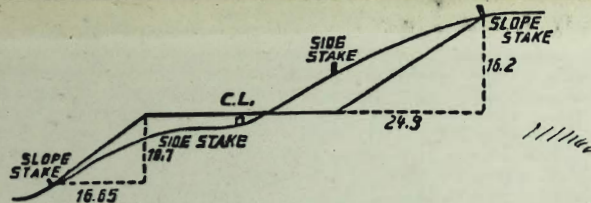
-729

139

-590

721

131



**DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.**

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

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

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