

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



**CONSTRUCTION PERMIT**

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

City of LaBelle  
LaBelle WWTF  
401 State St. PO Box 51  
LaBelle, MO 63447

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 24, 2024  
Effective Date

October 23, 2026  
Expiration Date

  
John Hoke, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

Construction and installation of aerators throughout all 4 cells of the lagoon system, a UV disinfection system, new flow measurement equipment, and a new MBBR treatment unit between cells 3 and 4. A new force main to replace the existing one that will convey water from the Northeast sewershed utilizing the existing pump station will also be built. Existing pumps to be replaced with greater capacity models.

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 consistent with plans and specifications signed and sealed by C. Cameron Jones with Benton & Associates, Inc 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 Northeast Regional Office per 10 CSR 20-7.015(9)(G).
5. 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 <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>. See <https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting> for more information.
6. 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 <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information.
7. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
  - Flood protection shall apply to new construction and to existing facilities undergoing major modification. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the 100-year flood elevation. 10 CSR 20-8.140(2)(B). 10 CSR 20-8.130 (2) (A)
  - 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)
  - The distance between wastewater pumping stations and all potable water sources shall be at least 50 feet in accordance with 10 CSR 23-3.010(1)(B). 10 CSR 20-8.130 (2) (D)
  - Multiple pumps shall be provided except for design average flows of less than 1,500 gpd. 10 CSR 20-8.130 (3) (B) 1.
  - Electrical equipment. Electrical equipment shall be provided with the following requirements:
    - 10 CSR 20-8.130 (3) (B) 2. A. Electrical equipment must comply with 10 CSR 20-8.140(7)(B);

- Utilize corrosive resistant equipment located in the wet well; 10 CSR 20-8.130 (3) (B) 2. B.
- 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 such 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.
- Install lightning and surge protection systems; 10 CSR 20-8.130 (3) (B) 2. F.
- Install a 110 volt (V) power receptacle inside the control panel located outdoors to facilitate maintenance; 10 CSR 20-8.130 (3) (B) 2. G.
- Provide Ground Fault Circuit Interruption (GFCI) protection for all outdoor receptacles. 10 CSR 20-8.130 (3) (B) 2. H.
  
- Water level controls must be accessible without entering the wet well. 10 CSR 20-8.130 (3) (C)
  
- Valves shall not be located in the wet well unless integral to a pump or its housing. 10 CSR 20-8.130 (3) (D)
  
- Covered wet wells shall have provisions for air displacement to the atmosphere, such as an inverted and screened “j” tube or other means. 10 CSR 20-8.130 (3) (E)
  
- A portable pump connection on the discharge line with rapid connection capabilities shall be provided. 10 CSR 20-8.130 (5) (B) 2.
  
- Alarm systems with an uninterrupted power source shall be provided for pumping stations. 10 CSR 20-8.130 (6)
  
- Force main system shall be designed to withstand all pressures (including water hammer and associated cyclic reversal of stresses), and maintain a velocity of at least two feet per second. 10 CSR 20-8.130 (8) (A)
  
- Unless another distance is determined by the Missouri Geological Survey or by the department’s Public Drinking Water Branch, the minimum distance between wastewater treatment facilities and all potable water sources shall be at least 300 feet. 10 CSR 20-8.140 (2) (C) 1.
  
- All sampling points shall be designed so that a representative and discrete 24 hour automatic composite sample or grab sample of the effluent discharge can be obtained at a point after the final treatment process and before discharge to or mixing with the receiving waters. 10 CSR 20-8.140 (6) (B)
  
- All wastewater treatment facilities shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. 10 CSR 20-8.140 (7) (A) 1.

- Disinfection and dechlorination, when used, shall be provided during all power outages. 10 CSR 20-8.140 (7) (A) 2.
- Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 *National Electric Code (NEC)* (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140 (7) (B)
- An audiovisual alarm or a more advanced alert system, with a self-contained power supply, capable of monitoring the condition of equipment whose failure could result in a violation of the operating permit, shall be provided for all wastewater treatment facilities. 10 CSR 20-8.140 (7) (C)
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility:
  - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals; 10 CSR 20-8.140 (8) (A)
  - Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140 (8) (B)
  - First aid equipment; 10 CSR 20-8.140 (8) (C)
  - Posted “No Smoking” signs in hazardous areas; 10 CSR 20-8.140 (8) (D)
  - Appropriate personal protective equipment (PPE); 10 CSR 20-8.140 (8) (E)
  - Portable blower and hose sufficient to ventilate accessed confined spaces; 10 CSR 20-8.140 (8) (F)
  - 10 CSR 20-8.140 (8) (G) Portable lighting equipment complying with NEC requirements. See subsection (7)(B) of this rule;
  - 10 CSR 20-8.140 (8) (H) Gas detectors listed and labeled for use in NEC Class I, Division 1, Group D locations. See subsection (7)(B) of this rule;
  - Appropriately-placed warning signs for slippery areas, non-potable water fixtures (see subparagraph (7)(D)3.B. of this rule), low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, high noise areas, etc.; 10 CSR 20-8.140 (8) (I)
  - Ventilation shall include the following:
- Moving Bed Bioreactor (MBBR). A MBBR secondary treatment system shall provide upstream preliminary treatment units capable of—
  - Screening to reduce pass-through and suspended solids; 10 CSR 20-8.180 (8)(A)
  - Grit removal; 10 CSR 20-8.180 (8)(B) and
  - Oil and grease removal. 10 CSR 20-8.180 (8)(C)
- Emergency Power. Disinfection and dechlorination processes, when used, shall be provided during all power outages. 10 CSR 20-8.190 (2) (A)

- The UV dosage shall be based on the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (A) 1.
- Open channel UV systems. The combination of the total number of banks shall be capable of treating the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (B) 1.
- The UV system must continuously monitor and display at the UV system control panel the following minimum conditions:
  - The relative intensity of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. A.
  - The operational status and condition of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. B.
  - The ON/OFF status of each lamp in the system; 10 CSR 20-8.190 (5) (C) 1. C. and
  - The total number of operating hours of each bank or each closed vessel system. 10 CSR 20-8.190 (5) (C) 1. D.
- The UV system shall include an alarm system. Alarm systems shall comply with 10 CSR 20-8.140(7)(C). 10 CSR 20-8.190 (5) (C) 2.
- Lagoon berms shall be constructed of relatively impervious material and compacted to at least 95 percent maximum dry density test method to form a stable structure. 10 CSR 20-8.200(4)(A)1.
- The soil of the lagoon bottom shall be compacted with the moisture content between 2 percent below and 4 percent above the optimum water content and compacted to at least 95 percent maximum dry density test method. 10 CSR 20-8.200(4)(B)
- The lagoon shall be sealed to ensure that seepage loss is as low as possible and has a design permeability not exceeding  $1.0 \times 10^{-7}$  cm/sec. 10 CSR 20-8.200(4)(C)1.
- The minimum thickness of the compacted clay liner must be 12 inches. For permeability coefficients greater than  $1.0 \times 10^{-7}$  cm/sec or for heads over 5 feet such as an aerated lagoon system, the following formula shall be used to determine minimum seal thickness, Equation 200-1 per 10 CSR 20-8.200(4)(C)2.:

Equation 200-1

$$t = \frac{H \times K}{5.4 \times 10^{-7} \text{ cm/sec}}$$

where:

K = the permeability coefficient of the soil in question;

H = the head of water in the lagoon; and

t = the thickness of the soil seal.

- Seep collars shall be provided on drainpipes where they pass through the lagoon seal. 10 CSR 20-8.200(4)(C)4.

8. Upon completion of construction:

- A. The City of La Belle 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 Statement of Work Completed form to the department in accordance with 10 CSR 20-6.010(5)(N) (<https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155>)

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

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

The City of LaBelle is required to meet a final effluent ammonia limit of 1.4 mg/L and 3.0 mg/L monthly average for summer and winter respectively by 2030. The current facultative lagoon system cannot consistently meet this treatment level. The added aeration will reduce BOD<sub>5</sub> to a level where the MBBR can perform nitri/denitrification.

The City of LaBelle also experiences significant inflow and infiltration (I&I) issues with the collection system. The force main replacement will reduce the amount of I&I experienced by the treatment plant. An extensive evaluation of the collection system identified this line as in most need of repair.

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

The LaBelle WWTF is an existing 4 cell facultative lagoon system. Wastewater from the Northeast and Southeast section of town are collected in their own primary treatment lagoons before a force main connects each of these 2 sewer sheds to the third cell at the main La Belle WWTF. Wastewater from the Northwest section of town is conveyed to the first cell of the La Belle WWTF.

The LaBelle WWTF is located 0.13 miles East of 116<sup>th</sup> Ave and 0.35 miles North of North Street, La Belle City, in Lewis County, Missouri. The facility has a design average flow of 155,000 gpd and serves a hydraulic population equivalent of approximately 1,550 people.

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

The proposed project is required to meet final ammonia effluent limits of 1.4 mg/l (summer) and 3.0 mg/L (winter) as monthly averages established in Operating Permit MO-0100684.

The limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average limit
Biochemical Oxygen Demand <sub>5</sub>	mg/L	40
Total Suspended Solids	mg/L	80
Ammonia as N-summer	mg/L	1.4
Ammonia as N-winter	mg/L	3.0
Oil & Grease		10
pH	SU	6.5-9.0
<i>E. coli</i>	#/100mL	206

#### 4. ANTIDegradation

An antidegradation report is not required because there are no changes in design flow or location of the outfall.

#### 5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Components are designed for a Population Equivalent of 1,550 based on hydraulic loading to the system.
- Approximately 5,685 linear feet of 4-inch PVC SDR-26 force main
- Lift Station Pumps – Pumps in the Northeast Lift Station will be replaced with a 5 hp grinder pump operating at 82 GPM and 80.9 TDH.
- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis.
  - Parshall Flume – A 3-inch throat effluent parshall flume with ultrasonic flow sensor shall measure the secondary treated and disinfected wastewater prior to discharge at Outfall No. 001.
- Moving Bed Biofilm Reactor (MBBR) – Installation of one MBBR capable of treating a design average flow of 155,000 gpd and a peak flow of 310,000 gpd. The MBBR is two chambers of approximately 8 ft x 16 ft x 19 ft with a sidewater depth of 15.5 ft for a volume of approximately 29,683 gallons. The hydraulic retention time at design flow is 4.4 hours. The MBBR will be filled approximately 50 percent with high surface area media. Aeration by means of two positive displacement tri-lobe type blowers each capable of supplying 79 scfm with 5 HP motors to the fine bubble drop diffusers. The effluent from the MBBR will flow by gravity to the disinfection system.
- Disinfection – Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.
  - Open Channel Ultraviolet (UV) – An open channel, gravity flow, low pressure high intensity UV disinfection system capable of treating a peak flow of 620,000 gpd while delivering a minimum UV intensity of 30 mJ/cm<sup>2</sup> with an expected ultraviolet transmissivity of 55 percent or greater. The single open channel UV system consists of one reactor with one bank per reactor and 3 lamps racks per bank and 8 lamps per rack for a total of 24 lamps. The



disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 001.

## **6. OPERATING PERMIT**

Operating permit MO-0100684 will require a modification to reflect the construction activities. The modified La Belle WWTF, MO-0100684, was successfully public noticed from September 5, 2024, to October 7, 2024, with no comments received. 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 MOGD issued on July 1, 2024, for the following reason: design flow.

## **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>

Alex Bielefeldt, E.I.  
Engineering Section  
[alex.bielefeldt@dnr.mo.gov](mailto:alex.bielefeldt@dnr.mo.gov)

Chia-Wei Young, P.E.  
Engineering Section  
[chia-wei.young@dnr.mo.gov](mailto:chia-wei.young@dnr.mo.gov)

## **APPENDIX**

- **CAFCOM**

**Missouri Department of Natural Resources  
Water Protection Program  
Cost Analysis for Compliance  
(In accordance with RSMo 644.145)**

**LaBelle WWTF, Permit Renewal/Modification  
City of LaBelle  
Missouri State Operating Permit #MO-0100684**

Section 644.145 RSMo requires the Department of Natural Resources (department) to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws “pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works.” This cost analysis does not dictate how the permittee will comply with new permit requirements.

### **New Permit Requirements**

The permit requires compliance with new monitoring requirements for BOD<sub>5</sub>, TSS, *E. Coli*, pH, Ammonia, Total Kjeldahl Nitrogen, Total Nitrogen, and Total Phosphorus.

### **Connections**

The number of connections was reported by the permittee on the Financial Questionnaire.

<b>Connection Type</b>	<b>Number</b>
Residential	640
Commercial	0
Industrial	0
<b>Total</b>	<b>640</b>

### **Data Collection for this Analysis**

This cost analysis is based on data available to the department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the department with current information about the City’s financial and socioeconomic situation. The financial questionnaire available to permittees on the department’s website (<https://dnr.mo.gov/document-search/financial-questionnaire-mo-780-2511>) is a required attachment to the permit renewal application. If the financial questionnaire is not submitted with the renewal application, the department sends a request to complete the form with the welcome correspondence. Though the department has made attempts to gather financial information from the City of LaBelle; no information has been provided. The department has relied heavily on readily available data to complete this analysis. If certain data was not provided by the permittee to the department and the data is not obtainable through readily available sources, this analysis will state that the information is “unknown”.

### **Eight Criteria of 644.145 RSMo**

The department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

**(1) A community’s financial capability and ability to raise or secure necessary funding;**

<b>Criterion 1 Table. Current Financial Information for the City of LaBelle</b>	
Current Monthly User Rates per 5,000 gallons*	\$21.00
Median Household Income (MHI) <sup>1</sup>	\$35,400
Current Annual Operating Costs (excludes depreciation)	\$NA

\*User Rates were reported by the permittee on a financial questionnaire from 2022

**(2) Affordability of pollution control options for the individuals or households at or below the median household income level of the community;**

The following tables outline the estimated costs of the new permit requirements:

<b>Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements</b>			
New Requirement	Frequency	Estimated Cost	Estimated Annual Cost
BOD <sub>5</sub> – Influent	Monthly	\$44	\$351
BOD <sub>5</sub> – Effluent	Monthly	\$44	\$351
TSS – Influent	Monthly	\$17	\$136
TSS – Effluent	Monthly	\$17	\$136
<i>E. Coli</i> – Effluent	Weekly	\$31	\$1612
pH – Effluent	Monthly	\$9	\$72
Ammonia - Influent	Monthly	\$22	\$264
Ammonia - Effluent	Monthly	\$22	\$264
Total Nitrogen, Kjeldahl - Effluent	Quarterly	\$35	\$280
Total Nitrogen - Effluent	Quarterly	\$79	\$632
Total Phosphorus	Quarterly	\$26	\$208
Total Estimated Annual Cost of New Permit Requirements			\$4,308

<b>Criterion 2B Table. Estimated Costs for New Permit Requirements</b>		
(1)	Total Estimated Annual Cost of New Permit Requirements	\$4,308
(2)	Estimated Monthly User Cost for New Requirements <sup>2</sup>	\$0.56
	Estimated Monthly User Cost for New Requirements as a Percent of MHI <sup>3</sup>	0.019%

(3)	Total Monthly User Cost*	\$21.56
	Total Monthly User Cost as a Percent of MHI <sup>4</sup>	0.731%

\* Current User Rate + Estimated Monthly Costs of New Sampling Requirements

**(3) An evaluation of the overall costs and environmental benefits of the control technologies;**

This analysis is being conducted based on new requirements in the permit, which will not require the addition of new control technologies at the facility. However, the new sampling requirements are being established in order to provide data regarding the health of the receiving stream’s aquatic life and to ensure that the existing permit limits are providing adequate protection of aquatic life. Improved wastewater provides benefits such as avoided health costs due to water-related illness, enhanced environmental ecosystem quality, and improved natural resources. The preservation of natural resources has been proven to increase the economic value and sustainability of the surrounding communities. Maintaining Missouri’s water quality standards fulfills the goal of restoring and maintaining the chemical, physical, and biological integrity of the receiving stream; and, where attainable, it achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

**(4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment system, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates:**

As shown in Criterion 2, the user rate plus the amount for the additional sampling requirements is \$21.56.

The community did not provide the department with this information, nor could it be found through readily available data.

**(5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:**

- (a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
- (b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of Missouri. The following information was compiled using the latest U.S. Census data.

**Criterion 5 Table. Socioeconomic Data <sup>1, 5-9</sup> for the City of LaBelle**

No.	Administrative Unit	La Belle City	Missouri State	United States
1	Population (2022)	784	6,154,422	331,097,593
2	Percent Change in Population (2000-2022)	17.2%	10.0%	17.7%
3	2022 Median Household Income (in 2023 Dollars)	\$35,400	\$68,634	\$78,242
4	Percent Change in Median Household Income (2000-2022)	-9.9%	-1.1%	1.9%
5	Median Age (2022)	27.4	38.8	38.8
6	Change in Median Age in Years (2000-2022)	-15.8	2.7	3.5
7	Unemployment Rate (2022)	2.3%	4.3%	5.3%
8	Percent of Population Below Poverty Level (2022)	40.0%	12.8%	12.5%
9	Percent of Household Received Food Stamps (2022)	22.0%	10.0%	11.5%

**(6) An assessment of other community investments and operating costs relating to environmental improvements and public health protection;**

The community did not report any other investments relating to environmental improvements.

**(7) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;**

The new requirements associated with this permit will not impose a financial burden on the community, nor will they require the City of LaBelle to seek funding from an outside source.

**(8) An assessment of any other relevant local community economic conditions.**

The community did not report any other relevant local economic conditions.

The department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score. The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri.

Based on the assessment tool, the City of LaBelle has been determined to be a category 3 community. This means that the City of LaBelle's socioeconomic status and population is predicted to remain stable over time. Future changes in only a few of the 19 weighted factors could cause this community to experience either a rise or decline of population. If this community experiences a decline in population which results in the inability to secure the necessary funding for an upgrade to meet the new requirements within this permit, a modification to the schedule of compliance may be necessary. The community may contact the department and send an application for a modification to the schedule of compliance with justification for the time necessary to comply with this permit.

**Conclusion and Finding**

As a result of new regulations, the department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.

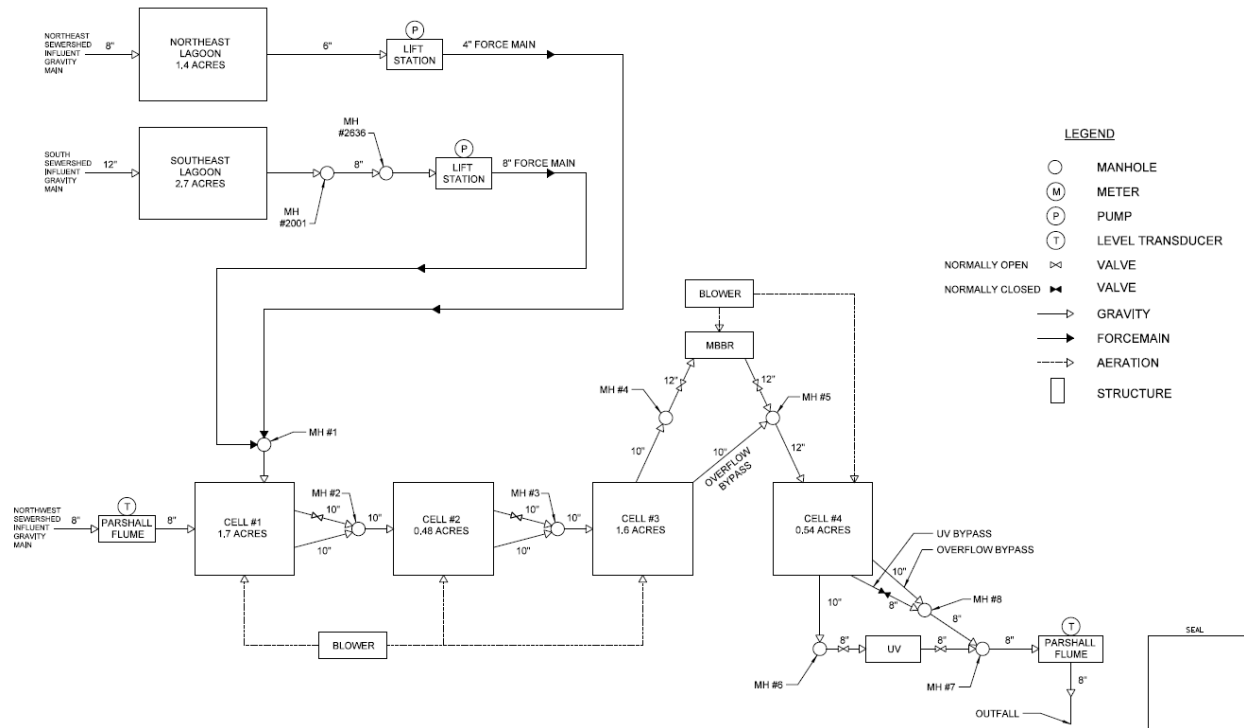
This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

**References**

1. (A) 2022 MHI in 2022 Dollar: United States Census Bureau. 2018-2022 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2022 Inflation-Adjusted Dollars). <https://data.census.gov/cedsci/table?q=B19013&tid=ACSDT5Y2022.B19013>.

- (B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC.  
<https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
- (2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.
- (C) 2023 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2023) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100 (unadjusted) - CUUR0000SAO. <https://data.bls.gov/cgi-bin/surveymost?bls>.
- (D) 2022 MHI in 2023 Dollar = 2022 MHI in 2022 Dollar x 2023 CPI / 2023 CPI; 2000 MHI in 2023 Dollar = 2000 MHI in 1999 Dollar x 2023 CPI / 1999 CPI.
- (E) Percent Change in Median Household Income (2000-2022) = (2022 MHI in 2023 Dollar - 2000 MHI in 2023 Dollar) / (2000 MHI in 2023 Dollar).
2.  $(\$4,308/640)/12 = \$0.56$  (Estimated Monthly User Cost for New Requirements)
  3.  $(\$0.56/(\$35,400/12))100\% = 0.019\%$  (New Sampling Only)
  4.  $(\$21.56/(\$35,400/12))100\% = 0.731\%$  (Total User Cost)
  5. (A) Total Population in 2022: United States Census Bureau. 2018-2022 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population.  
<https://data.census.gov/cedsci/table?q=B01003&tid=ACSDT5Y2022.B01003>.  
(B) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.  
(2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC.  
<https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf>.  
(C) Percent Change in Population (2000-2022) = (Total Population in 2022 - Total Population in 2000) / (Total Population in 2000).
  6. Median Age in 2022: United States Census Bureau. 2018-2022 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population.  
<https://data.census.gov/cedsci/table?q=B01002&tid=ACSDT5Y2022.B01002>.  
(B) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf>.  
(2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92.  
<https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf>.  
(C) Change in Median Age in Years (2000-2022) = (Median Age in 2022 - Median Age in 2000).
  7. United States Census Bureau. 2018-2022 American Community Survey 5-Year Estimates, S2301: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over.  
<https://data.census.gov/cedsci/table?q=unemployment&tid=ACSST5Y2022.S2301>.
  8. United States Census Bureau. 2018-2022 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months. <https://data.census.gov/cedsci/table?q=S1701&tid=ACSST5Y2022.S1701>.
  9. United States Census Bureau. 2018-2022 American Community Survey 5-Year Estimates, Table S2201: Food Stamps/Supplemental Nutrition Assistance Program (SNAP) - Universe: Households.  
<https://data.census.gov/cedsci/table?q=S2201&tid=ACSST5Y2022.S2201>.

• **Process Flow Diagram**



• **Summary of Design**

The approved facility plan identified the City's best path toward regulatory compliance is a project to include the following improvements funded through an ARPA grant.

- Sludge will be removed from all 6 treatment cells.
- Lagoon aeration will be added to the La Belle Northwest Wastewater Treatment Facility.
- Ultra-violet disinfection will be added to the La Belle Northwest Wastewater Treatment Facility.
- Effluent flow measurement will be updated at the La Belle Northwest Wastewater Treatment Facility.
- Replacement of pump for wastewater transfer from the Northeast facility to the Northwest facility along with a new force main. See *Exhibit 1*.
- Associated pipes, valves, and structures will be installed and or decommissioned as needed.
- Ammonia removal treatment will be added to the La Belle Northwest Wastewater Treatment Facility using a Moving Bed Bio Reactor (MBBR).