March 25, 2021

Mr. Eugene Melnyk, PE
Remediation Engineer
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

RE: Former ExxonMobil Buffalo Terminal Operable Unit 3 – Source Area Investigation in Vicinity of Babcock Street Combined Sewer Overflow (NYSDEC Site # C915201D)
LaBella Project # 2200012

Dear Mr. Melnyk:

On behalf of Elk Street Commerce Park, LLC (ESCP), LaBella Associates, DPC has prepared this Work Plan for the investigation of subsurface petroleum contamination suspected to be present in the vicinity of the Babcock Street Combined Sewer Overflow (CSO) structure located on the western portion of Operable Unit 3 (OU-3) of the Former ExxonMobil Buffalo Terminal site, herein referred to as the "Site". The location of the CSO structure, which is owned and operated by the Buffalo Sewer Authority (BSA), is depicted on Figure 1.

As previously documented to the New York State Department of Environmental Conservation (NYSDEC), the deteriorated condition of the CSO structure is enabling communication between the structure and the surrounding subsurface. This coupled with the fluctuating stages of the Buffalo River is believed to be flushing historical petroleum contamination from the subsurface into the CSO structure. The mechanism believed to be driving this is the exfiltration of water from the river into the subsurface of the Site during high river stage, and the infiltration of groundwater and petroleum products back into the CSO structure from the subsurface during low river stage. Infiltration rates into the CSO structure have been observed to exceed the allowable threshold established in Section 33.94 of the 2014 edition of the 10 States Recommended Standards for Wastewater Facilities.

As you are aware, ESCP in collaboration with the BSA, is evaluating feasible options for the repair of the CSO structure to eliminate exfiltration and infiltration and prevent the structure from serving as a pathway for the migration of petroleum products to the river. In conjunction with these efforts, ESCP seeks to delineate the extent of the subsurface petroleum contamination in this area of the Site and collect supplemental hydrogeologic data needed to update and refine the existing groundwater flow model to reflect current (post-remediation) conditions. The resulting information will be used to more fully evaluate current groundwater flow paths, including the effect of the CSO structure on local groundwater flow; and to ensure that an effective, long-term solution to this problem is identified for implementation.

This Work Plan defines the area of investigation; describes the investigative methods to be employed; addresses health and safety measures to be applied to protect Site workers and the public; and establishes data collection, management and reporting objectives. Additionally, the schedule for performance of the investigation is provided herein.

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AREA OF INVESTIGATION

Based upon recent inspections of the interior of the CSO structure conducted on behalf of ESCP, the infiltration of petroleum products was primarily observed within the approximate 200 foot (ft.) segment shown on Figure 2. This area correlates with historical petroleum contamination documented in the Babcock Street Properties Area Investigation Report prepared by Roux Associates in June 2001. Additionally, historical information indicates that this area also contains the former channel of the Buffalo River that was filled circa 1914-1917, and may function as a preferential migration pathway and/or accumulation point for subsurface petroleum contamination.

Considering the observations and information described above, the investigation will focus on the area shown on Figure 3. This area consists of a rectangular area measuring approximately 300 ft. x 50 ft. that straddles the CSO structure. This area falls between the OU-3 containment system (i.e., slurry wall) to the east and the area previously subjected to in-situ stabilization to the west; and extends northward from the hanging sheet pile wall installed just north of the CSO headwall structure to the approximate northern boundary of the former river channel. Existing monitoring wells located along the western Site boundary will also be utilized to assist in characterizing local groundwater flow patterns in this area of the Site.

METHODS OF INVESTIGATION

As described below, the investigation will be comprised of two primary components that include: (1) a soil boring investigation to define subsurface stratigraphy and delineate the extent of gross petroleum contamination; and (2) a hydrogeologic investigation to update and refine the existing groundwater flow model and evaluate the effect of the CSO structure on local groundwater flow patterns.

All aspects of this investigation will be performed in accordance with the applicable provisions of NYSDEC DER-10, as well as the OU-3 Site Management Plan (SMP) and Excavation Work Plan (EWP); and will be supervised and recorded by a qualified scientist or engineer.

Soil Boring Investigation

LaBella shall install a series of test borings within the area of investigation using direct-push drilling equipment to delineate the extent of gross petroleum contamination. As illustrated by Figure 4, a grid pattern will be established throughout this area and drilling will proceed from the mid-point of the grid to the north and south to define the limits of gross contamination in both directions. It is anticipated that the borings will be advanced to the top of the clay unit or 25 feet below ground surface (bgs), whichever is encountered first. Once the limits of gross contamination have been defined in each direction, drilling will cease.

The following methods will be utilized during this soil boring investigation:

- Utility clearance via *Dig Safely NY* will be accomplished within the area of investigation prior to the initiation of intrusive work;
- Historical drawings will be reviewed;
- Grid pattern will be laid out within area of investigation using marking paint;
- Each boring will be advanced to the target depth using a track-mounted Geoprobe system®;
- Continuous soil samples will be collected throughout the depth of each boring using a 5 ft. long macro-core sampler;

- Soil retrieved from the soil borings will be screened in the field for visible impairment, olfactory indications of impairment, and/or indication of detectable volatile organic compounds (VOCs) with a photo-ionization detector (PID);
- Test boring logs will be prepared for each boring to record location, depth, soil classifications, stratigraphy, depth at which groundwater is encountered, presence or absence of liquid phase petroleum (i.e., free product), evidence of impairment and VOC screening levels;
- Down-hole drilling/sampling equipment will be decontaminated prior to commencing with soil boring activities and between soil boring locations using an Alconox and water solution;
- Decontamination fluids will be contained and transported to the on-site Groundwater Treatment Facility (GWTF) for treatment;
- At the completion of each boring, soil from the macro-core sampler will be returned to the soil boring from which it originated or drummed for disposal; and
- All borings will be grouted to six inches below the surface using a cement/bentonite grout mixture, then sealed with cold patch.

Hydrogeologic Investigation

Monitoring Well/Piezometer Installation and Development

As shown on Figure 5, one new monitoring well (ESCP-CSO-MW4) and three new piezometers (ESCP-PZ6 through ESCP-PZ8) will be installed in the area of investigation to facilitate the hydraulic conductivity testing The proposed monitoring well and piezometer construction details are summarized in the table below.

Location ID	Nominal Diameter (inches)	Casing Material	Screen Type & Material	Screen Slot Size[7] (inches)	Screen Length (feet)	Screened Interval (feet bgs)	Total Depth (feet bgs)
ESCP-CSO-MW4	6	Sch. 40 PVC	Cont.-Slot (Vee-Wire) Type 304 Stainless Steel	0.020	20.0	5.0-25.0	25.0
ESCP-PZ6	2	Sch. 40 PVC	Cont.-Slot (Vee Wire) PVC	0.020	20.0	5.0-25.0	25.0
ESCP-PZ7	2	Sch. 40 PVC	Cont.-Slot (Vee-Wire) PVC	0.020	20.0	5.0-25.0	25.0
ESCP-PZ8	2	Sch. 40 PVC	Cont.-Slot (Vee Wire) PVC	0.020	20.0	5.0-25.0	25.0

Table Notes:

1. bgs: below ground surface;
2. PVC: polyvinyl chloride;
3. Sch.: Schedule;
4. PVC casing and screen will conform to ASTM D1785 (Standard Specification for Poly[Vinyl Chloride] Plastic Pipe, Schedules 40, 80, and 120) and ASTM F480 (Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Rations [SDR], Sch. 40 and Sch. 80);
5. Stainless steel screen will conform to ASTM A580/A580M (Standard Specification for Stainless Steel Wire);
6. All casing and screen will be proved with flush-threaded joints; and
7. Screen slot size and filter pack material for the new monitoring well and piezometers will be confirmed by the field geologist based on soil conditions encountered at each location.

Boreholes will be drilled using rotary drilling methods (i.e., hollow stem augers) to a depth of approximately 25 feet bgs. At each location, samples will be collected and logged in continuous intervals to the bottom of the boring. Each sample will be screened for VOC vapors with a PID and will be visually characterized for material type and the presence of odors, staining, sheens, or non-aqueous phase liquid (NAPL).

Down-hole drilling/sampling equipment will be decontaminated prior to commencing with drilling activities and between boring locations using an Alconox and water solution. Decontamination fluids will be contained and transported to the on-site GWTF) for treatment. Auger spoils will be placed in drums for off-site disposal at an appropriately permitted disposal facility.

Upon completion of drilling, the screen and casing will be assembled and concentrically placed, centered, and plumbed within the borehole. The filter pack will be constructed around the screen by filling the annular space between the screen and wall of the borehole over the selected screened interval to a minimum of 1 foot above the top of the screen. After the filter pack has been installed, a minimum 2-foot thick hydrated bentonite seal will be placed directly on top of the filter pack. The annular space between the riser and wall of the borehole above the hydrated bentonite seal will then be filled with cement-bentonite grout. Wells and piezometers will be finished with a flush-mounted, traffic-rated protective cover. Each monitoring well and piezometer will be surveyed by or under the direct supervision of a professional land surveyor licensed in the State of New York to record its actual ground surface elevation, measuring point (top of inner casing) elevation, and horizontal location, referenced to Site datum.

Following installation, the new monitoring well and piezometers will be developed in accordance with ASTM D5521/D5521M (Standard Guide for Development of Groundwater Monitoring Wells in Granular Aquifers). In conjunction with the development of the new well and piezometers, existing monitoring well MW-24 will also be redeveloped to facilitate the hydraulic conductivity testing described below.

Hydraulic Conductivity Testing

Slug tests and pumping tests will be performed to: (1) evaluate and refine the hydraulic conductivity values used in the existing groundwater flow model; and (2) more fully evaluate the effect of the CSO structure on local groundwater flow. Weather conditions will be closely monitored prior to initiating the hydraulic conductivity testing described below. Testing will not be performed within three days after a significant precipitation event (greater than 0.25 inch of rain in a 24-hour period) and will not be started if the three-day forecast includes a significant precipitation event.

Slug Tests

Slug tests will be performed at existing monitoring wells MW-3, MW-7, and MW-8 (see Figure 5) to estimate near-well hydraulic conductivity. Each test will be performed by abruptly changing the groundwater level in the subject well and monitoring its recovery until the observed water level is within 95% of the static (pre-test) level. Solid slug(s) of a known volume will be either quickly introduced into the water column for a falling head test, or quickly removed from the water column for a rising head test. The vented, data-logging pressure transducer currently installed in each well will be used to continuously monitor and record (at 1-second intervals) the recovery of the groundwater level during testing. In general, two to six tests will be performed at each well.

The data collected by the pressure transducers will be downloaded to a portable computer on completion of the slug testing. The slug test data will subsequently be reduced and analyzed via the

Bouwer and Rice (1976) or other suitable method that is appropriate for determining hydraulic conductivity using wells that are fully (or, partially) penetrating completions in an unconfined aquifer. The results of the slug tests will be used to confirm or modify (as appropriate) the design of the pumping tests described below.

Pumping Tests

Step drawdown and constant-rate pumping tests will be performed at monitoring well ESCP-CSO-MW4 to: (1) determine well yield (i.e., maximum sustainable rate); and (2) evaluate and refine the hydraulic conductivity values used in the existing groundwater flow model. The hydraulic response to pumping (radial hydraulic influence), via observed changes in water levels in monitoring wells ESCP-CSO-MW4 and MW-24 and piezometers ESCP-PZ6, ESCP-PZ7, and ESCP-PZ8, will be recorded with vented, data-logging pressure transducers. A transducer will also be placed in the CSO structure, at the manhole situated within the area of investigation (MH-1), to measure and record water level changes within the structure that result from pumping at ESCP-CSO-MW4. Manual water level measurements will also be recorded on a periodic basis throughout each test to verify the pressure transducer data. Flow rates will be maintained at a steady/consistent level throughout the duration of each test and checked/recorded frequently using an inline totalizing flow meter.

The step drawdown test will precede the constant-rate test in order to: (1) establish baseline performance; (2) estimate maximum sustainable yield; and (3) provide an understanding of long-term sustainable flow rate ranges.

Step Drawdown Pumping Test

The step drawdown pumping test will be conducted over a period of not less than two hours. During the test, pumping rates will be increased incrementally every approximately 30 minutes or until a stable drawdown (i.e., less than 0.03 foot of change over a 10-minute period) is observed at monitoring well ESCP-CSO-MW4. The proposed steps and pumping rates for the test are as follows:

- Step 1: 10.0 gallons per minute (gpm);
- Step 2: 15.0 gpm;
- Step 3: 20.0 gpm; and
- Step 4: 25.0 gpm.

If a step flow rate exceeds the maximum yield (i.e., water-level in the well drops to pump intake), the flow rate will be stepped back incrementally to establish a maximum sustainable flow rate. This may include reducing the flow rate to the previously-sustained flow-rate step. In either case, the final maximum flow rate will be maintained for approximately 30 minutes or until a stable drawdown is observed at monitoring well ESCP-CSO-MW4. Following the final flow-rate step, pumping will cease and aquifer recovery will be monitored until the observed water level at monitoring well ESCP-CSO-MW4 is within 95% of the static (pre-test) level.

Flow meter readings and manual water level measurements will be recorded throughout the test. In general, flow meter readings (total volume and instantaneous flow rate) will be recorded every minute for the first 10 minutes of each pumping rate change and every 5 to 10 minutes thereafter for the remainder of the flow-rate step. Manual water level measurements will be recorded at monitoring well ESCP-CSO-MW4 throughout each flow-rate step and during aquifer recovery at the following intervals:

- Every 15 seconds for the first minute;
- Every 30 seconds for the next 3 minutes;
- Every minute for the next 15 minutes; and
- Every 15 minutes for the remainder of the flow-rate step (if practicable) or, during aquifer recovery, until observed water level is within 95% of static (pre-test) level.

As time allows, manual water level measurements will also be recorded at monitoring well MW-24, MH-1, and piezometers ESCP-PZ6, ESCP-PZ7, and ESCP-PZ8 every 15 to 30 minutes during each flow-rate step and during aquifer recovery.

The results of the step drawdown pumping test will be used to confirm or modify (as appropriate) the design of the constant-rate pumping test described below, including the duration of baseline (pre-pumping) measurements; flow rate; data-logging interval(s); frequency of manual water-level measurements; and the overall duration of the test.

Constant-Rate Pumping Test

The constant-rate pumping test at monitoring well ESCP-CSO-MW4 will include approximately 4 hours of baseline (pre-pumping) monitoring and approximately 10 hours of active pumping at a constant flow rate of approximately 20 gpm, if possible. The actual flow rate for the test will be determined based on the evaluation of the data collected during the step drawdown pumping test described above. At the end of the approximately 10-hour active pumping period, pumping will cease and aquifer recovery will be monitored until the observed water level at monitoring well ESCP-CSO-MW4 is within 95% of the static (pre-test) level.

Flow meter readings and manual water level measurements will be recorded throughout the test. In general, flow meter readings (total volume and instantaneous flow rate) will be recorded every minute for the first 10 minutes of pumping and every 15 to 30 minutes thereafter for the remainder of the test. During both active pumping and aquifer recovery, manual water level measurements will be recorded at monitoring well ESCP-CSO-MW4 at the following intervals, which may be adjusted based on the results of the step drawdown pumping test:

- Every 15 seconds for the first minute;
- Every 30 seconds for the next 3 minutes;
- Every minute for the next 15 minutes; and
- Every 30 to 60 minutes for the remainder of the test (if practicable) or, during aquifer recovery, until observed water level is within 95% of static (pre-test) level.

Manual water level measurements will also be recorded at monitoring well MW-24 and piezometers ESCP-PZ6, ESCP-PZ7, and ESCP-PZ8 every 30 to 60 minutes during both active pumping and aquifer recovery.

Pressure/head change plots created from the direct-read transducer cable will be evaluated during the test (in real-time) to verify the stability of the drawdown in monitoring well ESCP-CSO-MW4 and late-time aquifer response in monitoring wells ESCP-CSO-MW4 and MW-24, MH-1, and piezometers ESCP-PZ6, ESCP-PZ7, and ESCPPZ8 (as appropriate).

Data Evaluation

During the pump testing, the data collected by the pressure transducers will be available for evaluation in the field. This will help to graphically verify the stability of the drawdown in the tested well and evaluate the responses noted in the associated monitoring wells.

The observed drawdown data obtained from the wells monitored via the pressure transducers will be downloaded and evaluated in order to select an appropriate method for data analysis. This will be accomplished by preparing log-log plots of the observed drawdown data and comparing them to typical time-drawdown curves for different aquifer types. LaBella anticipates that the observed drawdown data will be representative of an unconfined aquifer with the possibility of a delayed yield noted. An example of these typical time-drawdown curves can be found in "Analysis and Evaluation of Pumping Test Data" (Kruseman and de Ridder, 1983 – page 20). After the type of aquifer response is verified, an appropriate method of analysis will be selected for estimating the hydraulic conductivity of the saturated media in this portion of the site.

Management of Recovered Groundwater

Groundwater generated during the pumping tests will be containerized, transferred to the on-Site GWTF, and subsequently discharged under the existing BSA Permit for the Site.

HEALTH AND SAFETY

Staff conducting the field investigation will be OSHA 40-hour HAZWOPER certified and will adhere to applicable provisions of the Health and Safety Plan (HASP) contained in the SMP for OU-3. Modified Level D Personal Protective Equipment (PPE) will be utilized during the field investigation with the capacity to upgrade to Level C should conditions dictate.

AIR MONITORING

Continuous air monitoring for VOCs will be conducted in the breathing zone within the work area (i.e., conclusion zone as defined in the HASP) during the drilling program. The monitoring of VOCs will also be performed pursuant to the Community Air Monitoring Plan (CAMP) contained within the SMP for OU-3.

Based on the presence of asphalt pavement within the work area and the limited nature of soil disturbance associated with drilling program, particulate monitoring as specified in the CAMP will not be conducted during this field investigation.

REPORTING

LaBella shall evaluate and synthesize the data and observations collected during the investigation program and shall prepare a report summarizing the field program and detailing the findings. The report will specifically address:

- Stratigraphy of fill/overburden encountered;
- Horizontal and vertical extent of gross petroleum contamination;
- Presence/Absence and distribution of liquid phase petroleum;
- Hydraulic conductivity of saturated media;
- Aquifer parameters, recharge and barrier boundaries; and
- Effects of pumping on water levels within the CSO structure.

The report will include figures and cross sections illustrating the limits of contamination and relevant Site features, such as the CSO structure, OU-3 containment system, etc., as well as field logs (i.e., boring logs, well construction logs, etc.), slug and pump test data, and associated calculations.

SCHEDULE

The following schedule has been developed for this work:

- Soil Boring Investigation: April 5-6, 2021
- Slug Testing of Existing Wells: April 7-8, 2021
- Drilling, Installation and Development of New Well/Piezometers, including MW-24: April 12-16, 2021
- Pump Testing: April 19-23, 2021
- Data Evaluation and Reporting April 26, 2021 – May 7, 2021

Should you have any questions or comments concerning this Work Plan, please do not hesitate to contact me at (716) 851-6283 or Andy Janik at (716) 345-6709.

Respectfully submitted,

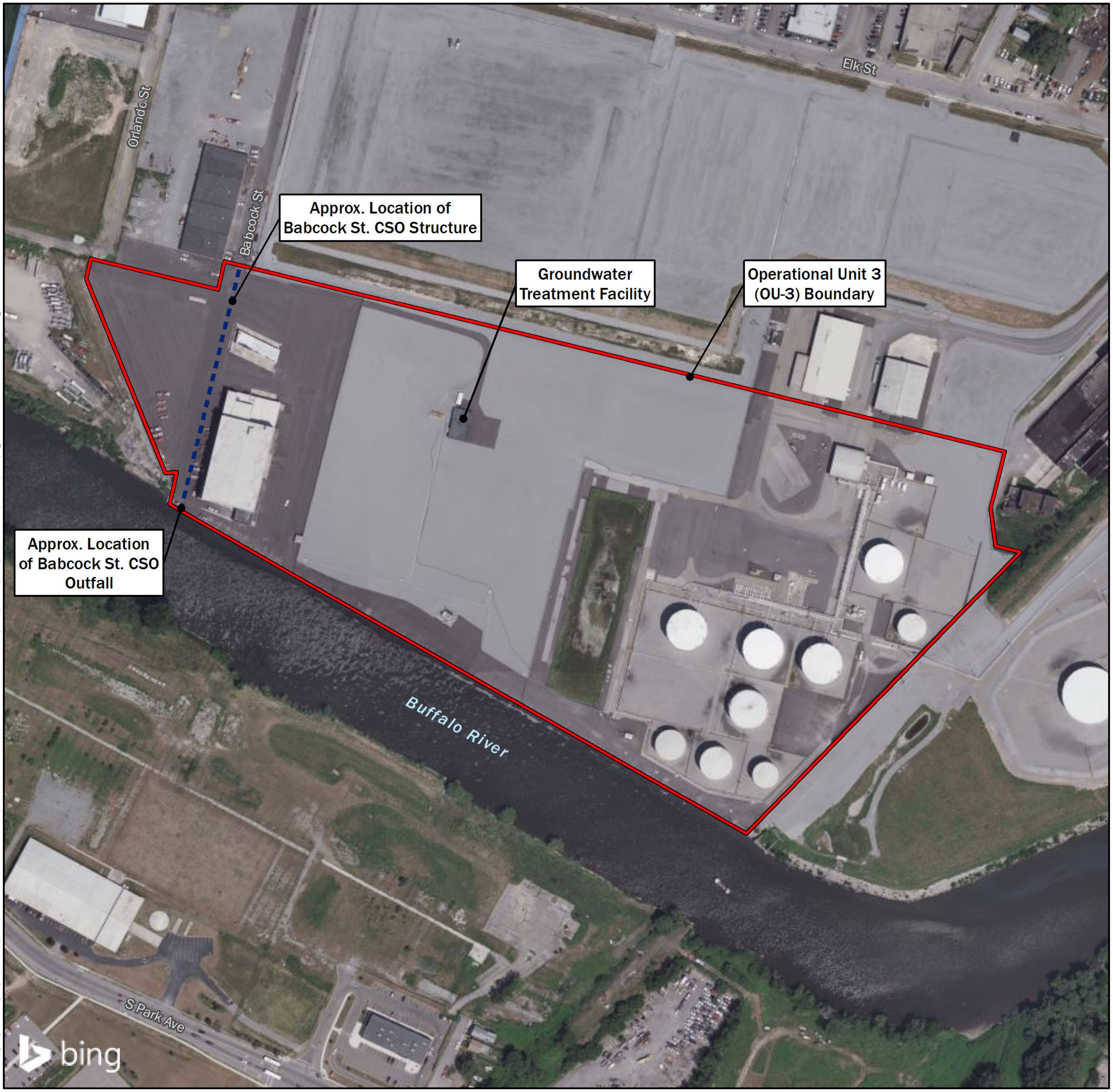
LaBella Associates

Robert R. Napieralski, CPG
Regional Manager

FIGURES

Creator: JR

Path: \\projects1\projectsAM\Elk Street Commerce Park\2200012 - OM&M Elk St Commerce\GIS\MXD\Geoprobe_WP\2021_03\Figure 1 - Source Area Investigation.mxd



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ExxonMobil Former Buffalo Terminal OU-3 Geoprobe Work Plan

N

0 200 400 Feet

Legend

Operational Unit 3 (OU-3) Boundary

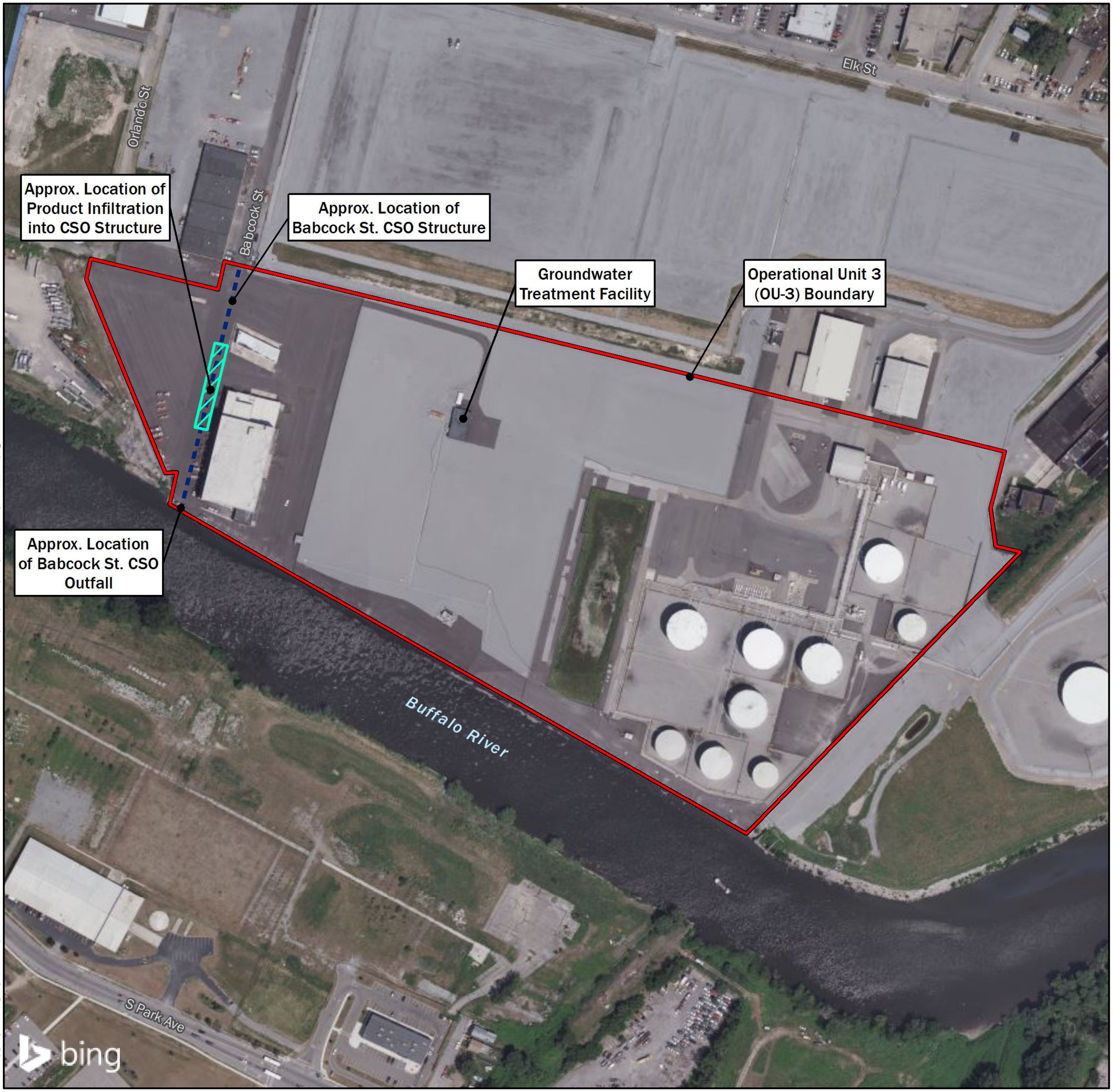
Babcock St. CSO Structure

Sources: Bing 2020; LaBella 2021.

Site Map - Source Area Investigation

Figure 1

LaBella Project No: 2200012
Date: March 2021



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Path: \\projects1\projectsAM\Elk Street Commerce Park\2200012 - OM&M Elk St Commerce\GIS\MXD\Geoprobe_WP\2021_03\Figure 2 - Product Infiltration.mxd

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ExxonMobil Former Buffalo Terminal OU-3 Geoprobe Work Plan

N

0 200 400 Feet

Legend

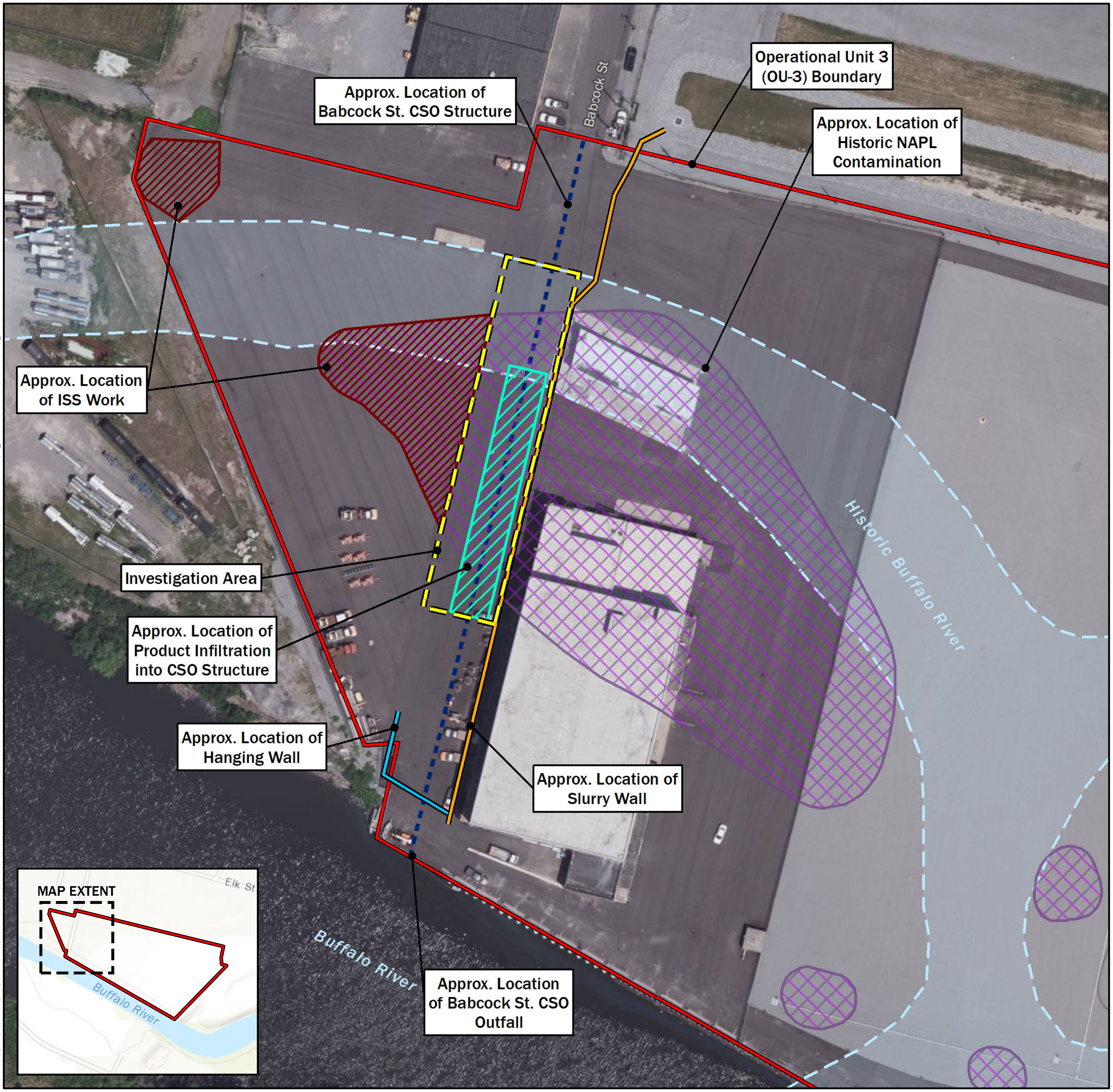
- Operational Unit 3 (OU-3) Boundary
- Location of Product Infiltration into CSO Structure
- Babcock St. CSO Structure

Sources: Bing 2020; LaBella 2021.

Location of Product Infiltration

Figure 2

LaBella Project No: 2200012
Date: March 2021



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ExxonMobil Former Buffalo Terminal OU-3 Geoprobe Work Plan

N

0 50 100 Feet

Legend

- Babcock St. CSO Structure
- Hanging Wall
- Slurry Wall
- Operational Unit 3 (OU-3) Boundary
- Investigation Area
- Location of ISS Work
- Location of Product Infiltration into CSO Structure
- Historic NAPL Contamination
- Historic River Channel

Sources: Bing 2020; LaBella 2021.

Area of Investigation

Figure 3

LaBella Project No: 2200012
Date: March 2021

Creator: JR

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ExxonMobil Former Buffalo Terminal OU-3 Geoprobe Work Plan

N

0 25 50 Feet

Legend

- Initial Boring Location
- Boring Location
- Sampling Grid
- Babcock St. CSO Structure
- Slurry Wall
- Investigation Area
- Operational Unit 3 (OU-3) Boundary

Sources: Bing 2020; LaBella 2021.

Proposed Boring Locations

Figure 4

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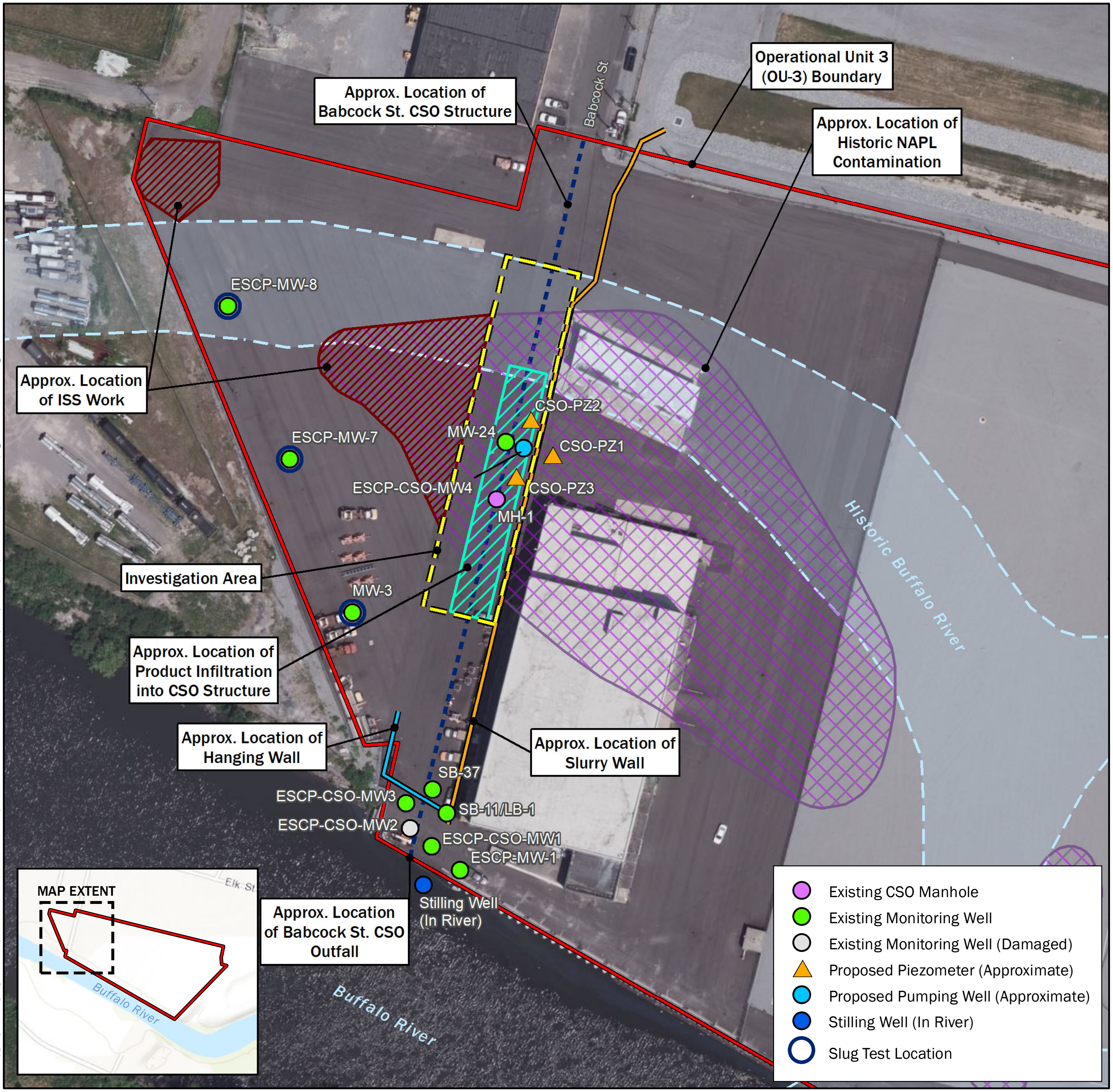
Creator: JR

Path: \\projects1\projectsAM\Elk Street Commerce Park\2200012 - OM&M Elk St Commerce\GIS\MXD\Geoprobe_WP\2021_03\Figure 4 - Proposed Boring Locations.mxd



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Path: \\projects1\projectsAM\Elk Street Commerce Park\2200012 - OM&M Elk St Commerce\GIS\MXD\Geoprobe_WP\2021_03\Figure 5 - Monitoring Well and Piezometer Locations.mxd

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ExxonMobil Former Buffalo Terminal OU-3 Geoprobe Work Plan

N

0 50 100 Feet

Legend

- Babcock St. CSO Structure
- Hanging Wall
- Slurry Wall
- Operational Unit 3 (OU-3) Boundary
- Investigation Area
- Location of ISS Work
- Location of Product Infiltration into CSO Structure
- Historic NAPL Contamination
- Historic River Channel

Sources: Bing 2020; LaBella 2021.

Monitoring Well and Piezometer Locations

Figure 5

LaBella Project No: 2200012
Date: March 2021