

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**  
**MISSOURI CLEAN WATER COMMISSION**



**CONSTRUCTION PERMIT**

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

Ryan Boone County, LLC  
533 South Third Street, Suite 100  
Minneapolis, MN 55415

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

As the Department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.


A representative of the Department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the Department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

June 8, 2018  
Effective Date

  
Edward B. Galbraith, Director, Division of Environmental Quality

June 7, 2020  
Expiration Date

  
Chris Wieberg, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

The Ryan Boone County, LLC proposed to construct a new subsurface system to serve the American Outdoor Brands. The proposed American Outdoor Brands is intended for using as an office, warehousing, and light manufacturing facility. The proposed system contains multi-stage septic/anaerobic tanks in combination with flow equalization and extensive micro-filtration leading to subsurface drip irrigation treatment.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment facility.

### **II. COST ANALYSIS FOR COMPLIANCE**

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a “finding of affordability” on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The Department is not required to determine Cost Analysis for Compliance because the permit contains no new conditions or requirements that convey a new cost to the facility.

### **III. CONSTRUCTION PERMIT CONDITIONS**

The permittee is authorized to construct subject to the following conditions:

1. This construction permit does not authorize discharge.
2. All construction shall be in accordance with the plans and specifications submitted by Crockett Engineering on March 6, 2018.
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 Northeast Regional Office per 10 CSR 20-7.015(9)(E)2.
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. Wastewater treatment facility shall not be located within one hundred feet (100'), and preferably three hundred feet (300') of any water well or water supply structure.
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](http://dnr.mo.gov/env/wpp/epermit/help.htm). See [dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://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 [dnr.mo.gov/env/wpp/401/](http://dnr.mo.gov/env/wpp/401/) for more information.
10. Upon completion of construction:
  - A. The Boone County Regional Sewer District will become the continuing authority for operation, maintenance, and modernization 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)(D). The Boone County Regional Sewer District must request a site specified permit to be issued.

#### **IV. REVIEW SUMMARY**

##### **1. CONSTRUCTION PURPOSE**

The owner of the project plans to build a business area, American Outdoor Brands. The proposed American Outdoor Brands is intended for use as an office, warehousing, and light manufacturing facility. The new wastewater treatment plant will serve the area.

##### **2. FACILITY DESCRIPTION**

The proposed wastewater treatment plant contains a trash tank, flow equalization tanks, septic tanks, dosing tank and sub-surface drip irrigation field. The sludge from this treatment will be hauled by a contract hauler.

The American Outdoor Brands WWTF is located at 1800 North Route Z, Columbia, in Boone County, Missouri. The facility has a design average flow of 4,889 gpd and serves a hydraulic population equivalent of approximately 65 people.

##### **3. COMPLIANCE PARAMETERS**

The new facility is no-discharge drip domestic wastewater treatment facilities, with no industrial contributions. Land application shall be controlled, limited and monitored by the facility.

##### **4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA**

The wastewater from the American Outdoor Brands Facility will route through sample manhole and enter a 5,000 gallon trash tank (218"x88"x76" concrete tank) to remove the bulk of suspended solids and floatables, effluent moves through a filter prior to two (2) 5,000 gallon concrete tanks in series for flow equalization. The flow equalization tanks will discharge effluent to the anaerobic secondary septic treatment tanks at a controlled rate that is equal to the dosing capacity of the treatment field. The controls will time dose the septic tanks once per hour unless the low water floats are activated. The secondary septic tanks will consist of two (2) 5,000 gallon tanks in series capable of providing two (2) days of detention time. From the secondary septic tanks, the effluent will be routed to one (1) 5,000 gallon dosing tank with a 100 micron Sim/Tech disk filter. The dosing tank is equipped with duplex STA-RITE STEF Plus 30 1.5 HP effluent pumps each capable of pumping 35 gallon per minute (gpd) with a total dynamic head of 125 feet to distribute effluent into the sub-surface drip field.

The facility has selected the NETAFIM BIOLINE subsurface drip dispersal system. The subsurface drip system consists of 100,366 square feet and is divided into eight (8) zones (see table below) with approximately 50,183 linear feet of 1/2 inch polyvinyl chloride (PVC) dripline in total. Drip tubing placed approximately 12–16 inches deep underground will be installed on 24 inch centers. The eight-way distributing valve will be a 323 Dorot Nylon Mel with Baccara Solenoid. A default loading rate of 0.05 gallons per day per square foot has been determined for each zone.

ZONE	SQFT	LFT TUBE	CAPACITY GPD
1	12,476	6,233	623
2	14,318	7,159	715
3	13,310	6,655	665
4	12,450	6,225	622
5	12,662	6,331	633
6	13,006	6,503	650
7	9,536	4,765	476
8	12,608	6,304	630
TOTAL	100,366	50,183	5,018

The above installations and all necessary appurtenances make a complete and usable wastewater treatment system to serve the proposed American Outdoor Brands. The project will also include general site work appropriate to the scope and purpose of the project.

## **5. OPERATING PERMIT**

The Boone County Regional Sewer District submitted Form B: Application for Operating Permit to request a site specified permit to be issued.

The draft Operating permit MO-0138983 for this proposed treatment facility is on public notice from June 8 to July 7, 2018. After the construction is completed, the Boone County Regional Sewer District needs to submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D) and request the draft operating permit to be issued.

Lei Hou, PE  
Engineering Section  
[lei.hou@dnr.mo.gov](mailto:lei.hou@dnr.mo.gov)



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM  
**APPLICATION FOR CONSTRUCTION PERMIT –  
WASTEWATER FACILITY**

RECEIVED

MAR 06 2018

Water Protection Program

CP0001976

AP29484

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$1000.00	CHECK NO. 10542
DATE RECEIVED 3-10-18	

SB

**APPLICATION OVERVIEW**

The Application for Construction Permit – Wastewater Facility form is for construction pertaining to domestic wastewater treatment facilities, agrichemical facilities, and components thereof. This 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 Is this an application for an agrichemical? ☐ YES (See instructions.) ☒ N/A
- 1.3 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?  
☐ YES Date of Approval: \_\_\_\_\_
- 1.4 Has the department approved the proposed project's facility plan\*?  
☐ YES Date of Approval: \_\_\_\_\_ ☐ NO ☒ N/A (If Not Applicable, complete No. 1.5.)
- 1.5 [Complete only if answered Not Applicable on No. 1.4] 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
- 1.6 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
- 1.7 Is a summary of design\* included with this application? ☒ YES ☐ NO
- 1.8 Is a general operating permit applicable?  
☒ YES Submit the appropriate operating permit application to the Regional Office at least 60 days prior to operation.  
☐ NO Enclose the appropriate operating permit application and fee submittal. Denote which form: ☐ B ☐ B2
- 1.9 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☐ YES ☒ NO
- 1.10 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**

American Outdoor Brands Subsurface Drip Irrigation

**2.2 PROJECT DESCRIPTION**

Construction of a new subsurface drip dispersion system to serve the American Outdoor Brands

**2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION**

Sludge will be handled through a contract hauler by Boone County Regional Sewer District when necessary.

**2.4 DESIGN INFORMATION**

- A. Current population: N/A; Design population: 428
- B. Actual Flow: \_\_\_\_\_ gpd; Design Average Flow: 4889 gpd;  
Actual Peak Daily Flow: \_\_\_\_\_ gpd; Design Maximum Daily Flow: 6845 gpd;  
Design Wet Weather Event: \_\_\_\_\_

**2.5 ADDITIONAL INFORMATION**

- A. Is a topographic map attached? ☒ YES ☐ NO
- B. Is a process flow diagram attached? ☒ YES ☐ NO

**2.6 ESTIMATED PROJECT CONSTRUCTION COST**

\$ 400,000.00



<b>3.0 WASTEWATER TREATMENT FACILITY</b>				
NAME American Outdoor Brands Subsurface Drip Irrigation		TELEPHONE NUMBER WITH AREA CODE (573) 443-2774		EMAIL ADDRESS tratermann@bcrsd.com
ADDRESS (PHYSICAL) 1800 North Route Z	CITY Columbia	STATE Missouri	ZIP CODE 65202	COUNTY Boone
Wastewater Treatment Facility: Mo- (Outfall 1 Of 1 )				
3.1 Legal Description: 1/4, 1/4, 1/4, Sec. 06, T 48N, R 11W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 569479.17 Northing (Y): 4343475.22 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Little Cedar Creek				
<b>4.0 PROJECT OWNER</b>				
NAME Ryan Boone County, LLC.		TELEPHONE NUMBER WITH AREA CODE (563) 823-8141		EMAIL ADDRESS thomas.edwards@ryancompanies.com
ADDRESS 533 South Third Street, Suite 100	CITY Minneapolis	STATE MN	ZIP CODE 55415	
<b>5.0 CONTINUING AUTHORITY:</b> Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.				
NAME Boone County Regional Sewer District		TELEPHONE NUMBER WITH AREA CODE (573) 443-2774		EMAIL ADDRESS tratermann@bcrsd.com
ADDRESS 1314 North Seventh Street	CITY Columbia	STATE MO	ZIP CODE 65201	
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A				
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.				
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
<b>6.0 ENGINEER</b>				
ENGINEER NAME / COMPANY NAME Jesse Stephens - Crockett Engineering		TELEPHONE NUMBER WITH AREA CODE (573) 447-0292		EMAIL ADDRESS jstephens@crockettengineering.com
ADDRESS 1000 West Nifong, Building 1	CITY Columbia	STATE MO	ZIP CODE 65203	
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 Thomas Edwards			DATE 2-20-18	
TITLE OR CORPORATE POSITION Project Manager		TELEPHONE NUMBER WITH AREA CODE (563) 823-8141		EMAIL ADDRESS thomas.edwards@ryancompanies.com
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
<b>END OF PART A.</b> <b>REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.</b>				



**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 ☒ Subsurface  
☐ 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 two 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 \_\_\_\_\_

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

9.5 Design depth of sludge in storage basins.  
Basin #1: \_\_\_\_\_ ft Basin #2: \_\_\_\_\_ ft

9.6 Existing sludge depth, if the basins are currently in operation.  
Basin #1: \_\_\_\_\_ ft Basin #2: \_\_\_\_\_ ft

9.7 Total design sludge storage: \_\_\_\_\_ dry tons and \_\_\_\_\_ cubic feet

**10.0 LAND APPLICATION SYSTEM**

10.1 Type of land application: ☐ Fixed Head Sprinklers ☐ Center Pivot ☐ Traveling Gun ☒ Drip Dispersal  
☐ Subsurface Low Pressure Pipe ☐ Other (describe) \_\_\_\_\_

10.2 Number of irrigation sites 1 \_\_\_\_\_ Total Acres 2.60 Maximum % field slopes 2-3 \_\_\_\_\_  
Location: \_\_\_\_\_ ¼, \_\_\_\_\_ ¼, \_\_\_\_\_ ¼, 6 \_\_\_\_\_ Sec. 48N T 11W R Boone County 2.6 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.)

10.3 Type of vegetation: ☒ Grass hay ☐ Pasture ☐ Timber ☐ Row crops  
☐ Other (describe)

10.4 Wastewater flow (dry weather) gallons per day: Average annual 4889  
Seasonal \_\_\_\_\_ Off-season \_\_\_\_\_

10.5 Land application rate (design flow including 1-in-10 year storm water flows):  
Design: 67.2 inches/year .01 inches/hour .18 inches/day 1.29 inches/week  
Actual: \_\_\_\_\_ inches/year \_\_\_\_\_ inches/hour \_\_\_\_\_ inches/day \_\_\_\_\_ inches/week

10.6 Total irrigation per year (gallons): Design: 1,784,485 gal Actual: \_\_\_\_\_ gal

10.7 Actual months used for irrigation (check all that apply):  
☐ Jan ☒ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

10.8 Land application rate is based on:  
☒ Hydraulic Loading ☐ Other (describe) \_\_\_\_\_  
☐ Nutrient Management Plan (N and P) If N and P is selected, is the plan included? ☐ YES ☐ NO