

Iowa DNR NPDES Permit Rationale for AFO Operations

Date: July 3, 2024

Facility Name: City View Farms Inc

Facility ID #: 60334 **NPDES #:** 7160334

Location of the Facility: N½ of SW¼ and NW¼ of Section 14; S½ of SW¼ of Section 11 and NE¼ of SW¼; SE¼ of NE¼ of Section 15, T95N, R39W, Grant Township, O'Brien County

Source: Construction Permit CP-A2017-164 issued October 6, 2017 and the Authorization to Use dated June 5, 2019; 2017 Design Drawing; As-Built Design Report and Drawing from Pro Ag Engineering dated May 28 2019. Field Office Inspection dated May 17, 2024 aerial maps with descriptions, pages 8 and 9 and picture page 14. O'Brien County Assessor-Beacon site.

Description of the Operation & Manure Storage Structure(s) [Type, Capacity; Design]: The applicant currently operates existing combined immature dairy cattle open feedlot and confinement operation. The existing open feedlots currently have a total maximum animal capacity of 20,900 head of immature dairy cattle with a total drainage area of 148.06-acres with the expansion of the 9,000 head of immature dairy cattle based on the 2017 construction permit (CP). The CP's construction completed letter by the engineer, Nic Rowe, included as-built design report and drawing with changes that are included in this NPDES permit.

The drainage area is served by five earthen settled open feedlot effluent basins (SOFEB) and two open feedlot effluent basins (OFEB). All effluent from the existing open lots, as well as runoff from feed storage and compost areas gravity drain to existing solid settling basins or settling ditches and drain into these five SOFEBs. The two OFEBs receives vacuumed liquid and solids manure from the open lot's concrete area taken up by the manure vac truck and manure vac tanker. There is also the original earthen manure basin #1 that receives manure from the 600 head confinement barn and truck and livestock equipment wash building.

The existing NE SOFEB has a runoff storage capacity of approximately 3,211,971 gallons at 0.5' freeboard and 1,525,383 gallons when measured at the "must pump" elevation of 1411.9' (4.1 feet of freeboard) with total drainage area of 12.33 acres that includes 1.85 surface acres of the SOFEB.

The existing NW SOFEB has a runoff storage capacity of approximately 13,492,151 gallons at 0.7' freeboard and 7,872,109 gallons when measured at the "must pump" elevation of 1351.6' (6.1 feet of freeboard) with total drainage area of 42.36 acres that includes 3.48 surface acres of the SOFEB.

The existing Middle SOFEB has a runoff storage capacity of approximately 949,655 gallons at 0.0' freeboard and 142,574 gallons when measured at the "must pump" elevation of 1403.5' (8.5 feet of freeboard) with total drainage area of 5.72 acres that includes 0.41 surface acres of the SOFEB.

The existing West SOFEB has a runoff storage capacity of approximately 14,340,227 gallons at 1' freeboard and 11,171,650 gallons when measured at the "must pump" elevation of 1343.2' (2.8 feet of freeboard) with total drainage area of 21.26 acres that includes 5.80 surface acres of the SOFEB.

The newer South SOFEB, built in 2017 that included the newer open lots, as well as a portion of the existing open lots, has a runoff storage capacity of approximately 36,717,944 gallons at 1' freeboard and 25,380,177 gallons when measured at the "must pump" elevation of 1378.2' (5.8 feet of freeboard) with total drainage area of 85.32 acres that includes 7.80 surface acres of the SOFEB.

The operating system for all the SOFEBs have been designed under "System 4" of the Appendix "A" of the IAC (567) Chapter 65. (Open Feedlot Effluent Application After Each Significant Precipitation Event) and serving a total drainage area of 148.06 acres plus 18.93 SOFEB surface acres. All effluent from the SOFEBs is pumped to one of four center pivots located SW, west, north and east of the site.

Two open feedlot effluent basins (OFEB) were built in 2017, the North OFEB (north of the 600 head confinement barn) and the South OFEB (NW of the South SOFEB) store vacuumed solids, from the open lot's concrete area, on an as needed basis. The effluent will not have the solids removed prior to being discharged into the basin. The North OFEB has a storage capacity of approximately 1,493,090 gallons and the South OFEB has a storage capacity of approximately 1,854,800 gallons when measured at the "must pump elevation" (2 feet of freeboard). No runoff will enter the proposed OFEBs.

Earthen Manure Basin #1 (Basin #1) was built as additional storage for the 600 head immature dairy cattle confinement building 72' x 600' built in 1973 utilizing partial below the floor concrete 4-foot pit on the north half of the barn that drains to Basin #1. The south half of the barn is deep bedded. This basin also receives effluent from the 2016 built truck and equipment wash out building, 38' x 120'. Effluent in this Basin #1 has a storage capacity of approximately 17,759,000 gallons when measured at the 2-foot freeboard elevation. Because this basin contains confinement manure, it is not allowed to discharge.

Two additional immature dairy cattle in confinement barns built in 2011, each holding 1,500 head, are 50' x 640'. The manure control system consists of a below the floor deep concrete pit (8 ft. deep) 12' wide the entire length of the barn with slatted floor over the deep pit portion. The remaining floor is a compacted earthen floor utilizing bedding pack sloped towards the slatted floor.

The total number of immature dairy cattle will be 20,900 head in open lots and 3,600 in confinement for a total maximum animal unit capacity not to exceed 24,500.

There must be no discharge except when precipitation events greater than the 25-year, 24-hour rainfall event (5.66 inches), based on the As-Built Design Report dated May 28 2019 estimates, causes an overflow of the production area, that is designed, constructed, operated and maintained to contain manure, open feedlot effluent, settled open feedlot effluent, settleable solids or process wastewater and the operation has a NPDES permit as required by State and Federal rules. Generated manure must be land applied according to your DNR approved manure management plan (MMP) and/or nutrient management plan (NMP).

Discharge Limitations [Rate & Frequency of the Proposed Discharge]: In accordance with 567 IAC 65.101(2) and 40 Code of Federal Regulations (CFR) Part 412.31, there must be no discharge of manure and process wastewater into waters of the United States from the operation, except when a precipitation event causes an overflow, then manure in the overflow may be discharged into waters of the United States provided the manure control system is designed, constructed, operated and maintained to contain all manure and wastewater and the direct precipitation from a 25-year, 24-hour rainfall event.

Basis for Effluent Limitations: Federal Effluent Guidelines

Classification & Description Of The Receiving Stream: The designated streams that will be affected by any release from this operation is an **unnamed creek** which is designated as presumed Class "A1, B (WW-1)" and **Waterman Creek** which is designated as presumed Class "A1, and designated as a B (WW-2)". Class A1 waters are primary contact recreational use waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risks of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing. Waters designated Class B(WW1) are those in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrates species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams. Waters designated Class B(WW2) are those in which flow or other physical characteristics are capable of supporting a resident aquatic community that includes a variety of native nongame fish

and invertebrate species. The flow and other physical characteristics limit the maintenance of warm water game fish populations. These waters generally consist of small perennially flowing streams.

Soil & Water Sample Collection During Monitoring Process: Surface and groundwater sample collection (exact place, date, and time of measurement) preservation and analysis shall be in accordance with those prescribed in subrule 567 IAC 63.1(1) which adopts by reference 40 CFR Part 136, revised as of July 1, 2007. Soil samples must be collected, handled and analyzed according to procedural details from Iowa State University extension publication PM 287, "Take a Good Soil Sample to Help Make Good Decisions." or other credible soil sampling publications.

Permit Writer: Marlon Mueller

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES (IDNR)
HENRY A. WALLACE BUILDING
DES MOINES, IOWA 50319

CONSTRUCTION PERMIT

Date Issued: **October 6, 2017**

Permit No: **CP-A2017-164**

Issued to:

Ken Franken
4135 Yellow Ave.
Sutherland, IA 51058

File: Agriculture

RE: City View-East Feedlot

Facility ID No.: 60334

In accordance with the provisions of Sections 459.303 and 459.304 and 567 Iowa Administrative Code (IAC) 65.105(459A), the Director of the Department of Natural Resources does hereby issue a construction permit for:

Expanding an existing dairy cattle open feedlot, constructing one new earthen settled open feedlot effluent basin (SOFEB) with associated solids settling facilities, one new open feedlot effluent basin (OFEB) and changing the NPDES Operating System of the existing SOFEBs as part of an expansion to an existing combined confinement and open feedlot located in the NW¼ of Section 14, T95N, R39W, Grant Township, O'Brien County, Iowa. The proposed South SOFEB has been designed under System 4 of the Appendix "A" of the IAC (567) Chapter 65. (Open Feedlot Effluent Application After Each Significant Precipitation Event) The South SOFEB will have a runoff storage capacity of approximately 27,066,275 gallons when measured at the "must pump elevation" (5 feet of freeboard). Effluent from the proposed open lots, as well as a portion of the existing open lots, will gravity drain into the proposed solids settling basin and into the proposed South SOFEB. The Proposed open feedlot effluent basin (OFEB) will store vacuumed solids in the open lots on an as needed basis. The effluent will not have the solids removed prior to being discharged into the basin. The proposed OFEB will have a runoff storage capacity of approximately 1,854,800 gallons when measured at the "must pump elevation" (2 feet of freeboard). No runoff will enter the proposed OFEB. The remaining four existing SOFEBs will be operated under System 4 of the Appendix "A" of the IAC (567) Chapter 65. (Open Feedlot Effluent Application After Each Significant Precipitation Event). All effluent from the existing open lots, as well as runoff from feed storage and compost areas will gravity drain to existing solid settling basins or settling ditches and drain into the existing SOFEBs. The existing NE SOFEB will have a runoff storage capacity of approximately 1,768,159 gallons when measured at the "must pump elevation" (3.5 feet of freeboard). The existing NW SOFEB will have a runoff storage capacity of approximately 8,701,019 gallons when measured at the "must pump elevation" (5.3 feet of freeboard). The existing Middle SOFEB will have a runoff storage capacity of approximately 234,533 gallons when measured at the "must pump elevation" (7 feet of freeboard). The existing West SOFEB will have a runoff storage capacity of approximately 10,739,844 gallons when measured at the "must pump elevation" (3 feet of freeboard). The permitted open feedlot runoff control structures will serve an animal capacity of 20,900 head of immature dairy cattle on a feedlot with a total drainage area of 148.06 acres. The facility also contains 3000 head of existing immature dairy cattle housed in two bed pack confinement buildings and 600 head of immature dairy cattle housed in one existing confinement building served by an existing earthen manure storage basin. After the open feedlot expansion the animal unit capacity of your entire combined (confinement dairy cattle and open lot dairy cattle) facility shall not exceed 24,500 animal units (AU). This is based on 20,900 head of open lot immature dairy cattle and 3600 head of confinement immature dairy cattle.

This permit is issued subject to the following conditions and requirements:

1. No material change in the construction of this project shall be undertaken, unless first authorized by this Department.
2. This construction permit shall expire if the authorized construction is not begun within one year. The construction of this project shall be initiated within one (1) year and completed within three (3) years of the date of issuance of this permit. A new construction permit will be required if construction is not completed within the permitted three years.
3. The design capacity of the open feedlot and its manure and runoff control structures is for a total animal capacity of 20,900 head of immature dairy cattle with a total drainage area of 148.06 acres. A new construction permit shall be obtained prior to making any significant additions or alterations to the manure or runoff control system, making any process changes that would materially affect the manure or runoff control system, or expanding the animal capacity, feedlot or drainage areas above the design capacity covered by this permit. Application for a new construction permit shall be submitted at least sixty days (60) days before construction is scheduled to start.
4. **Within thirty (30) days after completion of construction, a licensed professional engineer shall submit a certification that the permitted basins were:**
 - **Inspected by the engineer after completion of construction and before commencement of operation;**
 - **Constructed in accordance with the approved design plans and specifications. If actual construction deviates from the approved plans, identify all changes and certify that the changes were consistent with the standards of IDNR rules or statute;**
 - **Constructed in accordance with the drainage tile removal standards of the 567 Iowa Administrative Code (IAC) Chapter 65.109(1), including a written report of the findings and action taken to comply with the subrule;**
 - **Constructed to provide a minimum of a two foot thick clay soil liner in the proposed OFEB and a minimum of a two foot thick clay soil liner in the West one-third of the proposed South SOFEB or until the native soils provide for a minimum of two foot thick suitable soil; and**
 - **Soil boring holes and temporary ground water monitoring wells were properly plugged and abandoned.**
5. The ground water is not proposed to be artificially lowered at the SOFEB. The temporary monitoring wells shall be checked prior to construction to verify required ground water separation.
6. All manure removed from the feedlot, solids settling basin(s), and the settled open feedlot effluent basin shall be land applied in accordance with your approved nutrient management plan and in a manner which will not cause surface or groundwater pollution in accordance with the requirements of rule 567 IAC 65.101. You must keep your nutrient management plan current and maintain records sufficient to demonstrate compliance with the plan.
7. The open feedlot manure and runoff control structures, shall be operated in accordance to the "Operation and Maintenance manual" that is part of the approved design engineering documents.
8. The settled open feedlot effluent basins shall be emptied and operated in accordance with your NPDES Permit.

9. Prior to entering the winter season, the settled open feedlot effluent basin shall be emptied to provide adequate volume for storage of manure and runoff produced in the feedlot during the winter season.
10. A minimum overexcavation of two feet is required in the proposed OFEB and in the West one-third of the proposed South SOFEB or until a minimum of two feet of suitable native soil is present. Any other areas of the settled open feedlot effluent basin bottoms or inner embankment slopes where sand seams, gravel, or any other materials or soils generally unfit for construction are encountered shall be over excavated a minimum of two feet. All overexcavated areas shall be backfilled with suitable clay or soil prior to compaction or sealing.
11. The bottom and embankments of the settled open feedlot effluent basins shall be constructed to provide a compacted soil liner with a minimum thickness of 12 or 24 inches and a percolation rate not to exceed 1/16 inch per day at the design depth. Following construction of the basins, at least one soil sample per acre, with a minimum of two samples per cell, shall be collected in accordance with the procedure set forth by ASTM D-1587 and analyzed to determine the coefficient of permeability. The testing shall be done at a head equivalent to the design liquid depth. Using the coefficient of permeability, the rate of loss of liquid through the seal shall be determined and provided to this department along with the construction certification letter. If unsatisfactory tests results are obtained, the basins shall be reworked and retested until an adequate seal is obtained.
12. The IDNR recommends that riprap or other erosion protection be installed, as a minimum, at points of the basin that are susceptible to erosion – inlets, outlets, corners, overflows, etc. Installation of erosion protection measures may reduce the maintenance on the berms and maintain the liner integrity.
13. Human sanitary wastes (including showers and laundry facilities) shall not be discharged to the settled open feedlot effluent basin or solids settling basins.
14. A water use permit is required for the withdrawal or diversion of more than 25,000 gallons of water per day. Water purchased from municipal or rural water systems is excluded. Any future wells shall be located respective of regulated separation distances and installed according to county permit requirements. For more information or to verify permit requirements, please contact Jim Neleigh at 515/725-0276.
15. No construction activities shall be initiated unless a NPDES General Permit No 2, for "Storm water discharge associated with construction activities" is obtained from this Department if site disturbance from all construction activities **equals or exceeds one (1) acre**. For more information or to verify permit requirements, please contact Joe Griffin at 515/281-7017.
16. The issuance of this permit in no way relieves you of the responsibility for complying with all local, state and federal laws, ordinances, regulations and other requirements applying to the construction or operation of this facility.

Pursuant to Iowa Code Section 459.304, you have the right to appeal any condition of this permit as provided in 567IAC 65.10(8). Please contact Paul Petitti at 712/262-4177 with any questions or comments.

For the Department of Natural Resources:

CHUCK GIPP, DIRECTOR

By: Paul Petitti
ENVIRONMENTAL SERVICES DIVISION

Date: October 6, 2017

c: Pro Ag Engineering, Inc. 77402 US Highway 71, P.O. Box 181, Jackson, MN
DNR-NPDES Section. Attn: Reza Khosravi
DNR - Field Office 3

Plan Distribution:
1 DNR Field Office, 1 Engineer



June 5, 2019

City View Farms-East
c/o Ken Franken
4135 Yellow Ave.
Sutherland, Iowa 51058

Re: Authorization to use
Facility #60334
City View Farms-East Site
O'Brien County

Dear Mr. Franken:

We have reviewed your engineer's statements regarding the construction of one new earthen settled open feedlot effluent basin with associated solids settling structures and one new open feedlot effluent basin to serve your existing open cattle feedlots. This statement was required as part of your construction permit CP-A2017-164 issued October 6, 2017. Your engineer's statement indicates that the basins were:

- Inspected by the engineer after completion of construction and before commencement of operation.
- Constructed in accordance with the approved design plans and specifications and all changes were consistent with DNR rules.
- Constructed in accordance with the drainage tile removal standards of 567 Iowa Administrative Code (IAC) Chapter 65.109(1), and included a report of the findings and action to comply with the subrule.

You are hereby authorized to begin use of your new earthen basins and solids settling structures.

Sincerely,

FIELD SERVICES AND COMPLIANCE BUREAU

A handwritten signature in blue ink that reads "Paul R. Petitti".

PAUL R. PETITTI, P.E.
ENVIRONMENTAL ENGINEER

c: DNR, Field Office #3
DNR, Des Moines, NPDES Section Attn: Marlon Mueller

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ProAg Engineering, Inc.

Nicholaus J. Rowe, P.E.
77402 U.S. Highway 71
P.O. Box 181
Jackson, MN 56143
507-849-7200
nic@proageng.com

May 28, 2019

Mr. Paul Petitti, P.E.
IDNR Field Office #3
1900 N. Grand Ave., Suite E17
Spencer, IA 51301

RE: City View Farms - East, IDNR Facility ID #60334
IDNR Construction Permit CP-A2017-164
ProAg Project No: 09-079

Dear Paul:

On behalf of the City View Farms - East, we are informing the IDNR of the completed construction of the open feedlot expansion. Construction is complete on the solid settling basin, the south earthen settled effluent basin, and two open feedlot effluent basins. The feedlot expansion and all the manure and runoff controls were all staked for proper elevations in accordance with the approved plans and specifications. Construction meets IDNR requirements, in particular all dirt work, concrete work, and minimum separation distances conform to I.A.C. regulations.

We were on site many times during construction staking the control structures, performing soil density tests and inspecting the basin bottom and interior dike overexcavation. The dikes are constructed and erosion protection is in place on the dikes. All of the earthen basins were constructed with a two foot thick clay soil liner throughout the entire basins' sideslopes and bottoms. Permeability samples have been taken on the completed basins' liners and the samples meet all IDNR specifications and the test results are enclosed. Concrete was poured in the bottom of the two earthen open feedlot effluent basins over the clay liner for access to removed settled solids.

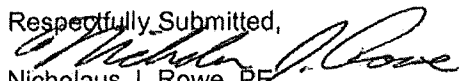
No field drain tiles were encountered during the perimeter inspection trench or during construction. No evidence of groundwater seepage or soil mottling was encountered during construction. No wells are located within the minimum separation distances. The soil borings and temporary ground water monitoring wells were properly plugged. As shown on the permitted plans, no perimeter drain tile was installed around the earthen manure storage structures.

The second earthen open feedlot effluent basin was constructed at the north end of the site to provide closer access for dumping vacuumed solids from the adjacent open lots. This second basin was constructed similar to the first basin and meets all IDNR separation distances and construction requirements.

It is our opinion that construction was in substantial compliance with the plans and specifications and in accordance with current IDNR and I.A.C. regulations. We were on site during critical points of construction and inspected the completed work after construction.

On behalf of the City View Farms - East, we are certifying and informing your office of the completed work on the feedlot expansion and runoff and manure controls. Enclosed is the as-built stage storage tables, Design Report, and the engineering site plan drawing. If you should have any questions please do not hesitate to call me at 507-849-7200.

Respectfully Submitted,


Nicholaus J. Rowe, PE
ProAg Engineering, Inc.

*****AS-BUILT – MAY 2019*****
DESIGN REPORT FOR RUNOFF CONTROL
CITY VIEW FARMS - EAST
PROPOSED OPEN FEEDLOT EXPANSION
W ½ of Section 14, T-95-N, R-39-W
O'Brien County, Iowa
ProAg Project No: 09-079

INTRODUCTION

City View Farms – East currently consists of 11,900 head of immature dairy cattle in open lots along with 3,600 head of immature dairy cattle in confinement barns. The operation would now like to expand the site up to 24,500 head by adding 9,000 head in open lots. Proposed construction will consist of constructing the 9,000 head immature dairy cattle open feedlot, a solid settling basin and earthen settled open feedlot effluent basin to comply with IDNR and EPA regulations. The proposed basin will also collect some of the existing feedlot runoff to reduce the drainage going to the existing basins. The entire feedlot will be changing to an IDNR Operating System #4 with changes to the drainage areas and critical basin levels addressed in this report. Additionally the proposed expansion includes a smaller earthen basin where the feedlot can store wet sloppy manure that would be better handled as a liquid. Liquid manure on the feeding aprons will be vacuumed up with tankers and manually unloaded into the proposed earthen manure storage basin. There are no changes proposed to the existing confinement barns and confinement manure storage structures and the confinement structures are not included in this report.

DESIGN BASIS

The proposed changes will increase the contained drainage area to 148.06 acres in five distinct drainage areas each with separate settling basins and earthen settled open feedlot effluent basins. The Feedlot would like to now operate under Open Feedlot Effluent Control System No.4: Application After Significant Precipitation Event. This alternative essentially requires that the feedlots collect, and the effluent basin be able to store, the average runoff expected to occur from the 25-year, 24-hour precipitation event at all times. Very little adjacent land drains through the feedlots, thereby keeping the design volume required to a minimum. This alternative is found in Appendix A of I.A.C. (567) Chapter 65. A copy is included in the back of this report.

All of the cattle lots and production areas gravity drain into solid settling basins which then gravity drain into earthen settled open feedlot effluent basins. The proposed settled open feedlot effluent basin is designed to collect all the runoff from proposed open lots and a large area of the existing open lots. This will reduce the runoff volume draining into the smaller, older, effluent basins adjacent to Waterman Creek. This report will address all the changes to the drainage areas and the critical levels for the entire site and all the effluent basins. The design and construction of the solid settling basins and settled open feedlot effluent basins comply with the design standards of Division II of I.A.C. 567-65.

The second proposed earthen basin is designed to hold liquid manure on the concrete feeding aprons that will be vacuumed up with tankers and manually unloaded into the basin. During wet weather conditions the feedlot has difficulties handling the manure excreted on the concrete aprons along the feed bunks. This apron along the bunks needs to be cleaned regularly and the feedlot is proposing to purchase a vacuum tank to suck up the wet manure and then store it in the proposed earthen basin as liquid manure. The design and construction of the proposed basin will comply with the design standards of Division II of I.A.C. 567-65.

WATER SUPPLY

The site currently obtains its water from a combination of rural water and two existing deep wells. The existing on-site deep wells (IDNR Well #55830 & #74955) are located near the shop area and they meet

the required separation distances as it is over 100 feet from the feedlots and over 400 feet to the proposed effluent basins.

STORM WATER

The proposed site expansion will disturb approximately 70 acres. A NPDES Storm Water Discharge Permit will be applied for upon receipt of a DNR Construction Permit. Storm water on the site will be managed in one direction. The site will drain to the west through open fields which drain into Waterman Creek.

100-YEAR FLOOD DATA

No FEMA Flood Hazard Boundary Maps for O'Brien County have been developed. Waterman Creek to the west flows at approximate USGS elevation 1335. The site is at approximate USGS elevation 1360. The top of dike of the effluent basins are at USGS elevation 1382 and 1373. Based on this difference it appears the basin is well above the 100-year flood plain elevation. An IDNR Flood Plain Determination was also completed in February 2015 and the 100 year flood plain elevation is 1345.0, NAVD'88.

SITE GEOLOGY

The basins are located in an area where a lot of previous dirt work has occurred. The soil borings indicated a random mixture of sand, gravel, and clay loam soils. Any sand, gravel or silty soils found during construction and unsuitable for liner construction will be overexcavated as required in the specifications. The brown silty clay loam soil should provide the permeability requirements, however, will be more difficult to work with during construction. The clay loam soils have been successfully used on many basin liner projects in the area but care must be taken to remove the sand and gravel and stockpile the clay loam to use for lining the basins. Refer to the enclosed Soils Report.

GROUNDWATER

Six of the seven boring holes were converted into temporary groundwater monitoring wells. Groundwater was recorded in all six of the wells and levels were checked for three (3) weeks. The proposed basin bottoms are above the highest measured groundwater table elevation and meet the required separation distance. The monitoring wells are still installed allowing the groundwater elevation to be measured verifying the separation distance prior to construction. Refer to the enclosed Soils Report.

EXISTING NE DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN DESIGN

Design data for the NE Drainage Area SOFEB:

- Will maintain additional freeboard to contain the 25-year, 24-hour precipitation event.
- Sized in accordance with Effluent Control Alternative System 4 per I.A.C. 567 Chapter 65, Appendix A.
- Inner sideslopes have 3:1 slopes and outer dikes have 3:1 slopes
- Basin will have ½ feet of freeboard (maximum liquid level to spillway).
- 25-year, 24-hour rainfall = 5.66 in.
- Basin surface area = 1.85 acres
- Paved, roofed, and driveway Total Area = 4.75 acres
- Unpaved Total Area = 5.73 acres
- Runoff curve number (R.C.N.) = 98 for paved, roofed, and driveway areas
- Runoff from 5.66 inches rain at R.C.N. of 98 = 5.42 in.
- Runoff curve number (R.C.N.) = 90 for unpaved areas
- Runoff from 5.66 inch rain at R.C.N. of 90 = 4.52 in.
- Basin sized to hold the direct precipitation from the 25-year, 24-hour rainfall on its surface area

EXISTING NE DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN

- Total 25yr-24hr runoff from paved or roofed areas = 4.75 acres x 43,560 S.F./Acre x 5.42" ÷ 12"/Ft. = 93,454 C.F. = 699,039 gal.
- Total 25yr-24hr runoff from unpaved feedlot area = 5.73 acres x 43,560 S.F./Acre x 4.52" ÷ 12"/Ft. = 94,016 C.F. = 703,236 gal.
- Total 25yr-24hr rainfall on basin = 1.85 acres x 43,560 S.F./acre x 5.66" ÷ 12"/Ft. = 38,010 C.F. = 284,313 gal.
- Total 25yr-24hr runoff to be stored from all sources = 699,039 gal. + 703,236 gal. + 284,313 gal. = 1,686,588 gal.
- Volume of Effluent Basin Below Max Liquid Elevation (1415.5) = 3,211,971 gal.
- Effective Storage Volume of Effluent Basin = 3,211,971 gal. - 1,686,588 gal. = 1,525,383 gal.
- See enclosed Stage Storage Table for Critical Elevations and volumes
- Average annual runoff volume = 3,588,148 gal.

EXISTING NW DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN DESIGN

Design data for the NW Drainage Area SOFEB:

- Will maintain additional freeboard to contain the 25-year, 24-hour precipitation event.
- Sized in accordance with Effluent Control Alternative System 4 per I.A.C. 567 Chapter 65, Appendix A.
- Inner sideslopes have 3:1 slopes and outer dikes have 3:1 slopes
- Basin will have ½ feet of freeboard (maximum liquid level to spillway).
- 25-year, 24-hour rainfall = 5.66 in.
- Basin surface area = 3.48 acres
- Paved, roofed, and driveway Total Area = 12.83 acres
- Unpaved Total Area = 26.05 acres
- Runoff curve number (R.C.N.) = 98 for paved, roofed, and driveway areas
- Runoff from 5.66 inches rain at R.C.N. of 98 = 5.42 in.
- Runoff curve number (R.C.N.) = 90 for unpaved areas
- Runoff from 5.66 inch rain at R.C.N. of 90 = 4.52 in.
- Basin sized to hold the direct precipitation from the 25-year, 24-hour rainfall on its surface area

EXISTING NW DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN

- Total 25yr-24hr runoff from paved or roofed areas = 12.83 acres x 43,560 S.F./Acre x 5.42" ÷ 12"/Ft. = 252,425 C.F. = 1,888,140 gal.
- Total 25yr-24hr runoff from unpaved feedlot area = 26.05 acres x 43,560 S.F./Acre x 4.52" ÷ 12"/Ft. = 427,418 C.F. = 3,197,087 gal.
- Total 25yr-24hr rainfall on basin = 3.48 acres x 43,560 S.F./acre x 5.66" ÷ 12"/Ft. = 71,499 C.F. = 534,815 gal.
- Total 25yr-24hr runoff to be stored from all sources = 1,888,140 gal. + 3,197,087 gal. + 534,815 gal. = 5,620,042 gal.
- Volume of Effluent Basin Below Max Liquid Elevation (1357) = 13,492,151 gal.
- Effective Storage Volume of Effluent Basin = 13,492,151 gal. - 5,620,042 gal. = 7,872,109 gal.
- See enclosed Stage Storage Table for Critical Elevations and volumes
- Average annual runoff volume = 11,900,134 gal.

EXISTING MIDDLE DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN DESIGN

Design data for the Middle Drainage Area SOFEB:

- Will maintain additional freeboard to contain the 25-yr./24-hr. precipitation event.

- Sized in accordance with Effluent Control Alternative System 4 per I.A.C. 567 Chapter 65, Appendix A.
- Inner sideslopes have 3:1 slopes and outer dikes have 3:1 slopes
- Basin will have ½ feet of freeboard (maximum liquid level to spillway).
- 25-year, 24-hour rainfall = 5.66 in.
- Basin surface area = 0.41 acres
- Paved, roofed, and driveway Total Area = 1.72 acres
- Unpaved Total Area = 4.00 acres
- Runoff curve number (R.C.N.) = 98 for paved, roofed, and driveway areas
- Runoff from 5.66 inches rain at R.C.N. of 98 = 5.42 in.
- Runoff curve number (R.C.N.) = 90 for unpaved areas
- Runoff from 5.66 inch rain at R.C.N. of 90 = 4.52 in.
- Basin sized to hold the direct precipitation from the 25-year, 24-hour rainfall on its surface area

EXISTING MIDDLE DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN

- Total 25yr-24hr runoff from paved or roofed areas = 1.72 acres x 43,560 S.F./Acre x 5.42" ÷ 12"/Ft. = 33,840 C.F. = 253,156 gal.
- Total 25yr-24hr runoff from unpaved feedlot area = 4.00 acres x 43,560 S.F./Acre x 4.52" ÷ 12"/Ft. = 65,630 C.F. = 490,915 gal.
- Total 25yr-24hr rainfall on basin = 0.41 acres x 43,560 S.F./acre x 5.66" ÷ 12"/Ft. = 8,424 C.F. = 63,010 gal.
- Total 25yr-24hr runoff to be stored from all sources = 253,156 gal. + 490,915 gal. + 63,010 gal. = 807,081 gal.
- Volume of Effluent Basin Below Max Liquid Elevation (1412) = 949,655 gal.
- Effective Storage Volume of Effluent Basin = 949,655 gal. – 807,081 gal. = 142,574 gal.
- See enclosed Stage Storage Table for Critical Elevations and volumes
- Average annual runoff volume = 1,706,813 gal.

EXISTING WEST DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN DESIGN

Design data for the West Drainage Area SOFEB:

- Will maintain additional freeboard to contain the 25-yr./24-hr. precipitation event.
- Sized in accordance with Effluent Control Alternative System 4 per I.A.C. 567 Chapter 65, Appendix A.
- Inner sideslopes have 3:1 slopes and outer dikes have 3:1 slopes
- Basin will have ½ feet of freeboard (maximum liquid level to spillway).
- 25-year, 24-hour rainfall = 5.66 in.
- Basin surface area = 5.80 acres
- Paved, roofed, and driveway Total Area = 3.86 acres
- Unpaved Total Area = 11.60 acres
- Runoff curve number (R.C.N.) = 98 for paved, roofed, and driveway areas
- Runoff from 5.66 inches rain at R.C.N. of 98 = 5.42 in.
- Runoff curve number (R.C.N.) = 90 for unpaved areas
- Runoff from 5.66 inch rain at R.C.N. of 90 = 4.52 in.
- Basin sized to hold the direct precipitation from the 25-year, 24-hour rainfall on its surface area

EXISTING WEST DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN

- Total 25yr-24hr runoff from paved or roofed areas = 5.80 acres x 43,560 S.F./Acre x 5.42" ÷ 12"/Ft. = 114,113 C.F. = 853,563 gal.
- Total 25yr-24hr runoff from unpaved feedlot area = 11.60 acres x 43,560 S.F./Acre x 4.52" ÷ 12"/Ft. = 190,328 C.F. = 1,423,655 gal.
- Total 25yr-24hr rainfall on basin = 5.80 acres x 43,560 S.F./acre x 5.66" ÷ 12"/Ft. = 119,166 C.F. = 891,359 gal.

- Total 25yr-24hr runoff to be stored from all sources = 853,563 gal. + 1,423,655 gal. + 891,359 gal. = 3,168,577 gal.
- Volume of Effluent Basin Below Max Liquid Elevation (1345) = 14,340,227 gal.
- Effective Storage Volume of Effluent Basin = 14,340,227 gal. - 3,168,577 gal. = 11,171,650 gal.
- See enclosed Stage Storage Table for Critical Elevations and volumes
- Average annual runoff volume = 6,740,310 gal.

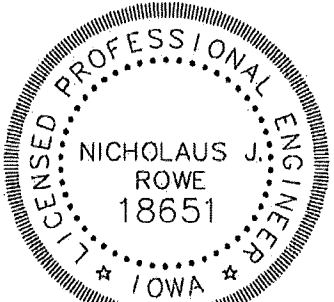
EXISTING SOUTH DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN DESIGN

Design data for the South Drainage Area SOFEB:

- Will maintain additional freeboard to contain the 25-year, 24-hour precipitation event.
- Sized in accordance with Effluent Control Alternative System 4 per I.A.C. 567 Chapter 65, Appendix A.
- Inner sideslopes have 3:1 slopes and outer dikes have 3:1 slopes
- Basin will have ½ feet of freeboard (maximum liquid level to spillway).
- 25-year, 24-hour rainfall = 5.66 in.
- Basin surface area = 7.80 acres
- Paved, roofed, and driveway Total Area = 25.58 acres
- Unpaved Total Area = 51.94 acres
- Runoff curve number (R.C.N.) = 98 for paved, roofed, and driveway areas
- Runoff from 5.66 inches rain at R.C.N. of 98 = 5.42 in.
- Runoff curve number (R.C.N.) = 90 for unpaved areas
- Runoff from 5.66inch rain at R.C.N. of 90 = 4.52 in.
- Basin sized to hold the direct precipitation from the 25-year, 24-hour rainfall on its surface area

EXISTING SOUTH DRAINAGE AREA SETTLED OPEN FEEDLOT EFFLUENT BASIN

- Total 25yr-24hr runoff from paved or roofed areas = 25.58 acres x 43,560 S.F./Acre x 5.42" ÷ 12"/Ft. = 503,276 C.F. = 3,764,507 gal.
- Total 25yr-24hr runoff from unpaved feedlot area = 51.94 acres x 43,560 S.F./Acre x 4.52" ÷ 12"/Ft. = 852,211 C.F. = 6,374,536 gal.
- Total 25yr-24hr rainfall on basin = 7.80 acres x 43,560 S.F./acre x 5.66" ÷ 12"/Ft. = 160,257 C.F. = 1,198,724 gal.
- Total 25yr-24hr runoff to be stored from all sources = 3,764,507 gal. + 6,374,536 gal. + 1,198,724 gal. = 11,337,767 gal.
- Volume of Effluent Basin Below Max Liquid Elevation (1383) = 36,717,944 gal.
- Effective Storage Volume of Effluent Basin = 36,717,944 gal. - 11,337,767 gal. = 25,380,177 gal.
- See enclosed Stage Storage Table for Critical Elevations and volumes
- Average annual runoff volume = 24,013,313 gal.

	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. <i>Nicholas J. Rowe</i> Date <u>5/28/19</u> Nicholaus J. Rowe, P.E. License number 18651 My license renewal date is December 31, 2019 Pages or sheets covered by this seal: <u>ALL</u>
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CITY VIEW FARMS - EAST

STAGE STORAGE TABLE

EXISTING SOUTH EARTHEN SETTLED OPEN FEEDLOT EFFLUENT BASIN

STORAGE BASIN LIQUID ELEVATION	STORAGE BASIN VOLUME AT LIQUID ELEVATION (gallons)	
1363	28,274	
1364	214,077	
1365	726,854	
1366	1,601,138	
1367	2,834,508	
1368	4,438,676	
1369	6,262,981	
1370	8,132,323	
1371	10,046,904	
1372	12,007,531	
1373	14,014,610	
1374	16,068,745	
1375	18,170,543	
1376	20,320,609	
1377	22,519,549	
1377.7	24,246,400	90% "Must Pump" Elevation
1378	24,767,970	
1378.2	25,380,177	25yr-24hr "Must Pump" Elevation
1379	27,112,619	
1380	29,415,070	
1381	31,815,162	
1382	34,266,553	
1383	36,717,944	Maximum Liquid Elevation
1384		Top of Dike Elevation

CITY VIEW FARMS - EAST

STAGE STORAGE TABLE

EXISTING WEST EARTHEN SETTLED OPEN FEEDLOT EFFLUENT BASIN

STORAGE BASIN LIQUID ELEVATION	STORAGE BASIN VOLUME AT LIQUID ELEVATION (gallons)	
1337	1,364,411	
1338	2,783,897	
1339	4,259,371	
1340	5,791,783	
1340.9	10,854,792	
1341	7,382,037	
1342	9,031,084	
1343	10,854,792	90% "Must Pump" Elevation
1343.2	11,171,650	25yr-24hr "Must Pump" Elevation
1344	12,509,252	
1345	14,340,227	Maximum Liquid Elevation
1346	16,233,085	Top of Dike Elevation

CITY VIEW FARMS - EAST

STAGE STORAGE TABLE

EXISTING MIDDLE EARTHEN SETTLED FEEDLOT EFFLUENT BASIN

STORAGE BASIN LIQUID ELEVATION	STORAGE BASIN VOLUME AT LIQUID ELEVATION (gallons)	
1401	32,006	
1401.8	61,866	90% "Must Pump" Elevation
1402	70,984	
1403	117,412	
1403.5	142,574	25yr-24hr "Must Pump" Elevation
1404	171,769	
1404.4	198,658	
1405	234,533	
1406	306,191	
1407	387,214	
1408	478,088	
1409	579,292	
1410	691,297	
1411	814,589	
1412	949,655	Maximum Liquid Elevation

CITY VIEW FARMS - EAST

STAGE STORAGE TABLE

EXISTING NW EARTHEN SETTLED OPEN FEEDLOT EFFLUENT BASIN

STORAGE BASIN LIQUID ELEVATION	STORAGE BASIN VOLUME AT LIQUID ELEVATION (gallons)	
1342	131,830	
1343	817,835	
1344	1,531,135	
1345	2,272,178	
1346	3,041,421	
1347	3,839,305	
1348	4,666,278	
1349	5,522,790	
1350	6,409,297	
1351	7,310,105	90% "Must Pump" Elevation
1351.6	7,872,109	25yr-24hr "Must Pump" Elevation
1352	8,274,068	
1353	9,253,222	
1354	10,264,158	
1355	11,307,326	
1356	12,383,174	
1357	13,492,151	Maximum Liquid Elevation
1357.7	14,284,959	Top of Dike Elevation

CITY VIEW FARMS - EAST

STAGE STORAGE TABLE

EXISTING NE EARTHEN SETTLED OPEN EFFLUENT BASIN

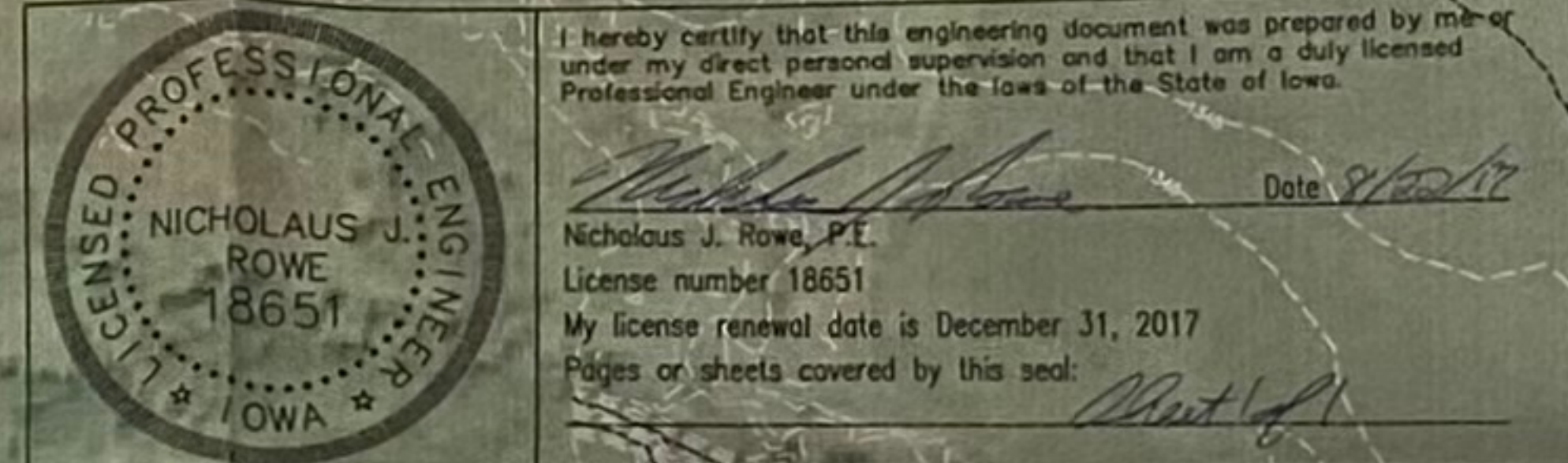
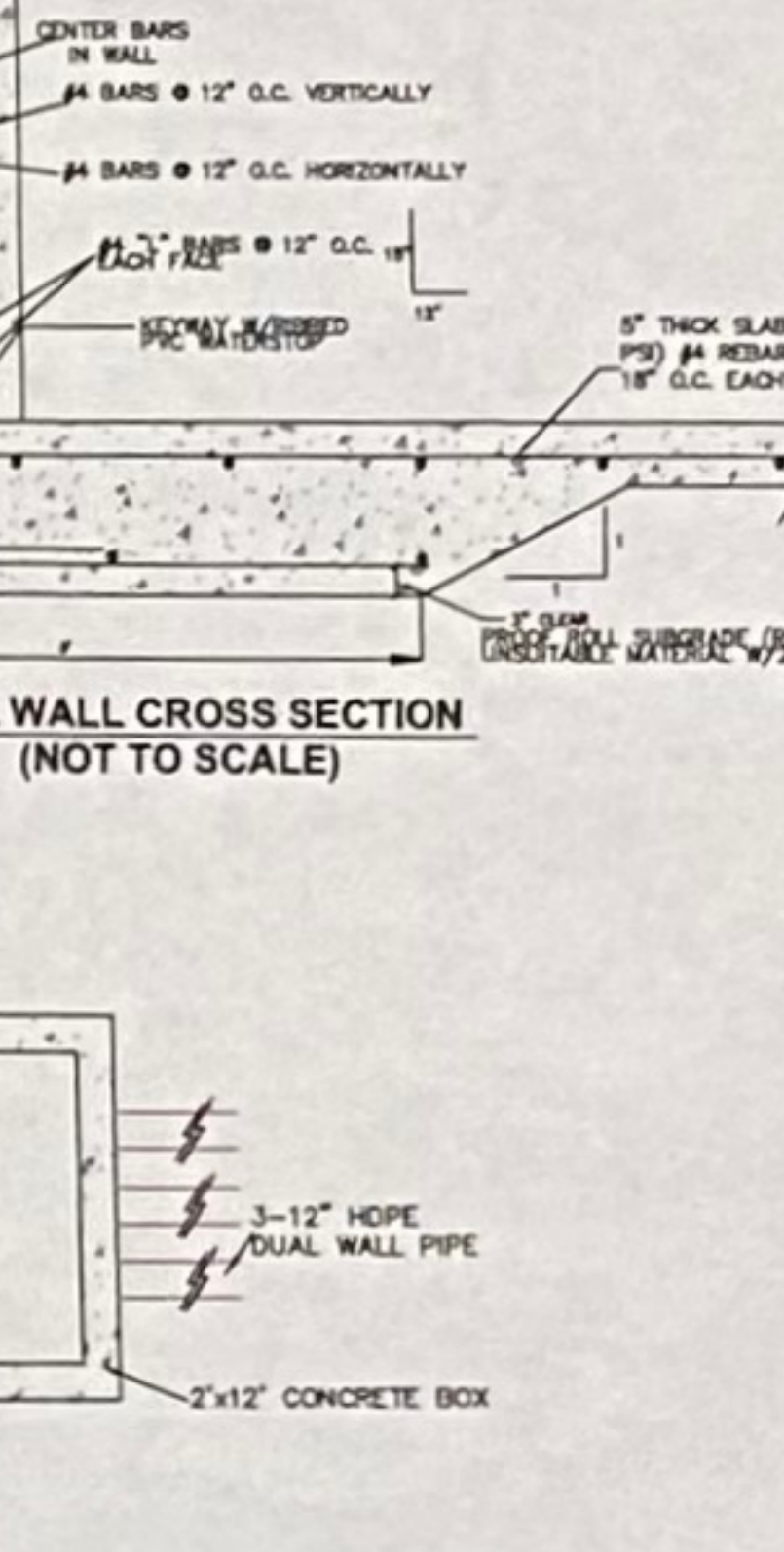
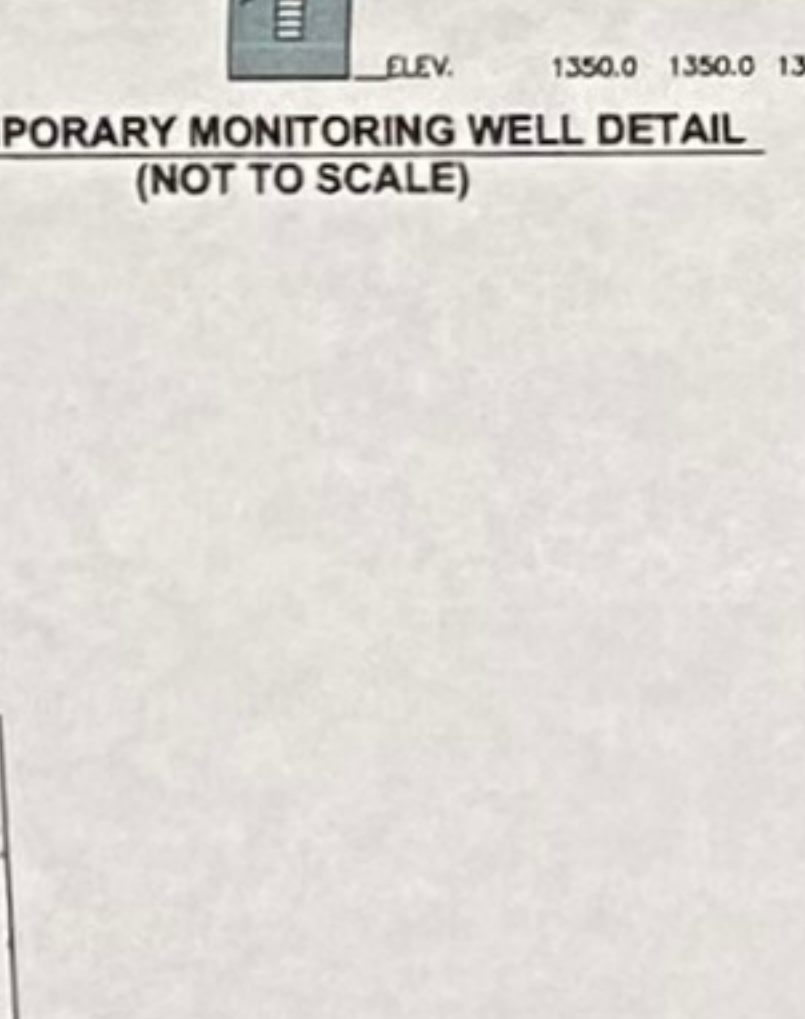
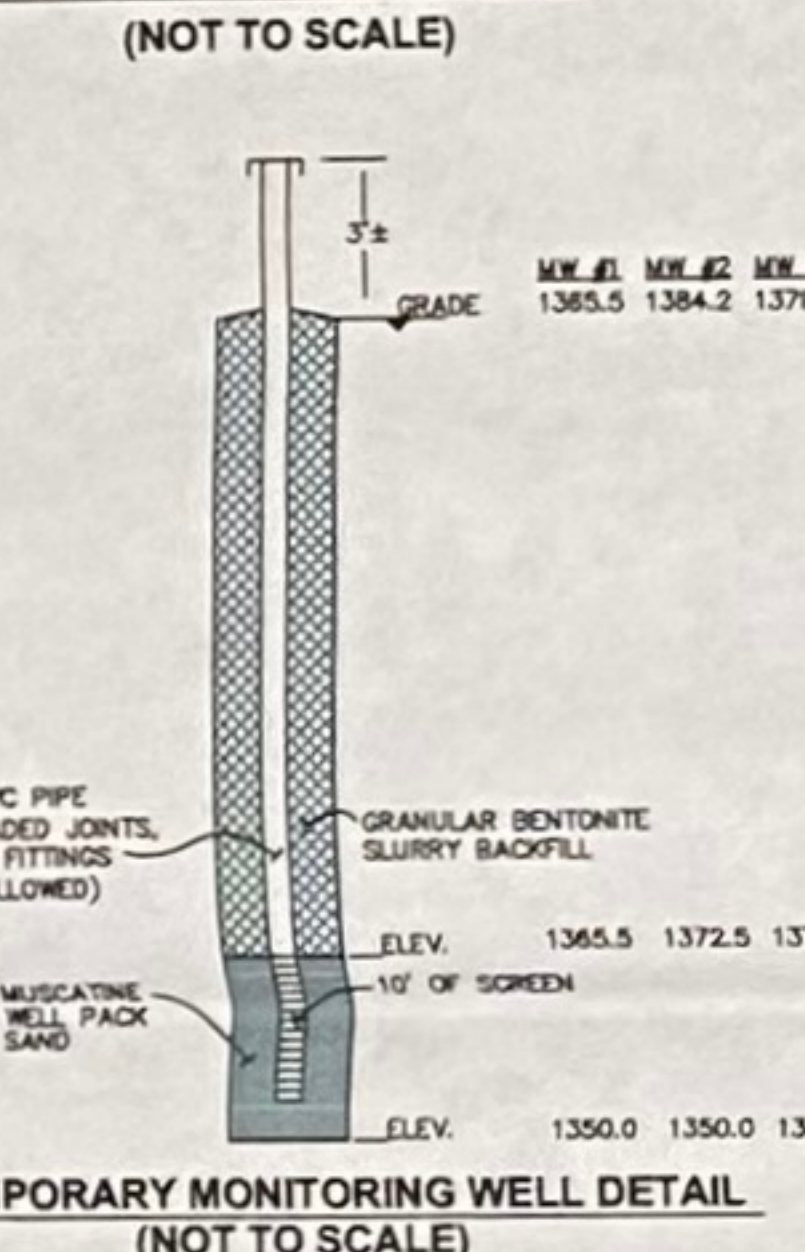
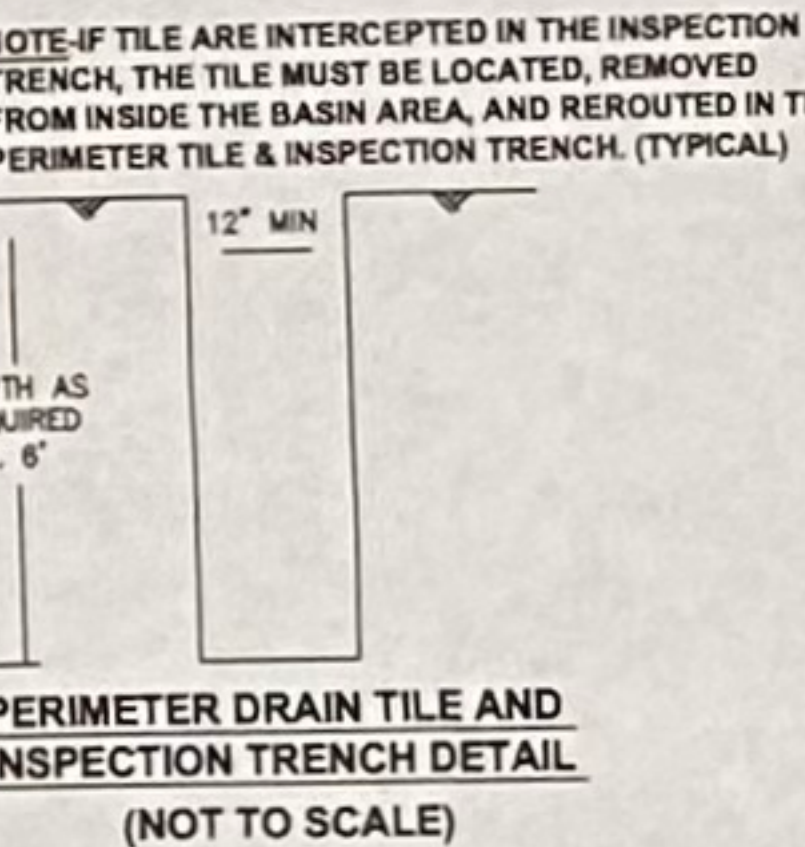
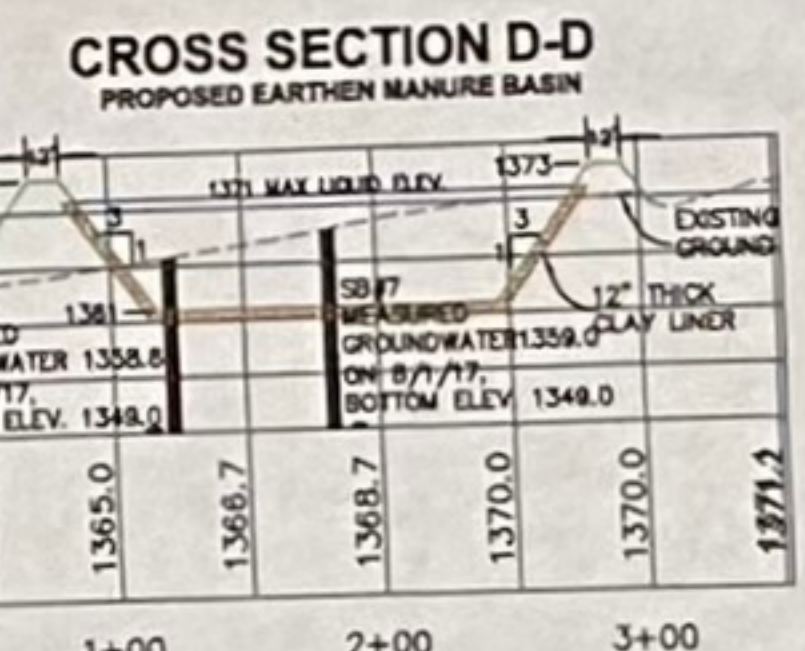
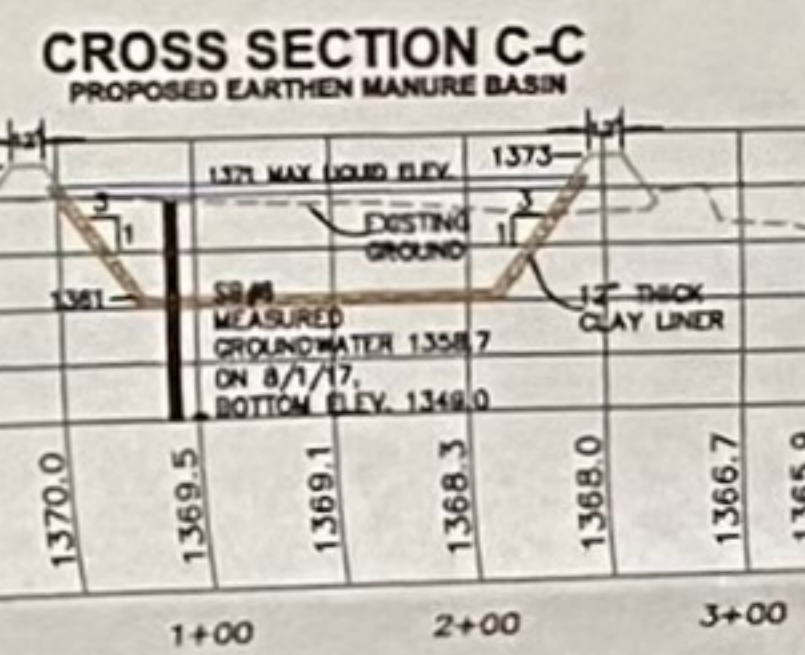
STORAGE BASIN LIQUID ELEVATION	STORAGE BASIN VOLUME AT LIQUID ELEVATION (gallons)	
1408	238,918	
1409	513,584	
1410	824,198	
1411	1,171,771	
1411.5	1,356,724	90% "Must Pump" Elevation
1411.9	1,525,383	25yr-24hr "Must Pump" Elevation
1412	1,556,707	
1413	1,979,611	
1414	2,441,090	
1415	2,941,749	
1415.5	3,211,971	Maximum Liquid Elevation
1416		Top of Dike Elevation

CITY VIEW FARMS-EAST

STAGE STORAGE TABLE

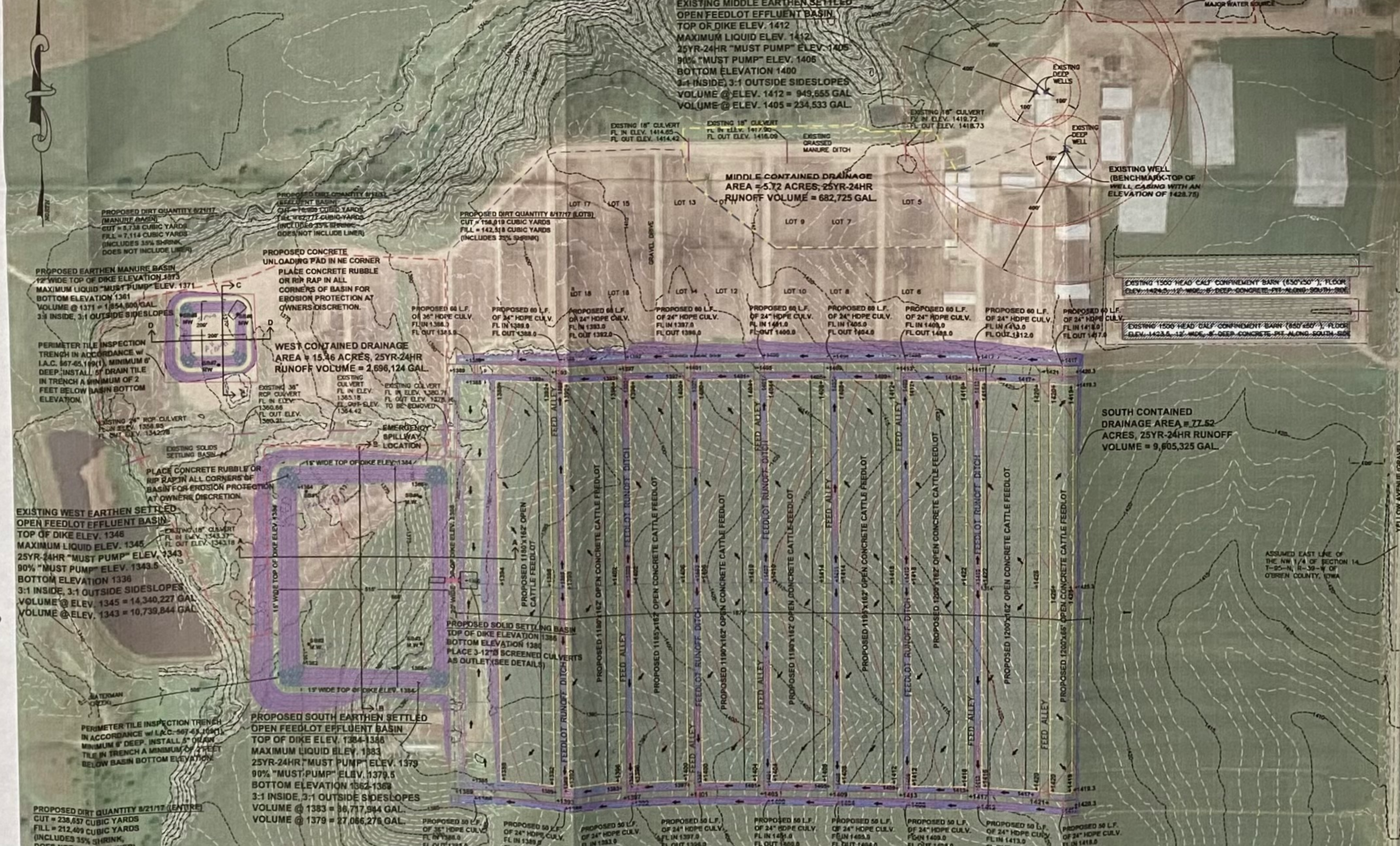
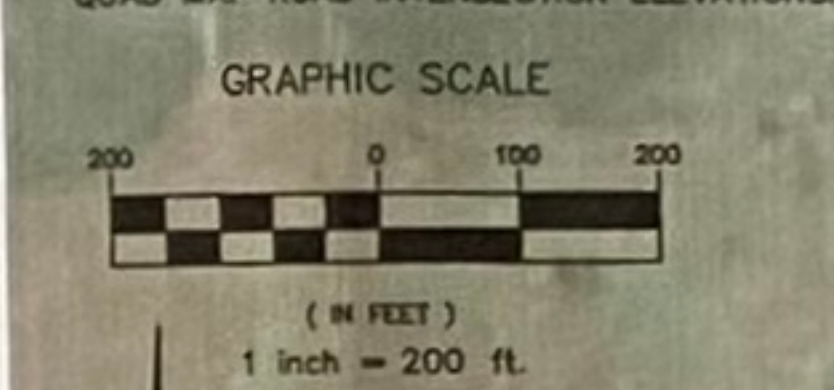
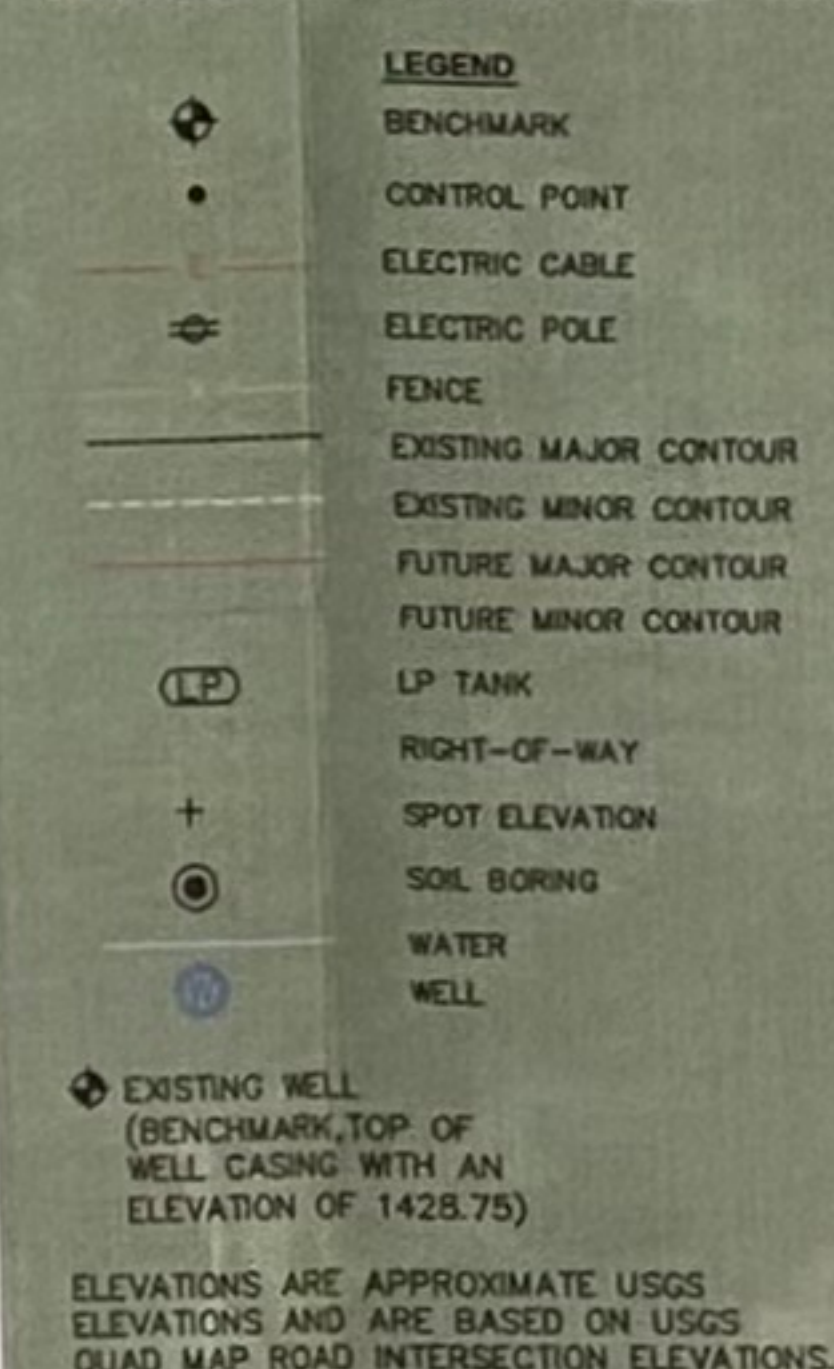
PROPOSED EARTHEN MANURE BASIN

STORAGE BASIN LIQUID ELEVATION	STORAGE BASIN VOLUME AT LIQUID ELEVATION (gallons)	
1362	126,628	
1363	264,971	
1364	415,434	
1365	578,615	
1366	754,926	
1367	944,970	
1368	1,149,556	
1369	1,369,086	
1370	1,603,966	
1371	1,854,800	*Freeboard & "Must Pump" Elevation
1372	2,122,397	
1373	2,406,959	Top of Dike Elevation



***CONTRACTOR IS RESPONSIBLE FOR CALLING
IOWA ONE CALL (1-800-292-8989) AT LEAST 48 HOURS
PRIOR TO ANY EXCAVATION WORK.***

***THE OPEN CATTLE FEEDLOT AND THE
SETTLED OPEN FEEDLOT EFFLUENT BASIN
WERE DESIGNED IN ACCORDANCE WITH
DIVISION II OF I.A.C. 567-CHAPTER 65.***





May 17, 2024

City View Farms East
Attn: Jamie Franken
4135 Yellow Ave
Sutherland, IA 51058

SUBJECT: Animal Feeding Operation (AFO) Compliance Inspection for
City View Farms East – O'Brien County – Facility #60334
NPDES Permit # 7160334, EPA # IA0077569

Dear Mr. Franken:

Attached is a copy of the report resulting from the National Pollutant Discharge Elimination System (NPDES) compliance inspection on May 7, 2024.

Your attention is directed to the requirements and recommendations portion of the report. If you have any questions, or feel this report does not represent the conditions at your facility, please call me at 712-363-3319.

Sincerely,

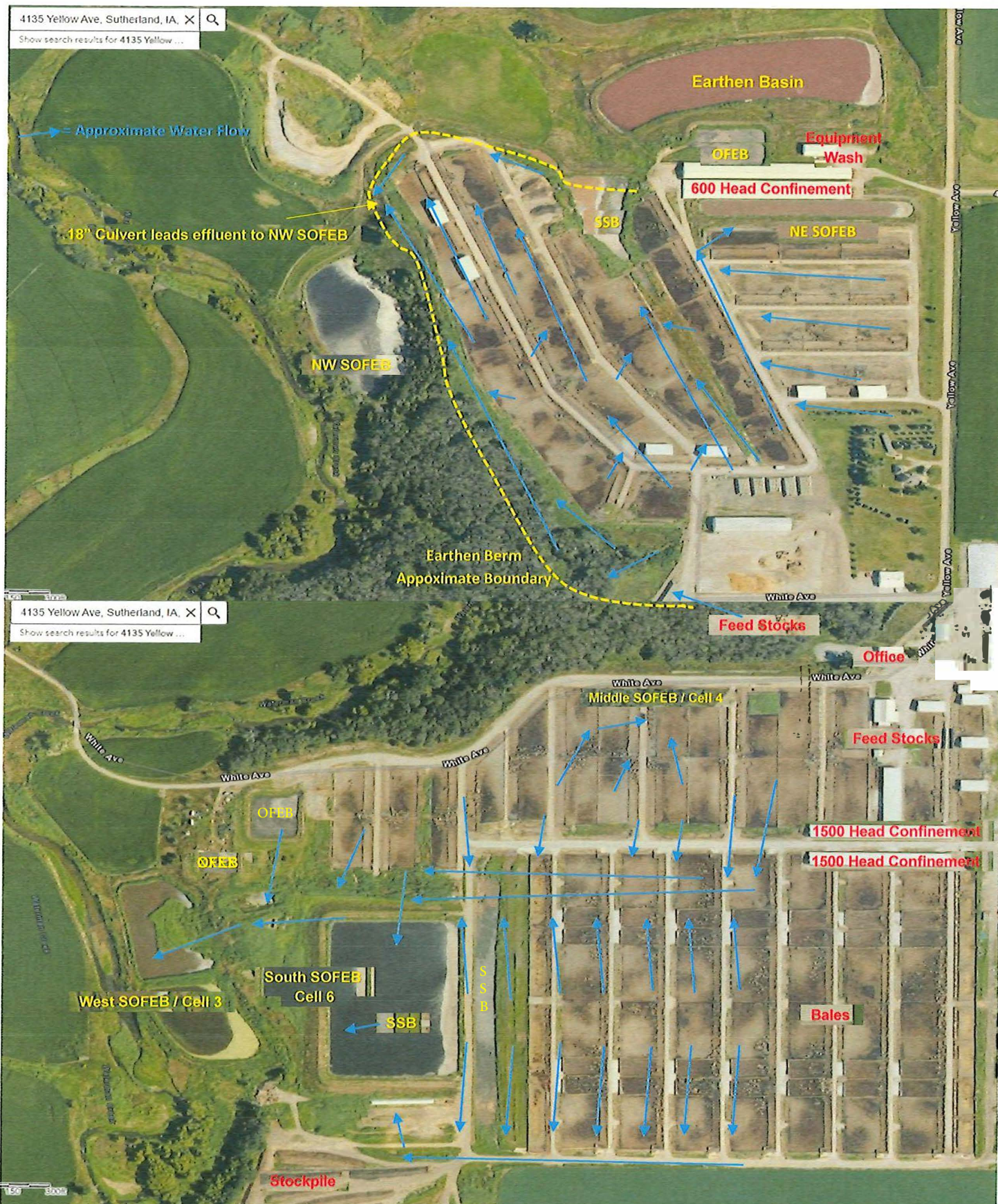
A handwritten signature in black ink, appearing to read "Heath Gravert", is written over a horizontal line.

Heath Gravert, Environmental Specialist
heath.gravert@dnr.iowa.gov
Field Services and Compliance Bureau

HG:lw

C: Jeff Koops (jkoops@farmerscoopssociety.com)

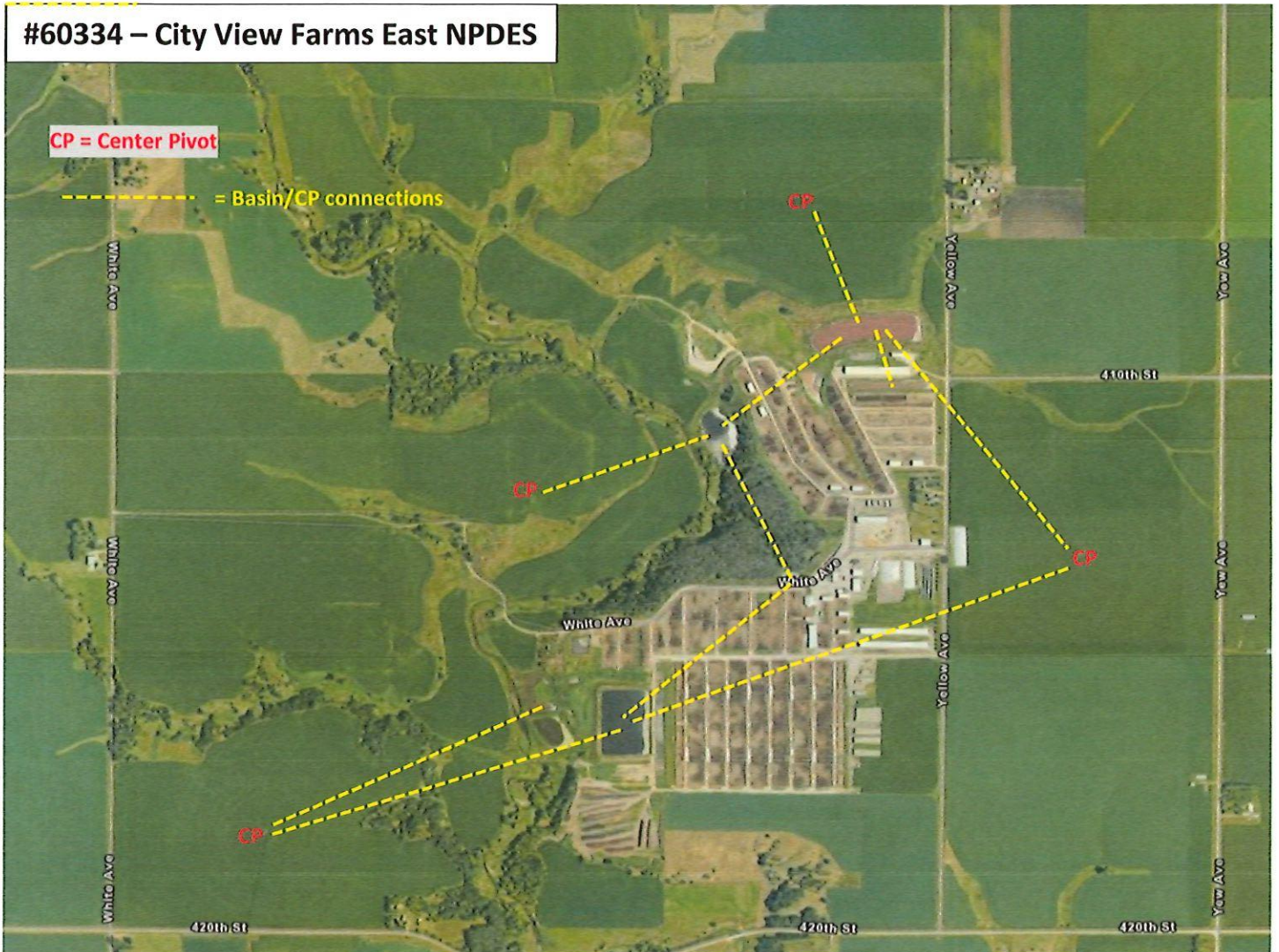
Enc: NPDES Inspection Report
NMP Inspection Report
Photos
Ag24/71ci0517-ins.docx



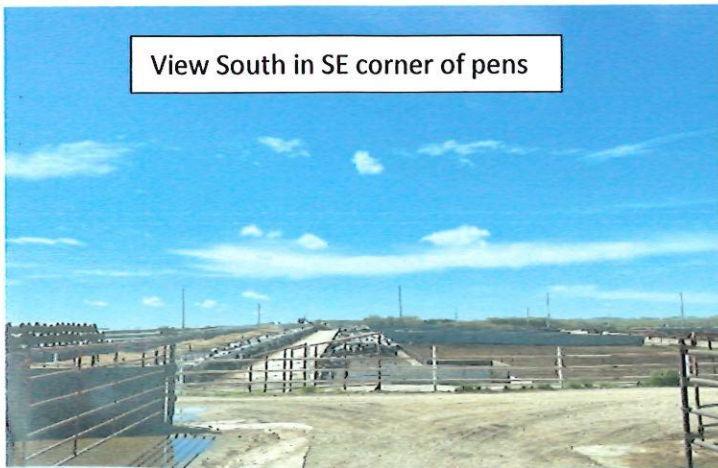
#60334 – City View Farms East NPDES

CP = Center Pivot

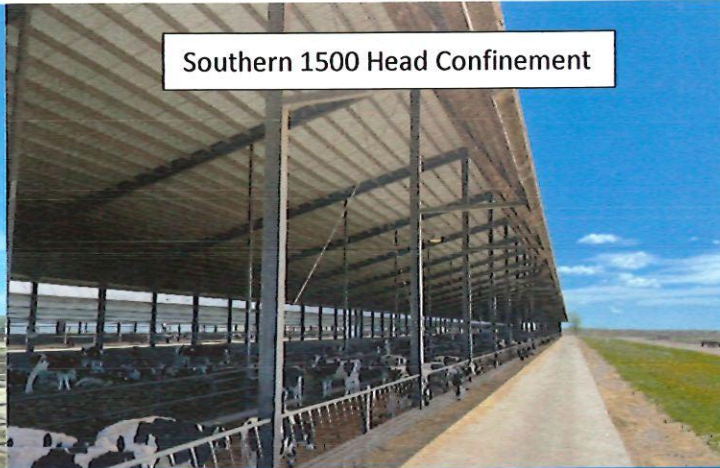
- - - = Basin/CP connections



View South in SE corner of pens



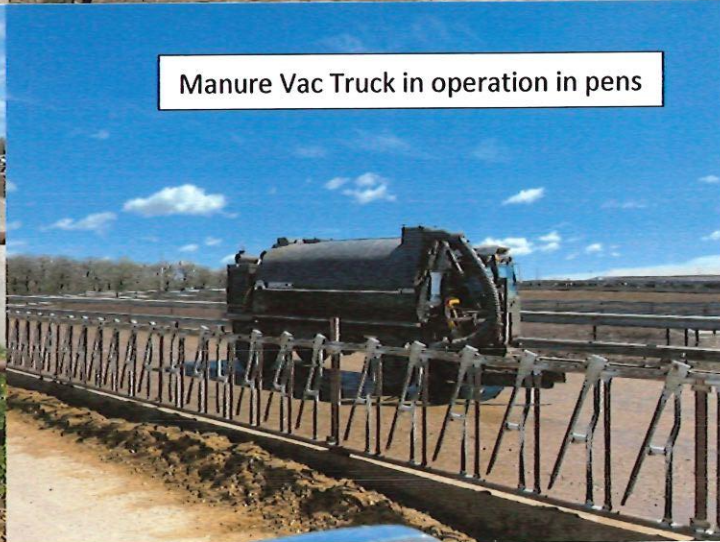
Southern 1500 Head Confinement



View showing some of the solids settling structures in the southern pen areas



Manure Vac Truck in operation in pens



Ditch from north pens in the larger southern pen area which leads to the SSB and Southern SOFEB

