

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Carolyn Raasch
Carolyn's Country Cousins
17607 NE 52nd Street
Liberty, MO 64068

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 4, 2018
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

September 3, 2020
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

This permit is for installation of a septic tank and subsurface low-pressure pipe system to treat 3,000 gallons per day (gpd). This system will treatment wastewater from a new restroom facility at a Pumpkin Patch whose operational season is September and October. Sludge will be removed by a contract hauler.

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 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 Charles Logan, P.E. on July 23, 2018 and revised on August 28, 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 Kansas City 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. 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.
7. 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."
8. 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.

9. 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
 - a. 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.
10. 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.
11. 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/ for more information.
12. Upon completion of construction:
 - A. Carolyn's Country Cousins will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit an electronic copy of the as-builts if the project was not constructed in accordance with previously submitted plans and specifications; and
 - C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D).

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Carolyn's Country Cousins Pumpkin Patch is installing new restroom facilities to serve the facility's operational season flows during September and October and needs a treatment system for the new facilities.

2. FACILITY DESCRIPTION

Carolyn's Country Cousins Pumpkin Patch is located at 17607 NE 52nd Street, City of Liberty, in Clay County, Missouri. The business currently owns eighteen (18) portable restrooms with a manufacturer's capacity between 4500 and 5400 people per day. These units will continue to be used as they can be strategically placed for patrons. A new restroom facility is proposed along with a low-pressure pipe treatment subsurface dispersal system to treat the wastewater. The new facility will have a design average flow of 3,000 gpd and serve a hydraulic population equivalent of approximately 30 people. The system is designed to serve 600 visitors at 5 gallons per capita per day.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet the requirements for a subsurface dispersal facility in operating permit MOG823122 with an expiration date of August 24, 2022.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- Components are designed for a Population Equivalent of 30 based on hydraulic loading to the system.
- The total length of sewer from the restroom facility to the lateral field will be approximately 385 linear feet and will contain cleanouts every 100 feet.
- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis. The system will use a multi-jet flow meter.
- 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 (2) 1,500 gallon single compartment septic tanks in series. Settled solids in the septic tank shall be removed by a contract hauler.

- Pump Tank – A 1,250 gallon single compartment pump tank will follow the septic tanks. One submersible effluent ½ HP pump capable of 40 gpm at 35 ft of TDH is located in the pump tank. The pumped wastewater shall discharge into the subsurface soil dispersal system. The pump tank, together with both septic tanks, provides approximately 34 hours of detention at the design average flow.
- Subsurface Soil Dispersal System – The soils at this site are rated for 0.6 gpd/sf. Soil morphology review was conducted during the construction permit application review and on site soils were determined to be acceptable for this system. The system will have one zone in a grassy, park-type area, with adequate space available onsite for additional or replacement zones if needed in the future. The system will dose at 0.5 gpd/square foot.
 - Low-Pressure Piping (LPP) –The lateral field is 0.138 acres (6,000 square feet). The distribution system will have ball valves on each line to set head pressure. The lateral area will contain 12 lines on five-foot centers, each 100 feet long for a total of 1,200 linear feet of one inch (1”) tubing fitted with 5/32 inch emitters every eight (8) ft. Turn ups will be provided at the end of each line. The onsite soils have the capacity for the hydraulic and organic load from this restroom facility.
 - The facility has selected the EZ Flow LPP Model 1201. The 1201-GEO product is 12-inch diameter cylinders which contain expanded polystyrene aggregate, a four-inch diameter perforated flexible plastic pipe, and a geo-textile fabric along the top of the product. A network of 1-inch diameter PVC distribution pipe is housed in the four-inch diameter plastic pipe.

5. OPERATING PERMIT

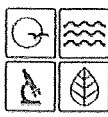
The facility has applied for the general operating permit for land application of domestic wastewater. Operating permit MOG823122 is being issued concurrently with this construction permit.

Cailie Carlile, P.E.
Engineering Section
cailie.carlile@dnr.mo.gov

AP 30307
CP 0002014

RECEIVED
JUL 23 2018

Water Protection Program



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

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED \$1000.00	CHECK NO. 1963
DATE RECEIVED 7-23-18	

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
Carolyn's Country Cousins Low Pressure Pipe Septic System for Restrooms

2.2 PROJECT DESCRIPTION
Installation of a new septic system (lpp) designed to treat up to 3000 gpd.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Sludge will be removed from site as needed and disposed of by a licensed waste hauler.

2.4 DESIGN INFORMATION
A. Current population: *N/A*; Design population: *600*
B. Actual Flow: *3000* gpd; Design Average Flow: *3000* gpd;
Actual Peak Daily Flow: *3000* gpd; Design Maximum Daily Flow: *3000* 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
\$ 27,000.00

3.0 WASTEWATER TREATMENT FACILITY					
NAME <i>U/A</i>		TELEPHONE NUMBER WITH AREA CODE		EMAIL ADDRESS	
ADDRESS (PHYSICAL)		CITY	STATE	ZIP CODE	COUNTY
Wastewater Treatment Facility: Mo- (Outfall Of)					
3.1 Legal Description: $\frac{1}{4}$, $\frac{1}{4}$, $\frac{1}{4}$, Sec. , T , R (Use additional pages if construction of more than one outfall is proposed.)					
3.2 UTM Coordinates Easting (X) Northing (Y): For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)					
3.3 Name of receiving streams: <i>None</i>					
4.0 PROJECT OWNER					
NAME <i>Carolyn Raasch</i>		TELEPHONE NUMBER WITH AREA CODE <i>816-853-3043</i>		EMAIL ADDRESS <i>raaschew@mindspring.com</i>	
ADDRESS <i>17607 NE 52nd St</i>		CITY <i>Liberty</i>	STATE <i>MO</i>	ZIP CODE <i>64068</i>	
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 <i>Carolyn Raasch</i>		TELEPHONE NUMBER WITH AREA CODE <i>816-853-3043</i>		EMAIL ADDRESS <i>raaschew@mindspring.com</i>	
ADDRESS <i>17607 NE 52nd St</i>		CITY <i>Liberty</i>	STATE <i>MO</i>	ZIP CODE <i>64068</i>	
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 <i>Charles Logan</i>		TELEPHONE NUMBER WITH AREA CODE <i>816-781-7626</i>		EMAIL ADDRESS	
ADDRESS <i>P.O. Box 1508</i>		CITY <i>Liberty</i>	STATE <i>MO</i>	ZIP CODE <i>64069</i>	
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 <i>Carolyn Raasch</i>					
PRINTED NAME <i>Carolyn Raasch</i>				DATE <i>7/19/18</i>	
TITLE OR CORPORATE POSITION <i>Owner</i>		TELEPHONE NUMBER WITH AREA CODE <i>816-853-3043</i>		EMAIL ADDRESS <i>raaschew@mindspring.com</i>	
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): September & October

- 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 0.138 Maximum % field slopes 4%
Location: SW 1/4, NW 1/4, SE 1/4, 34 Sec. 31 N 31 W R Clay County 0.138 Acres
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ 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) Grass - park type area

- 10.4 Wastewater flow (dry weather) gallons per day: Average annual 493.2
Seasonal 180,000 Off-season 0

- 10.5 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

- 10.6 Total irrigation per year (gallons): Design: 1,089,000 gal Actual: 180,000 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