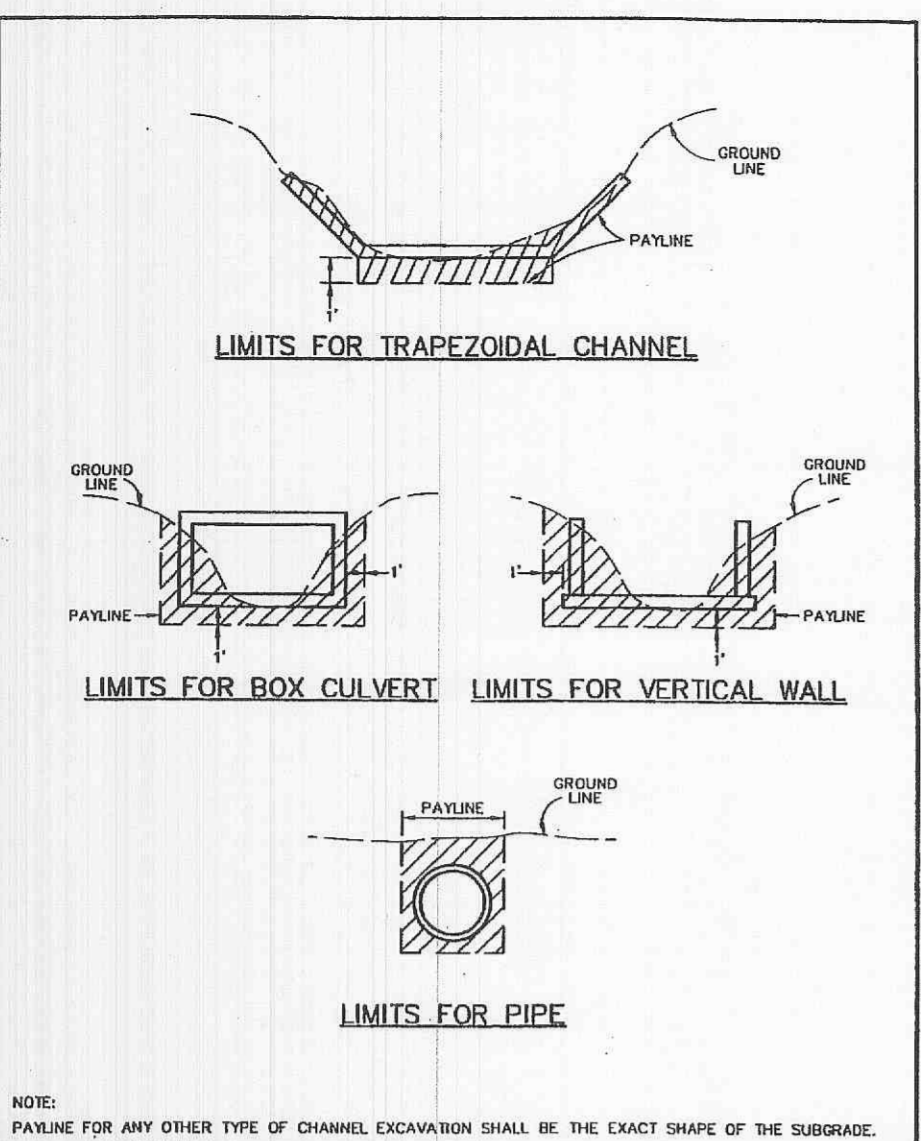


ROUND PIPE				HORIZONTAL ELLIPTICAL PIPE			
INSIDE DIAMETER OF PIPE (INCHES)	"W" PAYLINE WIDTH OF TRENCH (INCHES)	"W" PAYLINE WIDTH OF TRENCH (FEET)	PAY-VOLUMES CONCRETE (CU. FT. PER FT.)	INSIDE DIMENSIONS (INCHES)	"W" PAYLINE WIDTH OF TRENCH (INCHES)	"W" PAYLINE WIDTH OF TRENCH (FEET)	PAY-VOLUMES CONCRETE (CU. FT. PER FT.)
4	30	2.50	3.28				
6	30	2.50	3.59				
8	30	2.50	3.87				
10	30	2.50	4.08				
12	30	2.50	4.25				
15	36	3.00	5.55				
18	36	3.00	5.77	14 x 23	41	3.42	5.94
21	39	3.25	6.61				
24	42	3.50	7.39	19 x 30	49	4.08	7.48
27	45	3.75	8.18	22 x 34	53	4.42	8.61
30	49	4.08	9.30	24 x 38	58	4.83	9.70
33	53	4.42	10.53	27 x 42	62	5.17	10.71
39	56	4.67	11.43	29 x 45	66	5.50	11.72
42	63	5.25	13.38	34 x 53	75	6.25	14.05
48	70	5.83	15.87	38 x 60	83	6.92	16.18
54	77	6.42	18.15	43 x 68	92	7.67	18.81
60	84	7.00	20.73	48 x 76	101	8.42	21.59
66	91	7.58	23.45	53 x 83	109	9.08	24.35
72	98	8.17	26.37	58 x 91	118	9.83	27.45
78	105	8.75	29.39	63 x 98	126	10.50	30.50
84	112	9.33	32.57	68 x 106	135	11.25	33.91
90	119	9.92	35.80	72 x 113	143	11.92	36.99
96	126	10.50	39.37	77 x 121	152	12.67	40.69
102	133	11.08	42.99	82 x 128	160	13.33	44.45
108	140	11.67	46.75	87 x 136	168	14.00	47.78
114	147	12.25	50.66	92 x 143	176	14.67	51.70
120	154	12.83	54.72	97 x 151	185	15.42	56.01
126	161	13.42	58.92	106 x 166	202	16.83	64.48
132	168	14.00	63.27	116 x 180	218	18.17	73.59
144	182	15.17	72.40				

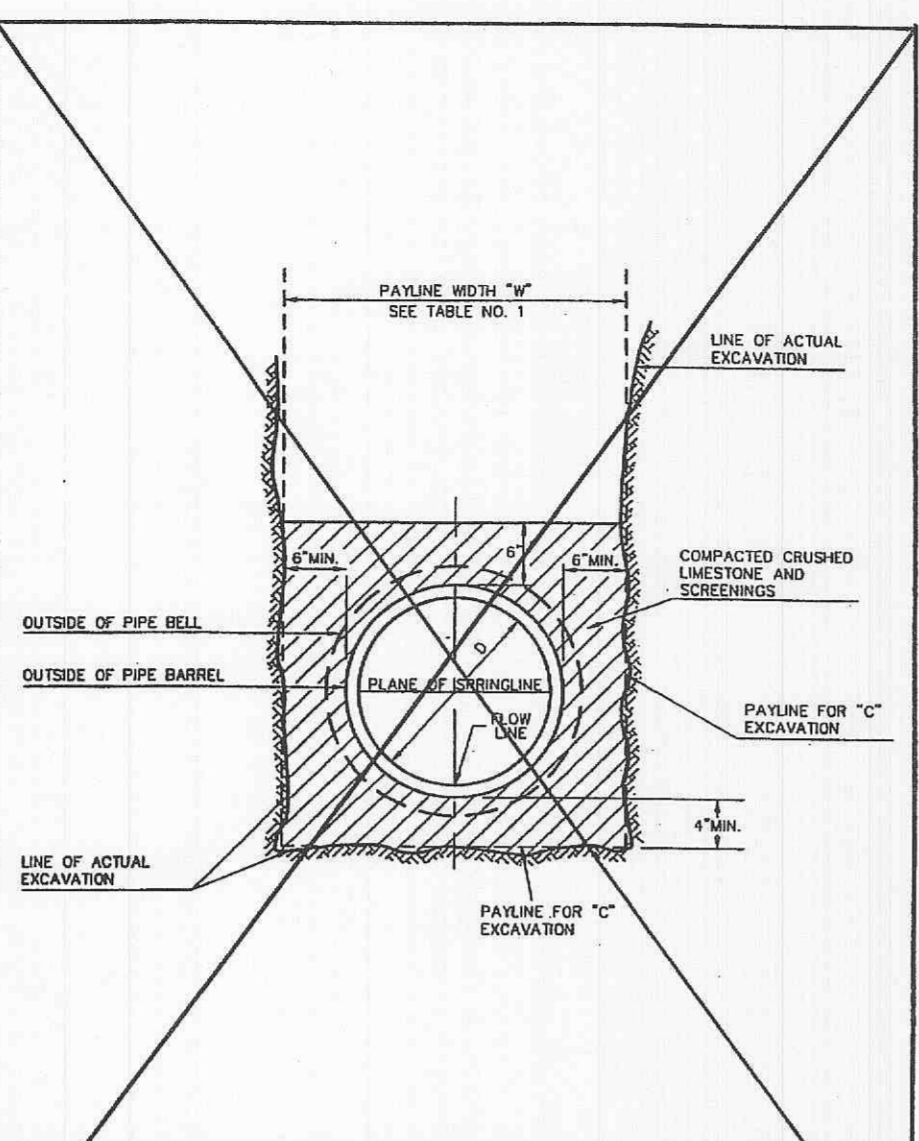
TABLE 1
PAYLINE WIDTHS OF TRENCH AND QUANTITIES OF CONCRETE

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. B.E.B. 2000 SHEET 1
Ch. J.C.K.



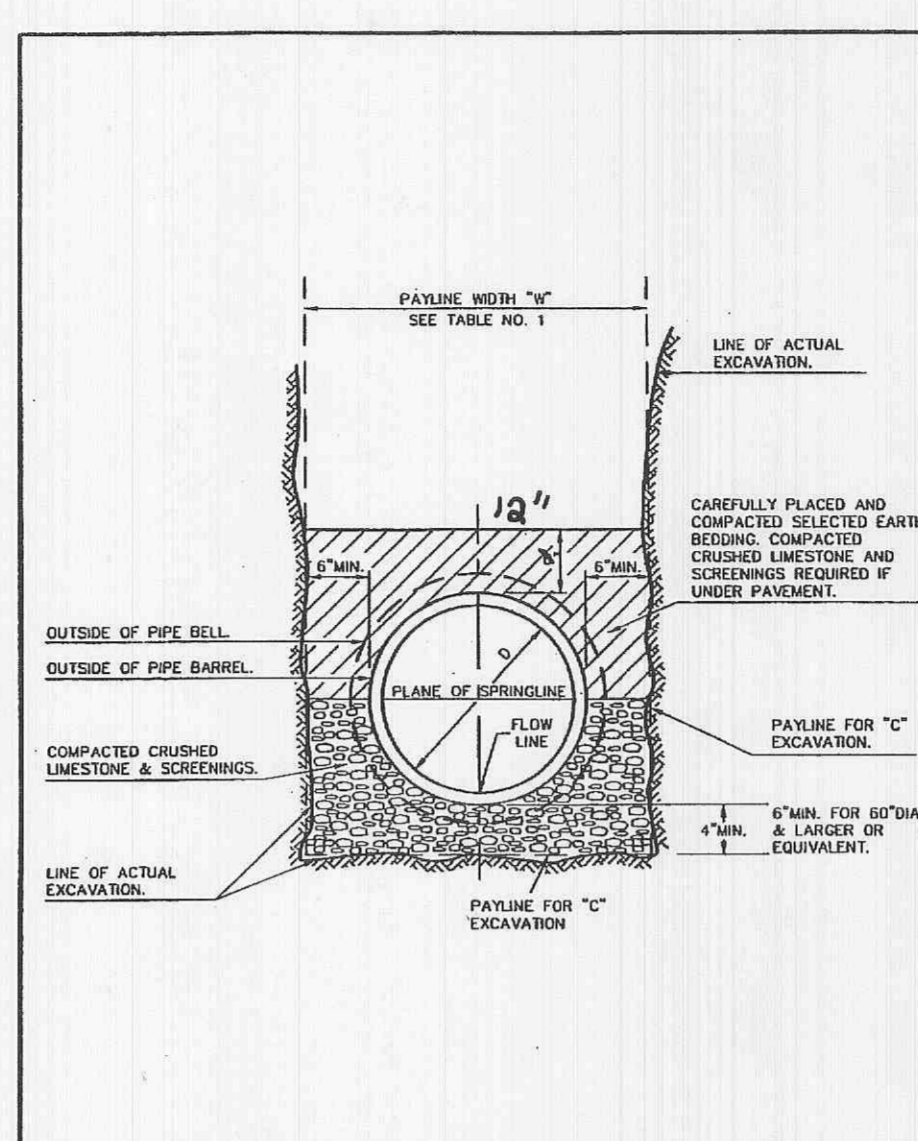
PAYLINE LIMITS FOR EXCAVATION

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. 2000 SHEET 2
Ch. J.C.K.



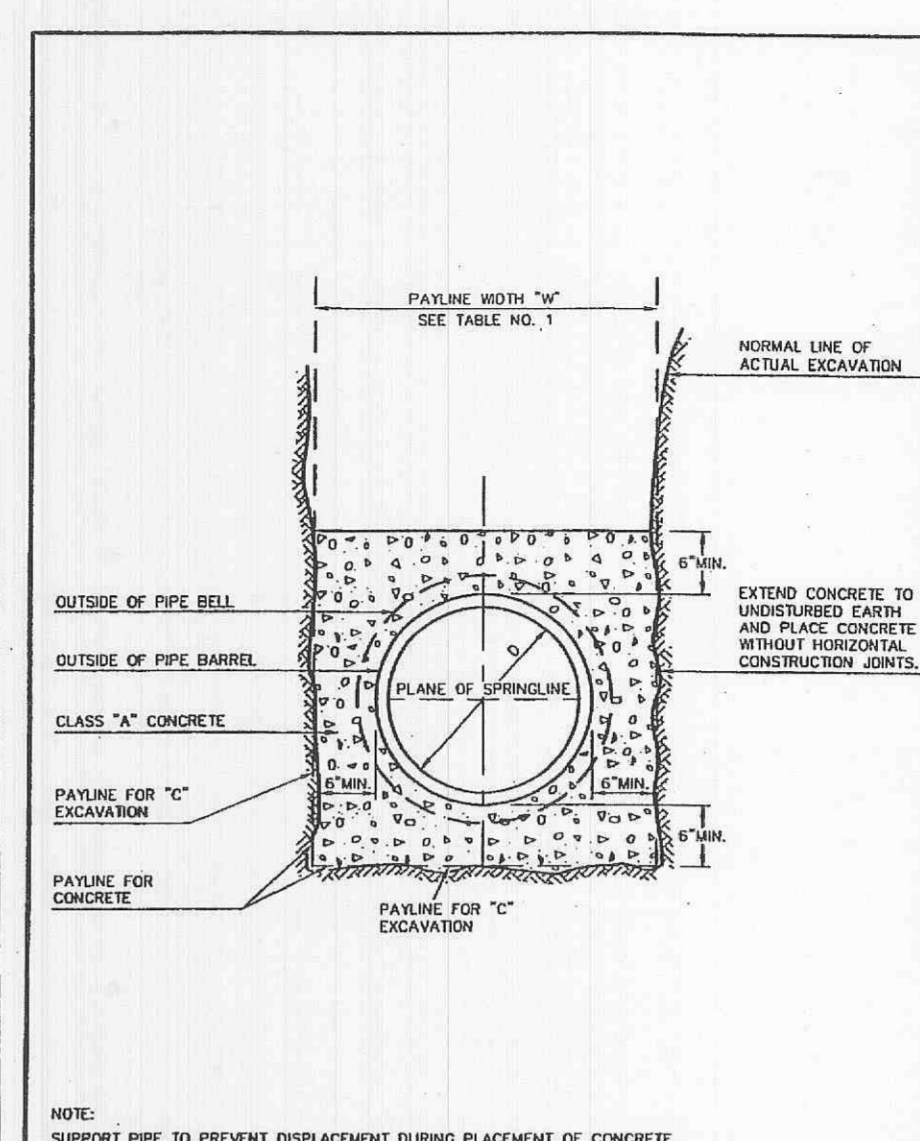
PIPE BEDDING CLASS "C" (FOR ALL PIPE EXCEPT REINFORCED CONCRETE PIPE)

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. 2000 SHEET 4
Ch. J.C.K.



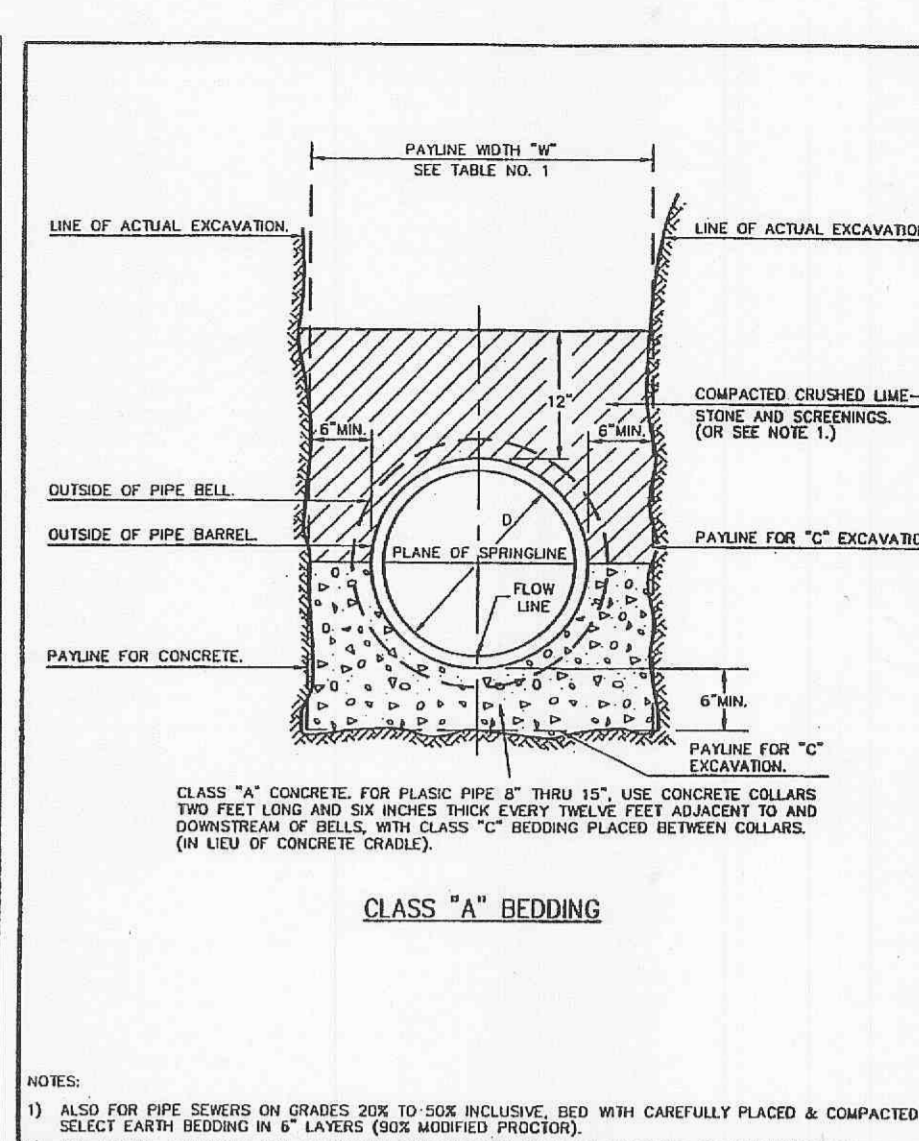
PIPE BEDDING CLASS "C" (MODIFIED FOR REINFORCED CONCRETE PIPE)

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. 2000 SHEET 5
Ch. J.C.K.



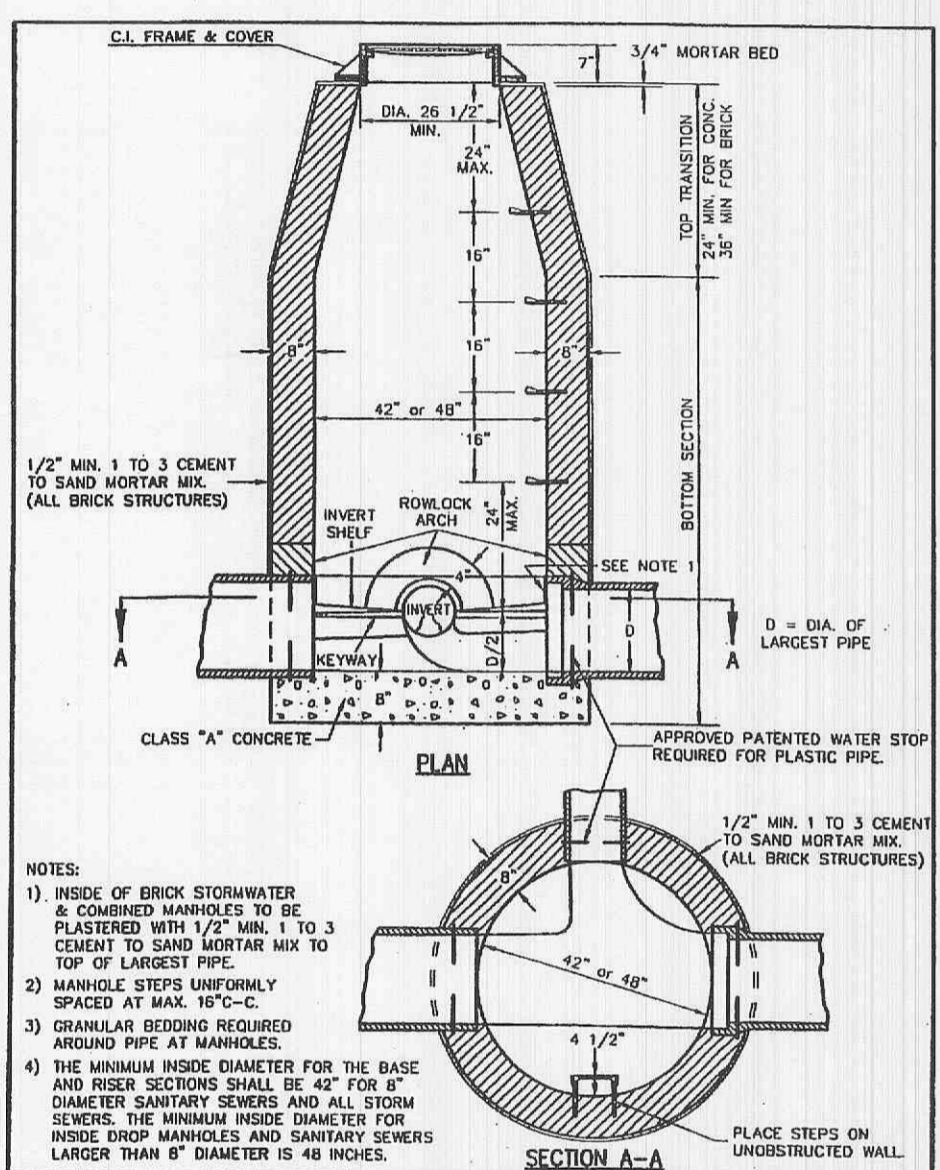
CONCRETE ENCASUREMENT

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H. 2000 SHEET 8
Ch. J.C.K.



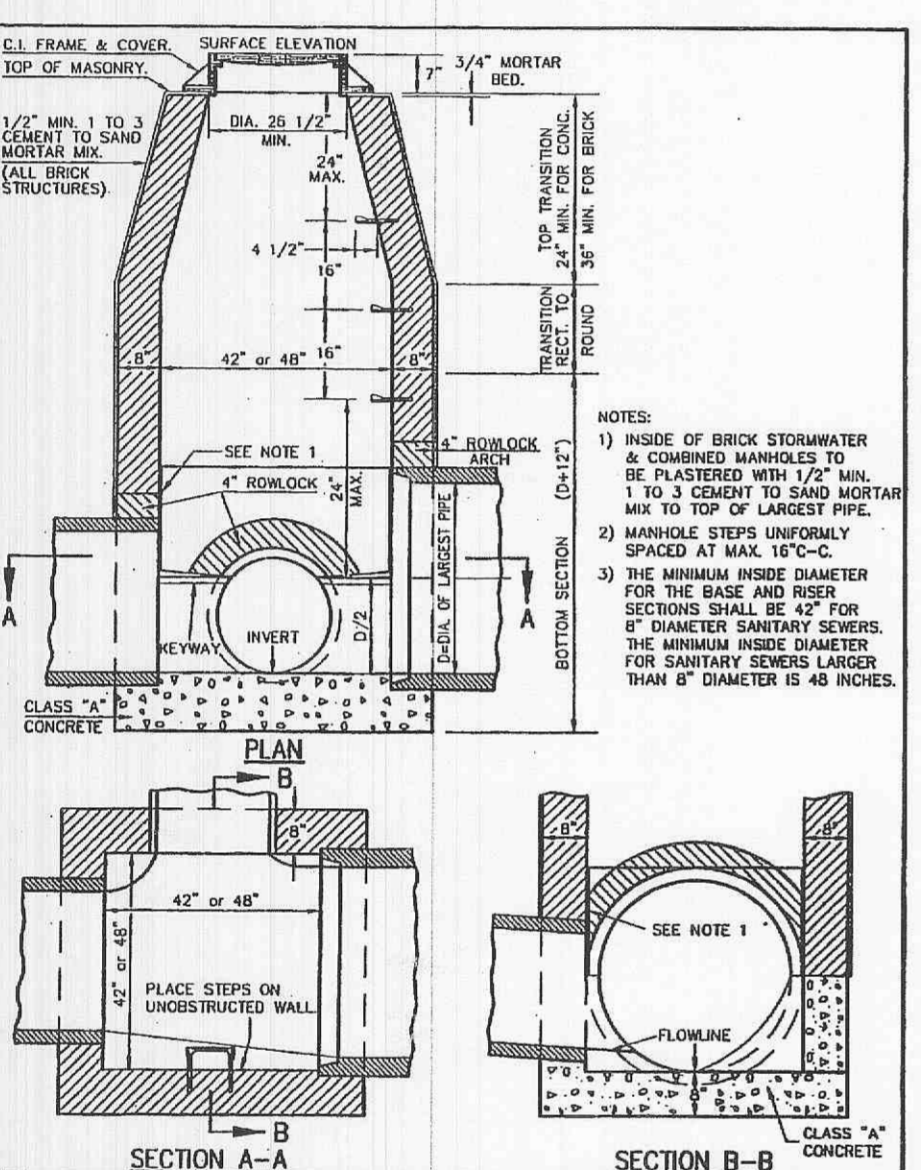
CONCRETE CRADLE

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 9
Ch. J.C.K.



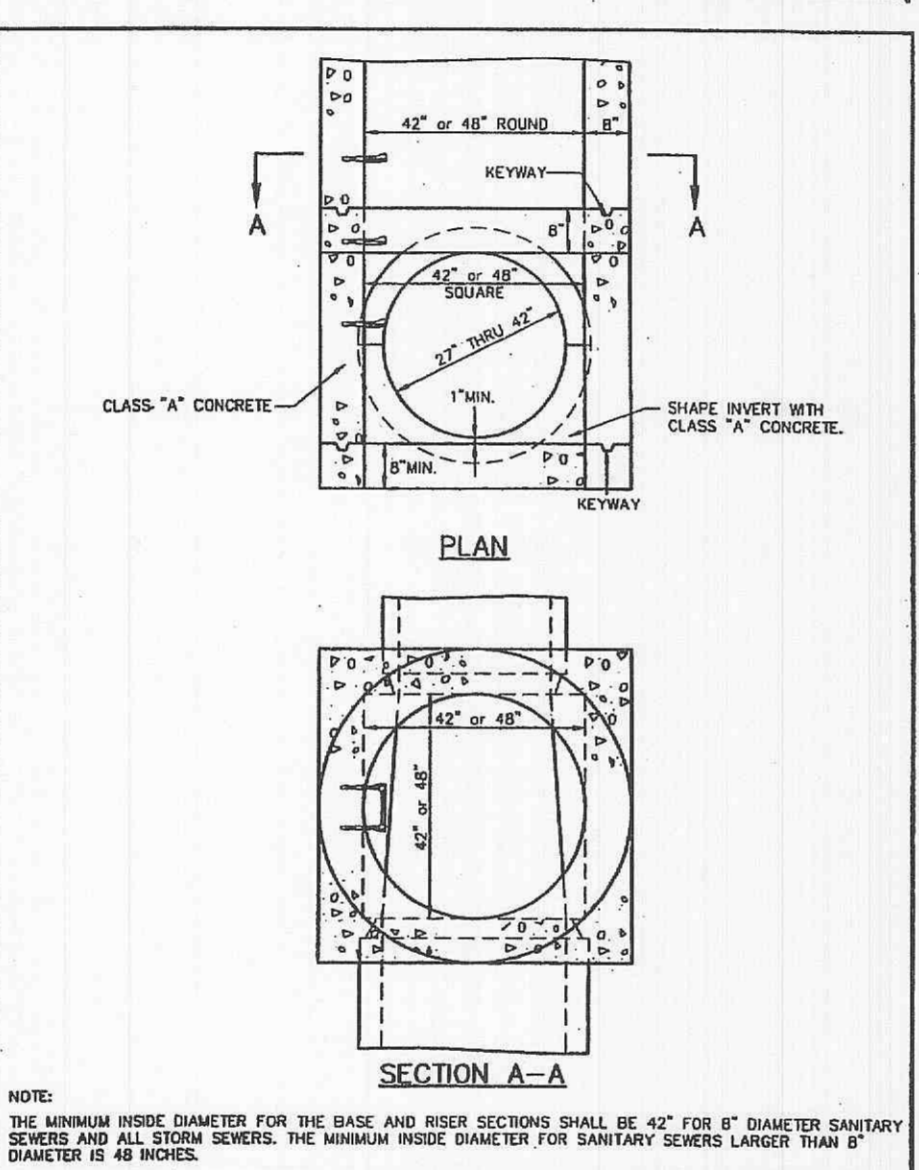
LINE MANHOLE ON PIPE SEWERS 8"-24" DIA.

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 10
Ch. J.C.K.



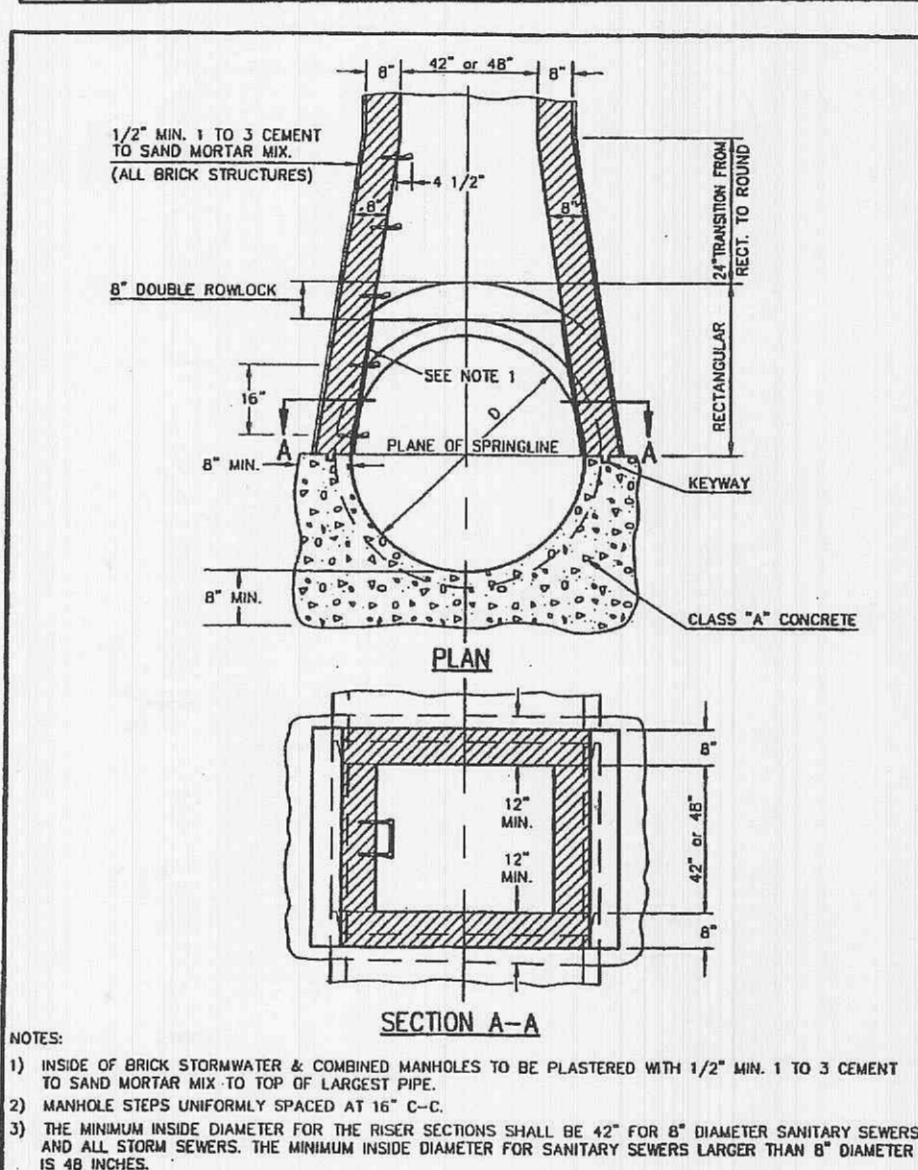
TYPICAL LINE MANHOLE ON PIPE SEWER 27" THRU 42" IN DIAMETER

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 11
Ch. J.C.K.



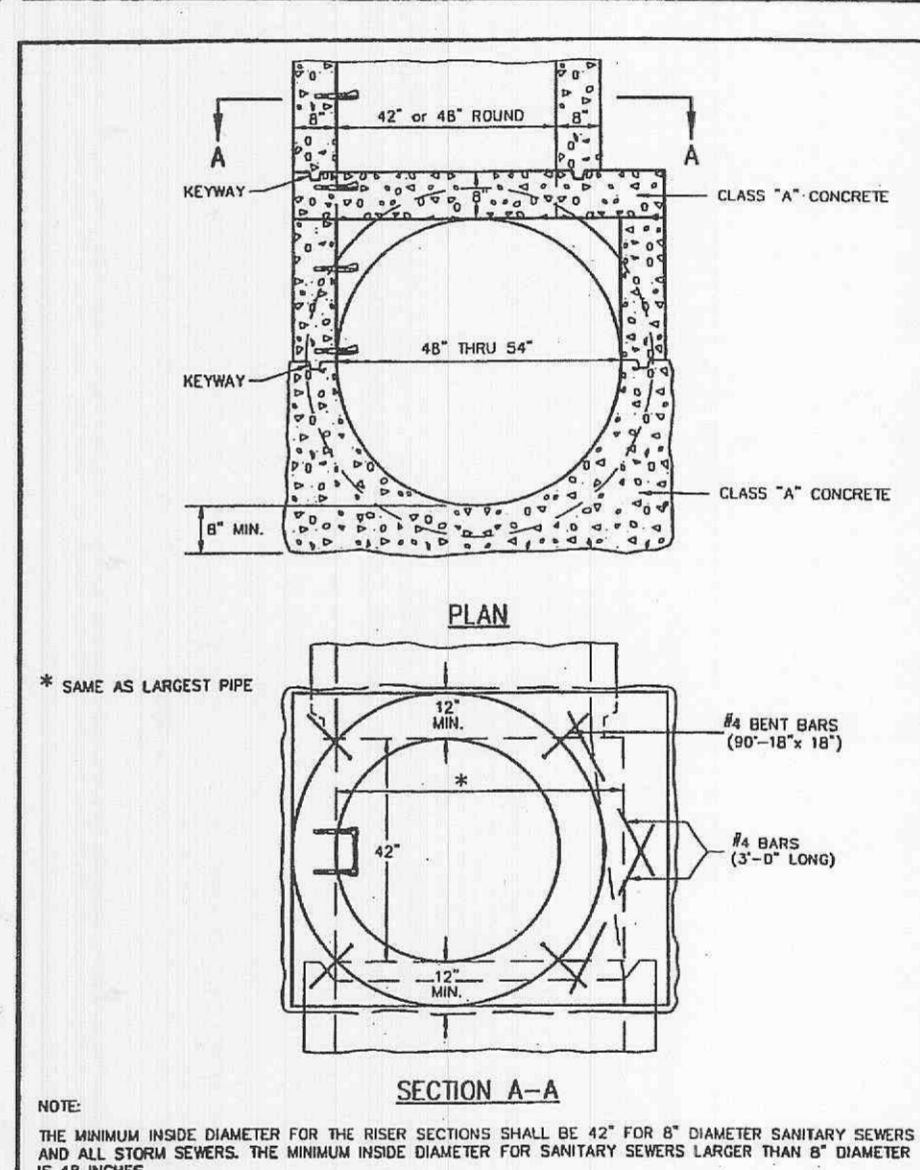
MANHOLE ON PIPE SEWER 27" THRU 42" (ALTERNATE)

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. D.A.B./SAM 2000 SHEET 12
Ch. J.C.K.



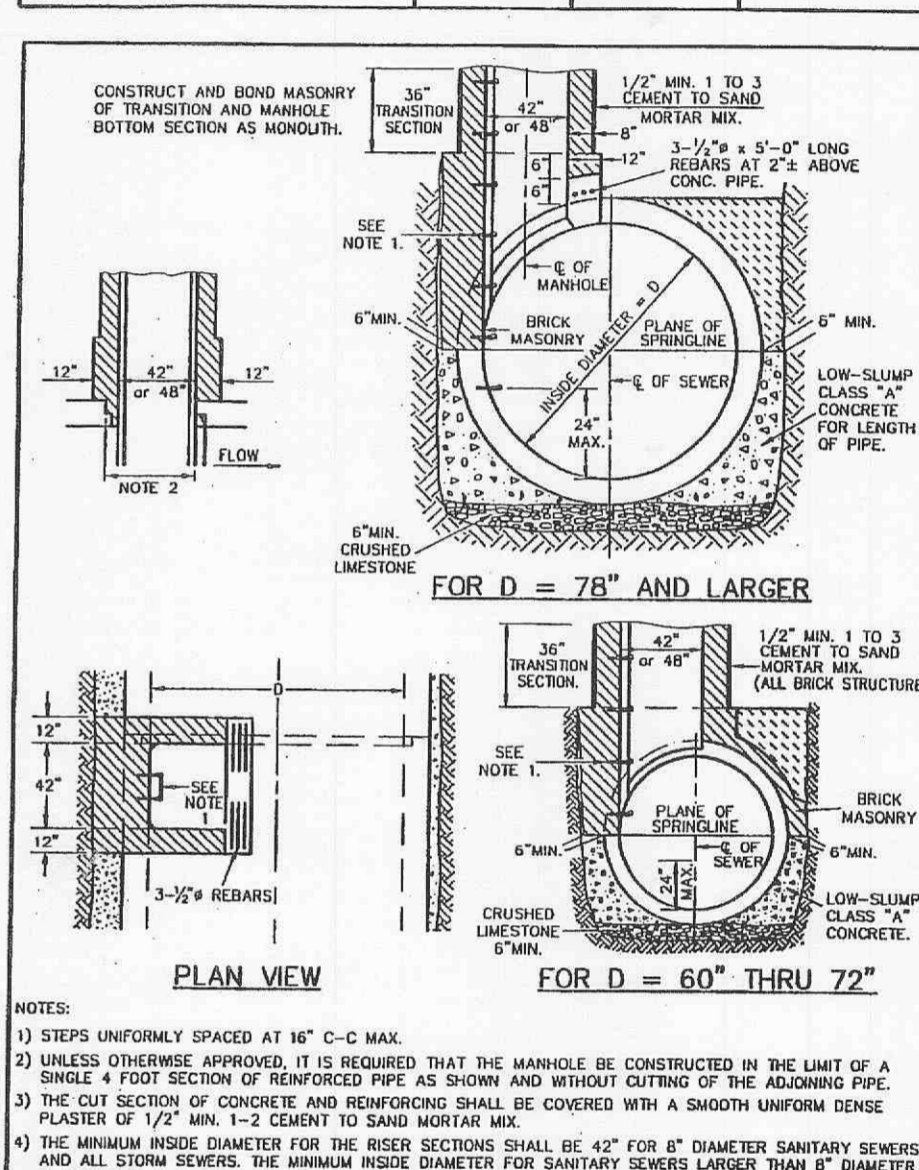
MANHOLE ON CONCRETE PIPE SEWERS 48" THRU 54" DIAMETER

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 13
Ch. J.C.K.



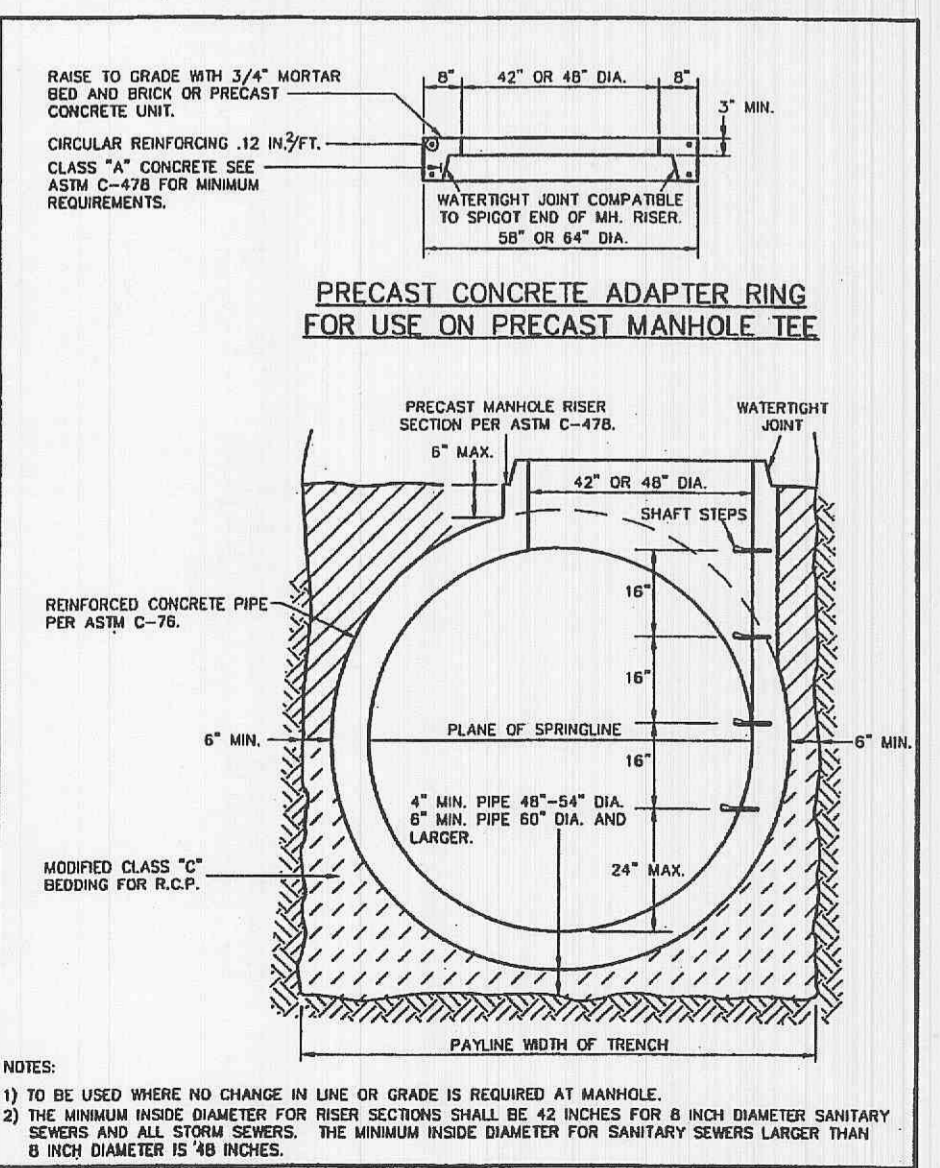
MANHOLE ON CONG. PIPE 48" THRU 54" (ALTERNATE)

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 14
Ch. J.C.K.



TYPICAL MANHOLE BASE REINFORCED CONCRETE PIPE SEWERS 60" AND LARGER IN DIAMETER

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 15
Ch. J.C.K.

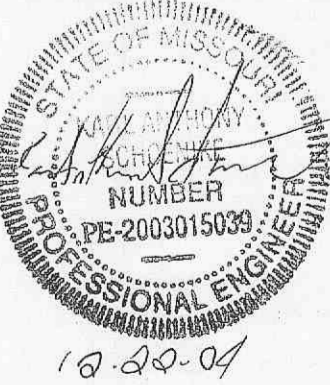
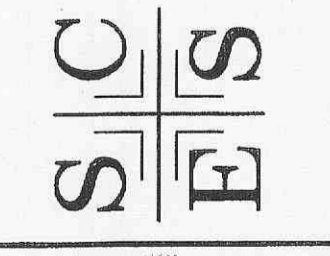


TYPICAL PRECAST MANHOLE TEE FOR REINFORCED CONCRETE PIPE SEWERS 48 INCH AND LARGER IN DIAMETER

METROPOLITAN ST. LOUIS SEWER DISTRICT
Standard Details of Sewer Construction
Dr. W.S.H./SAM 2000 SHEET 24
Ch. J.C.K.

MAGNOLIA
STORM DETAILS 3

ST. CHARLES ENGINEERING & SURVEYING, INC.
801 S. FIFTH STREET, SUITE 202
ST. CHARLES, MO 63801
TEL: (636) 947-0607 FAX: (636) 947-2448



ORDER NO.
03-0498
DATE
12/1/03
D-5