PERIODIC REVIEW REPORT (2020)
BALDWIN PLACE SHOPPING CENTER
NYSDEC SITE NO. 360023

WORK ASSIGNMENT NO. D009809-10

Prepared for:

New York State Department of Environmental Conservation
Albany, New York

Prepared by:

MACTEC Engineering and Geology, P.C.
Portland, Maine

MACTEC: 3616206104

FEBRUARY 2021

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

1,2-DCE	dichloroethene
EC	engineering controls
GWETS	groundwater extraction and treatment system
IC	institutional controls
LMSE	Lawler, Matusky, & Skelly Engineers
LTM	long term monitoring
MACTEC	MACTEC Engineering and Consulting, PC or MACTEC Engineering and Geology, P.C.
MTBE	Methyl-tert-butyl-ether
µg/L	micrograms per liter
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York Department of Health
PCE	tetrachloroethene
POET	Point of Entry Treatment
PRR	Periodic Review Report
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
Site	Baldwin Place Shopping Center site
SM	Site Management
SMP	Site Management Plan
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

EXECUTIVE SUMMARY

The Baldwin Place Shopping Center (now Somers Commons) is a 28.5-acre parcel located at 80 U.S. Route 6 in the Town of Somers, Westchester County, New York (Site No. 360023; herein referred to as the Site). The Site is currently listed as a Class 4 site in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program which is administered by the NYS Department of Environmental Conservation (NYSDEC). The Site consists of a multi-structure shopping plaza and surrounding parking lots. The Site is zoned commercial and is currently utilized by commercial/retail businesses.

The Baldwin Place Shopping Center was constructed in 1965 and a dry-cleaning establishment operated at the Site from the center's construction until November 1991 (Lawler, Matusky & Skelly Engineers [LMSE], 1995). In 1979, the Westchester County Health Department discovered dry cleaning chemicals and their breakdown products (tetrachloroethene [PCE], trichloroethene [TCE] and 1,2-dichloroethene [1,2-DCE]) in the mall's two bedrock water supply wells (PW-1 and PW-2). Subsequently, two offsite areas including the commercial area along Route 6 to the west, and part of the Meadow Park Road community to the southeast were impacted by Site-related contaminants. The original building in which the dry cleaner resided no longer exists; the Site was a mostly vacant shopping center in the early 2000's, when it was demolished to make way for the current shopping center (Somers Commons) located on the property.

Several investigation activities have been conducted at the Site including a Remedial Investigation/Feasibility Study (RI/FS) which resulted in a Records of Decision (ROD) (Vincent Uhl & Associates, 1994; NYSDEC, 1995) specifying the removal of contaminated soils from the Site (NYSDEC, 1995) and remediation of the groundwater. After removal of contaminated soils, some contamination was left at the Site, hereafter referred to as "remaining contamination" which required engineering controls (ECs) (NYDSEC, 1995). The ECs for the Site currently include a groundwater extraction and treatment system (GWETS) (Plant 1) and a six-foot chain link fence restricting access to Plant 1. Associated activities to the ECs include groundwater monitoring via the on-Site network of groundwater monitoring wells and soil vapor intrusion monitoring of Building 6 (i.e., the "Home Goods" store) of Somers Commons. Previous ECs included operation and maintenance of point of entry treatment (POET) systems for residential and commercial water supply wells and/or the

development of a new water district until the regional municipal system became available in the area in November 2001. Institutional controls (ICs) were established via a deed restriction to ensure continued operation of the ECs associated with the Site and to control exposure to remaining contamination to ensure protection of public health and environment (Westchester County, NY, 2015).

Remedial goals outlined in the ROD for the Site are to prevent direct contact with contaminated soil and/or groundwater, restore groundwater quality to acceptable levels within a reasonable time frame, and to prevent contaminated groundwater from migrating off-Site. In accordance with the Site Management (SM) Plan Revision 1 (MACTEC Engineering and Consulting, P.C. [MACTEC], 2016), current SM requirements for monitoring the performance and effectiveness of the remedial measures completed at the Site consist of monthly operation and maintenance (O&M), Site inspections, and environmental long-term monitoring (LTM).

This Periodic Review Report (PRR) summarizes SM activities completed at the Site from April 4, 2020 to December 31, 2020 and evaluates the effectiveness of the remedial actions. Previously, the PRR included SM activities annually from April to April. Per NYSDEC's request, the 2020 and future PRRs will be submitted by calendar year (January to December). Activities conducted at the Site between April 2020 and December 2020 include monthly remedial system inspections, monthly sampling of the recovery wells, and LTM activities. Additionally, per request by the NYSDEC, MACTEC attempted to collect groundwater samples from two off-Site public water supply wells for emerging contaminants per- and polyfluoroalkyl substances and 1-4 Dioxane. This additional sampling was not completed as property access was not granted. During the reporting period, SM requirements were met. MACTEC concludes that the remedy for the Site is appropriate.

1.0 SITE OVERVIEW

1.1 SITE HISTORY AND DESCRIPTION

The Baldwin Place Shopping Center (now Somers Commons) site (Site No. 360023; herein referred to as the Site) is located at 80 U.S. Route 6 in the Town of Somers, Westchester County, New York, (Figure 1.1). Per the Record of Decision (ROD) (New York State Department of Environmental Conservation [NYSDEC], 1995), the Site is an approximately 28.5-acre property bounded by Route 6 and Tomahawk Street to the north, vacant forested land to the south, a rail- trail and residential property to the east, and Clayton Boulevard and an apartment complex to the west. A Deed Restriction is in place for 1.6 acres of the east central portion of the property referred to as Unit# 6 (Figure 1.2). This Deed Restriction requires adherence to the Site Management Plan and includes a prohibition for use of the property for residential purposes, use of groundwater without proper treatment, and a provision to provide a periodic certification that states compliance with the institutional controls.

A dry-cleaning facility operated at the site from approximately 1965 through 1991 and operations reportedly resulted in discharges of tetrachloroethene (PCE) to the ground surface. The original structure where the contaminant release occurred no longer exists; the Site was a mostly vacant shopping center in the early 2000's, when it was demolished to make way for the current shopping center (Somers Commons) located on the property.

Following the closing of the dry cleaners, point of entry treatment (POET) systems were installed at nearby private residences affected by groundwater contamination. In 1989 the Site was listed on the NYSDEC Registry of Inactive Hazardous Waste Disposal sites and subject to environmental investigation and remedial action.

A remedial investigation (RI) was conducted at the Site in August of 1994 by Vincent Uhl & Associates (Vincent Uhl & Associates, 1994). A Feasibility Study (FS) was completed in June of 1995 by LMSE, 1995. From those reports, the NYSDEC issued a ROD in 1995 specifying the removal of contaminated soils from the Site (NYSDEC, 1995) and remediation of the groundwater. The soil excavation was completed in 1997 followed by the construction of a source area groundwater extraction and treatment system (GWETS) in 1998 (Plant 1). As part of the remedy, a

water distribution system was constructed at the Site to supply water to the adjacent Meadow Park Road community (Plant 2) in 1999. When the community was subsequently connected to the public water supply in November of 2001, Plant 2 was kept online as a secondary pump and treat system. Both Plant 1 and Plant 2 (Figure 1.2) operated onsite and treated contaminated groundwater through granular carbon vessels. In early 2011, Plant 2 was shut down.

Groundwater extraction and treatment of the source area is currently conducted onsite through the Plant 1 GWETS. The GWETS was built in 1998 and consists of two extraction wells installed within the source area (RW-1S, an overburden well, and RW-2D, an upper bedrock well), subsurface conveyance piping to the treatment building, controls, utility service connections, and an activated carbon filtration treatment system. Treated water is discharged to a nearby drainage ditch under a SPDES Permit Equivalent. Access to Pump House 1 (Plant 1) is restricted by a six- foot chain link fence with locked gates.

1.2 PHYSICAL SETTING

The physical setting of the Site is discussed in the subsections below.

1.2.1 Land Use

The Site consists of a multi-unit shopping plaza with multiple tenants, and surrounding parking lots. The Site is zoned commercial and is currently utilized for commercial use.

The properties adjoining the Site and, in the neighborhood, surrounding the Site consist of primarily commercial and residential properties, including:

- South - vacant properties
- North - commercial properties
- East - residential properties
- West - commercial and residential properties

1.2.2 Geology

The overburden at the Site consists of a sandy silt till and is approximately 60 feet in thickness in the source area. The till is thinnest near the western/northwestern Site boundary and thickens to the

south-southeast. Below the till is a thin mantle of weathered saprolitic granitic gneiss, which is underlain by the fractured granitic gneiss bedrock. The depth to competent bedrock ranges from approximately 11 feet below grade in the western portion of the Site (vicinity of MW-9S) to approximately 100 feet below grade in the eastern/southeastern portion of the Site (Aztech, 2014).

1.2.3 Hydrogeology

The saturated thickness of the till ranges from less than 1 foot along the western edge of the mall, to approximately 75 feet along the eastern portion of the mall. The depth to water in the till ranges from approximately 5 feet below ground surface (bgs) in the southwestern portion of the Site (i.e., at monitoring well MW-2S) to 13 feet bgs just west of the source area (i.e., at monitoring well MW-7S).

Shallow groundwater across the site area is interpreted to flow primarily to the west/ southwest, and bedrock groundwater is interpreted to flow primarily to the southwest. Vertical hydraulic gradients in the source area are in the downward direction (i.e., from the overburden into the fractured bedrock).

Groundwater contours are presented on Figures 2.1 (overburden) and 2.2 (bedrock). Groundwater elevation data is provided in Table 2.1.

1.3 REMEDIAL GOALS AND REMEDIAL PROGRESS

Remedial goals, outlined in the ROD, for the Site are to prevent direct contact with contaminated soil and/or groundwater, restore groundwater quality to acceptable levels within a reasonable time frame, and to prevent contaminated groundwater from migrating off-Site.

1.3.1 Record of Decision

NYSDEC listed the Site as an Inactive Hazardous Waste Site (ID No. 360023) in 1987. Big V Supermarkets, the responsible party, entered into an Order on Consent with the NYSDEC in September 1991, where as part of an Interim Remedial Measure undertaken prior to issuance of the ROD, they installed new POET systems and/or assumed maintenance and operation of existing POET systems for the water supplies of commercial and/or residential properties impacted with site-

related volatile organic compounds (VOCs). An RI/FS was subsequently completed to address the soil and groundwater contamination. On November 9, 1995, the NYSDEC issued the ROD which required the following actions to remediate the presence of PCE and related compounds at the Site:

- Excavation of source area contaminated soils to remove the source of contamination to the groundwater.
- Groundwater treatment in the source area. A groundwater pump and treat system (Plant 1) was installed in proximity to the source area to capture vertical and horizontal flow from within and around the source area as well as to capture contaminants that might leach into the groundwater from any residual contaminated soil left in place after the excavation and thereby prevent further contamination of the underlying bedrock aquifer.
- Supply potable water to 19 residences on Meadow Park Road. This was accomplished by developing a new water district that derived its water supply from the two water supply wells associated with the former shopping center and treating that water with granular activated carbon (GAC) prior to distribution to the 19 residences. That water supply would later become known as "Plant 2".
- Maintain POET systems along US Route 6. This would be accomplished by continuing maintenance and operation of individual POET systems installed on commercial and/or residential properties located along US Route 6. Use of these POET systems would continue until groundwater quality is restored to drinking water standards or, an alternate source of water supply became available. Additionally, any future wells along Route 6 that became impacted by site-related VOCs in excess of drinking water standards would be equipped with a POET system.
- Connection to alternate water supply. Each of the residences and/or commercial establishments equipped with POET systems would be connected to the regional municipal system when it became available.

1.3.2 Remedial Actions

Big V Supermarkets assumed responsibility for implementing remedial actions required by the ROD until August 6, 2003, when liquidation of their assets under a bankruptcy proceeding terminated their funding of remedial efforts. NYSDEC has assumed direct responsibility for the continued implementation of the ROD since that time.

Source Removal

Source removal was conducted in February 1997 and involved excavation of shallow soil from above the footers of the former building foundation and installation of sheet piling to facilitate the excavation of impacted soils at depth. Altogether, approximately 135 cubic yards of source area soil (236 tons) to a depth of 16 feet below ground surface was removed. In 2015, contamination was detected directly beneath the previously excavated source area.

Potable Water Supply – Meadow Park Road

The community water supply system for the Meadow Park Road residences was constructed in 1998 and began operating in February 1999. This system delivered treated water obtained from the shopping center water supply to 17 of the 19 residences located on Meadow Park Road. These 17 residences in the Meadow Park Road Area were connected to the regional municipal water system when it became available in November 2001 and the connection between the Site's former water supply and Meadow Park Road was terminated. The individual supply wells serving two residences that were not connected into the municipal water system in 2001 were sampled quarterly until 2003, followed by annual sampling in 2004, 2006, and 2007. Analytical results indicated that these two wells were not impacted by VOCs related to the Site, and are therefore sampling was ceased (Aztech, 2014).

The Site's former water supply wells continued operation as a groundwater pump and treat system (Plant 2) until 2011 when operation of Plant 2 was suspended. Plant 2 was recommended for decommissioning in a 2014 Remedial System Optimization (RSO) completed by MACTEC Engineering and Geology (MACTEC) and has since been decommissioned/demolished.

2.0 EVALUATION OF REMEDY PERFORMANCE, EFFECTIVENESS AND PROTECTIVENESS

The Site Management Plan (SMP) for the Site includes an institutional controls/engineering controls (ICs/ECs) Plan, Operation and Maintenance (O&M) Plan, Long Term Monitoring (LTM) Plan, and associated reporting (MACTEC, 2016). Site Management (SM) requirements are summarized in Table 2.1.

This Periodic Review Report (PRR) documents the SM activities conducted from May 2020 to December 2020:

- Synoptic groundwater measurements: July
- LTM Activities: August
- Site Inspections: August
- Remedial System Inspections: Monthly (except June)

SVI monitoring is an existing EC for Unit #6 (Home Goods), however this monitoring is completed every three years, and not included withing the timeframe of the 2020 PRR. SVI sampling was last completed in January 2020 (Aztech, 2020a). Other Activities conducted during the reporting period included:

- An attempt was made to collect samples from two off-Site public water supply sources for emerging contaminant analysis. This additional sampling is described in Subsection 2.4.1 below.
- In October 2020, MACTEC provided a 2020 Project Review with the NYSDEC to discuss the status of the Site and a 2021 RSO Evaluation. This is described in Section 4.0 below.

This PRR was completed using Site-specific documentation, which includes:

- ROD (NYSDEC, 1995)
- SMP (MACTEC, 2016)
- Deed Restriction (Westchester County, NY, 2015)
- Aztech Quarterly Inspection Reports (Aztech, 2020a; Aztech, 2020b; Aztech, 2021)
- 2020 LTM and Site Inspection Report, (MACTEC, 2021)

This PRR was prepared to document that established controls required by the SMP are operational and effective, that the SMP is being implemented and conducted accordingly, and that the remedy remains protective of the environment and/or public health. SM activities were completed during the

reporting period and an evaluation of the performance, protectiveness, and effectiveness of the remedy is summarized below.

2.1 INSTITUTIONAL CONTROLS/ENGINEERING CONTROLS

Contaminated soil and groundwater exist beneath the ground surface; therefore IC/ECs are required to protect human health and the environment. ICs were established via a deed restriction in order to (1) ensure access to the Site for the unimpeded operation of the EC systems (ground water collection system); (2) restrict future residential use of the Site; and (3) restrict future use of the groundwater. These measures help ensure that the remedy remains protective in the future. The ICs for the Site include the ROD, Deed Restriction and Site Management Plan.

ECs for the Site include a GWETS (i.e., Plant 1) which is comprised of two extraction wells installed within the source area (RW-1S, an overburden well, and RW-2D, an upper bedrock well), subsurface conveyance piping to Plant 1, controls, utility service connections, and the Plant 1 activated carbon filtration treatment system. Groundwater is treated prior to discharge to a nearby drainage ditch under a SPDES Permit Equivalent. Access to Pump House 1 (Plant 1) is restricted by a six- foot chain link fence with locked gates (Figure 2.1).

During the reporting period, the treatment system was inspected monthly (except for June due to budget restrictions). ECs were determined to be in place and functioning as intended with the exception of the following:

- The system was off-line in August due to an area wide power outage.
- Issues with the pump in RW-1S caused the well to be off-line in August and September 2020.
- The pump in RW-1S was removed from the well in December and was determined to need replacement.

A comprehensive Site inspection was conducted by MACTEC on August 6, 2020 which included an evaluation of the visible components of Plant 1.

2.2 OPERATIONS & MAINTENANCE

Monthly Site visits have been conducted by Aztech Environmental Technologies during this 2020 reporting period, except for June 2020. In accordance with the SMP, the Site visits include monitoring of the flow rate and water levels in extraction wells RW-1S and RW-2D as well as pressure differential across the bag filter units and carbon vessels. Visual inspection of the remedial system shed & components, condition/cleanliness of the shed and surrounding area, and routine maintenance are also conducted as needed.

2.2.1 Inspection & Monitoring

During the reporting period, system monthly (except June) operation and maintenance inspections were performed in accordance with the SMP. Routine activities included collection of GWETS performance monitoring samples from RW-1S and RW-2D combined influent, mid carbon treatment, and effluent sample ports for analysis of VOCs by USEPA method 8260, as well as bag filter changes (except where noted below). A summary of other maintenance activities conducted, and observations documented during the Site inspections are described below:

- April 2020
    - Submersible pump from RW-2D was cleaned.
    - Pressure reducing fittings were loosened in Plant 1 to increase flow, however the attempt wo increase flow was unsuccessful.
    - The system was restarted after the completion of maintenance activities and fully operation upon departure.
- May 2020
    - Flow meter in RW-2D was cleaned.
    - An attempt to increase the flow rate for RW-2D was made but was unsuccessful; therefore, the system was reset to its original settings.
- July 2020
    - A leak was detected in the sump of RW-2D and the well was shut down until it could be repaired.

- August 2020
    - The system was not operational due to a power outage (8/6/2020). Aztech staff mobilized to the Site to restart the system, but electrical service to the entire Somers Commons Site was down.
    - The system was restarted remotely (8/11/2020).
    - The leak in the sump of RW-2D, discovered during the previous Site visit, was repaired.
    - The system was restarted after the completion of maintenance activities and fully operation upon departure.
- September 2020
    - System operating with only RW-2D.
    - System was restarted and fully operational upon departure.
- November 2020
    - RW-1S and RW-2D were cleaned and inspected.
    - Debris, found clogging the pump in RW-2D, was removed.
    - The system was restarted after the completion of maintenance activities and fully operation upon departure.
- December 2020
    - RW-1D was found to need a new pump and motor and was shut off and remained offline through the end of 2020.
    - New flowmeter was installed in RW-2D.
    - Although RW-1S was not operational, the system was operational with RW-2D upon departure.

<u>System Performance Sampling Results:</u>

Performance sample results identified Site-related VOCs in both recovery wells during each monthly sampling event. PCE was the compound identified at the highest concentration (up to 5,200 µg/L in well RW-1S and 7,800 µg/L in well RW-2D). A summary of the O&M analytical results for wells RW-1S and RW-2D obtained by Aztech for this reporting period are presented in Appendix A-1.

VOC results from system effluent samples (Appendix A-1) collected from Plant 1 during the 2020 reporting period were consistently below the analytical laboratory reporting limit (1.0 µg/L per compound). As such, the laboratory analytical results indicate that the treatment and discharge of

groundwater captured by Plant 1 is effective and protective of human health and the environment. Therefore, the GAC treatment is effectively removing Site-related VOCs present in the groundwater extracted via wells RW-1S and RW-2D prior to its discharge into the unnamed stream adjacent to the eastern side of the Site.

During the reporting period, a total of 266,601 gallons of groundwater were treated through the GWETS at Plant 1. Total contaminant mas removed from April to December 2021 is estimated to be 11.29 lbs. Total run time hours are estimated due to power outages and system resets during this time. Plant 1 Operational Data is presented in Appendix A-2.

2.3 LONG TERM MONITORING

The LTM program described in the SMP includes groundwater elevation monitoring, monitoring well inventory and repair, groundwater sampling and analysis, and soil vapor intrusion monitoring. There are currently 20 groundwater monitoring wells at the Site (Figure 1.2). Since January 2016, ten groundwater monitoring locations, designated as MW-4S, -4D, -5S, -7S, -7D, -8S, -9S, -9D, -12S and -101M, have been sampled at 15-month intervals for VOCs . However, due to the COVID-19 pandemic, LTM activities in 2020 were postponed from June 2020 to July/August 2020. Results of the LTM activities conducted between April and December 2020 are discussed below. The LTM monitoring well locations are shown on Figure 1.2. Table 2.2 summarizes the sampling and analysis plan for all LTM groundwater sampling locations.

2.3.1 Groundwater Elevation Monitoring

Groundwater levels were measured in July in 14 of the 20 Site monitoring wells during an initial Site visit.

- Four monitoring wells (MW-12S, MW-5S, MW-4S, and MW-4D were not gauged in July 2020 due to locked stickups. The well keys were obtained during the August 2020 LTM event and these wells were gauged.
- One monitoring well (MW-7S) was located under a vehicle during the July Site visit. This well was gauged during the August LTM event.
- One monitoring well, MW-10D, could not be gauged as the well appeared to be filled with soil.

Groundwater elevations are summarized on Table 2.3. Shallow and deep groundwater potentiometric surfaces are shown on Figure 2.1 and Figure 2.2, respectively.

2.3.2 Monitoring Well Inventory and Repair

Monitoring well conditions were inspected in July 2020 during the synoptic water level round. Site inspection records and photographs taken during the inspections are included in Appendix B-2 and Appendix B-3, respectively. The monitoring wells were observed to be in fair condition (Table 2.4) with the following deficiencies noted:

- Locks are needed on monitoring wells MW-2S and MW-2D.
- Bolts are needed on monitoring wells MW-3D, MW-3DD, MW-7D, MW-12S1 and MW-12M.
- A cap is needed on monitoring well MW-8S.

2.3.3 Environmental Sampling and Analysis

The LTM program includes collection of groundwater samples from 10 monitoring wells. Groundwater samples were collected using low flow techniques with a peristaltic pump from nine monitoring wells. Monitoring well MW-9D was sampled using a disposable bailer to limit the amount of time within the parking lot throughway per NYSDEC approval. Samples were submitted to Test America Laboratory in Buffalo, NY for analysis of VOCs by United States Environmental Protection Agency (USEPA) Method 8260. After sampling, passive diffusion bags were installed in the wells for collection during the next LTM event per the SMP. Field Data Records (FDRs) from this event are included in Appendix B-1.

Compounds detected in groundwater were tabulated and compared to the New York State (NYS) Class GA groundwater (GA) standards (NYS, 1999) and NYS Guidance Values (GV). Results for compounds detected in one or more groundwater samples are discussed below and presented in Table 2.5.

- PCE and/or its degradation products, trichloroethene (TCE), 1,2-dichloroethene (DCE), and/or Vinyl Chloride (VC) were detected at or above the GA standard in six of the ten monitoring wells sampled.
    - The highest PCE detection, 4,400 micrograms per liter (µg/L), was from monitoring well MW-12S, located immediately downgradient of the source area.

- Methyl tert-butyl ether (MTBE) was detected below the GV limits in samples from two monitoring wells (MW-4D and MW-9D). However, MTBE is not a Site COC, is historically found north and hydraulically upgradient of the site due to fuel spills at multiple gas stations along Route 6 (1998 Engineers Report prepared for the Water Supply Application for Baldwin Place Mall [Lawler, Matusky & Skelly, 1998]), and is believed to be the result of a separate source.
- VOCs were not detected in groundwater samples from two monitoring well locations upgradient of the source area (MW-4S and MW-8S).

PCE concentrations were observed in shallow, intermediate, and deep wells with the highest concentrations in the intermediate overburden well (MW-12S). PCE was detected in the shallow bedrock well (MW-9S), however it was not detected in the deeper bedrock wells. PCE degradation products, 1,2-DCE, and VC, were observed in shallow, intermediate and deep wells with the highest concentrations in intermediate to deep wells MW-7D and MW-101M. The presence of the degradation products indicates that the primary contamination, PCE, is being degraded in the sub-surface, likely through biological processes.

The interpreted PCE plume flows west from monitoring well MW-12S toward monitoring well MW-9S (Figure 2.3). Time series plots showing concentrations of PCE in select overburden monitoring wells MW-5S (within the source area), MW-12S (immediately downgradient of the source area), and MW-9S (further downgradient) are included in Appendix C. Since the implementation of the GWETS, PCE concentrations have declined, and have remained relatively consistent in recent years.

2.4 ADDITIONAL SITE ACTIVITIES

Additional Site activities conducted in 2020 are described below.

2.4.1 Emerging Contaminant Sampling

At the request of the NYSDEC, MACTEC attempted to collect water samples from two off-Site public water supply wells on October 23, 2020 for the emergent contaminants per- and polyfluoroalkyl substances and 1-4 Dioxane. However, the property owner requested further documentation from the New York Department of Health (NYSDOH) before sampling can be

completed. This information was communicated to the NYSDEC, and MACTEC is awaiting further direction.

2.4.2 Project Review

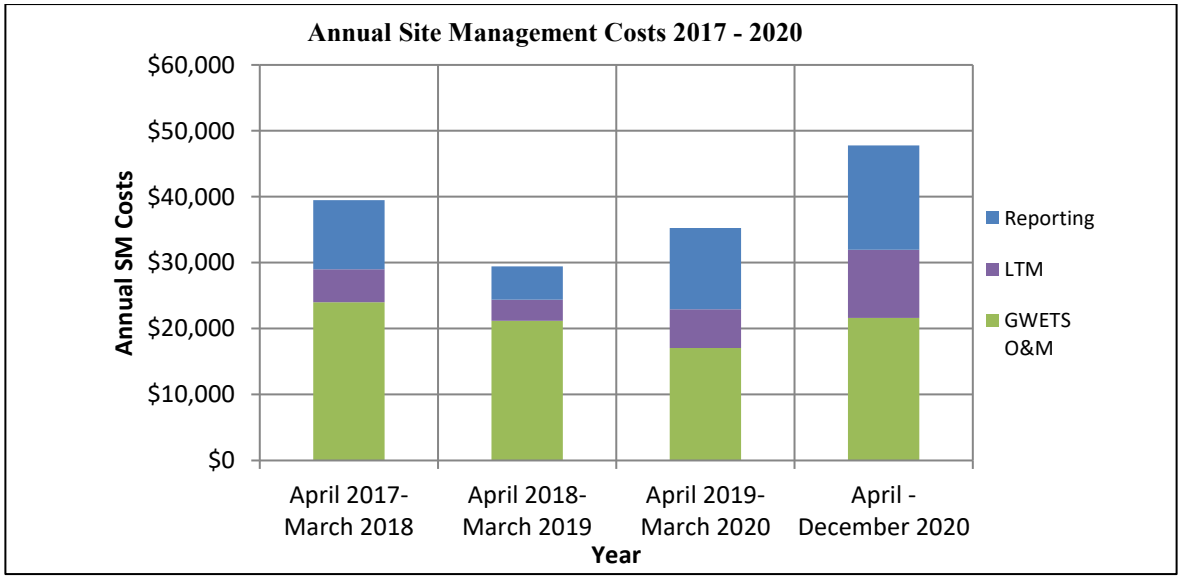
In October 2020, MACTEC provided a 2020 Project Review to NYSDEC and discussed the status of the Site and a potential 2021 RSO Evaluation. Options for additional investigation were discussed, and MACTEC recommended collecting soil samples at the limits of the former remediation excavation to evaluate if there is a residual source of PCE that could be contributing to groundwater contamination. A scope of work will be submitted to the NYSDEC, and RSO evaluation activities will be conducted in the Spring of 2021.

3.0 EVALUATION OF COSTS

A cost summary for the reporting period is provided below. As shown, most of the SM costs for the reporting period were incurred for operation and maintenance of the GWETS. Costs per pound of PCE for this reporting period are approximately $888.

2020 Annual Site Management Cost Breakdown	
GWETS OM&M	
Aztech Reported Costs	$21,605
	$21,605
LTM	
Labor, Lodging, Travel, and shipping	$9,406
Laboratory Services*	$1,306
	$10,352
Reporting, including PRR	
Aztech Reported Labor	5,167
MACTEC Labor	10,644
	$15,841
Annual Total:	**$47,789**

NOTES:
*NYSDEC direct expense



Notes:
2017-March 2020: Costs obtained from Aztech PRRs
2017-2018: LTM Costs include Soil Vapor Sampling
2019-2020: LTM Costs include Soil Vapor Sampling and Emergent Contaminant Sampling
2020: Reporting Costs include LTM & Site Inspection Report, Quarterly Reports (Aztech), and PRR

4.0 CONCLUSIONS AND RECOMMENDATIONS

Current SM activities being conducted at the Site are in compliance with the requirements of the Site's SMP, and SM activities are effective in monitoring the status of the following remedial goals established in the ROD:

- Prevent exposure to contaminated soil;
- Prevent continued degradation of groundwater quality through migration of PCE and its break down products from soils to groundwater;
- Prevent exposure (inhalation, ingestion, and dermal) to contaminated groundwater;
- Restore groundwater quality (impacted by PCE and breakdown products) to acceptable levels within a reasonable time frame; and
- Prevent migration and discharge of site contaminants in groundwater to adjacent surface water bodies.

Restoration of groundwater quality at the Site is ongoing.

4.1 INSTITUTIONAL CONTROLS/ENGINEERING CONTROLS

The current ICs/ECs are adequate to achieve the objectives for protection of human health and the environment based on current Site use. ICs for the Site via a deed restriction, including (1) ensuring access to the Site for the unimpeded operation of the EC systems (ground water collection system); (2) restricting future residential use of the Site; and (3) restricting future use of the groundwater, remain in-place and adhered to.

ECs for the Site include a GWETS with two extraction wells, subsurface conveyance piping to Plant 1, controls, utility service connections, and the Plant 1 activated carbon filtration treatment system. During the reporting period, ECs were determined to be in place and functioning as intended with the exception of those described in Section 2.1.

4.2 OPERATION AND MAINTENANCE PLAN

The remedial measures in place require routine inspection, sampling, and maintenance to provide effective remediation and reduction of exposure to site-related contaminants. Compliance with procedures and requirements in the SMP was maintained during the reporting period. Site-related VOCs in effluent water samples did not exceed the New York State Class GA Groundwater Standards criteria during the reporting period, thus meeting discharge limits. Quarterly progress reports, generated during the reporting period summarizing GWETS operational and maintenance data, will continue to be generated by Aztech and submitted to the NYSDEC.

4.3 LONG TERM MONITORING PLAN

Monitoring the current condition (location and contaminant concentrations) of the plume is accomplished through the LTM program in accordance with the SMP. Data from the 2020 LTM events continue to show the core of the plume is maintained hydraulically in the vicinity of the Site near MW-12S. Changes in groundwater concentrations and plume movement will continue to be monitored during the 15-month sampling events. The next LTM sampling event will be conducted in November 2021.

4.4 EMERGING CONTAMINANT SAMPLING

At the request of the NYSDEC, MACTEC attempted to collect water samples from two off-Site public water supply wells on October 23, 2020 for the emergent contaminants per- and polyfluoroalkyl substances and 1-4 Dioxane. However, the property owner requested further documentation from the New York Department of Health (NYSDOH) before sampling can be completed.

4.5 SITE MANAGEMENT PLAN

The 2016 SMP directs that the off-Site bedrock monitoring wells in the Meadow Park Road area be sampled every fifth quarter (5/4 sampling). However, these wells were abandoned when the residential properties they serviced were connected to the municipal water system and, therefore, they are no longer available for groundwater sampling. The monitoring schedule, as defined in the SMP, should be revised to reflect this change in the monitoring program for the Site.

The 2016 SMP directs that bi-weekly O&M visits be made to the Site to check its operation and to perform routine maintenance tasks, as necessary. However, monthly (rather than bi-weekly) Site visits have been made during the reporting period reported as directed by the NYSDEC. The SMP should be revised to reflect the current O&M Site visits schedule.

The SMP will be updated after the completion of the RSO evaluation and planned development activities near the contaminant source area. According to Urstadt Biddle Properties, the owner of a portion of the Site, the current development plans are on hold.

4.6 RECOMMENDATIONS

In an effort to continue optimizing system efficiency and remedial progress at the Site, the following are recommended.

4.6.1 Institutional Controls/Engineering Controls

The implementation and evaluation of existing IC/ECs should continue.

4.6.2 Operation And Maintenance Plan

Routine GWETS maintenance should continue in accordance with the SMP. The pump for extraction well RW-1S, which was removed in December 2020, should be replaced as soon as possible to enable the extraction well to be brought back online.

4.6.3 Long Term Monitoring Plan

MACTEC recommends to following activities associated with the LTM:

- Repair eight (8) monitoring wells to maintain integrity, as many of the wells are located within a parking area:
  - Install locks on monitoring wells MW-2S and MW-2D.
  - Replace the bolts on monitoring wells MW-3D, MW-3DD, MW-7D, MW-12S1 and MW-12M.
  - Replace the PVC cap on monitoring well MW-8S.
- Monitoring well MW-10D, could not be gauged during this reporting period as the well appeared to be filled with soil. Further evaluate the structural integrity of the monitoring well network MW-10D and determine whether it requires abandonment or replacement.

4.6.4 Remedial System Optimization Evaluation

MACTEC recommends the completion of an RSO to evaluate methods to reduce the elevated groundwater concentrations in the vicinity of the source area and assess the presence of residual soil contamination contributing to groundwater impact. A scope of work will be submitted to the NYSDEC, and RSO evaluation activities will be conducted in the Spring of 2021.

5.0 REFERENCES

Aztech Technologies, Inc., 2014. Periodic Review Report for the Baldwin Place Mall (Sommers Common). Prepared for NYSDEC.

Aztech Technologies, Inc., 2020a. Periodic Review Report for the Baldwin Place Mall (Sommers Common). Prepared for NYSDEC.

Aztech Technologies, Inc., 2020b. First and Second Quarter 2020 Operating Summary Report – Baldwin Place Shopping Center. Prepared for NYSDEC.

Aztech Technologies, Inc., 2020c. Third Quarter 2020 Operating Summary Report – Baldwin Place Shopping Center. Prepared for NYSDEC.

Aztech Technologies, Inc., 2021. Fourth Quarter 2020 Operating Summary Report – Baldwin Place Shopping Center. Prepared for NYSDEC.

Lawler, Matusky & Skelly Engineers (LMSE), 1995. Feasibility Study, Baldwin Place Mall, Somers, NY. Prepared for Big V Supermarkets, Inc. June 1995.

Lawler, Matusky & Skelly Engineers (LMSE), 1998. Engineers Report to Accompany Water Supply Application for Extension of Water Supply from Baldwin Place Mall to Meadow Park Road, Somers, NY. Prepared for Big V Supermarkets, Inc. March 1998.

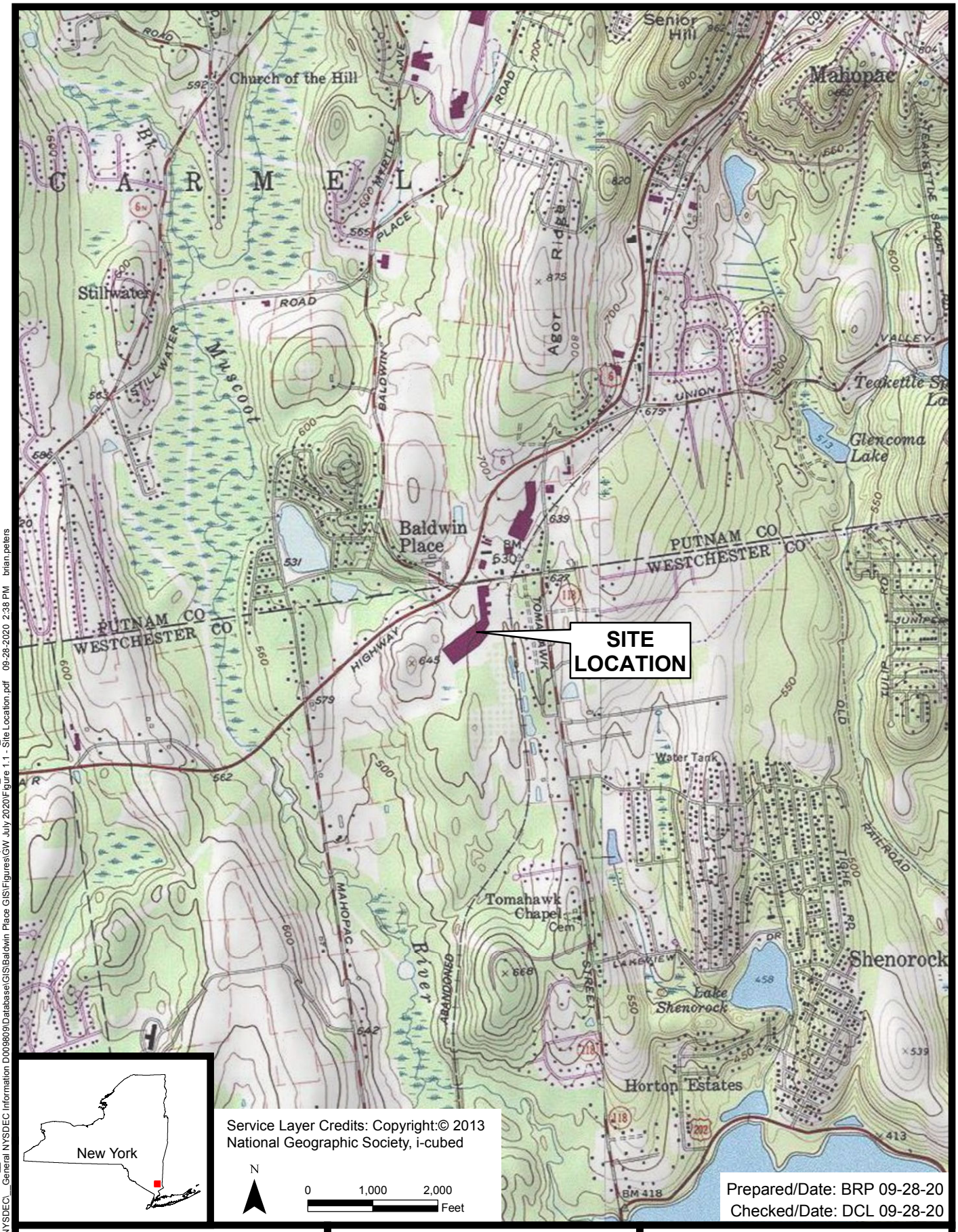
MACTEC Engineering and Geology, P.C. (MACTEC), 2016. Site Management Plan, Baldwin Place Shopping Center, NYSDEC HW Site: 360023, March 4, 2016.

NYSDEC, 1995. Record of Decision- Baldwin Place Shopping Center Site. Site Number 360023.

Vincent Uhl Associates, 1994. Draft Remedial Investigation – Baldwin Place Mall. Prepared for Big V Supermarkets, Inc., Florida, New York.

Westchester County, NY, 2015. Declaration of Covenants and Restrictions. Control: 552223073. June 10, 2015.

FIGURES



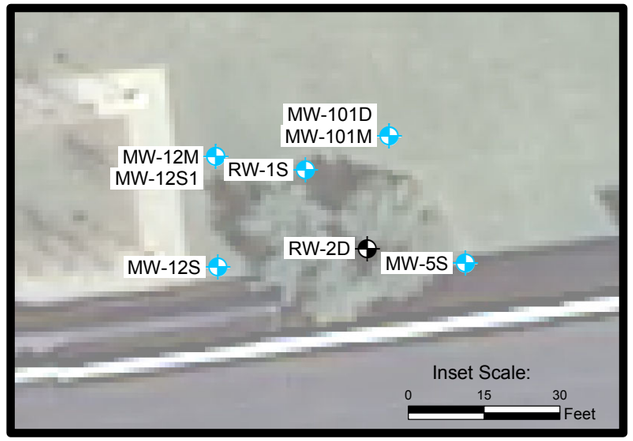
BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Site Location

Project 3616206104 Figure 1.1

Document: P:\Projects\NYSDEC_General NYSDEC Information D009809\Database\GIS\Baldwin Place GIS\MapDocuments\Site_Location_8.5x11P.mxd
PDF: P:\Projects\NYSDEC_General NYSDEC Information D009809\Database\GIS\Baldwin Place GIS\Figures\GW July 2020\Figure 1.1 - Site Location.pdf 09-28-2020 2:38 PM brian.peters



Baldwin Place Road
State Highway 118
MW-4S
MW-4D
MW-8S
Route 6
Clayton Boulevard
RW-1S
MW-101M
MW-101D
MW-12S1
MW-12M
MW-5S
MW-7S
MW-7M1
MW-7M2
MW-12S
RW-2D
MW-3D
MW-3DD
MW-7D
Plant 1
MW-9D
MW-9S
Unit Six
(Location of Deed Restriction)
MW-10D
Meadow Park Road
PW-1
Plant 2
PW-2
MW-2S
MW-2D

Legend

- Overburden Well
- Bedrock Well
- Approximate Unit 6 Deed Restriction
- Approximate Site Property Line

N

0 75 150 Feet

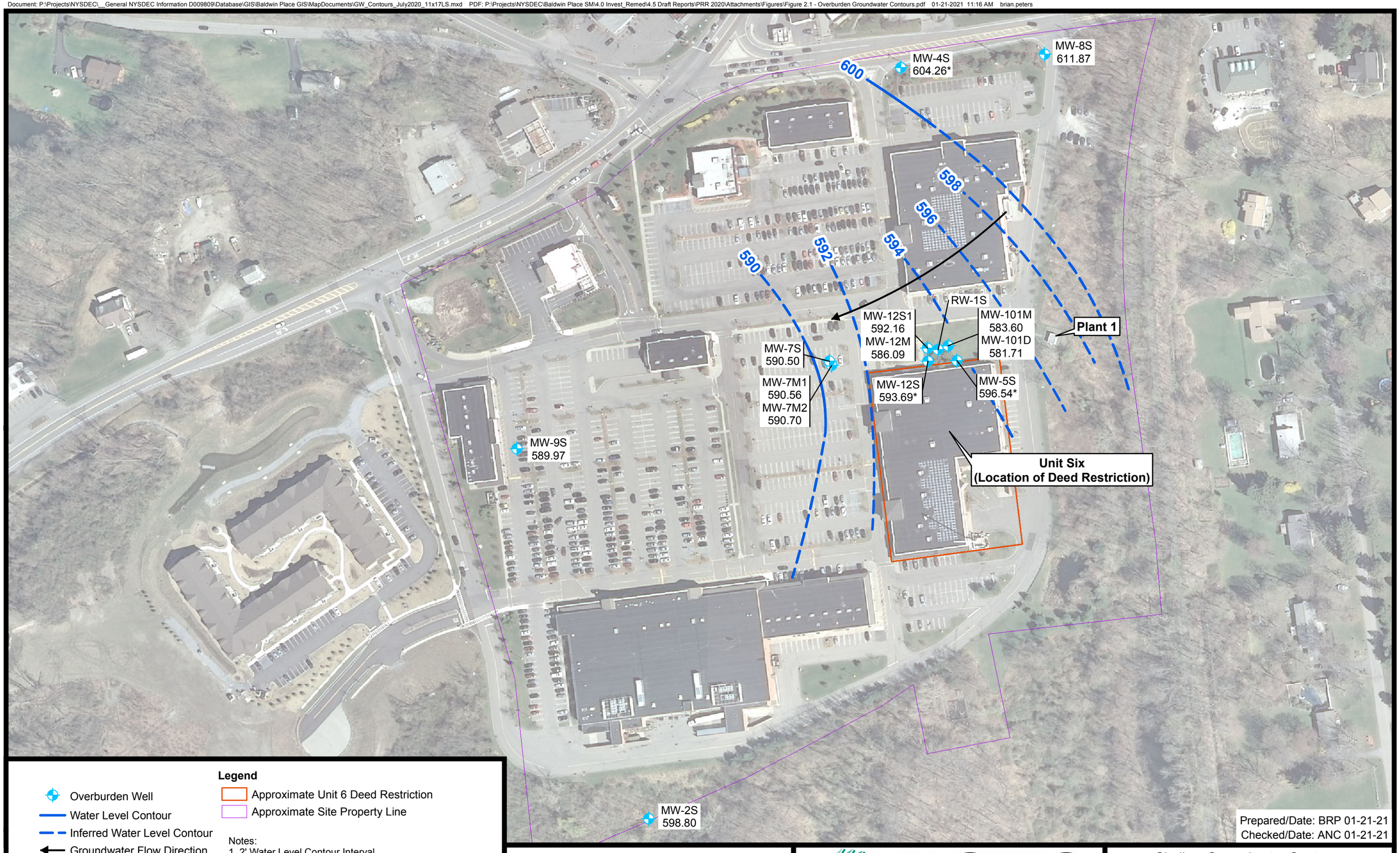
Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: gis.ny.gov

Prepared/Date: BRP 01-20-21
Checked/Date: ANC 01-20-21

BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Site Features and
Monitoring Well Locations
Project 3616206104 Figure 1.2



Legend

- Overburden Well
- Water Level Contour
- Inferred Water Level Contour
- Groundwater Flow Direction
- Approximate Unit 6 Deed Restriction
- Approximate Site Property Line

N

0 75 150 Feet

Notes:
1. 2' Water Level Contour Interval
2. Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: gis.ny.gov

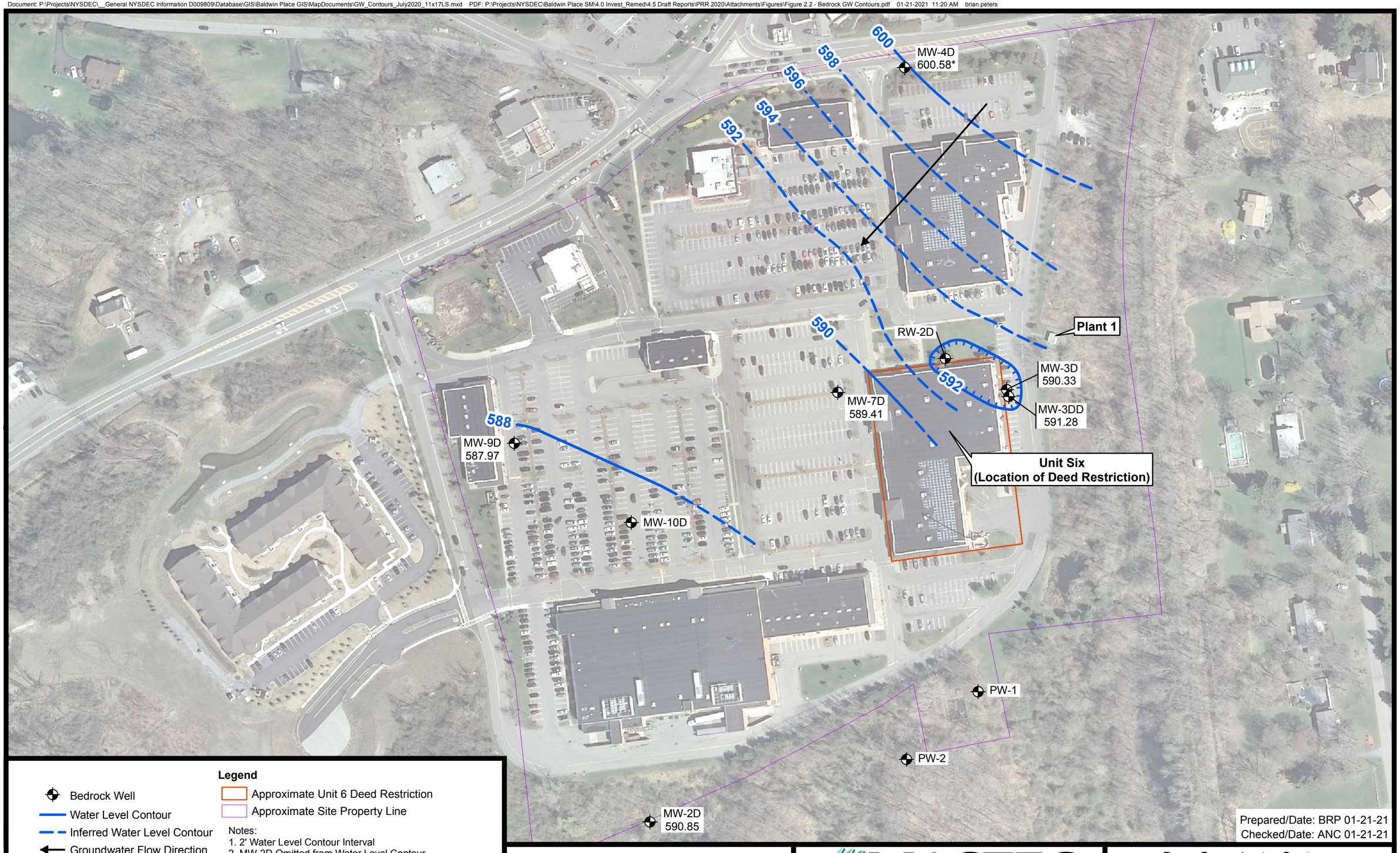
* Water Level Collected in August 2020

Prepared/Date: BRP 01-21-21
Checked/Date: ANC 01-21-21

BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Shallow Groundwater Contours
July 2020
Project 3616206104 Figure 2.1



Legend

- Bedrock Well
- Water Level Contour
- Inferred Water Level Contour
- Groundwater Flow Direction
- Approximate Unit 6 Deed Restriction
- Approximate Site Property Line

N

0 75 150 Feet

Notes:
1. 2' Water Level Contour Interval
2. MW-2D Omitted from Water Level Contour
3. Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: gis.ny.gov

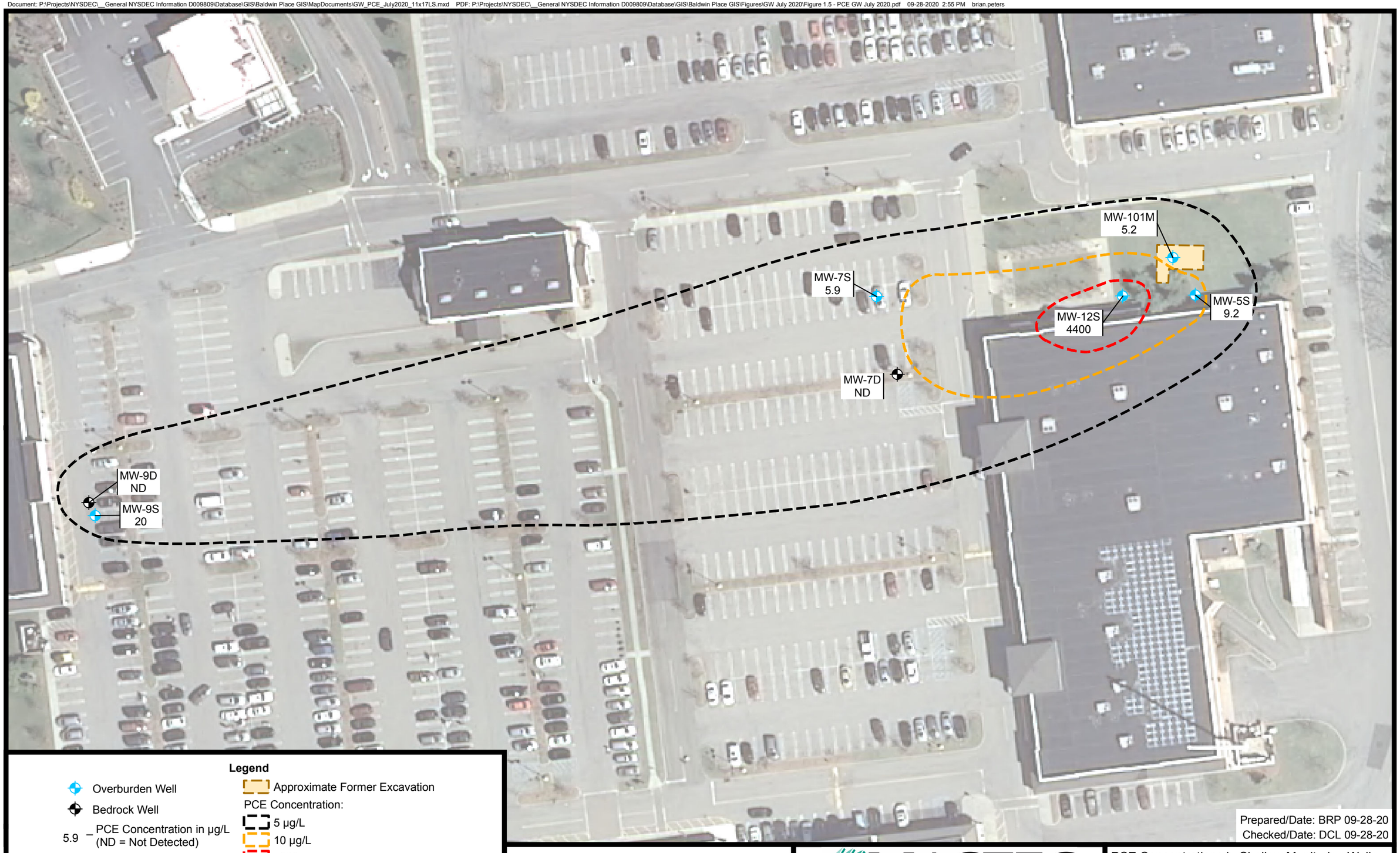
* Water Level Collected in August 2020

Prepared/Date: BRP 01-21-21
Checked/Date: ANC 01-21-21

BALDWIN PLACE
SOMERS, NEW YORK

MACTEC

Deep Groundwater Contours
July 2020
Project 3616206104 Figure 2.2



Legend

- Overburden Well
- Bedrock Well
- 5.9 – PCE Concentration in µg/L (ND = Not Detected)
- Approximate Former Excavation
- PCE Concentration:
  - 5 µg/L
  - 10 µg/L
  - 1000 µg/L

N

0 30 60 Feet

Putnam County color digital orthoimagery (2013) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Prepared/Date: BRP 09-28-20
Checked/Date: DCL 09-28-20

BALDWIN PLACE SHOPPING CENTER
SOMERS, NEW YORK

MACTEC

PCE Concentrations in Shallow Monitoring Wells

Project 3616206104 Figure 2.3

TABLES

Table 2.1: Site Management Requirements

Component	Action	Required Frequency	Comments/Recommendations
Groundwater Extraction and Treatment System			
GWETS Operation - Checklist	Inspection	Monthly	Check water treatment operation: flow rates, meter readings, system components.
Extraction wells	Inspection	Monthly	Check extraction wells, housing, control panels.
Ground Water Monitoring System	Inspection	15 Months	Visually inspect well pads/locks at site wells; repair as necessary to maintain integrity and security.
System Performance Monitoring			
Recovery Wells RW-1S and RW-2D	Influent water sampling	Monthly	Grab sample collected to evaluate and monitor GWETS system performance.
GWETS Performance Sampling	Influent & Effluent water sampling	Monthly	Grab sample collected from influent, mid-carbon, and effluent to evaluate and monitor GWETS system performance.
Environmental Monitoring			
Groundwater Monitoring Program	Groundwater sampling of 10 wells	15-month sampling interval	Samples collected from 10 on-site monitoring well locations
Unit 6 (Home Goods) Air Sampling	Air sampling of 5 locations	3-year sampling interval	Air sampling of two sub slab soil vapor points, two indoor air locations, and one ambient (outside) sample location.

Prepared by: ANC 01/07/2021
Checked by: HGG 01/19/2021

Table 2.2: Long Term Monitoring and Analysis Plan

Sample Type	Media	Location ID	Sampling Depth (feet bgs)	Sample ID	VOCs USEPA 8260
Monitoring Well Sampling					
Monitoring Well	Groundwater	MW-4S	17	360023-MW004S017	1
Monitoring Well	Groundwater	MW-4D	75	360023-MW004D075	1
Monitoring Well	Groundwater	MW-5S	18	360023-MW005S018	1
Monitoring Well	Groundwater	MW-7S	18	360023-MW007S018	1
Monitoring Well	Groundwater	MW-7D	75	360023-MW007D075	1
Monitoring Well	Groundwater	MW-8S	19	360023-MW008S019	1
Monitoring Well	Groundwater	MW-9S	17	360023-MW009S017	1
Monitoring Well	Groundwater	MW-9D	75	360023-MW009D075	1
Monitoring Well	Groundwater	MW-12S	30	360023-MW012S030	1
Monitoring Well	Groundwater	MW-101M	42	360023-MW101M042	1
Trip Blanks					
Trip Blank	DI Water	TB-01	NA	360023-TB01	1

NOTES:
Sample ID: 360023 = NYSDEC Site No.
USEPA= Unites States Enviromnetal Protection Agency
USEPA 8260: Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Created by: ANC 7/1/20
Reveiwed by: DCL 9/25/20

Table 2.3: Groundwater Elevation Summary - July 2020

Location ID	Northing	Easting	Ground Elevation	Measuring Point Elevation	Screening Interval (ft bgs)	Screen or Open Hole	Screen Location	Measurement Reference Point Marked (Y/N)	Protective Casing Stickup (ft.)	TOC-TOR Difference (ft.)	Depth to Water 7/24/20 (ft bmp)	Depth to Bottom 7/24/20 (ft bmp)	Water Elevation (ft msl)
Data from Final Remedial Investigation Report, August 1994[1]													
RW-1S[2]	NA	NA	NA	602.03	8 - 47.5	Screen	Overburden	NA	NA	NA	NA	NA	NA
RW-2D[2]	NA	NA	NA	602.02	48 - 82.5	Screen	Competent Rock	NA	NA	NA	NA	NA	NA
MW-2S	489208.54	657911.87	601.53	604.05	1 -14	Screen	Overburden	N	NM	NM	5.25	16.60	598.80
MW-2D	489201.58	657911.87	601.66	603.41	60 - 90	Screen	Overburden	N	NM	NM	12.56	61.31	590.85
MW-3D	489928.54	658517.37	602.25	604.23	60 - 90	Screen	Overburden and Weathered Rock	N	NA	NM	13.90	87.22	590.33
MW-3DD	489916.33	658522.03	602.22	604.21	170 - 200	Open Hole	Competent Rock	N	NA	NM	12.93	200.15	591.28
MW-4S	490472.33	658342.09	609.68	611.64	3.6 - 23.6	Screen	Overburden	N	NM	NM	7.38*	23.6*	604.26
MW-4D	490472.33	658348.70	609.72	611.84	58.4 - 90.5	Open Hole	Competent Rock	N	NM	NA	11.26*	90*	600.58
MW-8S	490494.34	658582.67	618.28	618.02	4 - 24	Screen	Overburden	N	NA	0.00	6.15	22.20	611.87
MW-9S	489830.91	657691.12	596.21	595.99	10.5 - 30.5	Screen	Weathered and Competent Rock	N	NA	0.14	6.75	28.30	589.24
MW-9D	489839.13	657686.69	595.99	595.68	60 - 90	Open Hole	Competent Rock	N	NA	0.67	7.71	89.91	587.97
MW-10D	489705.74	657883.78	600.52	600.22	59.5 - 90	Open Hole	Competent Rock	N	NA	NM	NA	NA	NA
Data from June 2015[3] Survey													
MW-5S	915252.51	696420.56	603.45	605.47	3 - 23	Screen	Shallow Overburden	N	2.15	0.13	8.93*	24*	596.54
MW-7S	915251.45	696205.63	602.58	602.23	5 - 25	Screen	Overburden	N	NA	0.42	11.73*	25*	590.50
MW-7M1	915244.46	696209.25	602.54	602.17	25.5 - 35.5	Screen	Weathered Rock	N	NA	NM	11.61	35.23	590.56
MW-7M2	915244.46	696209.25	602.54	602.26	39.6 - 44.6	Screen	Competent Rock	N	NA	NM	11.56	44.30	590.70
MW-7D	915199.02	696219.69	602.86	602.31	60 - 90	Open Hole	Competent Rock	N	NA	0.62	12.90	92.20	589.41
MW-12S	915251.73	696371.52	603.99	606.35	20 - 39.75	Screen	Overburden	N	NM	0.79	12.66*	39.5*	593.69
MW-12S1	915273.58	696371.16	604.41	604.01	12.2 - 22.2	Screen	Shallow Overburden	N	NA	NM	11.85	20.50	592.16
MW-12M	915273.58	696371.16	604.41	603.94	39 - 49	Screen	Deep Overburden	N	NA	NM	17.85	46.55	586.09
MW-101M	915277.71	696405.45	604.19	603.43	37.8 - 47.8	Screen	Deep Overburden	N	NA	NM	19.83	47.40	583.60
MW-101D	915277.71	696405.45	604.19	603.77	52 - 57	Screen	Overburden and Weathered Rock	N	NA	NM	22.06	55.80	581.71

Notes:
MW = monitoring well; RW = recovery (extraction) well
ft bgs = feet below ground surface
ft bmp = feet below measuring point
msl = mean sea level
NM = not measured
NA = not available
Y/N = Yes/No
* collected in August 2020
1 = Northing/Easting = North American Datum 1927 NYSPCS East (US Survey ft); Elevations = National Geodetic Vertical Datum 1929 (US survey ft)
2 = Both RW-1S and RW-2D have transducers installed within, and transducer depths below top of casing are **42.7 ft** for RW-1S and **56 ft** for RW-2D. Water levels in these wells are monitored with the submerged transducer and the depth of water above the transducer is displayed in the treatment building. Due to possibility of faulted transducer readings, no water elevation data is presented from these wells.
3 = Northing/Easting = North American Datum 83 - NYSPCS EAST (US survey ft); Elevations = North American Vertical Datum 88 (US survey ft)

Created by ANC 01/07/2021
Checked by HGG 01/19/2021

Table 2.4: Monitoring Well Inspection Summary - July 2020

Location ID	Northing	Easting	Screening Interval (ft bgs)	Screen or Open Hole	Screen Location	Well ID Clearly Labeled (Y/N)	Well Lock/Cap (G/F/P)	Protective Casing (G/F/P)	Water in Annular Space (Y/N)	Concrete Pad (G/F/P)	Well Riser/Cap (G/F/P)	Well Obstruction (Y/N)	Comments	Recommended Repairs
Data from Final Remedial Investigation Report, August 1994[1]														
RW-1S[2]	NA	NA	8 - 47.5	Screen	Overburden	NA	NA	NA	NA	NA	NA	N		
RW-2D[2]	NA	NA	48 - 82.5	Screen	Competent Rock	NA	NA	NA	NA	NA	NA	N		
MW-2S	489208.54	657911.87	1 -14	Screen	Overburden	N	G	G	N	NA	NA	N	stickup, not locked	new lock
MW-2D	489201.58	657911.87	60 - 90	Screen	Overburden	N	G	G	N	NA	NA	Y	stickup, not locked	new lock
MW-3D	489928.54	658517.37	60 - 90	Screen	Overburden and Weathered Rock	N	G	F	N	G	G	N	no bolts	new bolts
MW-3DD	489916.33	658522.03	170 - 200	Open Hole	Competent Rock	N	G	F	N	G	G	N	no bolts	new bolts
MW-4S	490472.33	658342.09	3.6 - 23.6	Screen	Overburden	N	G	G	N	NA	G	N		
MW-4D	490472.33	658348.70	58.4 - 90.5	Open Hole	Competent Rock	N	G	G	NA	NA	NA	N		
MW-8S	490494.34	658582.67	4 - 24	Screen	Overburden	N	G	F	N	NA	P	N	no cap	new cap
MW-9S	489830.91	657691.12	10.5 - 30.5	Screen	Weathered and Competent Rock	N	G	G	N	G	G	N		
MW-9D	489839.13	657686.69	60 - 90	Open Hole	Competent Rock	N	G	G	N	G	G	N		
MW-10D	489705.74	657883.78	59.5 - 90	Open Hole	Competent Rock	N	G	F	NA	G	P	N	filled with soil	
Data from June 2015[3] Survey														
MW-5S	915252.51	696420.56	3 - 23	Screen	Shallow Overburden	N	G	G	N	NA	G	N		
MW-7S	915251.45	696205.63	5 - 25	Screen	Overburden	N	G	G	N	G	G	N	under vehicle	
MW-7M1	915244.46	696209.25	25.5 - 35.5	Screen	Weathered Rock	Y	G	G	N	G	G	N		
MW-7M2	915244.46	696209.25	39.6 - 44.6	Screen	Competent Rock	Y	G	G	N	G	G	N		
MW-7D	915199.02	696219.69	60 - 90	Open Hole	Competent Rock	N	G	G	N	G	G	N	1 bolt	new bolts
MW-12S	915251.73	696371.52	20 - 39.75	Screen	Overburden	N	G	G	N	NA	G	N		
MW-12S1	915273.58	696371.16	12.2 - 22.2	Screen	Shallow Overburden	Y	G	G	N	G	G	N	no bolts	new bolts
MW-12M	915273.58	696371.16	39 - 49	Screen	Deep Overburden	Y	G	G	N	G	G	N	no bolts	new bolts
MW-101M	915277.71	696405.45	37.8 - 47.8	Screen	Deep Overburden	Y	G	G	N	NA	G	N	soft bottom	
MW-101D	915277.71	696405.45	52 - 57	Screen	Overburden and Weathered Rock	Y	G	G	N	G	G	N	soft bottom	

Notes:
MW = monitoring well; RW = recovery (extraction) well
ft bgs = feet below ground surface
ft bmp = feet below measuring point
msl = mean sea level
NA = not available
G/F/P = Good/Fair/Poor
Y/N = Yes/No
1 = Northing/Easting = North American Datum 1927 NYSPCS East (US Survey ft); Elevations = National Geodetic Vertical Datum 1929 (US survey ft)
2 = Both RW-1S and RW-2D have transducers installed within, and transducer depths below top of
3 = Northing/Easting = North American Datum 83 - NYSPCS EAST (US survey ft); Elevations =

Created by: ANC 01/13/2021
Reviewed by: HGG 01/19/2021

Table 2.5: Long Term Monitoring Analytical Results - August 2020

			Location	MW-4S		MW-4D		MW-5S		MW-7S		MW-7D		MW-8S	
			Sample Date	8/6/2020		8/5/2020		8/6/2020		8/5/2020		8/5/2020		8/5/2020	
			Sample ID	360023-MW004S017		360023-MW004D075		360023-MW005S018		360023-MW007S018		360023-MW007D075		360023-MW008S019	
			Qc Code	FS		FS		FS		FS		FS		FS	
Parameter	**GA**	**GV**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
cis-1,2-Dichloroethene	5	NS	ug/L	1	U	1	U	**9.9**		1	U	**5.4**		2	U
Methyl Tertbutyl Ether	NS	10	ug/L	1	U	**4.7**		1	U	1	U	1	U	2	U
Tetrachloroethene	5	NS	ug/L	1	U	1	U	**9.2**		**5.9**		1	U	2	U
Trichloroethene	5	NS	ug/L	1	U	1	U	**2.4**		1	U	**6.3**		2	U
Vinyl chloride	2	NS	ug/L	1	U	1	U	1	U	1	U	1	U	2	U

			Location	MW-8S		MW-9S		MW-9D		MW-12S		MW-101M	
			Sample Date	8/5/2020		8/5/2020		8/5/2020		8/5/2020		8/6/2020	
			Sample ID	360023-MW008S019		360023-MW009S017		360023-MW009D075		360023-MW012S030		360023-MW101M042	
			Qc Code	FS		FS		FS		FS		FS	
Parameter	**GA**	**GV**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
cis-1,2-Dichloroethene	5	NS	ug/L	2	U	**3.7**		1	U	130	U	**33**	
Methyl Tertbutyl Ether	NS	10	ug/L	2	U	2	U	**1.1**		130	U	1	U
Tetrachloroethene	5	NS	ug/L	2	U	**20**		1	U	**4400**		**5.2**	
Trichloroethene	5	NS	ug/L	2	U	**3.5**		1	U	130	U	**1**	
Vinyl chloride	2	NS	ug/L	2	U	2	U	1	U	130	U	**8.5**	

Notes:
GA = New York State Class GA Groundwater Standards
GV = New York State Guidance Values
ug/L = micrograms per liter or parts per billion
Bold = analyte detected
Shaded = analyte exceeds standard
NS = not specified
FS = Field Sample
U = nondetect

Created by: KMS 9/28/2020
Checked by: ANC 9/29/2020

APPENDICES

APPENDIX A
OPERATIONS AND MAINTENANCE DATA (AZTECH)

APPENDIX A-1

OPERATION & MAINTENANCE SAMPLE RESULTS – APRIL 2020 TO DECEMBER 2020

Operation & Maintenance Sample Results – April 2020 to December 2020

		Parameter	cis-1,2-Dichloroethene		Trichloroethene		Tetrachloroethene	
		GA	5		5		5	
		GV	NS		NS		NS	
		Units	ug/L		ug/L		ug/L	
Location	**Sample Date**	**Sample ID**	Result	Qualifier	Result	Qualifier	Result	Qualifier
RW-1S	4/3/2020	RW-1S	<50	U	**60**		**4,300**	
RW-1S	5/6/2020	RW-1S	<50	U	<50	U	**2600**	
RW-1S	7/15/2020	RW-1S	<50	U	<50	U	**2000**	
RW-1S	8/11/2020	RW-1S	<50	U	<50	U	**2300**	
RW-1S	9/9/2020	RW-1S	<50	U	**75**		**5200**	
RW-1S	9/30/2020	RW-1S	<50	U	<50	U	**2900**	
RW-1S	11/3/2020	RW-1S	<50	U	<50	U	**1900**	
RW-2D	4/3/2020	RW-2D	**60**		**110**		**6,600**	
RW-2D	5/6/2020	RW-2D	<50	U	**130**		**7600**	
RW-2D	7/15/2020	RW-2D	<50	U	**98**		**6100**	
RW-2D	8/11/2020	RW-2D	<50	U	**110**		**6000**	
RW-2D	9/9/2020	RW-2D	<50	U	**92**		**6400**	
RW-2D	9/30/2020	RW-2D	<50	U	**120**		**7800**	
RW-2D	11/3/2020	RW-2D	<50	U	<50	U	**6600**	
RW-2D	12/14/2020	RW-2D	<50	U	**98**		**5700**	
Combined Influent	4/3/2020	Combined Influent	<50	U	**110**		**6200**	
Combined Influent	5/6/2020	Combined Influent	<50	U	<50	U	**3300**	
Combined Influent	7/15/2020	Combined Influent	<50	U	**71**		**4400**	
Combined Influent	8/11/2020	Combined Influent	<50	U	**66**		**3900**	
Combined Influent	9/9/2020	Combined Influent	<50	U	**85**		**5100**	
Combined Influent	9/30/2020	Combined Influent	<50	U	**83**		**5200**	
Combined Influent	11/3/2020	Combined Influent			**66**		**4600**	
Combined Influent	12/14/2020	Combined Influent			**89**		**5300**	
Mid-Carbon	4/3/2020	Mid-Carbon	<1	U	<1	U	**15**	
Mid-Carbon	5/6/2020	Mid-Carbon	<1	U	<1	U	**18**	
Mid-Carbon	7/15/2020	Mid-Carbon	<1	U	<1	U	**14**	
Mid-Carbon	8/11/2020	Mid-Carbon	<1	U	<1	U	**19**	
Mid-Carbon	9/9/2020	Mid-Carbon	**1.4**		<1	U	**15**	
Mid-Carbon	9/30/2020	Mid-Carbon	<1	U	<1	U	**15**	
Mid-Carbon	11/3/2020	Mid-Carbon	<1	U	<1	U	**12**	
Mid-Carbon	12/14/2020	Mid-Carbon	<1	U	<1	U	**9.5**	
Effluent	4/3/2020	Effluent	<1	U	<1	U	<1	U
Effluent	5/6/2020	Effluent	<1	U	<1	U	<1	U
Effluent	7/15/2020	Effluent	<1	U	<1	U	<1	U
Effluent	8/11/2020	Effluent	<1	U	<1	U	<1	U
Effluent	9/9/2020	Effluent	<1	U	<1	U	<1	U
Effluent	9/30/2020	Effluent	<1	U	<1	U	<1	U
Effluent	11/3/2020	Effluent	<1	U	<1	U	<1	U
Effluent	12/14/2020	Effluent	<1	U	<1	U	<1	U

Notes:
No samples were collected in June 2020 due to budget restrictions
RW-1S not sampled in December 2020 due to pump failure
VOC= Volitile Organic Compound
GA = New York State Class GA Groundwater Standards
GV = New York State Guidance Values
ug/L = micrograms per liter or parts per billion
Bold = analyte detected
Shaded = analyte exceeds standard
NS = no standard
NA = Not Applicable
FS = Field Sample
U = nondetect

APPENDIX A-2

PLANT 1 OPERATIONAL DATA – APRIL 2020 TO DECEMBER 2020

Plant 1 Operational Data- April 2020 to December 2020

WELL RW-1S

Date	Days Elapsed	Water Meter	Total Gallons Treated	Run Time		Gallons/ Minute	Influent VOC/MtBE Concentration	VOCs/MtBE Recovered	
				Total Hours	Hours This Time period		(ug/l)	(g)	(lbs)
4/3/20	32	534,265	0	24,901.70	53.00	0.00	4,360	0.0	0.000
5/6/20	33	534,265	0	NR	NR	NR	2,600	0.0	0.000
7/15/20	70	16,345	16,345	24,968.40	66.70	4.08	2,000	123.7	0.273
8/11/20	27	22,533	6,188	24,975.50	7.10	14.53	2,300	53.9	0.119
9/9/20	29	87,856	65,323	25,023.50	55.10	19.76	5,275	1,304.2	2.876
9/30/20	21	34,127	34,127	25,047.40	23.90	23.80	2,900	374.6	0.826
11/17/20	48	42,531	8,404	25,085.50	38.10	3.68	1,900	60.4	0.133
12/14/20	27	42,531	0	25,120.90	35.40	0.00	1,900	0.0	0.000

Total Days Elapsed:	**342**	**days**
Total Treated:	**139,364**	**gallons**
Total Hours Operational:	**397.10**	**hours**
Average Flow Rate When Operating:	**5.85**	**gpm**
Total Mass Removed:	**4.34**	**pounds**

WELL RW-2D

Date	Days Elapsed	Water Meter	Total Gallons Treated	Run Time		Gallons/ Minute	Influent VOC/MtBE Concentration	VOCs/MtBE Recovered	
				Total Hours	Hours This Time period		(ppb)	(g)	(lbs)
4/3/20	32	479,262	3,817	15,700.60	182.60	0.35	6,770	97.8	0.216
5/6/20	33	479,263	1	NR	NR	NR	7,730	0.0	0.000
7/15/20	70	29,734	29,734	16,134.50	433.90	1.14	6,198	697.5	1.538
8/11/20	27	40,377	10,643	16,537.40	402.90	0.44	6,492	261.5	0.577
9/9/20	29	87,856	47,479	16,838.20	300.80	2.63	6,492	1,166.7	2.572
9/30/20	21	87,856	0	17,008.00	169.80	0.00	7,920	0.0	0.000
11/17/20	48	25,336	25,336	17,848.00	840.00	0.50	6,600	632.9	1.396
12/14/20	27	25,336	0	18,280.40	432.40	0.00	5,798	0.0	0.000

Total Days Elapsed:	**342**	**days**
Total Treated:	**127,237**	**gallons**
Total Hours Operational:	**3,171.30**	**hours**
Average Flow Rate When Operating:	**0.67**	**gpm**
Total Mass Removed:	**6.96**	**pounds**

Combined - Plant 1:		
Total Days Elapsed:	**342**	**days**
Total Treated:	**266,601**	**gallons**
Total Hours Operational:	**3,568.40**	**hours**
Average Flow Rate When Operating:	**1.25**	**gpm**
Total Mass Removed:	**11.29**	**pounds**

Notes:

System reset in June and September 2020

Total Hours are estimated due to power outages and system reset

APPENDIX B
FIELD DATA RECORDS

APPENDIX B-1

LONG TERM MONITORING FIELD DATA RECORDS

AUGUST 2020

FIELD INSTRUMENT CALIBRATION RECORD

PROJECT NAME: NYSDEC- Baldwin Place
PROJECT NUMBER: 3616206104
PROJECT LOCATION: Baldwin Place, NY
WEATHER CONDITIONS (AM): Sun 80F
WEATHER CONDITIONS (PM): Sun 90F

TASK NO: 04.**** DATE: 8/5/2020
MACTEC CREW: ML DL
SAMPLER NAME: DCL
SAMPLER SIGNATURE: D.Livoti
CHECKED BY: H Gnoza DATE: 8/7/2020

MULTI-PARAMETER WATER QUALITY METER

METER TYPE YSI
MODEL NO. 556 MPS
UNIT ID NO. M015-38

AM CALIBRATION
Start time: 12:45 **End Time:** 13:10

PM CALIBRATION
Start time: 16:40 **End Time:** 15:00

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4	+/- 0.1 pH Units			
pH (7)	SU	7.0	7	+/- 0.1 pH Units	7.0	6.95	+/- 0.3 pH Units
pH (10)	SU	10.0	NA	+/- 0.1 pH Units			
Redox	+/- mV	240	240	+/- 10 mV	240	239.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.413	+/- 5% of standard
DO (saturated)	%	100	98.3	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	7.4	7.42	+/- 0.2 mg/L	7.2	7.56	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	NM	< 0.5 mg/L			
Temperature	°C		30.07			32.12	
Baro. Press.	mmHg		747.3			747.2	

TURBIDITY METER

METER TYPE HACH
MODEL NO. 2100G
UNIT ID NO. M024-38

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10.4	10	10.20	+/- 5% of standard
20 Standard	NTU	20	20.3	20	20.1	+/- 5% of standard
100 Standard	NTU	100	100	100	102	+/- 5% of standard
800 Standard	NTU	800	802	800	810	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE
MODEL NO.
UNIT ID NO.

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE
MODEL NO.
UNIT ID NO.

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9		20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE
MODEL NO.
UNIT ID NO.

See Notes Below for Additional Information

[x] Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
[ ] Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source: Laboratory provided
Sample Preservatives Source: Laboratory provided
Disposable Filter Type: in-line 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L) Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	9GE1020	5/21
pH (7)	9GE1325	5/21
pH (10)	NA	NA
ORP	0GB510	11/20
Conductivity	0GD741	4/21
<0.1 Turb. Stan.	A9270	1/21
20 Turb. Stan.	A9287	1/21
100 Turb. Stan.	A9277	1/21
800 Turb. Stan.	A9275	1/21
PID Span Gas	NA	NA
O_2-LEL Span Gas	NA	NA
Other		

NOTES:

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additonal acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FIELD INSTRUMENT CALIBRATION RECORD

PROJECT NAME: NYSDEC- Baldwin Place
PROJECT NUMBER: 3616206104
PROJECT LOCATION: Baldwin Place, NY
WEATHER CONDITIONS (AM): Sunny,breezy, 85°
WEATHER CONDITIONS (PM): Sunny, 90F

TASK NO: 04.**** DATE: 8/5/2020
MACTEC CREW: ML DL
SAMPLER NAME: M. Lounsbury
SAMPLER SIGNATURE: M. Lounsbury
CHECKED BY: H Gnoza DATE: 8/7/2020

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556
UNIT ID NO.: M015-11

AM CALIBRATION
Start time: 9:50 **End Time:** 10:30

PM CALIBRATION
Start time: 16:20 **End Time:** 16:45

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4	+/- 0.1 pH Units			
pH (7)	SU	7.0	7	+/- 0.1 pH Units	7.0	7.13	+/- 0.3 pH Units
pH (10)	SU	10.0	NA	+/- 0.1 pH Units			
Redox	+/- mV	240	240	+/- 10 mV	240	241.4	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.41	+/- 5% of standard
DO (saturated)	%	100	118.3	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.2	9.79	+/- 0.2 mg/L	8.2	9.32	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	NM	< 0.5 mg/L			
Temperature	°C		24.62			25.12	
Baro. Press.	mmHg		754.4			754.6	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100G
UNIT ID NO.: M024-35

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10	10	9.90	+/- 5% of standard
20 Standard	NTU	20	20	20	20	+/- 5% of standard
100 Standard	NTU	100	100	100	103	+/- 5% of standard
800 Standard	NTU	800	800	800	801	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9		20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

See Notes Below for Additional Information

[ ] Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
[x] Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source: Laboratory provided
Sample Preservatives Source: Laboratory provided
Disposable Filter Type: in-line 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	9GE1020	5/21
pH (7)	9GE135	5/21
pH (10)	NA	NA
ORP	0GB510	11/20
Conductivity	0GD741	4/21
<0.1 Turb. Stan.	A9270	1/21
20 Turb. Stan.	A9287	1/21
100 Turb. Stan.	A9277	1/21
800 Turb. Stan.	A9275	1/21
PID Span Gas	NA	NA
O_2-LEL Span Gas	NA	NA
Other		

NOTES:

do failed AM and PM cal

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additonal acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FIELD INSTRUMENT CALIBRATION RECORD

PROJECT NAME: NYSDEC- Baldwin Place
PROJECT NUMBER: 3616206104
PROJECT LOCATION: Baldwin Place, NY
WEATHER CONDITIONS (AM): Sun 70F
WEATHER CONDITIONS (PM): Sun 75F

TASK NO: 04.**** DATE: 8/6/2020
MACTEC CREW: ML DL
SAMPLER NAME: DCL
SAMPLER SIGNATURE: D.Livoti
CHECKED BY: H Gnoza DATE: 8/7/2020

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: M015-38

AM CALIBRATION — **Start time:** 7:00 **End Time:** 7:30

PM CALIBRATION — **Start time:** 8:40 **End Time:** 9:15

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4	+/- 0.1 pH Units			
pH (7)	SU	7.0	7	+/- 0.1 pH Units	7.0	6.95	+/- 0.3 pH Units
pH (10)	SU	10.0	NA	+/- 0.1 pH Units			
Redox	+/- mV	240	240	+/- 10 mV	240	239.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.413	+/- 5% of standard
DO (saturated)	%	100	98.5	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.8	8.85	+/- 0.2 mg/L	8.4	7.93	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	NM	< 0.5 mg/L			
Temperature	°C		20.64			23.42	
Baro. Press.	mmHg		749.2			749.8	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100G
UNIT ID NO.: M024-38

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	9.9	10	10.10	+/- 5% of standard
20 Standard	NTU	20	20.5	20	21	+/- 5% of standard
100 Standard	NTU	100	101	100	99.5	+/- 5% of standard
800 Standard	NTU	800	800	800	798.1	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9		20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

See Notes Below for Additional Information

[x] Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
[ ] Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source: Laboratory provided
Sample Preservatives Source: Laboratory provided
Disposable Filter Type: in-line 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	9GE1020	5/21
pH (7)	9GE1325	5/21
pH (10)	NA	NA
ORP	0GB510	11/20
Conductivity	0GD741	4/21
<0.1 Turb. Stan.	A9270	1/21
20 Turb. Stan.	A9287	1/21
100 Turb. Stan.	A9277	1/21
800 Turb. Stan.	A9275	1/21
PID Span Gas	NA	NA
O_2-LEL Span Gas	NA	NA
Other		

NOTES:

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additonal acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FIELD INSTRUMENT CALIBRATION RECORD

PROJECT NAME: NYSDEC- Baldwin Place
PROJECT NUMBER: 3616206104
PROJECT LOCATION: Baldwin Place, NY
WEATHER CONDITIONS (AM): fairly cloudy 70F
WEATHER CONDITIONS (PM): cloudy 80F

TASK NO: 04.**** DATE: 8/6/2020
MACTEC CREW: ML DL
SAMPLER NAME: M. Lounsbury
SAMPLER SIGNATURE: M. Lounsbury
CHECKED BY: H Gnoza DATE: 8/7/2020

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556
UNIT ID NO.: M015-11

AM CALIBRATION
Start time: 6:30 **End Time:** 6:50

PM CALIBRATION
Start time: 10:50 **End Time:** 11:15

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4	+/- 0.1 pH Units			
pH (7)	SU	7.0	7	+/- 0.1 pH Units	7.0	7.12	+/- 0.3 pH Units
pH (10)	SU	10.0	NA	+/- 0.1 pH Units			
Redox	+/- mV	240	240	+/- 10 mV	240	238.6	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.41	+/- 5% of standard
DO (saturated)	%	100	98.1	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.76	8.66	+/- 0.2 mg/L	8.43	7.14	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	NM	< 0.5 mg/L			
Temperature	°C		21.68			23	
Baro. Press.	mmHg		748.4			749.8	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100G
UNIT ID NO.: M024-35

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	9.85	10	9.96	+/- 5% of standard
20 Standard	NTU	20	20.1	20	20.9	+/- 5% of standard
100 Standard	NTU	100	99.7	100	101	+/- 5% of standard
800 Standard	NTU	800	767	800	780	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9		20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

See Notes Below for Additional Information

[ ] Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
[x] Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source: Laboratory provided
Sample Preservatives Source: Laboratory provided
Disposable Filter Type: in-line 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	9GE1020	5/21
pH (7)	9GE135	5/21
pH (10)	NA	NA
ORP	0GB510	11/20
Conductivity	0GD741	4/21
<0.1 Turb. Stan.	A9270	1/21
20 Turb. Stan.	A9287	1/21
100 Turb. Stan.	A9277	1/21
800 Turb. Stan.	A9275	1/21
PID Span Gas	NA	NA
O_2-LEL Span Gas	NA	NA
Other		

NOTES:

Do failed post cal

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additonal acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME		LOCATION ID	DATE
NYSDEC- Baldwin Place		MW-4S	8/6/2020
PROJECT NUMBER		**START TIME**	**END TIME**
3616206104.04.****		7:30	8:25
SAMPLE ID	**SAMPLE TIME**	**SITE NAME/INSTALLATION**	**PAGE**
360023-MW004S017	8:11	NA	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [X] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP		X	
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	7.38 FT	**FINAL DTW (BMP)**	7.6 FT	**PROT. CASING STICKUP (AGS)**	Nm FT	**TOC/TOR DIFFERENCE**	NM FT
WELL DEPTH (BMP)	23.6 FT	**SCREEN INTERVAL**	20 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	16.22 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.14 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	10.6 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.56 GAL	**DRAWDOWN/ TOTAL PURGED**	0.1	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{0}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
7:30	**BEGIN PURGING**									
7:40	7.48	150	17.02	4.606	1.68	6.74	210.4	0.94	17	
7:45	7.5	150	17.14	4.575	1.55	6.79	199.5	0.48		
7:50	7.5	150	16.98	4.58	1.71	6.83	184.2	1		
7:55	7.56	150	16.98	4.571	2.01	6.86	173.4	0.99		
8:00	7.58	150	16.95	4.569	2.79	6.86	170.4	1.19		
8:05	7.6	150	16.92	4.565	2.81	6.87	166.6	1.65		
8:10	7.6	150	16.89	4.561	2.81	6.88	163.4	1.21		
8:11	Collect									

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

17	**4.56**	**2.8**	**6.9**	**160**	**1.21**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-75
- [ ] PID
- [X] WQ METER M015-15
- [X] TURB. METER M024-38
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[X]	[ ]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 1.56

NOTES

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: DCL Print Name: Dominic Livoti

Checked By: Hannah Gnoza Date: 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW004D075
SAMPLE TIME	16:16

LOCATION ID	MW-4D
DATE	8/5/2020
START TIME	15:30
END TIME	16:30
SITE NAME/INSTALLATION	NA
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [ ] 4 [X] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP		X	
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	11.26 FT	**FINAL DTW (BMP)**	11.41 FT	**PROT. CASING STICKUP (AGS)**	Nm FT	**TOC/TOR DIFFERENCE**	NA FT
WELL DEPTH (BMP)	90 FT	**SCREEN INTERVAL**	32 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	78.7 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.2 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	116.2 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.3 GAL	**DRAWDOWN/ TOTAL PURGED**	0.2	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
15:40	**BEGIN PURGING**									
15:45	11.38	140	17.36	1.555	0.4	7.1	-36.5	14.1	75	
15:50	11.35	140	17.34	1.666	0.97	7.07	-36.9	15.4		
15:55	11.4	140	17.21	1.687	1.11	7.07	-36.3	20.1		
16:00	11.41	140	17.52	1.689	0.64	7.08	-34.6	30.5		
16:05	11.41	140	18.44	1.699	0.65	7.02	-32.2	20.4		
16:10	11.41	140	18.25	1.695	0.66	7.02	-31.2	19.8		
16:15	11.41	140	18	1.695	0.6	7.04	-29.4	19		
16:16	Collect									

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

	18	**1.7**	0.6	7	**-30**	**19**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-75
- [ ] PID
- [X] WQ METER M015-15
- [X] TURB. METER M024-38
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	no
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[X]	[ ]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 1.3

NOTES

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: DCL Print Name: Dominic Livoti

Checked By: Hannah Gnoza Date 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW005S018
SAMPLE TIME	8:20

LOCATION ID	MW-5S
DATE	8/6/2020
START TIME	7:20
END TIME	8:26
SITE NAME/INSTALLATION	
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	Yes	NO	N/A
CAP	Yes		
CASING	Yes		
LOCKED	Yes		
COLLAR		No	

INITIAL DTW (BMP)	8.93 FT	**FINAL DTW (BMP)**	9.29 FT	**PROT. CASING STICKUP (AGS)**	2.07 FT	**TOC/TOR DIFFERENCE**	-0.13 FT
WELL DEPTH (BMP)	24 FT	**SCREEN INTERVAL**	10 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	14 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.1 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	2.3 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2 GAL	**DRAWDOWN/ TOTAL PURGED**	0.05	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
7:24	**BEGIN PURGING**									
7:29	9.12	150	15.92	0.91	2.86	6.94	214.4	14.8	18	
7:34	9.15	150	15.76	0.857	1.39	7.1	208.2	16.9	18	
7:39	9.2	125	15.95	0.847	1.2	7.19	196.6	16.6	18	
7:44	9.22	125	16.06	0.839	1.14	7.23	179.8	13	18	
7:49	9.24	125	16.31	0.829	1.2	7.26	167.3	13.1	18	
7:54	9.24	125	16.33	0.829	1.26	7.26	151	12.6	18	
7:59	9.27	125	16.29	0.824	1.5	7.27	130	12.2	10	
8:04	9.29	125	16.28	0.824	1.37	7.27	117.6	12.5	18	
8:09	9.29	125	16.29	0.824	1.25	7.28	112.5	10.9	18	
8:12	9.29	125	16.26	0.824	1.21	7.27	110.1	10.2	18	
8:15	9.29	125	16.24	0.823	1.16	7.28	107.5	9.11	18	
FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)										
		16	**0.823**	**1.2**	**7.3**	**110**	**9.11**			

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-77
- [ ] PID
- [X] WQ METER M014-11
- [x] TURB. METER M024-35
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 2

NOTES

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: **Michael H. Lounsbury** Print Name: MHL

Checked By: Hannah Gnoza Date 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME		LOCATION ID	DATE
NYSDEC- Baldwin Place		MW-7S	8/5/2020
PROJECT NUMBER		**START TIME**	**END TIME**
3616206104.04.****		1050	13:00
SAMPLE ID	**SAMPLE TIME**	**SITE NAME/INSTALLATION**	**PAGE**
360023-MW007S018	12:45		1 OF 2

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [X] 4 [X] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED			X
COLLAR	X		

INITIAL DTW (BMP)	11.73 FT	**FINAL DTW (BMP)**	11.91 FT	**PROT. CASING STICKUP (AGS)**	Flush FT	**TOC/TOR DIFFERENCE**	-0.42 FT
WELL DEPTH (BMP)	25 FT	**SCREEN INTERVAL**	20 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	13.27 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.12 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	8.71 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.96 GAL	**DRAWDOWN/ TOTAL PURGED**	0.04	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
11:01	**BEGIN PURGING**									
11:05	11.84	200	13.85	3.827	2.07	6.65	148.6	8.43	18	
11:10	11.88	130	18.51	3.794	1.95	6.78	137.7	4.89	18	
11:15	11.91	120	18.74	3.839	2.69	6.8	129.9	3	18	
11:20	11.91	120	18.93	3.997	1.89	6.82	125	4.2	18	
11:25	11.91	120	19.02	4.082	1.67	6.85	119	3.95	18	
11:30	11.91	120	18.72	4.145	1.57	6.92	111.2	3.33	18	
11:35	11.91	120	18.61	4.157	1.47	6.98	104.8	2.72	18	
11:40	11.91	120	18.73	4.151	1.34	7.01	99.4	3.12	18	
11:45	11.91	120	18.43	4.152	1.06	7.01	94.7	2.19	18	
11:50	11.91	120	18.11	4.142	1	7.02	91.3	2.38	18	
12:00	11.91	120	18.25	4.126	0.92	7.02	85.7	2.31	18	
FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)										
			18	**4.17**	**0.8**	**7.1**	**67**	**1.96**		

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-72
- [ ] PID
- [X] WQ METER M015-11
- [X] TURB. METER M024-35
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
X	VOCs	8260		N	HCL	3 x 40ml	NO

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 2.96

NOTES

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: Michael H. Lounsbury Print Name: MHL

Checked By: Hannah Gnoza Date 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID 360023-MW007S018	**SAMPLE TIME** 12:45

LOCATION ID MW-7S	**DATE** 8/5/2020
START TIME 10:50	**END TIME** 13:00
SITE NAME/INSTALLATION	**PAGE** 2 OF 2

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [X] 4 [ ] x [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED			X
COLLAR	X		

INITIAL DTW (BMP)	11.73 FT	**FINAL DTW (BMP)**	11.91 FT	**PROT. CASING STICKUP (AGS)**	NA FT	**TOC/TOR DIFFERENCE**	0.42 FT
WELL DEPTH (BMP)	25 FT	**SCREEN INTERVAL**	20 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	13.27 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.12 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	8.71 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.96 GAL	**DRAWDOWN/ TOTAL PURGED**	0.04	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
	BEGIN PURGING									
12:05	11.91	120	18.36	4.136	0.87	7.02	81.8	2.33	18	
12:10	11.91	120	18.24	4.139	0.83	7.04	78.5	0.81	18	
12:15	11.91	120	18.39	4.162	0.83	7.04	75.6	2.28	18	
12:20	11.91	120	18.21	4.173	0.83	7.04	73.5	2.62	18	
12:25	11.91	120	18.18	4.173	0.8	7.05	71.4	2.32	18	
12:30	11.91	120	18.18	4.174	0.78	7.05	69.1	1.87	18	
12:35	11.91	120	18.24	4.171	0.76	7.05	66.7	1.96	18	

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

	18	**4.17**	**0.8**	**7.1**	**67**	**1.96**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-72
- [ ] PID
- [X] WQ METER M015-11
- [X] TURB. METER M024-35
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 2.96

NOTES

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: **M. Lounsbury** Print Name: MHL

Checked By: Hannah Gnoza Date 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW007D075
SAMPLE TIME	14:30

LOCATION ID	MW-7D
DATE	8/5/2020
START TIME	13:20
END TIME	14:40
SITE NAME/INSTALLATION	
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [ ] 4 [x] 6 [ ] 8 [ ] OTHER _____

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER _____

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER _____

WELL INTEGRITY

	YES	NO	N/A
CAP	Yes		
CASING	Yes		
LOCKED		No	
COLLAR		Yes	

INITIAL DTW (BMP)	13.03 FT	**FINAL DTW (BMP)**	13.83 FT	**PROT. CASING STICKUP (AGS)**	Flush FT	**TOC/TOR DIFFERENCE**	-0.62 FT
WELL DEPTH (BMP)	90 FT	**SCREEN INTERVAL**	60-90 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	77.0 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	1.2 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	13 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.6 GAL	**DRAWDOWN/ TOTAL PURGED**	0.5	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
13:33	**BEGIN PURGING**									
13:37	13.15	180	18.71	3.13	6.27	6.96	-86.9	47.2	75	
13:42	13.25	125	18.4	3.573	1.12	7.28	-144	9.12	75	
13:47	13.34	100	19.08	3.587	1.07	7.3	-151.9	7.46	75	
13:52	13.43	100	19.12	3.616	0.94	7.31	-152.1	7.14	75	
13:57	13.54	100	19.3	3.619	0.91	7.3	-154.4	4.7	75	
14:02	13.62	100	19.87	3.599	0.85	7.3	-156.9	5.84	75	
14.07	13.68	100	19.48	3.625	0..90	7.3	-157.6	5.2	75	
14.12	13.74	100	20.19	3.603	0.85	7.28	-147.6	4.2	75	
14.17	11.82	100	20.73	3.618	0.86	7.26	-149.4	6.39	75	
14.22	11.82	100	21.04	3.63	0.84	7.26	-158.7	7.04	75	
14:27	11.83	100	20.91	3.362	0.8	7.27	-158.6	7.53	75	
FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)										
			21	**3.36**	**0.8**	**7.3**	**-160**	**7.53**		

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER M200-72
- [ ] PID _____
- [X] WQ METER m015-11
- [X] TURB. METER M024-35
- [ ] PUMP _____
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 2.6

NOTES

SpC not stable -HG

Sampler Signature: **Michael H. Lounsbury** Print Name: MHL

Checked By: Hannah Gnoza Date 8/7/2020

DEVIATIONS FROM THE WORK PLAN

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW008S019
SAMPLE TIME	15:06

LOCATION ID	MW-8S
DATE	8/5/2020
START TIME	14:00
END TIME	15:25
SITE NAME/INSTALLATION	NA
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP		X	
CASING	X		
LOCKED		X	
COLLAR	X		

INITIAL DTW (BMP)	6.58 FT	**FINAL DTW (BMP)**	7.66 FT	**PROT. CASING STICKUP (AGS)**	NA FT	**TOC/TOR DIFFERENCE**	0 FT
WELL DEPTH (BMP)	22.2 FT	**SCREEN INTERVAL**	20 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	15.6 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.18 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	2.56 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.56 GAL	**DRAWDOWN/ TOTAL PURGED**	0.11	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
14:25	**BEGIN PURGING**									
14:35	6.9	150	19.03	29.07	1.15	7.1	46.2	23.6	19	
14:40	7.04	150	19.1	28.38	0.91	7.09	4.9	20.7		
14:45	7.15	150	18.95	28.17	1.02	7.14	-17.4	15.4		
14:50	7.26	150	19.05	27.52	0.87	7.07	-35	12.4		
14:55	7.41	150	19.12	27.35	0.52	7.15	-60.8	15.2		
15:00	7.52	150	18.98	26.84	0.5	7.18	-65.2	16.4		
15:05	7.66	150	19.16	26.37	0.55	7.2	-70.1	16.8		
15:06	Collect									

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

20	**26.4**	**0.6**	**7.2**	**-70**	**16.8**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-75
- [ ] PID
- [X] WQ METER M015-15
- [X] TURB. METER M024-38
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 1.56

NOTES

SpC not stable -HG

Sampler Signature: DCL Print Name: Dominic Livoti

Checked By: Hannah Gnoza Date: 8/7/2020

DEVIATIONS FROM THE WORK PLAN

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW009S017
SAMPLE TIME	13:51

LOCATION ID	MW-9S
DATE	8/5/2020
START TIME	13:10
END TIME	14:05
SITE NAME/INSTALLATION	
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [X] 4 [ ] 6 [ ] 8 [ ] OTHER _____

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER _____

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER _____

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	7.02 FT	**FINAL DTW (BMP)**	7.12 FT	**PROT. CASING STICKUP (AGS)**	NA FT	**TOC/TOR DIFFERENCE**	0.14 FT
WELL DEPTH (BMP)	28.3 FT	**SCREEN INTERVAL**	10 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	21.3 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.07 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	14.0 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.27 GAL	**DRAWDOWN/ TOTAL PURGED**	0.05	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
13:15	**BEGIN PURGING**									
13:35	7.08	140	21.03	5.626	1.78	6.21	199.1	8.09	18	
13:40	7.1	140	20.7	5.644	1.79	6.23	194.1	7	18	
13:45	7.12	140	20.78	5.592	1.67	6.24	190.7	8.09	18	
13:50	7.12	140	20.82	5.542	1.62	6.24	191.4	7.58	18	
13:51	Collect									

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

	21	**5.54**	**1.6**	**6.2**	**190**	**7.58**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER M200-75
- [ ] PID _____
- [X] WQ METER M015-15
- [X] TURB. METER M024-38
- [ ] PUMP _____
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 1.27

NOTES

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: DCL Print Name: Dominic Livoti

Checked By: Hannah Gnoza Date 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW009D075
SAMPLE TIME	17:20

LOCATION ID	MW-9D
DATE	8/5/2020
START TIME	17:15
END TIME	17:25
SITE NAME/INSTALLATION	NA
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [ ] 2 [ ] 4 [X] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP		X	
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	8.15 FT	**FINAL DTW (BMP)**	Na FT	**PROT. CASING STICKUP (AGS)**	NA FT	**TOC/TOR DIFFERENCE**	0.67 FT
WELL DEPTH (BMP)	88.23 FT	**SCREEN INTERVAL**	30 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	80.08 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	Na GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	118.2 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	Na GAL	**DRAWDOWN/ TOTAL PURGED**	Na	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
	BEGIN PURGING									
17:20	8.15	NA	2	3.308	1.47	6.98	-23.2	1.18	75	

FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)

	Na	**Na**	Na	Na	**Na**	**Na**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	DECON FLUIDS USED	TUBING/PUMP/BLADDER MATERIALS		EQUIPMENT USED
[X] PERISTALTIC	[ ] ALCONOX	[ ] SILICON TUBING	[ ] S. STEEL PUMP MATERIAL	[X] WL METER M200-75
[ ] SUBMERSIBLE	[ ] DEIONIZED WATER	[ ] HDPE TUBING	[ ] PVC PUMP MATERIAL	[ ] PID
[ ] BLADDER	[X] POTABLE WATER	[X] LDPE TUBING	[ ] GEOPROBE SCREEN	[X] WQ METER M015-15
[ ] WATTERA	[ ] NITRIC ACID	[ ] OTHER	[ ] OTHER	[X] TURB. METER M024-38
[ ] OTHER	[ ] HEXANE	[ ] OTHER	[ ] OTHER	[ ] PUMP
[ ] OTHER	[ ] METHANOL		[ ] OTHER	[ ] OTHER
	[ ] OTHER			[ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
X	VOCs	8260		N	HCL	3 x 40ml	NO

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: _____

NOTES

Grab sample using a bailer

Sampler Signature: DCL Print Name: Dominic Livoti

Checked By: Hannah Gnoza Date 8/7/2020

DEVIATIONS FROM THE WORK PLAN

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW012S030
SAMPLE TIME	16:20

LOCATION ID	MW-12S
DATE	8/5/2020
START TIME	15:10
END TIME	16:40
SITE NAME/INSTALLATION	NA
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [X] 2 [ ] 4 [X] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP		X	
CASING	X		
LOCKED	X		
COLLAR	X		

INITIAL DTW (BMP)	12.66 FT	**FINAL DTW (BMP)**	15.27 FT	**PROT. CASING STICKUP (AGS)**	NM FT	**TOC/TOR DIFFERENCE**	0.79 FT
WELL DEPTH (BMP)	39.5 FT	**SCREEN INTERVAL**	20 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	26.84 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	3.85 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	39.6 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.72 GAL	**DRAWDOWN/ TOTAL PURGED**	2.24	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
15:14	**BEGIN PURGING**									
15:22	14.39	150	17.19	0.879	4.04	7.42	6.6	5	30	
15:27	14.58	125	16.72	0.873	3.68	7.5	8.5	4.03	30	
15:32	14.79	100	17.32	0.872	3.65	7.53	10.9	2.39	30	
15:37	14.81	100	17.82	0.869	3.49	7.54	12.7	2.39	30	
15:43	15.1	100	17.02	0.877	3.73	7.51	15.8	2.05	30	
15:48	15.18	100	16.94	0.879	3.45	7.52	18	1.79	30	
15:53	15.21	100	17.23	0.872	3.57	7.54	19.8	2.95	30	
15:58	15.23	100	17.19	0.872	3.39	7.54	21.5	2.09	30	
16:03	15.25	100	17.45	0.869	3.47	7.55	22.9	2.27	30	
16:10	15.26	100	17.65	0.872	3.6	7.52	24.1	2.04	30	
16:15	15.27									
FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)										
			18	**0.872**	**3.6**	**7.5**	**24**	**2.04**		

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] HDPE TUBING
- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-77
- [ ] PID
- [X] WQ METER M015-11
- [X] TURB. METER M024-35
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	NO
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	X	
NO-PURGE METHOD UTILIZED		

NUMBER OF GALLONS GENERATED: 1.72

NOTES

Grab sample using a bailer

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: M. Lounsbury Print Name: MHL

Checked By: Hannah Gnoza Date 8/7/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

MACTEC

511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	NYSDEC- Baldwin Place
PROJECT NUMBER	3616206104.04.****
SAMPLE ID	360023-MW101M042
SAMPLE TIME	10:30

LOCATION ID	MW-101M
DATE	8/6/2020
START TIME	8:40
END TIME	10:40
SITE NAME/INSTALLATION	
PAGE	1 OF 1

WELL DIAMETER (IN.) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [X] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	Yes		
CASING	Yes		
LOCKED	No		
COLLAR	Yes		

INITIAL DTW (BMP)	9.98 FT	**FINAL DTW (BMP)**	13.75 FT	**PROT. CASING STICKUP (AGS)**	Flush FT	**TOC/TOR DIFFERENCE**	NM FT
WELL DEPTH (BMP)	47 FT	**SCREEN INTERVAL**	37-47 FT	**PID AMBIENT AIR**	NA PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	37.02 FT	**DRAWDOWN VOLUME** (final DTW- initial DTW X well diam. squared X 0.041)	0.6 GAL	**PID WELL MOUTH**	NA PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (water column X well diameter^2 X 0.041)	6.1 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	3.98 GAL	**DRAWDOWN/ TOTAL PURGED**	0.15	**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA

TIME	DTW (FT)	PURGE RATE (mL/min)	TEMP. (^{o}C) ±3%	SP. CONDUCTANCE (mS/cm) ±3%	DISS. O_2 (mg/L) ±10% or 3 values <0.5 mg/L	pH (units) ±0.1	REDOX (mv) ±10 mv	TURBIDITY (ntu) ±10% or <10 ntu	PUMP INTAKE DEPTH (ft)	COMMENTS
8.48	**BEGIN PURGING**									
8:56	11.41	150	16.13	2.068	5.71	7.45	-49.4	295	42	
9:03	11.96	110	15.83	2.071	1.34	7.45	-72.4	105	42	
9.08	12.22	110	15.93	2.072	1.25	7.45	-77.1	78.2	42	
9.13	12.46	110	15.76	2.075	1.19	7.45	-79.7	51.4	42	
9:23	12.83	110	15.57	2.074	1.14	7.45	-82	34.7	42	
9:35	23.21	110	15.34	2.077	1.08	7.46	-83.6	26.3	42	
9:45	23.43	110	15.42	2.075	1.01	7.46	-83	24.4	42	
9:55	13.57	110	15.34	2.074	0.95	7.46	-83.4	20.5	42	
10:05	13.63	110	15.41	2.071	0.88	7.46	-82.4	16.3	42	
10 15	13.71	110	15.54	2.07	0.84	7.47	-81.2	16.2	42	
10:25	13.75	110	15.44	2.067	0.79	7.47	-81.9	13.1	42	
FINAL STABILIZED FIELD PARAMETERS (rounded to appropriate significant figures)										
		15	**2.07**	**0.8**	**7.5**	**-82**	**13.1**			

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 significant figure max (ex. 1.686 = 1.69)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] ALCONOX
- [ ] DEIONIZED WATER
- [X] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
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- [X] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER M200-77
- [ ] PID
- [X] WQ METER M015-11
- [ ] TURB. METER M024-35
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	ANALYTE LIST	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	QC COLLECTED
[X]	VOCs	8260		N	HCL	3 x 40ml	no
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							
[ ]							

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[X]	[ ]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 3.98

NOTES

Very turbid

DEVIATIONS FROM THE WORK PLAN

Sampler Signature: M. Lounsbury Print Name: ML

Checked By: Hannah Gnoza Date: 8/7/2020

APPENDIX B-2

TREATMENT SYSTEM INSPECTION FORM

AUGUST 2020

New York Department of Environmental Conservation
Inactive Hazardous Waste Site
Inspection Form-Treatment Systems

Site Name: *Baldwin Place*		**NYSDEC Site Number:** *360023*	**NYSDEC PM:** Robert Strang
Site Location: *80 US 6, Baldwin Place, NY*		**Site Classification # :** 4	**Primary Site Contact:** *Robert Strang*
Site Inspection Date: August 5, 2020	**Purpose of Inspection:** *15-month Inspection*		
Name of Inspector: M. Lounsbury & D. Livoti	**Title:** FOL	**Agency/Company:**	**Address:** *511 Congress Street, Suite 200*
Phone Number: 207-553-0645		MACTEC/Wood	*Portland, ME 04101*

Treatment Systems

System Status	
System in operation during visit?	*No*
Manned on a fulltime basis?	*No*
Pump on?	*No*
Condition of Operational Controls	
Condition of gauges?	*Good*
Condition of flow meters	*Good*
Condition of effluent pipe?	*Good*
Condition of flow pipes and hoses?	*Good*
Pipes labeled with direction of flow and contents?	*Yes*
Condition of valves?	*Good*
Evidence of leaking?	*NE*
Condition of sump pump?	*Good*
Lighting in Work Areas Adequate?	*NE*
Collection Vault	
RW-1 & RW-2 Vault condition - ground surface	*Good*

General Observations: Power outage at time of inspection due to recent storm. System ws not running.

Site Features

Site Security and Fence	
Condition of the access gates and locks?	*Good*
Condition of building?	*Good*
Condition of the perimeter fence	*Good*
Is vegetation infringing on the fence?	*Yes*
Was a monitoring well inspection completed?	*Yes - see attached*

NE- not evaluated, provide explanation

General Observations:

Several vines and overhanging branches on the fence. Grass needs mowing.

Additional Observation Notes:

Previously observed: Review and comment as to status (include photo documentation)

N/A- First Site Inspectiom

APPENDIX B-3

SITE INSPECTION PHOTO LOGS

AUGUST 2020

Attachment 1 –Photographic Log

Client:	NYSDEC	***Project Number:***	3616206104
Site Name:	Baldwin Place	***Site Location:***	Somers, NY

Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 1 ***Direction:*** n/a ***Description:*** Influent sampling ports.	
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 2 ***Direction:*** n/a ***Description:*** Influent valves/piping.	

Attachment 1 –Photographic Log

Client:	NYSDEC	***Project Number:***	3616206104
Site Name:	Baldwin Place	***Site Location:***	Somers, NY

Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 3 ***Direction:*** n/a ***Description:*** Sump pump.	
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 4 ***Direction:*** n/a ***Description:*** Bag filter number 1 and valves/piping.	

Attachment 1 –Photographic Log

Client: NYSDEC		***Project Number:*** 3616206104	
Site Name: Baldwin Place		***Site Location:*** Somers, NY	
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 5 ***Direction:*** n/a ***Description:*** Bag filter number 1 and piping.			
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 6 ***Direction:*** n/a ***Description:*** Effluent valve and piping.			

Attachment 1 –Photographic Log

Client:	NYSDEC	***Project Number:***	3616206104
Site Name:	Baldwin Place	***Site Location:***	Somers, NY

Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 7 ***Direction:*** n/a ***Description:*** Bag filter number 2.	
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 8 ***Direction:*** n/a ***Description:*** GAC unit overview.	

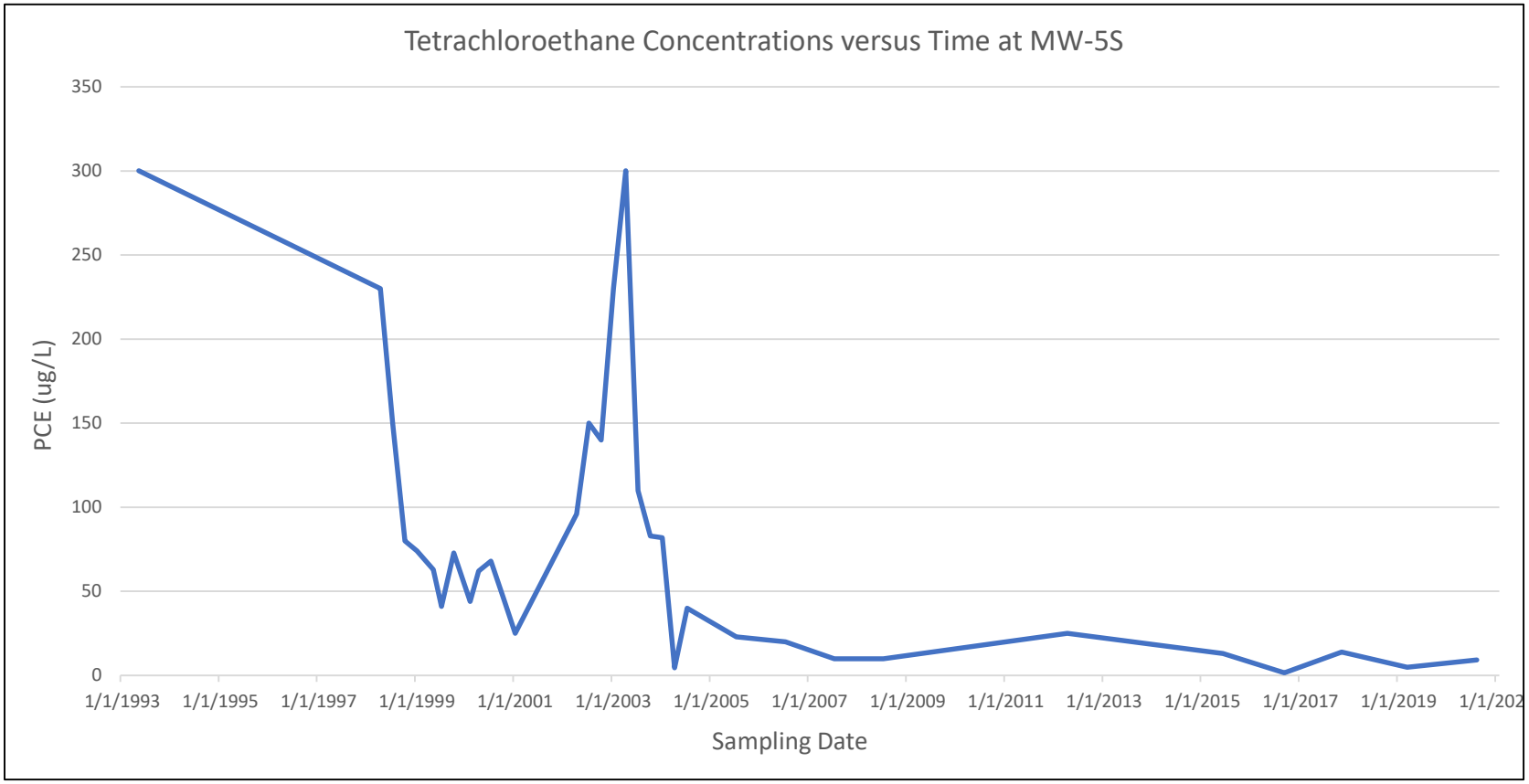
Attachment 1 –Photographic Log

Client:	NYSDEC	***Project Number:***	3616206104
Site Name:	Baldwin Place	***Site Location:***	Somers, NY

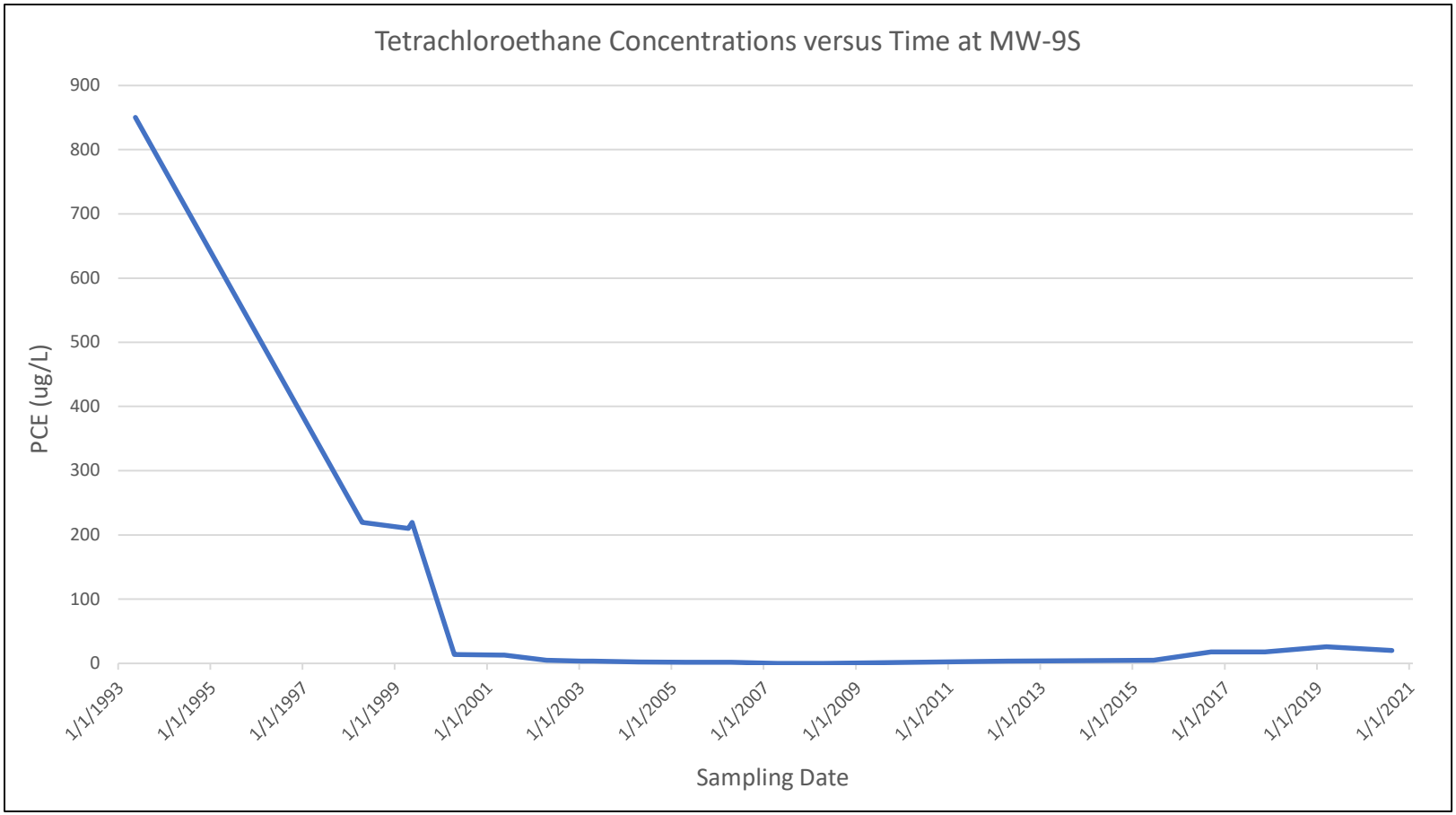
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 9 ***Direction:*** n/a ***Description:*** Mid GAC unit sampling port.	
Photographer: Dominic Livoti ***Date:*** 8/5/2020 ***Photograph:*** 10 ***Direction:*** n/a ***Description:*** Discharge pipe and ditch.	

APPENDIX C

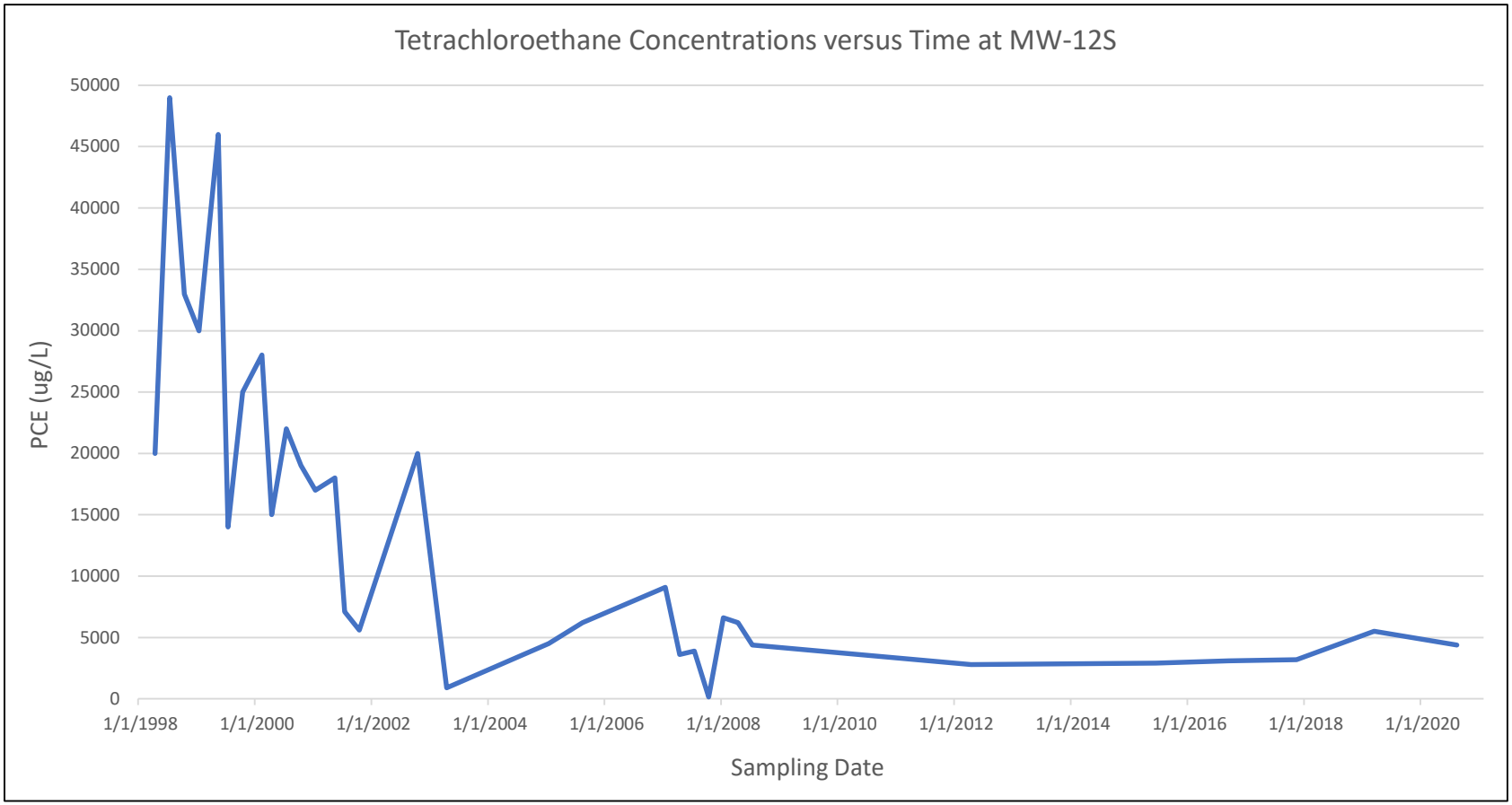
TIME SERIES PLOTS:
PCE CONCENTRATIONS AT MW-5S, MW-9S, AND MW-12S



Created by ANC 01/07/2021
Checked by HGG 01/08/2021



Created by ANC 01/07/2021
Checked by HGG 01/08/2021



Created by ANC 01/07/2021
Checked by HGG 01/08/2021