

**Water and Environmental Programs
Engineering Success Stories**

State: Nebraska

Borrower Name: Village of Richland, Sanitary Sewer System

Engineering Firm: Gilmore & Associates, Inc.

RD Contact: Harlow W. Inman (402) 437-5560

Congressional Information: Congressman Douglas Bereuter

County: Colfax

Keywords: High ground water

High Ground Water

This project was for the construction of a new sanitary sewer system for an unsewered community having a population of 96.

PROBLEMS:

1. High ground water (4 to 7 feet below grade).
2. Flat terrain.
3. Small Community.
4. Cost of Construction.
5. Operational Cost.
6. Future problems due to poor service connections when said connections might not be under the supervision of a knowledgeable installer.
7. High infiltration.

SOLUTIONS:

Project engineer utilized the following design to solve both the existing and potential future problems:

1. Utilized 20 lengths of pipe.
 2. Specified 8 and 6" pipe.
 3. Utilized a reduced slope (0.2 foot per 100) in order to minimize; number of lift stations (only one was installed) dewatering cost and infiltration.
 4. Base of manholes along with all joints were sealed with a plastic gasket.
 5. End of line clean-out were extensively used.
 6. Engineer designed the collection system as shallow as possible.
 7. Treatment was a controlled discharge lagoon.
 8. Required infiltration testing of the system including the manholes.
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