

**COVER SHEET FOR PUBLIC FACILITIES PROJECTS**

**FY 2024 - FY 2025 Funding Cycle**

**Rating Type:** Sewer Treatment      **Estimated Amount Requested:** \$1,950,000

**Applicant:** City of Natchitoches      Phone: 318-352-2772

Name of President/Mayor: Ronnie Williams, Jr.

Local Contact Person: Nicole Gray      Email: ngray@natchitochesla.gov

**Administrative Consulting Firm:** \_\_\_\_\_ Phone: \_\_\_\_\_

Project Contact Person: \_\_\_\_\_ E-mail: \_\_\_\_\_

**Engineering Firm:** BALAR      Phone: 318-221-8312

Project Contact Person: Jimmy Hagan, Jr.      E-mail: jimmy.hagan@balar-engineers.com

**Legislative Districts:** State Senate: 31      State Rep.: 22      U.S. Congress: 4

**UEI:** Y58YYPGVLG57      **SAM Cage Code:** 3EBD5

**List LDH Region:** 7

**Chief Elected Official (Print):** Ronnie Williams, Jr.

**Chief Elected Official Signature:** *Ronnie Williams Jr*      **Date:** 12/5/2024

**For State Use Only**

Application submitted date: _____	Application Number: _____
Notes: _____	
_____	

PROJECT DESCRIPTION

**Nature of Project:**

The City of Natchitoches proposes to construct improvements at its existing wastewater treatment plant to address identified physical/operational deficiencies in the mechanical process equipment, correct violations of the *Louisiana State Sanitary Code* and the *Recommended Standards for Wastewater Facilities (Ten States Standards)*, and ensure continuous compliance with mandated effluent limitations in *Louisiana Pollutant Discharge Elimination System (LPDES) Discharge Permit LA0095222*.

**Description of Problem:**

**Background Information:**

The City of Natchitoches operates a wastewater collection system that serves approximately 6,500 residences, commercial establishments, and industrial/institutional customers within the corporate limits of the City. Wastewater is collected from those sewer customers by a collection system consisting of gravity sewer mains ranging in size from 6” to 42” diameter and an estimated sixty (60) sewer lift stations. All wastewater eventually flows to a main lift station on Saida Street east of La. Hwy. 1 and is pumped through a 30” sewer force main to the City’s sewer treatment plant at the east end of Laird Fletcher Road near the Red River.

The existing sewer treatment plant was constructed in the early 1990’s and few major upgrades or improvements have been made to the facility since that time. The treatment plant has a rated design capacity of 4.9 MGD and average wastewater flows are typically 2.25-2.50 MGD. The facility consists of a plant headworks structure with mechanical screening and grit removal facilities. At the plant headworks, wet weather wastewater flows more than the rated treatment capacity can be diverted into adjacent equalization basins as needed to maintain the efficiency and effectiveness of the treatment process and subsequently returned to the treatment process when influent flows decrease to normal levels.

From the plant headworks structure, wastewater enters three (3) oxidation ditch aeration basins that utilize brush rotor aerators to maintain aeration and mixing and that contains “boat” type in-basin clarification equipment. The oxidation ditches operate in parallel and individual aeration basins may be removed from service for repairs and/or maintenance. Effluent from the oxidation ditches enters a single ultraviolet (UV) disinfection basin followed by flow monitoring facilities as is then discharged into the receiving stream (Red River).

Waste sludge from the treatment process is collected by the “boat” clarifiers in the oxidation ditches and conveyed into two (2) parallel sludge thickening units. These thickening units consist of two (2) parallel 55’ diameter basins that essentially function as clarifiers. The thickening units serve to increase the solids content of the waste sludge and/or reduce the volume of the sludge so that it may be effectively dewatered on an adjacent belt filter press. Sludge dewatered by the belt filter press is retained in a covered storage area and is ultimately disposed of in a permitted landfill in accordance with applicable state and federal regulations.

**Description of Current Deficiencies:**

The City’s existing treatment plant is in fair physical and operational condition given its age. The plant regularly meets effluent permit limitations mandated in the City’s LPDES permit with only limited exceedances. However, the City recently experienced the catastrophic failure of the mechanical equipment in the easternmost sludge thickening basin (Basin No. 2) and is currently working to replace the sludge thickening equipment at a cost of more than \$800,000. Given the physical deterioration of the rotating sludge thickening equipment in Basin No. 2, the equipment in Basin No. 1 is in a similar condition and is susceptible to imminent failure.

(Use only one sheet per target area)

**PROJECT DESCRIPTION**

Operation of both sludge thickening basins is critical in maintaining the extended aeration process in the oxidation ditch basins. Without both sludge thickeners in full-scale operation, the City is unable to condition the waste sludge from the “boat” clarifiers such that it can be effectively dewatered and disposed of as described above. Without fully operational sludge handling facilities, waste sludge accumulates in the “boat” clarifiers and adversely impacts the extended aeration treatment process in the oxidation ditches. Mechanical failure of the thickening equipment and the resulting impact on the treatment process and associated sludge/biosolids handling are violations of the *Louisiana State Sanitary Code, Title 51, Part 12, Chapter 5, Paragraph 505*, *LPDES Discharge Permit LA0095222, Part III, Section B, Paragraph 3*, and the *Recommended Standard for Wastewater Facilities (Ten States Standards)* that requires redundant treatment units.

Please refer to the photographs at the end of this narrative which depict the deplorable physical condition of the sludge thickening equipment in the sludge thickening basins.

**Proposed Scope of Work or Nature of Corrective Action(s):**

**Description of Improvements:**

The City proposes to remove the existing mechanical sludge thickening equipment and any accumulated sludge in Basin No. 1 and install new rotating sludge thickening equipment in-kind in that basin. Along with the rehabilitation work currently in progress in Basin No. 2, completion of the proposed project will return the City’s sludge handling/dewatering facilities to full-scale operation and eliminate the adverse impact on the extended aeration treatment process in the oxidation ditches. The City will also replace an existing 1,200 kW emergency generator that is 30 years old, is marginally operational, and that is not reliably provide backup electrical power necessary to maintain the wastewater treatment process during electrical power disruptions. Installation of a reliable emergency power supply will greatly enhance the sustainability and resiliency of the treatment process during adverse weather events when power disruptions are most likely to occur. The above process and electrical equipment will be reconnected to the existing plant piping, electrical, and control systems as required for a complete and operable installation.

**Resiliency & Sustainability Considerations:**

Based on the wastewater system resilience/sustainability documentation maintained by the City, the single most pronounced threat/risk to resiliency of the Natchitoches wastewater system is disruption of electrical power resulting from significant inclement weather events including tornados, straight line winds, and winter precipitation. No serious tornadoes or straight line winds have damaged the electrical grid in the Town in the past few years. However, the City's water and wastewater infrastructure have been adversely impacted over the past three (3) years by disruptions in electrical power directly resulting from freezing precipitation that downed overhead power lines.

The City has dedicated emergency generators or bypass pumping capabilities at many of its lift stations. The City also has an existing emergency generator at its wastewater treatment plant. However, the generator at the wastewater treatment plant is marginally operable and is not reparable due to age and deterioration. The City does not own an alternate mobile generator of sufficient size to power the wastewater treatment plant in the event of a power disruption or loss of electrical power. The City anticipates continuing issues related to the resilience of its wastewater treatment facilities without installation of an adequate emergency power supply.

PROJECT DESCRIPTION



Photo #1 - Failed Sludge Thickening Equipment (Basin No. 2)  
Wastewater Treatment Plant  
City of Natchitoches, Louisiana

(Use only one sheet per target area)



PROJECT DESCRIPTION



Photo #2 - Failed Sludge Thickening Equipment (Basin No. 2)  
Wastewater Treatment Plant  
City of Natchitoches, Louisiana

(Use only one sheet per target area)

PROJECT DESCRIPTION



Photo #3 - Failed Sludge Thickening Equipment (Basin No. 2)  
Wastewater Treatment Plant  
City of Natchitoches, Louisiana

(Use only one sheet per target area)



PROJECT DESCRIPTION



Photo #4 - Failed Sludge Thickening Equipment (Basin No. 2)  
Wastewater Treatment Plant  
City of Natchitoches, Louisiana

(Use only one sheet per target area)

**ENGINEER'S COST ESTIMATE**

(Refer to the instructions for the specific information that must be included herein. Attach additional sheets if necessary.)

**APPLICANT: City of Natchitoches, Louisiana**

**CONSTRUCTION:**

DESCRIPTION	QTY.	UNIT	UNIT PRICE	LOCAL FUNDS	LCDBG FUNDS	TOTAL AMOUNT
Mobilization	1	L.F.	\$50,000.00	\$0.00	\$50,000.00	\$50,000.00
Demolition/Removal of Existing Wastewater Treatment Equipment	1	L.F.	\$30,000.00	\$0.00	\$30,000.00	\$30,000.00
New Gravity Sludge Thickener Equipment*	1	L.F.	\$850,000.00	\$0.00	\$850,000.00	\$850,000.00
Demolition of Existing Emergency Generator	1	L.F.	\$10,000.00	\$0.00	\$10,000.00	\$10,000.00
1200kW Emergency Generator*	1	L.F.	\$550,000.00	\$0.00	\$550,000.00	\$550,000.00
Electrical & Controls (Sludge Thickener)*	1	Each	\$50,000.00	\$0.00	\$50,000.00	\$50,000.00
Electrical & Controls (Generator)*	1	Each	\$75,000.00	\$0.00	\$75,000.00	\$75,000.00
Plant Piping*	1	Each	\$50,000.00	\$0.00	\$50,000.00	\$50,000.00
Sitework & Ancillary Items	1	Each	\$20,000.00	\$0.00	\$20,000.00	\$20,000.00

\*Materials in bid item assumed to be covered under BABA requirements.

Improvement to maintain resiliency/sustainability of wastewater system.

Subtotal Construction Cost:	\$0.00	\$1,685,000.00	\$1,685,000.00
Contingencies:	\$0.00	\$165,000.00	\$165,000.00
<b>Total Construction Cost:</b>	<b>\$0.00</b>	<b>\$1,850,000.00</b>	<b>\$1,850,000.00</b>

**ENGINEERING:**

Basic Services (7.49% x \$1,850,000):	\$138,565.00	\$0.00	\$138,565.00
Resident Project Representative Services (3.06% x \$1,850,000):	\$56,610.00	\$0.00	\$56,610.00
Topographic Surveying/Construction Layout (\$1,000/Day x 2 Days):	\$2,000.00	\$0.00	\$2,000.00
<b>Total Engineering Cost:</b>	<b>\$197,175.00</b>	<b>\$0.00</b>	<b>\$197,175.00</b>

**LAND ACQUISITION COSTS:**

\$0.00	\$0.00	\$0.00
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**GRANT ADMINISTRATION COSTS:**

\$0.00	\$100,000.00	\$100,000.00
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**PRE-AGREEMENT COSTS:**

Engineering Preagreement:	\$0.00	\$0.00	\$0.00
Administrative Preagreement:	\$0.00	\$0.00	\$0.00
Household Surveys:	\$0.00	\$0.00	\$0.00
<b>Total Preagreement Costs:</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>

**TOTAL PROJECT COST:**

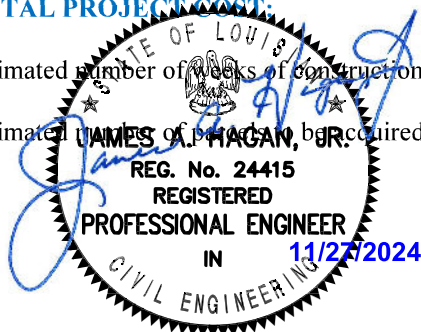
<b>\$197,175.00</b>	<b>\$1,950,000.00</b>	<b>\$2,147,175.00</b>
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Estimated number of weeks of construction: \_\_\_\_\_

52

Estimated number of weeks of construction to be acquired: \_\_\_\_\_

0



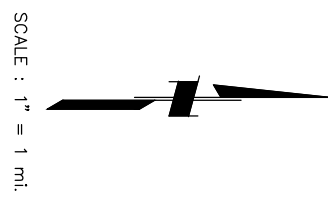
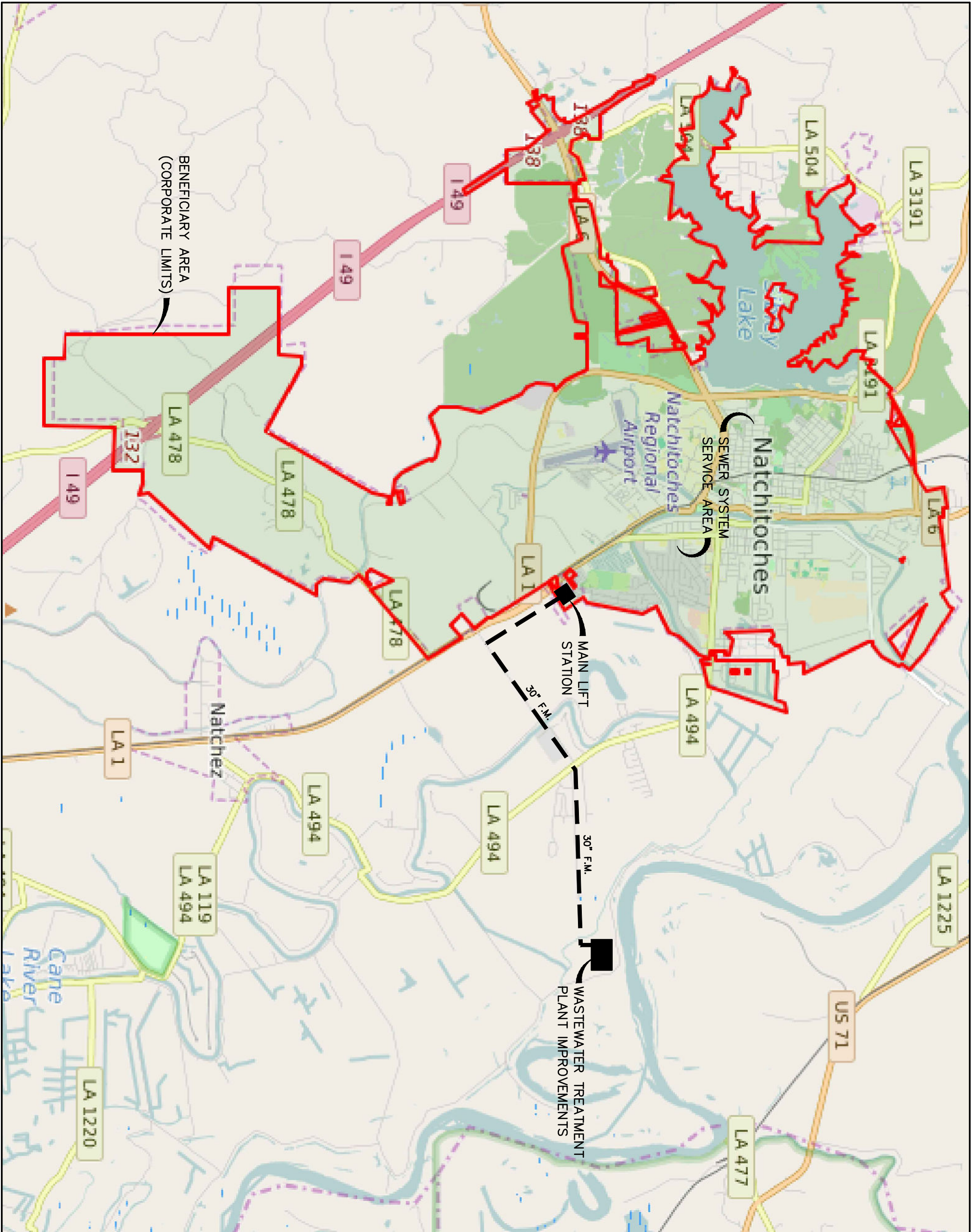
Signature of  
Licensed /Engineer

Prepared By:  
**BALAR Associates, Inc.**  
631 Milam Street, Suite 300  
Shreveport, LA 71101

November 27, 2024

Date





mk.	description	by	date
revisions			

of 1 sheets  
sheet no. 1

**2024 – 2025 L.C.D.B.G. APPLICATION  
WASTEWATER TREATMENT PLANT IMPROVEMENTS  
TOWN OF NATCHITOCHEES  
NATCHITOCHEES PARISH, LOUISIANA**



BALAR ASSOCIATES, INC.  
631 MILAM STREET, SUITE 300  
SHREVEPORT, LOUISIANA 71101  
PHONE : 318-221-8312  
FAX : 318-424-6508  
E-MAIL: balar@balar-engineers.com  
WEB: www.balar-engineers.com  
LOUISIANA REGISTRATION No. 64  
TEXAS REGISTRATION No. F-11221

drawn: D. J. T.  
checked: J. A. H.  
date: NOVEMBER, 2023  
project: 40104.25



## DEQ / LDH Certification Form

Name of Applicant: City of Natchitoches

Brief description of proposed project: Rehab Sludge Thickener at Waste Water Plant + Replace Standby Generator

- For Municipalities: Does the water/sewer utility system within the corporate limits require improvements that qualify for LCDBG Public Facilities assistance? Yes  No

- For Parishes: Does any water/sewer utility system within the parish boundaries require improvements that qualify for LCDBG Public Facilities assistance? Yes  No

Signature of Responsible Entity: Ronnie Wilkerson

Name of above-referenced water system: \_\_\_\_\_

Name of above-referenced sewer system: City of Natchitoches

**\* For parish projects, attach a map of the target area(s) in relation to parish boundaries. \***

### Louisiana Department of Health (for water systems only)

I agree that the above-referenced water utility system is not currently in violation of any LDH regulations that would necessitate CDBG Public Facilities assistance.

Yes

Name (printed): Barbara Featherston, P.E.

No

Signature: Barbara Featherston

If no, state why: The system is currently under an Administrative Order. Funding for work related to resolving that order has been procured by the system through bonds and a WSC grant.

### Louisiana Department of Environmental Quality (for sewer systems only)

I agree that the above-referenced sewer utility system is not currently in violation of any DEQ regulations that would necessitate CDBG Public Facilities assistance.

Yes

Name (printed): SHARON A. CRAYTON

No

Signature: Sharon A. Crayton

If no, state why: \_\_\_\_\_