

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Crosstree Healthcare Mingo, LLC
24080 State Hwy 51
Puxico, MO 63960

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.

April 2, 2025
Effective Date

April 1, 2027
Expiration Date



John Hoke, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Construction of ~ 60 ft of six-inch SDR-35 PVC serpentine chlorine contact reactor and installation of a Bio Dynamic Tablet Feeder, Model ITR 2000-S (internal tube with riser), for concentrated sodium sulfite tablets. The design flow will remain 4,000 gallons per day (gpd).

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

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.

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 Robert C. Summers, P.E., with Heartland Engineering, LLC, 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 Southeast Regional Office per 10 CSR 20-7.015(9)(G).
5. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

- Flood protection shall apply to new construction and to existing facilities undergoing major modification. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the 100- year flood elevation. 10 CSR 20-8.140(2)(B)
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140(2)(D)
- Contact period for Chlorine Disinfection. A minimum contact period of 15 minutes at design peak hourly flow shall be provided after thorough mixing. 10 CSR 20-8.190(3)(A)
- Dilution tanks and mixing tanks are required when using dry compounds and may be necessary when using liquid compounds to deliver the proper dosage. 10 CSR 20-8.190 (4)(A)
- Solid dechlorination systems shall not be located in the chlorine contact tank. 10 CSR 20-8.190(4)(B)1.
- Contact time. A minimum of thirty (30) seconds for mixing and contact time of dechlorination systems shall be provided at the design peak hourly flow. 10 CSR 20-8.190(4)(B)2.

6. Upon completion of construction:

- A. Crosstree Healthcare Mingo, LLC, 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 request issuance of operating permit that was public noticed on January 17, 2025. The modification fee has been paid.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The facility must install a disinfection system to meet final *E. coli* effluent limits that went into effect in January 2024. The treatment system has an existing but unused chlorination tablet feeder and must install a chlorine contact system and a dechlorination tablet feeder.

2. FACILITY DESCRIPTION

The Mingo Residential Care WWTF consists of a two-compartment septic tank, a recirculation tank, and a four-zone recirculating media filter that was constructed in about 2006. According to the submittal and the original construction plans, an unused chlorine tablet feeder also exists at the facility.

The Mingo Residential Care WWTF is located at 24080 State Highway 51, Puxico, in Stoddard County, Missouri. The facility has a design average flow of 4,000 gpd and serves a hydraulic population equivalent of approximately 40 people.

3. COMPLIANCE PARAMETERS

The facility is required to use their existing tablet chlorinator to meet the existing *E. coli* effluent limit of **206 colonies per 100mL** as established in Operating Permit MO-0132535. When using chlorine as a disinfectant, a total residual chlorine (TRC) effluent limit is added to operating permits to meet the water quality standard in the receiving stream. The proposed project is required to meet a new final effluent limits of **9 µg/L** (with a minimum quantification level of **130 µg/L**) that would be established in Operating Permit MO-0132535. Since dechlorination chemicals are known to exhibit an oxygen demand on the effluent and could affect effluent dissolved oxygen concentrations, effluent **monitoring** requirements will be required in order to determine if a future effluent limitation is necessary to protect water quality.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Existing major components that will remain in use include the following:

A combined two-cell septic tank (~5,850 gallons) and one-cell recirculation tank (~4,290 gallons), a four-zone recirculating media filter (48 feet by 28 feet with six dosing laterals per zone and two slotted underdrain collection pipes), and an unused chlorine tablet feeder. The original plans from 2006 show the recirculating sand filter pump capable of pumping 34 gpm, returning 80 percent to the recirculation tank, and discharging 20 percent (~ 6.8 gpm). The pump is designed to activate for 2.12 minutes on and 4.9 minutes off.

Construction will cover the following items:

- Disinfection – Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.
 - Chlorine Contact Reactor – Installation of ~ 60 feet of 6-inch diameter SDR-35 PVC pipe to create a serpentine contact reactor after the existing chlorine tablet feeder allowing for a length to width ratio of greater than 40:1. The pipe reactor will allow for at least 15 minutes of contact time during either an influent peak flow of ~ 336 gph (peaking factor of 2, based on water usage) or the maximum rate pumped from the recirculating sand filter's pump.

Assuming 6.8 gpm discharged from the filter for 2.12 minutes, ~ 15 gallons would be pumped ~10 ft through the six-inch reactor, which would then sit for an additional 4.9 minutes each cycle. The peak hourly flow requires more pipe than the standard pumping rate.

- Tablet Dechlorinator – Installation of a Norweco Bio-Dynamic® Series 2000 tablet dechlorination chamber receiving the chlorinated effluent and prior to Outfall 001. The tablet dechlorinator shall have a minimum flow of 200 gpd and a maximum flow of 100,000 gpd. The system will dispense sodium sulfite as the wastewater comes into contact with the tablets. There will be at least 30 seconds of contact time in the pipe after dechlorination.

5. OPERATING PERMIT

Operating permit MO-0132535 will require a modification to reflect the construction activities. The modified Mingo Residential Care WWTF, MO-01325356 was public noticed from January 17 to February 17, 2025, to add TRC limits and dissolved oxygen monitoring. 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.

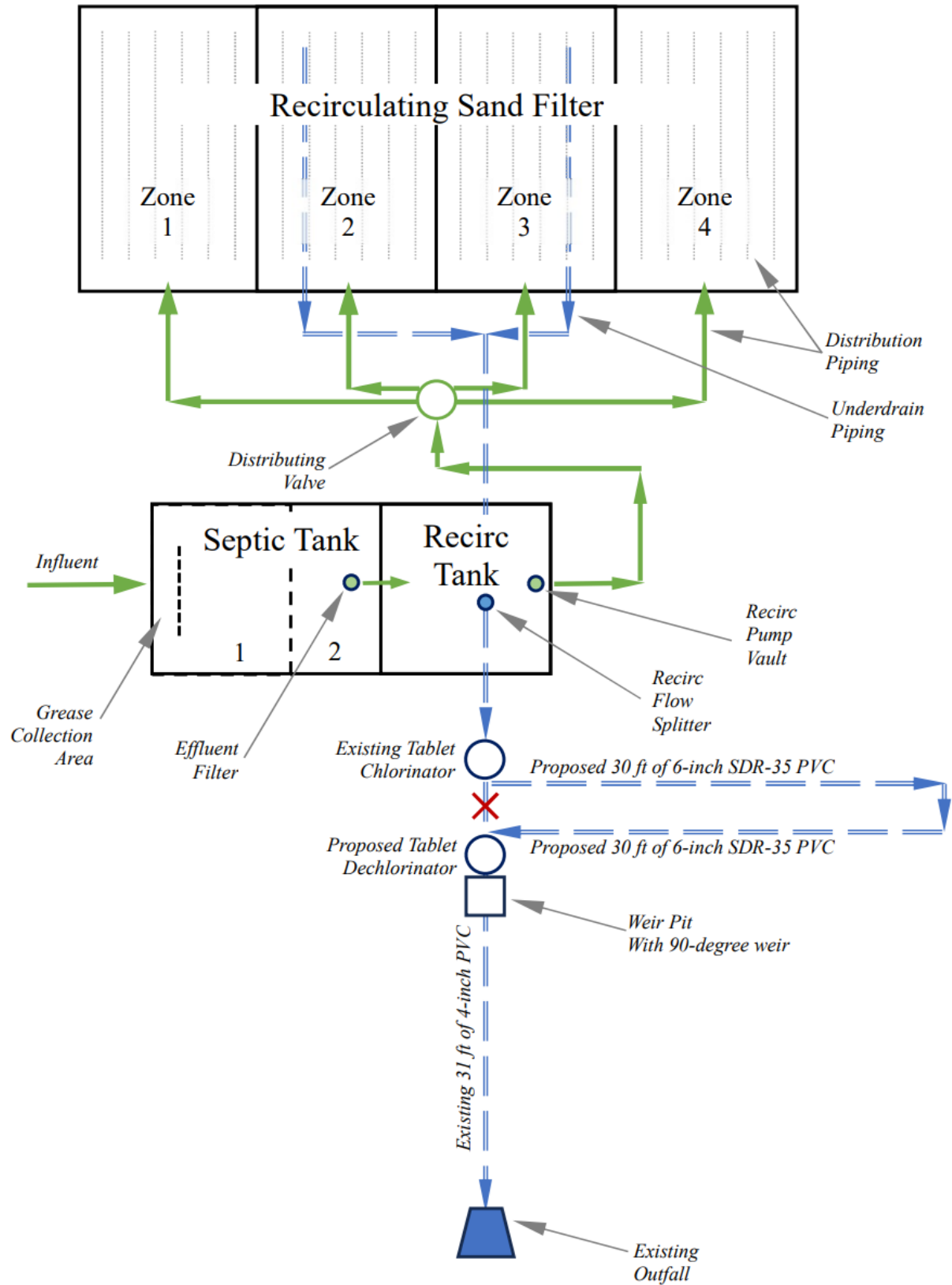
V. NOTICE OF RIGHT TO APPEAL

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:

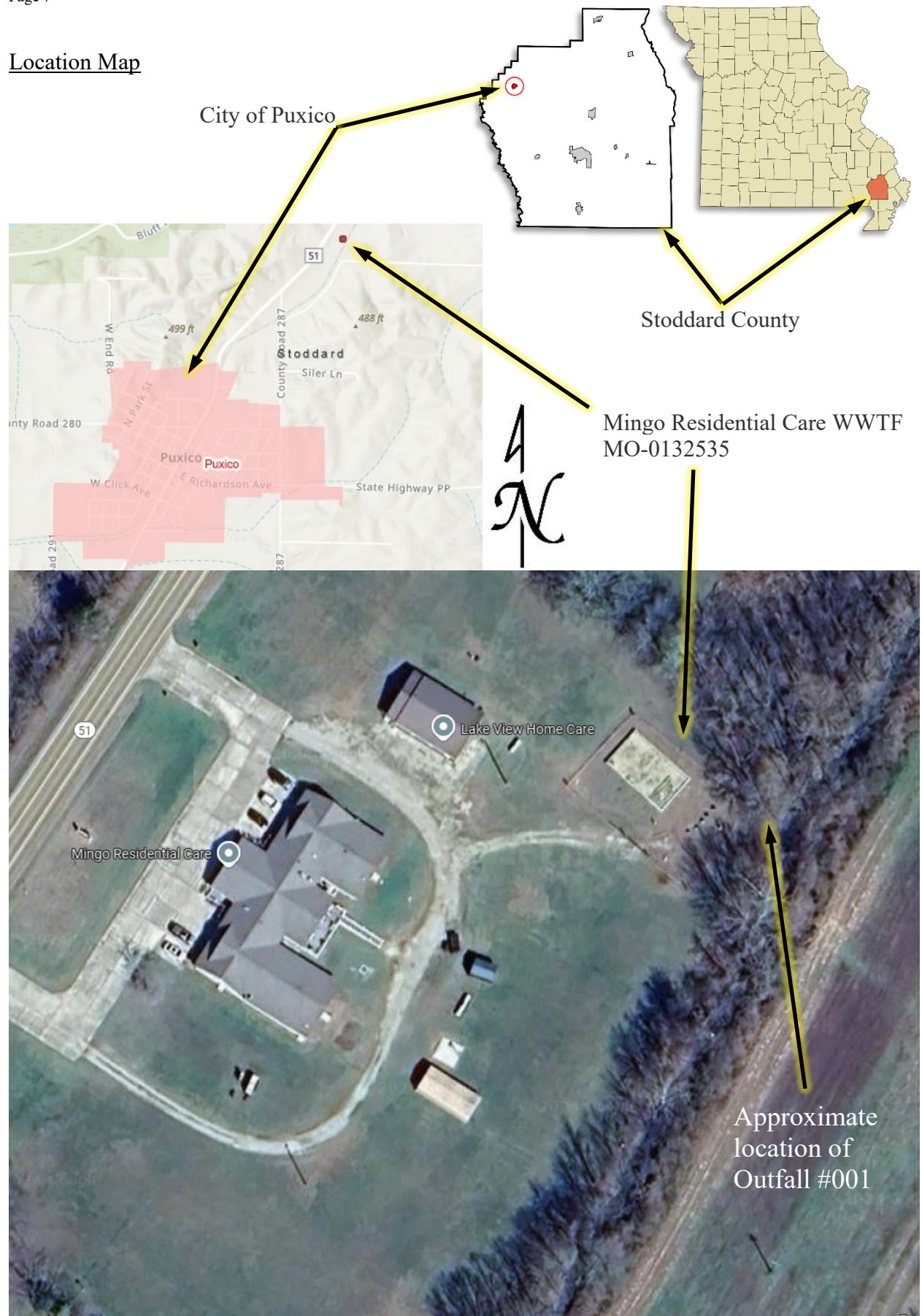
Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>

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

Process Flow Diagram



Location Map





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: _____ 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 _____
- 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 Mingo Residential Care De-Chlorination Project	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 15,000
2.3 PROJECT DESCRIPTION This project consists of the construction & installation of a tablet feeder to remove chlorine from the effluent before it is discharged.	
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION Sludge disposal by contract hauler	
2.5 DESIGN INFORMATION A. Current population: <u>32</u> ; Design population: <u>40</u> B. Actual Flow: <u>200</u> gpd; Design Average Flow: <u>4000</u> 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? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. Is a process flow diagram attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

3.0 WASTEWATER TREATMENT FACILITY				
NAME Mingo Residential Care		TELEPHONE NUMBER WITH AREA CODE 618-263-7071		E-MAIL ADDRESS scole@crosstreehealthcare.com
ADDRESS (PHYSICAL) 24080 State Hwy 51	CITY Puxico	STATE MO	ZIP CODE 63960	COUNTY Stoddard
Wastewater Treatment Facility: Mo- 0132535 (Outfall 001 Of 001)				
3.1 Legal Description: _____ 1/4, _____ 1/4, _____ 1/4, Sec. 24, T 27N, R 08E (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 754116 Northing (Y): 4094812 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Tributary to Ditch #11				
4.0 PROJECT OWNER				
NAME Crosstree Healthcare Mingo, LLC		TELEPHONE NUMBER WITH AREA CODE 618-263-7071		E-MAIL ADDRESS scole@crosstreehealthcare.com
ADDRESS 24080 State Hwy 51	CITY Puxico	STATE MO	ZIP CODE 63960	
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 Same as above		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS	CITY	STATE	ZIP CODE	
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 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 Heartland Engineering, LLC		TELEPHONE NUMBER WITH AREA CODE 573-718-4627		E-MAIL ADDRESS bsummers@heartlandengineers.com
ADDRESS 891 Mockingbird Lane	CITY Poplar Bluff	STATE MO	ZIP CODE 63901	
7.0 APPLICATION FEE				
<input checked="" 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 Scottie Cole			DATE 10/23/2024	
TITLE OR CORPORATE POSITION Owner		TELEPHONE NUMBER WITH AREA CODE 618-263-7071		E-MAIL ADDRESS scole@crosstreehealthcare.com
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 _____ Total Acres _____ Maximum % field slopes _____
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ 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) _____

10.3 Wastewater flow (dry weather) gallons per day: Average annual _____ 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: _____ 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) _____
☐ Nutrient Management Plan (N&P) If N&P is selected, is the plan included? ☐ YES ☐ NO