



STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

March 22, 2016

City of Spencer
Attn: Mark White, Public Works Director
418 2nd Avenue West
Spencer, IA 51301

RE: 2015 HMGP West Central Sewer Retrofit
Spencer, Iowa
DNR Project No. S2015-0332

Subject: Variance Request from Design Standards Sections 12.5.3 (Slope) and 13.4.2 (Protection from Clogging)

Dear Mr. White:

After careful and thorough consideration, the Department has **approved** your March 4, 2016 request for a variance from Iowa Administrative Code Subrule IAC 64.2(9a) and Iowa Wastewater Facilities Design Standards Chapter 12, 12.5.3 (Slope) which sets a minimum slope of 0.40% for 8-inch gravity sewers and Chapter 13, 13.4.2 (Protection Against Clogging) which requires screening for lift stations.

Based on the documentation presented by your Engineer, it is the determination of this Department that satisfactory justification has been presented to warrant the granting of a variance for installation 8-inch gravity sewers at a reduced slope to match the elevations of upstream and downstream connections and the installation of a lift station without a trash basket. The requested variance is deemed to be reasonable and necessary pursuant to the Iowa Code section 455B.181.

The facts presented for the project present unique circumstances and the variance is therefore justified to provide the narrowest exception possible to the provisions of the rule in accordance with Rule 561 IAC 10.5. Since the project planning and construction may last more than one year, the variance is considered to be of a permanent nature. The validity of this variance approval shall last for a period of one year from the date of the construction permit in accordance with Rule 561 IAC 10.5.

This decision is based on our review of justification presented to support the request. Our concurrence with the request is based on the Department's finding that the resulting project will provide substantially equivalent effectiveness as would be provided by technical compliance with the design standard on this issue.

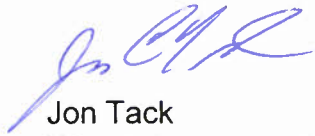
Mr. Mark White, Public Works Director
City of Spencer
March 22, 2016
Page 2 of 2

This variance approval is subject to the following **conditions and requirements**:

1. No additional unscreened flows will be added to the lift station subject to this variance.

Please contact Marty Jacobs at 515-725-8419 or email martin.jacobs@dnr.iowa.gov if you have any questions.

Sincerely,



Jon Tack
Water Quality Bureau Chief

cc: Brain J. Schmidt, P.E., Kruse, Cate & Nelson, P.C.
DNR FO 3
DNR Sewage File 6-21-71-0-04

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: March 18, 2016 2. Reviewer/Engr.: Marty Jacobs 3. Date Received: March 8, 2016 4. Facility Name: City of Spencer 5. Facility Number: 6-21-71-0-04 6. County Number: 21 (Clay) 7. Program Area: CP (Wastewater) 8. Facility Type: C01 (Collection/Transport) 9. Subject Area: 344 (Trash Basket) 10. Rule Reference: 567-64.2(9)a 11. Design Std. Ref.: 13.4.2 12. Consulting Engr.: Kruse, Cate & Nelson 13. Variance Rule: 567-64.2(9)c	14a. Decision: <i>Approved</i> Date: <i>3/25/16</i> Expiration Date (if any): <i>901</i> 14b. 15. Appealed: Date:
16. <u>Description of Variance Request:</u> The City of Spencer is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 13 – Wastewater Pumping Stations and Force Mains – 13.4.2 (Protection Against Clogging) for installing a lift station without a trash basket.	
17. <u>Applicant's/Consulting Engineer's Justification:</u> The proposed lift station will divert excess flows within the West 7th Street sanitary sewer during wet weather conditions. The lift station will only operate intermittently during wet weather. Approximately 92% of the flow to the proposed lift station will be conveyed from upstream lift stations. The new lift station pumps are specified to pass a 3" sphere and 5% sludge and rag laden wastewater.	
18. <u>Department's Justification:</u> Recommend variance approval. As noted, the upstream lift stations should be expected to catch debris that is likely to clog this lift station either by trash baskets or by upstream pumps that have a smaller throughput diameter. This lift station will remain on standby most of the time and only operate intermittently during high-flow events. The ability of the upstream lift stations to catch debris before it reaches this lift station appears to provide equivalent effectiveness. A condition has been added to the approval letter requiring that no unscreened wastewater flows be added to the proposed station.	
19. <u>Precedents Used:</u> Ringgold - 9/13/11	
20. Staff Reviewer: <i>Walter Jacobs, Engr.</i>	Date: <i>3-18-16</i>
21. Supervisor: <i>John Champagne</i>	Date: <i>3/22/16</i>
22. Authorized by: <i>John Champagne</i>	Date: <i>3/25/16</i>

VARIANCE REQUEST			
Iowa Department of Natural Resources			
1. Date:	March 18, 2016	14a. Decision:	<i>Approved</i>
2. Reviewer/Engr.:	Marty Jacobs	Date:	<i>3/25/16</i>
3. Date Received:	March 8, 2016	14b. Expiration Date (if any):	<i>901</i>
4. Facility Name:	City of Spencer	15. Appealed:	
5. Facility Number:	6-21-71-0-04	Date:	
6. County Number:	21 (Clay)		
7. Program Area:	CP (Wastewater)		
8. Facility Type:	C01 (Collection/Transport)		
9. Subject Area:	310a(Slope)		
10. Rule Reference:	567-64.2(9)a		
11. Design Std. Ref.:	12.5.3		
12. Consulting Engr.:	Kruse, Cate & Nelson		
13. Variance Rule:	567-64.2(9)c		
16. <u>Description of Variance Request:</u> The City of Spencer is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 12 – Sewer Systems – 12.5.3 (Slope) for installing an 8-inch gravity sewer at a slope of less than 0.40%			
17. <u>Applicant's/Consulting Engineer's Justification:</u> The existing mains are in poor condition and in need of repair or replacement. The slope of the line is limited by the elevations of the downstream and upstream connections that are not being replaced. There is not a feasible option to replace these three blocks of sewer at the minimum slope requirements. The city owns and operates its own jetting/vacuum truck and can use it to maintain these lines as needed. The block of sewers on 6th Avenue West between West 4th Street and West 5th Street is on the City's monthly cleaning list. Tree removal related to the project will reduce the potential for root intrusion into the new lines.			
18. <u>Department's Justification:</u> Recommend variance approval. The project plans confirm that the sewer lines are connecting to fixed elevations upstream and downstream of the proposed segments. Our calculations indicate 1.08 fps full-flow velocity for the sewer line with the flattest slope. This variance has been approved on several projects in the past where the slope was determined by fixed upstream and downstream elevations and additional cleaning capability was provided.			
19. <u>Precedents Used:</u> Iowa Great Lakes Sanitary District - 3/25/15 Cedar Rapids - 9/23/15			
20. Staff Reviewer:	<i>Matthew J. Enns</i>	Date:	<i>3/18/16</i>
21. Supervisor:	<i>Satya Chandra</i>	Date:	<i>3/22/16</i>
22. Authorized by:	<i>Jon C. Clark</i>	Date:	<i>3/25/16</i>

Jacobs, Martin [DNR]

From: Brian Schmidt <kcnschmidt@smunet.net>
Sent: Thursday, March 10, 2016 11:59 AM
To: Jacobs, Martin [DNR]
Subject: Re: Spencer Variance Draft

Marty

Upstream Lift Station configurations:

Westview Lift Station (1963): No trash basket, pumps pass 2.5" diameter solid.

Country Club Lift Station (1969): Has trash basket, pumps pass 3" diameter solid.

West 4th Street Lift Station (1974): Has trash basket, pumps pass 3" diameter solid.

Let me know if you need anything else.

Thanks

Brian J. Schmidt, P.E.

Kruse, Cate & Nelson, P.C.
1801 Highway Blvd.
Spencer, IA 51301
Phone: 712-262-3468
Fax: 712-262-9468
Email: kcnschmidt@smunet.net

-----Original Message-----

From: Jacobs, Martin [DNR]
Sent: Thursday, March 10, 2016 9:21 AM
To: Brian Schmidt
Subject: RE: Spencer Variance Draft

Brain,

We need some additional information for the review of the variance request.

You state that the new lift station is protected from clogging by the other lift stations. Is that because they have trash baskets, because they have a smaller pump passage, or both?

Thanks

Marty Jacobs, P.E. Environmental Engineer

Iowa Department of Natural Resources
Phone: 515.725.8419 | Fax: 515.725.8202 | Martin.Jacobs@dnr.iowa.gov
502 East 9th St. | Des Moines, IA 50319 WWW.IOWADNR.GOV

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-----Original Message-----

From: Brian Schmidt [mailto:kcnschmidt@smunet.net]
Sent: Thursday, March 03, 2016 9:57 AM
To: Jacobs, Martin [DNR]
Subject: Re: Spencer Variance Draft

Ok thanks

Brian J. Schmidt, P.E.

Kruse, Cate & Nelson, P.C.
1801 Highway Blvd.
Spencer, IA 51301
Phone: 712-262-3468
Fax: 712-262-9468
Email: kcnschmidt@smunet.net

-----Original Message-----

From: Jacobs, Martin [DNR]
Sent: Thursday, March 03, 2016 9:56 AM
To: Brian Schmidt
Subject: RE: Spencer Variance Draft

Brian,

If you aren't aware of other examples, you can simply state that. We will look at a comparison to previous variances in our review.

Marty Jacobs, P.E. Environmental Engineer

Iowa Department of Natural Resources
Phone: 515.725.8419 | Fax: 515.725.8202 | Martin.Jacobs@dnr.iowa.gov
502 East 9th St. | Des Moines, IA 50319 WWW.IOWADNR.GOV

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-----Original Message-----

From: Brian Schmidt [mailto:kcnschmidt@smunet.net]
Sent: Thursday, March 03, 2016 9:49 AM
To: Jacobs, Martin [DNR]
Subject: Re: Spencer Variance Draft

Marty

For Item #6 on the Spencer's Variance request, do you know of similar cases for matching slopes when replacing sanitary sewer sections or eliminating trash baskets?

I assume there are but we don't know that as fact.

Thanks

Brian J. Schmidt, P.E.

Kruse, Cate & Nelson, P.C.

1801 Highway Blvd.

Spencer, IA 51301

Phone: 712-262-3468

Fax: 712-262-9468

Email: kcnschmidt@smunet.net

-----Original Message-----

From: Jacobs, Martin [DNR]

Sent: Wednesday, February 24, 2016 3:14 PM

To: Brian Schmidt

Subject: RE: Spencer Variance Draft

Brian,

An example is attached. We are expected to account for each on the request requirements in our variance request review. If something isn't applicable, please state that and explain way.

Since the city is the applicant and they own the system receiving the wastewater, they may not have anyone to notify.

Marty Jacobs, P.E. Environmental Engineer

Iowa Department of Natural Resources

Phone: 515.725.8419 | Fax: 515.725.8202 | Martin.Jacobs@dnr.iowa.gov

502 East 9th St. | Des Moines, IA 50319 WWW.IOWADNR.GOV

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-----Original Message-----

From: Brian Schmidt [mailto:kcnschmidt@smunet.net]

Sent: Wednesday, February 24, 2016 1:09 PM

To: Jacobs, Martin [DNR]

Subject: Re: Spencer Variance Draft

Marty

Do you have an example variance request? I had the guidance but it seemed like many of the items weren't applicable since the City was the petitioner.
I must have been interpreting the guidance wrong.

With regards to the notification, who would the City be required to notify?

I will forward you all available sewer maintenance records on the subject blocks.

Thanks for your help.

Brian

Brian J. Schmidt, P.E.

Kruse, Cate & Nelson, P.C.
1801 Highway Blvd.
Spencer, IA 51301
Phone: 712-262-3468
Fax: 712-262-9468
Email: kcnschmidt@smunet.net

-----Original Message-----

From: Jacobs, Martin [DNR]
Sent: Wednesday, February 24, 2016 8:53 AM
To: Brian Schmidt
Subject: RE: Spencer Variance Draft

Brian,

There is a specific format for the variance requests. Please see the attached Variance request guidance. These requirements were put together to verify that the request meets the requirements of state code.

On the line with reduced slope, please provide commentary on the city's experience with those line at the current slope.

Marty Jacobs, P.E. Environmental Engineer

Iowa Department of Natural Resources
Phone: 515.725.8419 | Fax: 515.725.8202 | Martin.Jacobs@dnr.iowa.gov
502 East 9th St. | Des Moines, IA 50319 WWW.IOWADNR.GOV

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-----Original Message-----

From: Brian Schmidt [mailto:kcnschmidt@smunet.net]
Sent: Tuesday, February 23, 2016 10:37 AM
To: Jacobs, Martin [DNR]

Subject: Spencer Variance Draft

Good Morning Marty

I just wanted to send you a draft of the variance request for the City of Spencer Sewer Retrofit project for your review before I have the City sign it.

Please let me know if you need any additional information or have any questions.

Thanks

Brian

Brian J. Schmidt, P.E.

Kruse, Cate & Nelson, P.C.

1801 Highway Blvd.

Spencer, IA 51301

Phone: 712-262-3468

Fax: 712-262-9468

Email: kcnschmidt@smunet.net

-----Original Message-----

From: kcncopy@gmail.com

Sent: Tuesday, February 23, 2016 9:38 AM

To: kcnschmidt@smunet.net

Subject: Scanned from a Xerox Multifunction Device

Please open the attached document. It was scanned and sent to you using a Xerox Multifunction Device.

Attachment File Type: pdf, Multi-Page

Multifunction Device Location:

Device Name: XRX9C934E2EEAD4

For more information on Xerox products and solutions, please visit <http://www.xerox.com>

KRUSE, CATE & NELSON, P.C.

ENGINEERING AND LAND SURVEYING SERVICE
SPENCER, IOWA 51301

JAMES E. THIESSE
BRIAN J. SCHMIDT

1801 HIGHWAY BOULEVARD
PHONE 712-262-3468
FAX 712-262-9468

March 4, 2016

Marty Jacobs, P.E.

Iowa Department of Natural Resources
Wastewater Engineering Section
502 E 9th Street
Des Moines, IA 50319-0034

Re: Wastewater Construction Permit Variance Request
2015 HMGP WEST CENTRAL SEWER RETROFIT, SPENCER, IOWA

Dear Mr. Jacobs:

Per 561 Iowa Administrative Code (IAC) Chapter 10, the City of Spencer (City) is requesting a variance to the Iowa Department of Natural Resources (IDNR) Wastewater Facilities Design Standards for the above referenced project and issuance of the related Construction Permit. The applicable Construction Permit application, fee form and fee were submitted to you on March 30, 2015.

The following information has been provided per the IDNR's Variance Request Guidance document:

1. Name, address and telephone number of entity requesting the variance:
 - a. City of Spencer
Mark White - Public Works Director
418 2nd Avenue West
Spencer, IA 51301
(712)580-7200
2. Description and citation of specific rule from which a variance is requested:
 - a. A variance is requested for the minimum slopes of gravity sewers as cited in Chapter 12, Section 5.3 of the IDNR Wastewater Facilities Design Standards.
 - b. A waiver is requested from the requirement to provide protection against clogging for pumping stations as cited in Chapter 13, Section 4.2 of the IDNR Wastewater Facilities Design Standards.

3. Specific waiver or variance requested, scope, and operative period which the waiver or variance will extend.

- a. The variance requested is to construct replacement sanitary sewers at the approximate slopes listed herein to match the slopes of the existing sanitary sewer pipes instead of the minimum slopes identified in Chapter 12, Section 5.3. The scope of the variance relates to the entire length of these sections of sewer main replacement:

W 4th St (5th Ave W to 6th Ave W): 255 LF of 8" and 5 LF of 10" at 0.12%+/-

6th Ave W (W 4th St to W 5th St): 506 LF of 8" at 0.25%+/-

6th Ave W (W 5th St to W 7th St): 477 LF of 8" at 0.28%+/-

- b. A waiver is requested from the requirement to provide a trash basket as identified in Chapter 13, Section 4.2 for the influent sewer main in the proposed bypass pump station to be located north of the intersection of West 7th Street and 9th Avenue West.
- c. The variance and waiver will extend from the construction through the design life of the proposed improvements.

4a. Relevant facts justifying the variance for minimum slope:

a. Existing Sewer Main

- i. The existing sewer mains on these three blocks are 10" VCSP with 2.5' to 3' joint spacing and are over 60 years old. These sections of sewer main were installed at approximately the slopes listed above and are currently part of a combined storm and sanitary sewer collection system. A total of 19 storm water inlets that are adjacent or upstream discharge into these sewer mains.
- ii. The existing sewer mains have been televised by the City. These sewer mains are in generally poor condition. Many pipe sections have cracks and leaking joints with severe root intrusion.
- iii. The City owns and operates its own sewer jetting/vacuum truck. The sewer cleaning log entries (2008-2014) relating to these block of sewer is enclosed. From the information available, the sewer cleaning was required mainly to cut roots, remove debris or to pre-clean for televising.
- iv. The block of sewer on 6th Avenue West between West 4th Street and West 5th Street is on City's monthly sewer cleaning list. This block of sewer is installed behind the curb directly under 8 large trees. This block

of sewer has very severe root intrusion which necessitates the regular cleaning.

b. Proposed Improvements

- i. The purpose of this sewer retrofit project is to increase the capacity of the sewer collection system in the area by constructing a separate storm sewer system. The project includes the construction of a trunk storm sewer along the subject blocks which requires the removal and replacement of the street pavements. The project will separate the 19 storm water inlets from the associated sanitary sewer. Because of the condition of the existing sanitary sewer mains in these blocks, it is practical to replace these sections of sewer while the area is disturbed for construction of the storm sewer.
- ii. The proposed replacement sanitary sewer mains in these blocks will be 8" PVC SDR-26 with 14' laying lengths. The replacement sewer mains will be required to be installed at the same slope as the existing sewers because the mains will be connected to existing sewer pipes both ends. The 8" PVC mains will provide better flow velocities and depths for the given slopes and average flows than the existing 10" sewer mains. Separating the storm water inlets from the sanitary sewer will eliminate essentially all of the sand, rocks and other debris which previously entered these sewers and were one of the main reasons for the periodic sewer cleaning. The joints in the PVC sewer pipe will eliminate the infiltration and help to prevent tree roots from becoming a maintenance problem in the future.
- iii. The replacement sewer on 6th Avenue West between West 4th Street and West 5th Street will be constructed closer to the center of the right-of-way underneath the street. Also the larger trees that were directly over the existing sewer are being removed. Roots will no longer be an issue on this section of main and the City will be able to remove this section from the monthly sewer cleaning list.
- iv. The replacement sewers will be installed with a pipe laser and with rock bedding. These modern construction techniques along with post-construction video inspection will insure a proper installation that will function properly for the life of the sewer.
- v. There is not a feasible option to replace these three blocks of sewer and meet the minimum slope requirements specified in the design standards due to connecting to existing pipes both ends of each section. These three blocks are a small segment of the collection system and any further collection system replacement is beyond the scope of this or any future project.

4b. Relevant facts justifying the waiver for a trash basket:

a. Proposed Improvements

- i. The proposed bypass lift station will divert excess flows within the West 7th Street sanitary sewer during wet weather conditions. This bypass lift station is located at the confluence of three lift station discharge points. Approximately 92% of area served by the W 7th Street sewer is collected and conveyed through an upstream lift station. Because the majority of the flow already passes through a lift station and because the lift station will only operate intermittently during wet weather a waiver is being requested to eliminate a trash basket from the lift station.
- ii. The lift station pumps are specified to pass a 3" sphere and 5% sludge and rag laden wastewater. We note that trash baskets are not a requirement on lift stations serving sewer mains less than 30" in diameter in the preliminary draft of the Chapter 13 update.

5. Contact history with the Department:.

- a. There are no known prior contacts between the petitioner and the IDNR regarding this variance request.
- b. The City of Spencer is under a Consent Order from the EPA to eliminate Combined Sewer Overflows (CSO's). The subject project is part the of City long term plan to eliminate the CSO's.

6. Information known regarding the Department's treatment of similar cases:

- a. None

7. Name, address, and telephone number of any public agency or political subdivision(s) that might be affected by granting the variance:

- a. None

8. Name, address, and telephone number of any person or entity that might be affected by granting the variance:

- a. None

9. Identity of those having knowledge of relevant facts concerning the variance request:

- a. Mark White, Public Work Director, City of Spencer
- b. Brian Schmidt, P.E., Kruse, Cate & Nelson, P.C.



10. Signed release:

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.



Mark White, City of Spencer Public Work Director

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p> <u>3/4/16</u> Brian J. Schmidt, License No. 17775 Date My license renewal date is December 31, 2017. Pages covered by this seal: All</p>
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Please contact me (712-262-3468) with as questions regarding this variance request.

Very truly yours,

KRUSE, CATE & NELSON, P.C.

BY: 
Brian J. Schmidt

cc: **Satya Chennupati**, IDNR
Mark White, City of Spencer

enclosures: Revised Schedule C
Sewer Maintenance Log