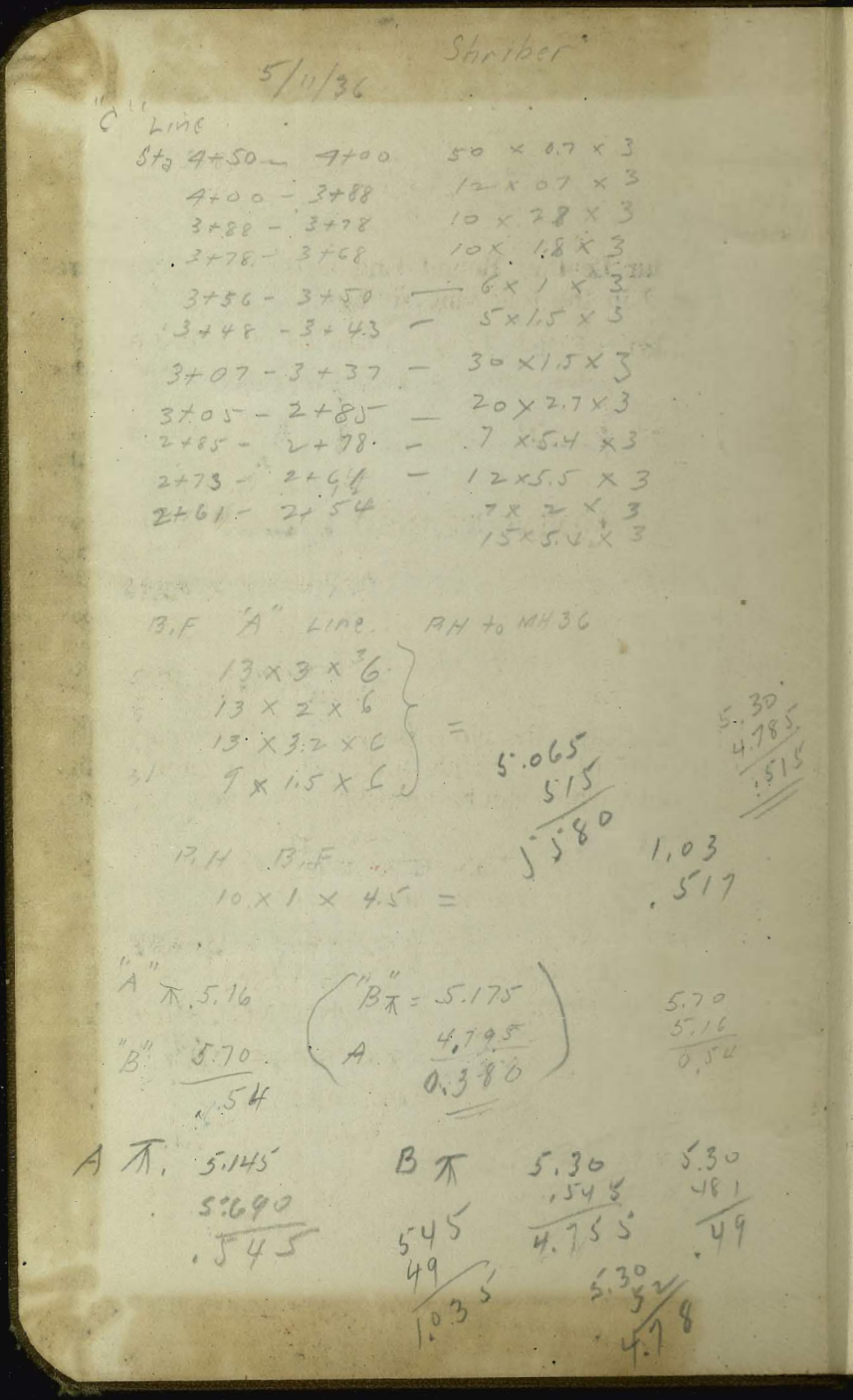
G-184

SEWER CONSTRUCTN



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No. 380 LEVEL BOOK. Left and Right Hand Page the same as Left Hand Page of this Book.

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6.0 5'
6.30
14.35'
12.65'
1.70

8.05
6.30
14.35
12.65
1.70
8.5
0.85

1.70
1.45
0.85

6.30
8.05
14.35
12.65
1.70
0.85

INDEX

WPA #2353
SEWER. N. ADAMS AVE.

Clear
Mch 6-36
⊼ McC
‖ Walker

Indexed

37.68

STA.	+	H.I	−	Elev	F.L.Gr.	Gr. Rod	Cut or Fill	
"A" Line. 14+50	3.62	44.66		41.04	30.69		10.35	
14+22			6.98	Hub. 37.68	30.90		1	End pipe
14+00		44.65	0.78	43.88	30.95		12.92	
14+22	} 0.44		6.98	37.67				
MH #38		44.63	3.84	40.79	31.31		9.48	
13+80					31.09	for 1' High 12.54	C 1.00	
13+37					31.28	for 1' high 12.35	C 1.00	
			Mch 6-36					
11+50	1.04	42.43		41.39	32.27		9.12	
12+00			1.06	41.37	32.01		9.05	C 9.36
T.P.	8.45	50.27	0.61	41.82				
			9.17	41.10	31.31		C 9.48	C 9.79
		41.06						
M.H #38					31.31			
14+50	0.55	41.94	0.02	41.04	32.27		C 9.12	
			8.86	33.08				0.86 Above F.L.
8+50	0.39	41.06		40.67	33.80		C 6.81	
MH 39				41.04	32.96			.08
	0.55							

Grade 0.575%

"A" Line

STA	+	H.I	−	Elev	F.L	
12+00	0.22	41.28		41.06	32.01	C. 9.05
11+50			0.55	40.73	32.27	
MH #38	7.66	48.45		Hub 40,79	331.31	MH #38. C. 9.48
T.P	3.40	41.36	10.49	37.96		
12+00			0.28	41.08	32.01	C. 9.07 Moore C 9.05 Check 0.02
12+04			8.51	Str. Line 32.85	F.L 31.99	
11+50			8.22	33.14	32.27 F.L	0.86 Above F.L.
11+50			0.61	40,75	32.27	C. 8.48 Hub 0.86
T.P.	2.76	39.37	5.85	36.51		
9+70.35			2.83	36.54	33.18	C. 2.23
9+70.35	5.98	41.39		35.41	33.18	C. 2.23
T. P.			3.46	37.93		
				32.85	32.85	
11+50			0.67	40.72	32.27	
			0.35	41.04		New cut C. 8.45 Old cut C. 9.12
12+00	1.21	42.29		41.08	32.01	C. 9.07
12+04			9.61	32.68	31.99	Top pipe (F.L. Set. 31.93) Should be 31.99
11+80			9.55	32.74	32.12	Top pipe (F.L. Set 31.99 . . 32.12
11+50			9.31	32.98	32.27	" " (F.L Set 32.23) " . 32.27

"A" Line

3-10-35
W. McCarty
C. Walker

STA.	+	H.I	−	Elev.	
Opposite Sta. 5+39 B.M.	8.14	354.97		346.83	
			11.41	343.56	
6+00			11.74	43.23	35.10
5+50			12.90	42.07	35.36
4+50			7.13	47.84	35.86
4+00			8.88	46.09	36.12
B.M.	0.87	344.43		343.56	
6+37				35.77	34.91
6+37			1.19	43.24	
6+10			8.52	35.91	35.05
6+00			8.47		
5+87			8.40		
5+50			8.21	36.22	35.36
	7.74	351.30		343.56	
7+00			3.01	348.29	34.58
B.M. T.P.	1.99	342.37	10.92	340.38	
MH Hub			0.41	341.96	34.27
String br.			7.17	35.20	34.34

Grade 5.12%

B.M established 3/10/36 1' NE. of Century plant STA 6+38
Offset Hub 6' in path. Mark C 8.16 C 8.13
" C 6.86 C 6.71
" ~~C 12.12~~ ~~C 11.98~~
" C 12.12 C 11.98
C 10.10 C 9.97

Portal Tunnel
Hub on line at top tunnel

Mark C 13.75 C 13.71
20' E of MH 41
Mark C 7.72

2862/3

"A" Line. N. Adams Ave.

STA	+	H.I.	−	Elev.	F.L.	
MH #38	0.44	41.23		40.79	31.31	Mark 9.48.
			9.09	32.14		End of pipe Top Bell
			9.04	32.19	31.33	4' S. MH.
			8.97	32.26	31.40	17' S MH.
17+84 MH #36	4.94	44.08		39.14	28.96	C. 10.18
T.P.	1.24	40.94	4.38	39.70		
18+44			11.91	3	28.65	Too close to read.
18+48			11.91	29.03	28.63	0.16
18+56			11.93		28.59	0.12
B.M.	6.95	360.38		353.43		Near P.H.
			6.35	354.03	28.62	C 25.42
18+54			8.46	51.92	28.60	

40.94 = H.I.
11.93 6" C.I.
29.01 = Top pipe
54
28.47 = Bottom "

(Copy from Scratch Book) Feb 10 – 36 Partly Cloudy ⊼ McCarty V. Walker.

Diff. in elev MH #42 = Line = 0" Low. 0.20 to be gained.

45.59 Elev of 6' offs. MH #45
Makes elev exist sew = 37.83
37.92 − 37.83 = 0.09 Low.

STA	+	H.I.	−	Elev.	F.L.	
~~Exist MH Foot of 29th St~~	12.40	~~350.77~~		~~38.37~~		
P.L.			12.10	~~38.67~~	Flow Line 38.10	Top of 6" Sewer.
~~MH #45~~	6.10	~~351.64~~		~~45.54~~		6' offset. Hub.
0+00			13.90	38.64	38.07	~~Top 6" Sewer P. Line~~
MH #45	5.42	350.96		45.54	37.67	C. 7.87.
End of Exist. Sewer			12.63	38.33	37.76	37.93 = Grade given; 37.92 − 37.76 = 0.16 Low
			4.95	346.01	37.40	C 8.61 Check to 0.01 Stake Marked C 8.62
MH #45	5.20	50.74		45.54		
Top pipe 1+50			12.40 / 4.73	38.34 / 46.01	37.78	Check to 0.01; 37.92 − 37.78 = 0.14 Low

	Adjustment	⏊		3-11-36 Clear. McCarty Walker Rod ⏊		
"A"	4.805					25 ft from ⏊
"B"			3.41 ✓			325 ft " ⏊
	"A" Line N. of Adams Ave.					
12+00	0.11	341.18		341.07	32.01	C. 906
T.P.	4.31	340.53	4.96	336.22		
11+50			0.39	40.14 ✓	32.27	C. 7.87 ✓ Offset. 4.8
New Line 11+25			5.15	35.38	32.40	
T.P 11+00	5.13	40.85	4.81	35.72	32.53	C. 3.19
10+75			4.94	35.91	32.65	C. 3.26
10+50			5.25	35.60	32.78	C. 2.82
10+00			4.94		32.91	C. 3.00
9+83			4.85		33.06	
9+80			4.81	36.04	33.02	
9+70.35			5.43	3	33.18	C. 2.23 35.41 = Elev Hatch
				4-21-'36.		
B.M.	3.76	357.19		353.43		
SE. cor			5.75	351.44		Pump House Top.
SW "			5.75	351.44		" "
NW "			5.74	351.45		
NE "			5.80	351.39		
			5.29	351.90		Pump House Hatch
			15.80	341.39		Top of slab Top floor. Check Again 41.25

Project 2353. Sewer Copley & Mt. View Drive. 3-12-36 W. McCarty T. C.L. Walker T.

"A" Line

STA	+	H.I.	-	Elev	F.L.	
B.M.	0.94	44.50		343.56		
6+28	0.94		Str. Gr. 8.58	35.84	34.96	✓
B.M.	2.01	348 84		346.83		On stump Opp. Sta 5+39
5+50	Hub.		6.82	342.02	35.36	
5+44	10.04	46.29	12.59	336.25	35.39	Top Bell
6+00			10.34	35.95	35.10	
5+75			10.22	36.07	35.23	
B.M.	4.53	351.36		346.83		on stump.
4+50			3.53	347.83	35.86	Mark C 12.12 C 11.97 0.15 Diff.
4+00			5.28	46.08	36.12	" C 10.10 C 9.96 0.14 Diff
B.M.	8.73	355.56		346.83		
3+50			8.60	346.96	36.37	" C.10.71 C 10.59 0.12 Diff
T.P.	11.76	354.97	12.35	343.21		
1+50			9.03	45.94	37.40	C 8.62 C. 8.54 0.08 "
MH #45			9.48	45.49	37.67	C. 7.87 C. 7.82 0.05 "
T.P.	8.51	360.33	3.15	351.82		
			3.52	356.81		B.M. 356.95 0.14 Diff.

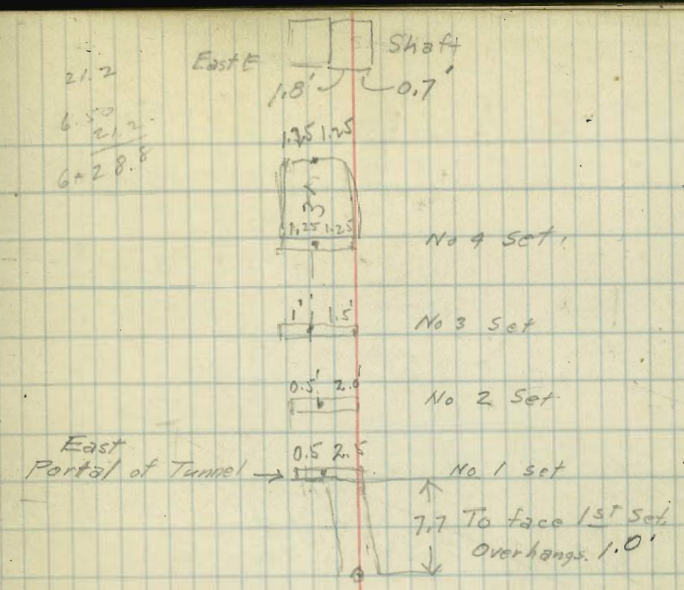
336.25 / .86 / 335.39 Top Bell O.K. ! ! !

35.95 / .86 / 35.09

36.07 / .86 / 35.21

"A" Line 3 - 12 - 36

STA.		"A" Line		Elev.	
6+15.8				E. Edge Shaft	
6+00 ℄					
5+78.8 ℄	23'	10°48'			
6+78.8		Check on 8" Conc Pipe			
9+70	4.87	340.28		335.41	
10+13			6.475	33.805	32.955
10+25			6.52.0		
10+34			6.55.0		
10+04			6.62	333.66	32.93



C 2.23 Hub

Top Bell

" "

" "

"A" Line. 3-13-36. McCarty, Walker

STA	+	HI.			
1	1.81	342.19		340.38	
7+60			0.25	34194	
7+47			7.97	34.27	34.34
T.P.	2.12	37.61	6.70	35.49	
7+34				34.71	34.40
	0.31	41.10		40.79 (1 turn)	31.31
			8.95	32.15	31.27
4' S of MH #38		Top Bell	8.88 Str. Grade	32.08	31.21
22' S " "			8.79 Str. Grade		
22' S "			9.84		
4' S of MH			9.93		

Deg Adjustment.

"A" 5.09

"B" 3.13 = 1.96

"B" 5.08 7.05 = 1.97

MH 38	3.98	44.17		40.79	31.31
13+50			2.03	42.14 (3 turns)	31.21
			12.04	32.13	31.29
			12.07	32.10	31.32
			12.00	32.17	31.47

B.M. 20' E MH 41

C. 7.72

C 9.48 32.15 / 86 / 31.29 0.02 High 9' W. of MH

C 9.03 Top Bell

Top Bell

Bottom Bell

Bottom Bell

C. 9.48

.93

2' from C of MH on Low Std. Top Bell

2 " " " " High " Top pipe

Top Pipe 21' Back from C MH

"A" Line — 3-16-36

STA	+	H.I.	−	Elev.	F.L.
	5.01	358.44		353.43	
			7.01	351.43	
				-	328.25
18+50			4.40	354.04	28.62
			10.79	347.65	
	0.26	42.25		41.99	34.27
			1.82	40.43	
T.P.	0.90	36.46	6.69	35.56	34.4
7+33				2.06	34.40
7+3					
B.M. 6+37	0.90	344.46		343.56	
T.P.	1.07	337.82	7.71	336.75	
6+36			1.70	36.12	334.91
6+30					334.92
6+51					334.83
			4-21-36		
	0.02	43.85		43.83	
5+11			7.57	36.28	35.54
4+78			7.39	36.46	35.72
5+16			7.63	36.22	
		32			

353.43 + 5.01 = 358.44

B.M. 12' E of Pump House

B.M. NE. Cor Pump House

C 25.42. 35.10

C. 7.72

Hub 4' E of Portal W.

Nail in brace on N. side 2' from E Portal of tunnel. C 0.35

On 1st set Rt Hand past 1 Set string Gr. 35.77

35.80 = Sta. Grade Set.

Blue keel mark on past S. side tunnel G. = 35.69 Set Sta.

Top pipe

Top pipe 36.56 46 35.71

Top pipe

"A" Line 3-17-36

STA	+	H.I.	−	Elev	F.L.Gr	
9+70.35	5.22	340.63		35.41	33.18	C. 2.23
11+50						
10+04 146'	Inters					
34.5'						
9+70.35						
10+33			1.73	38.90	32.86	
12+04			7.98	32.65	31.99	Top Bell. 3/4" Low
T.P	5.29	41.48	4.44	36.19		
12+00			0.44	41.04	32.01	C. 9.05
			8.84	32.64		
11+50	0.50	40.64		40.14	32.27	C. 7.87
T.P.			4.42	36.22		
11+56			7.67	32.97	32.24	Top pipe. 32.97 − 7.74 = 32.23 Check
12+00	.08'	341.14		341.06	32.01	C. 9.05
12+23			8.41	332.73	31.89	Set 31.87 + 86 = 32.72 Str. Grade. STAKE at side of wall.
12.04			8.47	332.67		31.93 .06 Low
9+70.35	6.15	41.56		35.41	33.18	C. 2.23
			5.07	36.49	33.02	

36.49 − 33.02 = 3.47

33.18 + 2.23 = 35.41 − 5.22 = 30.19 − 4.44 = 25.75 + 5.29 = 31.04

32.27 + 7.87 = 40.14

"A" Line

Partially Clear, Sultry
3-17-36
K McCarty
Rod - Walker
Axe - Challand

Sta	+	H.I.	−	F.L.	
P.I.	19°34' Lt	Semi Tan 8, Ext = 08			
P.I	33°20'	E = 7.3	R = 167	L = 97.1	
	C = 24.25				
	d = 4°10'				
B.M.	4.64	358.07		353.43	E of P.H.
			4.03	354.04	28.6
18+68			3.88	354.19	28.51
			3-18-36.		
12+00	0.56	41.42		41.06	32.01 C. 9.05
12+04			8.86	32.76	31.99 Top Bell
12+22			9.00	32.62	31.90 Top Pipe
12+05			8.97	32.65	31.98. Top Pipe
13+50	12.61	54.75		42.14	31.21 M C 10.93 0.08 Low
13+00			4.27	50.48	31.49 M C 19.07 C. 18.99
12+50			6.11	48.64	31.75 M C 17.16 C. 16.89 0.27 Low Settled
13+50	12.80	54.94		42.14	
13+00			4.36	50.58	Hub
12+50			6.11	48.83	31.75
12+79			9.98	44.96	31.60 C. 13.36
T.P.	0.21	42.66	12.49	42.45	
			1.61	4	

"A" Line Sewer N Adams Ave

Sta	+	H.I	−	Elev.	F.L.	
13+50	6.55					
MH 38			7.89			
B.M.	7.55	351.11		343.56		
6+70			9.74	341.37	34.74	C.6.63 Blue keel mark on 2nd set E. End Shaft
T.P.	0.95	36.51		35.56		No. 1
7+25			2.06		34.45	F.L.
		W Portal				
0+00						
						Point 26.7 to 1st set.
			3-19-36			
12+00	1.35	42.41		41.06	32.01	C.9.05
			9.80	32.61		End of pipe Top pipe
~~12+35~~			~~9.73~~	~~32.68~~	~~31.83~~	(32.69 Top Bell)
~~12+37~~			~~9.74~~	~~32.67~~	~~31.82~~	
12+39			9.74	32.67 ✓	31.81 ✓	Str. Gr. Top Bell ✓
T.P. on rock			6.22	36.19		
11+42			9.16	33.25	32.31 ✓	32.39 .08 High.
11+50	0.93	41.07		40.14	32.27	C.7.87
11+54			7.99	33.08 ✓	32.25	31.96
			7.81	33.26	32.31	33.17

07

343.56
7.55
351.11
9.74
341.37

32.01
9.05
41.06
1.35
42.41

"A" Line — 3-19-36

Sta	℄	H.I.	−	Elev	F.L.Gr.	
12+00	0.05	41.11		41.06	32.01	C. 9.05
T.P. Rock			4.91	36.20		
11+54			8.03	33.08		Top Bell
11+42			7.85	33.26		
			4-21-36			
3+35		355.55		343.94		((Nail in Bottom Stamp
B.M.	11.61	355.44		343.83		B.M. = 343.94 New Elev Old Elev 343.83))
4+50			7.61	47.94	35.95	6' offset. 355.55 C 11.99
4+50			7.86	47.89	35.95	3' " C 11.94
4+25			7.83	47.72	36.06	3' " C 11.66
4+00			11.01	44.54	36.18	3' " C 8.36
4+00			9.36	46.19	36.18	6' " C 10.01
MH #43	3+83.42		11.62	43.93	36.26	6' " C 7.67
3+50			10.01	45.54	36.41	3' C. 9.13
3+50			8.48	47.07	36.41	6' " C 10.66
3+37 T.P.	2.44	352.63	5.36	350.19		On Stone Wall 13' ℄
		352.52		350.08		
3+25					36.52	3' offs.
3+00			8.11	44.52	36.64	3' offset C 7.88
3+00			6.23	46.40	36.64	6' " C 9.76
2+75			6.61	46.02	36.75	3' " C. 9.27
2+43 MH #44			5.28	47.35	36.90	6' " C. 10.45
2+20			8.42	44.21	37.01	3' " (Close Shot) C 7.20
2+00			6.63	46.00	37.10	4' " C 8.90
2+00			6.01	46.62	37.10	6' " C 9.52
T.P.	3.97	348.30	8.30	344.33		
		348.19		344.22		Piece Conc. MH 45
1+75			5.94	342.36	37.21	3' offset 345.57 = 6' offset
1+49			2.78	345.52	37.33	3' " 37.56 = F.L.G
1+49			2.28	346.02	37.33	6' " C 8.01
1+25			3.09	345.23	37.35	3' Corner

Grade 00.450 %

Sta 0+94.49 − 2.73

RELOCATION

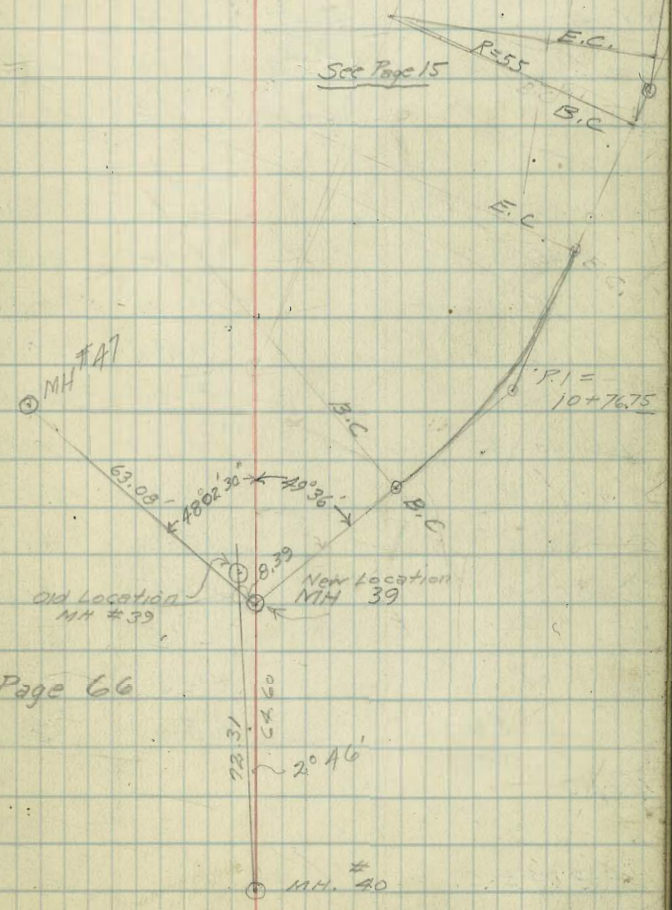
"A" Line. MH #39.

Clear
3-19-36
McCarty & Walker D.
- Challand Axe

Sta.	Angle. Cont P15
11+38.04 = B.C.	
	Cont P15
11+07.52 = E.C.	
	12°11'30" Lt.
10+95.02	
	9°45' Lt
10+85.02	
	7°48' Lt
10+75.02	
	5°51' Lt
10+65.02	
	3°54' Lt
10+55.02	
	1°57' Lt
10+45.02 = B.C.	
	49°36' Rt
MH #39 10+06.95	
N. Pier. 9+89.45	
S. Pier. 9+73.45	
	111°19'24"
MH #40 9+42.35	
MH 41	

Curve Data ✓
T = 31.73 ✓
e = 3.39
Δ = 24.23°
R = 146.86
L = 62.50

End of pipe



3-23-36

"A" Line

Sta	#	H.I.	–	Elev.	F.L.	
11+50	1.07	341.21		340.14	32.27	C. 7.87
T.P. on rock			5.01	336.20		
11+39			5.48	35.73	32.33	C, 3.40
11+25			2.45	38.76	32.40	C. 6.36
11+00			3.10	38.11	32.53	C, 5.58
T.P. 10+76.7 P.I.	4.90	341.73	4.38	36.83	32.67	C. 4.16
10+50			4.52	36.69	32.79	C. 3.90
10+25					32.92	
10+06.95	M14 #39		3.75	37.98	33.01	6' W on Line fro
9+93.45	N. Pier		7.91	33.82	33.08	Offset 10' to W C 0.74
9+93.45	N Pier		5.60	36.13	33.08	" 20' to W C 3.05
9+81.45	S. Pier		11.61	30.12	33.14	" 6' to W F. 3.02
9+69.45			6.31	335.42	33.20	" 7.2' to W = 9+70.35 C. 2.23
9+69.45	℄ ground		8.8	32.9	33.20	on ground F = 0.3
S Pier	℄ ground		12.8	28.9	33.14	" " F = 4.2
N Pier	℄ ground		10.2	31.5	33.08	" " F = 1.6
9+85			14.5	27.2		Bottom of draw
			9.5			" " " 22' to W at rt Ls. on nat. gr.
			14.6			" " " 10' E " " " Fill.
			18.0	23.7		" " 23' E " " on nat ground
	Angle.					
11+50						
11+33.04 E.C.						Curve Data.
	7°48'30" Rt.					Δ = 15°37'
						R = 55'
11+38.04 B.C.						L = 15'
						T = 7.53'

Cont from p14

"A" Line

Partly Cloudy
3-23-36

Sta.	+	H.I.	−	Elev	Flow Line	
T.P.	1.02	36.58		35.56		
			2.08	34.50	34.5	Sill
			3-24-36			
			Cloudy Springling			
7+00	2.46	50.79		348.33	334.58	Hub. C 13.75 6' Offset Left.
6+68						
6+50			5.09	45.70	34.84	Hub C. 10.93
			7.19	43.60		B.M. B.M Re Marked 43.58.
			10.36	40.43		Hub 4' E of W. Portal. Mark 340.45.
	7.19	50.77		43.58		B.M Remarked 43.58.
6+68			9.43	41.34	34.49	C. 6.85
			9.39	41.36	34.48	C. 6.88
B.M.	8.01	51.59		43.58		
6+68			10.24	41.35	34.49	C. 6.86
7+00			3.28	48.29		
						C 13.75
7+00	1.93	50.46		48.53	34.78	C 13.75
			10.04	40.42		
B.M	1.40	44.98		43.58		
6+29			9.31	35.67	34.95	Check on end of pipe

"A" Line 3-24-36

STA.	+	H.I	−	Elev	F.L.	
12+00	1.37	342.43		41.06	32.01	Hub. C. 9.05
T.P.			6.24	36.19		
12+50	1.37		10.09	32.34	31.75	Top Pipe
	6.24	4243		36.19		
			10.08	3235	31.75	31.60 0.15 Low
				3-24-36		
	2.62	353.18		350.56	31.49	C. 19.07
M.H #38			10.41	42.77	31.31	C 9.48
13+50			11.07	42.11	31.21	C 10.90
12+50			8.39	44.79	31.75	C 13.04
	5.06	355.62		350.56		C. 19.07
12+50			10.85	44.77	31.75	C. 13.02
			6.82	48.80	31.75	C. 17.05 C = 17.16
T.P				36.19		
11+54	8.45					End of pipe .03 Low
11+42			8.38			12' Laid .02 Low
11+21						
10+90					3	

"A" Line 3-25-36.

STA	+	H.I.	−	Elev	F.L.	
13+00	1.61	52.19		350.56	31.49	C 19.07
13+50			10.07	342.10	31.21	C 10.93 04
12+97					31.50	
12+73			11.52	40.67	31.63	Gr. Rod = 20.56 C. 9.04 to F.L.
12+68			7.21	44.98	31.65	Gr. Rod = 20.54 C 13.33 to F.L.
	10.46	55.44		44.98		
12+58			11.20	44.24 3-25-36	31.70	C 12.54 to F.L.
			~~4~~			
MH #39.	10+06.95 17.5					
N. Pier	10+89.45 16					
S. Pier	10+73.45					
MH	9+42.35					
12+55	1.51	45.75		44.24	31.72 05	C 12.54
12+65				44.41	31.67	
12+57			13.34	32.41	31.71	
12+50			13.36	32.39	31.75	0.11 Low

3 - 25 - 36

"A" Line

STA.	+	H.I.	−	Elev.	F.L.	Cut or Fill
M.H. #40 9+42.35					333.33	
9+69.45	6.31	341.72		Hub offs. 335.41		C. 2.23 = 9+70.35 old Line
9+73.45					33.17	End of 8" C.I. Pipe
9+89.45					33.09	
10+06.95			3.75	37.97	333.20	
10+25			5.10	36.62	32.91	C. 3.71 for Grading only 6' offset.
10+45.02	B.C.		5.57	36.15	32.81	C. 3.34 " 5' "
10+55.02			4.94	36.78	32.76	C. 4.02 " 5' "
10+65.02			4.75	36.97	32.71	C. 4.26 " 4' offset
10+75.02			4.67	37.05	32.66	C 4.39 " 4' "
10+85.02			3.66	38.06	32.61	C. 5.45 " 5' "
10+95.02			4.58	37.14	32.55	C. 4.59 " 4' "
11+00					32.53	on timber
11+07.52	E.C.		3.52	38.20	32.46	C 5.74 4' offset

33.18
2.23
35.41

10+50			5.05	36.67	32.79	C. 3.88
S. End Middle Pier						Offset 6' E + W 9' offset 18" offset 90°
9+69.45	5.62	341.03		Hub offs. 35.41		
9+73.45			7.96	33.07	33.17	W. off. F 0.10
9+73.45			10.27	30.76	33.17	E. - F 2.41
9+89.45			9.16	31.87	33.09	9' off West F 1.22
9+89.45			7.38	33.65	33.09	18" " West C 0.56

McCarty
Walker
Challand.

Partly Cloudy.
3-25-36

"A" Line	+	H.I.	−	Elev	F.L
12+55	1.01	345.25		44.24	
12+58			12.83	32.42	31.71
12+50			12.83	32.42	31.75
			3-26-36 Clear.		
	8.62	362.05		353.43	
18+95			8.62	353.43	
18+75			8.62	353.43	
18+50			8.01	54.04	
			3-26-36	Clear	
13+00	1.80	352.36		350.56	331.49
13+50		352.39	10.25	42.11	31.21
12+55			8.14	44.25 / 44.22	31.73.
12+77		20.12	+12.86 / +7.26	32.27 / 32.24	31.62
12+58					
		Tunnels MH 41 to MH 42			
	7.58	351.14		343.56	
			9.82	41.32	34.75

End of pipe Top pipe
31.69 = F.L. " "

B.M.

Check 0.0

MARK
C 1907
C, 10.93 El = 42.14, C = 10.90 from Hub 13+00
Nail in X timber check = C 13.52 = C 13.49
32.24-.73 = 31.51 on top pipe 32.27-.73 = 31.54 F.L.

End Pipe

C 6.57 To Flow Line.

0.15 Fall in 10'

"A" Line

Sta.	+	H.I.	−	Elev.	F.L. Grade	
	1.10	347.68		346.58		
T.P.	1.74	38.51	7.91	336.77		
6+31			4.94	34.69	34.94	End of pipe Top
6+43			3.48	35.03	34.88	2nd set timbers on S side
6+51					34.84	
11+50	0.92	41.06		40.14	32.27	C.7.87
T.P.			4.88	36.18	32.52	on rocks
11+01			7.69	33.37	32.52	String Grade on rail bar
11+21			7.78	33.28	32.41	End Pipe
	1.33	38.10		36.77		
6+51			3.19	34.91	34.84	.07 F 0.78 to Str. Grade. 4th Set Nailing Post S. Side.
6+55			3.29	34.81	34.82	F 086 to String Grade.

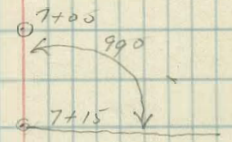
"A" Line

STA	+	H.I.	−	Elev.	Grade.	
7+00	3.47	351.80		48.33	34.58	C 13.75
	8.19	51.77	8.19	43.58		
			11.36	40.41		
	7.07	50.65		43.58		B.M. E. Portal
			10.24	40.41		
			2.34	48.31		
7+00	2.34	50.67		48.33	34.58	C 13.75
6+68			7.39	43.28	34.75	C 8.53 to F.L. C 7.68 (to Mark on iron stake. String Grade Top Bell on Cross timber.)
	1.27	38.04		36.77		
6+43			3.01	35.03	34.88	34.73. String Grade set red mark on iron stake.
6+31	Top pipe		2.34	35.70	34.94	Top of pipe ——— Checked to 0.01
6+55			3.23	34.81	34.82	35.65. String Grade set red mark on iron stake.

43.58
8.19
51.77
11.36
40.41

"A" Line

Sta	+	17.1.	−	Elev.	Grade	
7+00	2.94	51.27		48.33	34.58	C 13.75
7+15						Lateral 10' South to N. Edge of Shaft
7+19.4						4 point
7+15	10' Lt.	99° Lt	0.18	51.1		
	7' Lt.		.25	51.0		
FOR	6' Lt		2.85	49.5		Ft of Rock Wall
Lateral to	2 Lt		3.00	48.3		
Lot 28 Bonnie Brae	1 Lt		4.90	46.4		
	℄		4.90	46.4		
T.P. Spike	1.25	36.74		35.49		35.49 4'W Portal on N side
7+15			2.55	34.2		Floor Tunnel
		Check on C.I. Pipe P.H to MH 36				
	4.53	57.96		353.43		B.M. E of P.H
19+05			5.96	52.00	28.34	23.66 23.12 Top



"A" Line

Sta	+	H.I.	−	Elev.	Grade	
	9.06	62.49		353.43	~~28.34~~	B.M.
19+05			10.51	51.98	28.34	
18+93			9.06	53.43	28.40	
			9.06	53.43		
11+50	1.29	341.43		340.14	32.27	C. 7.87
10+81			7.95		32.63	33.48
11+02			8.06		32.52	8.09 = 0.03 Low
10+50					32.79	
9+70.35	7.04	42.45		335.41	33.18	C. 2.23
9+69.45			8.42		33.18	34.03 Red Mark on iron stake
9+33			3.03	3942	33.38	F.L. Gr. Rod = 9.07 C 6.04
8+92			3.50	38.95	33.59	C 5.36
7+00	3.38	51.71		48.33	34.58	C 13.75
6+87			11.84	39.87	34.65	C. 5.22 to F.L.
6+93			11.84		34.62	C. 5.25

Grade 0.515

"F" Line

Clear. 4-1-36
⊼ McCarty
I Walker

Sta	+	H.I.	−	Elev	F.L.	
		"F"	Line			
0+00 =MH #40					333.33	C 11.30
0+22 Hub 6' offset			2.76	47.89	35.16	C 12.73
0+22 Ground			4.07	46.6 (8.34%)	35.16	C 11.4
0+50 Brk	8.75	50.65		41.90	37.50	C 4.40
0+50 Ground			10.15	40.5	37.50	C 3.0
1+00					45.04	C 7.90
1+14 Hub			5.68	59.38	47.15	
1+50	4.95	65.06		60.11 (15.07%)	52.58	C 7.53
2+00					60.12	C 4.78
2+15.82 D.E.					362.50	C 3.81
"F" Line			4-7-36			
0+50	8.45	50.35		41.90	37.50	C 4.40
0+40			12.93		36.67	37.42 Too high
0+68			9.29		40.21	41.06
0+50			12.00		37.50	38.35
0+97			4.92		44.58	45.43
	"F" Line					
2+00	3.15	368.05		364.90	360.12	C 9.78
1+75			6.43	61.62	56.35	3' offs C 5.27

"A" Line

Clear.

4-2-36

T. McCarty

L. Walker

Sta	+	H.I. 44.70			Grade F.L.	
MH #40	9+42.35 0.05	44.68		44.63	33.33	C 11.30 Hub
9+70. (old)			9.29	35.39	33.18	Check 0.02
9+70.			10.67	34.01		Iron stake Red Mark String Grade
10+01.					33.03	Sta. C. 33.88
9+96			11.69		33.05	Bottom pipe
MH #40				33.2	33.33	Ground
MH 40	0.73	45.36 ✓		44.63 ✓	33.33	C 11.30
9+00			0.63	44.73 ✓	33.54	11.19 ✓ (Mark C 11.18)
9+13			11.04	34.32	33.47	String Grade.
9+31			11.13	34.23	33.38	
9+55.			11.23	34.13	33.26	0.87 Iron Pipe
8+92			10.93	✓ 34.43	33.58	
8+80			10.87	✓ 34.49	33.64	
9+70.35	6.08	41.49		35.41	33.18	C. 2.23
10+45			5.9	35.6	32.81	
10+61			7.91		32.73	33.58
10+84			8.02		33.62	33.47 8.54
10+06.95		F.L	8.49		33.00	
ME. Pipe.			7.62	33.87	33.00	
N. Pier			7.54	✓ 33.95	33.08	
S Pier			7.46	✓ 34.03	33.16	
S. End Pipe.			7.38	34.11	33.24	

Allowed 0.87 from F.L. to top Bell on 8" Iron pipe

"A" Line

4-2-36

7+00	2.09	50.42		48.33	34.58	13.75
6+87			11.52	38.90	34.65	C 4.25

4-3-36.

9+00	0.27	45.09		44.72	33.54	C 11.18
8+50			4.29	40.80 40.67	33.80	C 6.87
8+83			10.54	34.55	33.62	Bell 34.47
8+80			10.53	34.56	33.64	34.49
8+00			3.48	41.61	34.06	C 7.40
8+00	3.48	44.94		41.46		
8+50			4.29	40.65		
9+13			10.78	34.16	33.47	Top pipe 34.21 0.05 Low Check
~~8+83~~			10.67	34.27	33.62	34.36 ~~0.09~~ High
8+83			10.54	34.40	33.62	Bell grade 34.47 0.07 " Check
9+00	0.27	45.09		44.72		
8+61			10.44	34.65	33.74 F.L.	Set 33.79 Bell 34.65 Set .06 High 34.59
9+24			10.84		33.42	34.27 10.84 Set 0.02 Low

0.85 to top of Bell from F.L.

0.74 to top Bell from F.L.

27

"A" Line — 4-3-36

Sta	+	H.I	−	Elev.	F.L. Grade	
7+00	2.60	50.93		48.33	34.58	C 13.75
6+75			11.18	39.75	34.71	Nail in bottom of ladder. 39.75 − 35.56 = C 4.19 to Str. Grade
6+95			11.06	39.87	34.61	X timber ℄ Blue keel. Notches on each side 39.87 − 35.46 = C 4.41
7+00	2.57	50.90		48.33		
6+95			11.03	39.87		
6+75			11.15	39.75		
6+68			9.62	41.28	34.75	
6+68			7.60	43.30		
	9.67	45.08		35.41	33.18	C. 2.23 45.08 − 34.18 = 10.90
M.H # 40			10.90		33.33	33.33 − 8.5 = 34.18
9+00			0.34	44.74	33.54	C. 11.19 33.54 + 11.19 = 44.75
			Clear.			
			4-6-36			
7+00	1.85	350.18		348.33	34.58	C 13.75
B.M.			9.74	340.44		Sta 7+40 2' N. of ℄
4-24-36	Check on pipe Laid at MH # 41					
B.M.	1.13	341.58		340.45		
7+55			6.63	334.95		Top pipe } 0.99 Fall in 12 ft.
7+67			6.72	334.86		Top pipe }

"A" Line

Sta	+	H.I	−	Elev	Grade		
	0.38	45.01		44.63		C 11.30	
			10.825		33.33	34.18	Check .005
9+00	1.00	45.72		44.72	33.54	C 11.18	
MH # 40			1.09	4463			
8+50			5.01	4061	33.80	C 6.81 (Marked C 6.87)	
8+00			4.22	4150	34.06	C. 7.44 " C 7.40	
T.P.	7.28	43.47	9.53	36.19			
			2.94	4053		40.44	
8+62			8.96	34.51	33.74	3459 End of pipe on bell 0.08 Low	
8+30			5.51	37.96	33.91	3' offset Hub.	
MH #41 7+61					34.31		

3-6-36

Sta	+	H.I	−	Elev.	Grade		
B.M. on Stump. 10' ℄ 5+39	7.04	353.87		346.83			
"A" Line ℄ 5+35			11.49	42.38	35.42 Revised MH.	C 6.96	
MH 42 5+14			11.77	42.10	35.51	Hub on S. Side MH	C 6.59
5+50			11.86	42.01	35.36	C. 6.65	

"C" Line Sewer. 3-6-36

Sta 1+00 Sewer in Copley	6.93	367.20		360.27	353.74	C 6.53	Sewer 6"
0+75			8.16	59.04	52.30	C. 6.74	3' offset
1+00			6.31	60.89	53.74	C 7.15	3' "
1+25			8.21	58.99	53.18	C 3.81	3' "
1+50			6.38	60.82	56.67	C 4.21	3' "
1+74 M.H.					58.00		

"A" Line

7+00	2.74	51.07		48.33	34.58				
6+95			11.20	39.87	34.62	Str. G. 35.49	C 4.40	Middle of X timber	
6+89			11.21	39.86	34.52				
	6.54	41.95		35.41	33.18	C. 2.23 End Pipe	Bell 33.56	Gr Rod 8.39	
10+63			8.36		32.71				
10+44			8.27		32.81	33.66		8.29	Set 0.02 High
10+34			8.23		32.86	33.71		8.24	Set 0.01 High.

4-7-36

Tunnel

"A" Line

Sta	+	H.I	−	Elev.	F.L
B.M.	0.55	340.99		340.44	
T.P. Sta 7+48			5.45	335.54	
7+61 M.H.			4.90		34.30
7+45					
7+37					
7+29					
7+21					
7+13		Tunnel			
7+05					
6+95					34.62
8+30			3.11	37.88	
T.P.			4.90	36.09	
7+46.			5.76	35.23	34.38
5+14 MH 42					35.51
B.M.	0.08	46.91		46.83	
5+29			10.60		35.44
5+45			10.66		35.35
5+50			4.90	42.01	
		TM			
	6.16	52.99		46.83	
MH. 5+14 4+50			5.15	47.84	35.51
5+00			11.41 TP	41.58	35.58
4+81					35.67
B.M.			9.16	43.83	

E W
4' from portal on Surface.
Spike in wall on N side 3' W of W Portal
Raised Grade 093 old grade = 34.27
Portal of tunnel

35.73 Nail in South side plank to String Grade.

Stump G.R. Set .02
36.29 10.62 10.60 C
36.20 10.71
C 6.65

B.M Top Stamp. 5+35

C.G. Hub 3' offset
Hub 6' offset
Spike N. side. Stump 5+35

"A" Line — Clear. — 4-8-36

Sta	+	H.I.	−	Elev.	F.L.	
B.M. on 5735 Stump	4.86			4683		
" Nail in Stump	7.85	51.68		43.83		
4+81			7.61	44.07	35.67	C 8.40
4+50			3.86	47.82	35.82	C 12.00 6' offset to Right Mark (old) C 12.12
4+50			4.11	47.57	35.82	C 11.75 3' " "
			4-8-36			
9+00	0.46	45.19		44.73	33.54	C 11.19 Hub.
8+67			10.70	34.49 Str. Grade	33.74	34.59 Str. Gr. Check Top Bolt 0.10 Low Check
8+30			7.23	37.96 H.H.	33.85	C 4.11
8+46			10.60	34.59 Str. Grade	33.82	34.67 0.08 Low Check
8+00			5.92	39.27	34.05	C 5.72
			4-8-36			
B.M	3.53	43.97		340.44		4' E of W Portal Tunnel
8+00			4.79	39.18	34.05	C 5.13
8+30			6.10	37.87		C 4.07
8+46			9.45	34.52	33.74	
T.P			8.43	35.54		4' W of W Portal on N side Spike in wall
4+50	4.40	52.22		47.82		6' offset
4+25			4.63	47.59	35.94	C 11.65 3' offset.
4+00			6.14	46.08	36.06	C 10.02 6' " (old Marked C 10.10)
4+00 MH 43			7.79	44.43	36.06	3' "
			8.41	43.81		6' "

Clear

4-9-36.

McCarty.
Walker

"A" Line

Sta.	+	H.I	−	Elev.	F.L.
B.M. on stump	0.37	44.20		343.83	
5+27 End of pipe on bell			Gr Rod. 7.86	Elev Bell 36.34	35.45
5+16			Gr Rod. 7.81	36.39	35.50
M.H. #43 3+83.42	11.73	55.54		43.81	
3+50.			8.61	46.93	
3+50			10.14	45.40	
3+50			5.54	350.00	
3+25			11.27	44.27	
T.R. 3+.00	8.27	52.67	11.14	44.40	
2+75			6.80	45.87	
3+00 T.P.			6.42	46.25	
2+99	5.95	52.50	6.12	46.55	
2+43.78 MH45			5.31	47.19	
2+00			6.05	46.45	
2+00			6.67	45.83	
1+75			10.29	42.21	
T.P.	7.25	351.42	8.33	44.17	
1+49			5.56	45.86	
1+49			6.06	45.36	
1+25			5.83	45.59	
1+25			6.35	45.07	
MH 45			6.01	45.41	
0+50			1.85	49.57	
0+50			1.69	49.73	

43.83
.37
44.20

Nail in bottom of stump.

36.30 Sta. 6 — Checked .05 High

36.35 36.39 Set .05 High

6' offset Left 43.88 by Moore

6' " L. 47.08

3' " Left

Top Stone Wall 12' Left Blue keel

3' offset Left

3' " Left

3' " "

6' " "

Top SW Cor. Wall 1.60 Left.

6' offset L. Hub.

6' " L Moore 46.60 Hub

4' " L "

3' " L "

in Wall on concrete (piece) Sta 1+55

6' offset L

3' " L

6' " L

3' " L

6' " R: Moore 45.54

6' " L

3' " L

"A" Line 4-9-36

STA	+	H.I.	−	Elev	F.L.
	0.72	45.45		44.73	33.54
8+48			10.87	34.58	33.81
8+35			10.77	34.67	
8+30			7.50	37.95	
8+00			6.19	39.26	
			4-10-36		
B.M. piece of Conc Sta 1+55	4.20	48.37		344.17	
2+20			4.30	44.07	
M.H. 2+43.78			1.19	47.18	
8+30	3.96	41.91		37.95	
			7.34	34.57	
			7.25	34.66	
		41.91			
7+66			7.74		34.23

7+61 − 8+48 0.69% Gr.

Tunnel.

"A" Line	Tunnel	Grades			
7+45	1.40				34.29
7+25			1.34		
7+03			{1.25 Bell {1.36		
7+46	3.28				
7+67			3.39		
7+90			3.49		

C 11.19

11.19
33.54
44.73
.72
45.45

34.66 Check on bell 0.08 Low back 0.15 Low Ahead.

Top pipe

			4			
"A" Line	1.41	45.24		43.83		
[illegible] #5+17	[illegible]		8.92	36.32	35.53	
Stak 5+15.			8.88	36.36		
MH #5+14			8.86.	36.38		
4+94 (20)			8.76.	36.48		
MH #41				34.22	34.22	
9+00	0.64	45.36		44.72	33.54	C 11.18
8+35 (3)			10.74	34.62		
8+22			10.67 (07)	34.69		
7+67			10.21			
8+00 T.P.			6.10	39.26		3' offset
	8.42	43.83		35.41	33.18	C. 2.23
10+34			10.10	33.73	32.88	Check on 8" pipe
10+14			10.00	3383	32.98	
8+00	6.15	45.41		39.26		
8+35 (2)			10.80	34.61		} Check on top
8+23			10.73	34.68		} Bell
B.M.	1.68	45.51		43.83		
5+17			9.20	36.31		35.46
5+14			9.11 (9)	36.40		
5+00			9.03			

4-13-36

"F" Line						
0+50	8.38	50.28		41.90	37.56	C.4.40
0+40			12.94	37.34	36.67	
0+25			8.87	41.46	36.09 35.42	C.5.32 X timber.
	9.77	45.18		35.41		
MH AO			11.18		33.33	3+00
"A" Line						
1+55	9.66	53.83		44.17		Piece of Concrete in Wall.
on Cb. S. Cor Dr. Way on West Side 39th St			5.53	48.30		
Fire Hyd.			6.09	47.74		Foot of 39th on E. Side
On Cb. S. Cor Dr.	10.02	58.32		48.30		
B.M.			1.59	56.73		Elev = 56.95 Check 0.22 Brass Plug SE. Cor 39th & Circle Dr.
8+00	6.05	45.31		39.26		
8+23			10.62	34.69		Check on Bell
8+12			10.54	34.77		
			4-14-36			
	1.55	45.38		43.83		
5+14			8.98	36.40		
End Pipe 5+17			9.06	36.32		
4+92			8.86	36.52		
8+30	2.86			37.95		
	1.56	40.82		39.26		
8+11			6.05	34.77		Check
87 89			5.90	34.92		
7+66			5.79	35.03		
T.P.			2.32	38.50		

"A" Line — 4-14-36

Sta	+	H.I	−	Elev.	Grade	
T.P	6.89	45.39		38.50		
B.M.	4.88	45.33	4.88	40.51		40.45
				35.05		
7+66			10.34	34.99		
				34.98		
7+88			10.49	34.84		
T.P.			6.89			
B.M	0.09	40.54		40.45		
7+48			5.33	35.21		(35.14 Reset 07 Lower
				6		
7+66			5.56	34.98		
9+70	9.15	44.56		35.41	33.18	C. 2.23
9+42.35			10.56	34.00	33.33	For 6" pipe "F"
			10.50	34.06		Top pipe
0+50	5.96	47.86		41.90	37.50	C. 4.40
0+24			11.86	36.00	35.33	
	1.59	45.47		43.88		
4+94			8.91	36.56		
5+13			9.14	36.33		Top pipe 36.44
5+17			9.15	36.32		
5+14			9.04	36.43		on Stake at M.H
4+77			8.83	36.64		
4+77			9.48	35.99		Stake by iron Stake Meas up 0.65
B.M	0.28	40.73		40.45		
7+48			5.56			
7+67			5.75			
8+11			6.03			Bell

"A" Line Check Levels. Cloudy in morn. A.M. 4-15-36. ⊼ McCarty ∇ Walker

Sta	+	H.I	−	Correct Elev.	
B.M	3.01	359.96		356.95	
T.P	5.95	356.15	9.76	350.20	
B.M 5+35 Stump			9.21	346.94	
B.M. Nail Bottom Stump 5+35			12.21	343.94	
T.P	2.75	352.95	5.95	350.20	
MH #45			7.36	345.59	
T.P.	8.03	359.96	1.02	351.93	
B.M.			3.03	356.93	
"C" Line Relocated MH #50 Drop.					
Sta 2+21					
Old 2+09	6.18	87.32		81.14	75.00
2+21			5.73	81.59	75.28
"A" Line.					
MH #40 9+42.35	0.27	44.90		344.63	33.33
Top 6" pipe			11.87	33.03	32.46
Top 8" " Going E			11.87	33.03	32.29
" 8" " " N on bell			11.79	33.11	32.26
9+70 Hub			9.52	35.38	
0+50 "F"	8.60	50.50		41.90	37.50
			12.37	38.13	37.56
	0.60	44.43		43.83	
4+78			7.85	36.58	(35.73) 2
5+			8.15	36.28	
5+26		4.17	8.12	36.31	35.46

Brass Plug SE Cor Circle Drive & 39th St.

on conc. wall

(46.83 By Moore.) Top Stump

Nail in bottom of stump.

on conc. wall

6' offset 335.54 (By Moore)

on Cb.

B.M. Brass Plug. SE Cor Circle Dr. & 39th St = 356.95

6.14

C 6.31 C 16.31

C 11.30

−0.57

−0.74

−0.85

35.41 Check.

C 4.40

−0.57 Top pipe

B.M. on Stump

35.73 (pipe or bell?)

Pipe 35.52

Top Bell

By old levels.
? Elev FL. 5+14 = 35.62
11
By new levels 35.73

Elev MH #45 0+98.40 = 37.58

4-15-36

	+	H.I.	−	Elev	F.L.	
		56.34		45.59		
MH #45	10.75	56.29		45.54 (by Meade		Hub 6' offset
		59.87		51.94		
T.D	7.93	59.82	4.40	51.89		on Ck.
				56.94		check to 0.12
B.M			2.93	56.89		SE cor Circle Pk 56.95 Check 0.06 Low.

4-16-36

"A"	5.04	34045		35.41	33.18	C. 2.23
10+05			6.81	33.64	32.93	
10+6.95 MH					33.00	
10+13						
10+36			6.71	33.74	32.89	Top Bell
	4.99	40.40		35.41		
S. Pier			6.37	34 03	33.16	Top Bell Iron Pipe
			6.76	33.64	32.93	N. End of pipe 0.07 Low Est. Grade = 33.00
N. Pier			6.47	33.93	33.06	Set 33.08 Settled 0.02
10+36			6.67	33.73	32.88	33.86 = Est. Grade Set 0.02 High.
10+13			6.59	33.81	32.96	Set mark on iron stake String Grade Top Bell
Copley Arc C"L. ne						
+50 Sewer	5.68	65.79		60.07	56.62	C 3.45
+25			9.96	55.83	55.18	String Grade Top Bell 6" pipe mark on iron stake
1+00			11.40	54.39	53.72	" " " " " " " " " "
+75			12.84	52.95	52.28	" " " " " " " " " "
B.M 8+35	0.205	44.035		43.83		Nail in bottom of Stamp
A" Line.						
5+26			7.725	36.310	35.57	
5+15			7.68	36.345	35.61	Top pipe
5+11			7.64	36.395	35.65	Top pipe 35.62 = Elev. MH. 35.73 = Grade by new levels.
						35.53 = Est. Grade.
						.09 High.

Estimate #2353 3/6/36

Pump House.

Excav. 14 × 4.5 × 4.5 = 11 yds

MH 37 to 38

MH 38 Grade

Hole #6 21' to Cut 4.1

	5.6	41.3		40.8	31.31
Hole #5			7.2	34.1	
4			6.1	35.2	
3			5.0	36.3	
T.P	0.4	39.3	2.4	38.9	
Hole #2			3.1	36.2	
Hole 1			10.2	31.1	
" 1			11.7	27.6	
			12.8	26.5	
				Hub.	
11+50	-0.1	41.2		41.39	
			9.0	32.2	

F.L. = 31.5

3/6/36

Geo. Ex 21 yds. bet MH 37 + 38

E. 18 yds. " MH 38 + 39

B.F 22 yd " MH 37 + 38.

(5th Hole from MH 38 to 39 Caved in 39 ft 1/2)

C 9.48

C. 2.6

3.7

5.2

7.4

4.7

0 0

0 5

0 0

9.12

7' × 4 ×

11 × 4

9 × 4 × 5.0

6 × 11 × 2.5 (Add Bench 11 × 2.2 × 0.5)

12 × 3.2 × 6.0

40 × 2.5 × 5.5

15 × 2.5 × 4

1.5 × 5 × 2.5

Add 20 yds for Mch 6-'36

Around Pump

4.5 × 1.8 × 30	= 243
20 × 1.5 × 12	= 360
18 × 1.5 × 3	= 81
30 × 2.0 × 3	= 180
4 × 2.0 × 4	= 32
	896 = 33 yds

3/6/36

MH 41

8 x 6 x 3.5 = 108

6' dia x 6.8 High = 192

7 x 5 x 3.5 = 142.

442. = 16 yds

MH 41 to MH 42

8 x 1.7 x 3 = 41

5 x 0.8 x 8 = 32

73 = 3 yds.

56 yds Exc } Total.
21 yds B.F }

Estimate 3/10/36

E. Tunnel 9' dug.
8.5 × 3 × 5 (prog.) = 5 yds.

W. Tunnel 16' Edge MH.
6 × 7 × 4 = 148 = 6 yds

} 11 yds.

MH #41 to MH #42

MH 37 to 38

To date → B.F complete to 10' from MH 38
= 10 yds B.F. 3/10

3/10/36

10 yds B.F
12 yds Exc } B.F = 2 × 48 × 3 = 288 = 10 yds.

= 18 yds Exc, 2 × 8 × 3.5 = 2 yds.
4 yds B.F

131 × 4 × 3 = 1072 } 53 yds
360
120
55-2 = 58 yds
10 yds 3/10/36

MH #36 to Pump House 11 yds. Exc
7 yds B.F

Estimate 3/10/36

Exc 11 Dick.
" 18 Steve
" 20 Geo.
" 7 Boreon
56 yds total. "A" Line Ditch 3/10/36

B.F 4 Steve.
" 7 Boreon
" 10 George
21 yds B.F. "A" Line Ditch 3/10/36

3/11/36

MH 41 to MH 42

30 63 ft of 8" Conc. Pipe,

75 6.0 x 0.5 x 2.5 = 3 yds.

4 1/3

Tunnel E Portal 11.5' progress

2.5 x 11.0 x 3 = 82.5 = 3 yds,

13' Edge of MH to Portal/Tunnel.

W Tunnel 7' from portal.

2 x 9 x 4 = 64 = 72 = 3 yds

MH 38 to 39

Sta 12+01 to Sta 11+59

B.F. 13 x 6.5 x 3 =

" 2 x 7.0 x 3 =

23 x 4.4 x 27 =

In. Fill

30 x 5 x 1 = 150

18 x 18 x 1 = 324

20 x 30 x 1.5 = 900

Pulled down on path

27)1371 51 20 yds.

135

21

Total for 73 yds Fill

MH 38 to 39 Cont.

13' x 1 x 3 = 39. ✓

10 x 2 x 3 = 60 ✓

10 x 2 x 0.5 = 10 ✓

9 x 2 x 4 = 72 ✓

5 x 2 x 4 = 40 ✓

7 x 2.5 x 4 = 70 ✓

21 x 0.5 x 3 = 32

27)323 (12 yds.

27

53

STARTING MH 38 3/11/36

#1 Hole 21' finished

	L	D	W	
2 "	6.5 x	6.0 x	4	Depth from Top E Tower Wall plate
3 "	11.0 x	4.0 x	4	" " "
4 "	9.0 x	7.3 x	4	" " " "
5 "	10.0 x	1.55 x	3	3" Elev to W.P. " Top W " "
6 "	8.0 x	1.0 x	3	
7 "	23.0 x	0.5 x	3	STA 12+25
8 "	15.0 x	1.8 x	3	Top West Wall Plate

Exc. complete 12+10 to 11+50

3-12-36

Pump House to MH 36.

12 yds total in hole next to P.H.

14 x 5.5 x 4 = 12 yds. Boron

MH 38 to MH 39.

Tunnel 5' 10 x 3 x 5 = 150 + = 6 yds.

Hole #2	Depth 8'	-6.0 = 2.0	6.5 x 4	71.6
3	" 4.2'	4. = 0.2	11 x 4	
4	" 7.6	7.3 = 0.3	9 x 4	
5	" 3.5	1.5 = 2.0	10 x 3	252.9
6	" 2.2	1.0 = 1.2	8 x 3	
7	" 3.5	1.8 = 1.7	23 x 3	
8	" 3.0	1.8 = 1.2	13 x 3	

324.5 ↓ 12 yds

18 yds for Geo. 35 yds remov fill

35/53 yds.

W. Tunnel 11' from portal

11 x 4 x 3.5 = 6 yds.

11 x 3.8 x 3.5 = 5 yds } 11 yds.

E Tunnel 16' from portal.

Est. 3-13-36
WPA #2353

P.H. to M.H. #36

2 yd. for Geer 8 yds B.F.

5 x 4 x 3 = 60
11 x 5. x 1.5 = 82
} 6 yds Ex
2
8 yds Total

MH 38 to MH 39

2.5' finished

			Av. Depth
Hole #2	P. 1.5 x W. 3 x L. 6.5	=	9.5'
" 3	0.6 x 3.5 x 11.0	=	4.7'
" 4.	Same.	No ydg.	7.5
" 5	1.3 x 3.0 x 10	=	4.8
" 6	1.3 x 3.0 x 8	=	3.5
" 7	0.2 x 3.0 x 23	=	3.7
" 8	1.2 x 3.5 x 15	=	4.2

} 7 yds

2 x 12 x 3 = 72 = 3 yds

Totals for 3-13-36

65 yds Exc. "A" Ditch
11 yds B.F. "A" "
30' 8" conc. pipe

Hole 2	11'	x 3½
" 3	8"	x 3.
" 4	9'5"	x 3½
" 5	6'	x 3½
" 6	5'	x 3
" 7	5'6"	x 3½
" 8	5'	x 3½
" 9	6'5"	x 3½
" 10 AND 11	6'6"	x 3½

HOLE SO. PUMP HOUSE LONG
13" 5' 12'

Steve. 37 yds

MH 41 to MH 42.

4½ yds. Portal of W Tunnel 13' to face · 3' prg.
4½ yds. " " E " · 19' " " 3' prg.
Shaft = 1 yds 3' prog
B.F 16' x 4.7 x 2.5 = 7 yds
- 4
10 yds. 3 yds.

Mon. 3-16 - 18 yds.
Exc = 5.5
B.F = 4

Tues - 17th.
Exc 71 yds } 24' 8" pipe
B.F 6 yds } 12' - 6 C.I. pipe.

Wed. Exc 46 yds
B.F 37 . 21' pipe

Thurs. Exc 38 Exc.
33 B.F
33' - 8" pipe

3-17-36

Pump House

P.H. to MH #36

L = 12 D = 13' from timber W = 5' 3/17

L = 12 D = 10.5 " " W = 5 3/16

12 × 2.5 × 5 = 150 = 5 1/2 yds {F. Geer Est = 10 yds}

12 × 3 × 5.5 =

1 × 6 × 5.5 =

Mch 18-36 Estimate

MH 41 to MH 42

W Portal 25' to face 3' progress.

Shaft 9' = Length. Depth = 8.2 from top set.

W = 3.2 = 3 yds.

E Portal 20' to face No progress

→ previous meas 9' Length 6' depth 3.2 = W.

Tunnel W 13' × 3.5 × 3 = 136 = 5 yds. 8 yds total

MH #38 to MH #39

18' × 3 × 2
3 × 0.5 × 2
6 × 3.0 × 2.5
11 × 1.0 × 2.5
12 × 4.2 × 2.5

} 13 yds Stove

2 Hole # 11'

#3 Hole {10.5' 3'; 8.3 5'}

#4 10.8

#5 6.5

#6 6.5

#7 {6.5; 8.0; 8.3}

#8 Complete.

} 12 yds Geo.

MH 36 to P.H.

13 × 5.5 × 16 = 9 yds 3/18

5 × 5 × 4.2 = 4 yds

133
37
170

Estimate 3-19-36

P.H. to MH #36

$13. \times 5.5 \times \frac{18}{16} =$ (Total)

Geer { $13 \times 3.5 \times 2 = 5$ yds. Exc 5 yds B.F.

Borron { $9 \times 5 \times 6 = 270$
105
165 } 6 yds 6 B.F.
162

MH 38 & 39.

No Exc in #1, 2.

Hole No 3 Depth 12' Hole 5' x 2½'

4 " 11.8 Same length 3½'
5 " 7.2 " " 3'
6 " 6.9 " " 3 "
7 " 8.1 " " 3 "
8 No Excav

} Geo

20' x 3.5 x 2.5
13 x 1.5 x 2.5
20 x 3.0 x 2.5
13 x 1.5 x 2.5

+5 yds Overburden = 12 yds. Total.

Progress 4' in W portal.

$4 \times 12 \times 3.5 = 168 = 6$ yds.

Shaft 9'=1 10.7 = D W.= 3.2 = 72 cu. ft
= 3 yds
9 yds. Exc
3 " B.F

→ $3.5 \times 12 \times 3.0 = 126$
$1.0 \times 9 \times 3.5 = 31.5$
$0.7 \times 10 \times 3 = 21.0$
$0.4 \times 8 \times 3$
$0.5 \times 23 \times 3 =$ } 54.1

232.6 = 9 yds. Geo
12 yd Store.
9 " Dick
6 " Borron
5 " Geer
41 " Exc

#2353.

Mon. Estimate 3-23-36

MH 41 to MH 42.

Depth of Shaft 11.4 x 9.

Tunnel 4' going E. from shaft. 11.5 x 3.5 x 4

Shaft 0.7 x 9 x 3.5 =

W Tunnel

33.9 - 29.5 = 4.4' progress

12 x 4.4 x 3.5

27) 366 cuft
14 = yds.

Hole #3	11.8 -		2.5' W	x 12.5 = L
Tunnel 1½'	13 x 1½ x 3.5 = 68			
Hole #4	13.4 -	9	2.5	Same L.
5	8.0 -	10	2.5	" "
" 6	8.8 -	8.0	2.5	" "
" 7	8.5	15.0	2.5	" 15'

1.7 x 9 x 2.5
0.8 x 10 x 2.5
1.9 x 8 x 3.0
0.5 x 15 x 3.0

27) 183 (7 yds Exc
189
8 yds B.E
10 yds B.F.

Total
Exc = 42 yds
B.F. = 49 yds B.F.

Deer Depth 19.5
18
1.5 x 13 x 7 = 136

1.5 x 13 x 10 = 195
136
27) 331 (12 yds
27
4

Est. Tues 3-24-36

MH 41 to MH 42 (DICK)

W. Tunnel 37.6 - Prev. 33.9 = 3.7 ft. = 155 cu'

E Shaft w. portal 4' - 4' = 0 ft.

W " 3.3 x 5 x 9.5

Prev. - 3.3 x 3 x 9.5 = 3.3 x 2 x 9.5 = 63

218

218 cu.ft. = 8 yds.

Total "A" Line Exc. = 28 yds.

B.F. = 30 yds

12' of 8" Conc.

Est Wed. 3-25-36.

7.3
4.2
3.1

W. Portal 42.0 - 37.6 (Prev) = 4.4' = 185□

E. Shaft W Tunnel 8' - 4' = 4' progress 154□

W " 3.3 x 5 x 2.6 = 43 cu ft

= 382□ = 14 yds.

Total Exc. = 28 yds.

B.F. = 55 "

51' of 8" Conc. Pipe

Estimate Thurs. 3-26-36

MH 36 to P.H

18+67 to Grade

Tunnel start 18+81 Length of Tunnel 5'

MH #38 to MH #39

		L	W	D		
MH 38th to 11+30	(Back Filled except	11	x 3.	x 4	=	132
	" " "	10	x 3.5	x 14	=	490
	" " "	11	x 3.5	x 12	=	462
	" " "	16	x 3.5	x 9.7	=	544
						1628

Exc. 4.5 Top Timber upper side } 23' Length
5.0 " " "
6.0

4.2' " " " 18' "

MH 40 to MH 41 150 Clear & Grub

W. Portal 46 - 42 (P.) = 4' progress. 4 x 11 x 3.5 } 10 yds.
3 x 11 x 3.5

Shaft E Tun 11 - 8 = 3' "

W. Shaft - + 4.2 x 10 x 3.2 } = 194□ out
+ 3.1 x 6 x 3.2 } 194 prev

No prog

Exc 40 yds total

B.F. 42 yds

18' Conc. Pipe

Grand Total Pipe 8" C.I. = 80 ft.
includ 3/26/36 8" Conc. = 732 "
Reinf. Steel. 6262 ft. lineal feet
3 Manholes completed.
"A" Line Excav. = 1477 yds
"A" Line B.F. = 602 yds.
P.H. Concrete 45 yds.

Total of Week Ending 3/27/36
up to 3/26/36.

Fri. Est. 3/27/36

W. Portal 2' progress 11 × 3.5 × 2 = 77 cu. ft.
3.2 × 10 × 7.5 46 cu ft

E Shaft { E. Portal 12 × 1 × 3.5 = 42
W 11 × 2 × 3.5 = 77
77
46
242 = 9 yds.

MH 40 to MH 41
35 × 0.5 × 2.5
7 × 2.0 × 3.5
8 × 1.5 × 3.5
15 3.4 × 3.5
5 × 3.7 × 3.5
11 × 2.0 × 3.5
7 × 3.0 × 3.5
7 × 3.0 × 3.5
} 616 cu ft = 23 yds

MH 40 4.7' × 6' dia

28.3
4.7
27)133 (5 yds.

8 × 3 × 3 = 72
16 × 3.3 × 3 = 158 } 230 = 8 yds.
Piers = 1 yd.

MH 23 × 1.3 × 3 = 89 = 3 yds. Steve 39 to 38
2
7 yds Baker 39 to 38
12 yds. Total

Fri Est 3/27/36

24' x 5 x 3.5 } 720
10 x 11 x 3.5 } 385 } To be backfilled
11 x 4.0 x 4.0 176
1628 - 1261 cu = 367 cu
= 14 yds

30 yds B.F. total.

Estimate Mon. 3/30/36

M. Shaft
(11.6 x 10 x 3.2) - (7.5 x 10 x 3.2) = 5 yds.

Shaft to Schneider Lateral
3.3 x 5 x 5 = 82 = 3 yds.

3.5 x 0.5 x 2.5 = 44 cu
13 x 3.0 x 3.5 = } 369
7 x 3.0 x 3.5 = }
13 x 3.5 x 3.5 = }
13 x 3.0 x 4.0 = }
12 x 2.0 x 4.0 = } 392
7 x 5.0 x 4.0 = }
805 = 30 yds.

MH #40
6' x 5.8 = 164 cu = 6 yds.

Exc. 24 x 5.0 x 3.0 = 360 = 13 yds.
Conc. Piers 0.8 x 1.8 x 3.0 }
" " 0.8 2.2 x 6.5 } = 15.8 cu = ½ yd. Concrete

MH #39 to MH #38
7 x 3 x 2.5 = 52.5
30 x 2 x 3.0 = 180.
232 = 8 yds. + 5 yds. 0.13 = 13 yds.

PH to MH #36 54' of 6" C.I. Pipe.

Estimate Tues 3/31/36

P.H. to MH 36 To be B.F { 16.5 × 16 × 6 = / 8.2 × 24 × 6 = / 25 × 13.5 × 6 =

Steve. 3 yds. =

2 yds, Exc. =

18' - 8" conc. pipe

MH 39 to MH 40

(24 × 5.6 × 3) − (24 × 5.0 × 3) = 43 cu = 2 yds — 13 yds.

MH 40 Same = 6 yds

MH 40 to MH 41

9 × 5 × 4.0 = 180 cu

23 × 5 × 4 = 460

13 × 7 × 3.5 = / 7 × 4.5 × 3.5 = / 13 × 3.0 × 3.5 = / 35 × 0.5 × 3.5 / 11 × 1.7 3.5) 692

1332 cu = 49 yds.

12 yds Geo. at 1:30 PM 13 yds

Schneider Lat. Shaft

(5 × 3.5 × 7.5) − (5.5 × 5 × 3.3) = 49 cu = 2 yds

W. Shaft. (12 × 3.3 × 10) − (11.6 × 3.2 × 10) = 25 cu = 1 yd.

E. Portal 12 × 2 × 3.3 = 79 = 3 yds = 6 yds Total Dirt

No B.F.

36' Pipe 8" Concrete

Summary 3/31/36.

Exc. = 21 yds

B.F =

Pipe 8" conc = 54 ft.

Estimate 4-1-36.

MH 41 to MH 42

B.F 8' of tunnel 11 × 8 × 3.5 = 308 = 11 yds + 5 = 16 yds

E portal = 4.6 − 2 = 2.6 × 12 × 3.3 = 103 cu (prev)

W. Shaft W " = 2 × 12 × 3.3 = 79 cu

Schneider Shaft. (9.5' - 7.5) 2 × 5.5 × 3 = 33 cu

" Tunnel 3.5 × 9 × 2 = 63 cu = 10 yds

MH 40 to 41

35 × 0.5 × 3.5 = 61.3

13 × 3.4 × 4.0 = 176.8

8 × 5.4 × 4.0 = 172.8

Tunnel. 5' 7.5 × 5 × 3 = 112.5

13 × 7.5 × 3 = 292.5

14 × 8.0 × 3 = 336.0

18 × 5.0 × 3.5 = 315.0

1466.9 = 54 yds

MH 40 8.5 × 6 dia. = 280 cu = 10 yds

add 1 yd = 9 yds for Geo.

Duke "F" Line MH 40 West

13 × 2.9 × 2.5 / 18 × 2.8 × 2.5 / 7 × 4.5 × 2.5 / 11 × 5.0 × 2.5 } 16 yds.

Steve 6 yds Exc. 5 yds B.F

B.F MH 36 to P.H Except 15 × 16 × 6 = 1440

20 × 10 × 6 = 1200

2640

5 yds 13.5

Est. 4-2-36

Duke "F" Line W

11 x 5 x 2.5 =
8 x 5.5 x 2.5 = } 535
22 x 4.5 x 2.5 =
4 x 4.0 x 2.5 =
15 x 3.8 x 4.0

228 / 763 = .25 yds previous
1.1 yds 3/4

MH # 40 Same. No excav.

MH # 40 to MH # 41

7' not excav next MH # 40
30' Conc pipe 8"
Pitch Finish Exc. 8+60 to 9+35
7 x 2.9 x 3.5 =
35 x 0.5 x 2.5 =

Steve MH # 38 to MH # 39 Grade Comp to 10+61
10+61 to 10+44 17 x 3 x 3.4
B.F. Starts 10+90

Copley 70 x 1.0 x 2.5 = 175 = 6 yds.

Est. 4-3-36

MH # 41 to MH # 42

Schneider Shaft. 11 x 3.3 x 3 = 4 yds.
13.5 8 x 3.5 x 4 = 4 yds

MH 41 to MH 40

5 x 3.5 x 3
3 x 1.0 x 3
6 x 2.7 x 3.5
35 x 0.5 x 2.5

Pitch Finished 8+55 to MH 40

"F" Line Duke

14 x 3.3 x 3.5 = 162
8 x 3.5 x 2.5 = 79 / 23 = 8 1/2 yds.
0+50 to 1+00 Finished
12 x 3.0 x 3.5 =
10 x 4.2 x 3.5 = 273 = 10 yds #/3

WPA #2353

Est 4-6-36

MH #41 to MH #40

18 x 3.5 x 3.5 = 220 ✓

35 x 0.5 x 2.5 } = 112
7 x 2.0 x 2.5 }
9 x 1.5 x 2.5 }

333 ✓ = 12 yds.

3.5' Ditch Finished 8+55 to MH 40 9+42.35 = (45 x (5.6+7.8)/2) x 3.5 = }
10 x 7.8 x 3.5 = }
(20 x (7.8+4.9)/2) x 3.5 = } 1893 = 70 yds
9 x (6.2 x 7.6+4.9)/2 x 3.5 = }

70
12
19
101 yds

B.F 8+62 to 9+42 = Except 2' x 12 x 3.5 = 84
" 2' x 8 x 4 = 64
" 3 x 30 x 4 = 360
Except 19 yds. = 508

8+62 to 9+42 } 65 yds. 19

46 yds total B.F

Conc. Pipe Laid to 8+62

MH 39 8' x 5.5' x 4' = 176 = 6½ yds

MH 39 to MH 38 13 x 0.5 x 2.5 = 16 = ½ yd.

Exc to grade 10+40 to 10+60
" " 1' from " 10+40 to 10+30

B.F. Comp to 9+65

34 yds Exc.
70 B.F.
30' Conc Pipe

"F" Line 0+27 to 0+37 = 15 x 3.5 x 4 = 8 yds

Finished 0+37 to 1+00

45' x 3' x 3.5 = 470 = 17 yds.

MH 41 to MH 42 End of pipe 5+45

Duke { 18 x 4.5 x 2 = } 197.
{ 5 x 3.5 x 2 = }

MH 42 6 dia x 4 = 4 yds.

Estimate 4-7-36

MH #42

Excav. 6.5 × 6' dia. = 184 = 7 yds

MH #41 to MH #42

18'-8" Concrete Sewer Pipe Laid.

21 × 5.5 × 2 = 231

6 × 5.0 × 2 = 60

291 □' − 197 = 94 □' = 3½ yds

Tunnel B. Filled 35' W from E. Portal. Sta 6+37 + 6+68 } = 4½ yds

B. " Sta 6+76 to 6+85 = 9 × 1.4 × 3.3 = 339 □' = 12½ yds

54½ yds.

MH 41 to MH 40

9 × 4 × 2.5 } 130 □'

8 × 2 2.5 }

18 × 35 × 3.5 = 220

35 × 0.5 × 2.5 = 44

7 × 3.7 × 3.5 = 41

435 □' = 16 yds

8+55 to 9+42 Ditch Finish = 70 yds

B.B 8+62 to 9+42 Same as 4/6/36 = 46 yds

"F" Line 28 × 5.5 × 3.5 = 539 = 20 yds

0+50 on Same.

10+60 to 10+34 Gr. Comp.

10+34 to 10+21 2' from Gr.

MH 39 Same

Copley Line "Geer"

26 × 1.6 × 3 = } 219 □' = 8 yds. ← Add to previous

9 × 3.5 × 3 = }

36 yds Exc.

25 " B.F

24' Conc Pipe

1¾ yds concrete on piers

86 yds. Total.

Estimate 4-8-36

MH 41 to MH 42

6+65 + 6+75 Add to prev $10 \times 12 \times 3.5 = 420 = 15\frac{1}{2}$

" " Tunnel 2 yds

" " B.F 18 yds

Duke MH 42 to grade

MH 42 Add → $1.5 \times 28.3 = 42$ cu.ft. = 2 yds.

$6 \times 1.5 \times 2.5 =$ = 1 yd

3 yds

MH 41 to MH 40

Geo
7 B.F
21 Exc

$18 \times 4 \times 3 =$
$27 \times 3 \times 3 =$ } 459

$2.5 \times 0.5 \times 2.5 =$
$11 \times 2.0 \times 2.5$ } $\frac{86}{545}$ lb = 20 yds.

Exc. completed 8+45 to 9+42

B.F = 2 yds. 2 yds Exc.

4 yd

6 yds for Geo.

15' of 8" Conc. pipe

"F" Line Tunnel $8' \times 10 \times 3.3 = 264 = 10$ yds

0+22 to 0+50 = $28 \times 6.0 \times 4.0 = 672 = 25$

" 5 yds B.F from tunnel 20 5yds

Baker 2 yds Concrete.

6 yds Exc 6 yds B.F.

2 yds " Steel

Total 8 yds. 6 yds B.F

" Water Line

$16 \times 1.6 \times 1 = 25.6 = 1$ yd. → 2 yds

~~$72 \times 1 \times 2 = 144 =$~~ 5 yds

28 yds Geo.

8 yds prev.

20 yds Balance 17 yds. Turned in.

Estimate 4-9-36

"Dick" MH 42 to MH 42.

W. Shaft B.F 5 × 5 × 3.5 = 3 yds.
Tunnel between Shafts. 6 "
9 yds.

"Duke" 36" Clear & Grub.
MH 42 to MH 43 Exc 21 × 3 × 2.5 / 5 × 4.3 × 2.5 } 203 = 7½ yds (7 yds Exc)
MH 41 to MH 42 B.F 15 × 5.5 × 2.5 } 211 = 8 yds (8 yds BF)

MH 41 to MH 40
16 × 6 × 3 = 288
15'-8" Conc. Pipe 16 × 3 × 3.5 =
10 × 2 × 3.5 = } 238 } 3 yds. 3/8
"Geo" = 17 yds exc. / 10 yds B.F. 25 × 0.5 × 2.5 = } 73
15 × 3.7 × 2.5 =
599 up to Sta 8+46

B.F 20' × 4 × 3.5 = 280 = 10 yds.

WATER LINE 72 × 1 × 2 = 144 = 5 yds. Pipe = 2 yds. Total 4/6 = 3 yds

40 yds for ditch Total
6 yds " Overp.

F Tunnel in 12' 11' cut × 3.5 × 4 = 5 yds
45' of 6" Concrete pipe.
28 × 9 × 4 = 1008 =
672 = 12 yds out
Turn in 9 yds.

BAKER
10+34 to 10+11 21 × 5 × 3.5 = 368 = 13½ yds Total
24' Conc 8" pipe + conc piers

Geer. 7 × 5 × 6.0 = 210 | 10 × 3 × 2.7 = 81.
8 × 7 × 4.5 = 252 | 13 × 2.7 × 3.0 = 105.
14 × 5 × 2.7 = 189 | 10 × 0.5 × 3.0 = 15.
651 | 14 × 2.5 × 3. 0 = 105
411 | 70 × 0.5 × 3 = 105
1061 = 39 yds | 411
1" Line. 9 yds for Geer 4.

4-10-36

7.5 × 6.5 × 2.5 =
18.0 × 5.5 × 2.5 = } 396 = 14 yds.
Pier 7
7 yds. - Exc.
3 yds B.F

Dick
Tunnel between Shaft. 4 yds.
W. shaft. 3 yds.
Long W. Tunnel 2.5 × 12 × 3.5 = 4 yds
11 yds. B.F.

Geo
23 × 5.5 × 2.5 =
20 × 3.5 × 3.5 =
13 × 3.5 × 2.5 = } 417
25 × 0.5 × 2.5 = 43
458 = 580
B.F. 8+35 to 9+42 Except. 18 × 2.5 × 4
11 × 2.5 × 4
25 × 2.0 × 4

11 × 4 × 3 = 5 yds
13 yds
18 yds.

"F" Line Tunnel E portal. 17' in
12
5'
5 × 12 × 3.5 = 210
2½ × 12 × 3.5 = 176
28 × 9.5 × 4 = 1064.
1400

21 × 5.5 × 3.5 = (21 × 5.0 × 3.5) = 1½ yds.
+ Piers 2½ yds
4 yds.

25 yds B.F 2" yds Exc. for Baker.

Geer Copley Ave.
7 × 6 × 4 = 168
10 × 7 × 3.7 = 259 + 6 yds over.
13 × 6.5 × 2.5 = 211
10 × 3 × 3 = 90
728

26 × 3 × 3 = 234
6 × 1.0 × 3 = 18
24 × 28 × 3 = 201
9 × 2 × 3 = 54
61 × 0.5 × 3 = 91
598

1326 = 50 yds
6
56 yds
10 yds.

1" Line on Copley Ave 50 × 1 × 1 = 50 = 2 yds bottom
7 yds on top
9 yds - 5 yds = 4 yds.

Mon. 4-13-36

Duke

MH 42 to MH 43
- 40' Lineal Ft Clearing & Grub
- 22 × 0.5 × 3 = 33
- 15 × 2.7 × 3 = 121
- 154 = 5½ yds.
- 30 × 5.9 × 2.7 = 47.8 = 18 yds. − 14 = 4 yds
- 3 yds. overh. = 12 yds. Duke No B.F

Dick: Tunnel 6 × 12 × 3.5 = 168 = 6 yds B.F
W. Shaft W. Portal 9 × 5 × 3.5 = 6 yds.
Exc. 12 yds B.F

6 yds. Exc reported. 3 yds. B.F
- 7+66 − 8+00
- 863
- 8+25

Total 20 yds Ex, 19 yds B.F

- 134 × 5.7 × 3.5 =
- 10 × 3.5 × 2.5 =
- 13 × 3.0 × 2.5 =
- 32 yds

24 of 8" Conc. Pipe.

F = MH 40 to MH 42
- 6' × 12 × 3.5 = 252 = 10 yds. Tunnel
- Sta 1+00 4 yds Exc
- 6 yds B.F 00+50 to 1+00

F Line.

F Line

13 yds
- Exc to Grade 10+13 to 10+37
- 10 yds B.F.

Main Ditch
- 1 yd. at sta 0+30. 1yd 0+92, 1yd 0+05

1" Line
- 18 × 2.5 × 2 = 90
- 16 × 1.8 × 2 = 57.6
- 147.6 = 5 yds
- 3 yds
- 8 yds Exc.

Baker.
- 3 yds Exc (MH 38 MH 39)
- 18 yds B.F (MH 39 MH 40)

Tues Estimate 4-14-36 WPA # 2353

59

"Duke" MH 42 to MH 43
- " 4+25 15 × 2.4 × 4 = 144
- 10 × 1.0 × 4 = 40
- 17 × 4.0 × 3 = 204
- 34 × 5.8 × 2.5 = 493
- 881 = 32 = 9 yds over 3 / 12 yds

MH 41 to MH 42 "Dick"
- W. Portal 12 × 5 × 3.5 = 210 = 8 yds
- E " 3 × 5 × 3.5 = 2 yds
- 10 yds B.F.

" " MH #41 to MH #42
- Geo. 34 × 5.8 × 3.5 = 670
- 10 × 3.7 × 2.5 = 92.5
- 13 × 3.2 × 2.5 = 104
- 866 = 32 yds No ydg.

Type MH 40 10 B.F MH 41
Exc 8 ydg. F Line
5 ydg B.F on "F"

- 0+90 10 × 6.0 × 5.5 = 330 = 12 yds " "
- 1+00 + Tunnel → Geo

"Geer" Copley Ave.
- 12 × 4.7 × 7 = 395
- 6 × 6.4 × 45 = 173
- 15 × 6 × 3 = 270
- + 6 yds avish = 838
- = 37 yds.

Ditch Finish 0+32. Sewer Stationing. Blueline of Mark 0+33
- 0+32 − 0+50 12 × 3 × 3 =
- 0+60 − 0+89 29 × 2.6 × 3 =
- 1+00 − 1+15 15 × 3.0 × 3 =
- 1+15 − 1+35 20 × 2.0 × 3 =
- 1+35 − 2+00 65 × 0.6 × 3 =
- Total to Date. 706 = 26 yds. 37 yds 63 "

1" Line. Copley Ave.
- 1+50 − 2+00 50 × 2 × 1.2
- 1+37 − 1+50 13 × 0.5 × 1.2
- 1+00 − 1+37 37 × 2.5 × 1.2
- 0+50 − 1+00 50 × 2.7 × 1.5
- 16 yds.

Geer reported
6 yds B.F
12 yds Exc.

"Steve" MH #38 to MH #39. 2 yds Exc.

Baker (between MH 39+40) = MH 39

Est Wed. 4-15-36

"Duke" Report — 10 yds. Excav. No B.F — 30 ft Brush & Clearing

"Dick" Report — Tunnel 5' progress — 12 × 5 × 3.5 = 210 = 8 yds
Raise 2' " — 12 × 2 × 3.5 = 3 yds
11 yds.

"Baker" Report. — 54' - 6" pipe } 6" Line "F"
9 yds B.F }

"Steve" Report. — 1½ yds Exc for piers.

"Geo" MH 40 + MH. 41 Report. — 23 yds B.F "A" Line
Tunnel — 6 yds Exc. 6" Line ("F" Line)

Geer →

Est 4-15-36

MH #42 to #MH 43 "Duke"

Sta 4+00 - 4+17 = 17 × 2 × 3 = 112
30' clearing & Brushing. 4+25 - 4+41 — 16 × 3.5 × 4.5 = 252
4+41 - 4+51 — 10 × 2 × 3.5 = 70
4+51 - 4+66 — 15 × 5 × 3.5 = 262
696 = 26 yds
(26-14 = 12 yds. for 4-15-36)

"Geo" "F" Line 1+00 - 1+03 3' progress in tunnel = 6 yds

Geer Copley Line 0+50 - 1+15 = 65 × 3.8 × 3 = }
20 × 2 × 3 = } 978 = 36
65 × 0.6 × 3 = }

36 + 37 = 73 yds total.
63
10 yds in Sewer line.

Est. 4-16-36 Thurs.

60

{ BAKER
MH #42 to MH #43 B.F 15 × 5.7 × 2.7 = 8 yds B.F
(Excav 5 yds Between 41 + 42 ✓ XX

{ Dick — 7 yds B.F Tunnel } MH 41 to MH 42
3 yds
10 yds. ✓ 15' of 8" pipe Laid.

{ Geo. 10 × 3.3 × 2 = 132 = 5 yds 1+18 + 1+28 ✓
Tunnel No 2 6' progress in tunnel. } 11 yds Exc
8 × 6 × 3.5 = 168 = 6 yds. ✓
E Tunnel No 1. 12 × 3.5 × 8 = 12 yds B.F.

(Steve. 1 yd for piers. 2 yds MH 39 ✓

Geer { 65 × 5 × 3 = 975 = 40 yds - 36 = 4 yds
50 × 1.5 × 1 = 75 = 3 yds = 7 yds total.
8 yds B.F. ✓ around P.H. 8 yds ✓
45 of 6" pipe. ✓ 15 yds

Friday → 4-17-36

Tunnel W. Portal. 6' progress 12 x 6 x 3.5 = 252 = 8 yds.

"Geo" 10 yds Exc 15 yds B.F. "F" Line

" Steve " 4 yds " MH 39 4 " B.F. MH 39 to 40

Geer. 0+50 to 1+15 65 x 6.8 x 3 = to 1+15

65 x 1.8 x 3 = 461
50 x 1.0 x 1.5 = 461
10 x 1.5 x 3 = 461

50 x 1.1 x 1.15 = to 1+00

10 x 5.0 x 3 = to 1+25

= 19 yds Exc Sta 1+25 to 1+60 2 yds

= ~~~ B.F

Tues. 4-21-36

Tunnel "F" Line 1+00 West 9' from portal.

10 x 8 x 5.0 = <6 for today
34 x 3 x 3.5 =

Stingley 12 yds B.F. (8' in tunnel) (4' Shaft)

" " Steve 6 yds B.F 4 yds Exc

F → Geo. 17 " B.F 8 " 3' progress tunnel

Baker. 27' - 8" conc 13 Baker

" G Geer 26 yds Exc.

Est #2353

Wed. 4-22-36

61

1+14 "F" Line West → Same { 10 x 9.2 x 5.0 } 2 yds. { 34 x 3 x 3.5 }

Tunnel 12-9 = 3 ft progress = 5 yds

Geo. Eastlick { 7 yds exc. 4 yds B.F. } 2 x 3.5 x 18 = 4 yds. B.F.

"A" Line MH 41 to 42 Stingley 7' B.F in tunnel = 11 yds 7 x 12 x 3.5 = Outside = 3 yds.

"A" Line Starting 4+73 S. Side Shed Stevens

18' x 5.5 x 3.4 = 337
5 x 2.5 x 3.0 = 37
19 x 4.5 x 4.4 = 376
18 x 5.5 x 4.0 = 396

14 x 2.5 x 3.5 = 122
2 x 6 x 2.5 = 30
152
1146
1298 = 48 yds

2+73 4+75

MH #43 started 6' dia x 2' = 2 yds.

Baker. 21' of 8" conc. pipe 10+13 - 10+34. also cemented.
" 21 " 8" " " Torn out

Geer "C" Line DMH 5.8°

ESTIMATE Thurs. 4-23-36

MH #43 3.5' deep x 6' dia = 99 = 3 1/2 yds

MH #42 to MH #43.

31 x 5 x 3.5 = 543.
10 x 4 x 4.0 = 160
10 x 5.3 x 4.0 = 212
3 x 2.2 x 3.0 = 19
T. N Side 18 x 6.5 x 3.5 = 409
Transverse 7 x 7. x 2.5 = 123
1466 = 54 yds.

MH 41 to MH 42 Tunnel 8 x 35 x 9 = 252 = 9 yds
outside = 2
11 yds.

"F" Line G. Eastlick Tunnel 2 x 12 x 35 = 84 = 3 yds
= 2 yds

Cuts above tunnel 10 x 10 x 3 / 34 x 37 x 3 = 153 = 5 1/2 yds

Report 11 yds Exc
1 yds B.F
MH 39 to MH 40 19 yds B.F.

C. Line D.M.H = 8.3 x 6 dia = 3 yds prog.
Portal Tunnel = 4 yds
Tunnel 18 x 4 x 3.5 = 252 = 9 yds. 19 yds Exc. Rep.
Fort Bank 45 x 6 dia = 2 1/2 yds prog 12 yds B.F.

Estimate
Friday 4-24-36

MH #42 to MH #43

31 × 5.3 × 3.5 = 575
10 × 5.5 × 4.0 = 440
10 × 5.5 × 4.0 =
3 × 8.0 × 3.5 = 588
To N. Side Hoist 1.8 × 8.0 × 3.5 =
10 × 8.2 2.5 = 205
T808 = 67 yds = 13 yds + 1 yd.
-54
13

MH 43 4.2 × 6' dia =

MH 42 Cone in

MH 41 to 42 — 2' Tunnel 7 × 3.5 × 2 = 2 yds. } B.F.
10 × 3.5 × 4 = 140 = 5 yds.

M 41 to 40 5 yds B.F = 12 yds Total.

"F Line 12 yds. Shy 5 yds. — Tunnel Same 13' in -12 = 1 × 3.5 × 12 = 1½ yds
10 × 10 × 5 = 5 2 yds.
25 × 5.5 × 3 } 514 ☐
9 × 3.7 × 3 } = 7 yds.

Geer. O.M.H = 6 dia × 10.2 = 8.3 = 2 yds.
Tunnel 6½ - 4 = 2½ × 18 × 3.5 = 157 = 5½ yds
MH 5.7 × 6' dia = 1.2 × 28.3 = 34 = 1½
9 yds. Excav. 10 yds reported
8 yds B.F.

Baker 5 yds B.F. MH 38 to MH 39.

WPA PROJECT #2353.
Mon. Estimate 4-27-36

62

MH #42 to MH #43. (Stevens Foreman)

(31 × 6 × 3.5 = 651 ☐ MH #43
To Shed. 29 × 6.5 × 4 = 754
Sta 4+62 12 × 8.5 × 3.5 = 357
1762 ☐ = 65 yds. 5' deep × 28.3 = 141 ☐.
= 5 yds.

MH #43 to MH #44 Stingley Foreman.

80 × 3.3 × 1.0 } = 12 yds. Clearing & Grubbing =
80 × 3 × 0.2 }

"F" Line. Geo. Eastlick, Foreman.

14' Tunnel - 13' = 1 × 12 × 3.5 = 42. ☐

10 × 11 × 5 = 550 - 500 = 50 ☐
-34 × 5.5 × 3.5 = 654 - 514 = 140
35 × 1 × 3 = = 105
295 295 337 = 12½

"C" Line. F. Geer Foreman
D.M.H #50 Depth = 13.6 - 10.2 = 3.4 × 28.3 = 96 ☐
Tunnel 10 - 8 = 2 × 4 × 18 = 144 ☐ = 5½ yds = 3 yds
outside = 1 + 6 + 3 = 10 yds Total

Estimate 4-28-36
MH #43 to MH #44
76 × 3.5 × 3 = 30 yds. - 12 yds Prev = 18 yds

MH 43 to MH 42
Stevens F. 30 × 7.3 × 3.5 = 767 ☐
10 × 7.7 × 3.5 = 269
18 × 10 × 4 = 720
13 × 9 × 3.5 = 409
2075 - 1762 = 313 = 11½ yds Exc
10 yds B.F.

Baker 18 yds B.E.

"F" Line. G. Eastlick
Tunnel 19 - 14 = 5' × 12 × 3.5 = 210 ☐
34 × 6½ × 3.5 = 762 - 654 = 108 ☐
31 8 = 12 yds.

"C" Line. F. Geer.
16.6 - 13. = 2.9 × 28.3 = 3 yds

Estimate 4-29-36

MH 44 to MH 43

Beyond Stone W. { 8 × 2.5 × 3 = } 192 □ = 7 yds.
{ 20 × 2.2 × 3.1 = }

4.2 Sta 3+00 to 3+25 = 25 × 2.9 × 3.3 = 239 To 1st Bx

(4.2+6)/2 → 3+25 to 3+50 = 25 × 5.1 × 3.5 = } 947
3+50 to 3+68.3 = 18 × 4.7 × 3.5 = }
3+68 to 81 = 13 × 4.5 × 3.5 = 1186 1378 total = 51 yds

MH 43 = 5' deep 53-30 = 23 yds 53 yds

MH 43 to MH

(30 × 8.6 × 3.5) = 803 -

Tunnel 4 × 12 × 3.5 = 168 □ = 6 yds.

10 × 7.7 × 3.5 = 269

Report: 18 × 11.4 × 4 = 807

13 × 9 × 3.5 = 409

1485

803

2288 - 2075 = 8 yds.

14 yds

Geo. Eastlick "F" Line 10 yds

178 cu. ft. in ditch = 6½ yds } 10 yds.
100 cu. ft. carried in = 3½ yds }

"C" Line F. Geer. Tunnel E portal 14.5 - 12.5 = 2' progress. } 10 yds

W Tunnel Started. Tunnel W Portal 3' progress × 16.3 × 4 = 196

Estimate 4-30-36.

MH 44 MH 45 (22 × 0.5 × 3.3 = 36 □ MH 44 6' × 0.5 depth = 14 □

MH 44 to 43 To Stone W { 16 × 0.4 × 3.3 = 21
{ 8 × 2.5 × 3 = 60
{ 30 × 5.5 × 3.5 = }
3+00 3+25 { 4 × 3.5 × 3.5 = } 1872
{ 21 × 3.0 × 3.5 = }
3+25 - 3+50 25 × 5.5 × 3.5 }
3+50 3+80 30 × 6.7 × 3.5 }
MH 43 Stone 1953
1398 575

21 yds

MH 43 to 42 30 × 8.6 × 3.5 = } 10 yds B.E
Tunnel 4 × 12 × 3.5 = }

Grade 10 × 12 × 4 = 172 Tunnel 2 × 12 × 4 = 96
{ 16 × Grade = 96
{ 13 × Grade = 64 = 10 yds

"F" Line

Geo Eastlick "F" Line 6 yds Exc.
BAKER PIPE 3 yds. B.E
2 ft of 6" pipe

F" Line.

10 × 10.5 × 5.0 =
34 × 7.5 × 3.3 =
35 × 1 × 3 =

C" Line

E. Portal. 2.5' × 18 × 4 = 180 16.' from 1st set

8 yds out Exc
8 yds B.E

Ditch MH 36 to P.H.

13 × 14.5 × 6 = } 1352 } 3563 □
12 × 4.5 × 6 = }
16 × 16 × 5.2 = 1331
20 × 8 × 5.5 = 880

MH 44 to MH 45 23 × 1.0 × 3.5 = 3 yds. - 1 = 2 yds.

5" - 1-36

MH 44 6' × 0.5 None = ½ yd.

MH 44 to 43 17 × 2.0 × 3 = 72 25 × 3.3 × 3.5 =
Ditch 8 × 3 × 3.5 = 30 × 6.6 × 3.5 = 20.92
1953 Report 11 yds 21 × 5 × 3.3 = 2.16 4 = 80
8 25 × 5 × 3.3 = 241 □ = 8 yds
19 yds

MH 43 to 42 1 yd. Tunnel = 2 × 12 × 4 =
B.E = 20 yds.

"F" Line { 10 × 11 × 5 = 25 □ 7 × 3 × 3 = 63
{ 34 × 8.4 × 3.3 = 101 2.2 × 1.2 × 2.5 = 65
At 1 P.M 126 □ 128 - 105 = 1 yd

5½ + 2½ = 8 yds. 40' of 6" pipe laid

20" Line F. Geer 19 yds Exc
19 yds B.E

Stone 8 yds Exc 20 yds B.E. Ditch 11 yds Exc

21 { 13 × 9 × 6 = } 975 } 2618 □ - 2618 = 35 yds
{ 13 × 3.5 × 6 = } 3563
13 × 10.5 × 5.2 681
25 × 7.1 × 5.5 962

5-1-36 (F.L. 085 Below)

"A" Line

Sta	+	H.I.	−	Elev	Top Bell String Grade
4+50	2.085	349.975		347.89	
4+37			12.88 Top Iron Stake		37.09
4+09			11.71 Top Iron Stake	338.265	37.21
3+83.42			11.57	338.405	37.335
3+50	2.72	349.79		47.07	
3+83.42	0.15 Diff.		Top stake 11.59		
3+51			Top Stake 11.63		
	4.39	48.33		43.94 B.M.	
4+50			0.38	47.94	
4+37			11.44	36.89	
4+10			11.325	37.005	
3+83 MH #43			10.12	38.21	37.13
		McCarty & Walker.		5-4-36 Monday Clear	
3+50	2.48	349.55		347.07	
Str. Grade Top Bell MH #43			~~1.24~~	~~337.14~~	~~37.14~~
3+51			11.39	38.16	38.31
MH 43 Top Stake			11.35	38.20	
4+50	0.83	348.77		47.94	
4+10			11.77	37.00	37.00
3+83 T.P.	11.24	49.44	10.57	38.20	37.115
3+51			11.29	38.15	37.360
3+25			11.075	38.365	37.477
3+00			Top Stake 9.84		37.59
3+50.			2.37	347.07	

3' offset C 11.94
Top of Bell
12.765 Gr. Rod Top Bell Red Mark Iron Stake Raise .01
12.64 " " " " " "
C 10.66 37.09
Top M.H. Stake.
12.51.5 12.50
6' offset Hub.
Top Bell Check
Top " Check
6' Offset
Top Iron Stake
6' Offset
Top Bell
Top Stake
" "
Top Stake
Gr. Rod 11.85 (For Grading only)
6. Offset

"C" Linc. 5-4-36

Sta	+	H.I	−	Elev	F.L.	
M.H 1+74	3.95	367.37		363.42	358.00	C. 5.42 Hub 6' offset.
F.L. MH ℄ 1+74.			9.40	357.97	358.00	
1+79			8.21	59.16	58.48	Top Bell
1+88	4.6 3.2	63.4	7.16	60.21		on ground. 3.2 Hand ℄.
1+94.5			H.L. 2.5	60.9		on ground.
2+02.5			H.L. 1.2			on ground.
2+23.0					65.28	

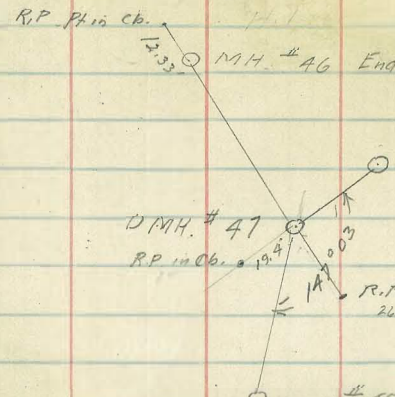
5-6-36

2+09	5.41	386.55		381.14		Hub. 6' offset
2+21			4.96	381.59	65.28	D.MH Hub 6' offset C 16.31
2+21			4.67	381.88	65.28	C. 16.60 to F.L. C 15.92 to Str. Gr. Stone keel on timber

"A" Line 5-6-36

3+00	3.93	350.33		46.40		6' offset
2			3.62	46.71		Stone Wall 1' Right 2+99
3+25			12.87	37.46	36.61	Top Bell
2+99			11.63	38.70	36.73	Top Iron Stake C 1.12 Gr. Rod = 12.75 37.58 = Str. Gr.
2+84			8.76	41.57		
3+52			13.06	37.27		Top Bell
		5-6-36 P.M.				
3+50	2.39	49.46		47.07		6' offs. 12.305 1+75 13.0
3+25			12.00	37.460		
2+99			11.875	37.585	36.735	
3+50			12.175			Top Bell
3+80			12.42	37.04	36.30	Top pipe 3+78 -Rod 12.305 Top Bell
3+86			12.50			Top pipe

5-7-36



"A" Line MH #48 5-7-36

Sta,	+	H.I.	−	Elev	F.L
39th & Circle Dr. B.M. Br. Plug	1.81	358.76		356.95	
T.P. on Cb.	7.69	356.19	10.26	348.50	
F. Hyd. East of 39th St.			8.25	347.94	
6' offs MH #45	1.76	347.36	10.59	345.60	
2+99 End of pipe.			9.76	3760	36.75

McCarty & Walker. Clear & Warm 5-7-36

3+00	0.79	347.19		46.40	
2+99			9.61.5		
		Top Stake	8.27		
2+79	Top Bell	String Grade	9.535		

5-8-36

3+00 6' offset	0.98	347.38		346.40	
2+99			9.805	337.575	36.725
2+79			9.775	337.655	36.805

Top F.H.
C 345.54 By Moore
Top Bell
6' offset
End pipe Top Bell
C 1.265
C 9.76
Top Bell ✓
String Grade Top Bell ✓

COPLEY AVE 5-11-36. McCarty ⊼ Walker Ⅱ Clear, Warm.

"C" Line High Pressure

Sta.	+	H.I.	−	Elev.	F.L.
High Pressure Line. 5+00	5.21	392.83		387.62	382.91
5+00			5.09	387.74	382.91
5+50	4.09	392.83		388.74	384.11
5+50			4.04	388.79	384.11
"A" Line, 2+43.78 MH. #44	2.34	49.69		47.35	36.90
"A" Line					
2+82.00			12.05	37.64	36.79
2+43.78	38.22 @ 00.40%		10.82	38.87	36.94
2+06.78 (32)			11.20	38.49	37.09
2+75			3.68	46.01	
3+00			3.31	46.38	
"A" Line	Check on pipe 5-12-36				
2+75	3.57	349.59		46.02	
2+82			11.95	37.64	36.79
2+43.78 = MH. #44			10.71	38.88	36.94
2+07 (36)			11.10	38.49	
2+07.78		No H.I.	6.39		
2+			6.47		
2+38.78			6.49		
2+43.78	2.175	349.525		347.35	
2+82	0.35		11.875	337.65	
2+46.78			11.770	337.755	

11 36 3 5/5 30

6.49 6.39 .10

6.39 6.47 6.49 5.24 — 5' from M4 .08 .02

C 4.71 6' offset Left Set by Moore

C 4.83 6' " Right Set 5/11

C 4.63 6' offset Left Set by Moore

C 4.68 6' " Right Set 5/11

C.10.45 6' offset Lt.

Top Bell Str. Grade.

Str. Gr. Rod = 11.92 C 1.08 Top Stake

11.75 C 0.55 " 2+4

C 9.27

C 9.76 6' offset

46.40

C. 9.27

Top Bell

Top Stake C.109 String Grade = 37.79

Top Stake 11.87

on bell

on bell

Hub.

Top Bell

on "

"C" Line

4-21-36

Sta.	+	H.I.	−	Elev.	F.L.	
1+00				360.27	353.74	C 6.53
+25		65.45	8.6	58.99	55.18	3.81 3' offset
+50	536	~~65.43~~		360.07	56.67	C 3.45
1+74 = MH #49				363.42	358.00	C 5.42
1+25			9.60	55.85		Str. Gr. Top Bell
1+50			8.16	57.29		Str. Grade Top Bell
1+69			7.07	58.38		" "
1+74			2.01	6344	58.19	Hub 6' offset C 5.44
1+91					60.63	
1+74	5.19	368.61		363.42	58.00	
1+90.8				68.61	60.60	
	4.97	340.38		35.41		C 2.24
			6.73	33.65	32.92	0.73 to F.L.
			7.46			F.L.) S 9° 0.05 Fall
			7.51			F.L.
Hub Offset 9+70.35	5.06	340.47		35.41		Old Hub offset 9+70.35 old Stationing: New Bead N. End Pipe 0.73 F.L.
			6.82	33.65		
1st joint)	10+10		6.74	33.73	32.88	
2nd ")			6.76	33.71	32.86	
3 ")			6.77	33.70	32.85	
4 ")	24'		677	33.70	32.85	This Line corrected to give 0.08 Fall
5 ")			6.77	33.70	32.85	
6)			676	33.71	32.86	
7)			6.75	33.72	32.87	
8)	10+34		6.74	33.73	32.88	

"C" Line — 4-22-36

STA.	+	H.I.	−	Elev.	Grade	
1+50	6.97	367.04		60.07	56.62	C. 3.45 Hub 6' offset
			6.21	360.83		C 4.21
1+50			9.69	357.35	56.68	Check
1+50			9.75	357.29	56.62	
1+74						
1+23			11.32	Bell 55.72	55.05	Check 0.01
0+99			12.71	Bell 54.33	53.66	Check 0.02

"A" Line

	0.51	44.34		343.83		B.M. on Nail bottom Stump Sta 5+35 – Lt.
5+11			8.07	36.27	35.51	Top Pipe
5+16			8.11	36.23		" "

"C" Line — Check on 6" pipe concrete

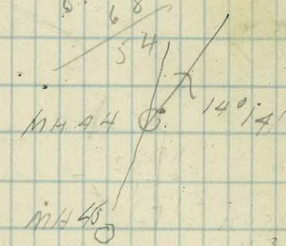
1+50	5.13	65.20		60.07		
1+68			6.84	58.36	57.69	on bell
1+50			8.01	57.19	56.62	" pipe
1+25			9.45	55.75	55.18	" "

4-24-36

B.M. E. of P.H.	3.65	357.08 S.C.L.		353.43		
			5.62	351.46		Top P.H above outlet
				348.61		F.L. of P.H.
SW			5.64	351.44		

Iron Pipe | Partly Cloudy | High Pres. | 4-24-36 | π McCarty II Walker

STA.	+	H.I.	−	Elev.	F.L.	Bell Grade	
B.M.	9.46	362.89		353.43			
0+00					348.61	50.45	
0+3.08	3.08				348.61		
0+19.04	15.96		12.44		349.77	50.45 ✓	1
0+35 ✓			11.26		350.94	51.62 ✓	2
0+50.95			10.11		352.10	52.78 ✓	3
0+66.91			8.94		353.27	53.95 ✓	#4
0+82.87			7.78		354.43	55.11 ✓	#5
0+98.83			6.61		355.60	56.28	#6
1+14.78			5.45		356.76	57.44	#7
1+30.74			4.28		357.93	58.61	#8
1+46.70			3.12		359.09	59.77	#9
1+62.66			1.95		360.26	60.94	
1+78.61					361.42	62.10	
		Sewer.	4-28-36				
"C" Line	2.44	365.86		363.42	358.0	C 5.42	
MH#49 1+74			7.99	357.87	F.L.		
1+76			7.25	358.61	58.05	Top pipe	
			6.83				Str. G.
1+95			00	65.86	60.93	C 4.93	C 4.25 Nail 2' E Portal.
"F" 1+14	5.19	64.57		59.38	47.15	C 12.23	
1+18.3			10.55	54.02	47.80	C 5.54 to Str. Line	
1+28.5			9.82	54.75	49.34	C 5.41	C 4.73 to Str. Gr.
1+52.8			8.98	55.59	55.11	C 0.48	F 0.20 to Str. Grade



Partly Cloudy — 4-29-36. — McCarty & Walker

"A" Line Sta	+	H.I	−	Elev.	F.L Grade	
4+25	2.01	349.73		47.72	36.06	Hub 3' offset - C 11.66
4+55			12.925	36.805	35.955	
4+36			12.840	36.880	36.03	
4+26			8.76	40.97	36.08	Marked C. 5.0 to F.L. on spreader.
T.P.	3.86					Hub 3' offset
4+18			12.04	39.58	36.12	Marked C.3.6 on Wall plate
4+50	3.64	51.62	3.64	47.94	35.93	6' offset C 12.01

4-27-36

MH #43	1.23	45.16		43.93	36.26	C. 7.67 6' offset Hub.
MH #43			8.06	37.10	36.25	Set string grade top bolt on iron stake ℄ of MH
4+00			06.0	44.56		Hub 3' offset.
BM,	5.51	349.45		343.94		
4+55			12.65	36.80	35.95	
4+79			12.76	36.69	35.84	
B.M. Stone Wall	5.13	355.32		350.19		
3+25			10.92	344.40	36.52	C. 7.88. 3' offset
2+99 B.M.			8.62	346.70		B.M. on Conc. Wall corner 2.4 L. of ℄
3+00			10.79	344.53	36.64	C. 7.89
	1.87					C 11.94
			12.76			
			12.68			

"F" Line — 4-29-36 — T McCarty, B Walker — Partly Cloudy

Sta						
1+14	5.35	64.73		59.38	47.15	C 12.23
1+18.3			10.70	54.03	47.33	Str. G. 345.45 — Str. G. C 5.54 Top Bell 6" pipe Spreader Blue Iced
1+30.5			9.08	55.65	50.64	Str. 51.32 — Str. G. C. 4.33 Top Bell 6" pipe Spreader " "
1+60.5			7.19	57.54	55.16	Str. G. 53.84 — Str. G. C. 1.70 " " Spreader " "
		4-30-36. FAIR.				
1+14	5.38	64.76		59.38	47.89	
1+18.9			11.89	52.87	47.87	C 4.30 to string grade
1+14	5.72	65.10		59.38	47.15	C 12.23
1+30.6			9.47	55.63	49.65	Str. G. 50.33 — To Str. G. C 5.30
2+00	2.92	367.82		364.90	360.12	C. 4.78.
2+00.5 Stake			7.03	360.79	360.20	Str. Gr.
1+60.			12.30	355.52	349.09	Top Bell Str Grade
1+14			8.48	359.34	47.11	C 12.23
"C" Line.		5-13-36.				Top Bell Str. G.
3+00	4.58	387.68		383.10	377.12	77.79 — C 5.98
2+28			11.57		75.44	76.11 — Gr. Rod. 11.57
2+50			11.06		75.95	76.62 — 11.06
2+75			10.47		76.54	77.21 — 10.47
3+00			8.89		77.12	77.79 — 9.89 — C 1.0
3+25			7.31		77.70	78.37 — 9.31 — C 2.0
		5-13-36				
	3.41	38.82		35.41		
MH #39			5.49	33.93	33.30	

5-14-36 Clear & Warm, ↑ McCarty, ↓ Walker

"C" Line. Grav. Sewer

Sta	+	H.I	−	Elev	F.L.	Str. Grade	Gr. Rod	
3+00	2.82	385.92		383.10	377.12			
2+27			8.78	377.14	75.42	76.09	9.83	C 1.05 From Top Iron Stake
2+50			8.05	377.87	75.96	76.63	9.29	C 1.24 " "
2+75			8.21	377.71	76.54	77.21	8.71	C. 0.50 " "
3+00	2.62	85.72		83.10	77.12	77.79		C.
3+00			6.46			77.79	7.93	C 1.47
3+25			6.33			78.37	7.35	C 1.02
3+50			5.78			78.95	6.77	C. 0.99
3+50	3.60	87.82		84.22	78.28	78.95	8.87	
3+50			Top Iron S. 7.89				8.87	C 0.98
3+00			9.52			77.79	10.03	C 0.51
2+27			10.96			76.09	11.73	C 0.77
3+00			4.74	83.08				85.72 77
4+00	4.77	90.09		385.32	79.45	80.12	9.97	C 5.87
3+50			5.86	84.23				5.94 84.22
4+00			9.97	80.12				Red Mark on Iron Stake
			11.20	78.87				Check on end of pipe
			2					

"A" Line

Copy of Moore's Notes
Book G 180

		F.L.	Top MH	
9+70.35 =	9+69.45	33.18		C. 2.23
9+42.35		333.33	342.0	C 11.30
9		333.54		C 11.18
8+50		333.80		C 6.87
8		334.06		C. 7.40
7+60	M.H. #41 33°10' Lt.	334.27	339.0	C. 7.72
7		34.58		C 13.75
6+50		34.84		C 10.93
6		35.10		C 8.16
5+50		35.36		C 6.86
5+14.2	MH # 42 104°20' Rt.	35.53	345.0	C 12.27
5			out.	
4+50		35.86		C 12.12
4		336.12		C 10.10
3+83.42	MH #43 29°17' Lt	336.20	341.0	C 7.68
3+50		336.37		C 10.71
3		336.63		C 9.79
2+43.78 =	M.H. #44 13°37' Rt.	336.92	343.5	C 11.50
2		337.14		C 9.46
1+50		337.40		C 8.62
Eq 0+98.40 / +51.36 =	M.H. #45 09°26' Lt	337.67	345.8	C 7.87
0+00	Make Con. to exist sewer	337.92		

Clear, Warm 5-18-'36 ⊼ McCarty
"C" Line I Walker

Sta	+	H.I	−	Elev.	F.L.	
3+00	3.84	386.94		383.10		Hub 6' Offset Right.
2+89			7.57	379.37	378.83	Top iron 6" pipe
2+50			8.94	378.00	377.46	" " 6" "
2+27			10.25	376.69	376.15	" " 6" " (Allow 0.54 to F.L.)
2+28			10.92	376.02	375.46	Top 6" Conc. Sewer Pipe. Allow 0.56 to F.L.
2+20			5.44	381.50		Rim of DMH #50 E. Side.
2+21			5.56	381.38		Top Cb. on N. Side.
3+50			2.71	384.23		Hub 6' offset Right (384.22 By Moore.)

Peg Adjustment Transit.

"A" ⊼	4.625	"B" ⊼	5.175	5.175
300' "B"	4.125	"A"	5.710	51.7
				5.692
Diff	.500	Diff.	.535	0.018 out in 300 ft

Sta	+	H.I	−	Elev.	F.L.	
4+00	5.39	390.71		385.32	379.45	6' Offset Hub.
4+50			4.04	386.67	1.84	
3+98			10.66	380.05		End of pipe on bell
4+33			8.44	382.27	380.22	Str. Gr. Top Bell. 380.89 9.82 C 1.38 = 1'-4 9/16"
4+66			7.84	82.87	380.99	Str. Gr. Top Bell 381.66 9.05 C 1.21 = 1'-2 1/2"
5+50	6.53	395.32		388.79	384.11	C 4.68 - 6' offset Rt
F.L. Ex. MH.			12.32	383.00		
			8.54	386.78		Exist Top 6" pipe in Mt View Drive
			9.71 [5.7]	386.21		Exist. Bottom 6" " in Mt View Drive
MH Rim			5.68	389.64		
B.M			5.96	389.36 [413]	384.11	389.37 NE. Cor. Copley Ave & Mt. View Drive B.P. in Cb.
4+50			8.66	386.66		6' Offset. Rt.
6+05.5			9.83	385.49		F.L. Entering Conc. Exist MH. Copley & Mt. View Drive

Note :- Sewer ^stub^ pipe at P.L. near foot of 39th St. is 2" lower than elev. given on profile.

Clear Warm 5-19-36 ⊼ McCarty / Walker

"C" Line

Sta.	+	H.I.	−	Elev.	Flow Grade	Notes
High Pressure 3+50	5.31	389.53		384.22		6' offset Hub. Allow 0.74 C. 4.84
3+58			9.29	380.24		Str. Grade Top Bell.
4+06			8.22	381.31	380.57	Str. Grade
2+92			10.05	379.48	378.74	77.94 Top Bell as laid
4+03 T.P.	7.21	392.52	4.22	385.31		
4+53			5.85	386.67	381.79 1.07	Hub H.P. Line ℄ 4.88
4+53			9.61	382.91		Str. Grade. Str. Gr. 382.53 G. Rod 9.99 C 0.38
5+01			8.17	84.35	381.86	" " 8.92 C. 0.75
5+49			7.85			Nail N. side Str. Gr. 7.85
6+05.7			7.23	385.29		Bottom of hole cut in exist. M.H.
B.M.	3		3.17	389.35		
3	3.17	392.54		389.37		
3+56			12.30	Bell 380.24	79.45	380.19 12.35 12.30 Set.
3+58			12.28	80.26		Nail in N. Side Wall

"A" Line 5-19-36

0+51 = 0+98 Ahead,

Sta.	+	H.I.	−	Elev.	Flow Grade		Notes
MH #45	3.08	348.65		345.57			6' offset C 8.01
2+09			10.71	337.94	37.09		Top Bell End of pipe 1:30 P.M. 5/19
1+25			3.41	345.24			3' offset Left.
5-21-36 Clear mild							
MH #45 0+98	2.49	348.06		345.57	37.55	.11	C. 8.02 6' offset Right
1+25			2.83	45.23	37.44		3' Offset Hub. Left.
1+49			2.03	46.03	37.34	.10	6' " " Left C 8.69
1+49			2.53	45.53	37.34		3' " " " C 8.19
1+59			3.91	344.15	37.38	.11	on top 2" pipe ℄ C = 6.77
1+75			5.69	342.37	37.23	.14	C 5.14 3' offset Hub Left
2+09			10.17	337.94	37.09		End of pipe Top Bell

π McCarty
Walker

5-21-36

"Clear & Mild

	+	H.I.	−	Elev	Grade	
3+25	2.63	347.03		344.40	36.52	C. 7.88 3' offset L
Y 3+32			6.10	340.93		Top upright.
Y 3+70			6.36	340.67		Top "
MH 3+81.5 Back						
3+83 Ahead						
3+00			2.50	344.53		3' offset
B.M.	1.10	344.66		343.56		Sta 6+38
Y Top 5+92			7.96	336.70	335.14	(Y only) No upright
MH #40	1.04	45.67		44.63		C 11.30 -10' offset 36.41
			9.26		36.41	69
		5-22-36				
	0.29	45.01		44.72		
N. Pier			11.14	33.87	33.00	
S Pier			11.03	33.98	.03	
			11.36	33.65	32.91	Top Concrete pipe 8' up from MH
	5.55					
	5.55	40.96		35.41		
S. Pier			6.94	34.02	33.15	
N. Pier 9+99			7.05	33.91	33.04	Top Bell Allow 0.87 Top Bell to Fl. 8" C.I. pipe
10+15			7.28	33.68	32.94	Top 8" Concrete Pipe
End C.I. Pipe Sta 10+05			7.34	33.62	32.91	} Raised 0.09 Allow 0.71 Top Pipe to Fl for 8" C.I. pipe
Sta 10+05 End C.I. Pipe as raised			7.25	33.71	33.00	
Top Conc Pipe 10+15			7.28	33.68	32.94	} 0.06 Fall in 10 ft. Allow 0.74 Top pipe to Fl. 8" conc pipe
MH #39 Sta 10+06.95					32.98	

LINE BETWEEN MH #39 & MH #47

STA.	+	H.I	−	Elev	Grade
6" pipe		40.96			
MH #39 0+00			7.31	33.65	32.98
0+17			2.25	37.28	36.61
9+00	0.81	45.53		44.72	
0+17			8.42	37.11	
0+25.2			6.38	39.15	38.48

5-22-36 Clear & Mild
T. McCarty
F. Walker.

7.31 C. 0.79

Gr. Rod = 3.68 C 1.43

6' offset

On Bell as laid.

As set
38.51 using Hub Offset 9+69 El 335.41

T. McCarty
F. Walker

5-26-36 Cloudy Mild.

2+20	1.83	346.040		44.21	
2+09			8.125	337.915	37.08 / 37.07
1+87			8.037	338.003	
1+87			6.94	339.100	
1+75			3.69	342.35	
			5-27-36		
	5.73	347.09		42.36	
1+86			10.10	36.99	36.14
1+61.5			9.99	37.10	36.25
			5-27-36		
	4.31	349.88		345.57	37.56
1+49			C O Z		37.36
1+25			Grade		37.49

C. 7.20 3' offset

Top bell as laid

String Grade Top Bell

Top Iron Stake C 1.10

El 342.36 - 3' offset

End of pipe as laid Top Bell

9.99 37.10 Red mark on Iron Stake Checked Pipe

Bottom Ditch

" "

McCarty
Walker

5-22-36

Sta	+	H.I.	−	Elev.	Top upr
4+50	0.44	348.38		347.94	
4+35 Y			1.94	346.44	345.4
B.M	0.35	344 29		343.94	
5+06 Y			3.3	341.0	340.4
4+77 Y			1.8	342.3	340.5
5+30 Y			3.9	340.4	340.5
5+14 MH. Top			0.36	343.93	
3+70 Y	2' from Surface				
3+32 Y	2½ " "				
2+58 Y	1' "	"	7' from F.L.		
2+05 Y	1½ "	"	4.3 " F.L.		
7+14 Y	Schneider Lateral		2' from surface		
			5-6-36		
MH #45	6.30	51.87		45.57	37.54
1+25	27	37	12.34 C1.26		12
			13.60	38.27	37.4
1+49	22		13.70	38.17	37.32 10
1+49			12.665		
				45.57	
	2.14	4771		45.57	
1+			2.47	45.24	45.24
1+25			9.46	38.25	37.40
1+01			9.34	38.37	37.52
				85	

Clear, mild

C 12.00
Top ground as B. Filled
Nail in bottom stump
Top Ground as B. Filled. 3½ below Top of M.H.
" " " " " 2' " Surface
" " " " " 1' from Nat. Surface 0.5 as B.F.
W. Rim MH #42

C. 8.03 38.43 Sta Rod 13.44 ✓
Top of iron stake
String Grade
" "
C 1.035 Top Stake, iron

Top Bell .02 Low

Y on "A" "A" Line Elev

Top Gr 351.7 − 2 = 349.7 = Elev Top Lateral 2' Below Surface Schneider Lat.

"A" Y Sta 7+14 ✓ Y 4+35 ✓

"A" Y " Y 3+70 ✓ 340.67

"A" Y " 5+92 = Elev 336.70 Y 3+32 ✓ 340.93

"A" Y " 8+00 ✓ Y only Y 2+58 ✓

Y Sta 8+71 ✓ 2 Lengths = 6' Y 2+05

Y Sta 5+30 ✓ upright Y 1+75 341.35

Y Sta 5+06 ✓

Y " 4+77 ✓ ✓

Y " 14+55 ✓ − 1 − 3' joint = 337.1 = Elev of Below Gr. 3 ft upright

El 341.0 Y " 12+31 ✓ = 2 − 2½ joints = 6½ ft above F2 upright 1½" Bellows.

Y " 13+36 ✓ 2 − 2½ ✓ = 6½ ft " upright.

"F" Y Sta 1+51 = 1 − 3' joint above Y upright

"F" Y " 1+88 Y only

"C" Line

MH 49

47.75' Dist

MH 50

Portal = 1+93.5

2+18.0 = 24.5' = Length of Tunnel

19.8 × 4 × 24.5 =

IMPROVED TABLES AND INFORMATION

DIRECTIONS FOR USE OF TABLES

TABLE No. 1.

Distance of slope stake from side or shoulder stake for any width roadway, slope 1½ 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.

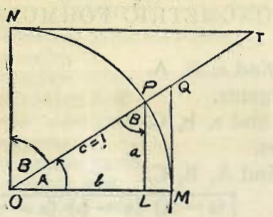


TABLE II

TRIGONOMETRIC FORMULÆ.

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

$R = OB = c = 1$

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

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

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

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

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

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

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

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

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

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

$$\sin \tfrac{1}{2} A = \sqrt{\frac{1 - \text{Cos } A}{2}} \qquad \cos \tfrac{1}{2} A = \sqrt{\frac{1 + \text{Cos } A}{2}}$$

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

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

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

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

Chas. Walker
7150 - EL CAJON
Box 535 Route

Thickness of 6" C.I. Pipe = 0.045

Peg Adjustment Transit 4-30-36

a = 5.09	c = 5.14
b = 4.68	d = 5.51
0.41	0.37

4.7
7.79
11.49
11.84
8
3 09

Keith Stuesloy 4001-33-21-54

Lateral - Schneider 15' - 4" pipe