STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

CONSTRUCTION PERMIT

The Missouri Department of Natural Resources hereby issues a permit to:

Department of Natural Resources – Missouri State Parks
Crowder State Park WWTF
8598, 76 MO-128
Trenton, MO 64683

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (department).

As the department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

A representative of the department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

December 12, 2024
Effective Date

December 11, 2026
Expiration Date

John Hoke, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Construction of two drip distribution absorption systems, each with a septic tank, a MicroFAST® 1.5 pretreatment system, and a pump tank. The Lake Restroom drip system would be a minimum 2,000 sq ft with at least 1,000 ft of drip line (500 emitters) at 0.1 gpd/sqft to handle a design average flow of 200 gallons per day (gpd); dosing pumps would be capable of 36 gpm against 111 ft TDH. The park residence and maintenance shed drip system would be a minimum 6,100 sq ft with at least 3,050 ft of drip line (1,525 emitters) at 0.1 gpd/sqft to handle a design average flow of 610 gpd; dosing pumps would be capable of 36 gpm against 161 ft TDH. A portable generator is available.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The department is not required to complete a cost analysis for compliance, because the facility is not a combined or separate sanitary sewer system for a publicly-owned treatment works that charges a user rate. The permittee is a state park.

III. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct subject to the following conditions:

1. This construction permit does not authorize discharge.

2. All construction shall be consistent with plans and specifications signed and sealed by Jay Healy, P.E., with George Butler Associates, Inc., and as described in this permit.

3. The department must be contacted in writing prior to making any changes to the plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).

4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the department's Northeast Regional Office per 10 CSR 20-7.015(9)(G).

5. The completed project shall be field tested to verify actual pumped volume of each dose. The timer controls shall be set to ensure a dosing rate not to exceed the allowable rate of 0.1 gallons per square foot per day.

6. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the department's ePermitting system available online at https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem. See https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting for more information.

7. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

    - Facilities shall be readily accessible by authorized personnel from a public right–of-way at all times. 10 CSR 20-8.140(2)(D)
    - All wastewater treatment facilities shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. 10 CSR 20-8.140(7)(A)1.
    - Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 *National Electric Code (NEC)* (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140(7)(B)
    - An audiovisual alarm or a more advanced alert system, with a self-contained power supply, capable of monitoring the condition of equipment whose failure could result in a violation of the operating permit, shall be provided for all wastewater treatment facilities. 10 CSR 20-8.140(7)(C)
    - No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.140(7)(D)1.
    - A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140(7)(E)

- All wastewater treatment facilities must have a screening device, comminutor, or septic tank for the purpose of removing debris and nuisance materials from the influent wastewater. 10 CSR 20-8.150(2)
- A septic tank must have a minimum capacity of at least 1,000 gallons. 10 CSR 20-8.180(2)(A)
- The septic tank shall be baffled. 10 CSR 20-8.180(2)(B)
- Subsurface systems shall—
  - Exclude unstabilized fill and soils that have been highly compacted and/or disturbed, such as old road beds, foundations, or similar things; 10 CSR 20-8.200 (7)(A)1.A.
  - Provide adequate surface drainage where slopes are less than two percent; 10 CSR 20-8.200(7)(A)1.B.
  - Provide surface and subsurface water diversion where necessary, such as a curtain or perimeter drain; 10 CSR 20-8.200(7)(A)1.C. and
  - Have a ten-foot buffer from the property line. 10 CSR 20-8.200(7)(A)1.D.
- The vertical separation between the bottom of the drip lines and/or the trench and a limiting layer, including but not limited to, bedrock; restrictive horizon; or seasonal-high water table, shall be no less than:
  - Twelve inches for systems dispersing secondary or higher quality effluent; 10 CSR 20-8.200(7)(A)2.B.
- Subsurface systems shall be, at a minimum, preceded by preliminary treatment. 10 CSR 20-8.200(7)(B)
- Loading rates shall not exceed the values assigned by the site and soil evaluation. 10 CSR 20-8.200(7)(C)
- The location and size of the drains and buffers must be factored into the total area required for the drip dispersal system. 10 CSR 20-8.200(9)(A)1.
- The drip dispersal lines shall be placed at a minimum depth of six inches below the surface. 10 CSR 20-8.200(9)(B)1.
- Emitters and drip dispersal lines shall be placed at a minimum on a two foot spacing to achieve even distribution of the wastewater and maximum utilization of the soil. 10 CSR 20-8.200(9)(B)2.
- Imported soils shall be a sandy to loamy material, with less than 10 percent clay and less than 15 percent organic debris present. Imported soils shall not be compacted. Soil placement shall be in small "lift" increments of 4–6 inches instead of one thick layer. Native soil shall be used for the vertical separation for the subsurface soil dispersal systems with the fill for the cap being imported soils. 10 CSR 20-8.110(7)(C)

8. Upon completion of construction:

   A. The Department of Natural Resource – Missouri State Parks will become the continuing authority for operation and maintenance of these facilities;

   B. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and

C. Submit the Statement of Work Completed form to the department in accordance with 10 CSR 20-6.010(5)(N) (https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155), and submit a Form B - Application for an Operating Permit for Domestic or Municipal Wastewater (≤100,000 gallons per day) and fee to the Engineering Section of the Water Protection Program 60 days prior to operation.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The previous set of multiple onsite systems serving these buildings are being updated.

2. FACILITY DESCRIPTION

The proposed construction will not use any of the previous, outdated onsite system. All construction will be new for these two treatment systems.

Crowder State Park is located at 8598, 76 MO-128 in Trenton, Grundy County, Missouri. The Lake Restroom drip system is located immediately east of Crowder Lake. The park maintenance house and maintenance shed drip system is located at the park entrance, on the east side of MO-128. The facility has a design average flow of 200 gpd for the Lake Restroom and 610 gpd for the park residence and maintenance shed. Crowder State Park has additional wastewater treatment facilities not related to this construction permit, including the group camp no-discharge irrigation system, the public campground no-discharge irrigation system, and the five vault toilets.

3. COMPLIANCE PARAMETERS

The proposed project will be required to meet the subsurface system requirements of the MOG823 general operating permit with an expiration date of **August 24, 2027**. The facility will be required to maintain maintenance records for at least five years, submit a Form S when sludge is removed, and sufficiently secure or restrict access to the tanks. The facility may be required to register as a Class V injection well. Registration as a Class V injection well is required for onsite treatment systems with absorption systems, unless exempt. See https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater/underground-injection-control.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- Components are designed for an average flow of 200 gpd for the Lake Restroom and 610 gpd for the park residence and maintenance shed.

- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis. Flow would be measured via pump runtimes.

- Septic Tank – A septic tank provides passive primary treatment as the settleable solids in raw wastewater settle onto the bottom of the tank. Raw wastewater will flow by gravity to the septic tank for each system; a 1,000-gallon tank for the lake restroom system and a 1,500-gallon tank for the park residence and maintenance shed system. When the water level reaches a certain height, the wastewater flows into the first, settling compartment of the MicroFAST® tank via a tee-drop pipe. The septic tank compartments provide approximately 8½ and 3½ days of detention at design average flow, respectively for the lake restroom and park residence/maintenance shed. Settled solids in the septic tanks shall be removed by a contract hauler.

- Subsurface Soil Dispersal System –

    - Lake Restroom System - Soil morphology review was conducted during the construction permit application review. Due to poor texture and drainage, especially north of the proposed absorption area, the site will require drip irrigation with imported soil or a drip mound. In the soils investigation, there were 2 pits dug over the proposed site. Surface soils were described as sandy clay loam. The soils on the southern side of the proposed lake restroom absorption site are rated for 0.1 gpd/sf; the soils are not suitable at the northern end. A seasonal perched water table was discovered 13 inches below the ground surface. The facility would import sufficient soils to ensure at least 12 inches of soil with a design loading rate of 0.1 gpd/sf for the entire system. The soil investigation was completed by Chris Stiens, Certified Soil Scientist with Stiens Soil Evaluations, LLC, on September 5, 2023. The soils report was not properly signed, and the consulting engineer is taking responsibility.
        - Specifications for placement of the imported soil prescribe a specific range of acceptable soil moisture content and the type of construction equipment to be used to avoid over compaction. The facility will have to import ~ 100 cubic yards of soils, which must be approved by the engineer before placement, and shall be sandy loam, silt loam, loam, or loamy sand containing less than 10 percent clay as described by the USDA.
        - Drip – The facility will select a subsurface drip dispersal system, which will dose a single zone at 0.1 gpd/sqft. The absorption area is ~ 0.044 acres. Combo air/vacuum release valves will be installed as needed. The hydraulic loading is 200 gpd, and the MicroFAST 1.5 is designed to treat to a BOD5 and TSS of no more than 30 mg/l prior to the drip field. The drip field area would be at least 2,000 square feet and contain ~ 1,000 linear feet of tubing fitted with drip emitters every 2 ft, capable of a loading at peak flow of less than 0.1 gallons per sq ft per day. Drip lines would be installed at least 8 inches deep.
        - Dosing pumps would be capable of 36 gpm against a TDH of 111 ft.

- Park Residence and Maintenance Shed System - Soil morphology review was conducted during the construction permit application review. Due to poor texture and drainage, the site will require drip irrigation with imported soil. In the soils investigation, there were 4 pits dug over the proposed site. Surface soils were described as silty clay loam, with a usable soil depth at about 9 inches. The soils are rated for no more than 0.1 gpd/sf. A seasonal perched water table was discovered 14 to 15 inches below the ground surface. The facility would import sufficient soils to ensure at least 12 inches of soil with a design loading rate of 0.1 gpd/sf for the entire system. The soil investigation was completed by Chris Stiens, Certified Soil Scientist with Stiens Soil Evaluations, LLC, on October 20, 2023. The soils report was not properly signed, and the consulting engineer is taking responsibility.
  - Specifications for placement of the imported soil prescribe a specific range of acceptable soil moisture content and the type of construction equipment to be used to avoid over compaction. The facility will have to import ~270 cubic yards of soils, which must be approved by the engineer before placement, and shall be sandy loam, silt loam, loam, or loamy sand containing less than 10 percent clay as described by the USDA.
  - Drip – The facility will select a subsurface drip dispersal system, which will dose a single zone at 0.1 gpd/sqft. The absorption area is ~ 0.143 acres. Combo air/vacuum release valves will be installed as needed. The hydraulic loading is 610 gpd, and the MicroFAST 1.5 is designed to treat to a BOD5 and TSS of no more than 30 mg/l prior to the drip field. The drip field area would be at least 6.100 square feet and contain at least 3,050 linear feet of tubing fitted with drip emitters every 2 ft, capable of a loading at peak flow of less than 0.1 gallons per sq ft per day. Drip lines would be installed at least 8 inches deep.
  - Dosing pumps would be capable of 36 gpm against a TDH of 161 ft.

- Emergency Power – A 2.5 kW portable gas/diesel generator and manual transfer switches will be provided to operate the treatment facilities in event of power failure.

5. OPERATING PERMIT

After completion of construction project submit (1) statement of work completed, (2) as-builts if the project was not constructed in accordance with previously submitted plans and specifications, and (3) Application Form B and fee. After receipt of the above documents Missouri State Operating Permit, General Permit MO-G823xxx, will be issued for all no-discharge treatment systems in the park –including the group camp no-discharge irrigation system, the public campground no-discharge irrigation system, the park residence and maintenance shed subsurface drip distribution system, the lake restroom system subsurface drip distribution system, and the five vault toilets. The Form B application must include a map showing the location of all

existing treatment systems within the park, along with the expected design flows in order to properly permit the state park's wastewater treatment systems. The operating permit shall be retained for a minimum of one year, until Missouri State Parks can demonstrate the Park's total wastewater flows never exceed 3,000 gpd.

V. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: https://ahc.mo.gov

Scott Adams, P.E.
Engineering Section
scott.adams@dnr.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITY

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED	CHECK NO.
DATE RECEIVED	

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Treatment Facility form has been developed in a modular format and consists of Part A and B. **All applicants must complete Part A.** Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. **Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.**

PART A – BASIC INFORMATION

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

1.1 Is this a Federal/State funded project? ☑ YES ☐ N/A Funding Agency: MO-OA Project #: X232202

1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
☐ YES Date of Approval: _____ ☑ N/A

1.3 Has the department approved the proposed project's facility plan*?
☐ YES Date of Approval: _____ ☑ NO (If No, complete No. 1.4.)

1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan* for wastewater treatment facilities included with this application?
☑ YES ☐ NO ☐ Exempt because _____

1.5 Is a copy of the appropriate plans* and specifications* included with this application?
☑ YES Denote which form is submitted: ☐ Hard copy ☑ Electronic copy (See instructions.) ☐ NO

1.6 Is a summary of design* included with this application? ☑ YES ☐ NO

1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?
☐ YES Date of submittal: _____
☑ Enclosed is the appropriate operating permit application and fee submittal. Denote which form: ☑ A ☑ B ☐ B2
☐ N/A: However, In the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits to secondary limits or adding total residual chlorine limits, please share a draft copy prior to public notice? ☐ YES ☐ NO

1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☑ YES ☐ NO

1.9 Is the appropriate fee or JetPay confirmation included with this application? ☐ YES ☑ NO
See Section 7.0

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT
Sewer System Improvements Crowder State Park

2.2 ESTIMATED PROJECT CONSTRUCTION COST
$ 304,232

2.3 PROJECT DESCRIPTION
Replace and improve existing sewer system located northwest of Lake Wittona. Combine ranger house and maintenance building sewer collection system and install new subsurface dispersal field.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Septic tank holding prior to dispersal field. Standard maintenance and procedures for septic tanks.

2.5 DESIGN INFORMATION
A. Current population: 20 ; Design population: 20
B. Actual Flow: _____ gpd; Design Average Flow: 810 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: _____ gpd; Design Wet Weather Event: _____

2.6 ADDITIONAL INFORMATION
A. Is a topographic map attached? ☐ YES ☑ NO
B. Is a process flow diagram attached? ☐ YES ☑ NO

3.0 WASTEWATER TREATMENT FACILITY

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Crowder State Park	(660)359-6473	

ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE	COUNTY
8598, 76 MO-128	Trenton	MO	64683	Grundy

Wastewater Treatment Facility: Mo- (Outfall Of)

3.1 Legal Description: NE ¼, NW ¼, SE ¼, Sec. 12, T 61, R 25
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 443083 Northing (Y): 4437687
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: _____

4.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Jim Kunce	(816)562-3401	Jim.Kunce@dnr.mo.gov

ADDRESS	CITY	STATE	ZIP CODE
801 Lakecrest Boulevard	Rushville	MO	64484

5.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements.

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Department of Natural Resources Missouri State Parks	(573)751-2479	moparks@dnr.mo.gov

ADDRESS	CITY	STATE	ZIP CODE
1659 E. Elm St.	Jefferson City	MO	65102-0176

5.1 A letter from the continuing authority, if different than the owner, is included with this application. ☐ YES ☐ NO ☑ N/A

5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.

A. Is a copy of the certificate of convenience and necessity included with this application? ☐ YES ☐ NO

5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.

A. Is a copy of the as-filed restrictions and covenants included with this application? ☐ YES ☐ NO

B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? ☐ YES ☐ NO

C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? ☐ YES ☐ NO

D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? ☐ YES ☐ NO

6.0 ENGINEER

ENGINEER NAME / COMPANY NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Jay Healy / GBA	(913)492-0400	jhealy@gbateam.com

ADDRESS	CITY	STATE	ZIP CODE
9801 Renner Boulevard	Lenexa	KS	66219

7.0 APPLICATION FEE

☐ CHECK NUMBER ☐ JETPAY CONFIRMATION NUMBER

8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PROJECT OWNER SIGNATURE

PRINTED NAME	DATE
Jim Kunce	7/18/2024

TITLE OR CORPORATE POSITION	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Project Manager	(816)562-3401	jim.kunce@dnr.mo.gov

Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.

PART B – LAND APPLICATION ONLY
(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: ☐ Domestic ☑ State/National Park ☐ Seasonal business
☐ Municipal ☐ Municipal with a pretreatment program or significant industrial users
☐ Other (explain) _____

8.2 Months when the business or enterprise will operate or generate wastewater:
☑ 12 months per year ☐ Part of the year (list months): _____

8.3 This system is designed for:
☑ No-discharge.
☐ Partial irrigation when feasible and discharge rest of time.
☐ Irrigation during recreational season, April – October, and discharge during November – March.
☐ Other (explain) _____.

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than three basins.)

9.2 Type of basins: ☐ Steel ☐ Concrete ☐ Fiberglass ☐ Earthen ☐ Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.
Basin #1: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____
Basin #2: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____
Basin #3: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).
Basin #1: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #2: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #3: Maximum operating water level _____ ft Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.
Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.
Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Number of irrigation sites 2 Total Acres 0.36 Maximum % field slopes 6
Location: NE ¼, NW ¼, SE ¼, 12 Sec. 61 T 25 R Grundy County 0.21 Acres
Location: NE ¼, NW ¼, NW ¼, 13 Sec. 61 T 25 R Grundy County 0.15 Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.2 Type of vegetation: ☐ Grass hay ☐ Pasture ☐ Timber ☐ Row crops
☑ Other (describe) Subsurface soil dispersal system

10.3 Wastewater flow (dry weather) gallons per day: Average annual 810 Seasonal _____ Off-season _____

10.4 Land application rate (design flow including 1-in-10 year storm water flows):
Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week
Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

10.5 Total irrigation per year (gallons): Design: 810 gal Actual: _____ gal

10.6 Actual months used for irrigation (check all that apply):
☑ Jan ☑ Feb ☑ Mar ☑ Apr ☑ May ☑ Jun ☑ Jul ☑ Aug ☑ Sep ☑ Oct ☑ Nov ☑ Dec

10.7 Land application rate is based on:
☑ Hydraulic Loading ☑ Other (describe) Soil Study
☐ Nutrient Management Plan (N&P) If N&P is selected, is the plan included? ☐ YES ☐ NO