

EQUIVALENT PSI	HEIGHT OF GROUND WATER ABOVE PIPE INV. (Ft.)
0.43	1
0.87	2
1.30	3
1.73	4
2.17	5
2.60	6
3.03	7
3.47	8
3.90	9
4.34	10
4.77	11
4.98	11.5

For anything above 11.5 VF, allow maximum 5.0 PSI.

NOTES:

- Table based on 1.0 v.f. of water = 0.4335 PSI.
- The appropriate PSI allowance for average vertical foot of ground water shall be added to the base starting pressure of 4.0 PSI, but in no case shall the resulting pressure be more than 9.0 PSI.
- Interpolate for fractions of a foot of water.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	AIR TESTING BACK PRESSURE EQUIVALENCY TABLE	S-26
07/01/04		

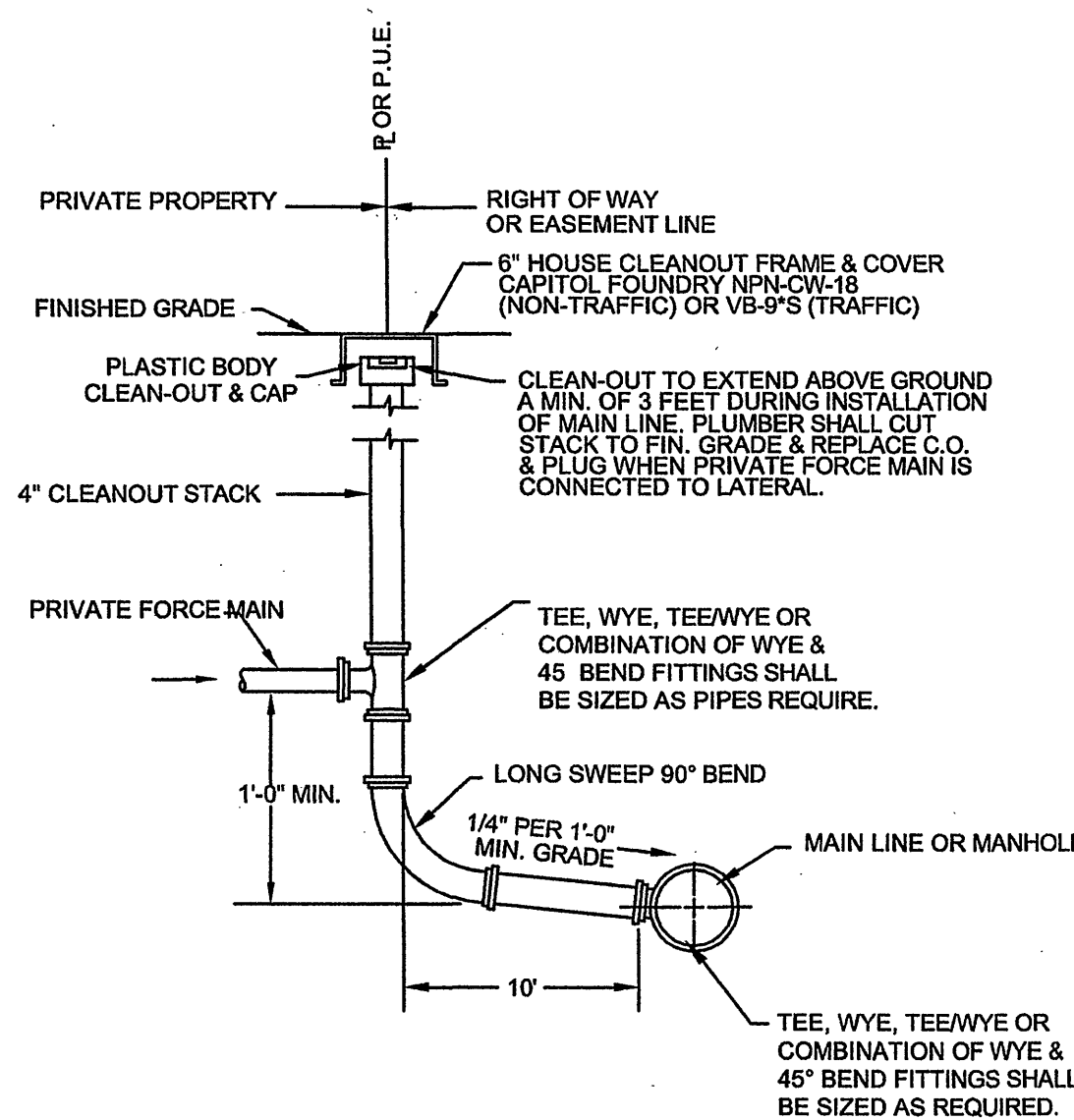
Pipe Diameter (in.)	Min. Time (min:sec)	Length for Min. Time (ft)	Time for Longer Length (sec)	Specified Time for Length (L) Shown (min:sec)									
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft		
18	8:30	133	3,846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:39	28:51		
21	9:55	114	5,235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16		
24	11:20	99	6,837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17		
27	12:45	88	8,653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:52	64:54		
30	14:10	80	10,683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07		
33	15:35	72	12,926 L	21:33	32:19	43:56	53:25	64:38	75:24	86:10	96:57		
36	17:00	66	15,384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23		

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	MINIMUM SPECIFIED TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015	S-28
07/01/04		

GENERAL NOTES:

- TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
- ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
- ALL PIPE SHALL BE OF SAME SIZE.
- NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE (EXCEPT AS NOTED).
- ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.
- MINIMUM COVER FOR ALL SEWER LATERAL SHALL BE THREE (3) FEET.
- GRAVITY SECTION AND CLEANOUT SHALL BE 6" DIAMETER FOR PUBLIC FORCE MAINS AND 4" DIAMETER FOR PRIVATE FORCE MAINS.
- PUBLIC FORCE MAINS SHALL CONNECT TO SEWER MANHOLES.
- PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.

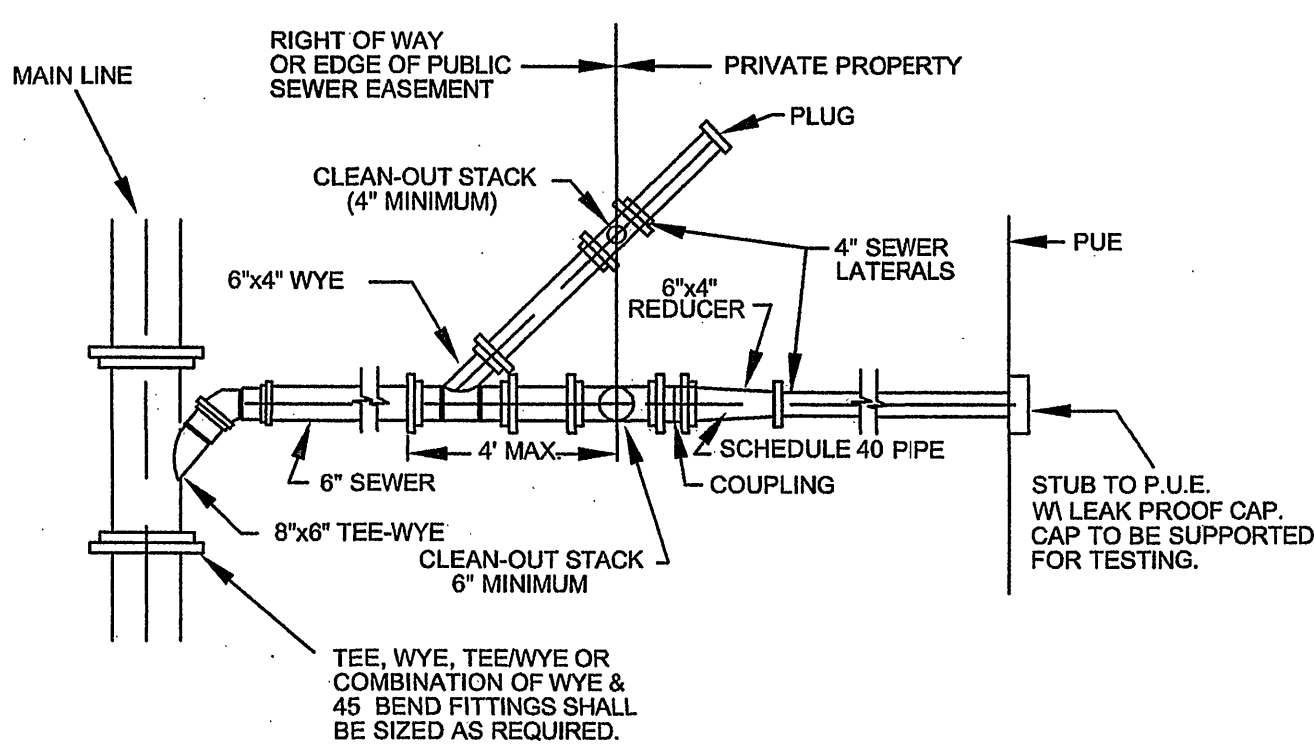


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	FORCE MAIN TO GRAVITY LATERAL CONNECTION	S-12
07/01/04		

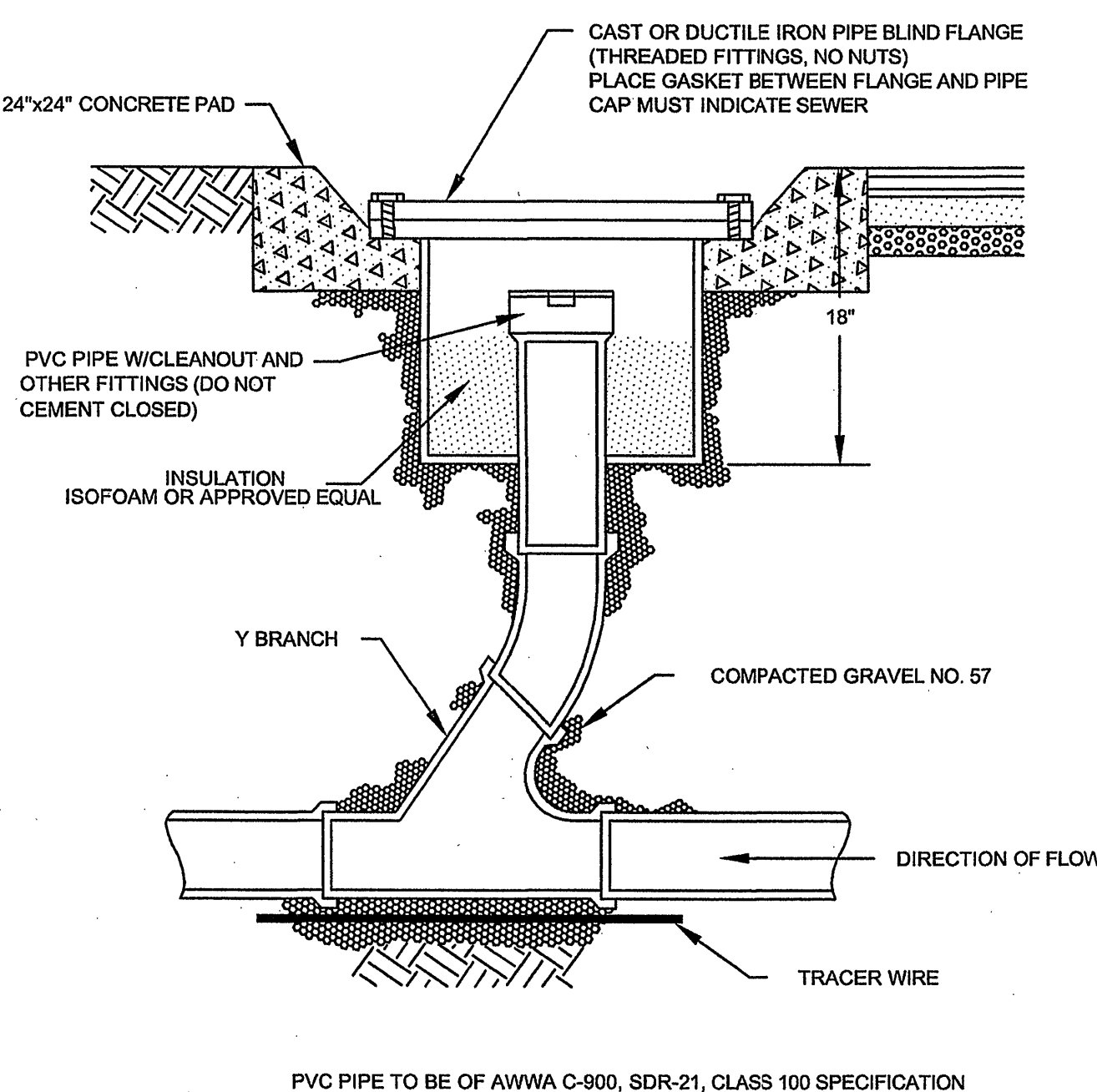
GENERAL NOTES:

- TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
- ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
- ALL PIPE SHALL BE OF SAME SIZE.
- NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE (EXCEPT AS NOTED).
- ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY WESTERN VIRGINIA WATER AUTHORITY.
- PIPING BEHIND CLEANOUT TO BE INSTALLED PER BOCA CODE.
- MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE (3) FEET.
- PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	COMBINED 6" BY TWO 4" LATERALS	S-11
07/01/04		

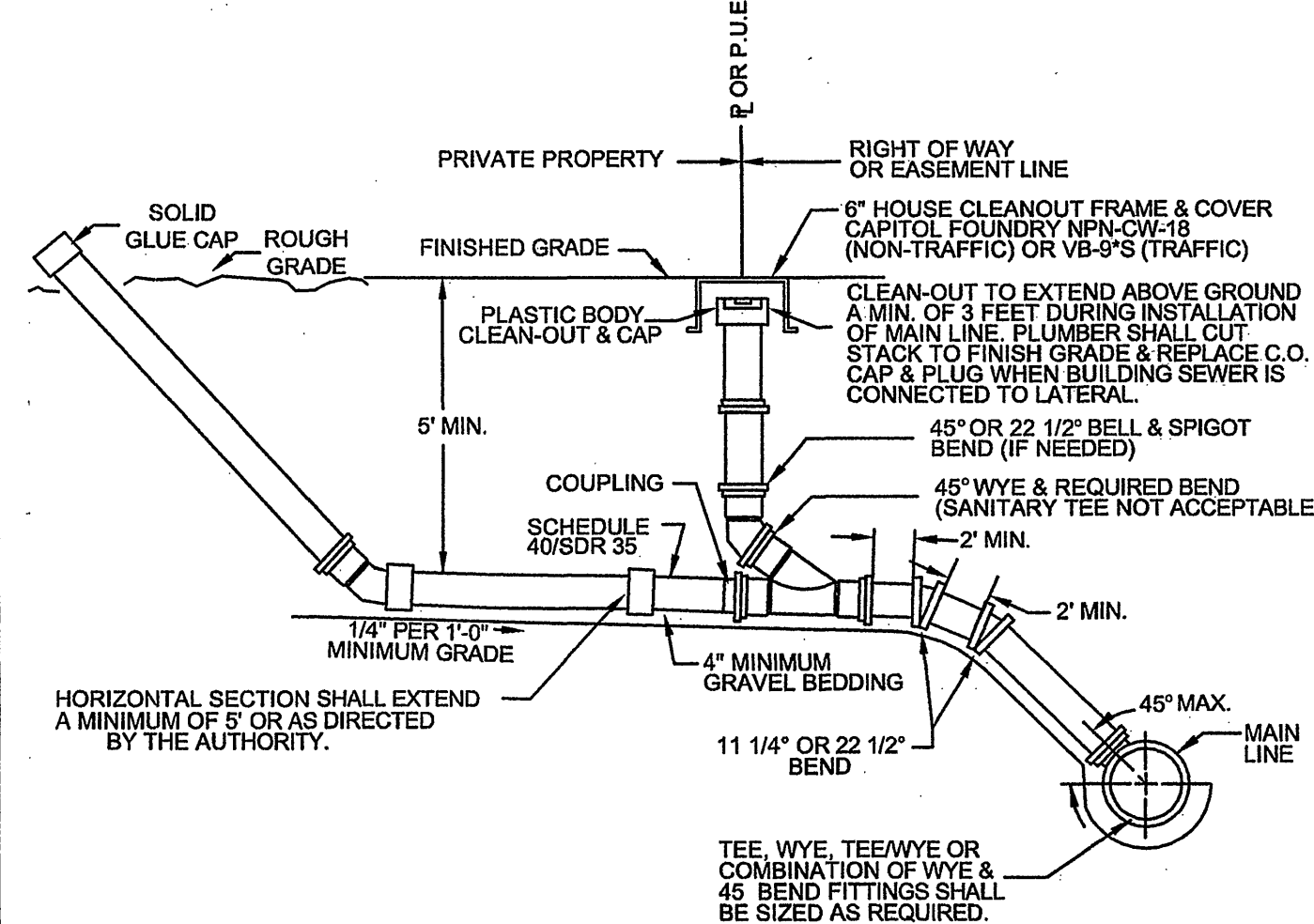


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	PVC-FORCE MAIN CLEANOUT	S-13
07/01/04		

GENERAL NOTES:

- TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREA.
- ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
- ALL PIPE SHALL BE OF SAME SIZE.
- NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE (EXCEPT AS NOTED).
- ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.
- PIPING BEHIND CLEANOUT TO BE INSTALLED PER BOCA CODE.
- MINIMUM LATERAL SIZE: 4" FOR RESIDENTIAL SERVICE, 6" FOR NON-RESIDENTIAL SERVICE.
- PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.

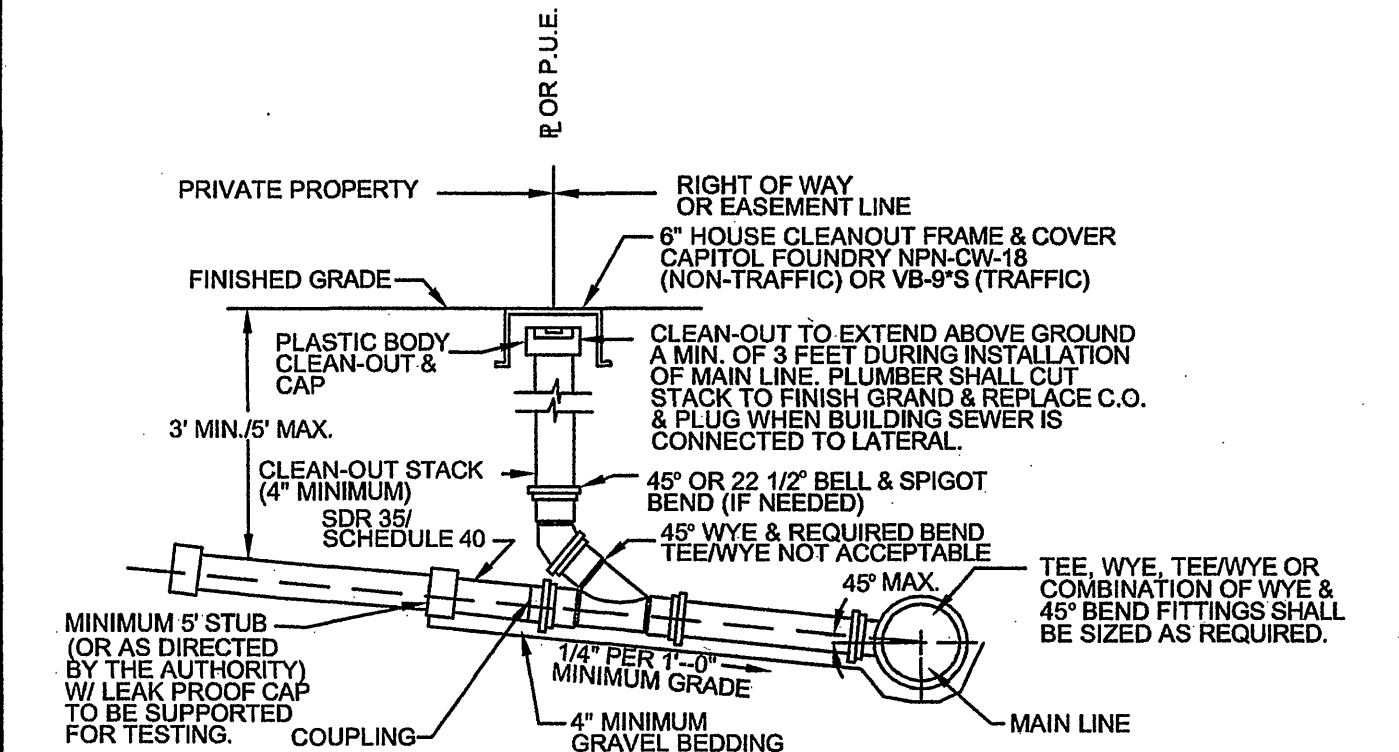


WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	SANITARY SEWER LATERAL FOR DEEP SEWER	S-09
07/01/04		

GENERAL NOTES:

- THIS CONFIGURATION MAY ONLY BE USED IN SPECIAL CASES WHEN SPECIFICALLY DESIGNED BY THE PROJECT ENGINEER AND INDICATED ON SITE PLANS.
- ALL PIPE AND FITTINGS SHALL BE OF SAME MATERIAL.
- ALL PIPE SHALL BE OF SAME SIZE.
- NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE (EXCEPT AS NOTED).
- ALL MAIN LINE TAPS ON ACTIVE MAINS SHALL BE PERFORMED BY WESTERN VIRGINIA WATER AUTHORITY.
- PIPING BEHIND CLEANOUT TO BE INSTALLED PER BOCA CODE.
- MINIMUM LATERAL SIZE: 4" FOR RESIDENTIAL SERVICE, 6" FOR NON-RESIDENTIAL SERVICE.
- MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE (3) FEET.
- PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

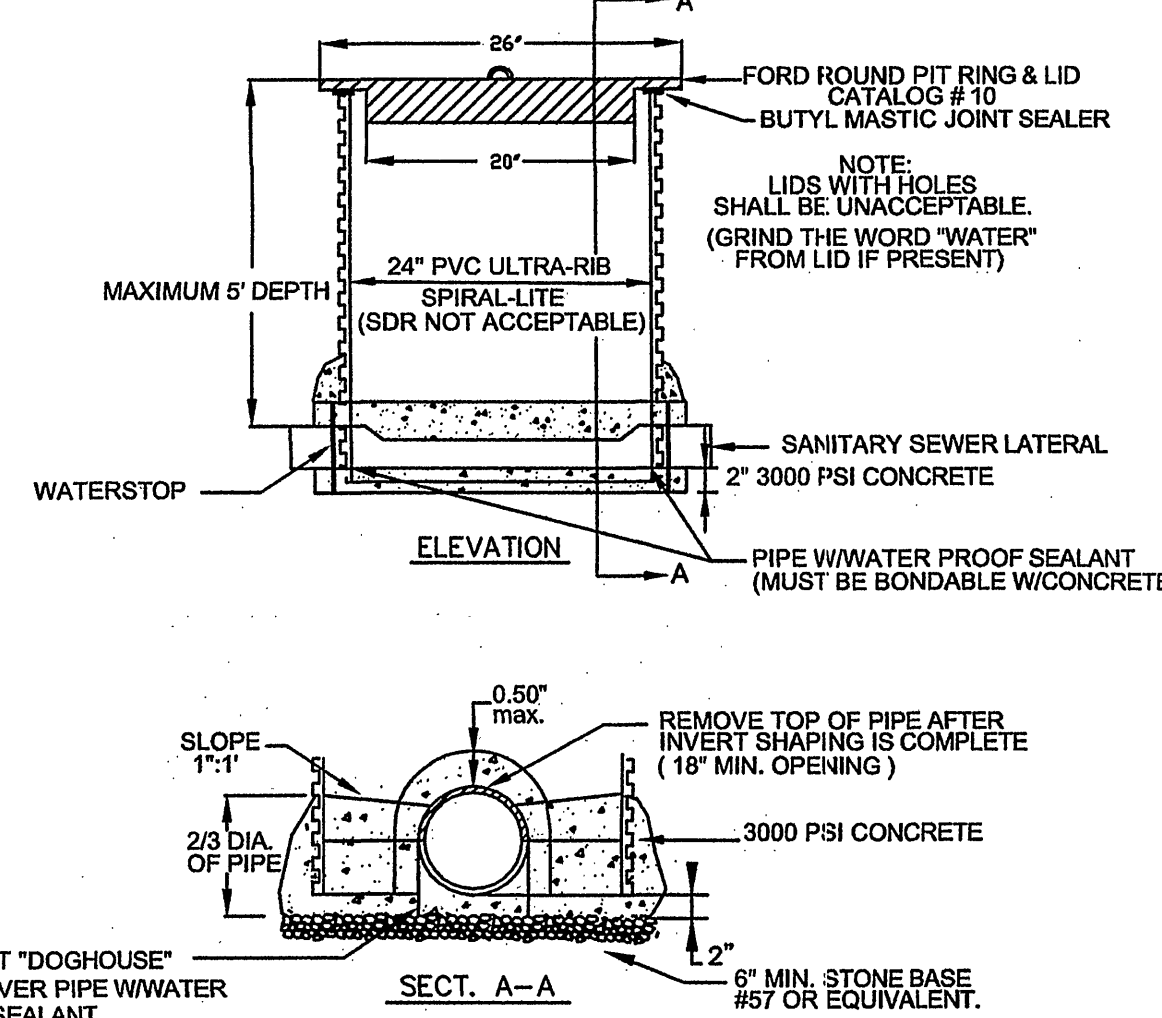
REVISION DATE	SANITARY SEWER LATERAL (FOR SPECIAL CASES)	S-10
07/01/04		

Pipe Diameter (in.)	Min. Time (min:sec)	Length for Min. Time (ft)	Time for Longer Length (sec)	Specified Time for Length (L) Shown (min:sec)									
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft		
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:40	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		
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	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		
15	14:10	169	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	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		
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	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		
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48		
30	28:20	80	21.368 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	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		
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46		

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	MINIMUM SPECIFIED TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015	S-27
07/01/04		

NOTE: LID SHALL BE SECURELY FASTENED TO PIPE BY STAINLESS STEEL SCREWS AND CLIPS



NOTES:

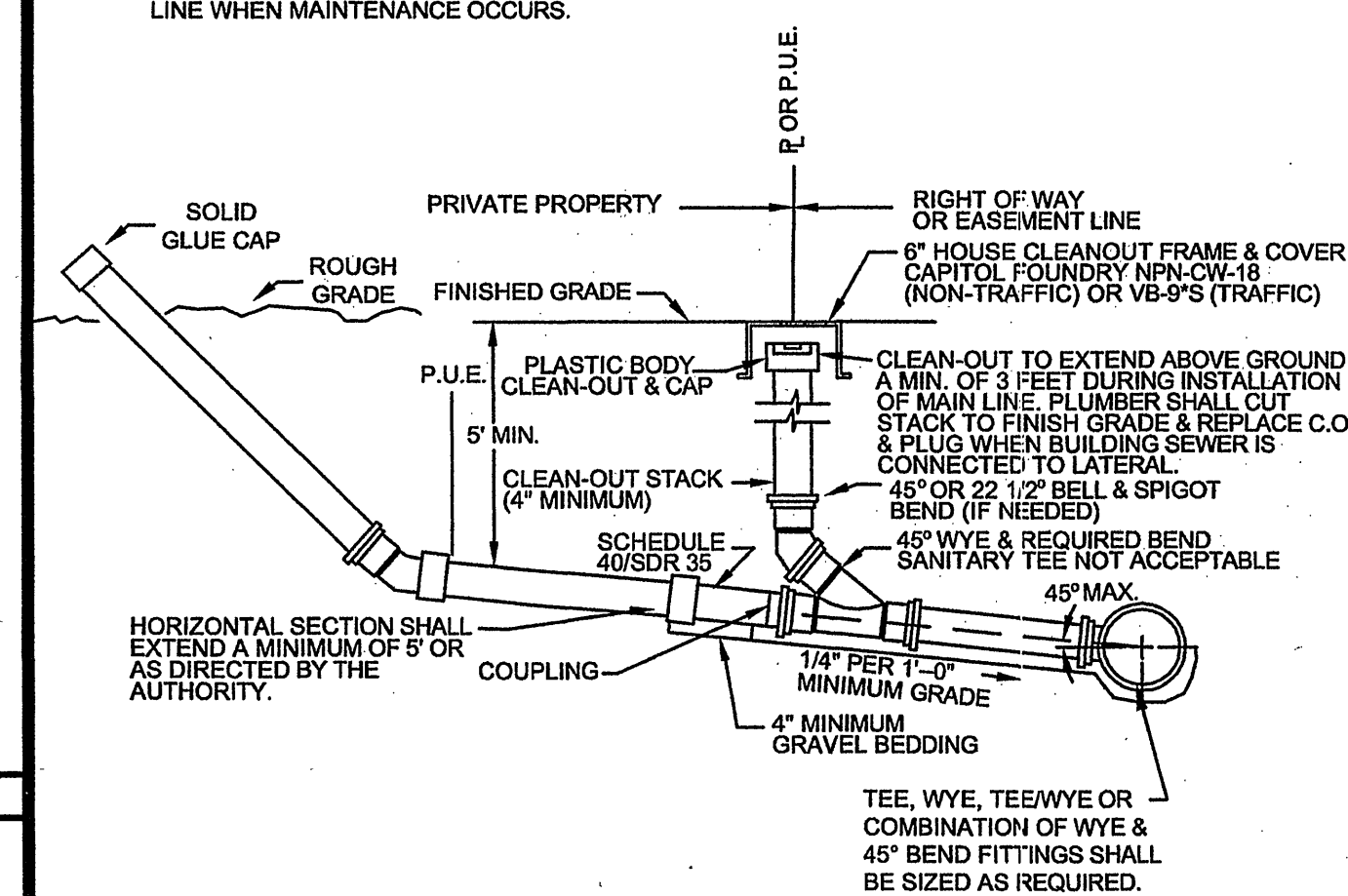
- NOT ACCEPTABLE FOR USE IN TRAFFIC AREAS OR AREAS SUBJECT TO FLOODING.
- VACUUM OR AIRATION TESTING SHALL BE USED. VACUUM TESTING SHALL MEET THE SAME STANDARD FOR CONCRETE MANHOLES. EXFILTRATION TESTING SHALL HAVE NO LEAKAGE WITHIN 1 HOUR.
- "Aquablock" WASTEWATER ACCESS CHAMBERS MAY BE SUBSTITUTED. ACCESS CHAMBERS WILL BE REQUIRED IF INSTALLED IN TRAFFIC AREAS. TESTING OF "Aquablock" SHALL BE BY APPLICABLE PLUMBING CODE FOR SEWER LATERALS.
- 2" DIA. CONCRETE WELL CASING 3000 PSI MAY BE SUBSTITUTED FOR ULTRA-RIB PIPE. ANY VERT JOINTS IN THE CASING PIPE MUST BE BY BELL & SPIGOT CONNECTION WITH MASTIC.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	SAMPLING STRUCTURE DETAIL	S-07
07/01/04		

GENERAL NOTES:

- TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
- ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
- ALL PIPE SHALL BE OF SAME SIZE.
- NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEANOUT STACK WYE (EXCEPT AS NOTED).
- ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY WESTERN VIRGINIA WATER AUTHORITY.
- PIPING BEHIND CLEANOUT TO BE INSTALLED PER BOCA CODE.
- MINIMUM LATERAL SIZE: 4" FOR RESIDENTIAL SERVICE, 6" FOR NON-RESIDENTIAL SERVICE.
- MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE (3) FEET.
- PROPERTY OWNER RESPONSIBLE FOR INSTALLING CLEANOUT ON PROPERTY LINE WHEN MAINTENANCE OCCURS.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	SANITARY SEWER LATERAL	S-08
07/01/04		

WVWA DETAILS NOT INCLUDED WITHIN THIS SET OF PLANS:
 DETAILS S-20 AND S-21 FOR MANHOLE VENTS (NOT ANTICIPATED FOR THIS PROJECT)
 DETAIL S-22 FOR SANITARY SEWER FORCE MAIN AIR RELEASE ASSEMBLY (NOT ANTICIPATED FOR THIS PROJECT)
 DETAILS S-23 AND S-24 FOR SANITARY SEWER ABANDONMENT DETAILS (NOT ANTICIPATED FOR THIS PROJECT)

WVWA SEWER DETAILS
 REFERENCE IS DIRECTED TO THE
 WESTERN VIRGINIA WATER AUTHORITY
 DESIGN AND CONSTRUCTION STANDARDS
 FIRST EDITION, DATED JULY 2004
 DETAILS PROVIDED BY THE WVWA