

## **Gravity Sewer Submittal Common Problems List**

5/31/06

### **COMMON PROBLEMS**

(This is not a cookbook recipe for preparing gravity sewer plans and specifications (P&S) for submittal to EPD, but is a list of the common problems we see that have to be resolved. By avoiding these problems, we hope to reduce the length of time it takes to get consensus between the submitter and EPD on what constitutes acceptable gravity sewer P&S.)

1. If publicly owned, the project is not consistent with the Department of Community Affairs-approved Service Delivery Strategy for the area.
2. P&S not signed and sealed by an engineer registered in the State of Georgia.
3. Satisfactory Sanitary Sewer Extension Submittal (SSES) form not furnished.
4. SSES incomplete, unsigned, or inconsistent.
5. Certification of treatment capacity and Erosion and Sedimentation (E&S) control not provided.
6. Certification that the sewer and structures tributary to it will not be built in a landfill not furnished.
7. Sewer owner not defined.
8. Flow estimate inaccurate or not in accordance with industry standards.
9. BOD loading estimate inaccurate or not in accordance with industry standards.
10. Receiving WPCP has capacity and/or compliance issues.
11. Satisfactory Report of Technical Review not furnished from authority having jurisdiction showing erosion and sedimentation control measures are adequate.
12. E&S control plans and specifications not provided.
13. Requirement to start E&S controls with the initiation of land disturbing activities not included.
14. Wetlands not addressed and/or information related to the USACOE not provided showing the wetlands work is being done to meet their requirements.
15. Sewer does not cross stream at near-90 degree angle.
16. Stream buffer variance appears required and is not addressed.
17. P&S not finished and/or missing the work of a discipline such as civil.
18. Documents not checked and revised prior to submittal. (EPD cannot provide QA/QC.)
19. Gravity sewer profiles not provided.
20. Piping not shown in adequate detail (elevation, size, material, industry standard specification, etc.).
21. Water and utility crossings not shown on profile.
22. Insufficient pipe details provided for items such as stream crossings, jack and bore, and tie-ins. Details inadequate or not in accordance with standard industry practices.

23. Specifications are not project-specific or contain information for other, unrelated work.
24. Utilities Locators (Utilities Protection, Inc., "Call Before You Dig", 800-282-7411) not called out in the plans or in the specifications.
25. Topographic map showing 100-year flood plain, proposed gravity sewer route, streams, drainage swales, wetlands and other features not provided.
26. 100-year flood plain elevation not identified.
27. Plans views not provided with north arrow.
28. Drawings not to scale or the scale is not called out.
29. Clearing and grubbing not addressed.
30. Dewatering not addressed.
31. Bedding material not defined or not defined in accordance with industry standards.
32. Specified materials are not referenced to industry standards.
33. Specifications do not prohibit the spill of sewage during construction and testing to grade, trench, or waters of the State.
34. Appurtenances such as pipe supports, wall sleeves, tie-in boots, etc., not specified.
35. Work not required to be done in accordance with OSHA standards.
36. Site appears subject to Karst topography or swelling clays and supporting information from a registered geologist indicating the site is suitable has not been furnished.
37. Information demonstrating that the receiving sewer has adequate capacity to accept the project flow not provided.
38. Sewer and potable water lines not separated 10 feet horizontally and/or 18 inches vertically, with the water line on top.
39. Sewer is less than 8 inches in size.
40. Sewers not straight or not run at a uniform slope between manholes.
41. Sewers do not have adequate capacity (size and slope) to transport project flow.
42. Distance between manholes is over 400 feet.
43. Sewers velocity is under 2 FPS.
44. Sewers at 15 FPS or 20 percent slope and above are not anchored.
45. Sewers materials and/or coatings with suitable corrosion resistance not specified.
46. Flexible boot or other connector between sewer and manhole not specified or detailed.
47. Drop manholes not provided for incoming sewer pipes more than 2 feet above the manhole invert.
48. Manhole bottom not channeled and benched for incoming sewer pipes.
49. Manholes, manhole grout or gaskets, ladder rungs, and covers not detailed or not specified to industry standards.
50. Manhole diameter is less than 48 inches.
51. Manhole cover opening is less than 22 inches.
52. Manhole ladder rungs not slip-proof.
53. Manholes within the 100-year flood plain not specified with bolt-down and gasketed covers, or required to have top elevations a minimum of 2 feet above the flood plain.
54. Deep-buried sewers not constructed of high strength material.
55. Stream crossings not constructed of high strength material such as ductile iron pipe.
56. Aerial crossings not provided with concrete piers, or pier design not furnished.
57. Aerial crossing bottom of pipe set below the 50-year flood elevation.

58. Buried stream crossings not protected by a casing, concrete encasement, riprap, or other.
59. High loading areas such as traffic crossings not protected by a casing and/or high strength pipe material.
60. Tie-in to the existing sewer not detailed.
61. Requirement to take up and relay pipe disturbed after installation not included.
62. Burial depth is less than 36 inches above the top of pipe.
63. Locator tape and detector wire not required and/or specified for non-metallic pipe.
64. Plastic pipe not bedded per ASTM D 2321.
65. Ductile iron pipe not bedded per ASTM D 2321, AWWA C151, ASTM C 12, or other industry standards.
66. Gravity sewer pipe laid directly on undisturbed earth (example: Class D bedding, ASTM C 12).
67. Bedding details not adequate or not in accordance with industry standards.
68. Bedding, haunching and backfill material not specified or not in accordance with industry standards.
69. Compaction not specified.
70. Alignment testing by laser or lamping during construction not required.
71. Mandrel test not specified for non-metallic pipe, or not required a minimum of 30 days after the completion of construction.
72. Acceptable mandrel deflection not limited to 5%.
73. Pressure testing or infiltration/exfiltration testing not specified.
74. Sewers not low-pressure tested per ASTM F 1417 or high-pressure tested per AWWA C600, C605, or other industry standards.
75. Infiltration/exfiltration testing not specified to ASTM C 969, C 1091, or another industry standard, with the exception that leakage must be limited to 25 GPD/inch of diameter/mile.
76. Manholes not vacuum tested per ASTM C 1244 or not hydraulically tested to leak less than ¼ inch of level over 24 hours.
77. Site restoration not addressed or not specified to industry standards.