

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Jackson County Vehicle Service Center, WWTF
34900 E. Old Highway 40
Grain Valley, MO 64029

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, 2021
Effective Date

September 12, 2023
Expiration Date


Edward B. Galbraith, Director, Division of Environmental Quality


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The proposed project includes converting the existing facility's package treatment system Jackson County Vehicle Service Center WWTF, MO-0126454, to a no-discharge system. The new facility includes 2 septic tanks, 1 pumping chamber, and a low pressure pipe subsurface system. Sludge will be pumped out of the septic tanks and hauled off site by a certified hauler and disposed of at a certified facility.

A closure plan must be submitted to the Kansas City Regional Office for review and approval prior to any closure activities.

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 a separate sanitary sewer system for 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 Michelle King, P.E. with Olsson Inc. on May 7, 2021 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 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 dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm 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 dnr.mo.gov/env/wpp/401/ for more information.
10. In accordance with 10 CSR 20-6.010(12), a full closure plan shall be submitted to the Department's Kansas Regional Office for review and approval of any permitted wastewater treatment system being replaced. The closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0126454. Closure shall not commence until the submitted closure plan is approved by the Department. Form J – *Request for Termination of a State Operating Permit*, shall be submitted to the Water Protection Program for termination of any

existing Missouri state operating permit, once closure is completed in accordance with the approved closure plan.

11. 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). 10 CSR 20-8.130 (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 (2%); 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 (10') 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:
 - Twenty-four inches (24"); 10 CSR 20-8.200 (7) (A) 2. A. or
 - Twelve inches (12") for systems dispersing secondary or higher quality effluent; 10 CSR 20-8.200 (7) (A) 2. B. or
 - Forty-eight inches (48") where karst features are present unless the site can be reclassified. 10 CSR 20-8.200 (7) (A) 2. C.
- 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)
- All network piping and low pressure distribution piping and fittings with polyvinyl chloride (PVC) shall meet ASTM Standard D 1785 *Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, or 120* as approved and published August 1, 2015, or equivalent rated to meet or exceed ASTM D2466 *Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings* as approved and published August 1, 2017. These standards shall hereby be incorporated by reference into this rule, as published by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. This rule does not incorporate any subsequent amendments or additions. 10 CSR 20-8.200 (8) (A) 2.

- Manifold design for LPP systems shall address freeze protection while assuring uniform distribution and to minimize drain down of laterals into other laterals at a lower elevation between dosing events. 10 CSR 20-8.200 (8) (A) 3.
- The orifice number and spacing shall be designed to provide a distribution of no more than six square feet per orifice with an orifice size of not less than one-eighth inch. 10 CSR 20-8.200 (8) (C) 1.
- 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)
- There shall be no physical connections between a public or private potable water supply system and a sewer or appurtenance that would permit the passage of any wastewater or polluted water into the potable supply. 10 CSR 20-8.120 (5) (A)
- Sewers shall be laid at least fifty feet (50') in a horizontal direction from any existing or proposed public water supply well or other water supply sources or structures. Sewers must also comply with 10 CSR 23-3.010. 10 CSR 20-8.120 (5) (B)
- Electrical Equipment shall provide a watertight seal and separate strain relief for all flexible cable. 10 CSR 20-8.130 (3) (B) 2. C.
- Install a fused disconnect switch located above ground for the main power feed for all pumping stations. 10 CSR 20-8.130 (3) (B) 2. D.
- When electrical equipment is exposed to weather, it shall comply with the requirements of weather proof equipment; enclosure NEMA 4; NEMA 4X where necessary; and *NEMA Standard 250-2014*, published December 15, 2014. 10 CSR 20-8.130 (3) (B) 2. E.
- The septic tank shall be baffled. 10 CSR 20-8.180 (2) (B)
- Septic tank design shall provide at least one (1) septic tank to serve each EDU. 10 CSR 20-8.125 (6) (D) 1.
- Septic tank design shall provide at least one thousand (1,000) gallons capacity. 10 CSR 20-8.125 (6) (D) 2.
- When existing on-site septic tanks are proposed for reuse in an alternative sewer system, they must be inspected and verified watertight prior to acceptance. 10 CSR 20-8.125 (6) (E)
- The minimum diameter service line pipe shall be one and one quarter inches (1.25") for pressure sewers. 10 CSR 20-8.125 (7) (C) and 10 CSR 20-8.125 (5) (C)

12. Upon completion of construction:

- A. Jackson County Department of Public Works 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 previously public noticed operating permit be issued.
- D. A closure plan must be submitted to the Kansas City Regional Office to reflect the converting of the existing package system to LPP system.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Replacing an existing extended aeration package plant with a subsurface Low Pressure Pipe system (LPP) preceded by septic tanks to serve Jackson County Department of Public Works, permit MO-0126454. The existing facility is at end of its useful life and is not expected to meet upcoming ammonia effluent permit limits.

2. FACILITY DESCRIPTION

The Jackson County Vehicle Service Center WWTF- MO-0126454 is an existing mechanical facility that includes a bar screen, extended aeration, aerobic sludge digester, and sludge disposal by contract hauler. The current design average flow is 11,000 gpd. The existing facility is currently not able to meet the permit limits and for this reason will be replaced by a low pressure pipe system with septic tanks. The new approved design average flow for the LPP system will be 2,170 gpd.

The new low pressure septic tanks system will include septic tanks (2); pumping chamber (1); and soil absorption field (1). Each septic tank has a capacity of 2,400 gallons. A third septic tank will be a pumping chamber with a capacity of 2,400 gallons. Sludge will be pumped out of the septic tanks and hauled off site by a certified hauler and disposed of at a certified facility. The design sludge production is 1.0 dry tons/year. The total available area for the soil leaching field is about 17,500 ft². The maximum loading rate for the leaching field will be 0.125 gpd/ft². The design percolation rate for the proposed system is 10 min/in.

The Jackson County Vehicle Service Center WWTF is located in the vicinity of intersection of East Old Hwy 40 and I-70 in Grain Valley, Grain Valley City, in Jackson County, Missouri.

3. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- Components are designed for a Population Equivalent of 22 based on hydraulic loading to the system.
- 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 two-compartment septic tank. The third septic tank will be used as a pump tank with one 7.5-hp submersible pump. When the water level reaches a certain height, the wastewater flows into the second compartment by two tee-drop pipes. The septic tanks provide approximately 2 days of detention at design average flow. One screened simplex 7.5 HP pump capable of 200.4 gpm at 71.6 ft of TDH is located in the second compartment of the septic tank. The pumped wastewater shall discharge to approximately 1,200 lf of PVC SDR-21 force mains leading into the leaching field. Two screened transfers from the second compartment of the septic tank allow wastewater to flow by gravity into the pump tank. Settled solids in the septic tank shall be removed by a contract hauler.
- Subsurface Soil Dispersal System – The soils at this site are rated for 0.10 - 0.125 gpd/sf. the facility used a design loading rate of 0.125 gpd/sf for the entire system. Soil morphology review was conducted during the facility plan application review and on site soils were determined to be acceptable for this system. A soil report was received on August 31, 2021 for the pits' soil morphological report and the percolation test conducted by Richard L. Henderson, Soil Scientist, on October 29, 2020. The report concluded that the current suggested and future replacement leach fields need to increase the imported soil layer to meet the 24 in-minimum separation distance between the bottom of the drip lines and the limiting layer of the water table level.
 - The facility confirmed that they will import some soil to increase the imported soil layer to meet the 24 in-minimum separation distance between the bottom of the trench and the limiting layer for the absorption field.
 - Low-Pressure Piping (LPP) – The low-pressure piping is divided into ten zones with five lines per zone and a total of 3,500 linear feet of lateral piping.
 - The end of each line contains a 2-inch clean out with valve box.
 - The lateral spacing is 4-foot on center with the orifices spaced 5-feet apart, from 14 to 23 orifices per lateral line.
 - The manifold length is 25-feet and the orifice openings are 5/32 inch.
 - The total area needed for loading is 17,360 square feet.

- Emergency Power – The facility will not have a portable generator, however, the septic tanks and the pumping chamber will provide enough storage for the average daily design flow to operate the treatment facility in the event of power failure.

4. OPERATING PERMIT

Operating permit MO-0126454 will require a modification to reflect the construction activities. The modified Jackson County Vehicle Service Center WWTF, MO-0126454, was successfully public noticed from July 30, 2021 to September 2, 2021 with no comments. 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.-

This facility does not meet the requirements of the MOG823 issued on August 25, 2017 for the following reason: The facility is publicly owned.

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:

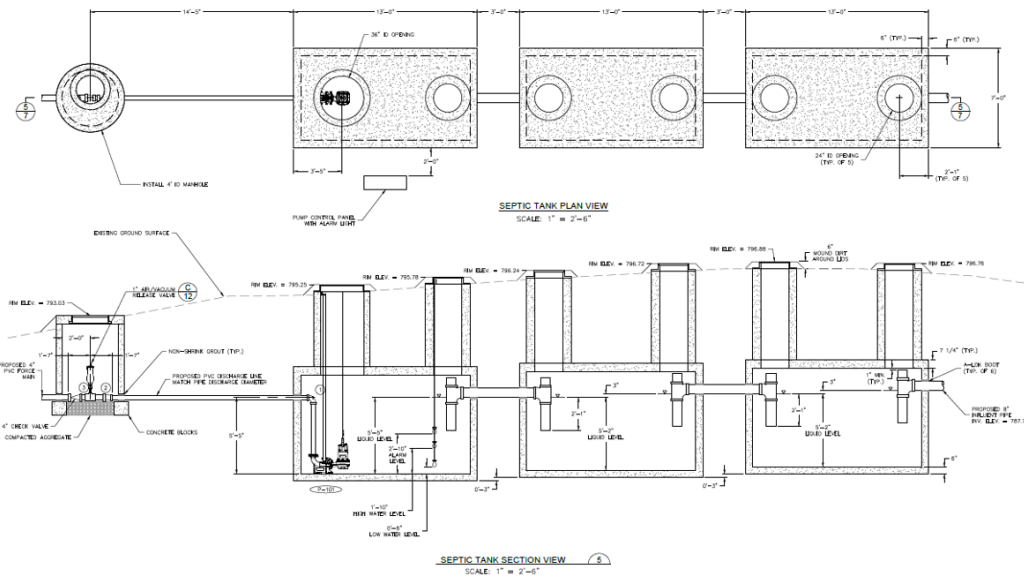
Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>

Mohammed Mohammed, Review Engineer
Engineering Section
Mohammed.Mohammed@dnr.mo.gov

Cailie Carlile, P.E., Construction Permits Unit Chief
Engineering Section
Cailie.Carlile@dnr.mo.gov

APPENDIX

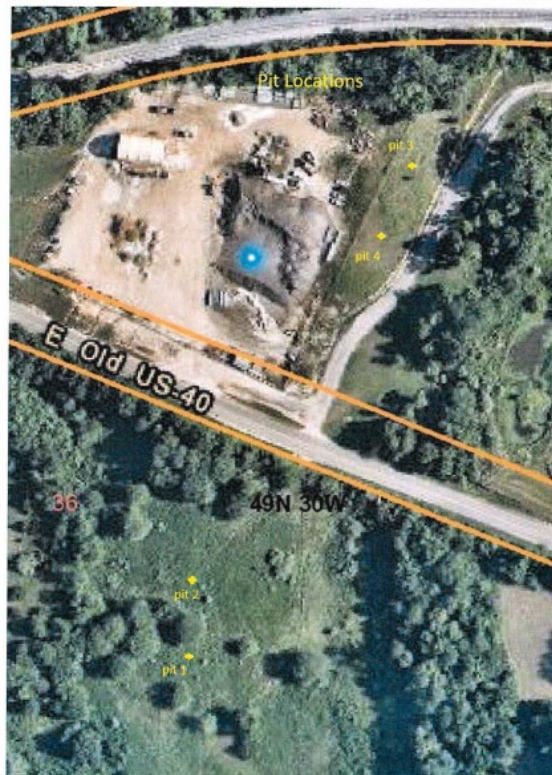
• Septic Tanks and Chamber Tank



Pit Locations

10/30/2020

Jackson Co PW pit locations.jpg





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: 7/20/20 ☐ 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 Jackson County Vehicle Service Center	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 271,900
2.3 PROJECT DESCRIPTION The facility's existing treatment system will not be able to meet upcoming ammonia limits and has reached the end of its useful life. It will be replaced by the proposed low pressure pipe septic system.	
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION Sludge will be pumped out of the septic tanks and hauled off site by a certified hauler and disposed of at a certified facility.	
2.5 DESIGN INFORMATION A. Current population: _____; Design population: _____ B. Actual Flow: _____ gpd; Design Average Flow: <u>400</u> gpd; Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: <u>2,170</u> 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 Jackson County Vehicle Service Center		TELEPHONE NUMBER WITH AREA CODE 816-223-9769		E-MAIL ADDRESS
ADDRESS (PHYSICAL) 34900 E Old Highway 40	CITY Grain Valley	STATE MO	ZIP CODE 64029	COUNTY Jackson
Wastewater Treatment Facility: Mo- 0126454 (Outfall Of)				
3.1 Legal Description: <u> </u> ¼, <u>NE</u> ¼, <u>NW</u> ¼, Sec. <u>36</u> , T <u>49</u> , R <u>30</u> (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): <u>3901073</u> Northing (Y): <u>9410282</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u>Unnamed Tributary to Sni Bar Creek</u>				
4.0 PROJECT OWNER				
NAME Jackson County Public Works		TELEPHONE NUMBER WITH AREA CODE 816-223-9769		E-MAIL ADDRESS celdege@jacksongov.org
ADDRESS 34900 E Old Highway 40	CITY Grain Valley	STATE MO	ZIP CODE 64029	
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
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 Mike Milius / Olsson		TELEPHONE NUMBER WITH AREA CODE 816.442.6013		E-MAIL ADDRESS mmilius@olsson.com
ADDRESS 1301 Burlington Street, Suite 100	CITY North Kansas City	STATE MO	ZIP CODE 64116	
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER <input checked="" 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 <u>Casey Eidege</u>			DATE <u>4-24-21</u>	
TITLE OR CORPORATE POSITION <u>Jackson County</u>		TELEPHONE NUMBER WITH AREA CODE <u>816-223-9769</u>		E-MAIL ADDRESS <u>Celledge@jacksongov.org</u>
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.				