



MID-KANSAS ENGINEERING CONSULTANTS P.A.  
 CALCULATIONS & SKETCHES  
 PROJECT: *St. Louis*

DATE: *11/22/72*

BY: *[Signature]*

DESCRIPTION: *St. Louis Sewer System*

1. *Each section of pipe is 12" dia. 12' long*

2. *Top of service line = 196.00 = 196.33*

3. *W/G Clearance = 196.83; height of 12" RCP @ Sta 1+00 = 197.20*

4. *where S.L. crosses underneath = 197.20*

5. *Top of 12" RCP @ Sta 1+00 = 197.20*

6. *Bottom of water line = 200 - 7.85 = 192.15*

7. *Top of 12" RCP @ Sta 1+00 = 197.20*

8. *Bottom of water line = 200 - 7.85 = 192.15*

9. *Top of 12" RCP @ Sta 1+00 = 197.20*

10. *Bottom of water line = 200 - 7.85 = 192.15*

11. *Top of 12" RCP @ Sta 1+00 = 197.20*

12. *Bottom of water line = 200 - 7.85 = 192.15*

13. *Top of 12" RCP @ Sta 1+00 = 197.20*

14. *Bottom of water line = 200 - 7.85 = 192.15*

15. *Top of 12" RCP @ Sta 1+00 = 197.20*

16. *Bottom of water line = 200 - 7.85 = 192.15*

17. *Top of 12" RCP @ Sta 1+00 = 197.20*

18. *Bottom of water line = 200 - 7.85 = 192.15*

19. *Top of 12" RCP @ Sta 1+00 = 197.20*

20. *Bottom of water line = 200 - 7.85 = 192.15*

MID-KANSAS ENGINEERING CONSULTANTS P.A.  
 CALCULATIONS & SKETCHES  
 PROJECT: *St. Louis*

DATE: *11/22/72*

BY: *[Signature]*

DESCRIPTION: *St. Louis Sewer System*

1. *Each section of pipe is 12" dia. 12' long*

2. *Top of service line = 196.00 = 196.33*

3. *W/G Clearance = 196.83; height of 12" RCP @ Sta 1+00 = 197.20*

4. *where S.L. crosses underneath = 197.20*

5. *Top of 12" RCP @ Sta 1+00 = 197.20*

6. *Bottom of water line = 200 - 7.85 = 192.15*

7. *Top of 12" RCP @ Sta 1+00 = 197.20*

8. *Bottom of water line = 200 - 7.85 = 192.15*

9. *Top of 12" RCP @ Sta 1+00 = 197.20*

10. *Bottom of water line = 200 - 7.85 = 192.15*

11. *Top of 12" RCP @ Sta 1+00 = 197.20*

12. *Bottom of water line = 200 - 7.85 = 192.15*

13. *Top of 12" RCP @ Sta 1+00 = 197.20*

14. *Bottom of water line = 200 - 7.85 = 192.15*

15. *Top of 12" RCP @ Sta 1+00 = 197.20*

16. *Bottom of water line = 200 - 7.85 = 192.15*

17. *Top of 12" RCP @ Sta 1+00 = 197.20*

18. *Bottom of water line = 200 - 7.85 = 192.15*

19. *Top of 12" RCP @ Sta 1+00 = 197.20*

20. *Bottom of water line = 200 - 7.85 = 192.15*

MID-KANSAS ENGINEERING CONSULTANTS P.A.  
 CALCULATIONS & SKETCHES  
 PROJECT: *St. Louis*

DATE: *11/22/72*

BY: *[Signature]*

DESCRIPTION: *St. Louis Sewer System*

1. *Difference between Top of Sewer S.L. & Bottom of*

2. *W.L. = 201.75 - 196.33 = 5.42, W/G clearance*

3. *below Street Surface, max. pipe height = 3.89' x 2.5' O.D.*

4. *of 42" RCP. For 52.5' dia. height of 1500' x 2.5' =*

5. *0.199 = 3.89' x 2.5' = 0.97, Max. allowable S = 0.0147*

6. *Set Point Curve M.H. @ Sta 1+00 & eliminate M.H. @ Sta*

7. *1+00; M.H. @ Sta 1+00 = 197.20*

8. *Set Point Curve M.H. @ Sta 1+00 = 197.20*

9. *Length from Proposed M.H. @ Sta 1+00 to M.H. @ Sta 1+00 =*

10. *Use 500.50' from M.H. @ Sta 1+00 to M.H. @ Sta 1+00*

11. *E In @ M.H. @ Sta 1+00 = 200.38 - (4.78 x 0.0147) = 197.89*

12. *E Out @ M.H. @ Sta 1+00 = 197.89*

13. *S at Sta 1+00 = 0.0147; E In @ M.H. @ Sta 1+00 =*

14. *197.89 - (200.1 - 197.89) x 0.0147 = 197.89*

15. *197.89 - (200.1 - 197.89) x 0.0147 = 197.89*

16. *Bottom of water line = 200 - 7.85 = 192.15*

17. *Top of 12" RCP @ Sta 1+00 = 197.20*

18. *Bottom of water line = 200 - 7.85 = 192.15*

19. *Top of 12" RCP @ Sta 1+00 = 197.20*

20. *Bottom of water line = 200 - 7.85 = 192.15*

WITCHME C

NO. OF TRIALS = 5 - ACCURACY ATTAINED = 0.000000

PIPE NO.	NODE #1	NODE #2	LENGTH (FT)	D.I.A. (IN)	W/G	PUMP	FLOW	HEAD	MINOR LOSS	HYDRAULIC GRADE	ELEVATION	DEMAND	PRESSURE
1	1	2	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
2	2	3	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
3	3	4	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
4	4	5	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
5	5	6	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
6	6	7	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
7	7	8	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
8	8	9	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
9	9	10	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
10	10	11	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
11	11	12	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
12	12	13	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00

THE NET SYSTEM DEMAND = 0  
 SUMMARY OF INFLOWS AND OUTFLOWS:  
 PIPE NO. FLOW  
 1 15.71  
 2 11.36  
 3 7.01  
 4 2.66  
 5 1.31  
 6 0.96  
 7 0.61  
 8 0.26  
 9 0.00  
 10 0.00  
 11 0.00  
 12 0.00

0.3 - 35.76 = 4.16 cfs = 0 not picked up by system

WILLIAMSBURG 1ST ADDITION (Drainage)  
 (See Mulberry East Addition)

JUNCTION NO.	ELEVATION (FT)	DEMAND	PRESSURE (PSI)	HYDRAULIC GRADE
1	212.4	0.00	0.00	212.4
2	212.4	0.00	0.00	212.4
3	212.4	0.00	0.00	212.4
4	212.4	0.00	0.00	212.4
5	212.4	0.00	0.00	212.4
6	212.4	0.00	0.00	212.4
7	212.4	0.00	0.00	212.4
8	212.4	0.00	0.00	212.4
9	212.4	0.00	0.00	212.4
10	212.4	0.00	0.00	212.4
11	212.4	0.00	0.00	212.4
12	212.4	0.00	0.00	212.4

0.3 - 35.76 = 4.16 cfs = 0 not picked up by system

WITCHME C

NO. OF TRIALS = 7 - ACCURACY ATTAINED = 0.000000

PIPE NO.	NODE #1	NODE #2	LENGTH (FT)	D.I.A. (IN)	W/G	PUMP	FLOW	HEAD	MINOR LOSS	HYDRAULIC GRADE	ELEVATION	DEMAND	PRESSURE
1	1	2	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
2	2	3	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
3	3	4	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
4	4	5	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
5	5	6	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
6	6	7	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
7	7	8	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
8	8	9	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
9	9	10	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
10	10	11	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
11	11	12	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00
12	12	13	70	24	0.00	0.00	0.00	0.00	0.00	212.4	212.4	0.00	0.00

THE NET SYSTEM DEMAND = 0  
 SUMMARY OF INFLOWS AND OUTFLOWS:  
 PIPE NO. FLOW  
 1 15.71  
 2 11.36  
 3 7.01  
 4 2.66  
 5 1.31  
 6 0.96  
 7 0.61  
 8 0.26  
 9 0.00  
 10 0.00  
 11 0.00  
 12 0.00

JUNCTION	ELEVATION	DEMAND	PRESSURE	HYDRAULIC GRADE
1	212.4	0.00	0.00	212.4
2	212.4	0.00	0.00	212.4
3	212.4	0.00	0.00	212.4
4	212.4	0.00	0.00	212.4
5	212.4	0.00	0.00	212.4
6	212.4	0.00	0.00	212.4
7	212.4	0.00	0.00	212.4
8	212.4	0.00	0.00	212.4
9	212.4	0.00	0.00	212.4
10	212.4	0.00	0.00	212.4
11	212.4	0.00	0.00	212.4
12	212.4	0.00	0.00	212.4

0.3 - 35.76 = 4.16 cfs = 0 not picked up by system