
General Information

A. Concept

Sanitary sewer systems are essential to the public health and welfare in areas of concentrated population and development. Every community produces water-borne wastes of domestic, commercial, and industrial origin. The sanitary sewer performs the needed function of collecting these wastes and conveying them to points of approved discharge or disposal. The use of uniform and adequate sanitary sewer design criteria is essential for public safety and proper wastewater treatment, maintenance and control.

It is important to collect the needed information for the proper design of the sanitary sewer system. Generally, this information includes:

1. Topography, surface and subsurface conditions, above and below ground utilities, soil characteristics, water table elevations, and traffic control needs.
2. Locations of streets, alleys, and easements.
3. Capacity, condition, and elevations of the existing sanitary sewer to which the proposed pipe will connect. Determination of backups or unusual maintenance problems on the connecting sewer.
4. Information relative to any proposed expansion of the proposed project by annexation or service agreement.
5. Locations of historical and archaeological sites and any environmental sensitive areas within the project area.
6. Access needs for construction and operation of the sanitary sewer.
7. Quantity of flow in the pipe to be extended.

The Iowa DNR requires underground storage tank (UST) owners to meet specific design requirements for USTs installed within 1,000 feet of a community water system due to the potential for volatile organic compounds to be released from the UST and impact water main pipe. The same potential exists for sanitary sewer pipe, especially force mains that are installed at a shallower depth. The Project Engineer should determine if there is an UST in the area of the force main project. If so, the Designer should determine the need to design the force main to prevent future permeation of any volatile organic compounds into the sanitary sewer system. There are various elements to consider, some of which include soil types, groundwater table depth, size of the UST, age of the UST, etc.

B. Conditions

1. **Design:** The design for sanitary facilities should be in conformance with the following:
 - a. "Iowa Standards for Sewer System, Chapter 12," Iowa Department of Natural Resources.
 - b. "Recommended Standards for Sewage Works Great Lakes-Upper Mississippi River Board of State Sanitary Engineers." (Ten State Standards).
 - c. Jurisdiction's Plumbing Code.
 - d. In case of a conflict between the above design standards, the most restrictive requirement applies.
2. **Construction Standards:** Construction standards should be the most recent edition of the SUDAS Standard Specifications. All details, materials, and sewer appurtenances should conform to these standards.
3. **Project Submittals:** An application for a permit to construct should follow the Department of Natural Resources Rules and Regulations. A construction permit issued by the Iowa Department of Natural Resources (Iowa DNR) is required for the construction, installation or modification of any disposal system or part thereof or any extension or addition thereto. A permit to construct sewer extensions may be obtained from a local public works department when the department's permitting authority has been delegated to the local public works department under section 455B.183 of the Code of Iowa.

DNR construction permits are normally not required for the following sewers:

- a. Storm sewers that transport only surface water runoff.
- b. Any new disposal system or extension or addition to any existing disposal system that receives only domestic or sanitary sewage from a building or housing occupied by fifteen persons or less.
- c. Replacement of previously approved construction where the replacement is done with the exact same methods, materials, capacities, and design considerations. However, if there is any change, the proposed construction will require a construction permit.
- d. Sanitary sewer service connections, defined as any connection from a single property unit to an existing sanitary sewer.

Engineering services to obtain a construction permit and complete the approved construction should be performed in three stages:

- a. Engineering report or facilities plan (not required for minor sewer extensions).
- b. Preparation and submittal of construction plans, specifications, and contractual documents.
- c. Preparation and submittal of permit forms, including a sewage treatment agreement from the agency providing treatment.
- d. Construction inspection, administration, compliance, and acceptance.

All reports, plans, and specifications should be prepared in conformance with Chapter 542B of the Code of Iowa.

Engineering reports, permit forms, or facilities plans should be submitted to the Iowa DNR at least 120 days prior to the date for starting construction, upon which action by the Department is desired, or according to the Iowa Operation Permit or other schedules. If the project meets the requirements of Iowa Code Section 455 B. 183 for a minor sewer extension, and the county or city public works department has been approved to issue permits, the information should be submitted to the local officials for processing.

The final plans and specifications should not be prepared until the engineering report has been approved. This enables the Department to review the concept and design basis, make appropriate comments, and indicate to the applicant the general acceptability of the proposal before additional expenses are incurred for developing final plans and specifications. After the engineering report has been approved, the final plans and specifications should be submitted in accordance with 400-24.2(455B) of the Iowa Administrative Code or in accordance with the Iowa Operation Permit or other schedules. These plans and specifications should be prepared in accordance with the approved engineering report or facilities plan. Any changes from the approved report must receive prior approval from the Iowa DNR before incorporation into the plans and specifications.