

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Springfield Public Schools
1458 East Chestnut Expressway
Springfield, MO 65802-3790

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.

May 25, 2016
Effective Date

Sara Parker Pauley
Sara Parker Pauley, Director, Department of Natural Resources

May 24, 2018
Expiration Date

John Madras
John Madras, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The current wooden frame filter basin will be replaced with a concrete basin of the same interior dimensions. After the rebuilt filter, a submerged fixed film Aerated reactor and a settling tank with an effluent filter will be constructed for ammonia removal.

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 in accordance with the plans and specifications submitted by the Wastewater Technical Services LLC on January 29, 2016.
3. The department must be contacted in writing prior to making any changes to the approved 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(8).
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 Southwest Regional Office per 10 CSR 20-7.015(9)(E)2.
5. This construction permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, “Grants and Loans”
6. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(10). “There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.”

7. Sewers in relation to water works structures shall meet the requirements of 10 CSR 23-3.010 with respect to minimum distances from public water supply wells or other water supply sources and structures.
 - A. Sewer mains shall be laid at least 10 feet horizontally from any existing or proposed water main. The distances shall be measured edge-to-edge. In cases where it is not practical to maintain a 10 foot separation, the department may allow a deviation on a case-by-case basis, if supported by data from the design engineer. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on either side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer. If it is impossible to obtain proper horizontal and vertical separation as described above for sewers, the sewer must be constructed of slip-on or mechanical joint pipe or continuously encased and be pressure tested to 150 pounds per square inch to assure water tightness.
 - B. Manholes should be located at least 10 feet horizontally from any existing or proposed water main.
 - C. Manholes shall be located with the top access at or above grade level.
 - D. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. When it is impossible to obtain proper vertical separation as stipulated above, one of the following methods must be specified:
 - a. The sewer shall be designed and constructed equal to the water pipe and shall be pressure tested to assure water tightness prior to backfilling; or
 - b. Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the department for use in water main construction.
8. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one acre or more to obtain a Missouri state operating permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the department's ePermitting system available online at www.dnr.mo.gov/env/wpp/epermit/help.htm. See www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.

9. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of jurisdictional waters of the U.S. then a 404/401 will be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the department's Water Protection Program at 573-751-1300 for more information. See www.dnr.mo.gov/env/wpp/401/ for more information.
10. Upon completion of construction;
 - A. The Springfield Public Schools will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit the enclosed form Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(D) and request the operating permit modification be issued;
 - C. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and
 - D. Submit a Form B - Application for an Operating Permit for Domestic or Municipal Wastewater ($\leq 100,000$ gallons per day) along with the modification fee.

IV. REVIEW SUMMARY

1. AMMONIA

The Water Protection Program is providing this notice to inform permittees that EPA's published ammonia criteria for aquatic life protection is lower than the current Missouri criteria. The department has initiated stakeholder discussions on this topic and at this time, there is no firm target date for starting the rulemaking to adopt new standards. More information can be found at <http://dnr.mo.gov/pubs/pub2481.pdf>.

A submerged fixed film Aerated reactor is proposed for ammonia removal to meet future ammonia limits.

2. CONSTRUCTION PURPOSE

The facility proposed to replace its distorted and damaged wooded filter frame with a concrete basin of the same dimensions. The floor of the filter will be compacted fill covered with a sand layer. A new HDPE liner and new media will be installed. The existing underdrain, distribution piping, and distribution valves will be reused. The existing recirculation tanks, flow splitter, and dosing pumps will remain as is.

Ammonia limits will be placed in the facility's operating permit for next permit circle. A submerged fixed film Aerated reactor is installed after the replaced filter for ammonia removal and follow by a setting tank with an effluent filter in order to meet future ammonia limits.

3. FACILITY DESCRIPTION

Current Facility:

Septic tank/ recirculating sand filter/ chlorination / dechlorination / sludge disposal by contract hauler

Future Facility:

Septic tank/ recirculating sand filter/ submerged fixed film Aerated reactor for ammonia removal/ setting tank with filter /chlorination / dechlorination / sludge disposal by contract hauler

4. COMPLIANCE PARAMETERS

The draft operating permit (OP) public noticed on April 22, 2016 included final effluent limitations for ammonia as N of 3.7 mg/L daily maximum and 1.4 mg/L monthly average during summer months (April 1 to September 30) and of 7.5 mg/L daily maximum and 2.9 mg/L monthly average during winter months (October 1 to March 31).

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

A sand filter has a surface area of 1,728 square feet (48 feet by 36 feet) to be divided into two cells and 24-inch of granular filter media to have an effective size of 2.0 mm, with a uniformity coefficient less than or equal 2.0 with a 4:1 recirculation rate;

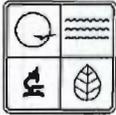
A submerged fixed film Aerated reactor for ammonia removal is housed in a standard 1,000 gallon septic tank with a 12" extension. The media in the reactor is UV resistance PVC blocks (Manufactured by Raschig USA, Model DURA-PAC XF48) with 48 ft² surface area per cubic foot in a cross flow pattern. The media volume is 110 ft³ in three (3) layers with a total media surface area of 5,280 ft². The media (1'x1'x8', total 16) will be installed on fiber reinforced plastic grating (1.5"x1.5" MECH, 1" height) supported by the concrete blocks (4"x4"x8"). A turbine type aspirator (manufactured by ultra-Air, Model 735) will be installed in a 10" PVC pipe which is at the center of the reactor. The aerator will serve as an air lift pump with flow rate of 5 gpm, a recirculation ratio of 7.2 to 1. The aspirator moves a rated air flow at installed depth of 2 ft³ per minute and a rated power of ¼ HP.

A setting tank after an ammonia reactor is a 1,000 gallon concrete septic with an effluent filter (Polylok model PL525) to remove the biological suspended solids that slough off the reactor media.

6. OPERATING PERMIT MODIFICATION

Operating permit MO-0124311 will require a modification to reflect the construction activities. Upon construction completion submit a modification fee and Form B - Application for an Operating Permit for Domestic or Municipal Wastewater ($\leq 100,000$ gallons per day).

Lei Hou, PE
Engineering Section
lei.hou@dnr.mo.gov



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

APPLICATION FOR CONSTRUCTION PERMIT
WASTEWATER TREATMENT FACILITY

RECEIVED

JUN 02 2015

WATER PROTECTION PROGRAM

CP0001760
AP21308
14788

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$1,000.00	CHECK NO. 389428
DATE RECEIVED 6/2/15	

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: _____
 - 1.3 Has the department approved the proposed project's facility plan*?
 YES Date of Approval: _____ NO N/A (If Not Applicable, complete No. 1.4.)
 - 1.4 [Complete only if answered Not Applicable on No. 1.3.] Is a copy of the engineering report* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?
 YES NO
 - 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 submittal. Denote which form: A B B2
 N/A Please explain: _____
 - 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? YES NO
 - 1.9 Is the appropriate fee included with this application? YES NO (See instructions for appropriate fee.)
- * Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT
Pleasant View School Wastewater Treatment Improvements

2.2 PROJECT DESCRIPTION
1) Replace the existing 15,000 gallon septic tank. This tank is approximately 50 years old and does take on some groundwater through cracks during wet periods. Repair work to stop the leaks was unsuccessful. Interior access and design is substandard.
2) Replace the existing wooden packed bed filter basin with a concrete basin. The basin is 15 years old and the force of the media has pushed and broken the wood frame. This movement has also distorted and damaged the liner.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Sludge is removed from the septic tank and disposed of by a contract hauler.

2.4 DESIGN INFORMATION
A. Current population: 365; Design population: 450
B. Actual Flow: 3,000 gpd; Design Average Flow: 8,500 gpd;
Actual Peak Daily Flow: 8,000 gpd; Design Maximum Daily Flow: 8,500 gpd; Design Wet Weather Event: 8,500

2.5 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 Pleasant View School WWTF		TELEPHONE NUMBER WITH AREA CODE 417-523-0411	E-MAIL ADDRESS mtombleson@spsmail.org	
ADDRESS (PHYSICAL) 2210 E. State Hwy AA	CITY Springfield	STATE MO	ZIP CODE 65803	COUNTY Greene

Wastewater Treatment Facility: Mo- 0124311 (Outfall 1 Of 1)

3.1 Legal Description: _____ 1/4, SW _____ 1/4, NE _____ 1/4, Sec. 28 _____, T 30N _____, R 21W _____
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 477995 Northing (Y): 4127889
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: Unnamed

4.0 PROJECT OWNER

NAME Springfield Public Schools		TELEPHONE NUMBER WITH AREA CODE (417) 523-0411	E-MAIL ADDRESS mtombleson@spsmail.org	
ADDRESS 1458 East Chestnut Expressway	CITY Springfield	STATE MO	ZIP CODE 65802-3790	

5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.

NAME Springfield Public Schools		TELEPHONE NUMBER WITH AREA CODE (417) 523-0411	E-MAIL ADDRESS mtombleson@spsmail.org	
ADDRESS 1458 East Chestway Expressway	CITY Springfield	STATE MO	ZIP CODE 65802-3790	

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

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

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

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

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

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

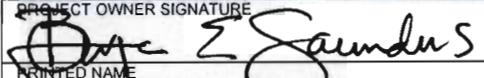
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? YES NO

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

6.0 ENGINEER

ENGINEER NAME / COMPANY NAME Kevin Schrader / Wastewater Technical Services, LLC		TELEPHONE NUMBER WITH AREA CODE (573) 857-3068	E-MAIL ADDRESS h2otreatment@windstream.net	
ADDRESS HC 1 Box 430	CITY Fairdealing	STATE MO	ZIP CODE 63939-9715	

7.0 PROJECT OWNER: I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.

PROJECT OWNER SIGNATURE


PRINTED NAME
Bryan E. Saunders

DATE
6/1/15

TITLE OR CORPORATE POSITION Director of Construction	TELEPHONE NUMBER WITH AREA CODE 417-523-0438	E-MAIL ADDRESS be.saunders@spsmail.org
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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.