

✓ 9-15-06

Variance File 12.5.1

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: February 10, 2004
 2. Review Engineer: Satya Chennupati
 3. Date Received: December 17, 2003
 4. Facility Name: Spring Lake Park - Cherokee
 5. County Number: 18
 6. Program Area: CP (Wastewater Construction)
 7. Facility Type : C05 (Biological Treatment)
 8. Subject Area : 310
 9. Rule Reference: 567-64.2(9)a
 10. Design Stds Ref: 12.5.1
 11. Consulting Engr: Kuehl & Payer Ltd.
 12. Variance Rule: 567-64.2(9)d

13. Decision:

Date:

14. Appeal:

Date:

15. Description of Variance Request:

The City of Cherokee has submitted a project for a new lateral sanitary sewer system which includes installation of 988 linear feet of 6-inch sewer with a slope ranging from 0.6% to 6.64%. Iowa Design Standard 12.5.1 requires the minimum public sewer pipe diameter of 8 inches for sewer communities and 6-inch diameter for the last 800 feet of sewer.

16. Consulting Engineer's Justifications

The proposed sewer is for Spring Lake Park in Cherokee collecting waste from camper hookups. The proposed sewer is laid at a minimum slope of 0.6% and a maximum slope of 6.64% which provides adequate cleansing velocity in the sewer given the low flow nature of waste from camper hookups and relatively steep slope of the sewer. EPA Manual on Alternative Wastewater Collection Systems allows minimum sewer diameter to be 4-inch, but smaller sizes have been successfully used.

17. Department's Justifications**Recommend variance approval:**

The proposed sewer will have enough capacity (250,000 gpd) to accommodate the design PHWW flow of 27,800 gpd. The minimum slope provided (0.6%) is greater than that provided for 8-inch sewer and therefore provides greater carrying capacity. The full flow velocity of 2 ft/s meets the design standard requirements.

For unsewered communities, the 6-inch pipe can be used for the last 800 feet of sewer. Although this is not an unsewered community, the proposed sewer is serving Spring Lake Park, currently an unsewered area of the City and has a controlled environment. The proposed sewer will not significantly affect the performance and capacity of the collection system since the park is the only service area with no future expansion.

Lisbon - Approved 1/11/89; St. Anthony - Approved 8/9/2002, Shueyville - Approved 10/30/03

19. Staff Reviewer:

Satya Chennupati

Date:

2/10/04

20. Supervisor:

Date:

21. Authorized by:



Date:

2/10/04



STATE OF IOWA

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

February 10, 2004

Mr. Ron Strickland Sr.
City Administrator
416 West Main Street
Cherokee, IA 51012

RE: Sewer System for Spring Lake Park, IA

Dear Mr. Strickland:

The Iowa Department of Natural Resources received your engineer's variance request from Design Standard 12.5.1. This design standard requires minimum diameter of 8-inch for gravity public sewers and 6-inch for the last 800-feet for unsewered communities.

Your consultant has provided information requesting the use of 6-inch gravity sewer for a portion of the campground in the Spring Lake Park at a minimum slope of 0.6%. The proposed sewer transports sewage to the lift stations to be pumped to the nearby manhole for gravity transport.

According to Iowa Design Standards, Chapter 12, item 12.5.3(b), the variance request is approved as being substantially equivalent to the design standard requirements.

If you have any questions or comments, please feel free to contact Satya Chennupati, P.E. at 515-281-8995 or at satya.chennupati@dnr.state.ia.us.

Sincerely,

A handwritten signature in black ink, appearing to read "Wayne C. Farrand", with a large, stylized loop at the end.

Wayne C. Farrand, P.E.
Wastewater Section Supervisor

cc: Kuehl & Payer Ltd.
Field Office # 3



www.kpltd.com

52014-0273

**KUEHL AND PAYER, LTD.
CONSULTING ENGINEERS
AND LAND SURVEYORS
MANAGEMENT CONSULTANTS**

Robert F. Payer, P.E.
Neal R. Kuehl, P.E.
Ivan D. Droessler, P.E.
J. Scott Shevel, P.L.S.

Donald D. Etler, P.E.
Curtis R. Wiseman, P.E.
Tom W. G. Edgerton, P.L.S.

December 16, 2003

Wastewater Permits Section
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, IA 50319-0034

Re: New Sanitary Sewer System
Spring Lake Park
Cherokee, IA

Ladies and Gentlemen:

Attached are plans, specifications, and permit forms for a new sanitary sewer system for Spring Lake Park in Cherokee, IA. Currently there is a septic tank system that is overloaded and not functioning properly. Local sanitarians and regional IDNR representatives are requiring that the septic tank system be replaced. The attached project will collect waste from 35 camper hook-ups, the Cherokee maintenance facility, a small community building, and four (4) private residences. The system is a combination of a grinder pump system and gravity sewers. Waste will be collected at a lower campground area, pumped to the gravity sewer and combined with waste from an upper campground area and finally pumped to the City's sewer system. A schematic is included with the permit schedules. The campground is seasonal. The maintenance facility, community building and private residences are year round connections.

We have used the IDNR rule allowing 6" sewers in the upper section of a new sewer system in an unsewered area. We believe this is most appropriate because of the low flow nature of the connections (campers) and the relatively steep slope of the sewer. If a variance is required for this, please consider this a request for same. All pumps that collect from the common areas are duplex with separate valve vaults. The grinder pumps at the residences are simplex pumps with installation by the City and operation and control by the property owner.

At the City's request, we have included a 2" pipeline that is labeled "future water main". The City has requested this because the area where the 2" sewer force main will be constructed will have to be torn up through an asphalt parking lot. The City is not installing new water service at this time but desires to have a pipeline in place under the parking lot for future use.



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Permit applications for use of the pipeline for water service will be made whenever the City decides to upgrade the water service to this area. All pipes – force main and future water main – are being constructed of water main material so the water main can be used in the future for water service.

Please review the attached and issue a construction permit as appropriate. Let us know if there are any comments or concerns about the project.

Sincerely,

Kuehl & Payer, Ltd.



Neal R. Kuehl, P.E.

nk

cc: Ron Strickland Sr., City Administrator