

BUFFALO

SEWER AUTHORITY

BUFFALO SEWER AUTHORITY
SPDES PERMIT NO. NY0028410
CAPITAL PROJECTS PROGRAM MANAGEMENT
BSA CONTRACT NO. 82000075

APPENDIX C: CSO053_1.4 Sidney Offline Storage (OLS) Tank Preliminary Engineering Report

Prepared by TY Lin Greeley and Hansen Water Solutions



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Executive Summary

The Buffalo Sewer Authority (Buffalo Sewer) provides wastewater service to approximately 550,000 people. Buffalo Sewer owns and operates the Bird Island Wastewater Treatment Facility (WWTF), constructed from 1937 through 1939, and manages 850 miles of sanitary, storm, and combined sewer lines. Buffalo Sewer has entered into an Administrative Order (AO) with the New York State Department of Environmental Conservation (DEC) and the United States Environmental Protection Agency (EPA) as part of their Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) that was approved on March 18, 2014. The purpose of the LTCP is to reduce CSO activations within the existing system.

Pursuant to the LTCP, Buffalo Sewer is developing a coordinated series of storage and flow-diversion structures within their collection system. A significant amount of storage volume is planned to be obtained using Real-Time Control (RTC) structures, as Buffalo Sewer anticipates installing sixteen RTC structures as part of the LTCP. The RTC sites optimize available inline storage (ILS) and conveyance capacity within the collection system through the utilization of overflow lines (referred to as outfall storage) and combined sewers.

The recommended alternative will involve constructing an off-line storage tank at the intersection of Sidney Street and Lark Street as part of the LTCP, which is being renamed as Queen City Clean Waters. The design includes adding a 48" gravity sewer going east from the Humboldt Parkway Sewer for the tank influent, and a 36" gravity sewer going north on Lark Street for the tank effluent. The effluent has a connection at the Scajaquada Tunnel Interceptor. The tank reduces flows at SPP336B and would store flow diverted until there is sufficient available capacity in the Scajaquada Tunnel Interceptor. This location was selected because of the ability to dewater by gravity into the Scajaquada Tunnel Interceptor. Also, the lot on the other side of Lark Street can be used for construction staging. The invert depth of the Scajaquada Tunnel Interceptor allows for an additional 10 feet of tank depth if desired.

The total project cost of the recommended alternative is estimated to be \$44.62 million in 2024 dollars. This value also includes operations and maintenance cost associated with the tank.

The proposed upgrades will be essential to protecting the quality of the Black Rock Canal, Scajaquada Creek, and Niagara River, which receive discharges of untreated combined sewage during wet weather. The surface waters play an important role in supporting aquatic habitats and recreation and providing an aesthetic waterfront to potential environmental justice communities. Protecting these waters will support this recreational and tourism resource for the City of Buffalo.

SECTION 1 PROJECT BACKGROUND AND HISTORY

1.1 Site Information

1.1.1 Project Background and Location

Buffalo Sewer provides wastewater service to a population of approximately 550,000. As part of this service, Buffalo Sewer owns and operates the Bird Island Wastewater Treatment Facility (WWTF), constructed from 1937 through 1939, along with managing 850 miles of storm and combined sewer lines. Buffalo Sewer has entered an AO with the DEC and the EPA as part of their approved CSO LTCP that was approved on March 18, 2014. The purpose of the LTCP is to reduce CSO activation within the existing system and to alleviate overall influent to the WWTF. A copy of the AO is provided in **Appendix A**.

Buffalo Sewer is in the process of constructing a series of coordinated RTC sites as part of their LTCP. RTC sites use smart logic to optimize available ILS and conveyance capacity within the collection system, including overflow lines (referred to as outfall storage) and combined sewers. Buffalo Sewer committed to the installation of up to 16 RTCs under the LTCP.

The proposed alternative site is located at the intersection of Sidney and Lark St. in the City of Buffalo, Erie County, New York as shown in **Figure 1-1**.

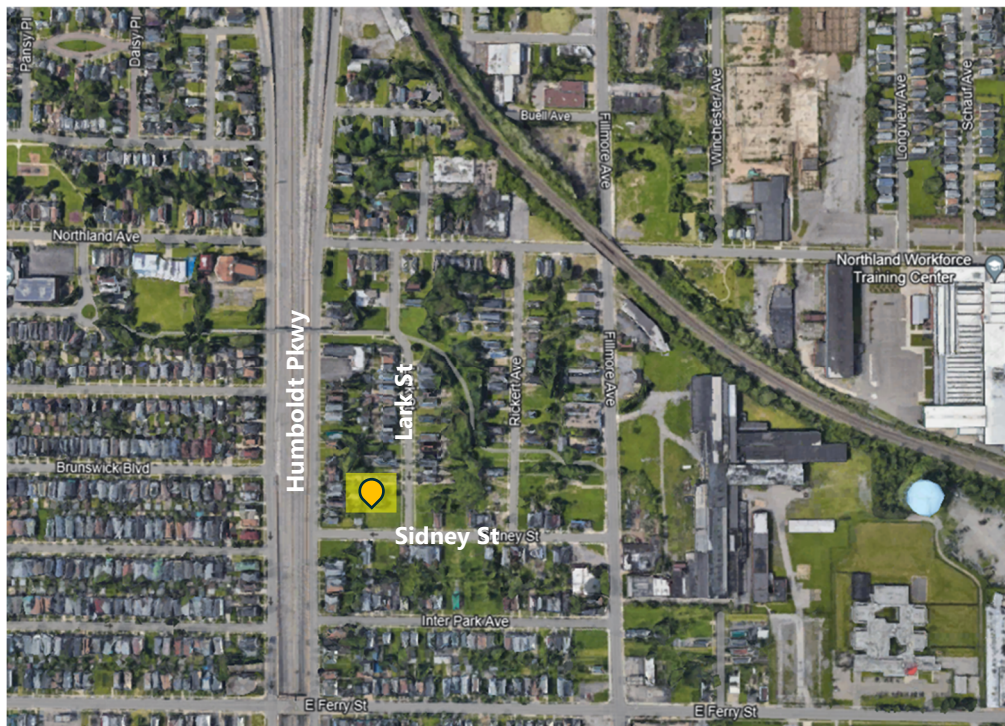


Figure 1-1: Location of Currently Proposed Project Site

1.1.2 Geologic Conditions

According to the Natural Resources Conservation Service's Web Soil Survey, the site soil types consist of Urban land and Urban land-collamer complex (1 to 6% slopes). A geologic map showing the RTC project

location with subsurface work is provided in **Figure 1-2**. Geologic investigations are ongoing, and site soil boring and rock coring information was not available when this report was created.

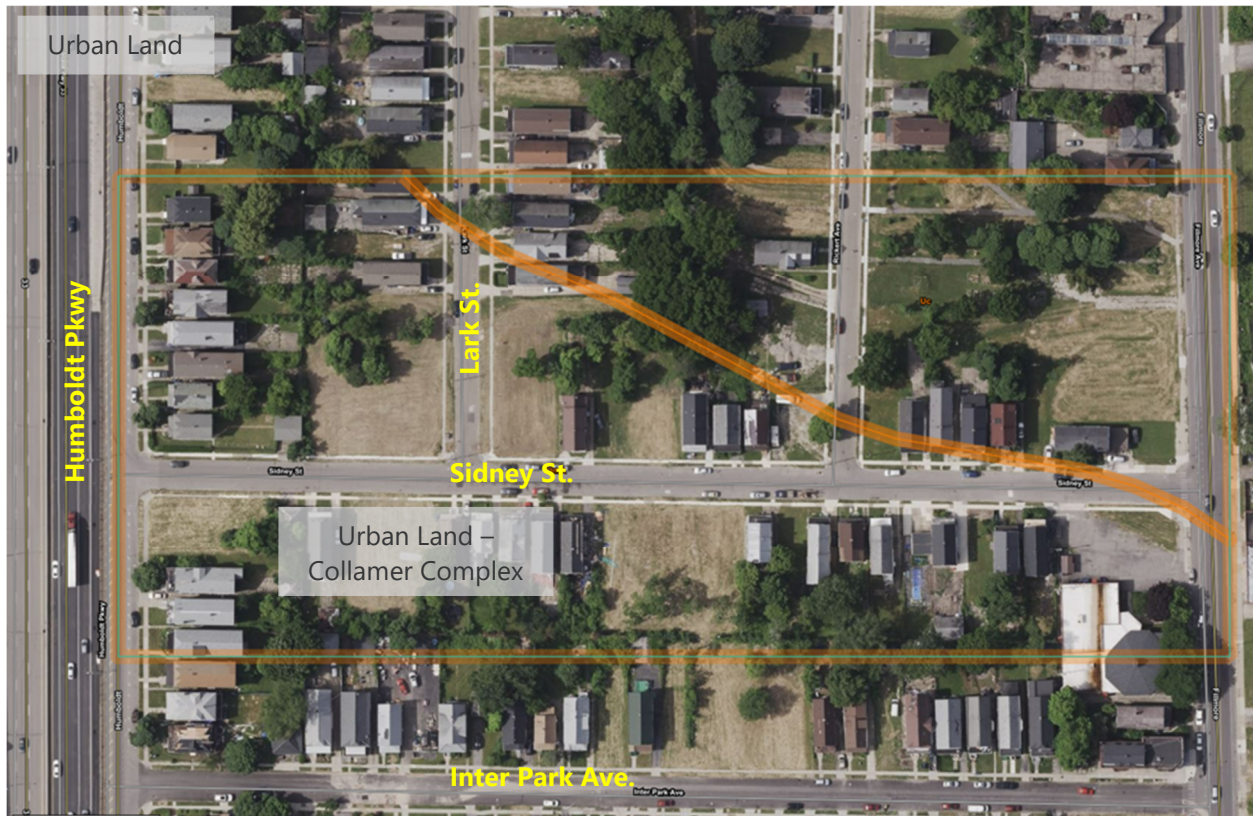


Figure 1-2: Geologic Map

1.1.3 Flood Zones

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. The proposed location falls within FEMA's Zone X, which is an area of minimal flood hazard determined to be outside the 500-year flood zone. The flood zone maps for the project site can be seen in **Appendix B**.

1.1.4 Environmental Resources

The United States Fish and Wildlife Service's Information for Planning and Conservation (IPaC) database was researched for this site as subsurface work is planned. The IPaC preliminary results indicate that the Northern long-eared bat is an endangered species that may occur in the project area. The tricolored bat and salamander mussel are species likely to become endangered within the foreseeable future. The database also indicates that the monarch butterfly exists within the project area and is a candidate for listing as an endangered species. The project area also consists of habitat for 23 migratory birds. This project is unlikely to impact any of the aforementioned species where planned work is to occur within paved areas. The IPaC preliminary report for this project location can be found in **Appendix C**.

The sewer system has three major receiving water bodies: Scajaquada Creek (PWL ID: 0101-0023), Black Rock Canal (0101-0025), and the Niagara River (0101-0006). The latest water quality assessment provided by NYSDEC classifies all three waterbodies as "impaired" for fish consumption due to contaminants that

degrade the habitat. The Scajaquada Creek is also listed as “impaired” for both primary and secondary recreational use. Niagara River is classified as a “threatened” water supply system with “stressed” aquatic life. According to the DEC, the high density of sanitary wastewater discharges results in elevated susceptibility for numerous contaminant categories, including fecal coliforms.

1.1.5 Environmental Justice Areas

The project site falls within a Potential Environmental Justice Area (PEJA). The water quality in the Niagara River directly impacts the population on the east side of Buffalo, including the East Side community where this project is located. East Side has a minority population of approximately 83% and nearly 61% of the population lives below poverty level.

A map of the PEJAs surrounding the project site is shown in **Figure 1-3**.

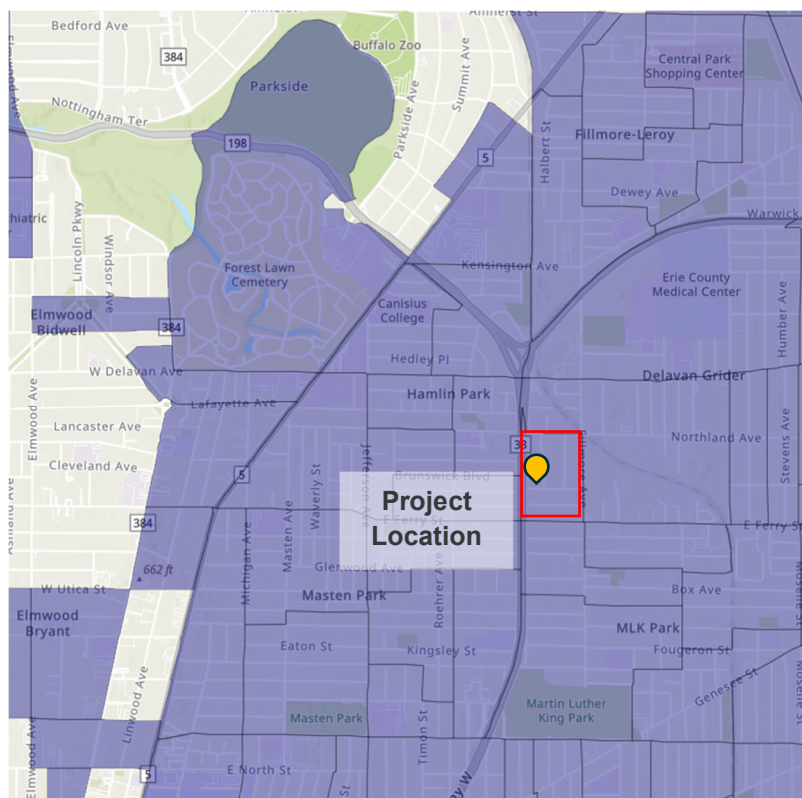


Figure 1-3: Potential Environmental Justice Areas

1.2 Ownership and Service Area

Buffalo Sewer’s wastewater service area covers approximately 110 square miles, including the City and parts of the Towns of Alden, Cheektowaga, Elma, Lancaster, Tonawanda, and West Seneca, and the Villages of Depew, Lancaster, and Sloan, as well as Erie County Sewer District No. 1 and No. 4, as shown in Figure 1-4. The collection system serves a population of approximately 550,000 residents in 11 municipalities.

Buffalo Sewer’s collection system consists of approximately 850 miles of sewer lines, of which 93% is made up of combined sewer systems that convey both sanitary and stormwater flows. The collection

system includes 52 CSO outfall relief points to prevent flooding damage to public and private infrastructure during wet weather events that exceed the capacity of the collection and treatment system.

1.2.1 Outside Users

There are seven outside users connected to Buffalo Sewer's collection system, governed under individual intermunicipal agreements (IMAs) including:

- Erie County Sewer District No. 1
- Erie County Sewer District No. 4
- Town of Cheektowaga
- Village of Sloan
- West Seneca Town Sewer District Nos. 1, 2, 3, 4, 9 and 10
- West Seneca Town Sewer District Nos. 5, 13, and 14
- West Seneca Town Sewer District No. 1

Buffalo Sewer has wholesale agreements with these outside communities and does not own, operate, or maintain the wastewater collection systems within these communities. Each of these outside communities are charged by Buffalo Sewer for their share of costs allocable to the treatment of their flows to the WWTF. Allocable costs include portions of administrative expenses, WWTF expenses, industrial waste expenses, the costs to maintain trunk sewers to convey flows from the city line to the WWTF, and debt service costs. The municipality or district is billed twice annually for services. Under the IMAs, each District is responsible for installing and maintaining meters at city lines. Buffalo Sewer has rights to challenge accuracy of meters, including through installation of test meters.

In 2023, Buffalo Sewer reported a total of 191 discharges in their Annual Pretreatment Report regarding industrial users and hauled waste activity.

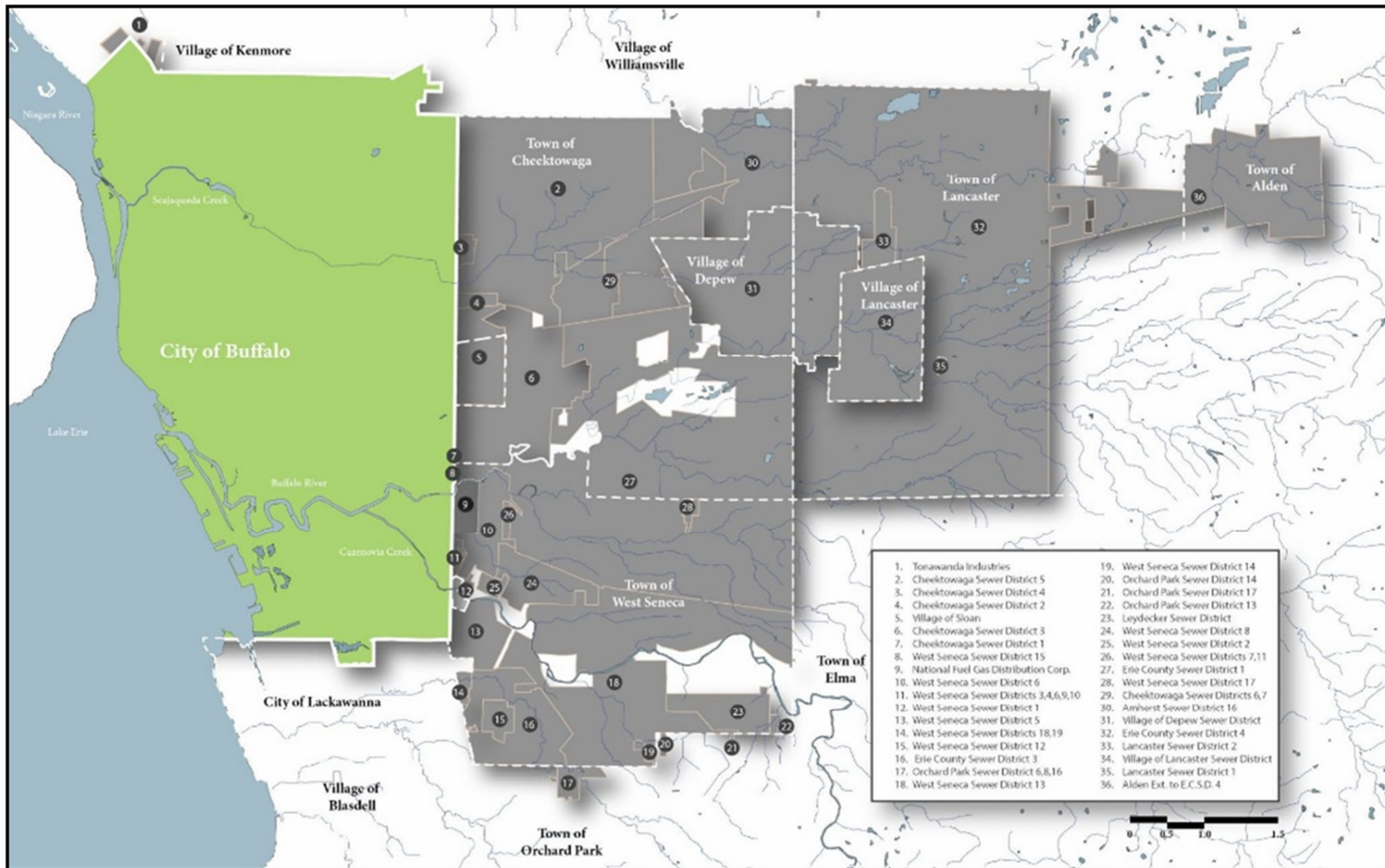


Figure 1-4: Buffalo Sewer Authority Service Area

1.2.2 Population Trends and Growth

Historically, the City of Buffalo has experienced population decline, unlike the population growth seen in New York State as a whole, as shown in Table 1-1. However, from 2010 to 2020, there was a population growth of 6.5%. Assuming an average population change based on the recent decade, it is projected the City's population will continue to grow at a rate of approximately 5.8% every ten years.

Table 1-1: Historical and Projected Population

Year	City of Buffalo		New York	
	Population	% Change	Population	% Change
1960	532,759		16,782,304	
1970	462,768	-13.1%	18,236,967	8.7%
1980	357,870	-22.7%	17,558,072	-3.7%
1990	328,123	-8.3%	17,990,455	2.5%
2000	292,648	-10.8%	18,976,457	5.5%
2010	261,310	-10.7%	19,378,102	2.1%
2020	278,349	6.5%	20,201,249	4.2%
2030*	295,388	5.8%	21,024,396	3.9%
2040*	312,427	5.8%	21,847,543	3.9%
2050*	329,466	5.8%	22,670,690	3.9%
2060*	346,505	5.8%	23,493,837	3.9%

*Projected

Source: US Census Bureau

As the population of the City is growing, the number of Buffalo Sewer connections has also increased over the past 11 years. Per the most recent Comprehensive Annual Financial Report (CAFR), as of FYE 2022, there are approximately 108,155 residential connections and 1,306 commercial, industrial, and governmental connections to Buffalo Sewer's collection system. These connections increased by 4.4% and 132% respectively, from FY 2014 to FY 2023. Figure 1-5 shows the growth of connections since FY 2014.

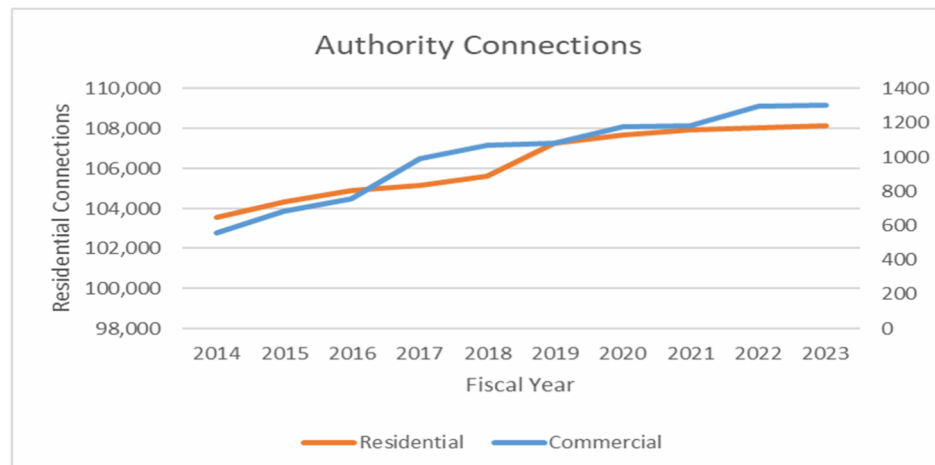


Figure 1-5: Buffalo Sewer Authority Connections

1.3 Existing Facilities and Present Conditions

1.3.1 General Description, History of Major System Components, and Description of Unit Processes

Construction on the sewer collection system began in the 1830s, and the WWTF was constructed from 1937 through 1939. Over the years, the WWTF has been upgraded to comply with new regulations. There is no known failure history within the system of note. The collection and conveyance system is not efficiently utilizing storage within its infrastructure, resulting in unnecessary discharges of combined sewage to surface waters. As part of this project, a storage tank will be constructed with the capacity to store 3.26 million gallons of wastewater thereby helping to reduce sanitary sewer overflows within the system.

A description of the alternative sites for this project is broken down below.

Sidney Street

Sidney Street, between Fillmore Avenue and Humboldt Parkway, has an existing combined sewer line located in the street flowing east to west. It conveys combined waste and storm water from Sidney Street and Lark Street to Humboldt Parkway's combined reinforced concrete sewer. As shown in , the sewer on Sidney Street begins as a 10-inch vitrified tile (VT) line and expands to 15 and 18-inch before connecting to the Humboldt Parkway sewer. The 10-inch, 15-inch and 18-inch lines are approximately 248 LF, 374 LF, and 300 LF, respectively, and are pitched at 0.40% slope with manholes throughout the line. The sewer on Lark Street begins as a 10-inch VT line and expands to a 12-inch before connecting to the Sidney Street sewer. The 10-inch and 12-inch lines are approximately 347 LF and 319 LF, respectively, and are pitched at 0.40% slope with manholes throughout the line.

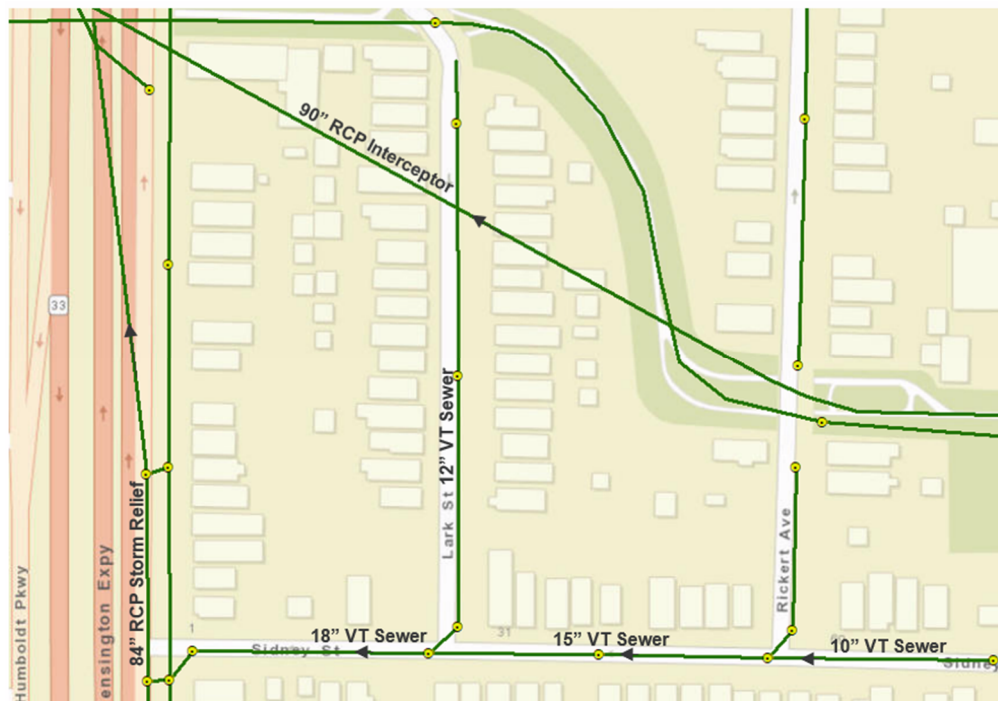


Figure 1-6: Existing Conditions: Sidney Street and Lark Street

1.3.2 Permit Conditions

A copy of the WWTF State Pollution Discharge Elimination System (SPDES) Discharge Permit NY0028410, EDP July 1, 2014, expiration June 30, 2019, is included in **Appendix D**. BSA is in the process of renewing its SPDES permit.

1.3.3 Compliance Issues

The Project is an outcome of Administrative Order Docket No. CWA-02-2012-3024 (SPDES Permit No. NY0028410). The Administrative Order resulted in the preparation of an LTCP to refine Buffalo Sewer Authority's sewer collection system model and to reduce CSO overflow volumes and frequencies.

1.3.4 Existing Flows

According to the Combined Sewer Overflow Annual Report of 2023, CSO-53, which will have reduced activations from the proposed upgrades, had 31 events of sewer overflow for the year, discharging approximately 688 million gallons of untreated combined sewage into the Scajaquada Creek this past year. The previous year had 35 events which discharged approximately 481 million gallons of untreated combined sewage.

Flow conditions at the 90-inch Scajaquada Tunnel Interceptor downstream of the proposed Sidney OLS Tank and at the 30-inch Humboldt Parkway Sewer upstream of the proposed tank were observed by Xylem and are summarized in Table 1-2.

Table 1-2: Observed Flow Conditions at Upstream and Downstream Combined Sewers

Item	Scajaquada Tunnel Interceptor Flows (MGD)	Humboldt Parkway Sewer Flows (MGD)
Average Dry Weather	3.3	13.3
Peak 10 Year	111	178
Peak 10 Year 24 Hour Design Storm	172	226

1.3.5 Existing Energy Consumption

The existing infrastructure at the proposed site is gravity-based and does not consume energy.

1.4 Definition of the Problem

BSA is committed to reducing the total frequency of CSOs into the receiving waterbodies by increasing and maximizing storage capacity within the collection and conveyance infrastructure. According to the Combined Sewer Overflow Annual Report from 2023, there were a total of 31 CSO events at CSO-53 in the reporting year, while the goal for CSO-053's associated waterbody, Scajaquada Creek, is zero to four activations.

As described in Section 1.1.4, the receiving water bodies are impacted by discharge of untreated CSOs in several ways. The affected surface water quality poses a health and sanitation risk. Therefore, water contact for recreation must be limited when CSO activations occur and for a period afterwards. There are also longer-term implications for recreation: specifically, fishing is unsafe due to sewage stressing aquatic life and habitat. Restricting recreation limits the economic value it can bring through both tourism and improved quality of life of the local population. Furthermore, as described in Section 1.1.5, the impacted water resources affect historically marginalized communities that utilize the parks, waterfronts, and historical resources in various ways.

Although many factors negatively affect these receiving water bodies, the effects caused by CSO activations can be addressed by improving the overall efficiency of storage and conveyance of sewage within the collection system.

This project proposes to construct a 3.26 MG offline storage tank to store flow diverted from the sewer along Humboldt Parkway and dewater via gravity when there is sufficient available capacity in the Scajaquada Tunnel Interceptor. This will greatly reduce the magnitude and frequency of overflows at CSO-053.

1.5 Financial Status

1.5.1 BSA Revenues

The Median Household Income (MHI) for the Buffalo area is \$46,184 per year, according to the 2022 US Census, while the New York State MHI is \$81,386 per year. The MHI for Buffalo is 43.3% lower than the State MHI.

The main sources of income for the sewer system come from sewer rents, direct payments from outside users, and industrial waste disposal.

BSA is projecting an operating revenue increase of 35% over the forecast period attributable primarily to rate increases. The projected revenue increases are detailed in Appendix A. The purpose of these rate and revenue increases is to improve water equity, provide additional funds to close the CIP funding gap and improve financial resilience.

Table 1-3 shows past BSA revenues taken from BSA's Comprehensive Annual Financial Report (CAFR) for FYE 2014 through 2023. Tables 1-4 and 1-5 show projected total and net revenues, respectively, for FYE 2024 through 2028.

Table 1-3: Actual Revenues from FYE 2014 to 2023

FYE	\$1,000	FYE	\$1,000
2014	54,172	2019	58,268
2015	61,830	2020	55,406
2016	56,872	2021	65,355
2017	61,949	2022	58,847
2018	62,817	2023	71,477

Table 1-4: Estimated Total Revenues from FYE 2024 to 2028

FYE	Revenue (in \$1000s)
2024	66,279
2025	70,275
2026	76,267
2027	82,313
2028	89,327

Table 1-5: Estimated Net Revenues from FYE 2024 to 2028

FYE	Revenue (in \$1000s)
2024	7,444
2025	7,410
2026	10,966
2027	15,621
2028	20,936

Net revenues (total revenues less operating expenditures) are one source of funding the CIP. BSA's 5-year Capital Improvement Program (CIP) is currently \$ 386.9M. The projected five-year amount available to fund this CIP is currently approximately \$195M as detailed below:

- 2024 EFC bond issue - \$39MM
- 2026 EFC bond issue - \$70MM
- Capital contributions from reserves - \$15MM
- Capital contributions from operations 2024-2028 - \$27 MM
- Unspent funds from prior 2021 EIB - \$49MM

1.5.2 Recent Rate Developments

BSA regularly performs rate reviews and formal rate studies to verify the accuracy and appropriateness of rates. BSA's last rate increase occurred July 1, 2005. On January 16, 2023, a Report on Fiscal Year 2022-23 Rates and Charges for Sewer Services was performed. The reports conclusions are presented below:

"The consistently stated goals of the Authority are to build a reserve balance to a level expected by rating agencies for a sewer system the size of the Buffalo Sewer Authority and to support capital improvements to the System over the long term. While there is no required rate increase necessary for Fiscal 2022-23, and there has been no increase to rates and charges since FY 2005-06, the Authority should consider a review of its overall rate structure over the next few years to make certain the anticipated improvements identified under its long-term control plan can be adequately supported. Those improvements were previously estimated to be over \$781MM.

No immediate adjustments to current rates and/or drainage/capacity charges are proposed for FY2022-23 for consideration by the Authority at this time."

BSA has recently engaged Raftelis to review their rate system and financing strategy to close the capital program funding gap. In their study, Raftelis:

1. Prepared a baseline financial forecast, from FY 2025 to FY 2029, using the most recent operating budget and capital plan for the Authority and according to the funding assumptions included in the Authority's most recent Financial Capability Assessment Report.
2. Identified the cumulative five-year increase in assessment and user rate revenues that would be necessary to fund system operations and the capital program as part of the baseline forecast.
3. Prepared three alternative five-year rate plan scenarios showing the amount of capital investments that could be funded over the forecast period with a better optimized capital funding mix to expand funding capacity and to minimize rate impacts.

4. For the baseline forecast and the three alternative rate plans: a. Compared the amount of capital that could be funded over the forecast period, and b. Compared the cumulative five-year increase in assessment and user rate revenues.
5. Documented findings and conclusions resulting from the evaluation.

Using a \$358 million LTCP and non-LTCP capital expenditures target for 2025-2029, Raftelis concluded that the cumulative revenue increase needed to fund the planned capital over this period was projected to be 66 percent. Three alternative five-year rate plans were prepared that included a more optimized capital funding mix:

- The 5 percent rate plan was projected to be able to provide \$268 million in capital funding over the five-year forecast period and resulted in a cumulative five-year revenue increase of 30 percent. This is \$90 million less funding capacity than is estimated to be needed over the forecast period.
- The 7 percent rate plan was projected to be able to provide \$355 million in capital funding, while resulting in a five-year revenue increase of 43 percent. This is comparable to the amount of funding needed over the forecast period and resulted in a reduced customer impact as compared to the baseline scenario.
- The 9 percent plan was projected to provide over \$440 million in capital funding and resulted in a cumulative five-year revenue increase of 58 percent.

Noting the uncertainties over the cost and timing of several high dollar value projects, Raftelis recommended that the financial forecast should be updated so that specific annual increases to assessment and user rates and charges can be provided.

1.5.3 Revenue Sources

BSA currently has nine (9) revenue sources:

- Assessed sewer rents in City
- Metered water use sewer rents
- Assessed sewer rents Outside City
- Metered sewer rents Outside City
- Flat rate water use rents
- Industrial waste
- Outside City Districts
- Miscellaneous fees and charges
- State and Federal Aid

1.5.3.1 Assessed Sewer Rents in City

An amount (currently \$19,852,600) shall be collected from all real property in the City of Buffalo (the "City") by apportioning the said amount upon such property within the City as the same is set down on the last completed annual assessment roll of the City, except that no ad valorem sewer rent shall be assessed against real property exempt from real property taxes.

1.5.3.2 Metered Water Use Sewer Rents

If a customer is a user of water supplied by the Buffalo Water Board or from any other source, and the quantity of water used is measured by a water meter acceptable to BSA, then in each such case, the quantity

of water used, as measured by said meter, shall be used to determine the sewer charge or rental, and the charge for such use shall be as follows:

1. \$48.30 for 0 to 4,000 cubic feet of water used per quarter year, if the meter is read quarterly, and any water used in excess thereof shall bear a sewer charge or rental of \$11.09 per thousand cubic feet (\$.0111 per cubic foot).
2. \$16.10 for 0 to 1,333 cubic feet of water used per month, if the meter is read monthly, and any water used in excess thereof shall bear a sewer charge or rental of \$11.09 per thousand cubic feet (\$.0111 per cubic foot).

1.5.3.3 Assessed Sewer Rents Outside City

An annual service charge for the privilege of connecting with the facilities of BSA shall be due for any premises situated outside the limits of the City for each \$1,000 of assessed valuation as determined on the last completed annual assessment. The 2021 – 2022 rate is \$2.71239 per \$1,000 of assessed valuation.

1.5.3.4 Metered Sewer Rents Outside City

If an outside City customer is a user of water supplied by the Buffalo Water Board or from any other source, and the quantity of water used is measured by a water meter acceptable to BSA, then in each such case, the quantity of water used, as measured by said meter, shall be used to determine the sewer charge or rental, and the charge for such use shall be as follows:

1. \$48.30 for 0 to 4,000 cubic feet of water used per quarter year, if the meter is read quarterly, and any water used in excess thereof shall bear a sewer charge or rental of \$11.09 per thousand cubic feet (\$.0111 per cubic foot).
2. \$16.10 for 0 to 1,333 cubic feet of water used per month, if the meter is read monthly, and any water used in excess thereof shall bear a sewer charge or rental of \$11.09 per thousand cubic feet (\$.0111 per cubic foot).

1.5.3.5 Flat Rate Water Use Rents

If a customer is a user of water supplied by the Buffalo Water Board, and the quantity of water used is not measured by a water meter acceptable to BSA, then the sewer charge or rental for all such accounts shall be determined through a table of descriptors (building height, fixtures, etc.).

1.5.3.6 Industrial Waste

As a condition of a Buffalo Discharge Elimination System Permit (BPDES), a user may be required to pay an industrial waste surcharge for discharging sewage or waste exhibiting a strength of sewage or waste greater than normal domestic sewage.

1.5.3.7 Outside City Districts

BSA currently has seven service contracts with municipalities and sewer districts outside the city limits. These districts are billed for their share of costs allocable to the treatment of their flow to the treatment plant. Allocable costs include portions of administrative expenses, Treatment Facility expenses, Industrial Waste expenses, the costs to maintain trunk sewers, and debt service costs. The municipality or district is billed twice annually for services. The municipality or district is billed, not individual property owners. Intermunicipal agreements (IMAs) with each Outside City District covers flow measurement. Under the IMAs,

each District is responsible for installing and maintaining meters at BSA city lines. BSA has rights to challenge accuracy of meters including installing test meters.

- Erie County Sewer District #1 connects to the Buffalo Sewer System through a 36" main on Mineral Springs Road at the City/Town line. Flows from this district are measured through a metering station located just to the east of the I-90 highway overpass of Mineral Springs Road.
- Erie County Sewer District #4 connects into the Buffalo Sewer Interceptor System through a 66" main at Bailey and Seneca Streets. There is one upstream Buffalo Sewer connection to this line at Cable Street and the Buffalo River through a 10" combined sewer. The flows from Erie County Sewer District #4 are measured at a Metering Station located at 75 South Pierce Street.
- The Town of Cheektowaga discharges to the Buffalo Sewer System through a 48" sewer connection the Scajaquada Tunnel in Schiller Park at the City/Town line. Flows are measured through a metering station at the point of interconnection.
- The Village of Sloan connects to the Buffalo Sewer System through three distinct connections: an 18" sanitary sewer connection to a 20" combined sewer on Vanderbilt Street at the City Line; an 8" sanitary sewer connection to the 15" combined sewer at the intersection of Richard and Cambria; and a 12" sanitary sewer connection to a 15" combined sewer at Richard Drive and the City line. The Village of Sloan is required to operate and maintain flow metering devices and provide records upon request for the first two connections and for the last charges are based on water usage.
- West Seneca Sewer Districts 1, 2, and 10 connect to the Buffalo Sewer System through a 20" sanitary sewer that discharges to a 20" combined sewer at Wildwood Avenue and Beyer Place. West Seneca Sewer District 3 discharges through a 10" sanitary sewer connection to the 10" combined sewer at Edson Street at the City line. West Seneca Sewer District 4 discharges to the Buffalo Sewer System through a 10" combined sewer connection at Duerstein and the City line. West Seneca Sewer District 9 discharges to the Buffalo Sewer System through a 12" sanitary sewer connection to a 12" combined sewer at Burch Street at the City line. The Town of West Seneca is required to operate and maintain flow metering devices for all of these points of interconnection.
- West Seneca Town Sewer Districts 5, 13, and 14 discharge to Buffalo Sewer through a 36" sanitary sewer which connects into the Buffalo Sewer System at its intersection with a 42" main in Cazenovia Park approximately 300 feet southeast of Cazenovia Parkway. The Town of West Seneca is required to operate and maintain flow metering devices this point of interconnection.
- West Seneca Sewer District connects to Buffalo's Sewer System through a 10" sanitary connection at Pierce and Casimir Streets. The Town of West Seneca is required to operate and maintain a flow metering device at this point of interconnection.

Debt service costs are allocated to outside City Districts based on historic flows to the treatment plant.

1.5.3.8 Miscellaneous Fees and Charges

Miscellaneous fees and charges include drainage connection service charges, waste hauler charges, interest charges on overdue bills and other fees and charges typical of a wastewater utility.

1.5.3.9 State and Federal Aid

BSA pursues State and Federal aid when available and appropriate. Although BSA will continue to pursue State and Federal aid throughout the projection period, this projection does not anticipate receiving State or Federal aid between FY 25 and FY 28.

1.5.4 Debt Service

The principal and interest payments on the outstanding bonds over the projection period are shown below:

Table 1-6 Debt Service Schedule FY2024-2028

Debt Service Schedule					
	FY24	FY25	FY26	FY27	FY28
Series J	\$ 417,781	\$ 415,467	\$ 407,685	\$ 409,478	\$ 395,693
Series K	\$ 281,725	\$ 278,535	\$ 279,992	\$ 275,848	\$ 271,450
Series L	\$ 521,963	\$ 513,424	\$ 504,574	\$ 500,297	\$ 495,483
Series M	\$ 494,093	\$ 493,332	\$ 486,666	\$ 484,312	\$ 476,270
Series N	\$ 1,599,340	\$ 1,581,570	\$ 1,566,848	\$ 1,545,427	\$ 1,527,224
Series O	\$ 218,948	\$ 222,597	\$ 226,231	\$ 229,895	\$ 233,544
2021 EIB	\$ 2,669,488	\$ 2,670,288	\$ 2,669,088	\$ 2,665,888	\$ 2,666,888
(18) Proposed 2024 EFC \$39M				\$ 2,100,000	\$ 2,100,000
Proposed 2026 EFC \$70M					\$ 3,800,000
Total Debt Service	\$ 6,203,338	\$ 6,175,213	\$ 6,141,084	\$ 8,211,145	\$ 11,966,552

A portion of the interest for the 2024 EFC issue will be prepaid and the first debt service payment will be made after June 30, 2026.

SECTION 2 ALTERNATIVES ANALYSIS

This section looks at several possible solutions to minimizing CSOs to surface waters and offers a brief discussion of the viability of each solution. Green Infrastructure has been included as a measure to address combined sewer overflows and urban flooding throughout the CSO 053 sewershed but has been determined in the initial site evaluation to not be a feasible option to fully address the issues. The recommended solution is expanded in greater detail in the Recommended Alternative section.

2.1 Description of Sidney OLS Alternatives

An Alternatives Evaluation Report was prepared by Xylem to look at possible solutions for reducing CSOs resulting from wet weather in the sewer system. The report is provided in **Appendix G**. It looked at three different alternatives:

- Alternative 1: Sidney and Lark Street OLS
- Alternative 2: East Ferry ILS
- Alternative 3: Schiller Park OLS
- Alternative 4: No Action

Alternative 2, East Ferry ILS, was in the 2014 Long-term Control Plan but was removed from consideration prior to optimization. Investigations demonstrated that storage is not available in this section due to low basement and side sewer connections.

Alternative 3, Schiller Park OLS, was considered an option on Hemingway Street. The tank has an area of 106,952 square feet with an 8.00-million-gallon capacity. It would require approximately 1,144 LF of new 48" gravity sewer for the tank influent and effluent lines. Figure 2.1 illustrates a conceptual design for this project.

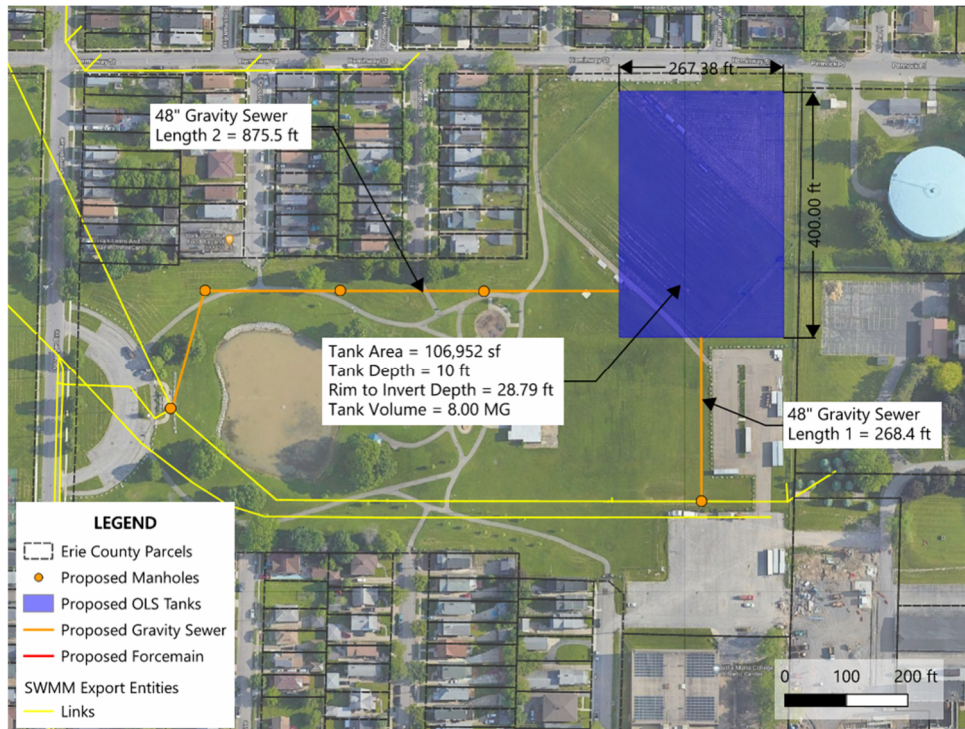


Figure 2-1: Proposed OLS Tank Location at Schiller Park

The No Action alternative can also be considered as an alternative to the Sidney OLS. Choosing to make no modification here will make no reduction in CSO activations, therefore leading to no increased protection of water quality or the community. Though this is the option with the lowest cost, it does not meet the mandates of the AO and is not considered further.

2.2 Opinion of Probable Construction Costs - Sidney OLS Alternatives

Below shows the opinion of probable construction costs for the two alternatives considered for CSO 53 storage tanks. The Class 5 estimate for Alternatives 1 and 3 are broken down in **Appendix E**. The appendix also includes annual operations and maintenance costs broken down by year in addition to rehabilitation and replacement costs.

Alternatives	OPCC (2022 in \$ Million)
Alternative 1: Sidney and Lark Street OLS	30.93
Alternative 3: Schiller Park OLS	90.34

2.3 Non-monetary Factors Considered

Non-monetary factors considered included flexibility in design, construction challenges, and location that allows for adequate staging, and constraints related to the Scajaquada Tunnel.

Alternative 1 was recommended due to having the least construction challenges and cost, and most flexibility with tank design. Its location allows for adequate construction staging and flexibility in tank depth due to the invert of the Scajaquada Tunnel Interceptor.

SECTION 3 SUMMARY AND COMPARISON OF ALTERNATIVES

Below is a summary table of all technically feasible alternatives that identifies major differences, pros and cons, non-monetary factors, and costs. The life cycle cost analysis for each alternative is found in **Appendix E**.

Alternative	Pros	Cons	Non-Monetary Factors	Costs
Sidney and Lark St. OLS	<ul style="list-style-type: none"> • Can dewater by gravity • Lower construction and operation and maintenance costs 	<ul style="list-style-type: none"> • Adjacent to a residential neighborhood • Tank footprint close to existing homes • Tight space for construction 	<ul style="list-style-type: none"> • Location allows for adequate construction staging • Flexibility in design 	<ul style="list-style-type: none"> • \$13.91 per gallon of storage • \$72.12 per user
Schiller Park OLS	<ul style="list-style-type: none"> • Can dewater by gravity • Good separation from existing structures 	<ul style="list-style-type: none"> • Adjacent to a residential neighborhood • Higher construction and operation and maintenance costs 	<ul style="list-style-type: none"> • Location provides opportunity to improve existing park land 	<ul style="list-style-type: none"> • \$14.33 per gallon of storage • \$216.35 per user

SECTION 4 RECOMMENDED ALTERNATIVE

4.1 Sidney Street and Lark Street

The design of the Sidney and Lark Street OLS Tank consists of a 125 ft. by 140 ft. tank holding 3.26 million gallons. The design includes adding a 48" gravity sewer going east from the Humboldt Parkway Sewer for the tank influent, and a 36" gravity sewer going north on Lark Street for the tank effluent. The effluent has a connection at the Scajaquada Tunnel Interceptor. **Figure 4-1** shows the proposed configuration. The tank reduces flows at SPP336B and would store flow diverted until there is sufficient available capacity in the Scajaquada Tunnel Interceptor. This location was selected because of the ability to dewater by gravity into the Scajaquada Tunnel Interceptor. Also, the lot on the other side of Lark Street can be used for construction staging. The invert depth of the Scajaquada Tunnel Interceptor allows for an additional 10 feet of tank depth.

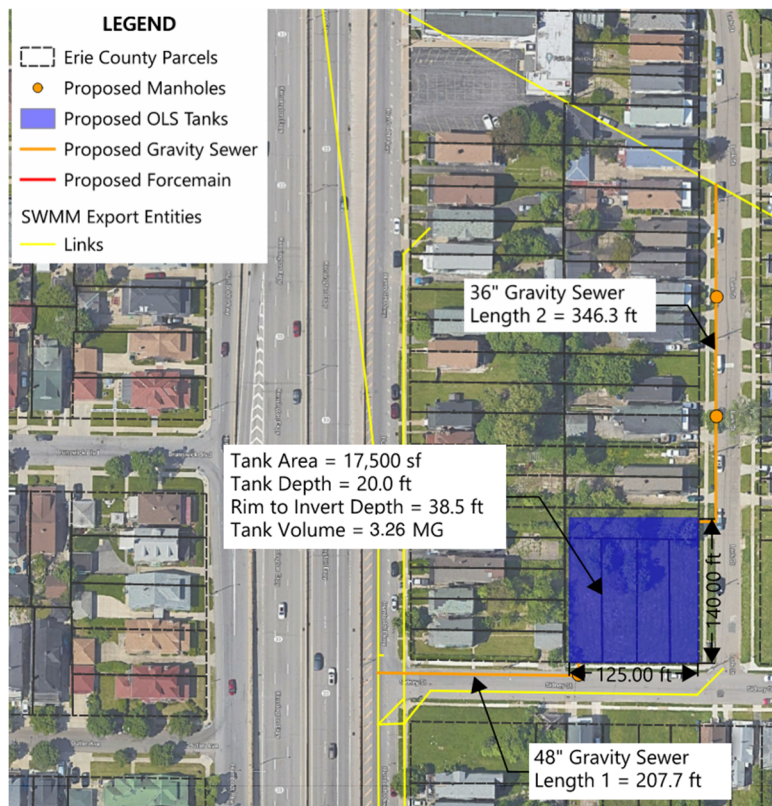
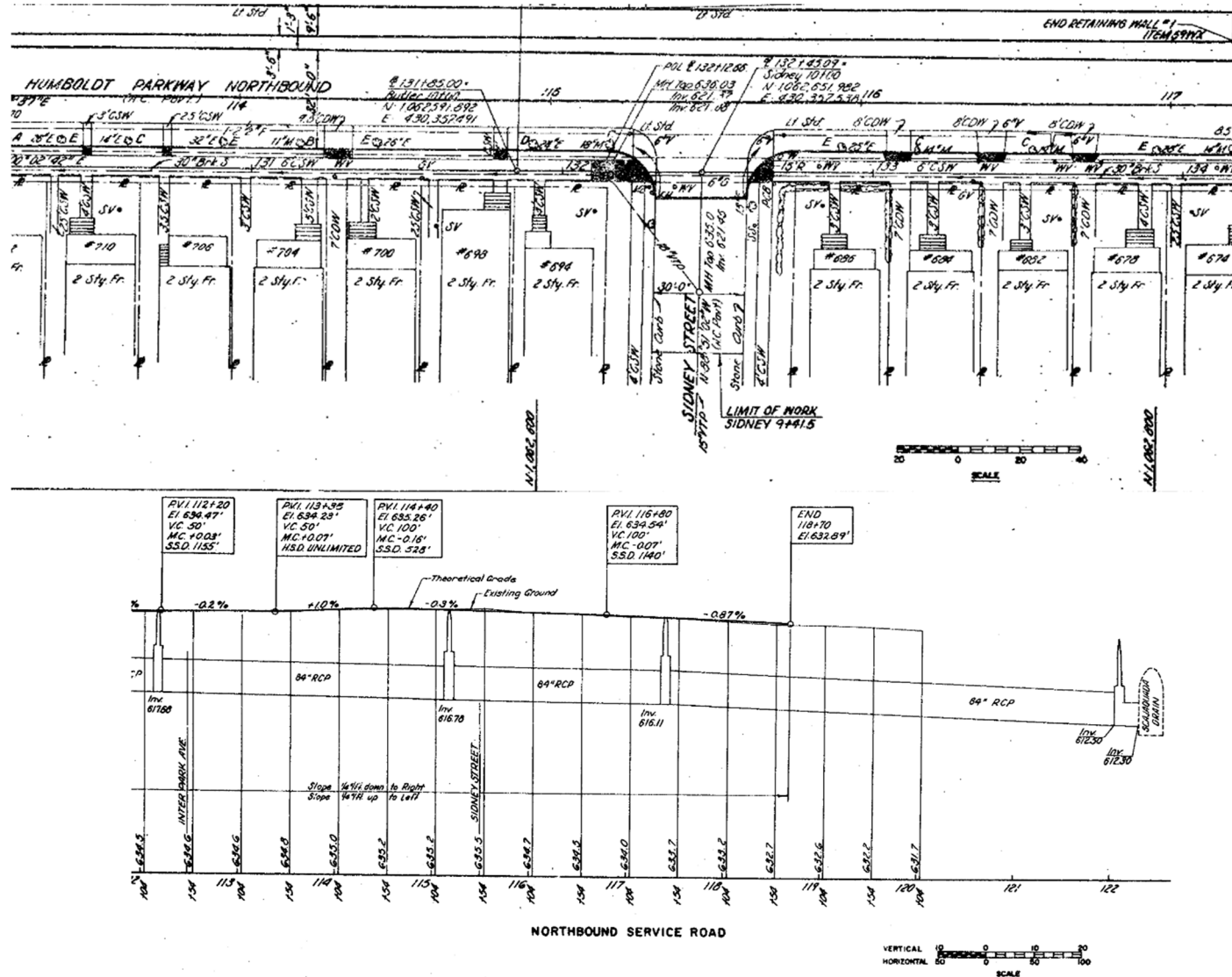


Figure 4-1: Proposed OLS Tank Location at Sidney Street and Lark Street

Figure 4-2 and

Figure 4-3 show the existing plan and profile of the Humboldt Pkwy Sewer and Scajaquada Tunnel Interceptor.



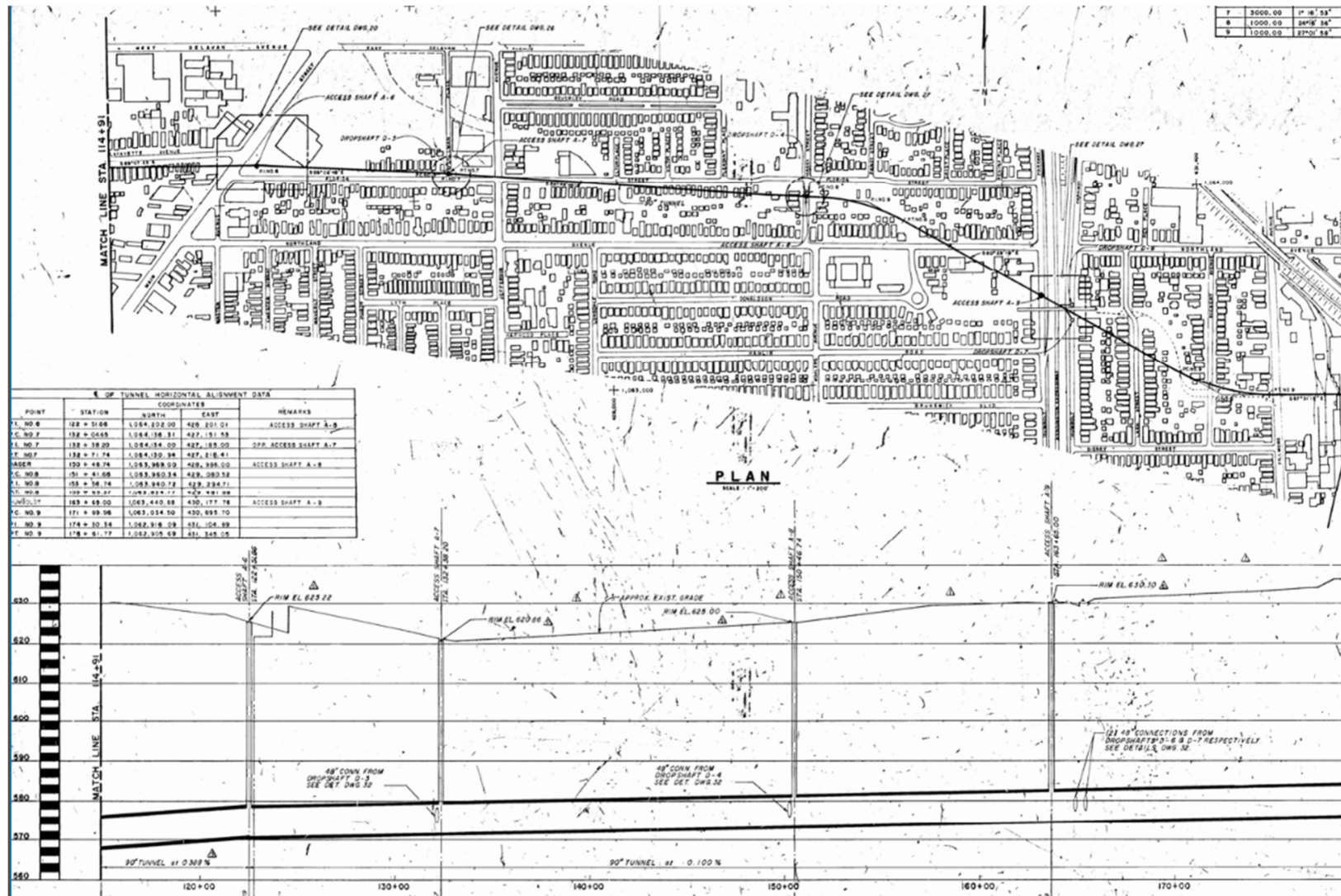


Figure 4-3: Existing Scajaquada Tunnel Interceptor Plan and Profile

4.2 Design Parameters

The main design parameters for the site are based on average and peak flows as noted in Section 1.3.4. Flow conditions are determined by SWMM modeling based on the Modified 1993 typical year and existing meters within the system. The area of the tank is constrained by the size of the lot at this location. The storage tanks will utilize weirs to move water from storage back into the system via gravity into the Scajaquada Tunnel Interceptor. The tank would also include a floor flushing system through flushing gates or tipping buckets to prevent the buildup of debris inside the tank.

4.3 Next Steps

As part of this project, potential impacts to environmental resources are being evaluated through the State Environmental Quality Review (SEQR) process. The project is an Unlisted action but will undergo a coordinated review as if it were a Type I action. Buffalo Sewer will act as the lead agency. Coordination, consultation, and permitting with state and federal agencies is concurrent with detailed design to ensure impacts to environmental resources are mitigated to the extent feasible.

This is a design/bid project, with independent prime subcontractors to be engaged.

Design of the work outlined in this report will proceed through Winter of 2024, with regulatory review occurring when the design is complete. If regulatory approvals are obtained in time, construction will begin in the Fall of 2025, with the goal of completion by Spring of 2026. The schedule is summarized in **Table 3-1**. Financing and regulatory approvals need to be secured for the Project to proceed along this timeline.

Table 4-1: Anticipated Project Schedule

Description	Anticipated Completion Date
Design	Winter 2026
Regulatory Review	Spring 2027
Bidding	Summer 2027
Construction Start Date	Fall 2027
Construction End Date	Spring 2032

Refer to **Appendix F** for the signed engineering report certification.

APPENDIX A: Buffalo Sewer Authority Administrative Order Issued by DEC/EPA

**UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 2**

IN THE MATTER OF:

Buffalo Sewer Authority
1038 City Hall
Buffalo, New York 14202-3310

SPDES Permit No. NY0028410

Respondent

Amended Administrative Order for Compliance
pursuant to Sections 308(a) and 309(a) of the Clean
Water Act, 33 U.S.C. §§ 1318(a) and 1319(a).

AMENDED

ADMINISTRATIVE ORDER

CWA-02-2014-3033

(Amends CWA-02-2012-3024)

This Amended Administrative Order CWA-02-2014-3033 amends Administrative Order CWA-02-2012-3024 to include: developments in the enforcement action since the March 9, 2012 effective date of Administrative Order CWA-02-2012-3024; updated General Provisions to reflect current practice; and to correct a date in the Findings of Fact and Findings of Violation. The Amendments to Administrative Order CWA-02-2012-3024 reflect the developments leading up to and including the approval of Buffalo Sewer Authority's Combined Sewer Overflow Long Term Control Plan and associated implementation schedule by the United States Environmental Protection Agency and the New York State Department of Environmental Conservation. Amended provisions can be found in Paragraphs 4, 11 and 13-20 of the Findings of Fact and Findings of Violation, Paragraphs 2.a., 2.f., 3., 3.a., 3.d.ii of the Ordered Provisions and Paragraphs 1-8 of the General Provisions.

STATUTORY AUTHORITY

The following Findings of Violation and Order for Compliance ("Order") are made and issued pursuant to Sections 308(a) and 309(a) of the Clean Water Act ("CWA"), 33 U.S.C. §§ 1318(a) and 1319(a). This Authority has been delegated by the Administrator of the United States Environmental Protection Agency ("EPA") to the Regional Administrator, EPA Region 2 and further delegated to the Director of the Division of Enforcement and Compliance Assistance, Region 2, EPA.

1. Section 301(a) of the CWA, 33 U.S.C. § 1311 (a), makes it unlawful for any person to discharge any pollutant from a point source to waters of the United States, except, inter alia, with the authorization of, and in compliance with, a National Pollutant Discharge Elimination System ("NPDES") permit issued pursuant to Section 402 of the CWA, 33 U.S.C. § 1342.
2. Section 402 of the CWA, 33 U.S.C. § 1342, authorizes the Administrator of EPA to issue a NPDES permit for the discharge of any pollutant, or combination of pollutants subject to certain requirements of the CWA and conditions which the Administrator determines are necessary. The New York State Department of Environmental Conservation ("NYSDEC") is the agency with the authority to administer the federal NPDES program in New York pursuant to Section 402 of the CWA, 33 U.S.C. § 1342. EPA maintains concurrent enforcement

authority with authorized states for violations of the CWA. Additionally, under the authority granted to the NYSDEC by the EPA under Section 402(b) of the CWA, 33 U.S.C. § 1342(b), a State Pollutant Discharge Elimination System ("SPDES") permit is required to be issued to facilities by the NYSDEC for the discharge of pollutants from said facilities from a point source to a navigable water of the United States.

3. Section 308 of the Act, 33 U.S.C. § 1318, provides, in relevant part, that the Administrator of EPA may require the owner or operator of any point source to, among other things: establish and maintain such records; make such reports; install, use and monitor such equipment; sample such effluents; and provide such other information as may reasonably be required in order to carry out Section 402 of the Act, 33 U.S.C. § 1342.
4. "Person" is defined by Section 502(5) of the CWA, 33 U.S.C. § 1362(5), to include an individual, corporation, partnership, association or municipality.
5. "Municipality" is defined by Section 502(4) of the CWA, 33 U.S.C. § 1362(4), to include among other things, a city, town, borough, county, parish, district, associations, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes.
6. "Pollutant" is defined by Section 502(6) of the CWA, 33 U.S.C. § 1362(6), to include among other things, solid waste, dredged spoil, rock, sand, cellar dirt, sewage, sewage sludge and industrial, municipal and agricultural waste discharged into water.
7. "Point source" is defined by Section 502(14) of the CWA, 33 U.S.C. § 1362(14), to include any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.
8. "Navigable waters" is defined by Section 502(7) of the CWA, 33 U.S.C. § 1362(7), to include the waters of the United States.
9. "Discharge of a pollutant" is defined by Section 502(12) of the CWA, 33 U.S.C. § 1362(12), to include any addition of any pollutant to navigable waters from any point source.
10. Section 402(q) of the CWA, 33 U.S.C. § 1342(q), provides that each permit, order, or decree issued pursuant to the chapter after December 21, 2000, for a discharge from a municipal combined storm and sanitary sewer shall conform to the Combined Sewer Overflow Policy ("CSO Policy") signed by the Administrator on April 11, 1994.
11. The CSO Policy states that "permittees with CSOs are responsible for developing and implementing long-term CSO control plans that will ultimately result in compliance with the requirements of the CWA."
12. Section 309(a) of the CWA, 33 U.S.C. § 1319(a), authorizes the Administrator to issue an order requiring compliance or commence a civil action when any person is found to be in violation of Section 301 of the CWA, 33 U.S.C. § 1311, or in violation of any permit condition or limitation in a permit issued under Section 402 of the CWA, 33 U.S.C. § 1342.

FINDINGS OF FACT AND FINDINGS OF VIOLATION

1. The Buffalo Sewer Authority (“BSA” or “Respondent”), is a public benefit municipal corporation, organized and existing under the laws of the State of New York, and located in Buffalo, New York. BSA has authority, control over and operates the sewer system within its boundaries, including, but not limited to the combined sewer system, the sanitary sewer system, and the related wastewater treatment plant.
2. BSA is a “person” and “municipality” within the meaning of Sections 502(5) and 502(4) of the CWA, 33 U.S.C. §§ 1362(5) and 1362(4).
3. BSA has discharged and continues to discharge “pollutants” within the meaning of Sections 502(6) and 502(12) of the CWA, 33 U.S.C. §§ 1362(6) and 1362(12), from the Buffalo wastewater treatment plant and sewer system through “point sources” within the meaning of Section 502(14) of the CWA, 33 U.S.C. § 1362(14) into the Niagara River, Black Rock Canal, Erie Basin, Buffalo River, Scajaquada Creek, Cazenovia Creek, and Cornelius Creek, each of which is a “navigable water” within the meaning of Section 502(7) of the CWA, 33 U.S.C. § 1362(7).
4. The NYSDEC, under the authority of Section 402(b) of the CWA, 33 U.S.C. § 1342(b), issued SPDES Permit No. NY0028410 (the “SPDES Permit”) to BSA, with an effective date of July 1, 1999. The NYSDEC renewed the SPDES permit on February 3, 2004, on June 25, 2009, and again on December 31, 2013. It is scheduled to expire on June 30, 2019. The SPDES Permit authorizes BSA to discharge pollutants from a single wastewater treatment plant outfall and fifty-eight (58) combined sewer overflow structures (“CSO structures”) at locations specified in the SPDES Permit, subject to certain limitations and conditions.
5. The Schedule of Compliance in the July 1, 1999 SPDES Permit provided in pertinent part as follows:

“Development of Abatement Plan for Combined Sewer Overflow

The permittee shall develop a combined sewer overflow abatement facility plan in accordance with the Phase I Long Term CSO Control Plan requirements specified in the USEPA Combined Sewer Overflow Policy (Federal Register Vol. 59, No. 75 4/19/94).

This Abatement Plan shall contain all of the Long Term Plan elements specified in Section II C of the National CSO Policy, and further delineated in the USEPA document, “Combined Sewer Overflows, Guidance for Long-Term Control Plan” dated September, 1995. The permittee may choose either the “Presumption” or the “Demonstration” approach for the evaluation of alternatives.

The Abatement Plan should integrate the pollutant reduction achievable by the implementation of the CSO Best Management Practices (BMPs) as required on pages 19-21 of this permit into the long term control plan. The Department will consider work or studies already completed or currently in progress for integration into the long term control plan.

The permittee shall submit a completed CSO Abatement Facility Plan including a schedule of implementation to the Department.

The permittee shall report to the NYSDEC progress/status of plan development in intervals not to exceed 90 days.

Upon approval of the CSO Abatement Facility Plan, the NYSDEC will propose a SPDES permit modification, pursuant to Uniform Procedures – 6 NYCRR – Part 621, to include the schedule of implementation.”

6. The SPDES Permit was modified October 2, 2001 to, among other changes, modify the deadline for submittal of a CSO Abatement Plan (hereinafter either “Abatement Plan,” “combined sewer overflow abatement facility plan,” “Long-Term Control Plan,” “LTCP” or “updated LTCP”) from July 1, 2001 to July 1, 2002. On August 29, 2002, the CSO Abatement Plan deadline was amended, by permit modification, again to July 1, 2003. On January 12, 2004, the CSO Abatement Plan deadline was again amended, by permit modification, to February 1, 2004.
7. BSA failed to submit the required Abatement Plan by February 1, 2004. BSA did not submit an Abatement plan until July 14, 2004, 164 days late.
8. BSA’s failure to timely submit the required Abatement Plan is a violation of the SPDES Permit and is, therefore, a violation of Section 301 of the CWA, 33 U.S.C. § 1311.
9. Under a cover letter dated April 20, 2006, the NYSDEC notified the BSA that the Abatement Plan submitted by BSA on July 14, 2004 was not acceptable in that it would not meet the water quality objectives of the CSO Control Policy and had therefore failed to satisfy the SPDES Permit requirements of a combined sewer overflow abatement facility plan, as described in paragraph 5 above. This NYSDEC cover letter required that BSA revise its LTCP accordingly and submit it to the NYSDEC by July 31, 2006. BSA failed to submit such a revised LTCP to the NYSDEC by July 31, 2006.
10. Accordingly, EPA, NYSDEC, the U. S. Department of Justice (“USDOJ”), and the New York State Office of Attorney General commenced discussions with BSA to settle the violation. The settlement was to be embodied in a Consent Decree, under the auspices of federal court, for the development and implementation of a LTCP.
11. Since those discussions were on-going, the SPDES Permit was modified, effective January 1, 2010, to include Section VIII entitled “CSO LONG-TERM CONTROL PLAN,” which states the following:

“BSA submitted a CSO Long-Term Control Plan (LTCP) in July 2004 in accordance with the requirements of their SPDES permit. Currently, the USEPA, USDOJ, NYSDEC and the permittee are engaged in negotiations concerning the LTCP, and anticipate that these negotiations will result in the entry of a Consent Decree. The Consent Decree will govern the permittee’s obligations in ensuring that the WWTF and the combined sewer overflow discharges comply with the requirements of the Clean Water Act and the 1994 CSO Control Policy. This permit may be modified upon the ratification of the Consent Decree in accordance with 6 NYCRR Part 621.”
12. To date, however, the parties have not reached a settlement nor entered into a Consent Decree.

13. On March 9, 2012, EPA, Region 2 issued an Administrative Order, Docket No. CWA-02-2012-3024 ("2012 Order"), to BSA, to address violations of the CWA (33 U.S.C. § 1251 et seq) and NYSDEC SPDES Permit number NY0028410. The 2012 Order requires that BSA update its CSO LTCP and that the Updated CSO LTCP include a schedule for the design, construction, and implementation of all control/treatment measures selected by BSA, to be completed as expeditiously as practicable, following any applicable environmental impact assessment review, pursuant to the New York State Environmental Quality Review Act, but in any event by no later than December 31, 2027.
14. In accordance with the 2012 Order, BSA submitted an Updated CSO LTCP, dated April 30, 2012, to the EPA and the NYSDEC for review and approval. Pursuant to "Ordered Provisions," Item 2.e of the 2012 Order, based on a joint review of the Updated CSO LTCP, the EPA and the NYSDEC declined to approve the Updated CSO LTCP and provided comments to BSA in a letter dated December 6, 2012.
15. The EPA and the NYSDEC met with BSA on February 12, 2013 to discuss the EPA's and the NYSDEC's comments. BSA followed up with a letter dated March 1, 2013 which, among other things, specified that BSA would submit a No Feasible Alternatives ("NFA") analysis and submit its Green Infrastructure ("GI") Master Plan to the Agencies by August 2, 2013, and would meet with the Agencies on or about August 15, 2013 to discuss those submittals.
16. Technical representatives of the EPA and the NYSDEC met with BSA to specifically discuss BSA's GI Master Plan on August 20, 2013. BSA followed up by providing the EPA and the NYSDEC with further information on its GI Master Plan on August 28, 2013. The EPA and the NYSDEC determined that an analogous technical meeting to discuss BSA's NFA analysis was not needed and indicated this to BSA in an email transmission dated September 11, 2013.
17. In a letter dated October 23, 2013 from EPA to BSA, EPA provided BSA with final written comments on BSA's Updated CSO LTCP. BSA was given until January 10, 2014 to submit its final revised CSO LTCP to EPA and NYSDEC. EPA's letter dated October 23, 2014 required that BSA provide a detailed implementation schedule as part of its final revised CSO LTCP and, based partly on work to be completed at the BSA wastewater treatment plant which was not originally contemplated, allowed a twenty year implementation schedule.
18. On January 10, 2014, BSA submitted its final revised CSO LTCP to EPA and to NYSDEC for review and approval. The final revised CSO LTCP includes a twenty year schedule.
19. In a letter dated March 18, 2014, EPA and NYSDEC approved BSA's final revised CSO LTCP. The approved CSO LTCP includes a twenty year implementation schedule, which is beyond the final compliance date of December 31, 2027, required by the EPA's 2012 Order.
20. Therefore, based on the above, EPA is issuing Amended Administrative Order, Docket No. CWA-02-2014-3033, to incorporate a twenty year implementation schedule and a final compliance date of March 18, 2034.

ORDERED PROVISIONS

Based on the Findings of Fact and Findings of Violation set forth above, and pursuant to the authority of Sections 308(a) and 309(a) of the CWA, 33 U.S.C. §§ 1318(a) and 1319(a), and in accordance with Section 402(q) of the CWA, 33 U.S.C. § 1342 (q), it is hereby ORDERED that:

1. Immediately upon receipt of the original copies of this Order, a responsible official of BSA shall complete and sign the acknowledgment of receipt of one of the originals of the Order and return said original to the Chief, Compliance Section, Water Compliance Branch, Division of Enforcement and Compliance Assistance, in the enclosed envelope to the address listed below.
2. Development of Updated Long Term Control Plan: BSA shall revise and implement an approved Updated LTCP consistent with the requirements of the CSO Policy and applicable State law and regulation. The Updated LTCP shall provide for the construction and implementation of all wastewater treatment plant ("WWTP") and sewer system improvements and other measures necessary to ensure that: (i) CSO discharges from all CSO discharge outfalls comply with the technology-based and water quality-based requirements of the CWA, the CSO Control Policy and state law and regulation; and (ii) bypasses at the WWTP are in compliance with the bypass conditions in 40 C.F.R. § 122.41(m), 327 IAC 5-2-8(11), and shall demonstrate that there are no feasible alternatives to the remaining bypasses, in accordance with Section II.C.7 of the CSO Control Policy.
 - a. By no later than April 30, 2012, BSA shall submit to EPA and NYSDEC an Updated LTCP. The schedule included in the Updated LTCP shall require the design, construction, and implementation of all control/treatment measures selected by BSA as expeditiously as practicable, following any applicable environmental impact assessment review pursuant to the New York State Environmental Quality Review Act ("SEQR review"), but in any event by no later than March 18, 2034.
 - b. The Updated LTCP shall include, at a minimum:
 - i. An update of the system characterization information, receiving water characterization information, existing conditions information, CSO control objectives, and any other information presented in the 2004 LTCP that is no longer current;
 - ii. BSA's previous screening and subsequent evaluation of individual CSO control technologies and site-specific CSO controls. The Updated LTCP shall: (1) reassess the results of that original evaluation in light of the applicability of recreation-protective bacteria standards in BSA's receiving waters; (2) include, as appropriate, new technologies and controls (such as green infrastructure ("GI") and bio-ballasted flocculation treatment) not considered in the 2004 LTCP; and (3) in particular, carry out a new evaluation of a range of updated system-wide alternatives. Together, BSA's prior and updated system-wide alternatives evaluation shall include a sufficiently wide range of alternatives for eliminating, reducing, or treating CSO discharges, and for eliminating or reducing bypass discharges (except as permitted in the bypass conditions in 40 C.F.R. § 122.41(m) and 327 IAC 5-2-8(11)). The updated evaluation shall consider the costs and effectiveness (in terms of reduction in number of overflow events, overflow volume reduction, pollutant loading reductions, water quality improvements, etc.) predicted to result from implementation of each of the updated system-wide alternatives.

- iii. In evaluating the relative performance of the updated system-wide alternatives and in selecting a preferred alternative, BSA shall give the highest priority to controlling overflows to sensitive areas as required under the CSO Control Policy, at section II.C.3.
- iv. BSA's Updated LTCP shall include past and current alternative evaluation efforts that together include at a minimum: (1) taking no-action; (2) complete sewer separation (3) partial separation of various portions of the combined sewer system; (4) installation of various sizes of storage or equalization basins at the Buffalo Sewer Authority WWTP and/or in the sewer system; (5) construction of new secondary or advanced wastewater treatment plants; (6) construction of increased treatment capacities at the existing facilities; (7) construction of additional facilities (such as high rate treatment or ballasted flocculation facilities or its equivalent) for providing primary treatment or better than primary treatment of discharges from CSO discharge outfall structures; (8) construction of new intercepting sewers from the sewer system to the facilities; (9) construction of facilities for providing disinfection (and dechlorination, if necessary) of CSO discharges; (10) construction of facilities for removing floatables from CSO discharges; (11) construction of relief sewers; (12) relocation of CSO discharge outfall structures; (13) implementation of pretreatment measures to reduce flows and/or pollutants discharged into the sewer system from industrial users; (14) consideration of the use of GI where feasible, and (15) construction and/or implementation of combinations of these alternatives. These evaluations shall be carried out in accordance with Chapter 3 of EPA's "Combined Sewer Overflows Guidance for Long-Term Control Plan."
- v. The Updated LTCP shall describe BSA's prior technology screening assessments and shall include, at a minimum, BSA's evaluation of the technical feasibility and applicability of each alternative or combination of alternatives at each CSO discharge outfall or grouping of CSO discharge outfalls. Where necessary, BSA shall update said assessments in light of the applicability of recreation-protective bacteria standards in BSA's receiving waters.
- vi. BSA's updated evaluation of system-wide alternatives shall include:
 - 1. An evaluation of a range of "sizes" of each updated system-wide alternative that will, for the typical year achieve an average volume of wet weather percent capture from 75 to 100 percent and reduce the average number of untreated CSO Discharge events to 0, 1-3, 4-7 and 8-12 per year. The updated LTCP shall include a detailed description of the 12 month rainfall record that BSA has utilized in developing its Updated LTCP, and that BSA will utilize in implementing its Post Construction Monitoring Program. The Updated LTCP shall describe in detail BSA's analysis of its available long term rainfall record, its basis for selecting its "typical year," and, in the event that BSA selects a "modified year" as its "typical year," shall discuss in detail all modifications made to the actual rainfall record to arrive at the "modified" rainfall record. The updated LTCP shall include a detailed tabular summary of the "modified" rainfall record, such that it is clear exactly what rainfall record shall be used in implementing the PCMP;

2. A determination of the estimated “project costs,” as that term is described on pages 3-49 through 3-51 of the EPA’s “Combined Sewer Overflows Guidance for Long-Term Control Plan,” for each size of each updated system-wide alternative. The determination of the estimated “project costs” shall include: (a) “capital costs,” “annual operation and maintenance costs,” and “life cycle costs,” as those terms are described on pages 3-49 through 3-51 of EPA’s “Combined Sewer Overflows Guidance for Long-Term Control Plan;” and (b) an itemization of the “capital costs” and “annual operation and maintenance costs” used to determine the total “project costs” for each separate component of each alternative or combination of alternatives; and
 3. An evaluation, using a validated collection system model, of the expected reduction in number of CSO events, CSO discharge volume and pollutant discharge quantity from each CSO discharge point for each size of each updated system-wide alternative. The evaluation shall include, at a minimum, an analysis of the improvement in every pollutant of concern, which are: fecal coliform in all receiving waters, and DO/BOD/SOD in the Buffalo River, Scajaquada Creek, and the Black Rock Canal.
- vii. For each system-wide alternative, BSA’s assessment shall include an evaluation, using water quality models, of the expected water quality improvements in the receiving waters that will result from implementation of each updated system-wide alternative. The evaluation shall include, at a minimum, an analysis of the improvement in every pollutant of concern in that receiving water.
 - viii. For each updated system-wide alternative, BSA shall include a cost-performance analysis, such as a “knee of the curve” analysis, for each alternative or combination of alternatives that will allow for the comparison of the costs to: (1) the associated expected water quality improvements; (2) the reduction of CSO discharge and bypass discharge volume; (3) the reduction in CSO discharge and bypass discharge events; (4) the increase in percent wet weather capture; and/or (5) the reduction in pollutant loading from CSO discharge and bypass discharge events.
 - ix. The Updated LTCP shall include a financial capability analysis that complies with USEPA’s “Combined Sewer Overflows – Guidance for Financial Capability Analysis and Schedule Development” February 1997).
 - x. The Updated LTCP shall include the selection of CSO control measures, including the construction of all sewer system and facility improvements necessary to ensure compliance with the technology-based and water quality-based requirements of the CWA, state law and regulation and BSA’s SPDES permit. The Updated LTCP shall include the selection of bypass discharge control measures, so as to ensure that all remaining bypasses are in compliance with the bypass conditions in 40 C.F.R. § 122.41(m), 327 IAC 5- 2-8(11), and shall demonstrate that there are no feasible alternatives to the remaining bypasses, in accordance with Section II.C.7 of the CSO Control Policy.
 - xi. The Updated LTCP shall include an expeditious schedule for the design, construction, and implementation of all CSO control measures selected by BSA. If it is not possible for BSA to design and construct all measures simultaneously, the Updated LTCP shall include a phased schedule based on the relative

importance of each measure, with highest priority being given to eliminating discharges to sensitive areas and to those projects which most reduce the discharge of pollutants. The schedule shall specify critical construction milestones for each specific measure, including, at a minimum, dates for: (1) submission of applications for all permits required by law; (2) start of design; (3) commencement of construction; (4) completion of construction; (5) completion of construction; and (6) achievement of full operation.

- c. The alternatives evaluated should include the use of GI wherever feasible to reduce CSO volumes and handle separated storm water. GI shall generally mean systems and practices that use or mimic natural processes to infiltrate, evapotranspire, and/or harvest storm water on or near the site where it is generated. GI applications and approaches that may be considered include, but are not limited to, green roofs, downspout disconnection, trees and tree boxes, rain gardens, vegetated swales, pocket wetlands, infiltration planters, vegetated median strips, permeable pavements, reforestation, and protection and enhancement of riparian buffers and floodplains. EPA and NYSDEC encourage BSA to utilize GI projects as appropriate to reduce or replace gray infrastructure projects included in the Updated LTCP provided that any GI project proposed is anticipated to provide substantially the same or greater level of control as the alternative gray infrastructure project. Should BSA rely on other entities to implement GI projects, BSA must have in place agreements as appropriate, to ensure proper operation and maintenance of the GI project. For any GI project submitted as part of the Updated LTCP, BSA shall submit to EPA and NYSDEC a detailed GI project proposal outlining each proposed project.

- i. The GI project proposal shall be consistent with this Administrative Order and shall at a minimum include the following for each project:
 1. Data on location, sizing, design, and the performance criteria expected to be achieved with the implementation of the GI project, utilizing the information and models that BSA used in developing the Updated LTCP, and any monitoring information used in formulating the proposal; along with a demonstration of the long term effectiveness and performance expected to be achieved with implementation of the project;
 2. A description of the work required to implement the GI project and a schedule for completion of this work and implementation of the project that is consistent with this Administrative Order and the date set forth herein in Paragraph 2(a) for completion of construction and full implementation of all remedial and control measures;
 3. A description of the proposed ownership of and access to the GI project, and should BSA rely on other entities to implement the GI project, BSA must explain what agreements will be necessary to ensure proper operation and maintenance of the GI project (i.e., permanent access, sufficient control over key aspects of the project), and how they will be enforced to ensure proper operation and maintenance of the GI project; and
 4. A description of any post-construction monitoring and modeling to be performed that is necessary to determine whether the performance criteria set forth, as noted above, will be met upon completion and implementation of the GI project.

- ii. Upon review of BSA's GI project proposal, EPA and NYSDEC will comment, approve, disapprove, or approve in part, the proposal:
 - 1. BSA shall implement each GI project approved by EPA and NYSDEC in accordance with the provisions and schedule in the approved proposal;
 - 2. If the GI project proposal is approved in part, BSA shall, upon written direction from EPA and NYSDEC, take all actions in the approved portion of the GI proposal that EPA and NYSDEC determine are technically severable from any disapproved portions. For the disapproved portions, BSA shall, within 90 Days, correct all deficiencies and resubmit the proposal for approval. If the resubmission is approved in whole or in part, BSA shall proceed in accordance with this subparagraph; or
 - 3. If the GI project proposal is disapproved, EPA and NYSDEC's decision is final. For each project which is disapproved, BSA shall propose an alternative GI project or gray infrastructure project, or combined green and gray infrastructure project, within 90 days of the date of disapproval. In the event that BSA's alternative proposal is disapproved by EPA and NYSDEC due to the GI project component of the proposal, BSA shall propose an alternative gray infrastructure project within 90 days of the date of disapproval.
- iii. In the event that BSA implements an approved GI project proposal that fails to meet the specified performance criteria set forth in the project proposal and Updated LTCP, BSA shall propose, within 180 days after submittal of the applicable post-construction monitoring report documenting said failure, an additional green or gray infrastructure project designed to achieve the performance criteria with a schedule for completion of this work and implementation of the project that is consistent with this Administrative Order and the date set forth herein in Paragraph 2(a) for completion of construction and full implementation of all remedial and control measures. In the alternative, where BSA has substantially met the performance criteria, BSA may, within sixty (60) days after its knowledge of a project's failure to meet the performance criteria, petition EPA and NYSDEC for a change in the performance criteria. After consideration of any such request by BSA, EPA and NYSDEC's decision will be final. In the event that EPA and NYSDEC disapprove of BSA's request for a change in the performance criteria, BSA shall, within 180 days after EPA and NYSDEC's disapproval, propose additional control measures designed to achieve the performance criteria with a schedule for completion of this work and implementation of the Project that is consistent with this Administrative Order and the date set forth herein in Paragraph 2(a) for completion of construction and full implementation of all remedial and control measures.
- iv. BSA shall submit to EPA an update on its implementation of GI projects as part of the semi-annual reports due on March 1st and September 1st of each year.
- d. If BSA seeks to replace any gray infrastructure projects provided in the Updated LTCP, BSA shall submit to EPA and NYSDEC a detailed GI project proposal outlining each proposed project consistent with the requirements of Paragraph 2(c).
- e. EPA and NYSDEC may approve the Updated LTCP or decline to approve it and provide written comments. Within 120 days of receiving EPA's and NYSDEC's written comments, BSA shall modify the Updated LTCP consistent with EPA's and

NYSDEC's written comments, and resubmit the Updated LTCP to EPA and NYSDEC for final approval.

- f. Upon receipt of EPA's and NYSDEC's final approval of the Updated LTCP (hereinafter "Approved CSO LTCP"), BSA shall implement the measures in the Approved CSO LTCP in accordance with the schedule in the Plan, including certain milestones of which listed in the Appendix, "BSA Approved CSO LTCP Implementation Schedule," and shall complete the implementation of its Approved CSO LTCP by not later than March 18, 2034.

3. Post Construction Monitoring Plan: Within one year of approval of the Updated LTCP, BSA shall submit to EPA and NYSDEC for approval, a work plan for conducting an ongoing study or series of studies ("Post-Construction Monitoring Plan") to help determine: (1) whether the Approved CSO LTCP measures, when completed, meet all performance criteria specified in the Approved CSO LTCP; (2) whether BSA's CSOs comply with the technology-based and water quality-based requirements of the CWA, state law, the CSO Control Policy, all applicable federal and state regulations, and its SPDES Permit, for all CSO-receiving waters; and (3) whether all remaining bypasses are in compliance with the bypass conditions in 40 C.F.R. § 122.41(m), 327 IAC 5- 2-8(11), and demonstrate that there are no feasible alternatives to the remaining bypasses, in accordance with Section II.C.7 of the CSO Control Policy. The Post-Construction Monitoring Plan shall be consistent with the guidance "Combined Sewer Overflows Guidance for Long-Term Control Plan."

- a. The Post-Construction Monitoring Plan shall contain a schedule for performance of the study or series of studies at key points during the course of the implementation of the remedial measures, as well as after completion of the remedial measures, specified in the Approved CSO LTCP. The Post-Construction Monitoring Plan also shall indicate the years (at least biannually) in which data generated during implementation of the Post-Construction Monitoring Plan will be submitted in the reports in Paragraph 4 to EPA and NYSDEC.
- b. EPA and NYSDEC may approve the Post-Construction Monitoring Plan or may decline to approve it and provide written comments. Within ninety (90) days of receiving EPA's and NYSDEC's comments, BSA shall alter the Post-Construction Monitoring Plan consistent with EPA's and NYSDEC's comments, and resubmit the Plan to EPA and NYSDEC for final approval.
- c. Upon final approval of the Post Construction Monitoring Plan, BSA shall implement, in accordance with the schedule therein, the Post-Construction Monitoring Plan. If the results of the Post-Construction Monitoring Plan indicate areas of non-compliance, BSA shall, within 120 days, (unless a different period is specified) of being requested in writing to do so, submit to EPA and NYSDEC a Supplemental Compliance Plan which includes the actions that BSA will take to achieve compliance and a schedule for taking such actions. Upon approval by the EPA and NYSDEC, BSA shall implement the Supplemental Compliance Plan, in accordance with the schedule specified in the approved Plan.
- d. Within one hundred twenty (120) days after completion and implementation of the Post-Construction Monitoring Plan, BSA shall submit a Final Post-Construction-Monitoring Report to EPA and NYSDEC, for review, comment and approval, that:
 - i. demonstrates that BSA performed the Post-Construction Monitoring Plan in accordance with the approved Plan and schedule set forth in the approved Post-Construction Monitoring Plan; and

- ii. summarizes the data collected during Post-Construction Monitoring and analyzes whether the completed control measures have met and/or are meeting the performance criteria specified in the Approved CSO LTCP; whether BSA's CSOs comply with the requirements of the CWA, state law, the CSO Control Policy, all applicable federal and state regulations, and BSA's SPDES Permits; and whether all remaining bypasses are in compliance with the bypass conditions in 40 C.F.R. § 122.41(m), 327 IAC 5- 2-8(11), and demonstrate that there are no feasible alternatives to the remaining bypasses, in accordance with Section II.C.7 of the CSO Control Policy.
- e. EPA and NYSDEC may approve the Final Post-Construction Monitoring Report or may decline to approve it and provide written comments. Within sixty (60) days of receiving EPA's and NYSDEC's comments, BSA shall alter the Final Post-Construction Monitoring Report consistent with EPA's and NYSDEC's comments, and resubmit the Report to EPA and NYSDEC for final approval. Approval of the Final Post-Construction Monitoring Report only constitutes EPA's and NYSDEC's approval that the report contains the information required by this Administrative Order; it does not mean that EPA and NYSDEC believe BSA has complied with any other requirement of this Administrative Order or federal or state law.

4. Reporting Requirements

- a. Semi-Annual Status Reports. Upon the effective date of this Administrative Order, until EPA and NYSDEC's approval of the Final Post-Construction-Monitoring Report, BSA shall submit written Semi-Annual Status Reports to EPA and NYSDEC. These reports shall be submitted by no later than March 1st of each year (for the "reporting period" from July 1 through December 31 of the previous calendar year) and September 1st of each year (for the "reporting period" from January 1 through June 30 of the current calendar year). The Semi-Annual Status Reports may be provided either as paper documents or in electronic format, provided that the electronic format is compatible with EPA and NYSDEC software and is accompanied by a written certification on paper in accordance with "General Provisions" Paragraph 1. The written certification must be sent via certified or overnight mail. The frequency of reports, and the reporting period, may be amended upon written agreement from EPA and NYSDEC. In each written Semi-Annual Status Report, BSA shall provide, at a minimum, the following:
 - i. a statement setting forth (1) the deadlines and other terms that BSA has been required to meet since the date of the last statement; (2) whether and to what extent BSA has met those requirements; and (3) the reasons for any noncompliance (notification to EPA and NYSDEC of any anticipated delay shall not, by itself, excuse the delay);
 - ii. (1) a general description of the work completed within the prior reporting period; (2) to the extent known, a statement as to whether the work completed in that period meets applicable design criteria; (3) a projection of work to be performed during the next six-month period; (4) notification of any anticipated delays for the upcoming six month period of time; and (5) any changes in key personnel.
 - iii. If any public meetings were held, the report should include a copy of any advertisements placed for the meeting, any materials or handouts, formal meeting notes, and a summary of the meeting.

- iv. BSA shall also submit, with each written status report, copies (to EPA only) of all monthly monitoring reports or other reports pertaining to CSOs and bypasses that BSA submitted to NYSDEC during the reporting period.
- b. Semi-Annual Status Meetings. Representatives of EPA, NYSDEC and BSA shall conduct semi-annual meetings to discuss BSA's compliance status with the provisions of this Order. These meetings shall be scheduled during the months of March or April to discuss the previous reporting period, and September or October to discuss the previous reporting period. The meetings can be conducted telephonically if agreed in writing (including electronic correspondence) by all parties in advance. The frequency of such compliance meetings may be reduced upon written agreement (including electronic correspondence) from EPA and NYSDEC.
- c. Annual Post Construction Monitoring Report. Upon the effective date of this Administrative Order, until EPA and NYSDEC's approval of the Final Post-Construction-Monitoring Report, BSA shall submit annually with its September 1st Semi-Annual Reports, an Annual Post Construction Monitoring Report containing information generated in accordance with the Post-Construction Monitoring Plan. The Annual Post Construction Monitoring report may be provided either as paper documents or in electronic format, provided that the electronic format is compatible with EPA and NYSDEC software and is accompanied by a written certification on paper in accordance with "General Provisions" Paragraph 1. The written certification must be sent via certified or overnight mail. The frequency of reports, and the reporting period, may be amended upon written agreement from EPA and NYSDEC.
- d. Permits or Approvals. When it is necessary for BSA to obtain a federal, state, or local permit or approval or perform SEQR review, BSA shall submit timely and complete applications, or timely perform the SEQR review, and take all other actions necessary to obtain all such permits or approvals or to ensure compliance with SEQR.

GENERAL PROVISIONS

1. Any documents to be submitted by BSA pursuant to this Administrative Order shall be signed by an official of BSA or an authorized representative of BSA (see 40 C.F.R. § 122.2) and include the following certification:

“I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that this document and its attachments were prepared under my direction or supervision in a manner designed to ensure that qualified and knowledgeable personnel properly gather and present the information contained therein. I further certify, based on my inquiry of those individuals immediately responsible for obtaining the information, that I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.”
2. All notifications, reports, submissions and communications required by this Order shall be sent by certified mail or its equivalent to the following addresses:

Douglas McKenna, Chief
Water Compliance Branch
Division of Enforcement and Compliance Assistance
United States Environmental Protection Agency, Region 2
290 Broadway, 20th Floor
New York, New York 10007-1866

Joseph DiMura, P.E.
Director, Bureau of Water Compliance Programs
Division of Water
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-3506

Regional Water Engineer
New York State Department of Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203-2915

3. The Respondent shall have the opportunity, for a period of twenty (20) days from the effective date of this Order, to confer, regarding the Amendments to Administrative Order CWA-02-2012-3024, with the following designated Agency Representative:

Douglas McKenna, Chief
Water Compliance Branch
Division of Enforcement and Compliance Assistance
United States Environmental Protection Agency, Region 2
290 Broadway, 20th Floor
New York, New York 10007-1866
(212) 637-4244

4. Respondent may seek federal judicial review of this Order pursuant to Chapter 7 of the Administrative Procedure Act, 5 U.S.C. §§ 701-706.
5. This Order does not constitute a waiver from compliance with, or a modification of, the effective terms and conditions of the CWA, its implementing regulations, or any applicable permit, which remain in full force and effect. Issuance of this Order shall not be deemed an election by EPA to forego any civil or criminal actions for penalties, fines, imprisonment, or other appropriate relief under the CWA.
6. Notice is hereby given that should EPA commence an action in a United States District Court for a violation of any Ordered Provision of this Order, Respondent may be subject to (1) civil penalties up to \$37,500 per day for each day of violation, pursuant to Section 309(d) of the CWA, 33 U.S.C. § 1319(d); and/or (2) injunctive relief, pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), as imposed by the Court.

7. If any provision of this Order is held by a court of competent jurisdiction to be invalid, any surviving provisions shall remain in full force and effect.
8. Provisions of Administrative Order CWA-02-2012-3024, incorporated herein, continue to be effective as of March 9, 2012. The Amendments to Administrative Order CWA-02-2012-3024 contained in this Order CWA-02-2014-3033 shall become effective upon the date of execution by the Director, Division of Enforcement and Compliance Assistance.

Dated: APRIL 11, 2014

Signed: _____

Dore LaPosta, Director
Division of Enforcement and Compliance Assistance

APPENDIX
BSA Approved CSO LTCP Implementation Schedule

Project Name	Project Milestones/Deadlines
<u>Phase I Projects (see Table 11-11)</u>	
Bird/Lang RTC Projects	Construction Start and Completion Dates: 3/17/2014 – 9/2/2014 Operations/Optimization (RTC): 9/3/2014 – 9/3/15
<u>Foundation Projects (see Table 11-11)</u>	
Foundation 1 - Smith Street Storage	Engineering Start: 3/18/2014 Engineering Completion: 3/18/2015 Notice to Proceed: 3/18/2015 Substantial Completion: 3/18/2017
Foundation 2 - SPP Optimization (20 projects)	Engineering Start: 3/1/14 Engineering Completion: 3/18/2015 ⁽¹⁾ Notice to Proceed: 3/1/14 Substantial Completion: 3/18/2017 ⁽¹⁾
Foundation 3 - Remaining RTC (14 sites)	Engineering Start: 3/18/2016 Engineering Completion: 3/18/2023 ⁽¹⁾ Notice to Proceed: 3/18/2017 Substantial Completion: 3/18/2024 ⁽¹⁾
Foundation 4 - Hamburg Drain Optimizations	Engineering Start: 3/18/2015 Engineering Completion: 3/18/2017 ⁽¹⁾ Notice to Proceed: 3/18/2016 Substantial Completion: 3/18/2018 ⁽¹⁾
Foundation 4 – Hamburg Drain Storage	Engineering Start: 3/18/2028 Engineering Completion: 3/18/2030 Notice to Proceed: 3/18/2030 Substantial Completion: 3/18/2032
<u>Green Projects (see GI Master Plan)</u>	
Green Pilot Projects – 267-acres of GI control	Engineering Start: 3/1/14 Engineering Completion: 3/18/2016 ⁽²⁾ Construction Completion Date: 3/18/2018 ⁽²⁾ PCM Start and Completion Dates: 3/18/2016 – 3/18/2019 ⁽²⁾ Construction of controls for at least 134 acres will have started by 9/18/2017
Green 2 – 410-acres of GI control	Engineering Start: 3/18/2019 Engineering Completion: 3/18/2023 ⁽²⁾ Construction Completion Date: 3/18/2024 ⁽²⁾ Construction of controls for at least 205 acres will have started by 3/18/2022 ⁽²⁾

Green 3 – 375-acres of GI control	Engineering Start: 3/18/2023 Engineering Completion: 3/18/2028 ⁽²⁾ Construction Completion Date: 3/18/2029 ⁽²⁾ Construction of controls for at least 188 acres will have started by 9/18/2026 ⁽²⁾
Green 4 – 263-acres of GI control	Engineering Start: 3/18/2028 Engineering Completion: 3/18/2033 ⁽²⁾ Construction Completion Date: 3/18/2034 ⁽²⁾ Construction of controls for at least 132 acres will have started by 9/18/2031 ⁽²⁾
<u>WWTP</u>	
WWTP Improvements Project – Alternative C2 (two consecutive projects)	Engineering Start: 3/18/2015 Engineering Completion: 3/18/2019 ⁽¹⁾ Notice to Proceed: 3/18/2017 Substantial Completion 3/18/2022 ⁽¹⁾
<u>Gray Projects (see Section 12.3)</u>	
CSOs 014/15 – In-line storage and optimization	Construction Start: 3/18/14 Substantial Completion: 3/18/15
CSO 013 – Satellite storage, conveyance, FM & PS	Engineering Start: 3/18/2019 Engineering Completion: 3/18/2020 Notice to Proceed: : 3/18/2020 Substantial Completion: 3/18/2022
North Relief – Interceptor	Engineering Start: 3/18/2019 Engineering Completion: 3/18/2022 Notice to Proceed: 3/18/2022 Substantial Completion: 3/18/2026
CSOs 010, 008/010, 061, 004 – Underflow capacity upsizing	Engineering Start: 3/18/2021 Engineering Completion: 3/18/2023 Notice to Proceed: 3/18/2023 Substantial Completion: 3/18/2024
SPP 337 (CSO 053) – Satellite storage, conveyance, FM & PS	Engineering Start: 3/18/2023 Engineering Completion: 3/18/2025 Notice to Proceed: 3/18/2025 Substantial Completion: 3/18/2027
SPP 336 a+b (CSO 053) – Satellite storage, conveyance, FM & PS	Engineering Start: 3/18/2024 Engineering Completion: 3/18/2026 Notice to Proceed: 3/18/2026 Substantial Completion: 3/18/2029

Jefferson & Florida (SPP 170B – CSO 053) – Satellite storage, conveyance and FM	Engineering Start: 3/18/2025 Engineering Completion: 3/18/2027 Notice to Proceed: 3/18/2027 Substantial Completion: 3/18/2030
CSO 055 – Satellite storage, conveyance, FM & PS	Engineering Start: 3/18/2027 Engineering Completion: 3/18/2030 Notice to Proceed: 3/18/2030 Substantial Completion: 3/18/2034
CSOs 028/044/047 - Satellite storage, conveyance, FM & PS (storage at Tops from CSO 47 west)	Engineering Start: 3/18/2028 Engineering Completion: 3/18/2031 Notice to Proceed: 3/18/2031 Substantial Completion: 3/18/2034
CSO 052 – Satellite storage, conveyance, FM & PS	Engineering Start: 3/18/2030 Engineering Completion: 3/18/2032 Notice to Proceed: 3/18/2032 Substantial Completion: 3/18/2034
CSO 064 – Satellite storage, conveyance, FM & PS	Engineering Start: 3/18/2030 Engineering Completion: 3/18/2032 Notice to Proceed: 3/18/2032 Substantial Completion: 3/18/2034
Post Construction Monitoring	
Submit PCM Plan	3/18/2015
Implement PCM	Per approved PCM Plan

NOTES:

References specified in the Implementation Schedule above refer to the Approved BSA CSO LTCP, including the Green Infrastructure Master Plan, approved by EPA and NYSDEC on March 18, 2014.

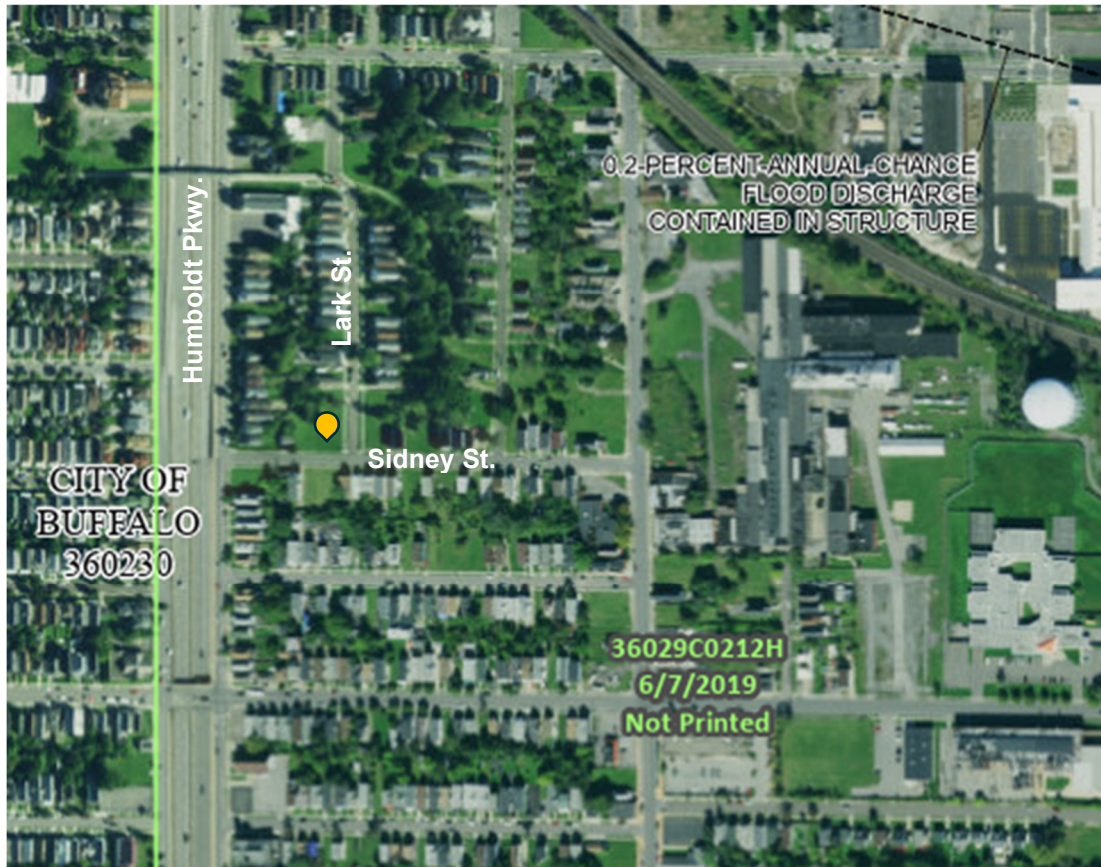
Engineering timeframes (from start to completion) include planning, design, permitting/SEQRA/Public Notice, regulatory review and approval, land/easement acquisition, funding, and bidding/award.

Substantial Completion is defined as the time at which the Project has progressed to the point where, in the opinion of Engineer, the Work is sufficiently complete, in accordance with the Contract Documents, so that the Project can be utilized for the purposes for which it is intended.

(1) Project consists of multiple smaller projects that will overlap in engineering and construction. Specific engineering completion and construction dates for each project site will be determined and submitted to the Agencies as they are developed. In any case, all work associated with these blocks of projects will be completed within the overall timeframe shown.

(2) GI projects will consist of multiple smaller projects including building demolitions that will overlap in engineering and construction during a given GI phase. For each phase, the BSA will achieve the start of construction for at least 50 percent of the required acreage by the mid-point of each phase.

APPENDIX B: Flood Zone Map



APPENDIX C: IPaC Preliminary Report

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Erie County, New York



Local office

New York Ecological Services Field Office

☎ (607) 753-9334

📅 (607) 753-9699

✉ fw5es_nyfo@fws.gov

A-47

3817 Luker Road
Cortland, NY 13045-9385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
<p>Northern Long-eared Bat <i>Myotis septentrionalis</i></p> <p>Wherever found</p> <p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> This species only needs to be considered if the project includes wind turbine operations. <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/9045</p>	Endangered
<p>Tricolored Bat <i>Perimyotis subflavus</i></p> <p>Wherever found</p> <p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> This species only needs to be considered if the project includes wind turbine operations. <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/10515</p>	Proposed Endangered

Clams

NAME	STATUS
<p>Salamander Mussel <i>Simpsonaias ambigua</i></p> <p>Wherever found</p> <p>There is proposed critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>https://ecos.fws.gov/ecp/species/6208</p>	Proposed Endangered

Insects

NAME	STATUS
<p>Monarch Butterfly <i>Danaus plexippus</i></p> <p>Wherever found</p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/9743</p>	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below.

Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME

Bald Eagle *Haliaeetus leucocephalus*

Breeds Dec 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Golden Eagle *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week

12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

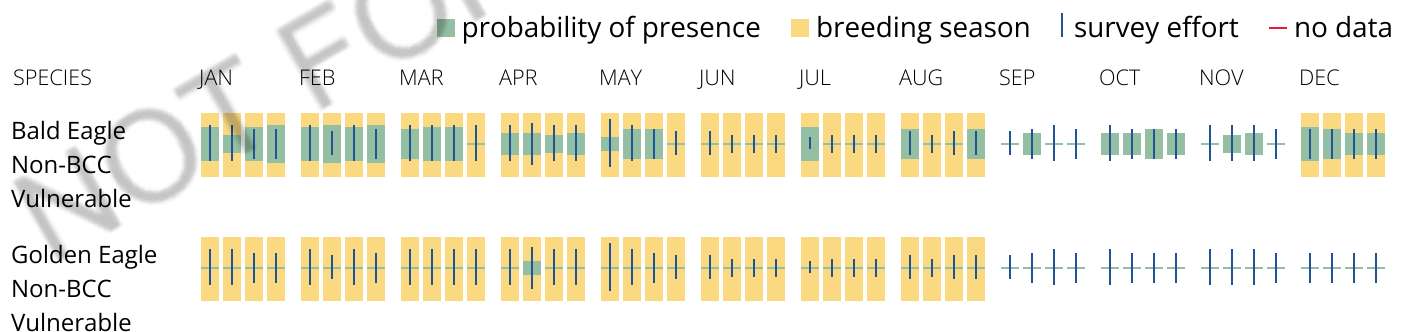
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles>

[golden-eagles-may-occur-project-action](#)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Belted Kingfisher <i>Megasceryle alcyon</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Jul 25
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Blue-winged Warbler <i>Vermivora cyanoptera</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31

Canada Warbler *Cardellina canadensis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 20 to Aug 10

Cerulean Warbler *Setophaga cerulea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/2974>

Breeds Apr 20 to Jul 20

Chimney Swift *Chaetura pelagica*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 25

Eastern Meadowlark *Sturnella magna*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds Apr 25 to Aug 31

Eastern Whip-poor-will *Antrostomus vociferus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Aug 20

Evening Grosbeak *Coccothraustes vespertinus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 15 to Aug 10

Golden Eagle *Aquila chrysaetos*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

Golden-winged Warbler *Vermivora chrysoptera*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8745>

Breeds May 1 to Jul 20

Lesser Yellowlegs *Tringa flavipes*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

Breeds elsewhere

Pectoral Sandpiper *Calidris melanotos*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Prairie Warbler *Setophaga discolor*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 1 to Jul 31

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Sep 10

Rose-breasted Grosbeak *Pheucticus ludovicianus*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds May 15 to Jul 31

Ruddy Turnstone *Arenaria interpres morinella*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds elsewhere

Semipalmated Sandpiper *Calidris pusilla*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Breeds elsewhere

Short-billed Dowitcher *Limnodromus griseus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

Upland Sandpiper *Bartramia longicauda*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9294>

Breeds May 1 to Aug 31

Wood Thrush *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read A-57

["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

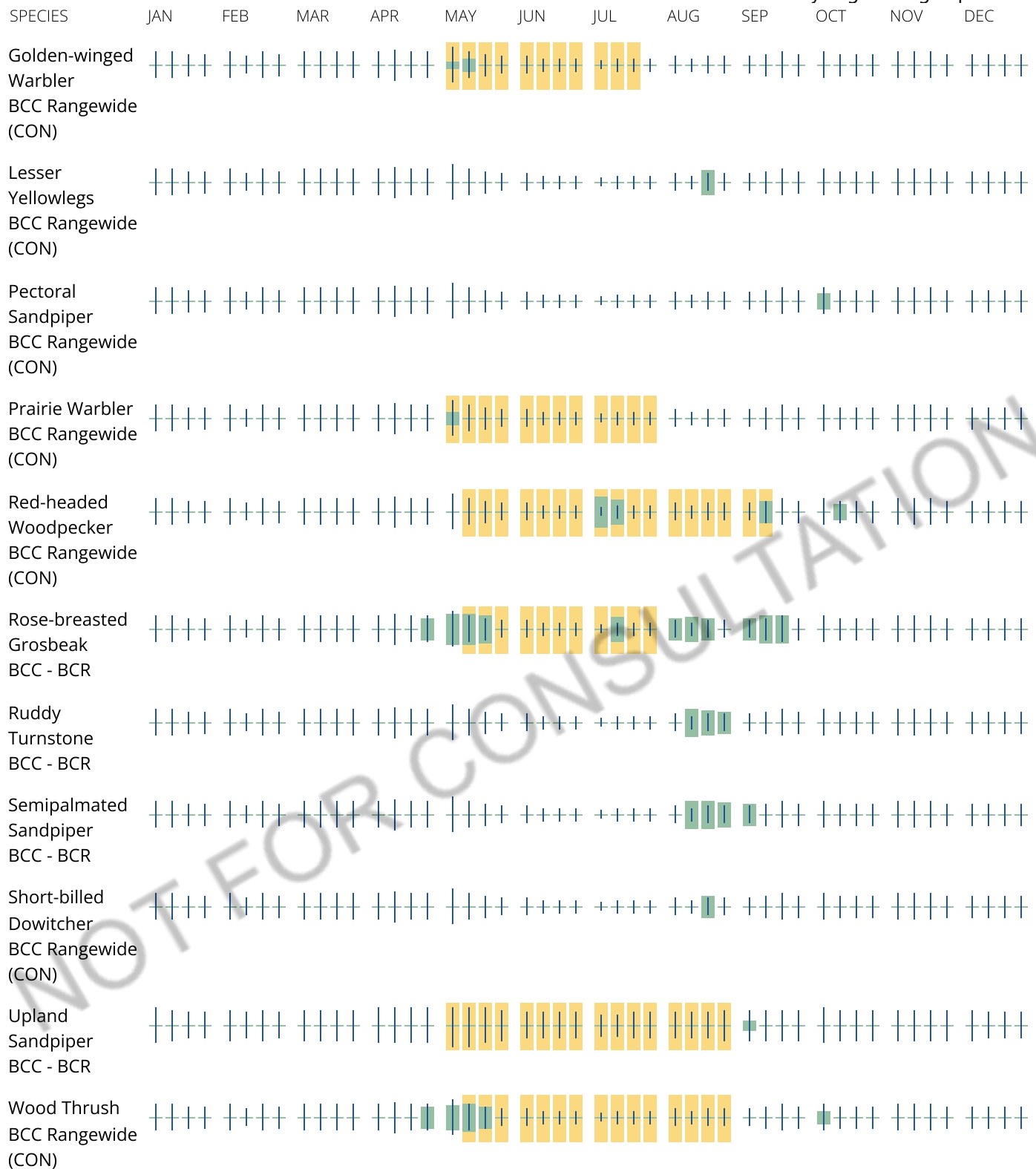
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

NOT FOR CONSULTATION





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure.

To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities ~~IA-61~~

offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX D: State Pollution Discharge Elimination System (SPDES) Permit NY0028410



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
State Pollutant Discharge Elimination System (SPDES)
DISCHARGE PERMIT

First3.99

Industrial Code:	4952	SPDES Number:	NY0028410
Discharge Class (CL):	05	DEC Number:	9-1402-00154/00002
Toxic Class (TX):	T	Effective Date (EDP):	07/01/2014
Major Drainage Basin:	01	Expiration Date (ExDP):	06/30/2019
Sub Drainage Basin:	01	Modification Date (EDPM):	10/01/2014
Water Index Number:	Ont 158		
Compact Area:			

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.) (hereinafter referred to as "the Act").

PERMITTEE NAME AND ADDRESS

Name:	Buffalo Sewer Authority	Attention:	David P. Comerford, General Manager
Street:	1038 City Hall		
City:	Buffalo	State:	NY
		Zip Code:	14202-3310

is authorized to discharge from the facility described below:

FACILITY NAME AND ADDRESS

Name:	Bird Island Wastewater Treatment Facility	Contact:	James Keller Jr.,
Location (C,T,V):	Buffalo (C)	County:	Erie
Facility Address:	90 West Ferry Street		
City:	Buffalo	State:	NY
NYTM -E:	181.42	Zip Code:	14213
From Outfall No.:	002	NYTM - N:	4759.77
at Latitude:	42 ° 55 ' 16 "	& Longitude:	78 ° 54 ' 20 "
into receiving waters known as:	Niagara River	Class:	A-Special

See additional outfalls listing on pages 3 through 5 of this permit.

in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth in this permit; and 6 NYCRR Part 750-1.2(a) and 750-2.


DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS

Mailing Name:	Buffalo Sewer Authority		
Street:	90 West Ferry Street		
City:	Buffalo	State:	NY
Responsible Official or Agent:	Sal LoTempio, Plant Superintendent	Zip Code:	14213
		Phone:	(716) 883-1820

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:

BWP – Permit Writer
BWP – Permit Coordinator
Regional Water Engineer - Region 9
Regional Permit Administrator – Region 9
Michelle Josilo - EPA Region II

Regional Permit Administrator: David S. Denk	
Address: NYSDEC - Division of Environmental Permits 270 Michigan Avenue Buffalo, NY 14203-2915	
Signature: 	Date: 8/20/14

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I. ADDITIONAL OUTFALLS

a) Treatment Plant

Outfall	Type	Location	Latitude	Longitude	Receiving Water
001	Primary Treatment Outfall	West Wall - Bird Island	42° 55' 10" N	78° 54' 16" W	Niagara River
01A	Headworks Bypass	West Wall - Bird Island	42° 55' 01" N	78° 54' 14" W	Niagara River
002	WWTF Outfall	West Wall - Bird Island	42° 55' 16" N	78° 54' 20" W	Niagara River

b) Combined Sewer Overflows

Outfall	Type	Location	Latitude	Longitude	Receiving Water
003	Weir & Orifice	Austin Street	42° 56' 14" N	78° 54' 26" W	Black Rock Canal
004	Leaping Weir	Bird Avenue	42° 55' 34" N	78° 53' 57" W	Black Rock Canal
005	Manhole	Potomac Avenue	42° 55' 27" N	78° 53' 27" W	Black Rock Canal
006	Weir & Orifice	W. Delevan Avenue	42° 55' 20" N	78° 53' 29" W	Black Rock Canal
007	Weir & Orifice	W. Delevan Avenue	42° 55' 20" N	78° 55' 20" W	Black Rock Canal
008	Leaping Weir	Brace Street	42° 55' 15" N	78° 54' 00" W	Black Rock Canal
009	Leaping Weir	Auburn Street	42° 55' 08" N	78° 54' 03" W	Black Rock Canal
010	Leaping Weir	Breckenridge Street	42° 55' 02" N	78° 54' 05" W	Black Rock Canal
011	Weir & Orifice	Albany St to W. Wall - Bird Island	42° 54' 49" N	78° 54' 12" W	Niagara River
012	Weir & Orifice	Albany Street	42° 54' 48" N	78° 54' 07" W	Black Rock Canal
013	Weir & Orifice	Virginia Street	42° 53' 20" N	78° 53' 37" W	Buffalo Harbor
014	Manhole	Fourth Street	42° 53' 01" N	78° 53' 12" W	Erie Basin Slip #3
015	Leaping Weir	Genesee Street	42° 52' 58" N	78° 53' 07" W	Erie Basin Slip
016	Weir & Orifice	Erie Street	42° 52' 55" N	78° 52' 57" W	Erie Basin
017	Manhole	Hamburg Drain, Main Street	42° 52' 38" N	78° 52' 47" W	Buffalo River
022	Manhole	Baltimore Street	42° 52' 23" N	78° 52' 29" W	Buffalo River
023	Manhole	Ohio Street	42° 52' 01" N	78° 52' 05" W	Buffalo River
025	Manhole	Hamburg Street	42° 51' 51" N	78° 51' 37" W	Buffalo River
026	Manhole	Smith Street	42° 51' 49" N	78° 51' 03" W	Buffalo River
027	Weir & Orifice	Babcock Street	42° 51' 48" N	78° 50' 16" W	Buffalo River
028	Manhole	Boone Street	42° 51' 38" N	78° 49' 56" W	Buffalo River

Outfall	Type	Location	Latitude	Longitude	Receiving Water
029	Weir & Orifice	Boone Street	42° 51' 38" N	78° 49' 56" W	Buffalo River
031	Manhole	Kimmel Avenue	42° 21' 37" N	78° 49' 29" W	Cazenovia Creek
032	Manhole	W. of Bailey Avenue	42° 51' 43" N	78° 49' 35" W	Buffalo River
033	Leaping Weir	Bailey Avenue	42° 51' 48" N	78° 49' 33" W	Buffalo River
035	Weir & Orifice	Cazenovia Park	42° 51' 02" N	78° 48' 31" W	Cazenovia Creek
037	Manhole	Salem Street	42° 51' 09" N	78° 48' 41" W	Cazenovia Creek
038	Manhole	Kingston Place	42° 51' 10" N	78° 48' 40" W	Cazenovia Creek
039	Leaping Weir	Tamarack Street	42° 51' 13" N	78° 48' 46" W	Cazenovia Creek
040	Manhole	Yale Place	42° 51' 15" N	78° 48' 46" W	Cazenovia Creek
042	Manhole	S. Ryan Street	42° 51' 19" N	78° 48' 51" W	Cazenovia Creek
044	Manhole	Mumford Street	42° 51' 27" N	78° 49' 06" W	Cazenovia Creek
046	Leaping Weir	Unger Avenue	42° 51' 32" N	78° 49' 13" W	Cazenovia Creek
047	Manhole	Southside Parkway	42° 51' 35" N	78° 49' 22" W	Cazenovia Creek
048	Weir & Orifice	E. of Bailey Ave.	42° 51' 38" N	78° 49' 29" W	Cazenovia Creek
049	Weir & Orifice	W. of Bailey Ave.	42° 51' 42" N	78° 49' 36" W	Buffalo River
050	Weir & Orifice	Seneca Street	42° 51' 20" N	78° 49' 16" W	Buffalo River
051	Weir & Orifice	Hillery Park	42° 51' 43" N	78° 48' 38" W	Buffalo River
052	Weir & Orifice	S. Ogden Street	42° 51' 54" N	78° 48' 08" W	Buffalo River
053	Weir & Gate	Scajaquada Drain	42° 55' 26" N	78° 51' 26" W	Scajaquada Creek
054	Manhole	Crowley Avenue	42° 57' 07" N	78° 54' 36" W	Niagara River
055	Weir	Niagara Street	42° 56' 35" N	78° 54' 35" W	Cornelius Creek, Niagara River
056	Weir	Nottingham Terrace	42° 56' 06" N	78° 52' 39" W	Scajaquada Creek
057	Weir	Tonawanda	42° 55' 43" N	78° 53' 52" W	Scajaquada Creek
058	Weir	West Avenue	42° 55' 49" N	78° 53' 45" W	Scajaquada Creek
059	Weir	DeWitt Street	42° 55' 51" N	78° 53' 39" W	Scajaquada Creek
060	Weir	Elmwood Avenue	42° 56' 04" N	78° 52' 42" W	Scajaquada Creek
061	Weir	Scajaquada Tunnel, Lafayette Avenue	42° 55' 15" N	78° 54' 01" W	Black Rock Canal
062	Weir	West Ferry Street	42° 54' 55" N	78° 54' 07" W	Black Rock Canal
063	Weir	Front Park	42° 54' 10" N	78° 54' 07" W	Black Rock Canal

Outfall	Type	Location	Latitude	Longitude	Receiving Water
064	Manhole	Ohio Drain, Ohio Street	42° 51' 59" N	78° 52' 06" W	Buffalo River
066	Manhole	Sloan Drain, S. Ogden Street	42° 51' 53" N	78° 49' 21" W	Buffalo River

II. PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

OUTFALL	WASTEWATER TYPE		RECEIVING WATER	EFFECTIVE	EXPIRING		
	This cell describes the type of wastewater authorized for discharge. Examples include process or sanitary wastewater, storm water, non-contact cooling water.		This cell lists classified waters of the state to which the listed outfall discharges.	The date this page starts in effect. (e.g. EDP or EDPM)	The date this page is no longer in effect. (e.g. ExDP)		
PARAMETER	MINIMUM		MAXIMUM	UNITS	SAMPLE FREQ.	SAMPLE TYPE	
e.g. pH, TRC, Temperature, D.O.	The minimum level that must be maintained at all instants in time.		The maximum level that may not be exceeded at any instant in time.	SU, °F, mg/l, etc.			
PARA-METER	EFFLUENT LIMIT		PRACTICAL QUANTITATION LIMIT (PQL)	ACTION LEVEL	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Limit types are defined below in Note 1. The effluent limit is developed based on the more stringent of technology-based limits, required under the Clean Water Act, or New York State water quality standards. The limit has been derived based on existing assumptions and rules. These assumptions include receiving water hardness, pH and temperature; rates of this and other discharges to the receiving stream; etc. If assumptions or rules change the limit may, after due process and modification of this permit, change.		For the purposes of compliance assessment, the analytical method specified in the permit shall be used to monitor the amount of the pollutant in the outfall to this level, provided that the laboratory analyst has complied with the specified quality assurance/quality control procedures in the relevant method. Monitoring results that are lower than this level must be reported, but shall not be used to determine compliance with the calculated limit. This PQL can be neither lowered nor raised without a modification of this permit.	Type I or Type II Action Levels are monitoring requirements, as defined below in Note 2 that trigger additional monitoring and permit review when exceeded.	This can include units of flow, pH, mass, Temperature, concentration. Examples include µg/l, lbs/d, etc.	Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly.	Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period.

Note 1: DAILY DISCHARGE: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.

DAILY MAX.: The highest allowable daily discharge. **DAILY MIN.:** The lowest allowable daily discharge.

MONTHLY AVG: The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

7 DAY ARITHMETIC MEAN (7 day average): The highest allowable average of daily discharges over a calendar week.

30 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of : the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

7 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar week.

RANGE: The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown.

Note 2: ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards. **TYPE I:** The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results in excess of the stated Action Level. **TYPE II:** The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results that show the stated action level exceeded for four of six consecutive samples, or for two of six consecutive samples by 20 % or more, or for any one sample by 50 % or more.

III. PERMIT LIMITS, LEVELS AND MONITORING

a) Effluent Limits for Outfall 002

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER	EFFECTIVE	EXPIRING
002	All Year unless otherwise noted	Niagara River	01/01/2010	06/30/2014

PARAMETER	EFFLUENT LIMIT					MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location		
								Inf.	Eff.	
Flow	MRA	180	MGD			Continuous	Recorder	X		1, 5
BOD ₅	Monthly average	30	mg/l	45036	lbs/d	1/day	24-hr. comp.	X	X	2
BOD ₅	7 day average	45	mg/l	67554	lbs/d	1/day	24-hr. comp.	X	X	
Solids, Total Suspended	Monthly average	30	mg/l	45036	lbs/d	1/day	24-hr. comp.	X	X	2
Solids, Total Suspended	7 day average	45	mg/l	67554	lbs/d	1/day	24-hr. comp.	X	X	
Solids, Settleable	Daily Maximum	0.3	ml/l			6/day	grab	X	X	3
pH	Range	6.0 – 9.0	SU			6/day	grab	X	X	
Nitrogen, Ammonia (as NH ₃)	Daily Maximum	Monitor	mg/l			1/month	24-hr. comp.	X	X	
Nitrogen, TKN (as N)	Daily Maximum	Monitor	mg/l			1/month	24-hr. comp.	X	X	
Temperature	Daily Maximum	Monitor	Deg F			6/day	grab	X	X	
Phenols, Total	Monthly average			36.6	lbs/d	1/month	24-hr. comp.		X	
Phosphorus, Total (as P)	Monthly average	1.0	mg/l			1/day	24-hr. comp.		X	
Mercury, Total	Daily Maximum	50	ng/l			1/month	Grab			4
Effluent Disinfection required: [X] All Year [] Seasonal from _____ to _____										
Coliform, Fecal	30 day geometric mean	200	No./100 ml			1/day	grab		X	6
Coliform, Fecal	7 day geometric mean	400	No./100 ml			1/day	grab		X	6
Chlorine, Total Residual	Daily Maximum	2.0	mg/l			6/day	grab		X	3, 6

FOOTNOTES:

- The 12 month rolling average (MRA) shall be the average of the monthly average of the current month plus the monthly average of the eleven previous months.
- A monthly effluent value shall not exceed 15 % and 15 % of influent values for BOD 5 & TSS respectively for flows up to 180 MGD.
- The sample measurement for each day is calculated as the arithmetic mean of the total number of daily samples. Therefore the daily maximum is the highest of the approximately 30 daily arithmetic means calculated. The definition is derived from the DMR Manual, NYSDEC, 2002, Page 9, Section 4.4.
- The proposed limit will be **50 ng/l** until the Department reviews the Mercury Minimization Program (MMP). The calculated Water Quality Based Effluent Limit (WQBEL) for Mercury is 0.7 ng/l based on the Water Quality Evaluation for this discharge. However available information indicates this concentration is not achievable by this treatment facility. Therefore, Best Professional Judgement (BPJ) has been used to determine an interim limit of 50 ng/L the permittee can comply with. The goal of the MMP is to attain calculated WQBEL.
- This outfall shall be utilized in accordance with the existing Wet Weather Operating Plan.
- Monitoring of these parameters is only required during the period when disinfection is required.

b) Type II Action Level Monitoring for Outfall 002

OUTFALL NUMBER	WASTEWATER TYPE				EFFECTIVE	EXPIRING
002	Municipal with contributing industries				01/01/2010	06/30/2014
PARAMETER	ACTION LEVEL	UNITS	PQL (lbs/day)	SAMPLE FREQUENCY	SAMPLE TYPE	FN
Cadmium, Total	30	lbs/d	0.6	1/month	24 hr. comp.	
Chromium, Total	12.5	lbs/d	6.0	1/month	24-hr. comp.	
Copper, Dissolved	Monitor	lbs/d		1/month	24-hr. comp.	
Copper, Total	31.9	lbs/d	6.0	1/month	24 hr. comp.	
Cyanide, Total	90.0	lbs/d	90	1/month	24-hr. comp.	
Lead, Total	66.2	lbs/d	6.0	1/month	24-hr. comp.	
Nickel, Total	43.8	lbs/d	6.0	1/month	24 hr. comp.	
Zinc, Total	174	lbs/d	0.3	1/month	24-hr. comp.	
Zinc, Dissolved	Monitor	lbs/d		1/month	24-hr. comp.	
Bis(2-Ethylhexyl)Phthalate	16.7	lbs/d	12.0	1/month	24-hr. comp.	

c) Monitoring Requirements for Outfall 001

OUTFALL No.	LIMITATIONS APPLY:	RECEIVING WATER			EFFECTIVE	EXPIRING			
001	All Year unless otherwise noted	Niagara River			01/01/2010	06/30/2014			
PARAMETER	EFFLUENT LIMIT			MONITORING REQUIREMENTS					FN
	Type	Limit	Units	Sample Frequency	Sample Type	Location			
						Inf.	Eff.		
Flow	Monthly Total	Monitor	MGD	Continuous	Recorder/Totalizer		X	1, 2	
BOD ₅	Daily Max.	Monitor	mg/l	1/Event	Composite		X	3	
Solids, Suspended	Daily Max.	Monitor	mg/l	1/Event	Composite		X	3	
Solids, Settleable	Daily Max.	Monitor	ml/l	1/Event	grab		X	4	
Ammonia as N, mg/l, lbs/day	Daily Max.	Monitor	mg/l	1/Event	Composite		X	3	
TKN as N	Daily Max.	Monitor	mg/l	1/Event	Composite		X	3	
Phosphorus	Daily Max.	Monitor	mg/l	1/Event	Composite		X	3	
Oil & Grease	Daily Max.	Monitor	mg/l	1/Event	grab		X	3	
Coliform, Fecal	30 day geometric mean	Monitor	No./100 ml	1/Event	grab		X	4	
Coliform, Fecal	7 day geometric mean	Monitor	No./100 ml	1/Event	grab		X	4	
Chlorine, Total Residual	Daily Max.	2.0	mg/l	1/Event	grab		X	4	

FOOTNOTES

1. Flows shall be managed in accordance to the existing Wet Weather Operating Plan. All flows up to the headworks capacity and not passed through outfall 002 shall be passed through outfall 001. This requirement may be superseded by the provisions in the ongoing Consent Decree.
2. Flow shall be continuously recorded and totalized. Flow reported on the Discharge Monitoring Report shall be the total flow discharge for the calendar month reporting period.
3. Samples shall be composite of grab samples, one taken every four hours.
4. Grab samples to be taken every four hours during each event.

**IV. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR HEADWORKS BYPASS ROUTINE
MONITORING REQUIREMENTS**

OUTFALL No.	LIMITATIONS APPLY:			EFFECTIVE		EXPIRING		
001A	All Year unless otherwise noted			01/01/2010		06/30/2014		
PARAMETER	EFFLUENT LIMIT			MONITORING REQUIREMENTS				
	Type	Limit	Units	Sample Frequency	Sample Type	Location		FN
						Inf.	Eff.	
Flow, MG	Monthly Total	Monitor	MGD	1/Event	Estimated	X		(1)
BOD,5-day mg/l	Daily Max.	Monitor	mg/l	1/Event	Grab		X	
Solids, Suspended mg/l	Daily Max.	Monitor	mg/l	1/Event	Grab		X	
Solids, Settleable ml/l	Daily Max.	Monitor	ml/l	1/Event	Grab		X	
Oil & Grease mg/l	Daily Max.	Monitor	mg/l	1/Event	Grab		X	

(1) This outfall shall be used in accordance with the existing Wet Weather Operating Plan and/or for emergency use only.

V. WHOLE EFFLUENT TOXICITY

PARAMETER	EFFLUENT LIMIT		PQL	MONITORING ACTION LEVEL		UNITS	SAMPLE FREQUENCY	SAMPLE TYPE
	Monthly Avg.	Daily Max.	Daily Max.	TYPE I	TYPE II			
WET - Chronic Invertebrate				101		TUc	Quarterly	Footnote 1
WET - Chronic Vertebrate				101		TUc	Quarterly	Footnote 1

Footnote

1. Whole Effluent Toxicity Testing for Outfall 002

Testing Requirements - WET testing shall consist of **Chronic only**. WET testing shall be performed in accordance with 40 CFR Part 136 and TOGS 1.3.2 unless prior written approval has been obtained from the Department. The test species shall be *Ceriodaphnia dubia* (water flea - invertebrate) and *Pimephales promelas* (fathead minnow - vertebrate). Receiving water collected upstream from the discharge should be used for dilution. All tests conducted should be static-renewal (two 24 hr composite samples with one renewal for Acute tests and three 24 hr composite samples with two renewals for Chronic tests). The appropriate dilution series bracketing the IWC and including one exposure group of 100% effluent should be used to generate a definitive test endpoint, otherwise an immediate rerun of the test is required. WET testing shall be coordinated with the monitoring of chemical and physical parameters limited by this permit so that the resulting analyses are also representative of the sample used for WET testing. The ratio of critical receiving water flow to discharge flow (i.e. dilution ratio) is **50:1** for acute, and **100:1** for chronic. Discharges which are disinfected using chlorine should be dechlorinated prior to WET testing or samples shall be taken immediately prior to the chlorination system.

Monitoring Period - WET testing shall be performed at the specified sample frequency **during calendar years ending in 2 and 7**.

Reporting - Toxicity Units shall be calculated and reported on the DMR as follows: $TU_a = (100)/(48 \text{ hr LC}_{50})$ or $(100)/(48 \text{ hr EC}_{50})$ (note that Acute data is generated by both Acute and Chronic testing) and $TU_c = (100)/(NOEC)$ when Chronic testing has been performed or $TU_c = (TU_a) \times (10)$ when only Acute testing has been performed and is used to predict Chronic test results, where the 48 hr LC₅₀ or 48 hr EC₅₀ and NOEC are expressed in % effluent. This must be done for both species and using the Most Sensitive Endpoint (MSE) or the lowest NOEC and corresponding highest TU_c. Report a TU_a of 0.3 if there is no statistically significant toxicity in 100% effluent as compared to control.

The complete test report including all corresponding results, statistical analyses, reference toxicity data, daily average flow at the time of sampling and other appropriate supporting documentation, shall be submitted within 60 days following the end of each test period to the Toxicity Testing Unit. A summary page of the test results for the invertebrate and vertebrate species indicating TU_a, 48 hr LC₅₀ or 48 hr EC₅₀ for Acute tests and/or TU_c, NOEC, IC₂₅, and most sensitive endpoints for Chronic tests, should also be included at the beginning of the test report.

WET Testing Action Level Exceedances - If an action level is exceeded then the Department may require the permittee to conduct additional WET testing including Acute and/or Chronic tests. Additionally, the permittee may be required to perform a Toxicity Reduction Evaluation (TRE) in accordance with Department guidance. If such additional testing or performance of a TRE is necessary, the permittee shall be notified in writing by the Regional Water Engineer. The written notification shall include the reason(s) why such testing or a TRE is required.

VI. PRETREATMENT PROGRAM IMPLEMENTATION REQUIREMENTS

- A. DEFINITIONS. Generally, terms used in this Section shall be defined as in the General Pretreatment Regulations (40 CFR Part 403). Specifically, the following definitions apply to terms used in this Section (PRETREATMENT PROGRAM IMPLEMENTATION REQUIREMENTS):
1. Categorical Industrial User (CIU) - an industrial user of the POTW that is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N;
 2. Local Limits - General Prohibitions, specific prohibitions and specific limits as set forth in 40 CFR 403.5.
 3. The Publicly Owned Treatment Works (the POTW) - as defined by 40 CFR 403.3(q) and that discharges in accordance with this permit.
 4. Program Submission(s) - requests for approval or modification of the POTW Pretreatment Program submitted in accordance with 40 CFR 403.11 or 403.18 and approved by letter dated September 11, 1984.
 5. Significant Industrial User (SIU) -
 - a. CIUs;
 - b. Except as provided in 40 CFR 403.3(v)(3), any other industrial user that discharges an average of 25,000 gallons per day or more of process wastewater (excluding sanitary, non-contact cooling and boiler blowdown wastewater) to the POTW;
 - c. Except as provided in 40 CFR 403.3(v)(3), any other industrial user that contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant;
 - d. Any other industrial user that the permittee designates as having a reasonable potential for adversely affecting the POTW's operation or for violating a pretreatment standard or requirement.
 6. Substances of Concern - Substances identified by the New York State Department of Environmental Conservation Industrial Chemical Survey as substances of concern.
- B. IMPLEMENTATION. The permittee shall implement a POTW Pretreatment Program in accordance 40 CFR Part 403 and as set forth in the permittee's approved Program Submission(s). Modifications to this program shall be made in accordance with 40 CFR 403.18. Specific program requirements are as follows:
1. Industrial Survey. To maintain an updated inventory of industrial dischargers to the POTW the permittee shall:
 - a. Identify, locate and list all industrial users who might be subject to the industrial pretreatment program from the pretreatment program submission and any other necessary, appropriate and available sources. This identification and location list will be updated, at a minimum, every five years. As part of this update the permittee shall collect a current and complete New York State Industrial Chemical Survey form (or equivalent) from each SIU.
 - b. Identify the character and volume of pollutants contributed to the POTW by each industrial user identified in B.1.a above that is classified as a SIU.
 - c. Identify, locate and list, from the pretreatment program submission and any other necessary, appropriate and available sources, all significant industrial users of the POTW.
 2. Control Mechanisms. To provide adequate notice to and control of industrial users of the POTW the permittee shall:

- a. Inform by certified letter, hand delivery courier, overnight mail, or other means which will provide written acknowledgment of delivery, all industrial users identified in B.1.a. above of applicable pretreatment standards and requirements including the requirement to comply with the local sewer use law, regulation or ordinance and any applicable requirements under section 204(b) and 405 of the Federal Clean Water Act and Subtitles C and D of the Resource Conservation and Recovery Act.
 - b. Control through permit or similar means the contribution to the POTW by each SIU to ensure compliance with applicable pretreatment standards and requirements. Permits shall contain limitations, sampling frequency and type, reporting and self-monitoring requirements as described below, requirements that limitations and conditions be complied with by established deadlines, an expiration date not later than five years from the date of permit issuance, a statement of applicable civil and criminal penalties and the requirement to comply with Local Limits and any other requirements in accordance with 40 CFR 403.8(f)(1).
3. Monitoring and Inspection. To provide adequate, ongoing characterization of non-domestic users of the POTW, the permittee shall:
 - a. Receive and analyze self-monitoring reports and other notices. The permittee shall require all SIUs to submit self-monitoring reports at least every six months unless the permittee collects all such information required for the report, including flow data.
 - b. The permittee shall adequately inspect each SIU at a minimum frequency of once per calendar year.
 - c. The permittee shall collect and analyze samples from each SIU for all priority pollutants that can reasonably be expected to be detectable at levels greater than the levels found in domestic sewage at a minimum frequency of once per year.
 - d. Require, through permits, each SIU to collect at least one 24 hour, flow proportioned composite (where feasible) effluent sample every six months and analyze each of those samples for all priority pollutants that can reasonably be expected to be detectable in that discharge at levels greater than the levels found in domestic sewage. The permittee may perform the aforementioned monitoring in lieu of the SIU except that the permittee must also perform the compliance monitoring described in 3.c.
4. Enforcement. To assure adequate, equitable enforcement of the industrial pretreatment program the permittee shall:
 - a. Investigate instances of noncompliance with pretreatment standards and requirements, as indicated in self-monitoring reports and notices or indicated by analysis, inspection and surveillance activities. Sample taking and analysis and the collection of other information shall be performed with sufficient care to produce evidence admissible in enforcement proceedings or in judicial actions. Enforcement activities shall be conducted in accordance with the permittee's Enforcement Response Plan developed and approved in accordance with 40 CFR Part 403.
 - b. Enforce compliance with all national pretreatment standards and requirements in 40 CFR Parts 406 - 471.
 - c. Provide public notification of significant non-compliance as required by 40 CFR 403.8(f)(2)(viii).
 - d. Pursuant to 40 CFR 403.5(e), when either the Department or the USEPA determines any source contributes pollutants to the POTW in violation of Pretreatment Standards or Requirements the Department or the USEPA shall notify the permittee. Failure by the permittee to commence an appropriate investigation and subsequent enforcement action within 30 days of this notification may result in appropriate enforcement action against the source and permittee.
5. Record keeping. The permittee shall maintain and update, as necessary, records identifying the nature, character, and volume of pollutants contributed by SIUs. Records shall be maintained in accordance with 6 NYCRR Part 750-2.5(c).
6. Staffing. The permittee shall maintain minimum staffing positions committed to implementation of the Industrial

Pretreatment Program in accordance with the approved pretreatment program.

- C. SLUDGE DISPOSAL PLAN. The permittee shall notify NYSDEC, and USEPA as long as USEPA remains the approval authority, 60 days prior to any major proposed change in the sludge disposal plan. NYSDEC may require additional pretreatment measures or controls to prevent or abate an interference incident relating to sludge use or disposal.
- D. REPORTING. The permittee shall provide to the offices listed on the Monitoring, Reporting and Recording page of this permit and to the Chief-Water Compliance Branch; USEPA Region II; 290 Broadway; New York, NY 10007; an annual report that briefly describes the permittee's program activities over the previous year. This report shall be submitted to the above noted offices within 60 days of the end of the reporting period. The reporting period shall be annual with reporting period(s) ending on April 30 of each year.

The annual report shall include:

1. Industrial Survey. Updated industrial survey information in accordance with 40 CFR 403.12(i)(1) (including any NYS Industrial Chemical Survey forms updated during the reporting period).
2. Implementation Status. Status of Pretreatment Program Implementation, to include:
 - a. Any interference upset or permit violations experienced at the POTW directly attributable to industrial users.
 - b. Listing of significant industrial users issued permits.
 - c. Listing of significant industrial users inspected and/or monitored during the previous reporting period and summary of results.
 - d. Listing of significant industrial users notified of promulgated pretreatment standards or applicable local standards that are on compliance schedules. The listing should include for each facility the final date of compliance.
 - e. Summary of POTW monitoring results not already submitted on Discharge Monitoring Reports and toxic loadings from SIU's organized by parameter.
 - f. A summary of additions or deletions to the list of SIUs, with a brief explanation for each deletion.
3. Enforcement Status. Status of enforcement activities to include:
 - a. Listing of significant industrial users in Significant Non-Compliance (as defined by 40 CFR 403.8(f)(2)(viii)) with federal or local pretreatment standards at end of the reporting period.
 - b. Summary of enforcement activities taken against non-complying significant industrial users. The permittee shall provide a copy of the public notice of significant violators as specified in 40 CFR Part 403.8(f)(2)(viii).

VII. BEST MANAGEMENT PRACTICES FOR COMBINED SEWER OVERFLOWS

The permittee shall implement the following Best Management Practices (BMPs). These BMPs are designed to implement operation & maintenance procedures, utilize the existing treatment facility and collection system to the maximum extent practicable, and implement sewer design, replacement and drainage planning, to maximize pollutant capture and minimize water quality impacts from combined sewer overflows. The BMPs are equivalent to the "Nine Minimum Control Measures" required under the USEPA National Combined Sewer Overflow policy. The EPA's policy is available at http://cfpub.epa.gov/npdes/cso/cpolicy.cfm?program_id=5.

1. CSO Maintenance/Inspection - The permittee shall develop a written maintenance and inspection program for all CSOs listed on page(s) 3-5 of this permit. This program shall include all regulators tributary to these CSOs, and shall be conducted during periods of both dry and wet weather. This is to insure that no discharges occur during dry weather and that the maximum amount of wet weather flow is conveyed to the Bird Island POTW for treatment. This program shall consist of inspections with required repair, cleaning and maintenance done as needed. This program shall consist of monthly inspections.

Inspection reports shall be completed indicating visual inspection, any observed flow, incidence of rain or snowmelt, condition of equipment and work required. These reports shall be in a format approved by the Regional Office and submitted to the Region with the monthly operating report (Form 92-15-7).

2. Maximum Use of Collection System for Storage - The permittee shall optimize the collection system by operating and maintaining it to minimize the discharge of pollutants from CSOs. It is intended that the maximum amount of in-system storage capacity be used (without causing service backups) to minimize CSOs and convey the maximum amount of combined sewage to the treatment plant in accordance with Item 4 below.

This shall be accomplished by an evaluation of the hydraulic capacity of the system but should also include a continuous program of flushing or cleaning to prevent deposition of solids and the adjustment of regulators and weirs to maximize storage.

3. Industrial Pretreatment - The approved Industrial Pretreatment Program shall consider CSOs in the calculation of local limits for indirect discharges. Discharge of persistent toxics upstream of CSOs will be in accordance with guidance under (NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.3.8 New Discharges to POTWs. (<http://www.dec.ny.gov/regulations/2652.html>)). For industrial operations characterized by use of batch discharge, consideration shall be given to the feasibility of a schedule of discharge during conditions of no CSO. For industrial discharges characterized by continuous discharge, consideration must be given to the collection system capacity to maximize delivery of waste to the treatment plant. Non-contact cooling water should be excluded from the combined system to the maximum extent practicable. Direct discharges of cooling water must apply for a SPDES permit. To the maximum extent practicable, consideration shall be given to maximize the capture of non-domestic waste containing toxic pollutants and this wastewater should be given priority over residential/commercial service areas for capture and treatment by the POTW.
4. Maximize Flow to POTW - Factors cited in Item 2. above shall also be considered in maximizing flow to the POTW. Maximum delivery to the POTW is particularly critical in treatment of "first-flush" flows. The treatment plant shall be capable of receiving and treating: the peak design hydraulic loading rates for all process units; i.e., a minimum of 450MGD through the plant headworks; and a minimum of 300 MGD through the secondary treatment works during wet weather in accordance with the existing Wet Weather Operating Plan. The collection system and headworks must be capable of delivering these flows during wet weather. If the permittee cannot deliver maximum design flow for treatment, the permittee shall submit a plan and schedule for accomplishing this requirement within 12 months after the effective date of this permit.
5. Wet Weather Operating Plan - The permittee shall maximize treatment during wet weather events. This shall be accomplished by having a wet weather operating plan containing procedures so as to operate unit processes to treat maximum flows while not appreciably diminishing effluent quality or destabilizing treatment upon return to dry weather operation. The BSA must continue to implement the wet weather operations plan

The submission of a wet weather operating plan is a one time requirement that shall be done to the Department's satisfaction once. However, a revised wet weather operating plan must be submitted whenever the POTW and/or sewer collection system is significantly replaced or modified in a manner that impacts flows at Bird Island WWTP. When this permit is administratively renewed by NYSDEC letter entitled "SPDES NOTICE/RENEWAL APPLICATION/PERMIT", the permittee is not required to repeat the submission. The above due dates are independent from the effective date of the permit stated in the letter of "SPDES NOTICE/RENEWAL APPLICATION/PERMIT".

6. Prohibition of Dry Weather Overflow - Dry weather overflows from the combined sewer system are prohibited. The occurrence of any dry weather overflow shall be promptly abated and reported to the NYSDEC Region 9 Office within 24 hours. A written report shall also be submitted within fourteen (14) days of the time the permittee becomes aware of the occurrence. The occurrence of any dry weather overflow shall be promptly abated and reported to the NYSDEC Regional Office in accordance with 6 NYCRR Part 750-2.7.
7. Control of Floatable and Settleable Solids - The discharge of floating solids, oil and grease, or solids of sewage origin which cause deposition in the receiving waters, is a violation of the NYS Narrative Water Quality Standards contained in Part 703. As such, the permittee shall implement best management practices in order to eliminate or minimize the discharge of these substances. All of the measures cited in Items 1, 2, 4 & 5 above shall constitute approvable "BMPs" for mitigation of this problem. If aesthetic problems persist, the permittee should consider additional BMP's including but not limited to: street sweeping, litter control laws, installation of floatables traps in catch basins (such as hoods), booming and skimming of CSOs, and disposable netting on CSO outfalls. In cases of severe or excessive floatables generation, booming and skimming should be considered an interim measure prior to implementation of final control measures. Public education on harmful disposal practices of personal hygienic devices may also be necessary including but not limited to: public broadcast television, printed information inserts in sewer bills, or public health curricula in local schools.
8. Combined Sewer System Replacement - Replacement of combined sewers shall not be designed or constructed unless approved by NYSDEC. When replacement of a combined sewer is necessary it shall be replaced by separate sanitary and storm sewers to the greatest extent possible. These separate sanitary and storm sewers shall be designed and constructed simultaneously but without interconnections to maximum extent practicable. When combined sewers are replaced, the design should contain cross sections which provide sewage velocities which prevent deposition of organic solids during low flow conditions.
9. Combined Sewer/Extension - Combined sewer/extension, when allowed should be accomplished using separate sewers. These sanitary and storm sewer extensions shall be designed and constructed simultaneously but without interconnections. No new source of storm water shall be connected to any separate sanitary sewer in the collection system.

If separate sewers are to be extended from combined sewers, the permittee shall demonstrate the ability of the sewerage system to convey, and the treatment plant to adequately treat, the increased dry-weather flows. Upon a determination by the Regional Water Engineer an assessment shall be made by the permittee of the effects of the increased flow of sanitary sewage or industrial waste on the strength of CSOs and their frequency of occurrence including the impacts upon best usage of the receiving water. This assessment should use techniques such as collection system and water quality modeling contained in the 1999 Water Environment Federation Manual of Practice FD-17 entitled, Prevention and Control of Sewer System Overflows, 2nd edition.
10. Sewage Backups - If, there are documented, recurrent instances of sewage backing up into house(s) or discharges of raw sewage onto the ground surface from surcharging manholes, the permittee shall, upon letter notification from DEC, prohibit further connections that would make the surcharging/back-up problems worse.
11. Septage and Hauled Waste - The discharge or release of septage or hauled waste upstream of a CSO is prohibited.
12. Control of Run-off - It is recommended that the impacts of run-off from development and re-development in areas served by combined sewers be reduced by requiring compliance with the New York Standards for Erosion and Sediment Control and the quantity control requirements included in the New York State Stormwater Management Design Manual. (<http://www.dec.ny.gov/chemical/8694.html>).
13. Public Notification - The permittee shall continue to maintain identification signs at all CSO outfalls owned and operated by the permittee. The permittee shall place the signs at or near the CSO outfalls and ensure that the signs are easily readable by the public. The signs shall have **minimum** dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

<p align="center">N.Y.S. PERMITTED DISCHARGE POINT (wet weather discharge) SPDES PERMIT No.: NY _____</p> <p align="center">OUTFALL No. : _____</p> <p>For information about this permitted discharge contact:</p> <p>Permittee Name: _____</p> <p>Permittee Contact: _____</p> <p>Permittee Phone: () - ### - ####</p> <p>OR: _____</p>

The permittee shall implement a public notification program to inform citizens of the location and occurrence of CSO events in accordance with the proposed Consent Order Decree.

14. Characterization and Monitoring - The permittee shall characterize the combined sewer system, determine the frequency of overflows, and identify CSO impacts in accordance with Combined Sewer Overflows, Guidance for Nine Minimum Controls, EPA, 1995, Chapter 10. These are minimum requirements, more extensive characterization and monitoring efforts which may be required as part of the Long Term Control Plan.
15. Annual Report - The permittee shall submit an annual report summarizing implementation of the above best management practices (BMPs). The report shall list existing documentation of implementation of the BMPs and shall be submitted by January 31st of each year to the Regional office listed on the Recording, Reporting and Additional Monitoring page of this permit and to the Bureau of Water Permits, 625 Broadway, Albany, NY 12233-3505. Examples of recommended documentation of the BMPs are found in Combined Sewer Overflows, Guidance for Nine Minimum Controls (NMC), EPA, 1995. The permittee may obtain an electronic copy of the NMC guidance at <http://www.epa.gov/npdes/pubs/owm0030.pdf>. For guidance on developing the annual report, a BMP checklist is available from DEC on-line at http://www.dec.ny.gov/docs/water_pdf/csobmp.pdf. The permittee must submit a completed copy of this checklist along with the annual report. The actual documentation shall be stored at a central location and be made available to DEC upon request.

VIII. CSO LONG-TERM CONTROL PLAN

The BSA CSO Long Term Control Plan (LTCP) was approved on March 18, 2014. BSA is required to implement the approved CSO LTCP.

The EPA issued an Amended Administrative Order (CWA-02-2014-3033) which addresses implementation of the LTCP. BSA shall implement the approved CSO LTCP in accordance with the EPA Order (CWA-02-2014-3033), and any subsequent amended/modified Administrative Orders.

This permit may be reopened for modification to include any additional requirements in accordance with 6 NYCRR Part 621.

IX. STORM WATER POLLUTANT PREVENTION PLAN FOR POTWs WITH STORMWATER OUTFALLS

1. General - The Department has determined that stormwater discharges from POTWs with design flows at or above one MGD shall be covered under the SPDES permit. If the permittee has already submitted a Notice of Intent to the Department for coverage under the General Storm Water permit, the permittee shall submit a Notice of Termination to the Department upon receipt of this final SPDES permit containing the requirement to develop a SWPPP.

The permittee is required to develop, maintain, and implement a Storm Water Pollutant Prevention Plan (SWPPP) to prevent releases of significant amounts of pollutants to the waters of the State through plant site runoff; spillage and leaks; sludge or waste disposal; and other stormwater discharges including, but not limited to, drainage from raw material storage.

The SWPPP shall be documented in narrative form and shall include the 13 minimum elements below and plot plans, drawings, or maps necessary to clearly delineate the direction of stormwater flow and identify the conveyance, such as ditch, swale, storm sewer or sheet flow, and receiving water body. Other documents already prepared for the facility such as a Safety Manual or a Spill Prevention, Control and Countermeasure (SPCC) plan may be used as part of the SWPPP and may be incorporated by reference. A copy of the current SWPPP shall be submitted to the Department as required in item (2.) below and a copy must be maintained at the facility and shall be available to authorized Department representatives upon request.

2. Compliance Deadlines - The BSA shall revise the February 2008 SWPPP developed under the General Permit. The revised plan shall be submitted by **07/01/2010** to the Regional Water Engineer. The SWPPP shall be implemented within 6 months of submission, unless a different time frame is approved by the Department. The SWPPP shall be reviewed annually and shall be modified whenever: (a) changes at the facility materially increase the potential for releases of pollutants; (b) actual releases indicate the SWPPP is inadequate, or (c) a letter from the Department identifies inadequacies in the SWPPP. The permittee shall certify in writing, as an attachment to the December Discharge Monitoring Report (DMR), that the annual review has been completed. All SWPPP revisions (with the exception of minimum elements - see item (4.B.) below) must be submitted to the Regional Water Engineer within 30 days. Note that the permittee is not required to obtain Department approval of the SWPPP (or of any minimum elements) unless notified otherwise. Subsequent modifications to or renewal of this permit does not reset or revise these deadlines unless a new deadline is set explicitly by such permit modification or renewal.

3. Facility Review - The permittee shall review all facility components or systems (including but not limited to material storage areas; in-plant transfer, process, and material handling areas; loading and unloading operations; storm water, erosion, and sediment control measures; process emergency control systems; and sludge and waste disposal areas) where materials or pollutants are used, manufactured, stored or handled to evaluate the potential for the release of pollutants to the waters of the State. In performing such an evaluation, the permittee shall consider such factors as the probability of equipment failure or improper operation, cross-contamination of storm water by process materials, settlement of facility air emissions, the effects of natural phenomena such as freezing temperatures and precipitation, fires, and the facility's history of spills and leaks. The relative toxicity of the pollutant shall be considered in determining the significance of potential releases.

The review shall address all substances present at the facility that are identified in Tables 6-10 of SPDES application Form NY-2C (available at <http://www.dec.state.ny.us/website/dcs/permits/olpermits/form2c.pdf>) as well as those that are required to be monitored by the SPDES permit.

4. A. 13 Minimum elements - Whenever the potential for a release of pollutants to State waters is determined to be present, the permittee shall identify Best Management Practices (BMPs) that have been established to prevent or minimize such potential releases. Where BMPs are inadequate or absent, appropriate BMPs shall be established. In selecting appropriate BMPs, the permittee shall consider good industry practices and, where appropriate, structural measures such as secondary containment and erosion/sediment control devices and practices. USEPA guidance for development of minimum elements of the SWPPP and BMPs is available in the September 1992 manual *Storm Water Management for Industrial Activities*, EPA 832-R-92-006 (available on-line at <http://nepis.epa.gov/pub/titles/OW.htm>). At a minimum, the plan shall include the following elements:

- | | | |
|-------------------------------------|--|---------------------------------|
| 1. Pollution Prevention Team | 6. Security | 10. Spill Prevention & Response |
| 2. Reporting of BMP Incidents | 7. Preventive Maintenance | 11. Erosion & Sediment Control |
| 3. Risk Identification & Assessment | 8. Good Housekeeping | 12. Management of Runoff |
| 4. Employee Training | 9. Materials/Waste Handling,
Storage, & Compatibility | 13. Street Sweeping |
| 5. Inspections and Records | | |

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Note that for some facilities, especially those with few employees, some of the above may not be applicable. It is acceptable in these

cases to indicate “Not Applicable” for the portion(s) of the SWPPP that do not apply to your facility, along with an explanation, for instance if street sweeping did not apply because no streets exist at the facility.

B. Stormwater Pollution Prevention Plans (SWPPPs) Required for Discharges of Stormwater From Construction Activity to Surface Waters - As part of the erosion and sediment control element, a SWPPP shall be developed prior to the initiation of any site disturbance of one acre or more of uncontaminated area. Uncontaminated area means soils or groundwater which are free of contamination by any toxic or non-conventional pollutants identified in Tables 6-10 of SPDES application Form NY-2C. Disturbance of any size contaminated area(s) and the resulting discharge of contaminated stormwater is not authorized by this permit unless the discharge is under State or Federal oversight as part of a remedial program or after review by the Regional Water Engineer; nor is such discharge authorized by any SPDES general permit for stormwater discharges. SWPPPs are not required for discharges of stormwater from construction activity to groundwaters.

The SWPPP shall conform to the *New York Standards and Specifications for Erosion and Sediment Control* and *New York State Stormwater Management Design Manual*, unless a variance has been obtained from the Regional Water Engineer, and to any local requirements. The permittee shall submit a copy of the SWPPP and any amendments thereto to the local governing body and any other authorized agency having jurisdiction or regulatory control over the construction activity at least 30 days prior to soil disturbance. The SWPPP shall also be submitted to the Regional Water Engineer if contamination, as defined above, is involved and the permittee must obtain a determination of any SPDES permit modifications and/or additional treatment which may be required prior to soil disturbance. Otherwise, the SWPPP shall be submitted to the Department only upon request. When a SWPPP is required, a properly completed *Notice of Intent* (NOI) form shall be submitted (available at www.dec.state.ny.us/website/dow/toolbox/swforms.html) prior to soil disturbance. Note that submission of a NOI is required for informational purposes; the permittee is not eligible for and will not obtain coverage under any SPDES general permit for stormwater discharges, nor are any additional permit fees incurred. SWPPPs must be developed and submitted for subsequent site disturbances in accordance with the above requirements. The permittee is responsible for ensuring that the provisions of each SWPPP is properly implemented.

Note:

If the permittee is covered under the MS4 permit, the permittee may substitute this to satisfy some of the conditions in this SWPPP.

X. DISCHARGE NOTIFICATION REQUIREMENTS

Sign Maintenance

The permittee shall periodically inspect the outfall identification sign(s) in order to ensure they are maintained, are still visible, and contain information that is current and factually correct. Signs that are damaged or incorrect shall be replaced within 3 months of inspection.

Data Retention

The permittee shall retain records for a minimum period of 5 years in accordance with 6NYCRR Part 750-1.12(b)(2) and Part 750-2.5(c)(1). These records, which include discharge monitoring reports (DMRs) and annual reports, must be retained at a repository accessible to the public. This repository shall be open to the public, at a minimum, during normal daytime business hours. The repository may be the business office, wastewater treatment plant, village, town, city, or county clerk's office, the local library, or other location approved by the Department.

XI. SCHEDULE OF COMPLIANCE

Short-term Hi-Intensity Sampling

Action Code	Outfall Number(s)	Compliance Action	Due Date																											
	001	<p>The permittee shall conduct sampling for the following parameters detected in the WWTP effluent and listed in the permit application. Sampling shall be once per event for a minimum of 10 events. The permittee submit the results of the analyses along with the daily flow:</p> <table><thead><tr><th><u>Parameters</u></th><th><u>EPA Method of Analysis Required</u></th><th><u>Sample Type</u></th></tr></thead><tbody><tr><td>Arsenic, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Cadmium, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Chromium, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Copper, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Cyanide, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Lead, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Nickel, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr><tr><td>Zinc, Total</td><td>200.7</td><td>24 hr. Comp.</td></tr></tbody></table>	<u>Parameters</u>	<u>EPA Method of Analysis Required</u>	<u>Sample Type</u>	Arsenic, Total	200.7	24 hr. Comp.	Cadmium, Total	200.7	24 hr. Comp.	Chromium, Total	200.7	24 hr. Comp.	Copper, Total	200.7	24 hr. Comp.	Cyanide, Total	200.7	24 hr. Comp.	Lead, Total	200.7	24 hr. Comp.	Nickel, Total	200.7	24 hr. Comp.	Zinc, Total	200.7	24 hr. Comp.	06/01/2010
<u>Parameters</u>	<u>EPA Method of Analysis Required</u>	<u>Sample Type</u>																												
Arsenic, Total	200.7	24 hr. Comp.																												
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Zinc, Total	200.7	24 hr. Comp.																												

The above compliance actions are one time requirements. The permittee shall comply with the above compliance actions to the Department's satisfaction once. When this permit is administratively renewed by NYSDEC letter entitled "SPDES NOTICE/RENEWAL APPLICATION/PERMIT", the permittee is not required to repeat the submission. The above due dates are independent from the effective date of the permit stated in the letter of "SPDES NOTICE/RENEWAL APPLICATION/PERMIT."

- a) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice in accordance with 6NYCRR Part 750-2.7. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of non-compliance shall include the following information:
1. A short description of the non-compliance;
 2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
 3. A description of any factors which tend to explain or mitigate the non-compliance; and
 4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.
- b) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer and to the Bureau of Water Permits, 625 Broadway, Albany, N.Y. 12233-3505, unless otherwise specified in this permit or in writing by the Department.

XII. MERCURY MINIMIZATION PROGRAM

1. **General** – Within 12 months of the effective date of this permit (by 01/01/2011), the permittee shall develop and immediately implement, and maintain a Mercury Minimization Program (MMP). The MMP is required because the 50 ng/L permit limit exceeds the state-wide calculated water quality based effluent limit (WQBEL) of 0.70 nanograms/liter (ng/L) for Total Mercury. The goal of the MMP will be to reduce mercury effluent levels in pursuit of the calculated WQBEL.

2. **MMP Elements** - The MMP shall be documented in narrative form and shall include any necessary drawings or maps. Other related documents already prepared for the facility may be used as part of the MMP and may be incorporated by reference. As a minimum, the MMP shall include an on-going program consisting of: periodic monitoring designed to quantify and, over time, track the reduction of mercury; an acceptable control strategy for reducing mercury discharges via cost-effective measures, which may include more stringent control of tributary waste streams; and submission of annual status reports.

A. **Monitoring** - All permit-related mercury monitoring shall be performed using EPA Method 1631 and shall be coordinated so that the results can be compared. All samples shall be grabs and use of EPA Method 1669 during sample collection is recommended. Minimum required monitoring is as follows:

- i. **Sewage Treatment Plant Influent & Effluent, and Type II SSO* Outfalls** - Samples at each of these locations must be collected in accordance with the minimum frequency specified on the mercury permit limits page.
- ii. **Key Locations in the Collection System and Potential Significant Mercury Sources** - The minimum monitoring frequency at these locations shall be semi-annual. Monitoring of properly treated dental facility discharges is not required.
- iii. **Hauled Wastes** - Hauled wastes which may contain significant mercury levels must be periodically tested prior to acceptance to ensure compliance with pretreatment/local limits requirements.
- iv. Additional monitoring must be completed as may be required elsewhere in this permit or upon Department request.

B. **Control Strategy** - An acceptable control strategy is required for reducing mercury discharges via cost-effective measures, including but not limited to more stringent control of industrial users and hauled wastes. The control strategy will become enforceable under this permit and shall contain the following minimum elements:

- i. **Pretreatment/Local Limits** - The permittee shall evaluate and revise current requirements in pursuit of the water quality goal.
- ii. **Periodic Inspection** - The permittee must inspect users as necessary to support the MMP. Each dental facility shall be inspected at least once every five years to verify compliance with the wastewater treatment and notification elements of 6NYCRR Part 374.4. Other mercury sources shall also be inspected once every five years. Alternatively, the permittee may develop an outreach program which informs these users of their responsibilities once every five years and is supported by a subset of site inspections. Monitoring shall be performed as required above.
- iii. **Systems with CSO & Type II SSO* Outfalls** - Priority shall be given to controlling mercury sources upstream of CSOs and Type II SSOs through mercury reduction activities and/or controlled-release discharge. Effective control is necessary to avoid the need for the Department to establish mercury permit limits at these outfalls.
- iv. A file shall be maintained containing all MMP documentation, including the dental forms required by 6NYCRR Part 374.4, which shall be available for review by DEC representatives.

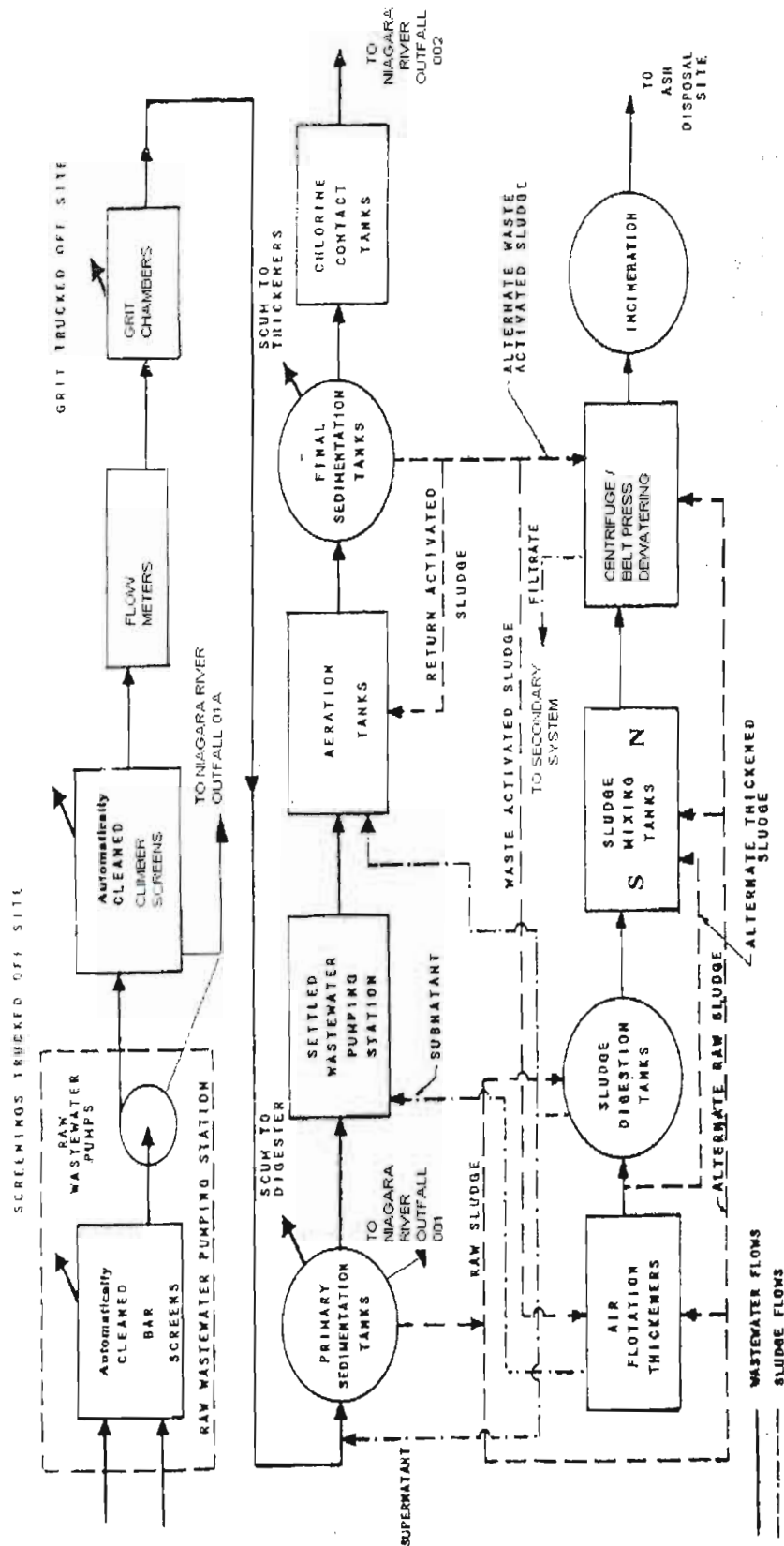
C. **Annual Status Report** - An annual status report shall be submitted to the Regional Water Engineer and to the Bureau of Water Permits summarizing: (a) all MMP monitoring results for the previous year; (b) a list of known and potential mercury sources; (c) all action undertaken pursuant to the strategy during the previous year; (d) actions planned for the upcoming year; and (e) progress toward the goal. The first annual status report is due 01/01/2011 and follow-up reports are due annually thereafter. Note that the complete MMP documentation need not be submitted to the Department unless otherwise requested.

* Overflow Retention Facilities (ORF) or Peak Excess Flow Treatment Facilities (PEFTF). ORFs were designed, approved and constructed under an SSO abatement program. ORFs capture most sewer system flow surges and return them to the POTW for treatment. Under certain exceptionally high flow conditions, excess flow may be discharged.

3. **MMP Modification** - The MMP shall be modified whenever: (a) changes at the facility or within the collection system increase the potential for mercury discharges; (b) actual discharges exceed 50 ng/L; (c) a letter from the Department identifies inadequacies in the MMP; or, (d) pursuant to a permit modification.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the location(s) specified below:



RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

- a) The permittee shall also refer to 6NYCRR Part 750 for additional information concerning monitoring and reporting requirements and conditions.
- b) The monitoring information required by this permit shall be summarized, signed and retained for a period of three years from the date of the sampling for subsequent inspection by the Department or its designated agent. **Also, monitoring information required by this permit shall be summarized and reported by submitting;**

☒ (if box is checked) completed and signed Discharge Monitoring Report (DMR) forms for each 1 month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

☐ (if box is checked) an annual report to the Regional Water Engineer at the address specified below. The annual report is due by February 1 and must summarize information for January to December of the previous year in a format acceptable to the Department.

☒ (if box is checked) a monthly "Wastewater Facility Operation Report..." (form 92-15-7) to the:

☒ Regional Water Engineer and/or ☐ County Health Department or Environmental Control Agency specified below

Send the **original** (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water
Bureau of Watershed Compliance Programs
625 Broadway
Albany, New York 12233-3506

Phone: (518) 402-8177

Send the **first copy** (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Phone: 716-851-7070

Send an **additional copy** of each DMR page to:

- c) Noncompliance with the provisions of this permit shall be reported to the Department as prescribed in 6NYCRR Part 750.
- d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.
- e) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculations and recording of the data on the Discharge Monitoring Reports.
- f) Calculation for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.
- g) Unless otherwise specified, all information recorded on the Discharge Monitoring Report shall be based upon measurements and sampling carried out during the most recently completed reporting period.
- h) Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section five hundred two of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be sent to the Environmental Laboratory Accreditation Program, New York State Health Department Center for Laboratories and Research, Division of Environmental Sciences, The Nelson A. Rockefeller Empire State Plaza, Albany, New York 12201.

APPENDIX E: Opinion of Probable Construction Cost

BUFFALO SEWER AUTHORITY LONG TERM CONTROL PLAN SELECTED ALTERNATIVE
ENGINEER'S OPINION OF PROBABLE PROJECT COST

SPP336B OLS (Sidney OLS)

6/14/2024

v3.4.0

3.26

MG

Description	Material				Installation ⁽¹⁾		Total Cost ⁽²⁾	Notes
	Basis	No. Units	Per Unit	Subtotal	Per Unit	Subtotal		
Satellite Storage								
Land Acquisition	Acres	0.5	\$ 111,520	\$ 56,003	\$ -	\$ -	\$ 56,003	Assumed equal to site clearing quantity. COB perfecting title
Survey & Stake-out	LS	1	\$ 40,649	\$ 40,649	\$ -	\$ -	\$ 40,649	
Site Clearing	SF	21,875	\$ 3	\$ 65,867	\$ -	\$ -	\$ 65,867	SF of tank + 25%
Excavation	CY	8,912	\$ 33	\$ 298,161	\$ -	\$ -	\$ 298,161	
Rock Excavation	CY	22,280	\$ 223	\$ 4,969,352	\$ -	\$ -	\$ 4,969,352	
Piles / Foundation	LS		\$ 557,600	\$ -	\$ -	\$ -	\$ -	Piles not needed on bedrock
Bedding	CY	1,620	\$ 86	\$ 139,142	\$ -	\$ -	\$ 139,142	
Structural Concrete	CY	2,990	\$ 1,338	\$ 4,001,356	\$ -	\$ -	\$ 4,001,356	
Site Dewatering and Erosion Control	LS	1	\$ -	\$ -	\$ 675,000	\$ 675,000	\$ 675,000	
Sheeting/Bracing	SF	21,425	\$ 51	\$ 1,099,098	\$ -	\$ -	\$ 1,099,098	
Backfill	CY	18,229	\$ 49	\$ 894,483	\$ -	\$ -	\$ 894,483	
Hauling	CY	0	\$ 15	\$ -	\$ -	\$ -	\$ -	Hauling and disposal rolled into excavation costs
Cleaning Equipment	LF	125	\$ 5,018	\$ 627,300	\$ -	\$ -	\$ 627,300	Tipping buckets price per Koester
Access Manholes	EA	3	\$ 3,457	\$ 10,371	\$ -	\$ -	\$ 10,371	
Miscellaneous Site Restoration	LS	1	\$ 223,040	\$ 223,040	\$ -	\$ -	\$ 223,040	Misc site and pipe trench restoration
Grass Restoration	SY	2,431	\$ 10	\$ 24,395	\$ -	\$ -	\$ 24,395	Assumed equal to site clearing quantity
Satellite Storage Conveyance 1 / Connection to OLS								
Excavation	CY	2,073	\$ 33	\$ 69,368	\$ -	\$ -	\$ 69,368	
Bedding	CY	27	\$ 86	\$ 2,319	\$ -	\$ -	\$ 2,319	
Site Dewatering and Erosion Control	LS	1	\$ -	\$ -	\$ 67,500	\$ 67,500	\$ 67,500	
Sheeting/Bracing	SF	15,995	\$ 51	\$ 820,530	\$ -	\$ -	\$ 820,530	
Backfill	CY	2,073	\$ 49	\$ 101,740	\$ -	\$ -	\$ 101,740	Equals excavation volume
Hauling	CY	0	\$ 15	\$ -	\$ -	\$ -	\$ -	Assumed included in excavation costs
4 ft Concrete Pipe	LF	208	\$ 892	\$ 185,326	\$ -	\$ -	\$ 185,326	
Cut Access into Main Interceptor	LS	1	\$ 75,276	\$ 75,276	\$ -	\$ -	\$ 75,276	
Manholes	EA	1	\$ 3,457	\$ 3,457	\$ -	\$ -	\$ 3,457	
Satellite Storage Conveyance 2 / OLS Effluent to Collection System								
Excavation	CY	2,963	33	\$ 99,128	\$ -	\$ -	\$ 99,128	
Bedding	CY	39	86	\$ 3,349	\$ -	\$ -	\$ 3,349	
Site Dewatering and Erosion Control	LS	1	0	\$ -	\$ 221,040	\$ 221,040	\$ 221,040	
Sheeting/Bracing	SF	26,666	51	\$ 1,367,969	\$ -	\$ -	\$ 1,367,969	
Backfill	CY	2,963	49	\$ 145,388	\$ -	\$ -	\$ 145,388	Equals excavation volume
Hauling	CY	0	15	\$ -	\$ -	\$ -	\$ -	Assumed included in excavation costs
3 ft Concrete Pipe	LF	346	558	\$ 193,107	\$ -	\$ -	\$ 193,107	
Cut Access into Main Interceptor	EA	1	75,276	\$ 75,276	\$ -	\$ -	\$ 75,276	
Manholes	EA	2	3,457	\$ 6,914	\$ -	\$ -	\$ 6,914	
Inlet and Outlet Gates								
4 ft Diameter Inlet and Outlet Gate	EA	2	\$ 111,520	\$ 200,000	\$ -	\$ -	\$ 200,000	Broadway Oak RTC gates \$100,000 each
				\$ -	\$ -	\$ -	\$ -	

Subtotal	\$ 16,761,905
Electrical, Controls and Instrumentation (15%)	\$ 2,514,286
Utility Relocation / Coordination (5%)	\$ 838,095
MPT (5%)	\$ 838,095
General Conditions, Bonds & Insurance (5% of Subtotal)	\$ 1,047,619
Base Probable Construction Cost (Rounded)	\$ 22,000,000
Inflation to Mid Point of Construction (4th Qtr. 2029)	\$ 27,293,509
Engineering Planning (2nd Qtr 2025)	\$ 270,633
Engineering Design (2nd Qrt. 2027)	\$ 2,560,184
Engineering During Construction (2nd Qrt. 2030)	\$ 2,934,052
Total Engineering Costs	\$ 5,764,869
Total Project Costs Subtotal	\$ 33,058,378
Contingency (35%)	\$ 11,570,432
Inflation to Midpoint of Construction	\$ 44,628,810
Total Probable Construction Cost per Gallon	\$ 13.69

Additional Assumptions

Estimate Preparation Date	6/10/2024	
Target design start	6/18/2025	
Target design end	6/18/2026	2.02 Years from June 2024
Target const start	6/18/2027	
Target const end	5/29/2032	
Estimated Midpoint of Construction	12/7/2029	5.50 Years from June 2024
Estimated Project Duration (yrs)	4.95	
Assumed inflation rate	0.04	

For items without installation cost, installation cost is included in material price.

CSO053_1.4 - Life Cycle Cost Estimate (50 years) for Offline Storage Tank with Gravity Dewatering

Description	Quantity	Unit	Unit Cost	Total Annual Cost	Comments
Annual Operation & Maintenance					
<u>OLS Tank with Gravity Dewatering</u>					
Operations Expenses					
Licensed Wastewater Treatment Plant Operator	52	hour	\$ 50.00	\$ 2,600	SCADA monitoring of entire collection system @ 1 hour per week
Water for Tipping Buckets	68.51	1000 cft	\$ 22.83	\$ 1,564	Assumes anticipated no. activations x 100 gal/ft of tipping bucket x length of tipping buckets
	4	quarter	\$ 399.20	\$ 1,597	\$399.20 quarterly for 2" connection (specs mention 2" solenoid valve so flushing line is assumed to have that diameter)
Communications	12	month	\$ 50.00	\$ 600	Cellular data, alarm system, etc.
Routine Maintenance Expenses					
Weekly Check	104	hr	\$ 43.73	\$ 4,547	1 millwright (1.5 x wage to capture fringe benefits) @ 2 hours per week
	104	hr	\$ 37.31	\$ 3,880	1 millwright's helper (1.5 x wage to capture fringe benefits) @ 2 hours per week
	26	hr	\$ 43.73	\$ 1,137	2 instrument techs @ 0.25 hour per week
Annual Maintenance Labor (clean tank)	160	hr	\$ 45.00	\$ 7,200	2 Vactor Crews: 2 EOs @ 5 days per year
	240	hr	\$ 42.00	\$ 10,080	2 ERC Crews: 3 SCW @ 5 days per year
ANNUAL LABOR AND UTILITY TOTAL				\$ 33,205	
Millwright's Truck	104	hour	\$ 20.00	\$ 2,080	1 Millwright's Truck (\$150,000, 5 year life) @ 104 hours per year (weekly check) rounded to \$20/hr
ERC Truck	1	week	\$ 1,153.85	\$ 1,154	2 ERC Truck (\$150,000, 5 year life) @ 1 week per year (annual maintenance)
Vactor Truck	1	week	\$ 6,410.26	\$ 6,410	2 Vactor Trucks (\$500K each, 3 year life) @ 1 work week per year
Skid Steer	1	week	\$ 346.15	\$ 346	2 Skid Steers (\$45K each, 5 year life) @ 1 work week per year
Lubricants / Misc. Supplies	1	LS	\$ 500.00	\$ 500	
ANNUAL PARTS AND EQUIPMENT TOTAL				\$ 10,490	
				Total Cost	
Rehabilitation Expenses					
Instrumentation Upgrades (every 5 years)	1	LS	\$ 15,000.00	\$ 15,000	Level, pressure, temp sensors, I&C/communication equipment
Cleaning Equipment Replacement (every 20 years)	1	LS	\$ 562,500.00	\$ 562,500	May also require crane
Engineering Evaluation (at year 25)	1	LS	\$ 50,000.00	\$ 50,000	Structural inspection, global control strategy review, etc.
Misc Metal Replacement (at year 25)	1	LS	\$ 50,000.00	\$ 50,000	Grating, railing, hatches

CS0053_1.4 - OLS Tank with Gravity Dewatering

Assumed Interest Rate = i = 5.0%
Assumed Inflation Rate = I = 4.5%

Year (n)	Tank Operation and Maintenance									
	Annual Labor and Electrical Cost (Prev. maint.) ^{1,2}	Labor Cost (2 yr. maint.) ^{1,2}	Labor Cost (5 yr. maint.) ^{1,2}	Labor Cost (25 yr. maint.) ^{1,2}	Annual Parts Cost (Prev. maint.) ²	Rehab Cost (5 yr. maint.) ²	Rehab Cost (20 yr. maint.) ²	Rehab Cost (25 yr. maint.) ²	Total Annual Cost	PW Cost ³
0										
1	\$ 34,699				\$ 10,962				\$ 45,661	\$ 43,487
2	\$ 36,261				\$ 11,456				\$ 47,716	\$ 43,280
3	\$ 37,892				\$ 11,971				\$ 49,863	\$ 43,074
4	\$ 39,597				\$ 12,510				\$ 52,107	\$ 42,869
5	\$ 41,379				\$ 13,073	\$ 18,693			\$ 73,145	\$ 57,311
6	\$ 43,241				\$ 13,661				\$ 56,902	\$ 42,461
7	\$ 45,187				\$ 14,276				\$ 59,463	\$ 42,259
8	\$ 47,221				\$ 14,918				\$ 62,139	\$ 42,058
9	\$ 49,346				\$ 15,590				\$ 64,935	\$ 41,858
10	\$ 51,566				\$ 16,291	\$ 23,295			\$ 91,152	\$ 55,959
11	\$ 53,887				\$ 17,024				\$ 70,911	\$ 41,460
12	\$ 56,312				\$ 17,790				\$ 74,102	\$ 41,263
13	\$ 58,846				\$ 18,591				\$ 77,436	\$ 41,066
14	\$ 61,494				\$ 19,427				\$ 80,921	\$ 40,871
15	\$ 64,261				\$ 20,302	\$ 29,029			\$ 113,592	\$ 54,640
16	\$ 67,153				\$ 21,215				\$ 88,368	\$ 40,482
17	\$ 70,174				\$ 22,170				\$ 92,344	\$ 40,290
18	\$ 73,332				\$ 23,168				\$ 96,500	\$ 40,098
19	\$ 76,632				\$ 24,210				\$ 100,842	\$ 39,907
20	\$ 80,081				\$ 25,299	\$ 36,176	\$ 1,356,589		\$ 1,498,145	\$ 564,635
21	\$ 83,684				\$ 26,438				\$ 110,122	\$ 39,528
22	\$ 87,450				\$ 27,628				\$ 115,078	\$ 39,339
23	\$ 91,385				\$ 28,871				\$ 120,256	\$ 39,152
24	\$ 95,498				\$ 30,170				\$ 125,668	\$ 38,966
25	\$ 99,795			\$ 150,272	\$ 31,528	\$ 45,082		\$ 150,272	\$ 476,948	\$ 140,844
26	\$ 104,286				\$ 32,947				\$ 137,232	\$ 38,595
27	\$ 108,979				\$ 34,429				\$ 143,408	\$ 38,412
28	\$ 113,883				\$ 35,978				\$ 149,861	\$ 38,229
29	\$ 119,008				\$ 37,597				\$ 156,605	\$ 38,047
30	\$ 124,363				\$ 39,289	\$ 56,180			\$ 219,832	\$ 50,864
31	\$ 129,959				\$ 41,057				\$ 171,017	\$ 37,685
32	\$ 135,807				\$ 42,905				\$ 178,712	\$ 37,506
33	\$ 141,919				\$ 44,836				\$ 186,754	\$ 37,327
34	\$ 148,305				\$ 46,853				\$ 195,158	\$ 37,149
35	\$ 154,979				\$ 48,962	\$ 70,010			\$ 273,951	\$ 49,665
36	\$ 161,953				\$ 51,165				\$ 213,118	\$ 36,796
37	\$ 169,241				\$ 53,467				\$ 222,708	\$ 36,621
38	\$ 176,856				\$ 55,873				\$ 232,730	\$ 36,447
39	\$ 184,815				\$ 58,388				\$ 243,203	\$ 36,273
40	\$ 193,132				\$ 61,015	\$ 87,245	\$ 3,271,705		\$ 3,613,097	\$ 513,225
41	\$ 201,823				\$ 63,761				\$ 265,583	\$ 35,929
42	\$ 210,905				\$ 66,630				\$ 277,535	\$ 35,757
43	\$ 220,395				\$ 69,628				\$ 290,024	\$ 35,587
44	\$ 230,313				\$ 72,762				\$ 303,075	\$ 35,418
45	\$ 240,677				\$ 76,036	\$ 108,724			\$ 425,437	\$ 47,350
46	\$ 251,508				\$ 79,458				\$ 330,965	\$ 35,081
47	\$ 262,826				\$ 83,033				\$ 345,859	\$ 34,914
48	\$ 274,653				\$ 86,770				\$ 361,422	\$ 34,748
49	\$ 287,012				\$ 90,674				\$ 377,686	\$ 34,582
50	\$ 299,928			\$ 451,632	\$ 94,755	\$ 135,490		\$ 451,632	\$ 1,433,435	\$ 125,001
										\$ 3,214,370

1. Labor Rates are calculated on Life Cycle Costs worksheet.

2. Future Annual Cost = Present Annual Cost x (1 + Inflation Rate)^{Year} = A₀(1+I)ⁿ (present annual costs located on the O&M Costs worksheet).

3. Present Worth Cost = PW = Future Annual Cost / (1 + Interest Rate)^{Year} = F / (1 + i)ⁿ

**BUFFALO SEWER AUTHORITY LONG TERM CONTROL PLAN SELECTED ALTERNATIVE
ENGINEER'S OPINION OF PROBABLE PROJECT COST**

Schiller Park OLS

1/17/2022

v3.4.0

8.00

MG

Description	Basis	Material			Installation ⁽¹⁾		Total Cost ⁽²⁾	Notes
		No. Units	Per Unit	Subtotal	Per Unit	Subtotal		
Satellite Storage								
Land Acquisition	Acres	3.1	\$ 100,000	\$ 306,909	\$ -	\$ -	\$ 306,909	Assumed equal to site clearing quantity. COB-owned (Schiller Park)
Survey & Stake-out	LS	1	\$ 36,450	\$ 36,450	\$ -	\$ -	\$ 36,450	
Site Clearing	SF	133,690	\$ 3	\$ 360,963	\$ -	\$ -	\$ 360,963	SF of tank + 25%
Excavation	CY	99,030	\$ 30	\$ 2,970,889	\$ -	\$ -	\$ 2,970,889	
Rock Excavation	CY	43,524	\$ 200	\$ 8,704,704	\$ -	\$ -	\$ 8,704,704	Piles not needed on bedrock
Piles / Foundation	LS	0	\$ 500,000	\$ -	\$ -	\$ -	\$ -	
Bedding	CY	9,903	\$ 77	\$ 762,528	\$ -	\$ -	\$ 762,528	
Structural Concrete	CY	16,736	\$ 1,200	\$ 20,083,360	\$ -	\$ -	\$ 20,083,360	
Site Dewatering and Erosion Control	LS	1	\$ -	\$ -	\$ 675,000	\$ 675,000	\$ 675,000	Hauling and disposal rolled into excavation costs
Sheeting/Bracing	SF	40,349	\$ 46	\$ 1,856,060	\$ -	\$ -	\$ 1,856,060	
Backfill	CY	102,941	\$ 44	\$ 4,529,417	\$ -	\$ -	\$ 4,529,417	
Hauling	CY	0	\$ 14	\$ -	\$ -	\$ -	\$ -	
Cleaning Equipment	LF	267	\$ 4,500	\$ 1,203,210	\$ -	\$ -	\$ 1,203,210	Tipping buckets price per Koester
Access Manholes	EA	3	\$ 3,100	\$ 9,300	\$ -	\$ -	\$ 9,300	to cover conveyance restoration
Miscellaneous Site Restoration	LS	1	\$ 200,000	\$ 200,000	\$ -	\$ -	\$ 200,000	
Grass Restoration	SY	14,854	\$ 9	\$ 133,690	\$ -	\$ -	\$ 133,690	
Satellite Storage Conveyance 1 / Connection to OLS								
Excavation	CY	2,003	\$ 30	\$ 60,101	\$ -	\$ -	\$ 60,101	Assumed to be the same as volume excavated
Bedding	CY	35	\$ 77	\$ 2,695	\$ -	\$ -	\$ 2,695	
Site Dewatering and Erosion Control	LS	1	\$ -	\$ -	\$ 67,500	\$ 67,500	\$ 67,500	
Sheeting/Bracing	SF	15,454	\$ 46	\$ 710,906	\$ -	\$ -	\$ 710,906	
Backfill	CY	2,003	\$ 44	\$ 88,148	\$ -	\$ -	\$ 88,148	Assumed to be included with excavation
Hauling	CY	0	\$ 14	\$ -	\$ -	\$ -	\$ -	
4 ft Concrete Pipe	LF	268	\$ 800	\$ 214,720	\$ -	\$ -	\$ 214,720	
Cut Access into Main Interceptor	LS	1	\$ 67,500	\$ 67,500	\$ -	\$ -	\$ 67,500	
Manholes	EA	2	\$ 3,100	\$ 6,200	\$ -	\$ -	\$ 6,200	
Satellite Storage Conveyance 2								
Excavation	CY	6,535	\$ 30	\$ 196,041	\$ -	\$ -	\$ 196,041	Assumed to be the same as volume excavated
Bedding	CY	114	\$ 77	\$ 8,778	\$ -	\$ -	\$ 8,778	
Site Dewatering and Erosion Control	LS	1	\$ -	\$ -	\$ 67,500	\$ 67,500	\$ 67,500	
Sheeting/Bracing	SF	50,411	\$ 46	\$ 2,318,888	\$ -	\$ -	\$ 2,318,888	
Backfill	CY	6,535	\$ 44	\$ 287,527	\$ -	\$ -	\$ 287,527	Assumed to be included with excavation
Hauling	CY	0	\$ 14	\$ -	\$ -	\$ -	\$ -	
4 ft Concrete Pipe	LF	875	\$ 800	\$ 700,390	\$ -	\$ -	\$ 700,390	
Cut Access into Main Interceptor	EA	1	\$ 67,500	\$ 67,500	\$ -	\$ -	\$ 67,500	
Manholes	EA	4	\$ 3,100	\$ 12,400	\$ -	\$ -	\$ 12,400	
Inlet and Outlet Gates								
4 ft Diameter Inlet Gate	EA	1	\$ 100,000	\$ 100,000	\$ -	\$ -	\$ 100,000	Broadway Oak RTC gates \$100,000 each
4 ft Diameter Outlet Gate	EA	1	\$ 100,000	\$ 100,000	\$ -	\$ -	\$ 100,000	Broadway Oak RTC gates \$100,000 each

Subtotal	\$ 46,900,000
Electrical, Controls and Instrumentation (15%)	\$ 7,000,000
Utility Relocation / Coordination (5%)	\$ 2,300,000
MPT (5%)	\$ 2,300,000
General Conditions, Bonds & Insurance (5% of Subtotal)	\$ 2,900,000
Base Probable Construction Cost (Rounded)	\$ 61,400,000
Contingency (40%)	\$ 24,560,000
Total Probable Construction Cost	\$ 85,960,000
Total Probable Construction Cost per Gallon	\$ 10.75

(1) For items without installation cost, installation cost is included in material price

(2) Year 2022 dollars. Does not include engineering, administrative, and legal costs or contingency

System_2 Schiller Park - Life Cycle Cost Estimate (50 years) for Offline Storage Tank with Gravity Dewatering

Description	Quantity	Unit	Unit Cost	Total Annual Cost	Comments
Annual Operation & Maintenance					
<u>OLS Tank with Gravity Dewatering</u>					
Operations Expenses					
Licensed Wastewater Treatment Plant Operator	52	hour	\$ 50.00	\$ 2,600	SCADA monitoring of entire collection system @ 1 hour per week
Water for Tipping Buckets	121.53	1000 cft	\$ 22.83	\$ 2,774	Assumes anticipated no. activations x 100 gal/ft of tipping bucket x length of tipping buckets
	4	quarter	\$ 399.20	\$ 1,597	\$399.20 quarterly for 2" connection (specs mention 2" solenoid valve so flushing line is assumed to have that diameter)
Communications	12	month	\$ 50.00	\$ 600	Cellular data, alarm system, etc.
Routine Maintenance Expenses					
Weekly Check	104	hr	\$ 43.73	\$ 4,547	1 millwright (1.5 x wage to capture fringe benefits) @ 2 hours per week
	104	hr	\$ 37.31	\$ 3,880	1 millwright's helper (1.5 x wage to capture fringe benefits) @ 2 hours per week
	26	hr	\$ 43.73	\$ 1,137	2 instrument techs @ 0.25 hour per week
Annual Maintenance Labor (clean tank)	160	hr	\$ 45.00	\$ 7,200	2 Vactor Crews: 2 EOs @ 5 days per year
	240	hr	\$ 42.00	\$ 10,080	2 ERC Crews: 3 SCW @ 5 days per year
ANNUAL LABOR AND UTILITY TOTAL				\$ 34,415	
Millwright's Truck	104	hour	\$ 20.00	\$ 2,080	1 Millwright's Truck (\$150,000, 5 year life) @ 104 hours per year (weekly check) rounded to \$20/hr
ERC Truck	1	week	\$ 1,153.85	\$ 1,154	2 ERC Truck (\$150,000, 5 year life) @ 1 week per year (annual maintenance)
Vactor Truck	1	week	\$ 6,410.26	\$ 6,410	2 Vactor Trucks (\$500K each, 3 year life) @ 1 work week per year
Skid Steer	1	week	\$ 346.15	\$ 346	2 Skid Steers (\$45K each, 5 year life) @ 1 work week per year
Lubricants / Misc. Supplies	1	LS	\$ 500.00	\$ 500	
ANNUAL PARTS AND EQUIPMENT TOTAL				\$ 10,490	
				Total Cost	
Rehabilitation Expenses					
Instrumentation Upgrades (every 5 years)	1	LS	\$ 15,000.00	\$ 15,000	Level, pressure, temp sensors, I&C/communication equipment
Cleaning Equipment Replacement (every 20 years)	1	LS	\$ 1,203,210.00	\$ 1,203,210	May also require crane
Engineering Evaluation (at year 25)	1	LS	\$ 50,000.00	\$ 50,000	Structural inspection, global control strategy review, etc.
Misc Metal Replacement (at year 25)	1	LS	\$ 50,000.00	\$ 50,000	Grating, railing, hatches

System_2 Schiller Park - OLS Tank with Gravity Dewatering

Assumed Interest Rate =	i =	5.0%
Assumed Inflation Rate =	I =	4.5%

Year (n)	Tank Operation and Maintenance									
	Annual Labor and Electrical Cost (Prev. maint.) ^{1,2}	Labor Cost (2 yr. maint.) ^{1,2}	Labor Cost (5 yr. maint.) ^{1,2}	Labor Cost (25 yr. maint.) ^{1,2}	Annual Parts Cost (Prev. maint.) ²	Rehab Cost (5 yr. maint.) ²	Rehab Cost (20 yr. maint.) ²	Rehab Cost (25 yr. maint.) ²	Total Annual Cost	PW Cost ³
0										
1	\$ 35,964				\$ 10,962				\$ 46,926	\$ 44,692
2	\$ 37,582				\$ 11,456				\$ 49,038	\$ 44,479
3	\$ 39,274				\$ 11,971				\$ 51,245	\$ 44,267
4	\$ 41,041				\$ 12,510				\$ 53,551	\$ 44,056
5	\$ 42,888				\$ 13,073	\$ 18,693			\$ 74,653	\$ 58,493
6	\$ 44,818				\$ 13,661				\$ 58,479	\$ 43,638
7	\$ 46,834				\$ 14,276				\$ 61,110	\$ 43,430
8	\$ 48,942				\$ 14,918				\$ 63,860	\$ 43,223
9	\$ 51,144				\$ 15,590				\$ 66,734	\$ 43,017
10	\$ 53,446				\$ 16,291	\$ 23,295			\$ 93,031	\$ 57,113
11	\$ 55,851				\$ 17,024				\$ 72,875	\$ 42,609
12	\$ 58,364				\$ 17,790				\$ 76,154	\$ 42,406
13	\$ 60,991				\$ 18,591				\$ 79,581	\$ 42,204
14	\$ 63,735				\$ 19,427				\$ 83,163	\$ 42,003
15	\$ 66,603				\$ 20,302	\$ 29,029			\$ 115,934	\$ 55,766
16	\$ 69,600				\$ 21,215				\$ 90,816	\$ 41,604
17	\$ 72,732				\$ 22,170				\$ 94,902	\$ 41,406
18	\$ 76,005				\$ 23,168				\$ 99,173	\$ 41,208
19	\$ 79,426				\$ 24,210				\$ 103,636	\$ 41,012
20	\$ 83,000				\$ 25,299	\$ 36,176	\$ 2,901,798		\$ 3,046,273	\$ 1,148,108
21	\$ 86,735				\$ 26,438				\$ 113,173	\$ 40,622
22	\$ 90,638				\$ 27,628				\$ 118,265	\$ 40,429
23	\$ 94,716				\$ 28,871				\$ 123,587	\$ 40,237
24	\$ 98,979				\$ 30,170				\$ 129,149	\$ 40,045
25	\$ 103,433			\$ 150,272	\$ 31,528	\$ 45,082		\$ 150,272	\$ 480,586	\$ 141,918
26	\$ 108,087				\$ 32,947				\$ 141,034	\$ 39,664
27	\$ 112,951				\$ 34,429				\$ 147,380	\$ 39,476
28	\$ 118,034				\$ 35,978				\$ 154,012	\$ 39,288
29	\$ 123,346				\$ 37,597				\$ 160,943	\$ 39,101
30	\$ 128,896				\$ 39,289	\$ 56,180			\$ 224,365	\$ 51,913
31	\$ 134,696				\$ 41,057				\$ 175,754	\$ 38,729
32	\$ 140,758				\$ 42,905				\$ 183,663	\$ 38,545
33	\$ 147,092				\$ 44,836				\$ 191,928	\$ 38,361
34	\$ 153,711				\$ 46,853				\$ 200,564	\$ 38,178
35	\$ 160,628				\$ 48,962	\$ 70,010			\$ 279,600	\$ 50,689
36	\$ 167,856				\$ 51,165				\$ 219,021	\$ 37,816
37	\$ 175,410				\$ 53,467				\$ 228,877	\$ 37,636
38	\$ 183,303				\$ 55,873				\$ 239,177	\$ 37,456
39	\$ 191,552				\$ 58,388				\$ 249,940	\$ 37,278
40	\$ 200,172				\$ 61,015	\$ 87,245	\$ 6,998,308		\$ 7,346,740	\$ 1,043,573
41	\$ 209,179				\$ 63,761				\$ 272,940	\$ 36,924
42	\$ 218,592				\$ 66,630				\$ 285,223	\$ 36,748
43	\$ 228,429				\$ 69,628				\$ 298,058	\$ 36,573
44	\$ 238,708				\$ 72,762				\$ 311,470	\$ 36,399
45	\$ 249,450				\$ 76,036	\$ 108,724			\$ 434,210	\$ 48,326
46	\$ 260,676				\$ 79,458				\$ 340,133	\$ 36,053
47	\$ 272,406				\$ 83,033				\$ 355,439	\$ 35,881
48	\$ 284,664				\$ 86,770				\$ 371,434	\$ 35,710
49	\$ 297,474				\$ 90,674				\$ 388,148	\$ 35,540
50	\$ 310,860			\$ 451,632	\$ 94,755	\$ 135,490		\$ 451,632	\$ 1,444,368	\$ 125,954
										\$ 4,379,800

- Labor Rates are calculated on Life Cycle Costs worksheet.
- Future Annual Cost = Present Annual Cost x (1 + Inflation Rate)^{Year} = A₀(1+I)ⁿ (present annual costs located on the O&M Costs worksheet).
- Present Worth Cost = PW = Future Annual Cost / (1 + Interest Rate)^{Year} = F / (1 + i)ⁿ

APPENDIX F: Engineering Report Certification

Engineering Report Certification

To Be Provided by the Professional Engineer Preparing the Report

During the preparation of this Engineering Report, I have studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is being sought from the New York State Clean Water State Revolving Fund. In my professional opinion, I have recommended for selection, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account the cost of constructing the project or activity, the cost of operating and maintaining the project or activity over the life of the project or activity, and the cost of replacing the project and activity.

Title of Engineering Report: CSO-053_1.4 Sidney Offline Storage (OLS) Tank Draft Preliminary Engineering Report

Date of Report: 06/14/2024

Professional Engineer's Name: Edmund A. Aplerh-Doku, P.E.

Signature: Edmund Aplerh-Doku

Digitally signed by Edmund Aplerh-Doku
Date: 2024.06.13 06:49:15 -04'00'

Date: 06/14/2024



APPENDIX G: Xylem Alternatives Analysis

BSA Queen City Clean Waters Program Alternatives and Design Log

5/15/2024

Color Key

	OLS
	SPP modification (SPP mod)
	RTC

Abbreviations

DUC	Dynamic Underflow Control
GCCS	Globally Coordinated Control Strategy
GI	Green Infrastructure
ILS	In-line Storage
LTCP	Long Term Control Plan
OLS	Off-line Storage
PER	Preliminary Engineering Report
RTC	Real-Time Control
SPP	Sewer Patrol Point
SWMM	Stormwater Management Model

Xylem Deliverable References

BSA_CSOTY_Results_Current_Status_Comments_220126.xlsx
Pres_BSA_299_LTCPOptimizationWorkshop6_220526.pdf
Pres_BSA_299_LTCPOptimizationWorkshop8_220728_v2.pdf
Pres_BSA_299_LTCPOptimizationWorkshop9_220825_v2.pdf
Pres_BSA_299_LTCPOptimizationWorkshop10_220928.pdf
TM_BSA_299_LTCP_Optimization_Selected_Alternative_230131.pdf
TM_BSA_299_BridgingDocument_230531_v2.pdf

SPP 336 A/B (SPP165A, SPP165B, SPP336A, SPP 336B) (4.2 MG) (M) Replaced by CSO053_1.4 3.26 MG Sidney OLS	
Lead Design Consultant	TY Lin / G&H (PER)
Conceptual Design Scope	To reduce flows at SPP336B, the Sidney Street OLS would store flow diverted from the sewer along Humboldt Parkway in a 3.26 MG tank at the corner of Sidney Street and Lark Street. The storage would dewater via gravity when there is sufficient available capacity in the Scajaquada Tunnel Interceptor.

SPP336B Alternatives Considered				
Tag	Project	Project Type	Current Estimated Total Present Worth Cost (2022 Dollars)	Alternative Notes
N/A	East Ferry ILS	ILS	N/A	In 2014 LTCP, but removed from consideration prior to optimization. Investigations have demonstrated that storage is not available in this section due to low basement and side sewer connections. This project is therefore no longer being contemplated.
N/A	SPP 336 A/B (SPP165A, SPP165B, SPP336A, SPP 336B) 4.2 MG OLS	OLS	N/A	In the 2014 LTCP, but the updated model indicates that 336A is already in compliance. Additionally, as described in the LTCP, the SPP 336 A/B OLS project would require the acquisition and demolition of occupied homes in East Buffalo near the site of the May 14, 2022, Tops Friendly Markets racially motivated massacre. Alternatives were explored on vacant land that would require less disruption in this neighborhood. Removed from consideration.
CSO053_1.4	SPP336B OLS (Sidney OLS)	OLS	\$ 30,934,370	The SPP 336 A&B (CSO-053) Satellite Storage at Humboldt Parkway will be replaced with a smaller 3.26 MG tank at the corner of Sidney Street and Lark Street. This area is on vacant land that will be maintained as a parking lot or pocket park after Substantial Completion. Included in Selected Alternative , works with CSO053_1.5 to achieve compliance for SPP336B.
CSO053_1.5	Schiller Park OLS SPP336B Modification	SPP Mod	\$ 175,380	Included in Selected Alternative , works with CSO053_1.4 to achieve compliance for SPP336B.

Design Log		
Date	Phase	Note
9/28/2022	Optimization	To get to compliance for SPP336B, updated Updated Sidney OLS configuration (deeper to get more storage volume)
4/11/2024	PER	Had tried to reduce to 2.62 MG to fit better on that parcel, but had to upsize to 3.26 MG to get to compliance. 4.2 MG was the original project size in the LTCP. Moving forward we should plan on 3.26 MG for Sidney OLS, unless site constraints dictate otherwise in the detailed design phase. Suggested running final 2039 conditions model (BSA_ProposedLTCP_010139Projects_TY_r5_exp1) with the storage area reduced to 17,500 sq. ft. (2.62 MG volume) to confirm if that size achieves compliance. If it does, the design engineer can evaluate options for a range from 2.62-3.26 MG. If not, they will need to evaluate the best way to fit 3.26 MG of storage in that area.