

The City of Victoria, Texas, part of the Golden Crescent Regional Planning Commission, is including in its Regional Mitigation Program application for CDBG-MIT funding of \$19,524,900.00 the following three projects:

1. Lone Tree Acres Drainage Project estimated at \$9,357,445.00;
2. SCADA Water & Wastewater Improvement Project estimated at \$6,000,000.00; and
3. New Influent Screening Facility at the existing Regional Wastewater Treatment Plant estimated at \$7,302,750.00.

The total cost of all three projects exceeds the total allocation amount by \$3,135,295.00, which will be paid using City of Victoria local funds.

Lone Tree Acres Drainage Improvement Project

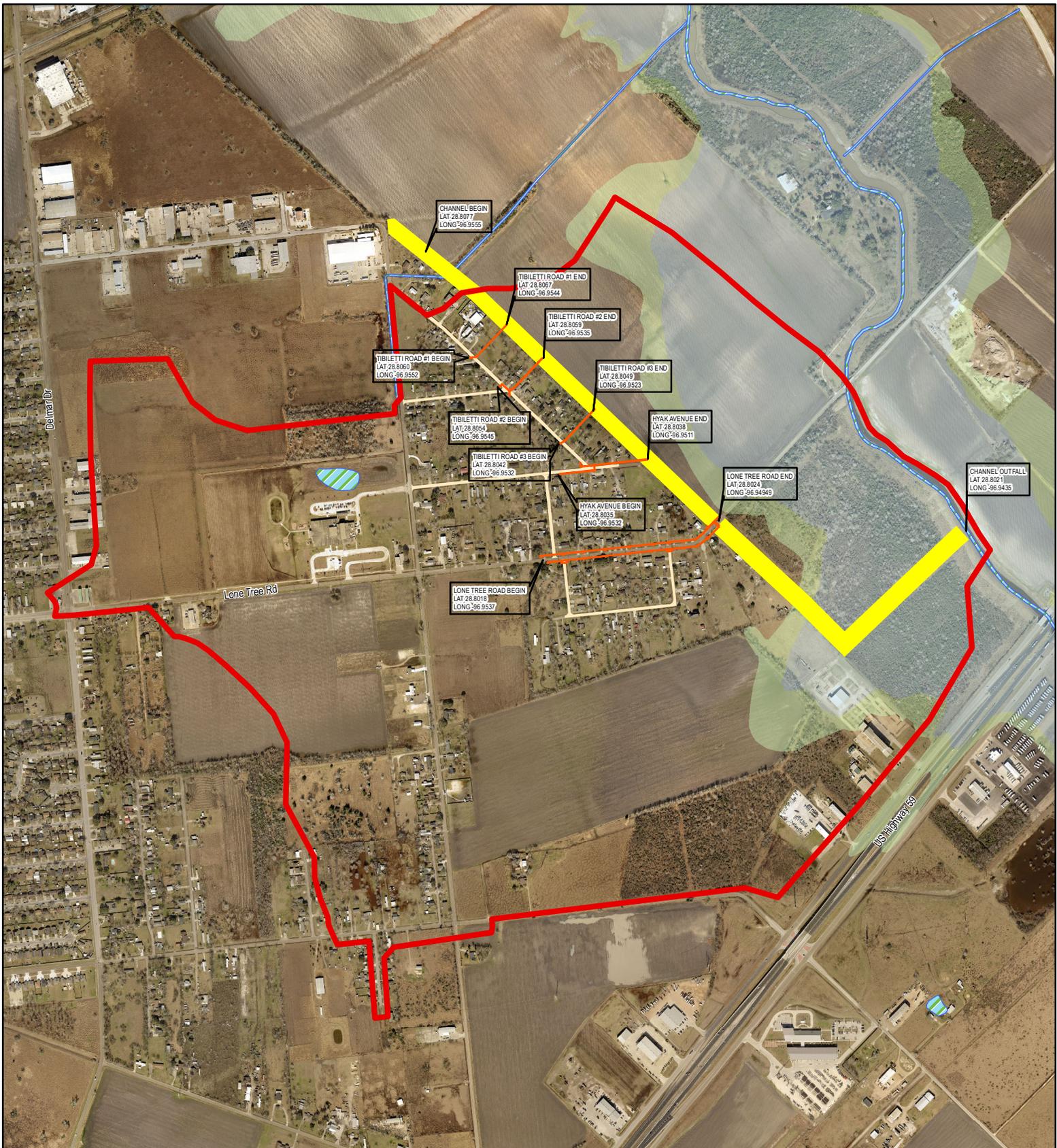
\$9,357,445

The Lone Tree Acres Drainage Project improves flooding and standing water issues in the low-income neighborhood of Lone Tree Acres. Lone Tree Acres is in southeast Victoria in the Lone Tree Creek Basin, with approximately 111 homes in this geographical area. The neighborhood was constructed in the 1950's with an open ditch section regulated by county standards. Subsequently, the city annexed this area and provided water and sewer services to the area, greatly improving the quality of life for the residents.

Since that time, drainage concerns have increased because there is no outfall system that could reduce water surface elevations (flooding) and standing water issues (health concerns). In addition to the Lone Tree Acres residents, an elementary school and a fire station located along Lone Tree Road will also benefit from the proposed drainage improvements.

The City's update of its Storm Drainage Masterplan in 2021 identified and recommended solutions to areas of flooding and areas with little or no drainage conveyance. The proposed Lone Tree Acres Drainage Project recommends construction of an open section outfall along the east side of Lone Tree Acres, traversing across Lone Tree Road and then east to Lone Tree Creek. Construction of this outfall system will lower the hydraulic grade adjacent to the neighborhood, allowing the open ditch road sections to adequately drain to reduce flood elevation levels and standing water. Significantly, this outfall system also allows future drainage to be incorporated into other areas unable to adequately drain.

This project will provide significant flood risk reduction for 128 acres of development in this low to moderate income area by constructing the outfall system. Specifics construction elements of the project involve the construction of an open channel, 8- to 10-feet in depth, with a concrete lined bottom width of 6- to 8-feet, and an average total width of 90 feet.



Service Area Total Acres	574.46
Acres w/in 100 yr floodplain	95.81
Acres w/in 500 yr floodplain Shaded	31.1
Acres w/in 500 yr floodplain Unshaded	447.55

- Lone Tree Service Area
- Proposed Storm Sewer Improvements
- Proposed Open Channel & Easement (5.73 acres w/in Floodplain)
- Proposed Pavement Improvements
- Wetlands
- 100 yr Floodplain(Effective)
- 500 yr Floodplain(Effective)



Scale : 1" = 1000'

Lone Tree Drainage and Road Improvements



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SCADA Water & Wastewater Improvement Project

\$6,000,000

SCADA stands for Supervisory Control and Data Acquisition and is a combination of both hardware and software that provides City staff the ability to control the City's water and wastewater operation locally or remotely. It also provides real time data from various sensors, valves, pumps, motors associated with the City's water system.

There are critical points of failure in the City's existing SCADA system. The equipment is more than 25 years old making replacement parts scarce and repairs difficult, putting the entire system at risk for losing communication and the ability to monitor the City's water systems. This potential communication and monitoring loss could result in significant public health hazards if prolonged for more than a few hours.

Improvements to the SCADA network include adding a new radio backbone throughout the system to expand capacity, increase speed, and ensure reliability. This infrastructure would be installed at existing water towers, Plant 3, the Surface Water Treatment Plant, the Regional Wastewater Treatment Plant, various lift stations, and at Public Works. This will ensure that even if one of the sites has a communication failure, staff will still be able to send and receive communications to and from the SCADA from other locations, including remotely. Additional redundancy between the backbone radios and fiber will reduce downtime, allowing the remaining sites to remain online even in the case of communication failure at a site.

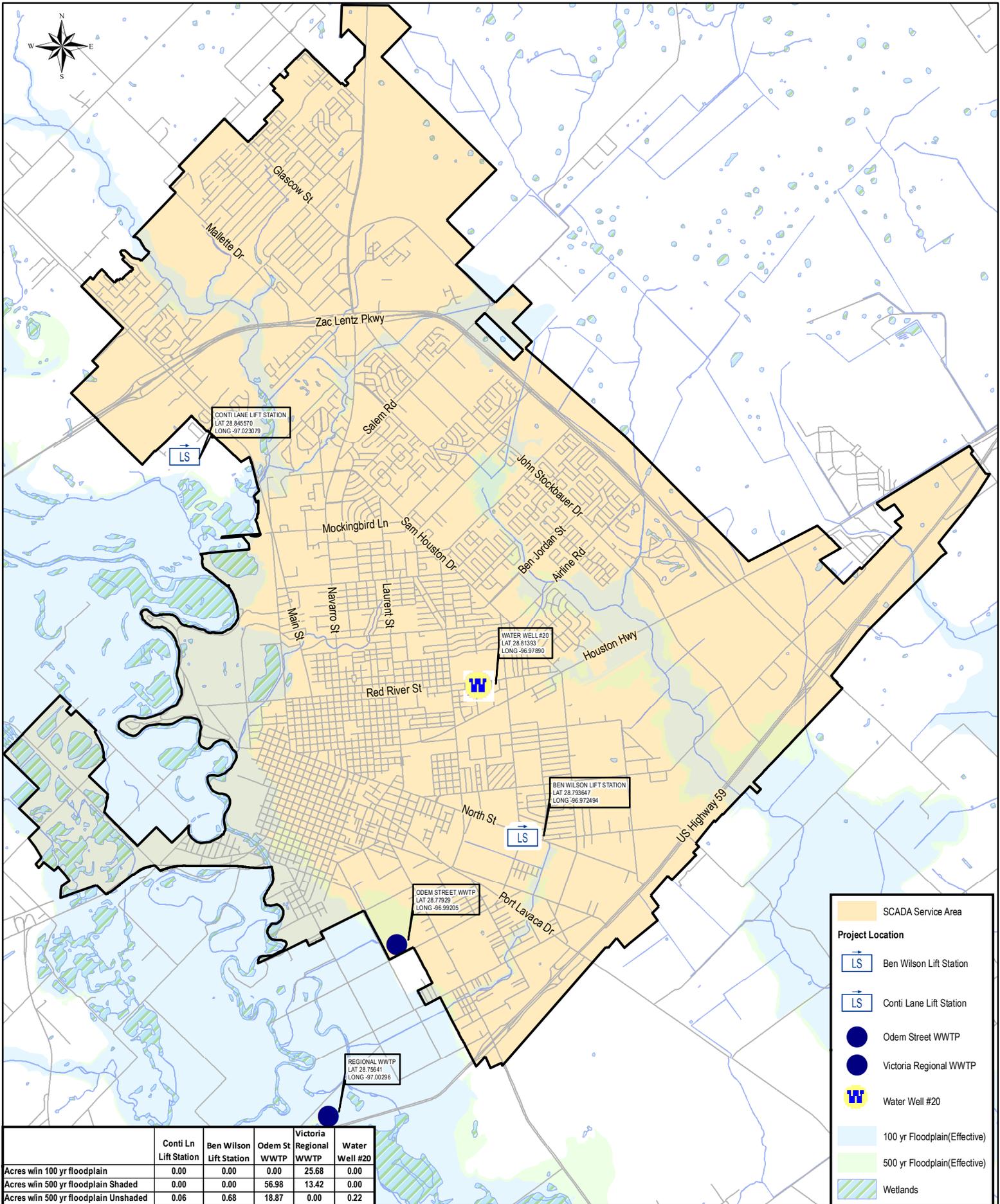
New servers will be installed at the SWTP, Plant 3, and the Regional WWTP. Plant 3 will act as the primary hub for both the water and wastewater systems with backup servers at the SWTP and the Regional WWTP. Public Works will have its own remote server so that the City can access the SCADA system remotely.

Combined, these improvements will result in a fully integrated SCADA with improved user interface and unlimited scalability with full redundancy for automatic failover to back up servers. The result will be a vastly improvement to the City's ability to control and monitor the City's water and wastewater operations to prevent loss of service, even during hazardous weather such as winter storms or hurricanes. This means hospitals and other medical facilities will be protected against a loss of water supply, and during hazardous weather conditions, the City's residents will be far less likely to lose access to their City water supply.

Additionally, improving the City's SCADA network ensures the safety and sustainability of its water operations by providing real-time data, alerts, and automation. SCADA systems can detect and notify operations of any abnormal or critical conditions that may pose a risk to the safety or quality of the processes by triggering alarms, alerts, or messages based on predefined thresholds, rules, or logic. These notifications may be sent via email, text message, or dashboard. The SCADA network will also provide clear instructions on how to respond to any alarms, and how to initiate corrective actions automatically. Effective alarm management and notification systems enable operators to prevent or mitigate accidents, errors, or damages along with ensuring the City's compliance with safety and environmental regulations.

Remote control and automation capabilities enhances the reliability and functionality of multiple systems for operators, along with providing clear visibility and coordination of water processes to improve overall performance and outcomes.

Finally, this SCADA network improvement makes the system secure against cyberattack and provides resilient safeguards to ensure the continuity and quality of the City's water supply.



	Conti Ln Lift Station	Ben Wilson Lift Station	Odem St WWTP	Victoria Regional WWTP	Water Well #20
Acres w/in 100 yr floodplain	0.00	0.00	0.00	25.68	0.00
Acres w/in 500 yr floodplain Shaded	0.00	0.00	56.98	13.42	0.00
Acres w/in 500 yr floodplain Unshaded	0.06	0.68	18.87	0.00	0.22

SCADA Service Area

Project Location

- Ben Wilson Lift Station
- Conti Lane Lift Station
- Odem Street WWTP
- Victoria Regional WWTP
- Water Well #20
- 100 yr Floodplain(Effective)
- 500 yr Floodplain(Effective)
- Wetlands

Scale : 1" = 6000'

Water and Wastewater SCADA Design Improvements



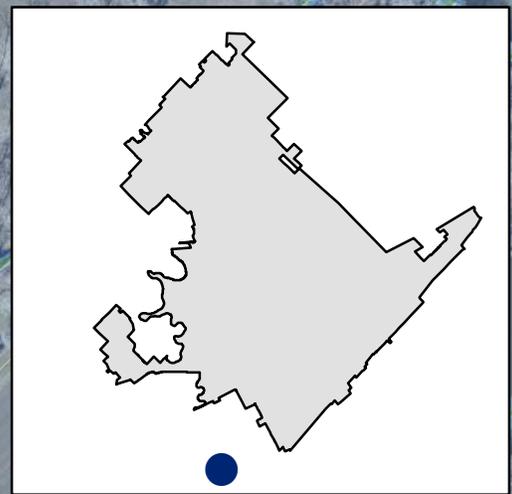
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New Influent Screen Facility Project at the Regional Wastewater Treatment Plant

\$7,302,750

This project will construct a new screening facility to capture all raw influent upstream of the raw sewage pump station. Currently, none of the plant's three mechanical screens have appropriate approach velocities and flow distributions to meet TAC 217(121). The existing upstream screen channel does not have an appropriate straight approach length. Additionally, the existing downstream screen approach velocities are likely too high at peak flows, causing rag loads from the first flush during storm events to be concentrated in small areas of the screen that can't be pushed off with the cleaning rakes. Screen blinding causes the raw sewage pump station wet well to back up into the holding ponds, overtopping of the Primary Treatment Structure, and prevents the plant from being able to process the full permitted peak 2-hour flow of 25 MGD. Furthermore, in the current configuration, only a portion of the collection system flow is mechanically screened prior to the Raw Sewage Pump Station, allowing rags to make their way into the raw sewage pumps.

The new screening facility will be equipped with two mechanical screens and one manual bar screen. This facility will screen all influent flows prior to the Raw Sewage Pump Station to prevent ragging of the raw sewage pumps. The new influent channel will be designed to facilitate an approach velocity of 1.3 to 3 feet per second distributed evenly across the width of the screen and will accommodate the permitted peak 2-hour flow of 25 MGD without backing up into the emergency bypass overflow basin. The new screening facility will be connected to the City's SCADA system for monitoring and control. Without these improvements, the Raw Sewage Pump Station and the headworks structure will continue to have issues with ragging and backing up into the bypass overflow basin, which also contributes to nuisance odor.



EXISTING INFLUENT SCREENING FACILITY
LAT: 28.75764
LONG: -97.00313

NEW INFLUENT SCREENING FACILITY
LAT: 28.75761
LONG: -97.00295

EXISTING INFLUENT SCREENING FACILITY
LAT: 28.75708
LONG: -97.00305

Acres w/in 100 yr floodplain(87 Effective FIRM)	13.11
Acres w/in 500 yr floodplain Shaded(87 Effective FIRM)	13.42
Acres w/in 500 yr floodplain Unshaded(87 Effective FIRM)	0

Legend

- RWTP Service Area
- Project Location**
 - Victoria Regional WWTP
 - Wetlands
 - 100 yr Floodplain(87 Effective FIRM Panel # 480637 0200 B)
 - 500 yr Floodplain(87 Effective FIRM Panel # 480637 0200 B)



Scale : 1" = 300'

RWTP New Influent Screen Facility



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