

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**CONSTRUCTION PERMIT**

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

MDNR-Division of State Parks  
Bennett Spring State Park  
26250 Highway 64A  
Lebanon, MO 65536

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.

October 29, 2014  
Effective Date

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

October 28, 2016  
Expiration Date

John Madros  
Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **COLLECTION SYSTEM:**

The facility plan was approved on June 03, 2014 for improvements to the collection system and to the no-discharge land application system. This construction permit covers improvements in the collection system. The three main components of the collection system improvements are the addition of a grease trap at the Dining Lodge, addition of new forcemain and lift station at Campground 5, and replacement of clay tile pipe.

The proposed wastewater collection system will consist of a conventional gravity sewer system with lift stations and force mains, which will carry raw wastewater to the receiving wastewater treatment facility.

#### **Grease Trap**

The grease trap includes a concrete baffle to create two cells within the precast concrete tank. The grease trap was sized at 5,000 gallons based on the restaurant serving 550 meals per day and 5 gallons of wastewater per meal.

#### **Campground 5**

Construction and installation of approximately 1626 lf of 1.5-inch (2") PVC SDR-21 force mains with cleanouts and air release valves, 1 duplex lift station with each grinder pump capable of operating at 19.5 gallons per minute (gpm) at 37 feet of total dynamic head (TDH), and all necessary appurtenances to make a complete and usable wastewater collection system to serve an estimated population equivalent of 40 and an estimated design average flow of 4,000 gallons per day. The pumps chosen are the Myers WGX20-01-15 or equivalent.

#### **Main Lift Station**

Construction and installation of approximately 570 linear feet (lf) of 8-inch (8") through 24-inch (24") polyvinyl chloride (PVC) Standard Dimension Ratio (SDR)-35 gravity sewer with 4 manholes, 1 duplex lift station with each pump capable of operating at 225 gallons per minute (gpm) at 82 feet of total dynamic head (TDH), and all necessary appurtenances to make a complete and usable wastewater collection system to serve an estimated population equivalent of 360 and an estimated design average flow of 36,000 gallons per day. The pumps chosen are the Myers 4RHX150M2-43 or equivalent.

The project will also include general site work appropriate to the scope and purpose of the project and all the necessary appurtenances to make a complete and usable wastewater collection system.

These activities will be in the vicinity of MDNR Bennett Spring State Park, Dallas County and discharge to an existing sewer system to be treated at the Bennett Springs State Park Wastewater Treatment Facility, Missouri State Operating Permit No. MO-0109941.

**PERMIT CONDITIONS:**

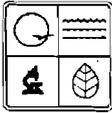
1. All construction shall be in accordance with the plans and specifications submitted by Gredell Engineering Resources, Inc. as follows:
  - Specifications received on September 17, 2014 and signed and sealed by Thomas Gredell, P.E. on September 16, 2014.
  - Plans received on September 17, 2014 and signed and sealed by Thomas Gredell, P.E. on September 15, 2014.
2. 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).
3. 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.
4. This Construction Permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans".
5. 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."
  - A. 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.
  - B. Sewer mains shall be laid at least ten feet (10') 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 ten foot (10') 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.

- C. Manholes should be located at least ten feet (10') horizontally from any existing or proposed water main.
  - 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:
    - 1) 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
    - 2) Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends ten feet (10') 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.
6. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one (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 may only be obtained by means of the Department's ePermitting system available online at [www.dnr.mo.gov/env/wpp/epermit/help.htm](http://www.dnr.mo.gov/env/wpp/epermit/help.htm). See [www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm) for more information.
7. 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/](http://www.dnr.mo.gov/env/wpp/401/) for more information.
8. In accordance with 10 CSR 20-6.010(6)(B), submit the enclosed form Application for Letter of Authorization – Sewer Extension to the Department following completion of construction. Submit an electronic copy of the as-built drawings with this form if the project was not constructed in accordance with previously submitted plans and specifications.

9. Upon completion of construction, the Missouri Division of State Parks will become the continuing authority for operation, maintenance, and modernization of these facilities.

Leasue Meyers, EI  
Engineering Section  
[leasue.meyers@dnr.mo.gov](mailto:leasue.meyers@dnr.mo.gov)

# RECEIVED



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM  
**APPLICATION FOR CONSTRUCTION PERMIT**  
**SEWER EXTENSION**

SEP 17 2014

FOR DEPARTMENT USE ONLY	
APP NO	CP NO
FEE RECEIVED	CHECK NO.
DATE RECEIVED	

## WATER PROTECTION PROGRAM

**NOTE ► PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM**

**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 Department of Natural Resources approved the proposed project's engineering report\*?  YES Date of Approval: 06/03/2014  NO  N/A
- 1.3 Is a copy of the appropriate plans\* and specifications\* included with this application?  YES  NO
- 1.4 Is a summary of design\* included with this application?  YES  NO
- 1.5 Is the appropriate fee included with this application? (See instructions for appropriate fee.)  YES  NO

\* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

### 2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

Wastewater Collection System Upgrade for Bennett Spring Park

ADDRESS	CITY	STATE	ZIP CODE	COUNTY
26250 HIGHWAY 64A	LEBANON	MO	65536	DALLAS

2.2 Legal Description: ¼, SE ¼, SE ¼, Sec. 25, T 35N, R 18W

2.3 Project Components (check all that apply):

- Gravity sewers  Pumping stations  Force mains  Alternative sewer system  Other (Describe below.)

2.4 PROJECT DESCRIPTION

- Replacement of approximately 500 feet of existing 10 inch clay tile pipe with 24 inch HDPE pipe and replacement of main lift station. No capacity increase.
- Addition of 5,000 gallon grease trap for existing dining lodge. No capacity increase.
- Addition of 1626 feet of 2 inch forcemain and new lift station. Maximum 4,400 gpd increase for 9 months of the year (included in the 36,000 gpd design flow in the approved Facility Plan). Actual flow is less than 1,000 gpd, based on past pump records.

2.5 DESIGN INFORMATION

- A. Population or number of lots to be served by this extension: 52 campsites
- B. Estimated flow to be contributed by this extension: Design Average Flow: 4,400 gpd Design Peak Hourly Flow: 783 gph
- C. Industrial Wastes: Type: NA Flow: 0 gpd
- D. Receiving Sewer: Size: 2 inches Capacity: 70 gpm

### 3.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS	
MDNR Division of State Parks	(573) 522-6390	jon.fitch@dnr.mo.gov	
ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 176	Jefferson City	MO	65101

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

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS	
MDNR Division of State Parks	(573) 522-6390	jon.fitch@dnr.mo.gov	
ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 176	Jefferson City	MO	65101

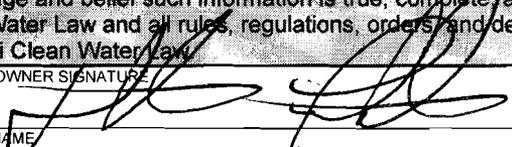
4.1 A letter from the continuing authority, if different than the owner, is included with this application.  YES  NO  N/A

### 5.0 ENGINEER

ENGINEER NAME / COMPANY NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS	
GREDELL Engineering Resources, Inc.	(573) 659-9078	tomg@ger-inc.biz	
ADDRESS	CITY	STATE	ZIP CODE
1505 East High Street	Jefferson City	MO	65101

### 6.0 RECEIVING WASTEWATER TREATMENT FACILITY

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
MDNR Bennett Spring State Park WWTF	(417) 532-4338	jd.muschany@dnr.mo.gov

MISSOURI STATE OPERATING PERMIT # MO-0109941		REMAINING CAPACITY (GPD) Approximately 14,000 gpd after expansion of land application. (future permit)	
6.1 Has the receiving treatment facility agreed to accept the additional wastewater flow? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
6.2 A letter from the receiving wastewater treatment facility, if different than the continuing authority, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A			
<b>7.0 PROJECT OWNER:</b> 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.			
PROJECT OWNER SIGNATURE 			
PRINTED NAME Jon Fitch, P.E.		DATE 9/12/14	
TITLE OR CORPORATE POSITION Project Engineer, Missouri State Parks		TELEPHONE NUMBER WITH AREA CODE (573) 522-6390	E-MAIL ADDRESS jon.fitch@dnr.mo.gov
Mail completed copy to:		MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176	

# GREDELL Engineering Resources, Inc.

**ENVIRONMENTAL ENGINEERING**

Offices in Jefferson City, Rolla and Springfield, Missouri

LAND - AIR - WATER

**RECEIVED**

SEP 17 2014

September 16, 2014

**WATER PROTECTION PROGRAM**

Mr. Refaat Mefrakis  
Permits and Engineering Section, Chief  
Water Protection Program  
P.O. Box 176  
Jefferson City, MO 65102

RE: Construction Permit Application for the Bennett Spring State Park Wastewater Collection System Upgrade,  
Operating Permit No. MO-0109941

Dear Mr. Refaat Mefrakis:

On behalf of the Missouri Department of Natural Resources, Division of State Parks, and the State of Missouri Office of Administration, Division of Facilities Management, Design and Construction, GREDELL Engineering Resources, Inc. is submitting one original and one copy of a construction permit application for the wastewater collection system upgrades at Bennett Spring State Park, Operating Permit No. MO-01099411, near Lebanon Missouri, in Dallas County. Additionally, a completed, signed application form is enclosed. Payment of the application fee should be arranged by interagency funds transfer; please contact Angela Shamburger at 573-751-8560.

This request for construction permit for a Sewer Extension has been prepared in accordance with the Clean Water Act and the Missouri Clean Water Commission Laws and Rules. In accordance with 10 CSR 20-8.110, this document is being submitted to the Missouri Department of Natural Resources for review and approval.

Thank you for your effort in reviewing this application. If you have any questions or comments, please contact me at 573-659-9078 (email: [tomg@ger-inc.biz](mailto:tomg@ger-inc.biz)).

Sincerely,



Thomas R. Gredell, P.E.  
Principal Engineer

Enclosures: One original signed and one copy of a Construction Permit Application; Design Summary; Plans; Technical Specifications; and Approved Facility Plan

C: Jon Fitch, P.E., Design Engineer, Missouri State Parks, w/ enclosure  
Mike Qutami, Project Engineer, Office of Administration, w/ enclosure  
J.D. Muschany, Park Superintendent, Bennett Spring State Park, w/ enclosure