13.10.4 9-11-06 VARIANCE REQUEST Iowa Department of Natural Resources 1. Date 13. Decision: Approved : 1/2/91 2. Review Engineer 117191 Date: : Fred Evans 3. Date Received : 12/12/90 4. Facility Name 14. Appeal: Iowa Falls 5. County Number 42 Date: 6. Program Area CP 7. Facility Type 1.02 314 8. Subject Area 64,2(9) 9. Rule Reference (13,10,4) Chapsaddle - Garber Associates 10. Design Std. Ref. 11. Consulting Engr. 64.2 (9)C 12. Variance Rule 15. Description of Variance Request The City of Lowa Fulls has submitted a construction permit application for improvements to Three wasteril pump stations. Two pump stations serve small areas (3 Acres and 5 Acres); Therefore, duplex submersible grindor pumps are proposed for installation in these Two pump stations. The designing engineer proposes to use check values which can be removed with the pumps; Therefore, a variance has been requested to locate the check values within the wet well in lien st locative within a separate value chamber 16. Consulting Engineer's Justification 1. Check values shall be removable with the pump. 2. Provision of valve manholes would significantly increase cost, particularly the Custer street Pump Station because of problems of accessibility of excavating equipment for such a manhole.

16. Consulting Engineer's Justification (cont.)

17. Department's Justification recommended that a variance be granted. It 15 to locate the check valves within The wet wells based upon the following considerations. 1. We have previously approved the location of check values within the wet wells of submersible pump lift stations where such values can be removed with the pamp assembly for servicing without requiring entrance into the wet well, (see precedents below) 2. The new revision of the Ten States Standards will permit location of check values in the wet wells of submersible pump lift stations if such values are integral to The pump (see attached) 18. Precedents Used City of Mount Vernon - Approved 6/2/89 - see attached letter Best Inns, City of Johnston - Approved 7/13/90 : Frad Evans 91 Date: 20. Supervisor Date: 21. Authorized by and 11- allet Date:



TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

January 11, 1991

LARRY J. WILSON, DIRECTOR

Mr. Leslie S. Wolfe, P.E. Clapsaddle-Garber Associates 2501 North Loop Drive Ames, Iowa 50010

PROJECT NO.: **S**91-48 FILE: Iowa Falls SUBJECT: Variance Request

Dear Mr. Wolfe:

The Iowa Department of Natural Resources in accordance with Subrule 567--64.2(9)c of the Iowa Administrative Code has approved your request for a variance from Iowa Wastewater Facilities Design Standard 13.10.4 which requires that check valves for submersible pumping stations be located in a separate valve chamber from the wet well. The granting of this variance will permit locating the check valves for the Custer Street and Forest Drive pump stations within the wet wells with the understanding that the check valves shall be removable with the pumps.

The engineering justification submitted substantially demonstrates that this variance for location of the check valves within the wet wells will result in at least equivalent effectiveness for access to the valves.

Sincerely,

DARRELL MCALLISTER, BUREAU CHIEF SURFACE & GROUNDWATER PROTECTION BUREAU

DM:FME:pla/WOLFE

cc: City Manager, Iowa Falls, IA Field Office 2

WALLACE STATE OFFICE BUILDING / DES MOINES, IOWA 50319 / 515-281-5145

IOHA DEPARTMENT, OF NATURAL RESOURCES * * * * TRANSMITTAL SLIP/ * * * Date _ THE OFFICE OF: arrare Parrell Mic Allisten TO: DULYV REPLY FOR MY SIGNATURE [] NOTE AND FORWARD REPLY DIRECT [] FILE REVIEW, COMMENT AND RETURN [] FOR YOUR SIGNATURE IN FOR YOUR APPROVAL INVESTIGATE AND REPORT [] PER YOUR REQUEST SEE ME FOR YOUR INFORMATION [] PER OUR CONVERSATION [] TAKE ACTION BY _ (Date) COMMENTS: have requested the designing engineer provide additional justification for roposed burying of the shut off alves outside of the pump station · liên of providing a separate lue chamber as required by r wastewater design standards. 's will take another look at the sign and discuss with the erator at Dourn Falls before sponding with either additional stitication or provision of we chambers m (Rev. 6-90) 542-0593

December 7, 1990

Mr. Fred Evans IDNR - Wastewater Permits Wallace State Office Building 900 E. Grand Ave. Des Moines, Iowa 50319

CONSULTING ENGINEERS

David M. Fox, P.E. James A. Merideth, P.E. Leslie S. Wolfe, P.E. Donn L Stone, P.E. Scott L. Renaud, E.I.T.

PLAN OF ACTION PUMP STATION IMPROVEMENTS RE: IOWA FALLS, IOWA CGA PN 2380.04

Dear Mr. Evans:

With reference to our telephone conversation, we have decided to increase the capacity of the grinder pump systems to 80 gpm in order to provide suitable velocity in the existing 4-inch force mains. Enclosed is a Revised Schedule E for each pump station and three (3) copies of the revised plans.

With respect to the grinder pumping systems, we are requesting a Variance to Sections 13.10.4 and 13.5.2 of the Iowa Wastewater Facilities Design Standards. As indicated in the specifications, check valves shall be removable with the pump. The decision to bury the shut off valves outside the structure was based on an IDNR Construction Permit No. 89-268-S for construction of a pumping station in Randall, Iowa, where burying shut off valves was permitted.

As can be seen on the plans, manholes for shut off valves would be constructed directly over VCP sewers with little or no separation. In essence, the sewers should be replaced significantly increasing cost, or the valve manhole should be located off the sewer line requiring the use of additional fittings.

The Custer Street Pump Station is located in a steep valley section behind closely spaced homes which have be constructed since installation of the facility. Access for even moderately sized excavating equipment would be very difficult requiring construction of temporary access and reconstruction of private lawn areas significantly increasing cost.

We request that the Variance be granted allowing construction as shown on the revised plans. If you have any questions or if additional information is needed, contact Francis Janssen, Superintendent (515/648-3714) or myself at the CGA-Ames office.

Sincerely, CLAPSADDLE-GARBER ASSOCIATES, INC. Wolfe, P.E.

Leslie

S.

Encl. cc: Francis Janssen, Superintendent

CLAPSADDLE-GARBER ASSOCIATES

Wayne R. Moore Technology Transfer Center · Iowa State University Research Park 2501 North Loop Drive · Ames, Iowa 50010 · Telephone 515/296-7750 · Fax 515/296-7740 Iowa WATS 800-542-7981 · U.S. WATS 800-634-5463

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WH form 28-E (Jul 1, 83) (Replaces DEQ Form WQ 133-E, which may be used)

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AWM form 28-E (Jul 1, 83) (Replaces DEQ Form WQ 133-E, which may be used)

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TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES LARRY J. WILSON, DIRECTOR

July 13, 1990

Bishop Engineering Company, Inc. 3501 104th Street Des Moines, IA 50322

ATTENTION: Charles J. Bishop, P.E.

SUBJECT: Request for a Variance Interim Pumping Station for Best Inns Johnston, Iowa

Gentlemen:

The Iowa of Natural with Department Resources in accordance subrule 567--64.2(9)c of the Iowa Administrative Code has approved your Design for variance from Iowa Wastewater Facilities request а Standard 13.10.4. This design standard requires that the check valves and shutoff valves for submersible pumping stations be located in a separate valve chamber. The approval of this variance request will permit the location of these valves in the pumping station wet well as proposed by your firm.

The engineering justification submitted substantially demonstrates that this variance will result in at least equivalent effectiveness during the interim operating period while significantly reducing costs.

Sincerely,

DARRELL

BUREAU CHIEF SURFACE AND GROUNDWATER PROTECTION BUREAU

DM:bkp/S&GW193P07.01

CC: Field Office 5

WALLACE STATE OFFICE BUILDING / DES MOINES, IOWA 50319 / 515-281-5145

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TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES LARRY J. WILSON, DIRECTOR

Ht. Vernon, seu

CH

June 2, 1989

Mr. Christopher M. Stephan MMS Consultants, Inc. 465 Iowa Highway No. 1 West Iowa City, Iowa 52246

RE: Oak Ridge Estates, Part One Mount Vernon, Iowa

Dear Mr. Stephan:

We have completed our review of the variance request of May 17, 1989 in regards to Chapter 13.10.4 of the Iowa Wastewater Facilities Design Standards. Our design standards require that valves for submersible pumps shall be located in a separate valve chamber while you are proposing to locate check valves in the wet well and to bury a gate valve and a valve box adjacent to the wet well.

We could allow the check valves to be located in the wet well since it is specifically designed as a component of the submersible pump which can be lifted out with the pump for servicing. We would, however, still require a separate valve chamber be provided for the gate valves to prevent the need of digging valves out for maintenance. Your request of burying a gate valve and a valve box adjacent to the wet well has been denied.

If you have any questions concerning this letter, please do not hesitate to contact Mr. Billy C. Chen of this office at 515/281-4305.

Sincerely,

DARRELL MCALL'ÍSTER, CHIEF SURFACE & GROUNDWATER PROTECTION BUREAU

DM:BCC:pla/STEP

cc: Field Office 6
V.G. Stoner & Sons Corp.

WALLACE STATE OFFICE BUILDING / DES MOINES, IOWA 503197515 201-5145

43.12 Vacuum-priming Pumps

Vacuum-priming pump stations shall be equipped with dual vacuum pumps capable of automatically and completely removing air from the suction lift pump. The vacuum pumps shall be adequately protected from damage due to wastewater. The combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions shall not exceed 22 feet.

43.2 Equipment, Wet Well Access and Valving Location

The pump equipment compartment shall be above grade or offset and shall be effectively isolated from the wet well to prevent the humid and corrosive sewer atmosphere from entering the equipment compartment. Wet well access shall not be through the equipment compartment. Valving shall not be located in the wet well.

44 Submersible Pump Stations - Special Considerations

Submersible pump stations shall meet the applicable requirements under Section 42, except as modified in this Section.

44.1 Construction

Submersible pumps and motors shall be designed specifically for raw wastewater use, including totally submerged operation during a portion of each pumping cycle and shall meet the requirements of National Electrical Code for such units. An effective method to detect shaft seal failure or potential seal failure shall be provided.

44.2 Pump Removal

Submersible pumps shall be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well.

44.3 Electrical

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44.31 Power Supply and Control

Electrical supply, control and alarm circuits shall be designed to provide strain relief and to allow disconnection from outside the wet well. Terminals and connectors shall be protected from corrosion by location outside the wet well or through use of watertight seals. If located outside, weatherproof equipment shall be used.

40-8 ×

44.32 Controls

The motor control center shall be located outside the wet well, readily accessible, and be protected by conduit seal or other appropriate measures meeting the requirements of the National Electrical Code, to prevent the atmosphere of the wet well from gaining access to the control center. The seal shall be so located that the motor may be removed and electrically disconnected without disturbing the seal.

44.33 Power Cord

Pump motor power cords shall be designed for flexibility and serviceability under conditions of extra hard usage and shall meet the reqirements of the National Electrical Code standards for flexible cords in wastewater pump stations. Ground fault interruption protection shall be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable. Power cord terminal fittings shall be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, shall be provided with strain relief appurtenances, and shall be designed to facilitate field connecting.

44.4 Valves

Valves required under paragraph 42.5 shall be located in a separate valve pit. Valve pits may be dewatered to a wet well through a valved drain line. Check valves that are integral to the pump need not be located in a separate valve pit provided that the valve can be removed from the wet well in accordance with paragraph 44.2.

45 Alarm Systems

Alarm systems shall be provided for pumping stations. The alarm shall be activated in cases of power failure, sump pump failure, pump failure, unauthorized entry, or any cause of pump station malfunction. Pumping station alarms shall be telemetered to a municipal facility that is manned 24 hours a day. If such a facility is not available and a 24-hour holding capacity is not provided, the alarm shall be telemetered to city offices during normal working hours and to the home of the person(s) in responsible charge of the lift station during off-duty hours. Audio-visual alarm systems with a self-contained power supply may be acceptable in some cases in lieu of the telemetering system outlined above, depending upon location, station holding capacity and inspection frequency.

46 Emergency Operation

46.1 Objective

The objective of emergency operation is to prevent the discharge of raw or partially treated wastewater to any waters and to protect

40-9 x