August 29, 2024

Ms. Megan Kuczka
Division of Environmental Remediation
New York State Department of Environmental Conservation
700 Delaware Avenue
Buffalo, New York 14209

RE: Former ExxonMobil Buffalo Terminal Operable Unit 3
Supplemental Remedial Investigation Work Plan- Western Area Investigation
NYSDEC Site # C915201D
LaBella Project # 2231211

Dear Ms. Kuczka:

Subsequent to a meeting with the New York State Department of Environmental Conservation (NYSDEC) on January 11, 2024 regarding the ExxonMobil Oil Former Buffalo Terminal Operable Unit No. 3 (OU-3), Elk Street Commerce Park, LLC (ESCP) engaged LaBella Associates to review and compile previous reports and data concerning the nature and extent of petroleum contamination documented on the western portion of OU-3 in the vicinity of the Babcock Street Combined Sewer Overflow (CSO) structure. The results of Labella's review were summarized in the *OU-3 Western Area Investigation Report*, submitted to the NYSDEC in March 2024. Conclusions presented in this report included:

- Historical subsurface data generated prior to the selection and implementation of the final remedy for OU-3 established the presence of Non-Aqueous Phase Liquid (NAPL) in the western portion of OU-3 and mapped the extent of NAPL observed within the area of the CSO that was investigated by LaBella in 2021;
- The results of investigations conducted prior to the selection and implementation of the final remedy for OU-3 established the presence of a variety of petroleum products in the western area of OU-3 with differing compositions and properties, including viscous, higher boiling point hydrocarbons;
- NAPL data generated in 2021 during the development of the corrective measures implemented for the CSO repair are consistent with the historical data and do not indicate new or unknown contamination. That is, light NAPL detected during the 2021 investigation is within the area where light NAPL was previously identified and is similar in nature to that which was previously encountered based on field descriptions/testing;
- Investigations conducted prior to the selection and implementation of the final remedy for OU-3 concluded that NAPL detected at depth was not mobile, and that the former Buffalo River channel did not represent a preferential pathway for NAPL migration. Subsequent supplemental corrective measures deployed on the western portion of OU-3, including the extension of the sealed sheet pile containment system in the vicinity of the CSO outfall and repair of the CSO, have eliminated other pathways for contaminant migration;
- Sufficient monitoring points exist along the western site perimeter to monitor for NAPL migration, including in the former river channel. NAPL at depth has not been observed to date in these wells.

Following the NYSDEC's review of the *OU-3 Western Area Investigation Report*, LaBella received a letter from NYSDEC dated March 18, 2024, requesting the submittal of a work plan for a supplemental

investigation of this area focused on characterizing the nature and extent of NAPL that was observed below the water table during previous investigations and addressing the potential for off-site migration of the deeper NAPL via the former river channel. On behalf of ESCP, LaBella has prepared this work plan to address the NYSDEC's request for a supplemental investigation of the western portion of OU-3.

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 the investigation is provided herein.

Area of Investigation

Prior to the straightening of the Buffalo River in 1917, the river flowed through two areas of the Site. A small tributary entered the northeast portion of the overall Site and flowed in a southwest direction into the Buffalo River. The area where the Buffalo River and the tributary converged is also the location where the river split into the north and south channels. The north channel flowed northwest through the Site exiting the western Site boundary. Historical Site operations around the former northern river channel and existing barrel house once included the central hub for much of the historical loading and distribution operations that occurred at the former refinery and an asphalt production plant. Recent and historical subsurface investigations completed in this western area of OU-3 have identified petroleum impacts outside of the OU-3 western slurry wall containment in the vicinity of the historical north river channel, the BSA CSO, and the former Barrel House.

Non-aqueous phase liquid (NAPL) ranging in depth from 10 to 35 feet below ground surface (ft. bgs.) and below the water table was encountered in the vicinity of the BSA CSO and extending westward in the LaBella Hydrogeological investigation completed in 2021. Two distinct occurrences of free-phase petroleum products were noted: NAPL encountered at the water table appeared dark amber in color; whereas in "deeper" soil cores NAPL appeared dark grey to black in color with a "greasy" feel and appearance. NAPL was not encountered in borings completed along the western property border. These findings are consistent with the previous investigations that occurred in the Western Area of OU-3 and have identified NAPL at and beneath the water table.

Considering the observations and information described above, this investigation will focus on the area shown on Figure 2, which includes the former North River channel.

Methods of Investigation

To determine the nature of fill material, the presence of deep NAPL within the historical Buffalo River channel, and the existing product occurrences identified in the OU-3 Western Area Investigation Report prepared by LaBella Associates in March 2024, this investigation will be comprised of three steps:

(1) On-site survey, marking out the boundaries of the historical Buffalo River Channel.
(2) Soil boring program to identify potential impacts located within the former river channel and delineate impacts to the north and south of the former river channel.
(3) Groundwater monitoring to identify potential impacts located within the former river channel and determine the presence or absence of deep NAPL.

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 geologist.

Buffalo River Channel Survey

Niagara Boundary, a professional land surveyor licensed in the State of New York, will complete a historical review of publicly available records including, the submission of a Freedom of Information Law (FOIL) request to the Army Corps of Engineers to obtain any documents related to the straightening of the Buffalo River. Additionally, a review of available records including but not limited to former ExxonMobil site plans, deeds, title records, and abstracts for the Site will be conducted.

Once the historical review is completed and the boundaries of the former river channel are determined, Niagara Boundary will complete an on-site survey to mark out the northern and southern river boundaries for reference during the investigation. A Figure will be created detailing the river channel alignment and proposed new monitoring well locations. This figure will be submitted to the NYSDEC for review prior to the start of subsurface work.

Subsurface Investigation

LaBella shall install approximately 10 test borings (WA-1 through WA-10) within the area of investigation using direct-push drilling equipment to delineate the extent of deep NAPL. Soil borings will be advanced as illustrated in Figure 2. Boring locations were determined using the Product Occurrence During Soil Boring Program Figure 9 from the NYSDEC approved Hydrogeological Investigation completed in July 2021. Four borings will be advanced to the north of the channel, four borings to the south of the channel, and two borings will be advanced within the former river channel. The two borings completed within the river channel will be converted into permanent monitoring well locations (ESCP-MW-9 and ESCP-MW-10) and will be flush-mounted with a traffic-rated protective cover. It is anticipated that the soil borings will be advanced to an average depth of 35-40 ft. bgs. The soil boring program will establish the limits of deep NAPL and will be supervised and recorded by a qualified scientist or geologist. Once the limits of deep NAPL have been defined in each direction, drilling will cease. If encountered, a discrete sample of potential deep NAPL will be collected and analyzed for specific gravity and petroleum hydrocarbon identification analysis. After completion of the soil boring program a Figure and boring logs will be submitted to the NYSDEC for review.

The following methods will be utilized during this subsurface investigation:

- Utility clearance via *Dig Safely NY* will be accomplished within the area of investigation prior to the initiation of intrusive work;
- Each soil 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 five ft. long macro-core sampler;
- Soil retrieved from the soil borings will be screened in the field for visible impacts, olfactory indications of impacts, and/or indication of detectable VOCs with a photo-ionization detector (PID);
- Soil 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 impacts 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 GWETS 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 the remaining spoils will be drummed for off-site disposal at an approved facility;
- All borings will be restored at the surface with grout or cold patch.
- Each soil boring 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.

Monitoring Well/Piezometer Installation

As shown on Figure 2, three soil borings will be converted into new monitoring wells (ESCP-MW-9, ESCP-MW-10, and ESCP-MW-11). Prior to the placement of the new monitoring wells, a review of boring logs will be completed to determine which soil borings are located within the former Buffalo River channel and identify areas where NAPL or grossly contaminated soils were encountered. New monitoring wells will be placed in areas within the former channel and where NAPL was identified below the water table. The proposed monitoring well 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)	Sump (feet)
ESCP-MW-9	4	Schedule 40 PVC	Cont.-Slot (Vee-Wire) PVC	0.020	20.0	20.0-40.0	40 – 45	5
ESCP-MW-10	4	Schedule 40 PVC	Cont.-Slot (Vee-Wire) PVC	0.020	20.0	20.0-40.0	40 – 45	5
ESCP-MW-11	4	Schedule 40 PVC	Cont.-Slot (Vee-Wire) PVC	0.020	20.0	20.0-40.0	40 – 45	5

Table Notes:

1. PVC: polyvinyl chloride;
2. PVC casing 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);
3. All casing and screen will be proved with flush-threaded joints; and
4. 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.

Also shown on Figure 2 are previous soil boring locations from the 2021 Hydrogeological investigation. Several of these former soil boring locations will be identified as points to install monitoring wells (of same construction above) for the monitoring of the previously identified LNAPL. The number and exact location of the future monitoring wells will be determined at the conclusion of the survey of the former river channel and the findings of the now proposed soil borings in this area. Immediately, it would be requested to convert soil borings CSO-SB-17 and CSO-SB-8 to monitoring wells.

Rotary drilling methods (i.e., hollow stem augers) will be used to convert WA-1, WA-9, and WA-10 into permanent monitoring well locations. Boreholes will be advanced to a depth of approximately 40 or 45 ft. bgs. or until bedrock is encountered. If suspected dense non-aqueous phase liquid (DNAPL) is found to be present of sufficient volume, discrete samples will be collected and analyzed for specific gravity and fingerprinting analysis.

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 groundwater extraction and treatment system (GWETS) for treatment. Auger spoils will be containerized for off-site disposal at an appropriately permitted disposal facility.

Upon completion of drilling, the sump, screen, and casing will be assembled and concentrically placed, centered, and plumbed within the borehole. The filter pack will be constructed around the sump and screen by filling the annular space between the screen and wall of the borehole over the selected screened interval to a minimum of one foot above the top of the screen. After the filter pack has been installed, a minimum of two-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 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.

Development and Redevelopment of Monitoring Wells and Piezometers

Following installation, new monitoring wells ESCP-MW-9, ESCP-MW-10, and ESCP-MW-11 will be developed in accordance with ASTM D5521/D5521M (Standard Guide for Development of Groundwater Monitoring Wells in Granular Aquifers). Additionally, existing perimeter monitoring wells located along the OU-3 western boundary (MW-3, SB-37, ESCP-MW-7, and ESCP-MW-8), and existing product recovery wells/piezometers CSO-PZ-1, CSO-PZ-2, and ESCP-CSO-MW-4 will be redeveloped due to sediment build up identified during monthly/yearly gauging events. A pump will be used to finalize the development process to desired parameters. Development water will be containerized and transported to the OU-3 GWETS for processing.

Following their development, ESCP-MW-9, ESCP-MW-10, and ESCP-MW-11 will be gauged weekly for one quarter for the following data: depth to product, depth to water, and the sump of the well will be gauged to determine if any deep NAPL has been collected within the sumps. Data collected during this period will be included within the monthly gauging program. After one-quarter of weekly monitoring is completed, ESCP-MW-9, ESCP-MW-10, and ESCP-MW-11 will be added to the current Monthly Gauging program currently implemented at the Site which includes MW-3, SB-37, ESCP-MW-7, and ESCP-MW-8. Should these new wells have observed, recoverable product, they will be added to the monthly product recovery effort in the Western Area of OU-3.

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 during the drilling program. The monitoring of VOCs and particulates will also be performed pursuant to the Community Air Monitoring Plan (CAMP) contained within the SMP for OU-3. Should any exceedances of CAMP action levels occur the NYSDEC and NYSDOH will be notified, and corrective measures will be implemented within a 24-hour period. Daily Field Reports with associated air monitoring data will be submitted to the NYSDEC on a weekly basis.

Reporting

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

- Stratigraphy of fill/overburden encountered- including a clay topographic map
- Horizontal and vertical extent of gross petroleum contamination
- A figure to depict the presence/absence and distribution of liquid-phase petroleum
- Groundwater contour map of the area
- Survey of wells/soil borings
- Sampling results, if submitted

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

Schedule

ESCP has targeted the month of late September/early October 2024 for the mark-out of the former River channel and well installations. We anticipate that it will require three weeks to perform these tasks.

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

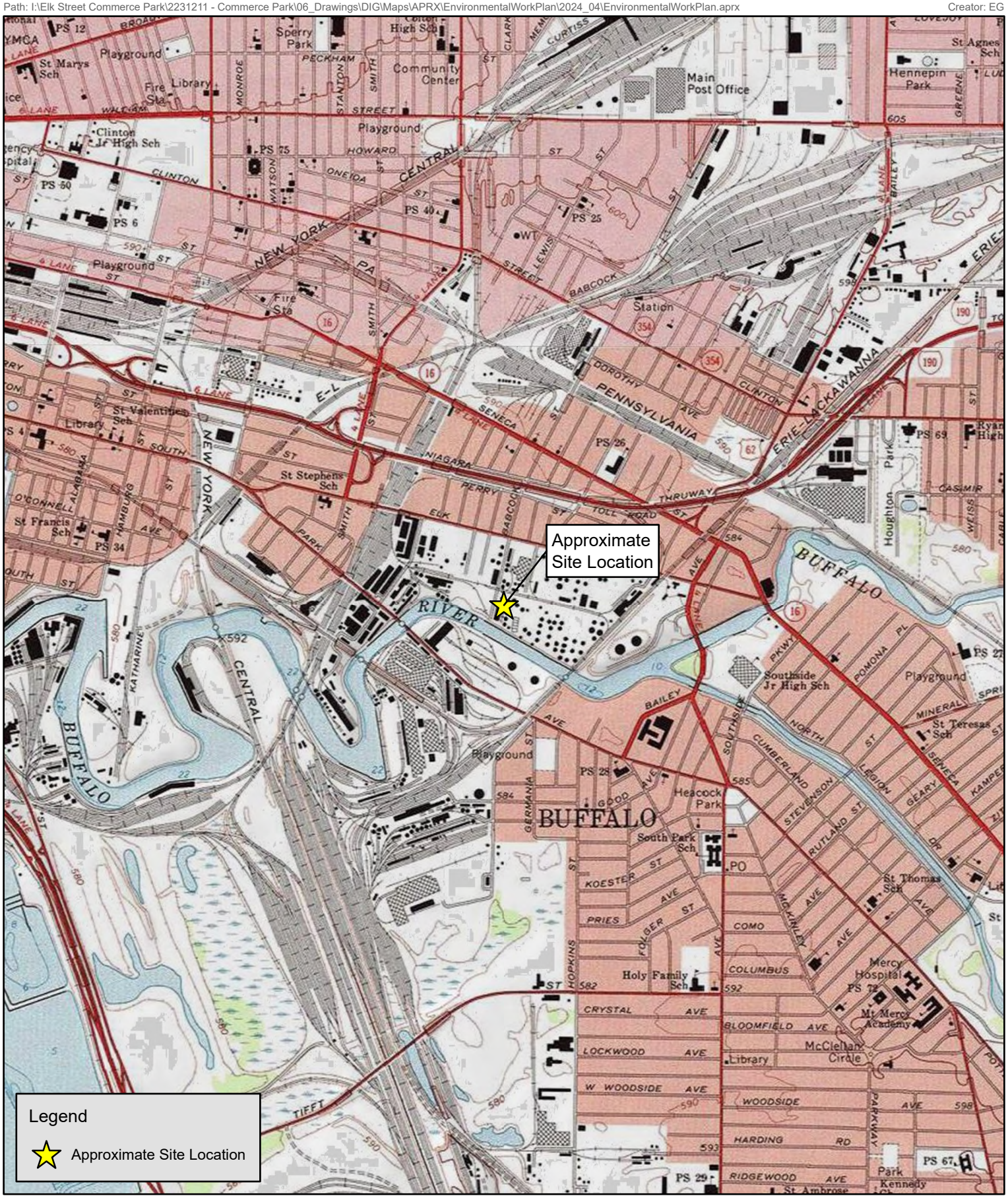
Respectfully submitted,

LaBella Associates

Andy Janik, PG
Project Manager

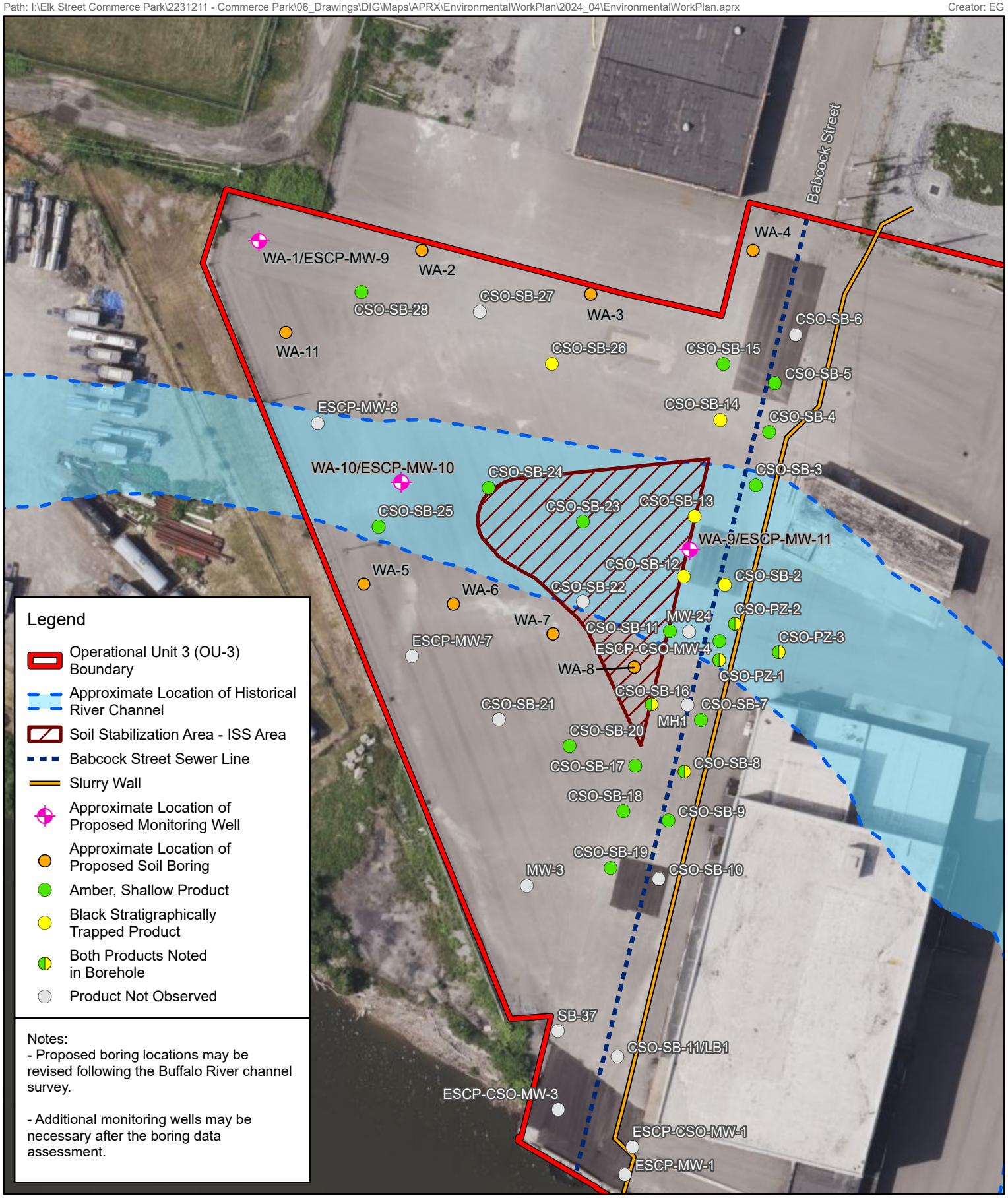
eCC: Chad Staniszewski, P.E., Assistant Regional Director, NYSDEC
Andrea Caprio, P.E., Regional Remediation Engineer, NYSDEC
Eugene Melnyk, P.E., Project Manager, NYSDEC
Sara Bogardus, Public Health Specialist II, NYSDOH Albany
Shaun Surani, Public Health Specialist, NYSDOH Albany
Paul Neureuter, Elk Street Commerce Park, LLC
Krista Manley, Buckeye Terminals, LLC
Robert Napieralski, LaBella Associates
Matt Pearson, Elk Street Commerce Park, LLC

FIGURES



PROJECT # / DRAWING # / DATE:	DRAWING NAME:	PROJECT:	
2231211 **Figure 1** 4/19/2024	Site Location Map	Environmental Work Plan 503, 625 Elk Street and 1 Babcock Street Buffalo, New York	LaBella Powered by partnership.

Data Source: LaBella 2024, USGS, National Geographic, i-cubed 2019



Legend

- Operational Unit 3 (OU-3) Boundary
- Approximate Location of Historical River Channel
- Soil Stabilization Area - ISS Area
- Babcock Street Sewer Line
- Slurry Wall
- Approximate Location of Proposed Monitoring Well
- Approximate Location of Proposed Soil Boring
- Amber, Shallow Product
- Black Stratigraphically Trapped Product
- Both Products Noted in Borehole
- Product Not Observed

Notes:
- Proposed boring locations may be revised following the Buffalo River channel survey.

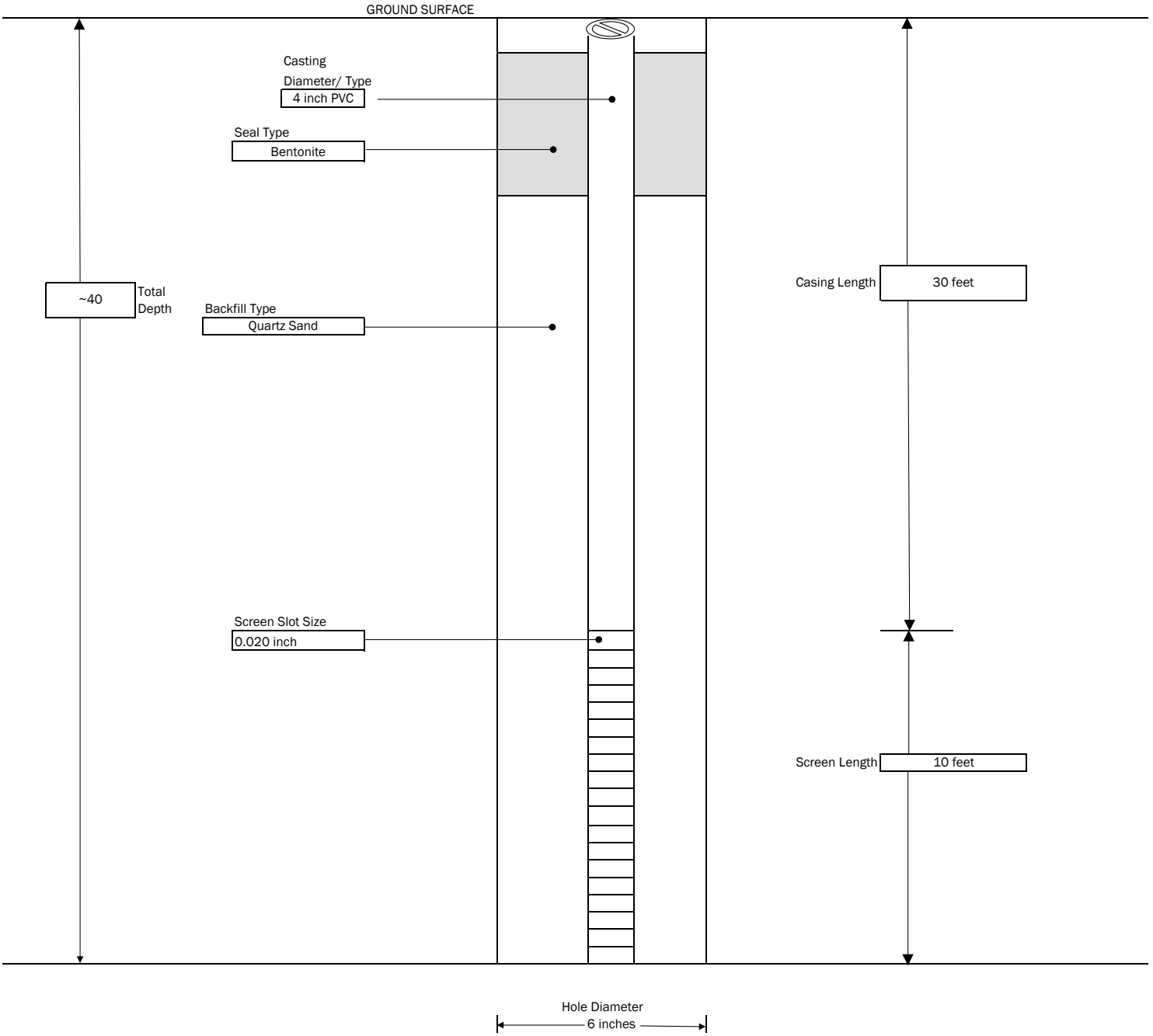
- Additional monitoring wells may be necessary after the boring data assessment.

PROJECT # / DRAWING # / DATE:	DRAWING NAME:	PROJECT:	
2231211 **Figure 2** 8/21/2024	OU-3 Western Area Supplemental Investigation Proposed Well and Soil Boring Locations	Elk Street Commerce Park 503, 625 Elk Street and 1 Babcock Street Buffalo, New York	N 0 25 50 Feet LaBella Powered by partnership.

Data Source: Bing Maps; LaBella, 2024; Regrid 2023.

ATTACHMENTS

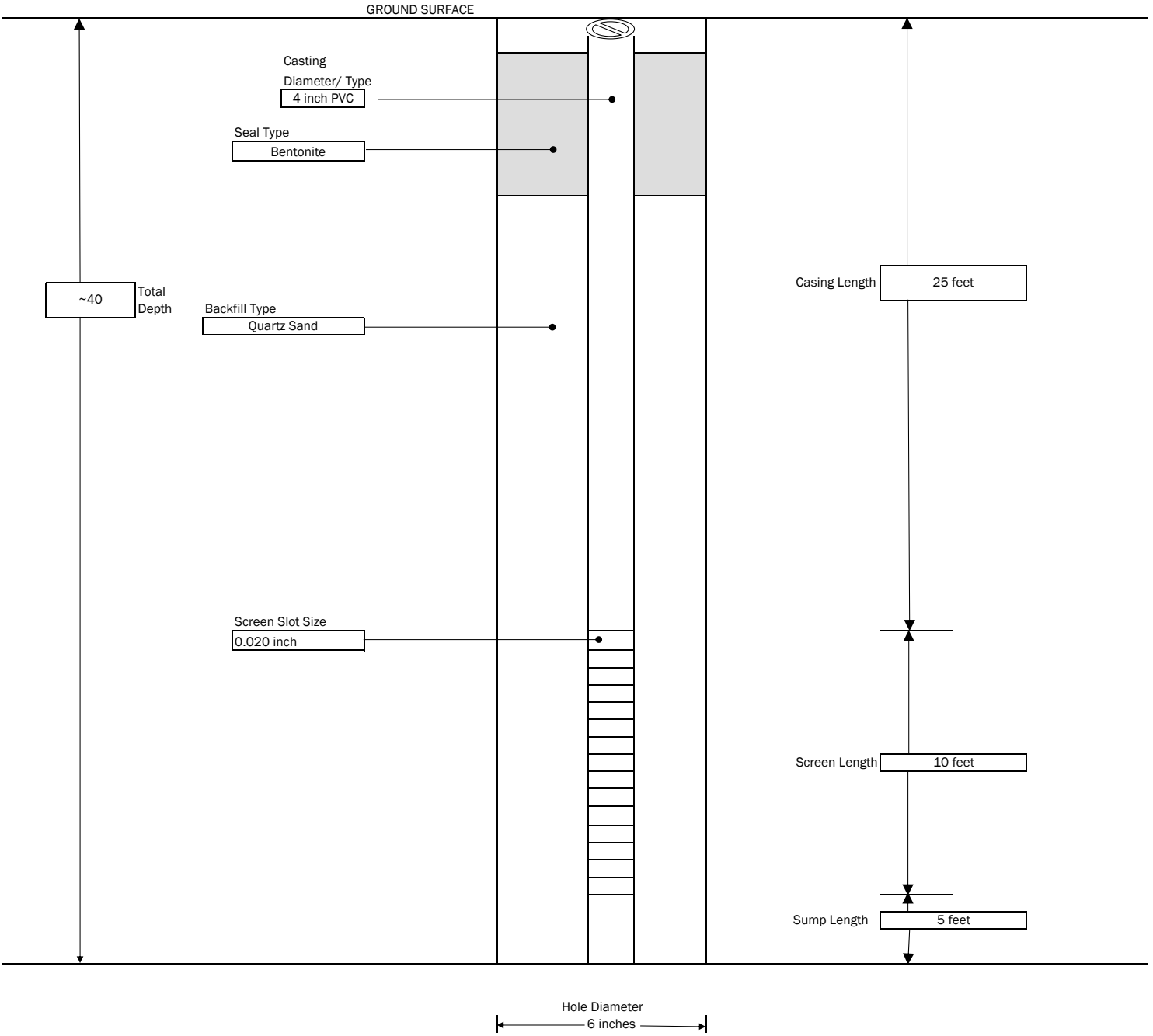
LaBella Powered by partnership. 300 PEARL STREET, BUFFALO, NEW YORK ENVIRONMENTAL ENGINEERING CONSULTANTS	**PROJECT** Elk Street Commerce Park Western Area Investigation 1 Babcock Street Proposed Monitoring Well Construction Log	**MONITORING WELL :** **BORING LOCATION :** **SHEET** 1 OF 1 **JOB #** 2231211
CONTRACTOR: DRILLER: LABELLA REPRESENTATIVE: A. Janik	START TIME: END TIME: GROUND SURFACE ELEVATION: DATUM:	TYPE OF DRILL RIG: AUGER SIZE AND TYPE: OVERBURDEN SAMPLING METHOD:



GENERAL NOTES:

1) NOT TO SCALE
2) DEPTHS ARE APPROXIMATE

LaBella Powered by partnership. 300 PEARL STREET, BUFFALO, NEW YORK ENVIRONMENTAL ENGINEERING CONSULTANTS	**PROJECT** Elk Street Commerce Park Western Area Investigation 1 Babcock Street Proposed Monitoring Well with Sump Construction Log	**MONITORING WELL :** **BORING LOCATION :** **SHEET** 1 OF 1 **JOB #** 2231211
CONTRACTOR: DRILLER: LABELLA REPRESENTATIVE: A. Janik	START TIME: END TIME: GROUND SURFACE ELEVATION: DATUM:	TYPE OF DRILL RIG: AUGER SIZE AND TYPE: OVERBURDEN SAMPLING METHOD:



GENERAL NOTES:

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2) DEPTHS ARE APPROXIMATE