



**Guidance Regarding Deviations From the
Minimum Isolation Standards Between Water
Mains and Sources of Potential Sanitary
Contamination**

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I. PURPOSE

The purpose of this document is to provide guidance to staff of the Division of Drinking and Ground Waters (DDAGW) and to design professionals regarding isolation criteria between new water mains and various sources of potential sanitary contamination in distribution systems.

II. BACKGROUND

Engineering review of water main extensions and certain water main replacement projects has largely been governed by adherence to accepted industry standards such as American Water Works Association (AWWA) and accepted engineering design standards such as Recommended Standards for Water Works (Ten States Standards, or TSS). TSS section 8.8 historically has provided separation criteria between water mains and various sources of contamination. TSS section 8.8.2 and 8.8.3 provides guidance in establishing appropriate horizontal and vertical separation between water mains and sewers.

Prior to the 2007 edition of TSS, there was no distinction between sanitary sewers and storm sewers in TSS section 8.8.2 and 8.8.3. In absence of separation criteria between water mains and storm sewers, review engineers were required to establish a sanitary risk and corresponding minimum separation requirement. In general, storm sewers were viewed as less of a risk than sanitary sewers except in unsewered areas or areas known to have failing septic tanks discharging to the front of the property. The separation criteria therefore ranged from 4-feet to 10-feet horizontally and 12-inches to 18-inches vertically, measured out-to-out, and varied between districts and applications. This interpretation was practiced for decades and became the unofficial design standard.

The 2007 edition specified both “existing and proposed gravity sanitary sewers and storm sewers”. The sanitary risk assigned to both sewers was equal, and the resulting required separation from water mains was 10 feet horizontal and 18-inches vertical, measured out-to-out. At the time, Ohio Administrative Code (OAC) did not recognize the 2007 edition. Therefore, several years of engineering review was still governed by

the previous edition which did not distinguish between sanitary sewers and storm sewers.

In 2013, full statewide adherence to the standard of assigning equal sanitary risk for sanitary sewers and storm sewers began. A number of project designers and public water systems were caught off-guard by the requirement to meet the 10-foot and 18-inch separation criteria. As a result, comment letters were issued by the reviewing engineer and required redesign of the water main to meet these criteria. Delays in expected project approvals and commencement of construction ensued and led to complaints being filed by the Ohio Home Builders Association and several design engineers. After several meetings with interested internal and external stakeholders, it was agreed that sanitary isolation criteria should be maximized in the interest of public health, with the understanding that strict adherence to TSS was not practical under all circumstances. This guidance document is intended to identify some of the more common circumstances and provide appropriate relief when these separations cannot be realistically achieved.

III. GUIDANCE

A sanitary isolation separation of 10 feet (horizontal) and 18-inches (vertical at crossings) must be maintained in the design and construction of all new water mains. The separation is to be measured out-to-out between water mains and sanitary sewers and/or storm sewers. Due to the pressurized nature of water mains, it is not anticipated maintaining 18-inches vertical separation at crossings should be an issue. In instances where 10-foot horizontal separation between water mains and sources of sanitary contamination cannot be achieved, the following examples are provided to give guidance to design engineers and review engineers. These are not all-inclusive of all possible situations, but constitute a majority of situations typically encountered by the district offices. It should be reinforced that maximum sanitary isolation should always be the primary goal.

Scenarios where Ohio EPA may consider deviation from the 10-foot horizontal and 18-inch vertical separation standard, with appropriate written justification from the design professional and risk assessment acceptance by Ohio EPA:

1. Where the alignment of the storm and sanitary sewers has already been established through prior phases of design (e.g., ABC subdivision, phase 5). Appropriate documentation must be provided which explains why current separation standards cannot be realistically met.
2. In heavily congested utility corridors (e.g., in urban areas), where standard separation is physically impossible or where maintaining 10 feet from storm sewers actually poses a hazard due to another utility in the ground (e.g., large gas mains, petroleum lines, another sanitary sewer, a sewer force main, or a contaminated ditch, etc.), with an explanation why the separation cannot be met.

3. Sites where overhead utilities create an issue (e.g., high voltage transmission mains, street poles that are encroached upon with an open cut and could undermine the pole). This should include a specific note at a specific location, not a general statement for an entire project. Please note that directional drilling may be an acceptable solution.
4. When County Engineers will not permit water mains under pavement. If the sewer cannot be placed on the opposite side of the road from the waterlines, sewers with water main grade pressure rated pipe (ASTM) may be a condition of plan approval and written documentation from the authority raising the objection should be submitted.
5. When corporation lines run down the middle of a road and the water main needs to stay on one side for maintenance by the owning municipality. This should be a specific note at a specific location, not a general statement for an entire project.
6. When the Ohio Department of Transportation or the County prohibits open cuts in the road or the shoulder (where the road could get damaged) and 10-foot separation cannot be maintained. Written documentation from the objecting authority should be submitted. Please note that directional drilling may be an acceptable solution.
7. When attempts to maintain 10-feet of separation leads to possible structural issues with adjacent buildings. The design professional should provide justification that there is no other way to construct the water main.
8. Ohio EPA will work with the design professional when designing water mains in sites with contamination (e.g., Voluntary Action Programs, brownfields, landfills, etc.). The water main should be put in in the best possible location to minimize sanitary risk. Appropriate piping materials, backfill materials and methods, and other special construction techniques may be needed.
9. Very unusual circumstances, such as construction in an historic district where maintaining 10-feet might cause harm to large trees, historic structures, sandstone curbs, and/or brick paved roads. When other authorities impose restrictions and directional drilling is not possible, justification by the design professional should be submitted.
10. Projects in which the replacement of existing water mains not subject to the exemption provisions in OAC rule 3745-91-02 do not reduce the separation from what is provided by the existing installation.
11. Situations in which the water main and sewers are run in the same corridor and, due to a change in direction, the minimum horizontal separation of 10 feet cannot be maintained for a short distance. Typically, this distance would be that which is

required to regain the intended straight-line alignment only. This should be a specific note at a specific location, not a general statement for an entire project.

Deviations from the sanitary isolation standards may be addressed through director's actions, which include detail plan approval letters. Justification for the deviation from established standards should be documented by the design professional or designated representative. It is recommended design engineers use the Project Summary Sheet for Plan Review of Proposed Waterline Extensions found on the Ohio EPA DDAGW website to document and describe these deviations. When the standard separation cannot be achieved, utilities should be designed to obtain the maximum isolation distance possible.

IV. HISTORY

The Division of Drinking and Ground Water issued this document in final form on _____.