

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Missouri-American Water Company
Owner
Missouri-American Water Company Garden City WWTF
36300 E 303rd St
St. Joseph, MO 64503

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.

September 13, 2023
Effective Date

September 12, 2025
Expiration Date



John Hoke, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Construction will include the installation of a new ultraviolet disinfection system and the removal of the existing non-functional Parshall flume located between lagoon cell 3 and the outfall. The new UV disinfection system will be housed under a canopy in the location of the old flume. The UV disinfection system will be sized to handle the design average flow of 200,000 gpd. In place of the Parshall flume, a magnetic flow meter will also be installed under the canopy. Four precast manholes will be installed between the lagoon and the outfall for cleaning and monitoring. Necessary electrical controls and power will also be installed.

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 publically-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 Gary William Davis, PE, with Bartlett and West 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 Kansas City Regional Office per 10 CSR 20-7.015(9)(G).
5. 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.
6. 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.
7. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
 - Vacuum testing, if specified for concrete sewer manholes, shall conform to the test procedures in ASTM C1244 – 11(2017) *Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill*, as approved and published April 1, 2017, or the manufacturer's recommendation. 10 CSR 20-8.120(4)(F)1.
 - Exfiltration testing, if specified for concrete sewer manholes, shall conform to the test procedures in ASTM C969 – 17 *Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines*, as approved and published April 1, 2017. 10 CSR 20-8.120(4)(F)2.
 - Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D)
 - Disinfection and dechlorination, when used, shall be provided during all power outages. 10 CSR 20-8.140 (7) (A) 2 and 10 CSR 20-8.190 (2) (A)
 - A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
 - Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility: 10 CSR 20-8.130(2)(C)
 - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals; 10 CSR 20-8.140(8)(A)

- Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140(8)(B)
 - First aid equipment; 10 CSR 20-8.140(8)(C)
 - Posted “No Smoking” signs in hazardous areas; 10 CSR 20-8.140(8)(D)
 - Appropriate personal protective equipment (PPE); 10 CSR 20-8.140(8)(E)
 - Portable blower and hose sufficient to ventilate accessed confined spaces; 10 CSR 20-8.140(8)(F)
 - 10 CSR 20-8.140 (8) (G) Portable lighting equipment complying with NEC requirements. See subsection (7)(B) of this rule;
 - 10 CSR 20-8.140 (8) (H) Gas detectors listed and labeled for use in NEC Class I, Division 1, Group D locations. See subsection (7)(B) of this rule;
 - Appropriately-placed warning signs for slippery areas, non-potable water fixtures (see subparagraph (7)(D)3.B. of this rule), low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, high noise areas, etc.; 10 CSR 20-8.140(8)(I)
 - Explosion-proof electrical equipment, non-sparking tools, gas detectors, and similar devices, in work areas where hazardous conditions may exist, such as digester vaults and other locations where potentially explosive atmospheres of flammable gas or vapor with air may accumulate.; 10 CSR 20-8.140(8)(K)
 - Provisions for local lockout/tagout on stop motor controls and other devices; 10 CSR 20-8.140(8)(L)
 - Provisions for an arc flash hazard analysis and determination of the flash protection boundary distance and type of PPE to reduce exposure to major electrical hazards shall be in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* (2018 Edition), as approved and published August 21, 2017. 10 CSR 20-8.140(8)(M)
- An audiovisual alarm or more advanced alert system, with a self-contained power supply, capable on 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)
 - Effluent twenty-four (24) hour composite automatic sampling equipment shall be provided at all mechanical wastewater treatment facilities and at other facilities where necessary under provisions of the operating permit. 10 CSR 20-8.140(7)(F), 10 CSR 20-8.190 (3) (D)
 - For electrical equipment, fixtures, and controls in enclosed settling basins and scum tanks, where hazardous concentrations of flammable gases or vapors may accumulate, follow the provisions in 10 CSR 20-8.140(7)(B). The fixtures and controls shall be conveniently located and safely accessible for operation and maintenance. 10 CSR 20-8.160 (5) (C)
 - The UV dosage shall be based on the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5)(A)(1).

- The UV system shall deliver a minimum UV dosage of thirty thousand microwatt seconds per centimeters squared ($30,000 \mu\text{W} \cdot \text{s}/\text{cm}^2$). 10 CSR 20-8.190 (5) (A) 4.
 - Non Contact UV systems. The combination of the total number of banks shall be capable of treating the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (B) 1.
 - The UV system must continuously monitor and display at the UV system control panel the following minimum conditions:
 - The relative intensity of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. A.
 - The operational status and condition of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. B.
 - The ON/OFF status of each lamp in the system; 10 CSR 20-8.190 (5) (C) 1. C. and
 - The total number of operating hours of each bank or each closed vessel system. 10 CSR 20-8.190 (5) (C) 1. D.
 - The UV system shall include an alarm system. Alarm systems shall comply with 10 CSR 20-8.140(7)(C). 10 CSR 20-8.190 (5) (C) 2.
8. Upon completion of construction:
- A. Missouri-American Water Company will become the continuing authority for operation and maintenance of these facilities;
 - B. Submit an electronic copy of the as built's if the project was not constructed in accordance with previously submitted plans and specifications;
 - C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N).

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The lagoon facility is currently in voluntary enforcement to install disinfection as part of its acquisition by Missouri-American Water Company.

2. FACILITY DESCRIPTION

There is a 0.16 MGD 3 cell facultative lagoon system which discharges to Panther Creek branch. Cell 1 is 10.4 acres and has an approximate volume of 27,843,000 gal. at 3ft of water. Cell 2 is 3.03 acres and has a treatment volume of 8,292,000 gal. at the same depth. Cell 3 is only 1.03 acres and has a volume of 2,945,000 gal.

Currently there is no disinfection prior to discharge, and the lagoon is not meeting *E. Coli* limits. This project aims to meet the final *E. Coli* effluent limits and to improve treatment by removing an existing Parshall flume and install a UV disinfection system along with a magnetic flow meter. In addition, 4 manholes will be installed along the flow path from cell 3 to the outfall for cleaning and monitoring purposes.

The Missouri-American Water Company Garden City WWTF is located at 36300 E 303rd Street, Garden City, in Cass County, Missouri. The facility has a design average flow of 160,000 gpd (0.16 MGD) and serves a hydraulic population equivalent of approximately 1,614 people.

3. COMPLIANCE PARAMETERS

The existing facility has the following *E. coli*. effluent limits that became effective on August 1, 2021.

Parameter	Units	Monthly average limit
<i>Escherichia coli</i> (e. coli)	cfu/100 ml	206

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

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

- Lagoon Cell No. 1 is non-aerated earthen basin and has a surface area of 10.4 acres and a wastewater volume of 27,843,000 gallons.
 - This cell has 2 ft of freeboard, 8 ft of operating depth, but is typically kept at 3 ft of water.
 - This provides approximately 87.6 days of retention at the flow of 0.16 MGD.
- Lagoon Cell No. 2 is non-aerated earthen basin and has a surface area of 3.03 acres and a wastewater volume of 8,292,000 gallons.
 - This cell has 2 ft of freeboard, 8 ft of operating depth, but is typically kept at 3 ft of water.
 - This provides approximately 47.45 days of retention at the flow of 0.16 MGD.
- Lagoon Cell No. 3 is non-aerated earthen basin and has a surface area of 1.03 acres and a wastewater volume of 2,945,000 gallons.
 - This cell has 2 ft of freeboard, 8 ft of operating depth, but is typically kept at 3 ft of water.
 - This provides approximately 18.25 days of retention at the flow of 0.16 MGD.

Construction will cover the following items:

Components are designed for a Future Population Equivalent of 1,739 based on hydraulic loading to the system.

Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis.

- Electromagnetic Meter – An effluent electromagnetic 8-inch flow meter shall measure the secondary treated and disinfected wastewater prior to discharge at Outfall 001.

Disinfection – Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.

- Non-Contact Ultraviolet (UV) – A closed channel, gravity flow, low pressure high intensity UV non-contact Enaqua C1t.0622 disinfection system capable of treating a peak flow of 1 MGD while delivering a minimum UV intensity of 30 mJ/cm² with an expected ultraviolet transmissivity of forty percent (40%) or greater.
 - The UV system consists of 24 lamps per reactor.
 - Two non-contact UV reactors are arranged in series.
 - The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 001.

Flow Conveyance – Installation of pipe necessary to convey flow from lagoon through UV or bypass to outfall

- ~167 feet of Class 53 ductile iron pipe
- Interior of pipe to be lined with Protecto 401

5. OPERATING PERMIT

Operating permit MO-0046647 will require a modification to reflect the construction activities. The modified Garden City WWTF, MO-0046647, will be public noticed to update the facility description to include ultraviolet disinfection. 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.

Operating permit MO-0046647 will be expiring on September 30/2025. A renewal application, [Form B2](#), must be filed before March 30/2025, regardless of the status of these construction activities. If you have questions on completing the renewal application, please contact the NPDES permitting section at cleanwaterpermits@dnr.mo.gov or by phone at (573) 522-4502.

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>

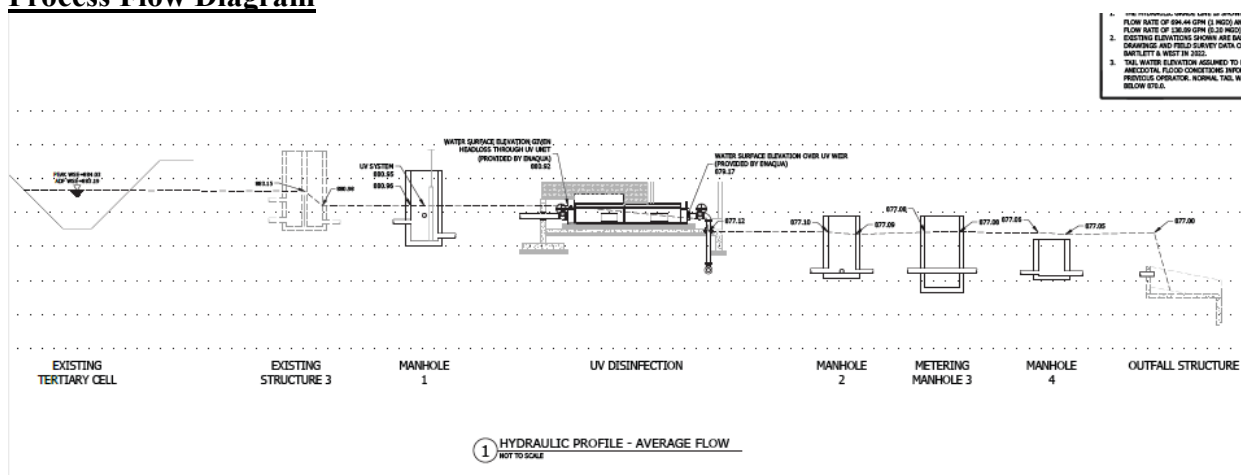
Alex Bielefeldt EI
Engineering Section
Alex.Bielefeldt@dnr.mo.gov

Chia-Wei Young, PE
Engineering Section
Chia-Wei.Young@dnr.mo.gov

APPENDICES

Optional

- **Process Flow Diagram**



- **Summary of Design**

II. DESCRIPTION

This project consists of removing the existing Parshall flume structure and adding a UV disinfection system and a new flow meter, an electromagnetic meter. The current system flows by gravity from the final lagoon cell (cell 3) through a flow control structure, the Parshall flume, and out of the discharge structure into a tributary to Panther Creek. The improvements will remain under gravity flow. New electrical service will need to be extended to the site to run the UV disinfection equipment and electromagnetic meter.

The lagoon system is fed by only two lift stations, Lift Station 1 and Lift Station 2, and no gravity mains. The maximum combined pumping capacity of the lift stations is 925 gpm (1.3 MGD).

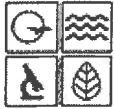
Based on the projected population growth over the 20-year planning period and a conservative factor of safety of 10%, a new effluent design flow was determined to accurately size the UV disinfection equipment. The flows used to size the UV disinfection system are as follows:

- Average Daily Flow = 0.2 MGD (200,000 gpd)

Page 2 of 3

-
- Peak Flow = 1 MGD (1,000,000 gpd)

These flows are solely used in the design of tertiary treatment improvements. This summary of design does not serve to modify the design flow of the facility which is put forth in the NPDES permit, nor to prompt an antidegradation review of the facility for a proposed increase design flow.



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

1,000 17000710104
6/12/2023 MOL

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: 3/9/23 ☐ 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

Garden City Wastewater Facility Disinfection

2.2 ESTIMATED PROJECT CONSTRUCTION COST

\$ 594,100

2.3 PROJECT DESCRIPTION

This project consists of eliminating the existing Parshall flume structure, which the electronics are no longer operational, and the installation of a new UV Disinfection unit and an electromagnetic flow meter.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Sludge is retained in lagoons with periodic removal

2.5 DESIGN INFORMATION

A. Current population: 1,614; Design population: 1,925

B. Actual Flow: 0.2 MGD Design Average Flow: 0.2 MGD

Actual Peak Daily Flow: 1.0 MGD Design Maximum Daily Flow: 1.0 MGD Design Wet Weather Event: _____

These flows are only for UV equipment only
- no change to plant design flow

2.6 ADDITIONAL INFORMATION

A. Is a topographic map attached? ☐ YES ☒ NO

B. Is a process flow diagram attached? ☐ YES ☒ NO

RECEIVED

JUN 12 2023

Water Protection Program

3.0 WASTEWATER TREATMENT FACILITY				
NAME MAWC, Garden City WWTF		TELEPHONE NUMBER WITH AREA CODE (816) 529-4244		E-MAIL ADDRESS Dennis.Mason@amwater.com
ADDRESS (PHYSICAL) 36300 E 303rd Street	CITY Garden City	STATE MO	ZIP CODE 64747	COUNTY Cass
Wastewater Treatment Facility: Mo- 0046647 (Outfall 001 Of 001)				
3.1 Legal Description: SW $\frac{1}{4}$, NE $\frac{1}{4}$, $\frac{1}{4}$, Sec. 36, T 44N, R 30W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 397275 Northing (Y): 4269140 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Panther Creek				
4.0 PROJECT OWNER				
NAME Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (816) 233-3317		E-MAIL ADDRESS Roger.W.Sparks@amwater.com
ADDRESS 3524 S Leonard Rd	CITY St. Joseph	STATE MO	ZIP CODE 64503	
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 Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (816) 233-3317		E-MAIL ADDRESS Roger.W.Sparks@amwater.com
ADDRESS 3524 S Leonard Rd	CITY St. Joseph	STATE MO	ZIP CODE 64503	
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 checked="" 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 Bartlett & West		TELEPHONE NUMBER WITH AREA CODE (573) 634-7904		E-MAIL ADDRESS Hope.Drennan@bartwest.com
ADDRESS 601 Monroe Street, Suite 201	CITY Jefferson City	STATE MO	ZIP CODE 65101	
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 Roger W. Sparks			DATE	
TITLE OR CORPORATE POSITION Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (816) 233-3317		E-MAIL ADDRESS Roger.W.Sparks@amwater.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