# BUFFALO SEWER AUTHORITY

## **APPENDIX N:**

# Edison Martha OLS 30% Design Considerations and Assumptions

**Buffalo Sewer Authority** 



**TYLIN** Greeley and Hansen Water Solutions



#### BSA Capital Projects Program Management Team:

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### SECTION 1 INTRODUCTION

#### 1.1 **Objective**

This document was created to provide to the CONSULTANT for the Edison Martha OLS Tank Final Design as a resource for onboarding and understanding of the work that has been completed by the Program Management Team (PMT) and Buffalo Sewer Authority (BSA).

#### 1.2 Project Background

The PMT completed a Preliminary Engineering Report (PER) for the design of the Edison Martha OLS that was submitted on June 14, 2024.

New York Department of Environmental Conservation (DEC) submitted responses to the PER to the PMT on December 6, 2024. The PMT is currently working on responses to the comments and will provide the selected CONSULTANT with all of the information required to complete the Final Design.

### SECTION 2 COORDINATION

#### 2.1 Parks Department Coordination

City of Buffalo Department of Public Works (DPW) has an upgrade project being planned for Roosevelt Park. The project by DPW will be phased such that their work can be completed in the western portion of Roosevelt, roughly identified by the foot bridge. BSA will be responsible for demolition of the features in that area. BSA will restore the area to integrate with the larger park plans.

Additionally, BSA is accelerating a portion of the OLS tank design to be able to install buried infrastructure needed on the western portion of the park so that there is no disturbance to the park upgrades after they are completed. This project will be referred to as the Waterline Design and completed by the PMT.

The OLS tank design by the CONSULTANT must be coordinated with both the Roosevelt Park Upgrades Project and the Waterline Design Project.

BSA, DWP, and PMT have had several meetings to coordinate the work planned for Roosevelt Park. The following are design considerations that the CONSULTANT must follow:

- 1. A priority for DPW as a part of their improvements is to leave a large open space without any above ground obstructions.
- 2. Any manholes, access vaults, hatches, or other above grade features are to be in paved areas such as pathways or parking lots, so as not to limit use of park greenspace. The CONSULTANT may adjust the pathway alignment in the Eastern half of the park to suit the OLS tank needs.
- 3. No new building will be in the park. These create issues for parks including safety and security in and around the park. In the case of Edison Martha, there is space in the Field House, on the west side of the Park, that may be repurposed for the needs of the tank.
  - a. Field House may also need improvements to meet code requirements for BSA facilities, power, HVAC, etc.
- 4. There will be no negative impact on standard park features as it relates to trees, ornamental gardens, athletic fields, playgrounds, etc.



- 5. Pre-existing conditions will be restored or improved upon and will be consistent with Parks planning efforts with available funding.
- 6. Parks acknowledges that no buildings, pools, splashpads or utility mains can be installed above BSA underground storage tanks.

Continued coordination with DPW will be required in Final Design.

#### 2.2 Charter School Coordination

The Scajaquada Tunnel Interceptor is located in Edison Avenue. To get to the proposed OLS tank location in Roosevelt Park, the influent and effluent lines must cross the Charter School for Inquiry parking lots. The following are design considerations that the CONSULTANT must follow:

- 1. The influent and effluent lines will require temporary and permanent easements through the north and south parking lots at the school. BSA and the PMT are investigating an easements on the north side of the school property based on a historical city building that was located here and has since been demolished. Easement coordination will be started by the PMT to expedite the process for the Final Designer and eventual Contractors so that the schedule can conform to the Consent Decree dates.
- 2. The haul road for construction traffic will need to be coordinated through either the north or south side of the school's parking lot.
- 3. There is a path at the southeast corner of the park from Edison Avenue. DPW has no desire to keep this pathway. The Final Designer shall coordinate with the school to determine if this can be closed off permanently.

Continued coordination with Charter School for Inquiry will be required in Final Design.

### SECTION 3 UPDATES TO PER

#### 3.1 Storage Tank

The storage tank is design to be a nominal size of 130-feet by 336-feet. The tank is orientated along the eastern side of the park.

Coordination with BSA will be required to review the gates, activations, tipping buckets, etc. to ensure that there is minimal impact to the open area in the park but also ensures the storage tank can be operated and maintained properly.

The storage basin size, orientation, capacity, and location have been coordinated with Buffalo Sewer Authority, Xylem, and Arcadis.

#### 3.2 Screening

Screening was considered and deemed unnecessary by BSA due to limited evidence of floatables in the line and the undesired increased maintenance requirements.

#### 3.3 Tipping Buckets

The offline nature of the storage facility resulted in the utilization of tipping buckets for cleaning. Grande Water collaborated in the development of the tipping bucket layout and details as well as floor slopes. Refer to Appendix C for the draft specification "46 46 13 – Tipping Sediment Flushing Tanks" created to support the preliminary design.



The PMT has developed a Technical Memo for tank flushing, and that is included as Appendix A as a part of the RFP.

#### 3.4 Geotechnical Report and Structural Evaluation

Conceptual structural design was developed for purposes of the cost estimate and was not detailed on Preliminary Design drawings. The Subsurface Investigation and Geotechnical Evaluation (Appendix J) by Atlantic Testing Laboratories was reviewed by Arcadis to compare with what was originally considered in the cost estimate. Final Designer should consider the following:

- 1. Rock is at a higher elevation than anticipated and stronger than anticipated.
- 2. A larger quantity of rock anchors is likely required for bottom slab uplift resistance. This is based on Atlantic Testing Laboratories recommendation for anchor capacity and ground water design elevation.
- 3. During excavation, groundwater is expected to make its way through the cracks in the rock at a high velocity. This may increase dewatering demands relative to a project with sand or clay excavation.
- 4. Micro tunneling is not included in the estimate but is referenced in the Atlantic Testing Laboratories report.

Coordination will be required during Final Design between the CONSULTANT and Atlantic Testing Laboratories.

#### 3.5 Control Strategy

Small rain events will not activate the OLS.

Default control is to start opening the inlet gate at Edison Martha when the downstream tank at Hazlewood has reached capacity.

Indirectly the wastewater treatment plant will need to be in a Normal Mode for the basin to dewater.

The goal is to limit storage time to 48 hours. Current modeling data suggests that (1) storage event per year will last longer than 48 hours.

The current control plan is to keep the outlet gate on a control curve. This gate will reach fully closed when the Hazlewood ILS depth reaches 5 feet.

Optimization of the Control Strategy will be completed in Final Design.

Continued coordination with Xylem will be required in Final Design.