

## LEAKAGE TESTS

LINES SHALL BE TESTED FOR LEAKAGE BY LOW PRESSURE AIR TESTING, INFILTRATION TESTS OR EXFILTRATION TESTS, AS APPROPRIATE. LOW PRESSURE AIR TESTING FOR VITRIFIED CLAY PIPES SHALL BE AS PRESCRIBED IN ASTM C 828. LOW PRESSURE AIR TESTING FOR CONCRETE PIPES SHALL BE AS PRESCRIBED IN ASTM C 828. LOW PRESSURE AIR TESTING FOR PVC PIPE SHALL BE AS PRESCRIBED IN ASTM F1417, AND PRESSURE DROP LIMITS SHALL BE DETERMINED BY USING ASTM F1417 TABLE 1, SHOWN BELOW. LOW PRESSURE AIR TESTING PROCEDURES FOR OTHER PIPE MATERIALS SHALL USE THE PRESSURES AND TESTING TIMES PRESCRIBED IN ASTM C 828 AND ASTM C 924, AFTER CONSULTATION WITH THE PIPE MANUFACTURER. PRIOR TO INFILTRATION OR EXFILTRATION TESTS, THE TRENCH SHALL BE BACKFILLED UP TO AT LEAST THE LOWER HALF OF THE PIPE. IF REQUIRED, SUFFICIENT ADDITIONAL BACKFILL SHALL BE PLACED TO PREVENT PIPE MOVEMENT DURING TESTING, LEAVING THE JOINTS UNCOVERED TO PERMIT INSPECTION. VISIBLE LEAKS ENCOUNTERED SHALL BE CORRECTED REGARDLESS OF LEAKAGE TEST RESULTS. WHEN THE WATER TABLE IS 2 FEET OR MORE ABOVE THE TOP OF THE PIPE AT THE UPPER END OF THE PIPELINE SECTION TO BE TESTED, INFILTRATION SHALL BE MEASURED USING A SUITABLE WEIR OR OTHER DEVICE ACCEPTABLE TO THE CONTRACTING OFFICER. WHEN THE CONTRACTING OFFICER DETERMINES THAT INFILTRATION CANNOT BE PROPERLY TESTED, AN EXFILTRATION TEST SHALL BE MADE BY FILLING THE LINE TO BE TESTED WITH WATER SO THAT A HEAD OF AT LEAST 2 FEET IS PROVIDED ABOVE BOTH THE WATER TABLE AND THE TOP OF THE PIPE AT THE UPPER END OF THE PIPELINE TO BE TESTED. THE FILLED LINE SHALL BE ALLOWED TO STAND UNTIL THE PIPE HAS REACHED ITS MAXIMUM ABSORPTION, BUT NOT LESS THAN 4 HOURS. AFTER ABSORPTION, THE HEAD SHALL BE RE-ESTABLISHED. THE AMOUNT OF WATER REQUIRED TO MAINTAIN THIS WATER LEVEL DURING A 2-HOUR TEST PERIOD SHALL BE MEASURED. LEAKAGE AS MEASURED BY EITHER THE INFILTRATION TEST OR EXFILTRATION TEST SHALL NOT EXCEED 0.15 GALLONS PER INCH OF PIPE DIAMETER PER 100 FEET OF PIPELINE PER HOUR. WHEN LEAKAGE EXCEEDS THE MAXIMUM AMOUNT SPECIFIED, SATISFACTORY CORRECTION SHALL BE MADE AND RETESTING ACCOMPLISHED. TESTING, CORRECTION, AND RETESTING SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

TABLE 1 MINIMUM SPECIFIED TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

NOTE 1 - SEE PRACTICE UNI-B-6-90.

NOTE 2 - CONSULT WITH PIPE AND APPURTENANCE MANUFACTURER FOR MAXIMUM TEST PRESSURE FOR PIPE SIZE GREATER THAN 30 IN. DIAMETER.

Pipe Dia., in.	Min. Time, min:s	Length for Minimum Time, ft.	Time for Longer Length,s	Specification Time for Length (L) Shown, min:s								
				100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.	
4	3:46	597	0.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	0.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46	230:46

## GRAVITY SEWER

- 1.) PVC PIPE 4"-15" DIAMETER SHALL BE ASTM D3034, (SDR-35.)
- 2.) ALL SEWER LINES SHALL BE COLOR GREEN OR BROWN.
- 3.) ALL GRAVITY SEWER PIPING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH ASTM C-828 FOR CLAY PIPE, ASTM C-924 FOR CONCRETE PIPE, ASTM F-1417 FOR PLASTIC PIPE AND ASTM D-1244 FOR CONCRETE SEWER MANHOLES, EXFILTRATION OR INFILTRATION TESTS SHALL BE PREFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET. THE LEAKAGE EXFILTRATION OR INFILTRATION SHALL NOT EXCEED 200 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY FOR ANY SECTION OF THE SYSTEM.
- 4.) FIBERGLASS OR STAINLESS MANHOLE COVER INSERTS ARE REQUIRED AT ALL MANHOLES WITH RIM ELEVATIONS BELOW 7 FEET NGVD.
- 5.) MANHOLE RINGS AND COVER SHOULD BE 3 INCHES ABOVE GRADE IN UNPAVED AREAS TO PREVENT STORMWATER INFLOW.
- 6.) AFTER CURBING AND PAVEMENT CONSTRUCTION PROVIDE TO CITY FULL VIDEO OF MANHOLES & GRAVITY PIPING (MAINS & LATERALS) ON COMPACT DISK. ALSO INCLUDE TEXT REPORT. THE CITY RECCOMENDS THAT PRE-CURB/PAVEMENT VIDEO BE PERFORMED FOR CONTRACTOR Q.A.

REV	DATE	BY	REVISIONS
1	20 JAN 11	REFJHJS	REV. SHT. NO. TO ADD DIR. BORE DETAIL



**TECHNICAL  
STANDARDS  
MANUAL**

**GRAVITY SEWER  
NOTES  
TECHNICAL STANDARDS MANUAL**  
CITY OF LYNN HAVEN FLORIDA

CAD FILE:	SEWER
DWN BY:	REF
DATE:	30 APR 07
SHEET NO:	18 OF 20
DETAIL:	S-18

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