

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

City of Kahoka
250 North Morgan
Kahoka, MO 63445

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.

June 28, 2022
Effective Date

June 27, 2024
Expiration Date

Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The construction activities include the addition of 5 new irrigation fields and the removal of one current irrigation field. Field 2A will have a 37.9 acre application area applied by a Center Pivot. Field 2B will have an 11.5 acre application area applied by a Traveling Gun. Field 2C will have a 12 acre application area applied by a Traveling Gun. Field 2D will have a 48.2 acre application area applied by a Center Pivot. Field 2E will have a 36.9 acre application area applied by a Center Pivot. The new irrigation fields will become Permitted Features #015, #016, #017, #018, and #019 while the Permitted Feature #013 will be removed from the operating permit.

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 determine Cost Analysis for Compliance because the permit contains no new conditions or requirements that convey a new cost to the facility.

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 Kyle Pociask, P.E. with Four Points Land Surveying & Engineering, 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 wastewater treatment facility shall be located at least fifty feet (50') from any dwelling or establishment.
6. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
7. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation per 10 CSR 20-8.140(2)(B). The minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300') per 10 CSR 20-8.140(2)(C)1.
8. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of 1 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.
9. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the Department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the Department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information.
10. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
 - The wetted application area of a surface irrigation system must be located

- Outside of flood-prone areas having a flood frequency greater than once every ten (10) years; 10 CSR 20-8.200 (6) (B) 1.
 - At least one hundred fifty feet (150') from existing dwellings or public use areas, excluding roads or highways; 10 CSR 20-8.200 (6) (B) 2. A.
 - At least fifty feet (50') inside the property line; 10 CSR 20-8.200 (6) (B) 2. B.
 - At least three hundred feet (300') from any sinkhole, losing stream, or other structure or physiographic feature that may provide direct connection between the ground water table and the surface; 10 CSR 20-8.200 (6) (B) 2. C.
 - At least three hundred feet (300') from any existing potable water supply well not located on the property. Adequate protection shall be provided for wells located on the application site; 10 CSR 20-8.200 (6) (B) 2. D.
 - One hundred feet (100') to wetlands, ponds, gaining streams (classified or unclassified; perennial or intermittent); 10 CSR 20-8.200 (6) (B) 2. E. and
 - If an established vegetated buffer or the wastewater is disinfected, the setbacks established in subsections (A)–(E) above may be decreased if the applicant demonstrates that the risk is mitigated. 10 CSR 20-8.200 (6) (B) 2. F.
- The wetted application area of a surface irrigation system must be fenced, or if not fenced, provide in the construction permit application or the facility plan, the—
 - Method of disinfection being utilized; 10 CSR 20-8.200 (6) (B) 3. A.
 - Suitable barriers in place, 10 CSR 20-8.200 (6) (B) 3. B. or
 - Details on how public access is limited and not expected to be present. 10 CSR 20-8.200 (6) (B) 3. C.
 - At a minimum, treatment prior to irrigation shall provide performance equivalent to that obtained from a primary wastewater lagoon cell and include 120 days wastewater storage in addition to the primary volume. 10 CSR 20-8.200 (6) (C)
 - The public shall not be allowed into an area when irrigation is being conducted; 10 CSR 20-8.200 (6) (F) 2. and
 - An automatic notification alarm system shall be installed on the pressure monitoring system, on each pivot and pump system, and be capable of notifying an on-call operator when a fault occurs in the system. 10 CSR 20-8.200 (6) (G)

11. Upon completion of construction:

- A. The City of Kahoka will become the continuing authority for operation and maintenance of these facilities;
- B. Submit an electronic copy of the as built if the project was not constructed in accordance with previously submitted plans and specifications; and
- C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The proposed improvements to the City of Kahoka’s wastewater irrigation system is to add five irrigation fields to the allowable application area included in the current operating permit. This construction permit allows the addition of the five application fields and irrigation equipment to be included in the regular cycle of wastewater irrigation.

2. FACILITY DESCRIPTION

The scope of the permitted construction includes the addition of five irrigation areas with either traveling gun or center pivot irrigation equipment. The approximate irrigation areas are 37.9 acres for Field 2A, 11.5 acres for Field 2B, 12 acres for Field 2C, 48.2 acres for Field 2D, and 36.9 acres for Field 2E.

The Kahoka WWTF is located 0.3 miles east of Elm Street & Vine Street intersection, City of Kahoka, in Clark County, Missouri. The facility has a design average dry weather flow of 404,200 gpd and serves a hydraulic population equivalent of approximately 4,042 people.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet final effluent limits as established in Operating Permit MO-0052655.

Monitoring data from each Permitted Feature shall be reported separately.

Storage Basin, Irrigated Wastewater, and Irrigation Operational Monitoring Parameter	Units	Daily Total	Monthly Total
Storage Basin Freeboard (feet below overflow level)	feet	*	*
Precipitation	inches	*	*
Total Kjeldahl Nitrogen as N	mg/L	*	*
Nitrate as N	mg/L	*	*
Irrigation Period	hours	*	*
Volume Irrigated	gallons	*	*
Irrigation Area	acres	*	*
Irrigation Rate	inches	*	*

* Monitoring Requirement Only

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Field 2A Soils Report – The surface soils at this site are rated for 0.35 - 0.6 gpd/sf. The facility decided to use a maximum design loading rate of 0.22 gpd/sf for the entire system. The soil investigation was completed by Scott W. Wegman, CPSC with Elijah Brook, Inc. on June 21, 2021. In the soils investigation, there were 6 pits dug over the proposed Field 2A (Pits 1, 2, 3, 10, 11, 12).
- Field 2A Land Application Site – The land application site is on the property Sec 29, T65N, R7W, City of Kahoka, Clark County. The leased land application site is approximately 37.9 acres with row crops such as soybeans and corn or grass. This site is unfenced. Maximum application rates are 0.2 inches/hour, 0.88 inch/day, 3 inches/week, and 40 inches/year.
 - Field 2A Center Pivot – Wastewater irrigation will be completed with a center pivot that has the capacity to irrigate at 632 gpm and has a reach of 32.7 acres. The end gun will have the capacity to irrigate 158 gpm with a reach of 5.2 acres. The wastewater will be irrigated at a hydraulic rate less than 0.22 gpd/sf.
- Field 2B Soils Report – The surface soils at this site are rated for 0.55 gpd/sf. The facility decided to use a conservative design loading rate of 0.36 gpd/sf for the entire system. The soil investigation was completed by Scott W. Wegman, CPSC with Elijah Brook, Inc. on July 1, 2020. A soils investigation completed for the 2020 construction permit CP0002185 was used to support this expansion. In the soils investigation, there were 5 pits dug over the proposed Field 2B (Pits 11, 12, 13, 14, 15).
- Field 2B Land Application Site – The land application site is on the property Sec 29, T65N, R7W, City of Kahoka, Clark County. The leased land application site is approximately 5.75 acres with row crops such as soybeans and corn or grass. This site is unfenced. Maximum application rates are 0.2 inches/hour, 0.88 inch/day, 3 inches/week, and 40 inches/year.
 - Field 2B Traveling Gun – Wastewater irrigation will be completed with an existing traveling gun that has the capacity to irrigate at 500 gpm and has a reach of 5.75 acres per pull. The wastewater will be irrigated at a hydraulic rate less than 0.36 gpd/sf.
- Field 2C Soils Report – The surface soils at this site are rated for 0.55 – 0.6 gpd/sf. The facility decided to use a conservative design loading rate of 0.34 gpd/sf for the entire system. The soil investigation was completed by Scott W. Wegman, CPSC with Elijah Brook, Inc. on June 21, 2021. In the soils investigation, there were 6 pits dug over the proposed Field 2C (Pits 2, 3, 4, 5, 6, and 8).

- Field 2C Land Application Site – The land application site is on the property Sec 28, T65N, R7W, City of Kahoka, Clark County. The leased land application site is approximately 12 acres with row crops such as soybeans and corn or grass. This site is unfenced. Maximum application rates are 0.2 inches/hour, 0.88 inch/day, 3 inches/week, and 40 inches/year.
 - Field 2C Traveling Gun – Wastewater irrigation will be completed with an existing traveling gun that has the capacity to irrigate at 500 gpm and has a reach of 6 acres per pull. The wastewater will be irrigated at a hydraulic rate less than 0.34 gpd/sf.

- Field 2D Soils Report – The soils at this site are rated for 0.35 – 0.6 gpd/sf. The facility decided to use a conservative design loading rate of 0.19 gpd/sf for the entire system. The soil investigation was completed by Scott W. Wegman, CPSC with Elijah Brook, Inc. on June 21, 2021. In the soils investigation, there were 27 pits dug over the proposed Field 2D (Pits 1-30 without 17, 18, and 19).

- Field 2D Land Application Site – The land application site is on the property Sec 28, T65N, R7W, City of Kahoka, Clark County. The leased land application site is approximately 48.2 acres with row crops such as soybeans and corn or grass. This site is unfenced. Maximum application rates are 0.2 inches/hour, 0.88 inch/day, 3 inches/week, and 40 inches/year.
 - Field 2D Center Pivot – Wastewater irrigation will be completed with a center pivot that has the capacity to irrigate at 682 gpm and has a reach of 42.8 acres. The end gun will have the capacity to irrigate 158 gpm with a reach of 5.4 acres. The wastewater will be irrigating at a hydraulic rate less than 0.19 in/day.

- Field 2E Soils Report – The soils at this site are rated for 0.55 – 0.6 gpd/sf. The facility decided to use a conservative design loading rate of 0.21 gpd/sf for the entire system. The soil investigation was completed by Scott W. Wegman, CPSC with Elijah Brook, Inc. on June 21, 2021. In the soils investigation, there were 19 pits dug over the proposed site (Pits 1-19).

- Field 2E Land Application Site – The land application site is on the property Sec 29, T65N, R7W, City of Kahoka, Clark County. The leased land application site is approximately 36.9 acres with row crops such as soybeans and corn or grass. This site is unfenced. Maximum application rates are 0.2 inches/hour, 0.88 inch/day, 3 inches/week, and 40 inches/year.
 - Field 2E Center Pivot – Wastewater irrigation will be completed with a center pivot that has the capacity to irrigate at 632 gpm and has a reach of 31 acres. The end gun will have the capacity to irrigate 158 gpm with a reach of 5.9 acres. The wastewater will be irrigated at a hydraulic rate less than 0.21 gpd/sf.

5. OPERATING PERMIT

Operating permit MO-0052655 will require a modification to reflect the construction activities. The modified Kahoka WWTF, MO-0052655, was successfully public noticed from May 13, 2022 to June 13, 2022 with no comments received. Submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

With your CP application, an operating permit modification was submitted for public notice to reflect the change in your operating permit. Your operating permit application for a renewal will be due before your CP is expired. The modification action does not fulfill the renewal application obligation. A renewal application must be filed before October 2, 2022.

This facility does not meet the requirements of the MOGD00000 issued on July 1, 2019 since the facility has a higher design flow and the facility is publicly owned. This facility is not being converted to a general operating permit at this time. It will be evaluated at operating permit renewal to determine if it qualifies for a general permit.

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>

Steve Hamm, P.E.
Engineering Section
Steven.hamm@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 1000.00	CHECK NO. 38281
DATE RECEIVED 1-26-22	

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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: _____ Project #: _____
- 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 Project is adding to existing permitted irrigation fields.
- 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

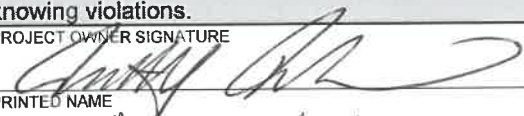
2.1 NAME OF PROJECT Phase 2 - Irrigation System Expansion	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$
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2.3 PROJECT DESCRIPTION
 This project is to add additional fields and irrigation equipment to the City of Kahoka's facility. The City currently irrigates wastewater and a local farmer would like to add approximately 97 acres to the system and receive wastewater.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
 Sludge is retained in the lagoon.

2.5 DESIGN INFORMATION
 A. Current population: 2039; Design population: 4042
 B. Actual Flow: 404,200 gpd; Design Average Flow: 449,000 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 Kahoka Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS (PHYSICAL) 0.3 miles E of Elm & Vine St Intersection		CITY Kahoka	STATE MO	ZIP CODE 63445
COUNTY Clark				
Wastewater Treatment Facility: Mo- 0052655 (Outfall _____ Of _____)				
3.1 Legal Description: _____ ¼, _____ ¼, _____ ¼, Sec. _____, T _____, R _____ (Use additional pages if construction of more than one outfall is proposed.)				SEE ADDITIONAL SHEET
3.2 UTM Coordinates Easting (X): _____ Northing (Y): _____ For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Tributary to Brush Creek				
4.0 PROJECT OWNER				
NAME City of Kahoka		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS 250 North Morgan		CITY Kahoka	STATE MO	ZIP CODE 63445
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 City of Kahoka		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS 250 North Morgan		CITY Kahoka	STATE MO	ZIP CODE 63445
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> 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? <input type="checkbox"/> YES <input checked="" type="checkbox"/> 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? <input type="checkbox"/> YES <input type="checkbox"/> 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? <input type="checkbox"/> YES <input type="checkbox"/> 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? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Kyle Pociask/Four Points Land Surveying & Engineerin		TELEPHONE NUMBER WITH AREA CODE 573-406-5533		E-MAIL ADDRESS kyle@fourpointssurvey.com
ADDRESS 17 Northport Plaza		CITY Hannibal	STATE MO	ZIP CODE 63401
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER <input type="checkbox"/> 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 Anthony Anderson			DATE 1/18/22	
TITLE OR CORPORATE POSITION Mayor		TELEPHONE NUMBER WITH AREA CODE 660-727-3111		E-MAIL ADDRESS
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.				