



CITY OF QUITMAN WASTEWATER FACILITY PLAN

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SUMMARY, CONCLUSIONS, & RECOMMENDATIONS

The City of Quitman, located in Clarke County, has worked diligently to provide reliable wastewater service to its citizens. Unfortunately, the wastewater collection system, including multiple pump stations, is in urgent need of improvements to continue providing reliable water service to the City. Sanitary sewer overflows have occurred on multiple occasions. The City has made numerous repairs to the collection system and pump stations, but complete rehabilitation is necessary.

All of the City's wastewater flows are transported to the wastewater treatment lagoon through an existing 21" gravity main which suffered a collapse in early 2020 as shown on the cover page. As much of the system was constructed in the same timeframe and of similar materials, additional catastrophic failures like this could occur.

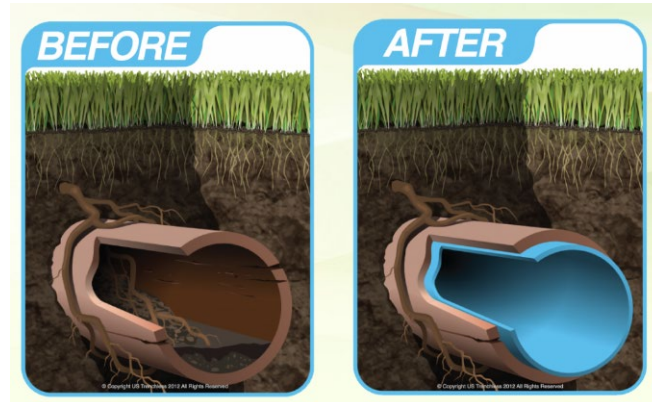
Over the past decade the City has completed numerous improvements to its wastewater treatment lagoon, which have been successful in allowing the facility to meet National Pollution Discharge Elimination System (NPDES) permit limits. However, components of this equipment are nearing the end of their expected service life and need replacement for the lagoon to continue functioning properly.

The combination of these problems makes providing reliable sewer service for the customers very difficult for the City. The citizens of Quitman are facing an increasing environmental and public health threat due to the failures listed in the wastewater collection system.

This plan includes several exhibits to demonstrate the Quitman's current condition and its needs for improvement. Exhibit 1 depicts the planning area. Exhibit 2 provides a layout of the existing wastewater collection and treatment system. Exhibits 3 and 4 illustrate the location of the recommended improvements for the wastewater collection/treatment system. These improvements include the following:

- Gravity Collection System Rehabilitation - The gravity mains in this area are aging and have reached the end of their useful service life. In addition, these mains were constructed with clay pipe - which is now recognized as an inferior construction material. These aging mains no longer provide adequate service to this area and need rehabilitation to prevent water from moving freely into and out of the gravity collection system. The problem areas identified by CCTV inspection for repair will be lined with Cured-in-Place Pipe (CIPP). Manholes should be visually inspected and lined as necessary. Figure 1 depicts the improvement to the gravity main after this type of rehabilitation.

Figure 1 – Cured in Place Pipe Improvements



- Wastewater Treatment Lagoon Improvements - The proposed project includes the rehabilitation of the existing floating fine bubble aeration units ensure the facility can continue meet the NDPES permit requirements. Also, the existing baffle curtain needs replacement. Recently, Total Suspended Solids (TSS) numbers have been high, likely due to the failure of this curtain. This lagoon is a partially aerated lagoon followed by a polishing cell. The baffle curtain was the boundary that established the “polishing cell”. Replacement of this curtain will allow the lagoon to function as designed and reduce the TSS numbers. The existing wastewater treatment lagoon was previously dredged to allow for more operational depth. The removed solids were bagged and allowed to stabilize on site. These should be properly disposed as per MDEQ Solid Waste regulations and to allow for more working room on the site.
- Pump Station Rehabilitation - The proposed project includes rehabilitation of seven pump stations through the installation of new submersible pumps as well as improved electrical control panels. These pumps will be installed on guide rails to facilitate future maintenance. New control panels and floats are also recommended to provide increased station reliability.

NEED FOR THE PROJECT

The City of Quitman is a small City located in Clarke County. This small City has approximately 2000 residents. The City of Quitman is struggling with an ever increasingly critical wastewater collection system need. The gravity collection system for the City faced a catastrophic failure in 2020 that could be repeated at any time. A section of 21" gravity main that collects wastewater flow from the entire City and transports it to the wastewater treatment lagoon collapsed. This collapse also destroyed a nearby manhole. This single failure cost the financially struggling City over \$50,000.

The gravity collection system is approximately the same age as the area where the failure occurred and susceptible to similar failure at any time. A catastrophic failure of the gravity collection system presents an imminent environmental and public health threat as there is no alternative for wastewater treatment. The potential discharge of raw sewage from another failure would be significant. The system suffers from increased infiltration/inflow (I/I). This added flow results in an increased likelihood of sanitary sewer overflows (SSOs) and bypasses. In addition, these mains were originally constructed with clay pipe which is now considered inferior to other, more accepted materials. These aging mains no longer provide adequate service to this area and need rehabilitation.

To complicate issues with the aging collection system, localized flooding issues have historically affected the City of Quitman, specifically the western side of the City. In recent years, significant flooding events have occurred in 2018, 2019, 2020, and 2021. During these flood events, the wastewater collection system on the western side has become overloaded. Flows should be removed from the gravity collection system to help reduce the flow on this section of the gravity sewer system.

The wastewater treatment lagoon also needs improvements. The existing aeration equipment is over a decade old and in need of rehabilitation to continue meeting the NPDES permit discharge limits. This rehabilitation will include new EPDM flexible floating aeration piping, new aeration diffuser tubes, and a backup blower. The improvements are necessary to ensure the facility can continue to meet the NPDES requirements.

The wastewater system has seven pump stations which are critical to providing reliable sewer service to this area. Seven of the nine stations need new pumps and controls to continue their vital function.

These issues present an imminent environmental and public health threat to citizens and the environment in the project area. Without the recommended improvements, the wastewater system will continue to pose a significant public health risk for those who live within the City Limits/project area.

With the proposed upgrades in this Project, the City of Quitman will:

- **Reduce the public health and environmental threat by repairing and rehabilitating the aging gravity mains and manholes in the project area. This work will restore reliable sewer service to these customers along with reducing water movement in and out of the sewer system.**

- **Reduce the public health and environmental threat by rehabilitating seven existing pump stations through the installation of new pumps on guide rails and improved control panels to provide reliable sewer service to these customers.**
- **Reduce the public health and environmental threat by offloading flows from the gravity collection to a proposed new pump station and force main.**
- **Reduce the public health and environmental threat by making improvements and adding additional equipment at the wastewater treatment lagoon, so the facility can continue to meet NPDES permit limits. These improvements include rehabilitation of existing floating fine bubble aeration units, installation of a backup blower, and other repairs.**

EXISTING SITUATION

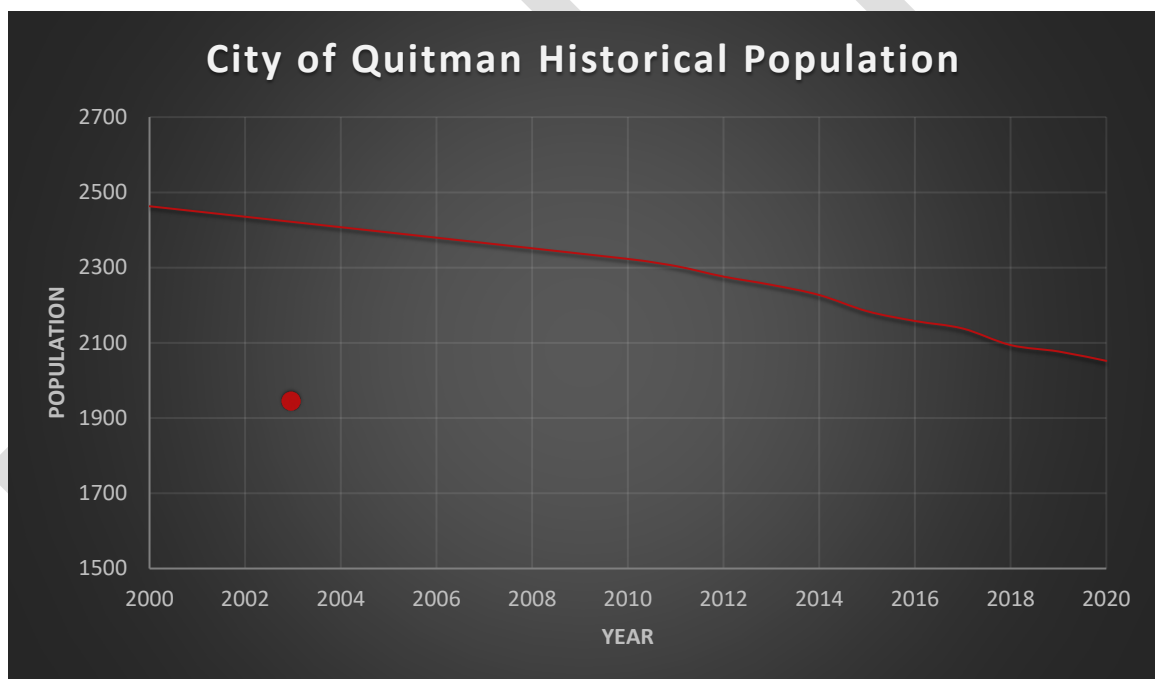
A. PLANNING AREA

The Planning Area is shown in Exhibit 1. The planning area is bounded by the City of Quitman municipal limits.

B. POPULATION SERVED

Like many small Cities in Mississippi, the City of Quitman has suffered a declining population in recent years. Figure 2 depicts the population since 2000. As shown here, the population has declined from nearly 2,500 people to 2,052.

Figure 2 -City of Quitman Historical Population¹



C. SURFACE WATERS

The City of Quitman wastewater treatment lagoon discharges into the Chickasawhay River. The wastewater treatment facility is surrounded by a flood zone, but the levee elevations are above the flood zone elevation (see Appendix E).

¹ US Census Bureau City and Town Population Totals, <https://www.census.gov/programs-surveys/popest/technical-documentation/research/evaluation-estimates/2020-evaluation-estimates/2010s-cities-and-towns-total.html>

D. ORGANIZATIONAL CONTEXT

The City of Quitman is served by a Mayor and Board of Alderman. The City employs a Public Works Director and water/wastewater staff.

E. LOCATION, DESCRIPTION, AND PERFORMANCE OF EXISTING FACILITIES

1. COLLECTION SYSTEM

The City of Quitman Mississippi works diligently to provide its citizens with reliable centralized collection and disposal of wastewater. Both the existing system and its service area are shown in Exhibit 2. This centralized collection system transports wastewater to the wastewater treatment facility (WWTF) owned by the City.

The oldest areas of the collection system have been in service for over 60 years. Additionally, the system was constructed with vitrified clay pipe, which is no longer preferred for sewer systems. Clay pipe is brittle and easily breaks, is prone to root intrusion, and is difficult to repair. These factors lead to increased failures as the system ages, as well as increased inflow/infiltration. The existing collection and transportation system consists of the components in Figure 3.

Figure 3 - Wastewater Collection System Components

Collection System Components	Total
8" Gravity Main, LF	198,750
21" Gravity Main, LF	3,600
4" Force Main, LF	5,700
6" Force Main, LF	2,000
8" Force Main, LF	6,350
Pump Stations	9

Inflow/Infiltration (I/I) is defined as the movement of wastewater into the system from surrounding areas. Inflow is stormwater that enters sanitary sewer systems at points of direct connection to the systems. Infiltration is groundwater that enters sanitary sewer systems through cracks and/or leaks in the sanitary sewer pipes. Cracks or leaks in sanitary sewer pipes or manholes may be caused by age-related deterioration, loose joints, damage, or root infiltration.

Figure 4 illustrates the differences between inflow and infiltration.

Figure 4- Inflow vs Infiltration

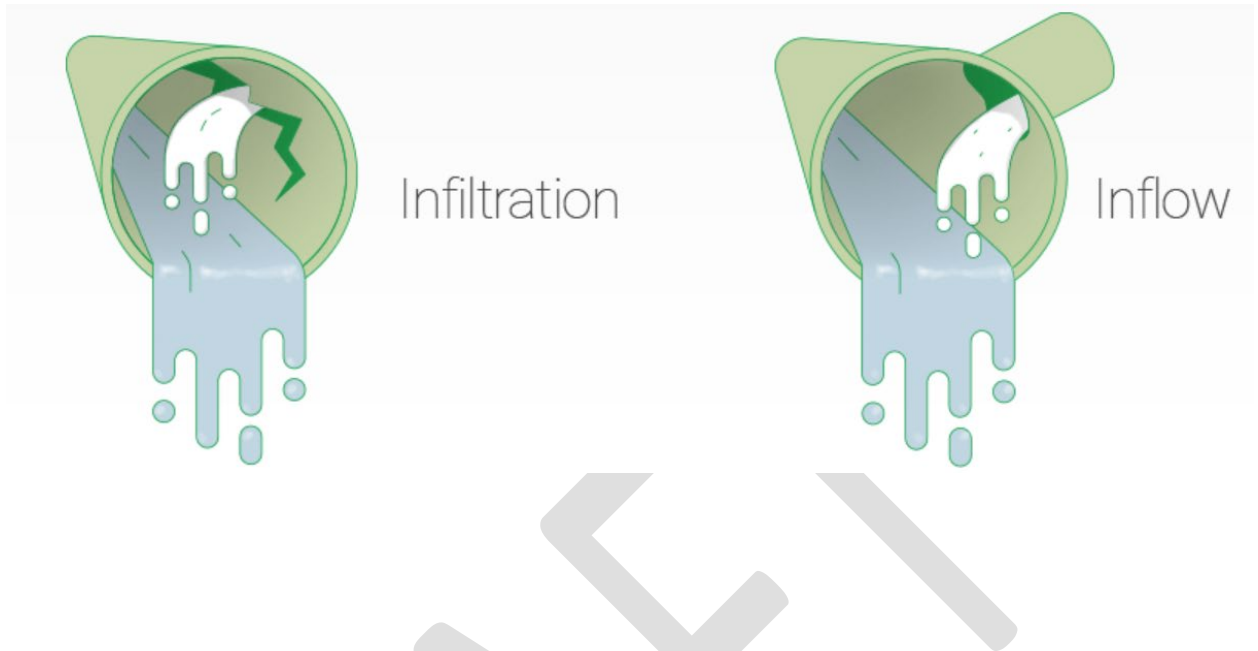


Figure 5 illustrates the typical effect of I/I on total system wastewater flows. Figure 6 and Figure 7 illustrate the type of failures which have been found previously in the system and are expected to occur throughout the system.

Figure 5- Typical Increased System Flows from I/I

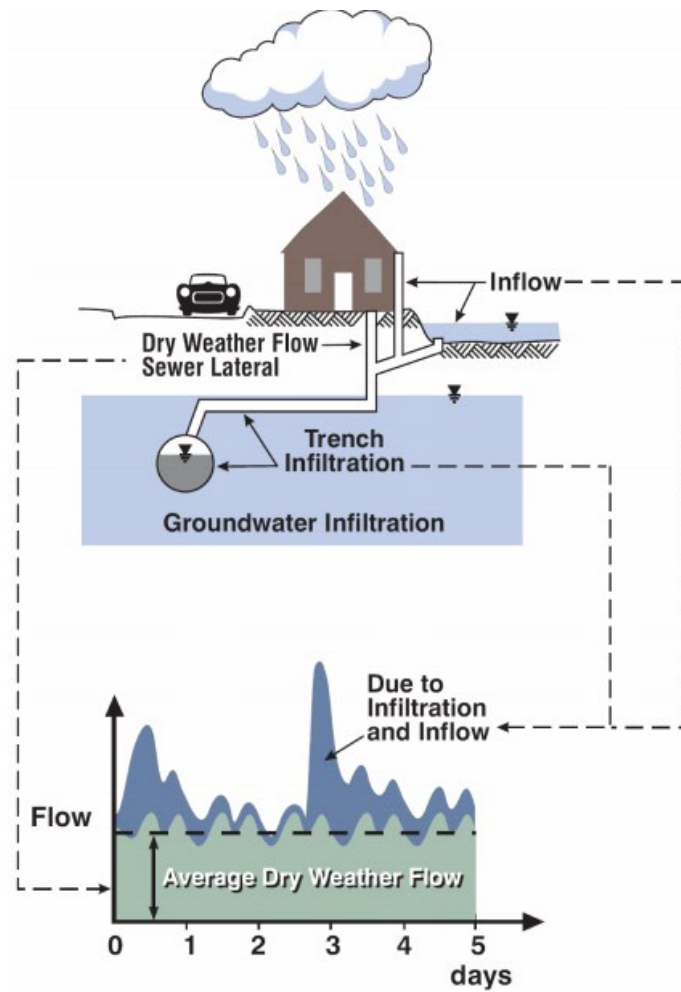


Figure 6 – Typical Joint Failure



Figure 7- Typical Clay Pipe Failure



Beyond the damaging effects to the gravity mains, I/I also can often have other detrimental effects within the collection system. The movement of additional water into the gravity system also brings sand and other debris. All this extraneous material is pumped through the pump stations

into the wastewater treatment lagoon. The additional flow causes pumps to run longer than normal to move the water and debris through the system. The debris that is not pumped settles in the gravity mains, reducing the available pipe capacity. The longer run times and debris movement reduces the lifespan of the pumps. Figure 8 and Figure 9 illustrate the relationship between rainfall and various pump station runtimes. As this clearly indicates, when rainfall amounts increase, pump runtimes increase. In fact, the collection system often takes multiple days to return to “normal” flows after a rainfall. This is clear indication of significant I/I in the collection system. This relationship is further proven when the precipitation is compared to lagoon flows as shown in Figure 10.

Figure 8 – 2020 Total Pump Station Run Times vs Precipitation

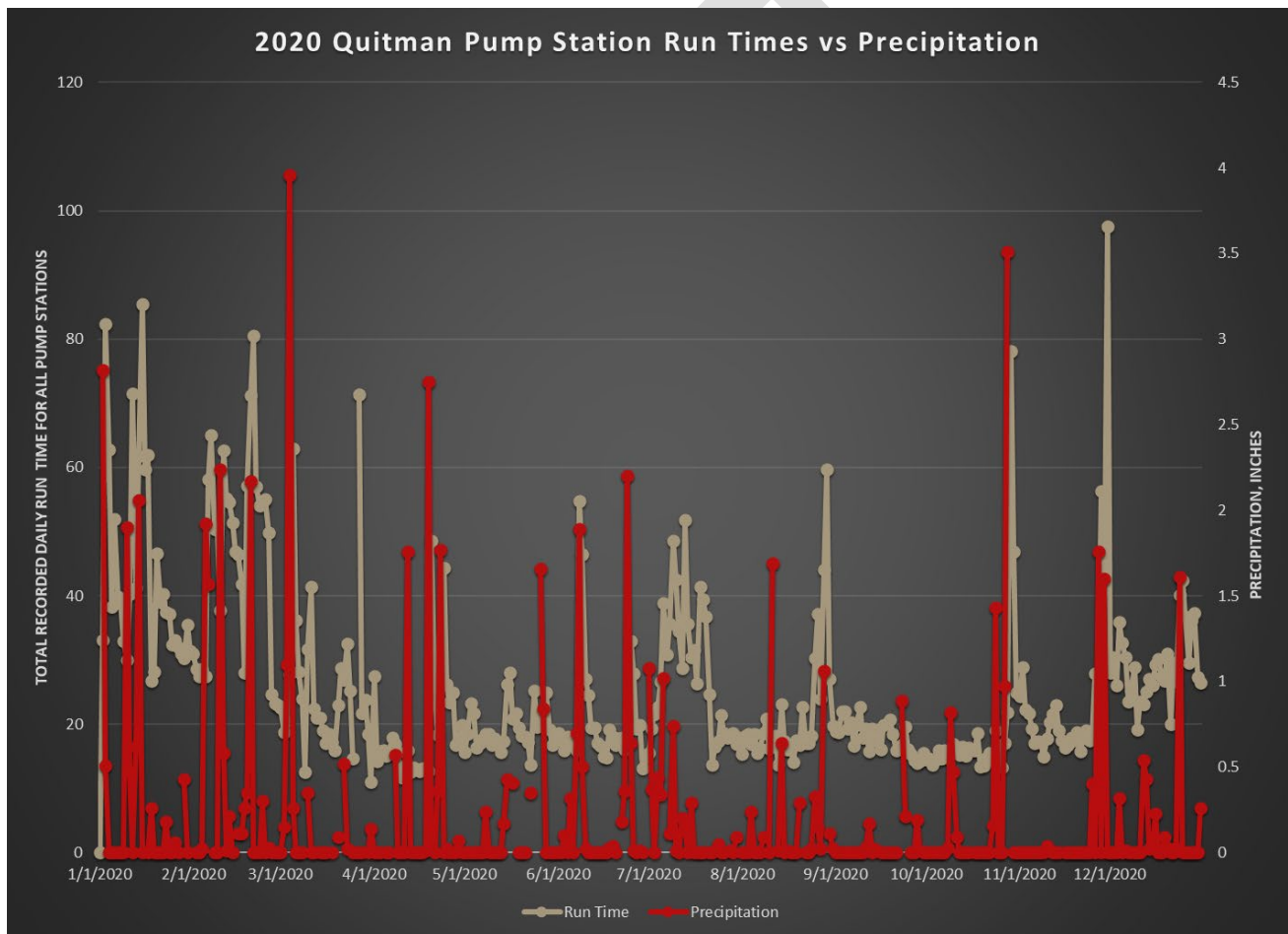


Figure 9 - 2021 Total Pump Station Run Times vs Precipitation

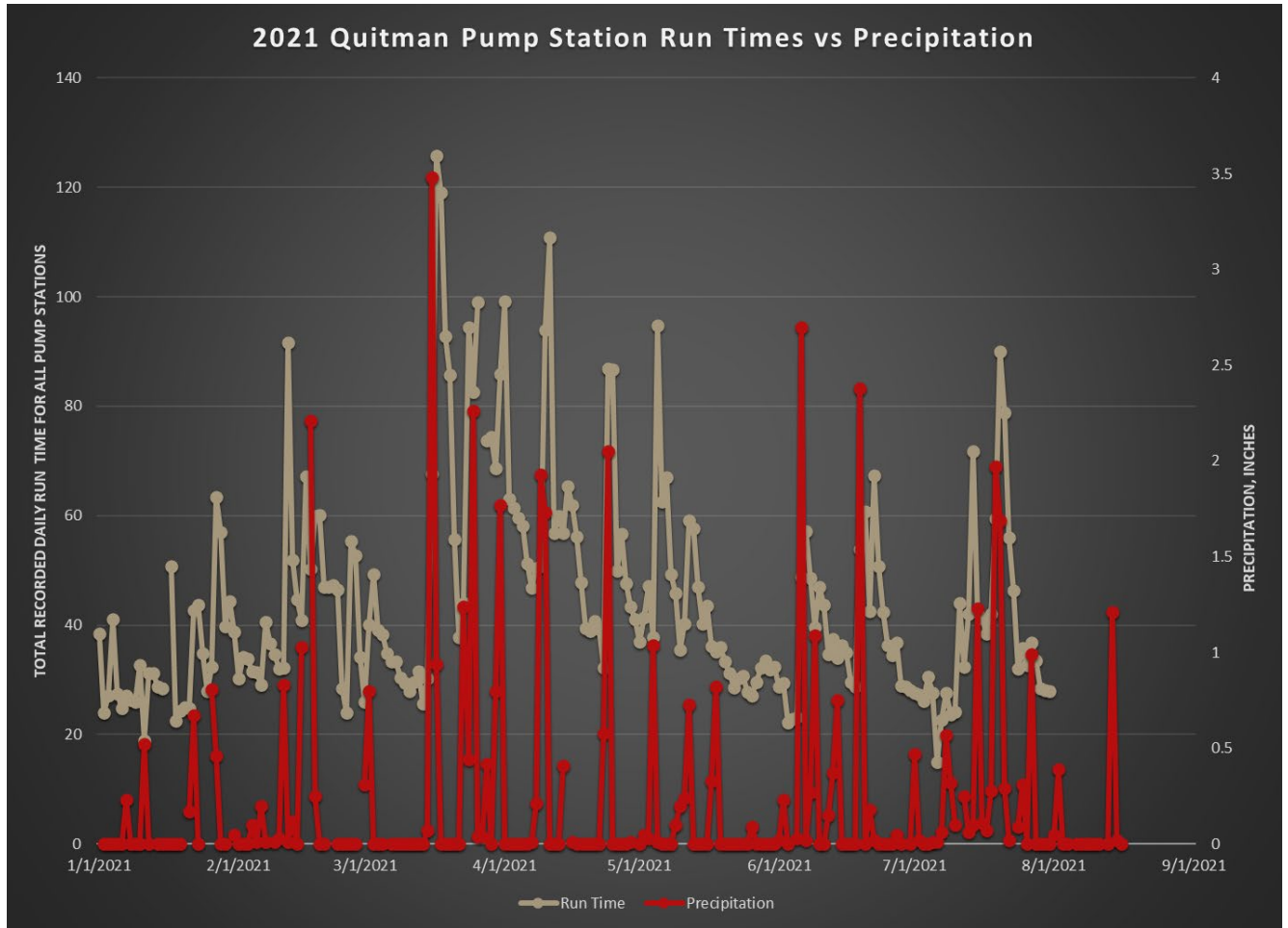
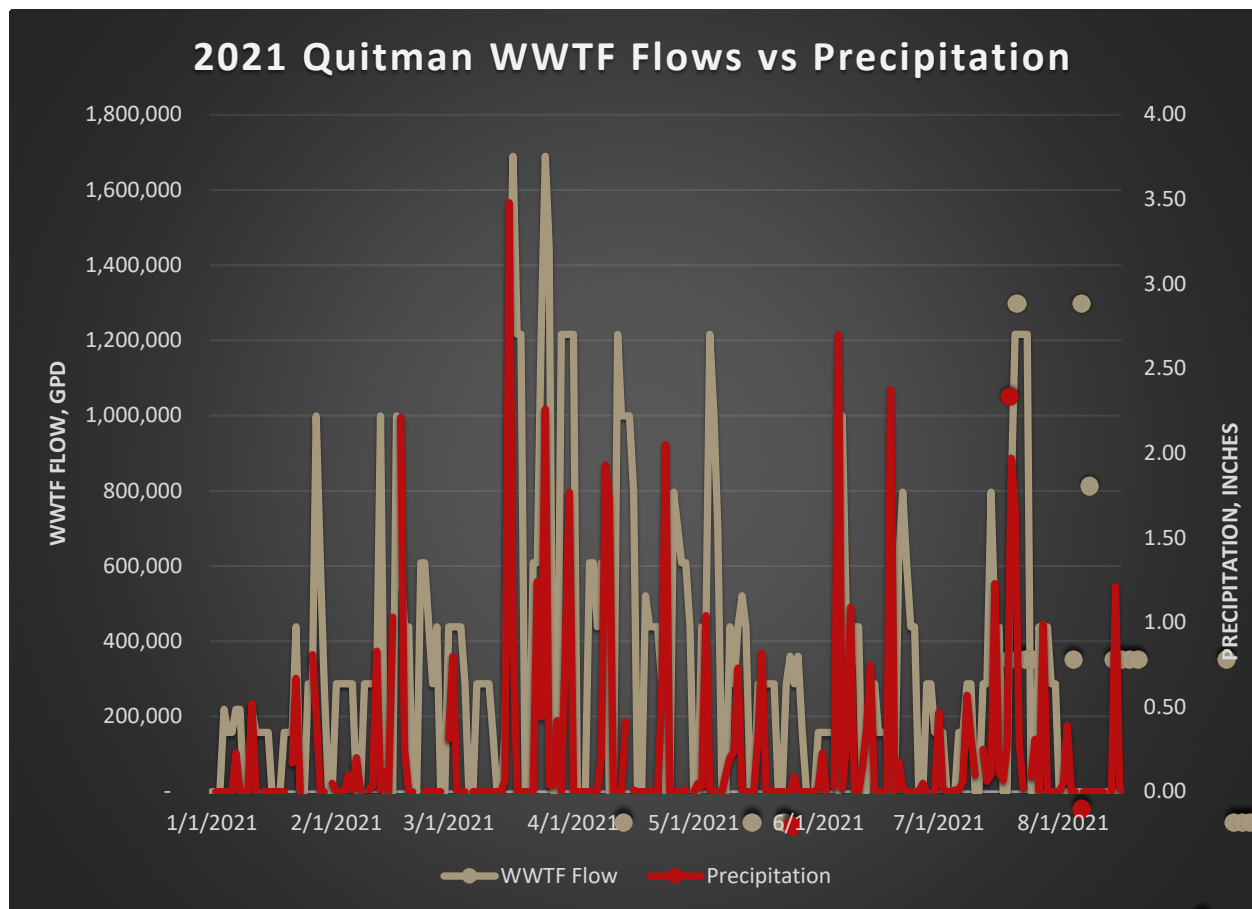


Figure 10 -2021 Quitman WWTF Flows vs Precipitation



Increased flow sent to the lagoon due to I/I can reduce the retention times within each treatment area within the facility, resulting in incomplete treatment. Also, the grit and debris that are moved through the wastewater collection system to the treatment facility then settles out in the lagoon. Over time, this debris layer continues to build and decreases the operational depth of the lagoon, which has a negative impact on lagoon functionality.

Due to its age and original construction material, problem areas within the collection system needs rehabilitation to repair the damage done to the collection system by I/I and limit the amount of I/I being transported to the City's WWTF.

The system's nine pump stations are located throughout the system. Seven of these stations are aging and in need of rehabilitation via new pumps and controls to extend their service life for the citizens of Quitman. The City of Quitman has suffered from repeated localized flooding events which overload the sanitary sewer collection system as shown in the following images causing sanitary sewer overflows. Bypass reports for the most recent flooding in August 2021 are included

in the Appendix. Brown and Thompson Street Pump Stations are located on the western side of City where the majority of these localized flooding events occur. To offload these pump station flows from gravity collection system a new pump station and force main are proposed in the Donald Street area. This proposed station will remove 800-1000 gpm from the gravity collection system and transport it directly to the wastewater treatment lagoon without using the 21" gravity main.

Figure 11 – August 2021 Localized Flooding in Brown/Thompson PS Service Area



Figure 12 – August 2021 Localized Flooding in Brown/Thompson PS Service Area



Figure 13 – August 2021 Localized Flooding in Brown/Thompson PS Service Area



2. WASTEWATER TREATMENT LAGOON

The existing wastewater treatment lagoon facility is a 0.99 MGD aerated lagoon. The facility is shown in Figure 14. The site is approximately 7.5 acres. Wastewater enters the facility from the collection system at the influent pump station. The influent pump station moves the flow into the primary treatment cell. Aeration is provided by floating fine bubble diffused aerators. After the primary treatment cells, flows then enter the polishing cell of the lagoon bordered by the existing baffle curtain. Recently, Total Suspended Solids (TSS) numbers have been high, likely due to the failure of this curtain as shown in Figure 15. This lagoon is a partially aerated lagoon followed by a polishing cell. The baffle curtain was the boundary that established the “polishing cell”. Replacement of this curtain will allow the lagoon to function as designed and reduce the TSS numbers. Finally flows are sent nearby chlorine contact chamber for disinfection and final discharge.

Unfortunately, this facility requires improvements to continue meeting the needs of the existing service area. The following problems exist within the facility:

- The EPDM flexible floating piping which provides air to the floating fine bubble aeration units has reached the end of its service life and needs replacement.
- The diffuser tubes in the floating fine bubble aeration units have reached the end of their service life and needs replacement.
- Existing baffle curtain needs replacement to re-establish the polishing cell.
- The stabilized sludge stored in dewatering tubes on the site should be removed and properly disposed per MDEQ solid waste regulations.
- Existing sampling pier is failing and should be replaced.

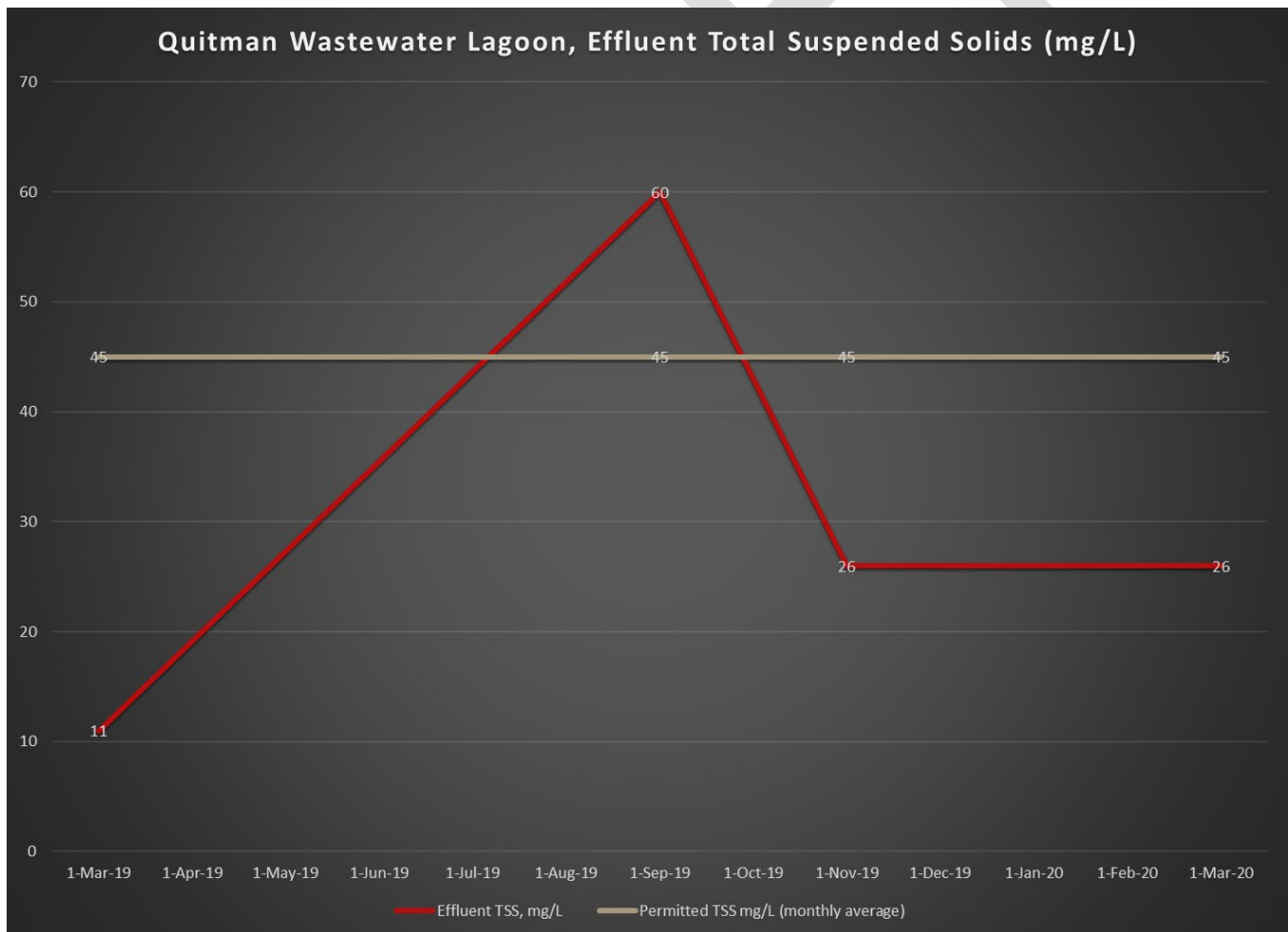
Recent Discharge Monitoring Report (DMR) data² from the Environmental Protection Agency’s website is shown in Figure 16 and demonstrate the rising TSS numbers at the existing treatment facility.

² Environmental Protection Agency, <https://echo.epa.gov/effluent-charts#MS0024589>

Figure 14- Existing WWTF



Figure 15 – Failed Baffle Curtain



F. IDENTIFICATION OF SIGNIFICANT USERS

Dart Container Corporation is the largest water user in the area. However, these are existing flows and no new flows are proposed for the collection system or wastewater treatment lagoon.

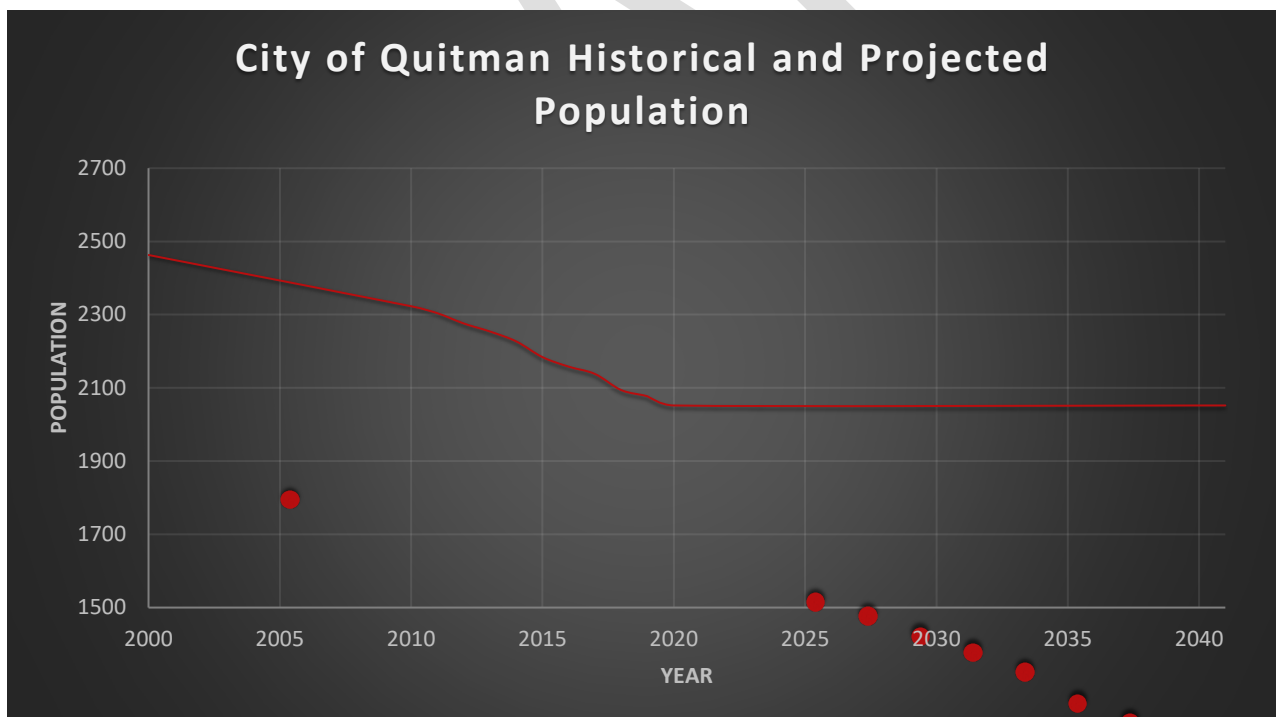
G. IDENTIFICATION OF UNSEWERED AREAS

As demonstrated in Exhibit 2, Existing System, the majority of the City of Quitman is served by the gravity collection system. There are approximately 5 customers on the north end of MS 145 who have septic tanks for wastewater service. The City has pursued adding these customers to the collection system previously, but it was cost prohibitive.

H. WASTE FLOW AND LOAD

The planning period for the wastewater collection and treatment system is twenty years. The planning area population has declined in recent years as previously stated. As shown in Figure 17, the projected population is not expected to exceed the current population.

Figure 17 Historical and Projected Population Values³



The majority of Quitman's wastewater flow comes from residential customers as opposed to industrial/commercial customers. Recent water sales data is provided to illustrate the typical flows in the residential and commercial categories. Commercial/Industrial customers account for approximately 34%

³ US Census Bureau City and City Population Totals, <https://www.census.gov/programs-surveys/popest/technical-documentation/research/evaluation-estimates/2020-evaluation-estimates/2010s-cities-and-Citys-total.html>

of water sales in the City (see Figure 18 and Figure 19). Dart Container Corporation is the largest water user in the City. Dart water sales data is shown in Figure 20. Dart Container accounts for approximately 20% of water sales within the City.

Figure 18- Water & Sewer Residential and Commercial Customers

Water/Sewer Customers	
Total # of Customers	1052
Residential	918
Commercial	128
Industrial	6

Figure 19 – Recent Water Sales Data

Date	Residential Water Usage, gal	Commercial Water Usage, gal	Industrial Water Usage, gal	Government Water Usage, gal	School Water Usage, gal	Church Water Usage, gal	Apartment Water Usage, gal	Miscellaneous Water Usage, gal	Exempt Water Usage, gal	Total Monthly Water Usage, gal
Jul-20	4,055,720	1,144,000	1,214,000	219,000	664,000	8,000	290,000	8,000	496,000	8,098,720
Aug-20	3,538,240	1,141,000	1,058,000	264,000	649,000	32,000	246,000	7,000	483,000	7,418,240
Sep-20	3,833,720	1,389,000	1,167,000	448,000	775,000	23,000	174,000	8,000	444,000	8,261,720
Oct-20	3,924,280	1,296,000	2,391,000	230,000	792,000	17,000	165,000	17,000	306,000	9,138,280
Nov-20	3,244,760	901,000	1,295,000	239,000	657,000	10,000	130,000	7,000	265,000	6,748,760
Dec-20	3,260,800	939,000	1,226,000	325,000	416,000	7,000	165,000	8,000	267,000	6,613,800
Jan-21	3,540,000	1,178,000	1,318,000	211,000	307,000	8,000	245,000	8,000	292,000	7,107,000
Feb-21	3,373,800	977,000	2,579,000	196,000	355,000	6,000	165,000	11,000	295,000	7,957,800
Mar-21	3,743,800	1,097,000	1,016,000	264,000	292,000	8,000	187,000	15,000	281,000	6,903,800
Apr-21	3,621,240	1,058,000	1,459,000	319,000	397,000	8,000	303,000	-	324,000	7,489,240
May-21	3,107,760	938,000	1,341,000	218,000	401,000	7,000	154,000	-	263,000	6,429,760
Jun-21	3,537,800	1,082,000	1,420,000	282,000	532,000	5,000	168,000	-	238,000	7,264,800
Jul-21	4,055,760	1,186,000	1,422,000	457,000	383,000	6,000	194,000	-	246,000	7,949,760
Total	46,837,680	14,326,000	18,906,000	3,672,000	6,620,000	145,000	2,586,000	89,000	4,200,000	97,381,680

Figure 20 – Dart Container Water Sales

	Dart Container Water Use, gal
Jul-20	1,226,840
Aug-20	1,072,840
Sep-20	1,167,840
Oct-20	2,367,840
Nov-20	1,251,840
Dec-20	1,195,840
Jan-21	1,278,840
Feb-21	2,681,170
Mar-21	1,030,660
Apr-21	1,448,840
May-21	1,392,380
Jun-21	1,420,840
Jul-21	1,427,720
Total	18,963,490

The following table (Figure 21) provides current flows as well as projected long-term flows for the planning area. These flows were calculated using the population data and assuming an average wastewater production of 100 gallons per capita per day and a peak flow based on 10 States/MDEQ formulas. As with the previous population data, 2020 and 2040 values are equivalent due to the declining population in the planning area. As a significant user of the system, Dart Container flows were added to the residential population flows to determine the total flow projections.

Figure 21 – Current and Projected Wastewater Flow Projections

Wastewater Flow Projections Based on Population & Dart Container	
2021 Population	2052
Typical wastewater flow per capita day, gal	100
2021 Average Daily Flow, gpd	205,200
Peak Factor	3.58
2021 Dart Container Flows	38,435
2021 Peak Daily Flow, gpd	772,454
2041 Population	2052
Typical wastewater flow per capita day, gal	100
2041 Average Daily Flow, gpd	205,200
Peak Factor	3.58
2041 Dart Container Flows	42,278
2041 Peak Daily Flow, gpd	776,297

ALTERNATIVE SELECTION

A. UNSEWERED AREAS

No new wastewater flows from unsewered areas are proposed.

B. COLLECTION

1. REHABILITATION

As documented, the existing failing wastewater collection and treatment system in the project area is in critical need of repair and rehabilitation to provide reliable sewer service to the residents of Quitman in the project area.

- Alternate 1 – Alternate 1 – Wastewater Collection System Rehabilitation – This option would include the cleaning and rehabilitation of the failing section of the gravity collection system. The problem areas identified for rehabilitation will be lined with Cured-in-Place Pipe (CIPP).

The existing pump stations will be rehabilitated with new pumps and control panels. These replacements will increase reliability of the stations and decrease the potential for pump station failures.

Removing I/I from the collection system increases the lifespan of the gravity collection system, pump station, and the wastewater treatment lagoon.

- Alternate 2 – Wastewater Collection System Replacement – The alternative to rehabilitation of the existing wastewater collection system is to replace all gravity mains that are failing. Since much of the system is of similar age and construction material, nearly all the gravity collection mains would most likely need to be replaced. This alternative is cost-prohibitive and not a reasonable engineering solution.
- Alternate 3 – No Action Alternative - The City of Quitman will continue to experience problems and wastewater failures throughout the wastewater system, which will result in higher O&M costs and more frequent repairs. More importantly, this scenario creates a significant health and environmental risk for citizens in the project area.

2. NEW SEWERS

No new sewers are proposed.

C. INTERCEPTORS

The proposed Donald Street Pump Station and force main will remove flows from the gravity collection system and transport them directly to the WWTF. No new flows will be added to the system.

- Alternate 1 - Donald Street Pump Station and Force Main – This alternate includes construction of the pump station and force main to remove flows from the overloaded gravity collection system.
- Alternate 2 – No Action – Without these improvements, SSOs are more likely to occur due to localized flooding which frequently occurs in the area.

D. TREATMENT SYSTEM

1. POPULATION LESS THAN 10,000

As previously documented, improvements are needed at the existing WWTF for the facility to continue to serve the citizens of Quitman with effective wastewater treatment. The alternatives for this facility include the following:

- Alternate 1 – Wastewater Treatment Facility – This option would include improvements at the existing wastewater treatment facility as shown in Figure 22 . These improvements would include the following:
 - The EPDM flexible floating piping which provides air to the floating fine bubble aeration units has reached the end of its service life and needs replacement.
 - The diffuser tubes in the floating fine bubble aeration units have reached the end of their service life and needs replacement.
 - Existing baffle curtain needs replacement to re-establish the polishing cell.
 - The stabilized sludge stored on the site should be removed and properly disposed.
 - Existing sampling pier is failing and should be replaced.

Figure 22 – Proposed WWTF Improvements



- Alternate 2 – No Action Alternative - The City of Quitman will begin to experience problems and failures at the WWTF. This scenario creates a significant health and environmental risk for citizens in the project area, as well as those downstream of the system.

2. POPULATION GREATER THAN 10,000

The planning area has a population less than 10,000 persons.

DRAFT

SELECTED PLAN

A. GENERAL INFORMATION

1. DESCRIPTION

The selected plan includes improvements in the wastewater collection system as well as improvements at the existing wastewater treatment facility. The scope of work has been divided into Phase 1 and Phase 2 Improvements. The proposed improvements have been divided into phases to ensure the construction can be completed in the MDEQ SRF timeframe of 18-24 months. The phased improvements are shown on Exhibit 3 – Phase 1 and Exhibit 4 – Phase 2. Figure 22 depicts the existing wastewater treatment facility site plan and the proposed improvements. Opinions of probable cost for Phase 1 and Phase 2 are also provided.

Phase 1 Improvements:

The Phase 1 improvements include rehabilitation to a portion of the wastewater collection system and wastewater treatment facility improvements. The wastewater collection system improvements include CIPP lining for the problem areas of the system shown on Exhibit 3. The following images depict the CIPP process. Based on the results of the inspections, line sections will have CIPP liner installed as necessary to rehabilitate the line section. Manholes in the area will also be inspected and lined as required.



Phase 1 improvements are shown on Exhibit 3. See Appendix B for Phase 1 Opinion of Probable Cost.

Phase 2 Improvements:

The Phase 2 wastewater collection system improvements will include rehabilitation of a separate area of the collection system. In addition, the existing pump stations will be rehabilitated with new pumps and control panels to increase reliability of the stations and decrease the potential for pump station failures.

The proposed West Donald Street Pump Station and force main will transport flows from the existing Brown and Thompson Pump Stations directly to the wastewater treatment facility. This will remove 800-1000 gpm of flow from the overloaded gravity collection system in this area that suffers from repeated severe localized flooding.

Wastewater treatment plant improvements will include the following:

- The EPDM flexible floating piping which provides air to the floating fine bubble aeration units has reached the end of its service life and needs replacement.
- The diffuser tubes in the floating fine bubble aeration units have reached the end of their service life and needs replacement.
- Existing baffle curtain needs replacement to re-establish the polishing cell.
- The stabilized sludge stored on the site should be removed and properly disposed.
- Existing sampling pier is failing and should be replaced.

Phase 2 improvements are shown on Exhibit 4. See Appendix B for Phase 2 Opinion of Probable Cost.

2. PLANNING AREA

Exhibit 1 depicts the project planning area, which includes residences, businesses, and schools within the municipal limits.

3. ENVIRONMENTAL JUSTICE

All wastewater in the City of Quitman is treated at the single wastewater treatment facility. As such, all citizens of Quitman, including minority citizens, shall benefit from the facility improvements.

4. SITING ENVIRONMENTAL JUSTICE

No new sites for wastewater treatment facilities, or wastewater discharge are included in the proposed improvements. The proposed pump station site is located in an industrial area away from residential customers.

5. PRELIMINARY DESIGN CRITERIA

See Appendix F for preliminary hydraulics for the proposed pump station.

6. TREATMENT PLANT SITE PLAN

The existing site plan is included in the Figure 14. The proposed improvements to the wastewater treatment facility are shown on Figure 22.

7. NEW COLLECTORS – EXISTING VS PROPOSED FLOWS

No new collectors are proposed.

B. ENVIRONMENTAL INFORMATION

1. WATER QUALITY PROBLEMS

The proposed wastewater collection system improvements will decrease the I/I into the wastewater treatment facility, thereby decreasing both the total flow the WWTF must treat as well as decreasing the solids accumulation in the WWTF. The improvements will also decrease the potential for sanitary sewer overflows in the system.

The proposed WWTF improvements will allow the facility to continue meeting its current NPDES permit limits, which will improve the discharge quality into the Chickasawhay River.

2. CAPACITY FOR INCREASED LOADS

No new loads are proposed for the system.

3. PROPOSED TREATMENT FACILITY PROJECTS

No new treatment facilities are proposed.

4. MITIGATIVE MEASURES

All temporary construction noise shall be within existing City, State, and Federal codes.

Bypass pumping will be utilized at pump stations and manholes where necessary to avoid sanitary sewer overflows during wastewater collection system rehabilitation.

5. INTERGOVERNMENTAL REVIEW

Intergovernmental review for the Phase 1 projects has been completed.

i. MISSISSIPPI DEPARTMENT OF ARCHIVES AND HISTORY

See Appendix D for correspondence with Mississippi Archives and History.

ii. THREATENED AND ENDANGERED SPECIES

See Appendix D for correspondence with Mississippi Natural Heritage Program and the United States Fish and Wildlife Service.

iii. US ARMY CORPS OF ENGINEERS

See Appendix D for correspondence with USACE.

iv. MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

The project is not located in a coastal county.

v.US FOREST SERVICE

The project is not located in a wild and scenic river basin.

6. FLOODPLAINS

The existing wastewater treatment facility is located in a floodplain. Segments of the existing collection system are located in a floodplain.

At the wastewater treatment facility, all improvements will be completed within existing structures or above ground. The project will not discharge any fill material into jurisdictional waters/wetlands.

The wastewater collection system improvements will be completed within existing gravity mains and/or pump stations. The CIPP project will not discharge any fill material into jurisdictional waters/wetlands.

Appropriate mitigation measures (directional drilling, etc) will be utilized where necessary for the proposed pump station and force main.

7. ENVIRONMENTAL IMPACTS

Figure 22 compares the Environmental Impact of the two alternatives.

Figure 23 – Environmental Impacts

Environmental Impact	No Action Alternative	Selected Plan
Surface/Groundwaters	Increased Possibility of Sanitary Sewer Overflows Existing WWTF will likely begin to exceed NPDES permit limits	Decreased Possibility of Sanitary Sewer Overflows Decreased risk of exceeding NPDES permit limits
Archaeological/Historical/Cultural Resources	No Impact	No Impact
Vegetative/Wildlife	No Impact	No post-construction impact
Wetlands/Navigable Waterways	Increased Possibility of Sanitary Sewer Overflows	Decreased possibility of sanitary sewer overflows Decreased risk of exceeding NPDES permit limits
Floodplains	No Impact	No post-construction Impact.
Air Quality (i.e., dust and odor)	No Impact	No Impact
Noise	No Impact	Temporary Construction noise will be within applicable city, state, and federal codes.

FINANCIAL ANALYSIS

See Appendix C for Financial Capability Summary

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PUBLIC PARTICIPATION

The facility plan was advertised on December 8, 2021 and was available for public review at the Quitman City Hall for thirty days. A public hearing was held on January 10, 2022. See Appendix J for Public Participation documentation, including proof of publication and comments received.

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APPENDICES

- A. Exhibits
- B. Opinions of Probable Cost
- C. Financial Capability Summary
- D. Intergovernmental Review Correspondence
- E. Floodplain Map
- F. Preliminary Design Criteria
- G. Pump Station Runtime Data
- H. Census Data
- I. Precipitation Data
- J. Public Participation
- K. Water Sales Data
- L. Bypass Overflow Reports
- M. Median Income
- N. EPA Form 4700
- O. Standard Water/Sewer Agreement