Draft Remedial Investigation Report

Belle Harbor Shopping Center
112-15 Beach Channel Drive
Queens (Far Rockaway), NY
NYSDEC VCP Site V00490

Stantec

Prepared for:
New York State Department
of Environmental Conservation

Division of Environmental
Remediation, Region 2

Prepared by:
Stantec Consulting Services Inc.

February 12, 2018

Sign-off Sheet

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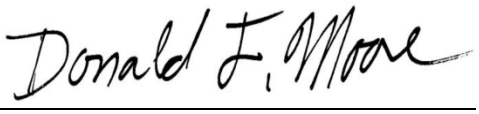
Prepared by  (signature)

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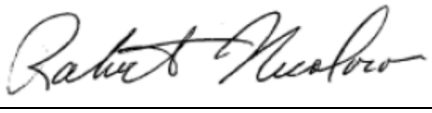
Reviewed by  (signature)

Robert Nicoloro

Sign-off Sheet

CERTIFICATION

I, Robert Nicoloro, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in accordance with DER approved work plans as discussed in this Report.

Signature  Date 02/12/2018

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1.0 INTRODUCTION

In June 2010, The Great Atlantic and Pacific Tea Company, Inc. (A&P) contracted Stantec Consulting Services Inc. (Stantec) to conduct supplemental subsurface investigation work at the Belle Harbor Shopping Center, located at 112-15 Beach Channel Drive in Queens (Far Rockaway), New York (the "Site" or "property"). The location of the property is shown on Figure 1. This work, which included advancing Membrane Interface Probes (MIP) and soil borings, soil sampling, monitoring well construction, groundwater gauging and sampling, and sub-slab soil gas and indoor air quality sampling at the Site, was conducted in general accordance with the New York State Department of Environmental Conservation (NYSDEC) approved Supplemental Remedial Investigation Work Plan (SRIWP dated July 2011) and was conducted through July 2015.

This supplemental remedial investigation involved completing the nature and extent delineation of impacts to soil and groundwater to include soil gas and indoor air quality characterization associated with a past release from former dry cleaner operations and from other off-site or on site release source areas. As detailed in Section 2 of this report, contamination from other sources was detected in the southeast portion of the property. In conjunction with Stantec's investigations, a separate investigation was conducted in this southeast portion of the Site. This work, which included soil borings, soil sampling, and groundwater sampling (via temporary and permanent wells) was conducted as a follow-up investigation to remedial actions being undertaken by others at an electrical substation and former Manufactured Gas Plant (MGP) property that was located immediately to the east of the subject property. The remedial investigation for the southeast portion of the property, describing the work conducted and results is presented herein as Appendix A.

In July 2015, A&P filed for Chapter 11 bankruptcy protection. Subsequent phases of bankruptcy transactional proceedings associated with A&P, the bankruptcy court, and the property owner occurred that gave way to an auction purchase of the A&P operations by Ahold U.S.A (Ahold) of Quincy, Massachusetts. The grocery store re-opened as a Stop & Shop. Ahold and the NYSDEC subsequently entered the Site into the Brownfields Cleanup Program (BCP) on December 8, 2017. Ahold/Stop & Shop retained Stantec as environmental professional for this Site.

2.0 BACKGROUND

The subject property is approximately five acres in size and currently consists of a shopping center building encompassing approximately 57,000 square feet with tenant retail commercial operations. The remaining 3.7 acres of the site are paved. The shopping center is currently active and, at the time of the investigation work, was occupied by the Waldbaum's Supermarket, a Liquor Store – Liquor Wine Warehouse, Sofia's Nail Salon (formerly Bell Boy Dry Cleaners), Ciros Pizza, and a Citibank branch bank. The property is bordered by Beach Channel Drive to the north, a Mobil gasoline station to the northeast, Wainwright Court/Rockaway Freeway to the east, a New York City Subway yard and tracks to the south, a New York City Department of Transportation parking lot to the west, and a Post Office and retail stores to the northwest. An electrical substation and former Manufactured Gas Plant (MGP) property is located immediately to the east of the subject property across Wainwright Court. Commercial properties are located across Beach Channel Drive to the north and include auto repair shops and another gasoline station.

It is reported that the current building footprint is different now than it was in the past. An aerial photo from 1966 depicts the original building running east to west parallel to Beach Channel Drive. A photo from 1980 shows an addition to the northern portion of the building. A photo from 2006 shows the current building footprint. The primary change in the footprint appears to be the loss of the most western portion of the original shopping center and an addition of the building to the south. The subject property is relatively flat, with a very gentle slope toward the south. The property is reported to be approximately 10 feet above mean sea level and within the Atlantic Coast Plain with a reported two to four feet of fill beneath pavement and buildings. Figure 1 depicts the configuration of the building circa 1992. Figure 2 depicts the present configuration of the building, property boundary, and various sampling locations.

Previous site investigation activities are described in, or included by reference in, the following reports submitted to DER.

- Site investigations initiated by Malcolm Pirnie, Inc. (MPI) from November 2000 to February 2001 to evaluate potential impact to subsurface conditions associated with an on-site dry cleaner, nearby rail/subway yard, adjacent coal/gasification facility, and historic fill.
- Documentation relating to A&P entering into a Voluntary Cleanup Agreement with NYSDEC dated October 2001.
- A revised Remedial Investigation Report & Supplemental Remedial Investigation & Corrective Action Work Plan dated December 2001.
- A Site-Specific Health and Safety plan (HASP) and Quality Assurance/Quality Control (QA/QC) and Sampling & Analyses Plan dated March 1, 2002.
- An investigation report dated May 2003.
- A follow-up investigation by Whitestone Associates, Inc. completed between May 2004 and June 2004.

- A Supplemental Remedial Investigation Report & Remedial Investigation/Corrective Action Work Plan dated August 2004.
- Correspondence dated August 29, 2007 and October 9, 2007 and May 7, 2008, associated with comments to the August 2004 Supplemental Remedial Investigation Report & Remedial Investigation/Corrective Action Work Plan.
- Supplemental Remedial Investigation/Interim Corrective Action Report & Remedial Investigation/Corrective Action Work Plan dated December 26, 2008.
- Supplemental Remedial Investigation/Pilot Test Report & Remedial Investigation/Corrective Action Work Plan dated January 12, 2009.
- Response to April 30, 2009 NYSDEC Comment Letter prepared by Whitestone dated May 28, 2009.
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These documents were made available to Stantec and subsequently reviewed to develop the following description of the Site.

As part of a property transaction, initial environmental investigations were undertaken by Malcolm Pirnie, Inc. (MPI) in 2000 and 2001. These investigations included drilling 38 soil borings throughout the Site as a means to collect soil samples and groundwater samples via temporary wells. Seven borings were advanced inside the Bell Boy Dry Cleaner unit. The results indicated levels of base neutral compounds and chlorinated volatile organic compounds (VOCs) in soils and groundwater at concentrations above Standards in place at that time (NYSDEC Technical and Administrative Guidance Memorandum (TAGM)). The Great Atlantic & Pacific Tea Company (A&P), the operator at the time, subsequently entered into a Voluntary Cleanup Agreement with NYSDEC in October 2001 to establish the regulatory format for remedial investigations and potential corrective actions pertaining to subsurface conditions at the Site. A Voluntary Cleanup Program (VCP) number was subsequently established for this Site (V-00490).

From 2002 to 2008 additional remedial investigation work was conducted by Whitestone Associates, Inc. (Whitestone) throughout the Site and within the former Bell Boy Cleaners lease unit. This work included the following:

- Drilling and sampling of eleven monitoring wells (MW-1 though MW-8S/8D) throughout the Site.

- Injecting Hydrogen Release Compound (HRC©) in the vicinity of the former western portion of original shopping center.

- Soil vapor sampling from four sub-slab vapor points (SV-1 to SV-4) within the Bell Boy Cleaners unit. Note that these sub-slab vapor points no longer exist within this unit.

- Indoor Air Quality sampling from within the Bell Boy Cleaners unit (IAQ-1) and from within Ciros Pizza (IAQ-2).

- Soil gas sampling from six soil gas probes (SG-1 to SG-6) located around the perimeter of the Site.

- Enhanced Fluid Recovery activities from MW-1.

These remedial investigation activities conducted at this Site suggested there have been three distinct releases of oil and hazardous materials at the Site:

1) a release of dry cleaning solvent assumed to be associated with operations within the former western portion of the original shopping center (i.e., in the area of existing monitoring wells, MW-4/4D) and with a former Bell Boy Dry Cleaner that was located within the existing building to the north of the present grocery store,

2) the presence of residual hazardous materials, located primarily in the southeast corner of the property in the area of existing monitoring well MW-1, apparently from the former operations of the MGP located just east of the subject property; and

3) the potential co-mingling of petroleum hydrocarbons with other contaminants identified in groundwater at the subject property likely resulting from a release of unknown origin, volume and time period from one or more of the operating gasoline stations, auto repair shops, and/or the subway yard located adjacent to the northeast, north, or south boundaries of the subject property.

2.1 PREVIOUS WORK

As mentioned in Section 2.0 above, several phases of investigation work were conducted at both the Site as a whole and specifically within the former Bell Boy Cleaners lease unit. The work conducted at the Site is described in Section 2.1.1, while work conducted within the former Bell Boy Cleaners unit is described in Section 2.1.2. Copies of pertinent figures and data tables from previous reports are presented in Appendix B.

2.1.1 Previous Work Conducted at the Site

Between November 2000 and February 2001, MPI oversaw the drilling of thirty-eight (38) soil borings at the Site. As shown on the figure in Appendix B, seven (7) borings were drilled inside the former Bell Boy Cleaners unit and thirty-one (31) borings were drilled throughout the exterior portions of the property. Please note that Stantec was not able to review MPI's report on this work, as the report was not available, and that the following description is based on our review of subsequent Whitestone reports. Description of the work conducted inside the former Bell Boy Cleaner unit is presented in Section 2.1.2 below.

Soil sample analytical results did not reveal significant evidence of soil source areas for VOCs. However, soil samples collected from several borings in the southeastern corner of the Site (rear parking lot area) had reportable concentrations of base neutral compounds. The total concentration of these compounds was 11.4 parts per million (ppm) which was below the NYSDEC

Technical and Administrative Guidance Memorandum (TAGM) guideline criteria (in place at that time) of 500 ppm for total semi-volatile organic compounds (SVOCs). According to Whitestone, MPI suggested this contamination was potentially associated with coal gas manufacturing wastes originating from the adjoining property.

Groundwater samples collected from temporary wells installed in several of the MPI 2000/2001 borings had concentrations of VOCs and base neutral compounds at levels that exceeded groundwater quality criteria. The highest detected VOC levels were observed in the southwestern half of the front parking lot area and included tetrachloroethene (PCE) trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride (VC).

In March 2003 and May 2004, Whitestone conducted soil borings, monitoring well construction, and groundwater sampling at eight locations at the site. The locations (identified as MW-1 through MW-8S/D) are shown on Figure 2 and generally corresponded to some of the 2000/2001 borings (as shown on the figure in Appendix B). Soil samples for analytical testing were collected from only MW-1, MW-2, MW-3, MW-7, and MW-8S. The soil boring results indicated that fill underlies the Site (which again is covered by asphalt and the Site building). Soil sample analytical results showed that no VOCs, SVOCs, metals, pesticides or polychlorinated biphenyls (PCBs) were detected above NYSDEC recommended Soil Cleanup Objectives (SCOs) in MW-2, MW-3, and MW-7, but that only SVOC and metals were detected at levels above SCOs from samples collected from MW-1 and MW-8S. Groundwater sample analytical results showed concentrations of chlorinated VOCs (CVOCs) at levels exceeding NYSDEC Groundwater Quality Standards (GWQS) at MW-2 and MW-4; CVOCs and SVOCs above GWQS in MW-4D; and benzene, ethylbenzene, toluene, xylene (i.e., BTEX) above GWQS at MW-6. In the southeastern portion of the Site, BTEX and SVOCs were reported above GWQS in MW-1 only. Free product was also observed, or measured, during the installation and sampling of MW-1.

In August 2007, another round of groundwater samples was collected from the eleven Site wells. The results from this event were similar to previous results (i.e., BTEX and SVOCs in MW-1, CVOCs and SVOCs at MW-4 and MW-4D, and BTEX in MW-6).

On June 15, 2008, an injection of Hydrogen Release Compound (HRC©) was conducted in the vicinity of MW-4/MW-4D, in accordance with Whitestone's August 2004 Supplemental Remedial Investigation Report & Remedial Investigation/Corrective Action Workplan, Whitestone's August 2007 and October 2008 correspondence, and NYSDEC's May 2008 approval letter. A total of 15 temporary injection points were installed to depths of 12 feet below ground surface (ft. bgs). At each point, five pounds of HRC© were injected per vertical foot from depth interval of 6 to 12 ft. bgs. Post-injection groundwater samples collected on July 15 and October 16, 2008 (30 days and 90 days after injection) from MW-4 and MW-4D showed a decrease in concentrations of PCE in MW-4 (from >1000 ppb to 460 ppb). An increase in concentrations of PCE breakdown products (TCE, cis-1,2-DCE, and VC) further suggested the HRC© had been effective in breaking down the CVOCs.

On May 28 and June 11, 2008, Enhanced Fluid Recovery (EFR) activities were conducted in MW-1. During these EFR events, 750 and 800 gallons were pumped from MW-1. Post-EFR groundwater samples collected on October 16, 2008 continued to show levels of BTEX and SVOCs above GWQS in MW-1 and below Standards in MW-7, MW-8S, and MW-8D. A subsequent gauging event conducted by NYSDEC and Whitestone at MW-1 on December 18, 2008 identified the presence of free product in this well.

On June 11, 2008, six soil gas vapor samples (identified as SG-1 to SG-6 on the figure in Appendix B) were collected from locations around the perimeter of the property and submitted for VOC analyses by Method TO-15. Results (see copies of data tables in Appendix B) showed the highest concentrations of PCE at location SG-1 (210 ug/m^3), which was located to the north of the Citibank unit. PCE levels at the remaining five soil gas vapor locations ranged from non-detect at SG-3 to 18 ug/m^3 at SG-5. TCE was reported at 32 ug/m^3 at SG-1 and at non-detect levels at the other five locations.

2.1.2 Previous Work Conducted Within the Former Bell Boy Cleaners Unit

Between November 2000 and February 2001, MPI oversaw the drilling of seven soil borings within the former Bell Boy Cleaners unit (herein identified as the subject unit). As shown on the figure presented in Appendix B, these borings are identified as APBH-14, APBH-15, APBH-16, APBH-27, APBH-34, APBH-35, and APBH-36. Please note that Stantec was not able to review MPI's report on this work, as the report was not available, and that the following description is based on our review of subsequent Whitestone reports. Soil samples collected from beneath the concrete slab from the seven borings had reported concentrations of PCE of 7.2 to 18 parts per million (ppm), which exceeded the TAGM guidance value of 1.4 ppm in place at that time. However, according to Whitestone, the MPI results indicated that the impacted soil did not extend to the groundwater interface, at approximately six to seven below the concrete slab.

In June 2004, Whitestone collected sub-slab soil vapor samples for VOC analyses by Method TO-15 from four locations (identified as SV-1 to SV-4 on the figure in Appendix B). As shown on the data table in Appendix B, PCE soil gas vapor concentrations were reported at levels ranging from 3,800 ug/m^3 at SV-1 to 160,000 ug/m^3 at SV-3 and TCE at levels ranging from non-detect at SV-3 and SV-4 to 440 ug/m^3 at SV-2. Whitestone surmised that these soil gas vapor concentrations may relate to localized shallow soil anomalies identified by MPI, but may more likely correspond to downward vapor migration through floor cracks or openings from the poorly-vented dry cleaners to the vadose (or unsaturated) zone.

In June 2008, Whitestone collected indoor air quality (IAQ) samples from the subject former dry cleaner unit and from the adjacent Ciros Pizza for VOC analysis by Method TO-15. These two samples are identified in Appendix B as IAQ-1 and IAQ-2, respectively. A third exterior air sample (IAQ-3) was located outside near the rear door and analyzed for TO-15. The tabulated results (Appendix B) identified PCE concentrations at 310 ug/m^3 and 6.8 ug/m^3, respectively, in IAQ-1 and IAQ-2. The IAQ-1 sample result of 310 ug/m^3 exceeded the NYSDOH air guidance value of 100 ug/m^3. TCE was reported as non-detect in both indoor air samples.

Based on the levels of PCE reported in the sub-slab gas and indoor air samples, Whitestone recommended that a sub-slab depressurization system (SSDS) be installed at the subject unit.

2.2 RATIONALE FOR SUPPLEMENTAL WORK

The objectives of Stantec's supplemental remedial investigation work included:

1. Further evaluation of the extent of groundwater contamination;
2. Evaluate whether other significant source(s) of chlorinated hydrocarbon contamination exists on site;
3. Evaluate contaminant mitigation pathways and groundwater flow dynamics;
4. Evaluate the potential for significant vapor intrusion into existing buildings; and
5. Evaluate the effectiveness of HRC® and collect data to assist in the identification, evaluation and selection of the appropriate remedial action alternatives, if needed.

3.0 SUPPLEMENTAL WORK PERFORMED

The following sections describe the work that was conducted in accordance with the approved SRIWP (approved May 2011).

While conducting an initial mark-out for MIP and boring locations in October 2011, Stantec observed that the former Bell Boy Cleaners unit had ceased operations and was vacant. After being granted access by A&P, Stantec conducted a visual inspection of the subject unit, which indicated that residual chemical staining existed on the surface of, and possibly below, the subject unit's concrete slab floor in an area toward the rear of the unit where a dry cleaner machine was still located. With the unit vacant, Stantec and A&P decided this was an opportunity to conduct subsurface investigations and interim remedial measures within the subject former dry cleaner unit. Stantec subsequently submitted an Interim Remedial Measures Work Plan (dated December 1, 2011) to NYSDEC. NYSDEC approved the Workplan that same day.

The work, which included cutting through the concrete slab, excavating approximately 30 cubic yards of soil underlying the slab, installing a sub-slab depressurization system (SSDS), and performing post-installation monitoring and testing, was conducted between December 2011 and March 2012. Due to damage caused by Hurricane Sandy in October 2012, repairs to the SSDS were conducted in January 2013. A report, entitled Interim Remedial Measures – Construction Completion Report (IRM-CCR), dated June 28, 2013, was subsequently submitted for NYSDEC review and comment on July 2, 2013. An addendum to the IRM-CCR describing results of pressure monitoring of the various SSSG points was submitted on January 23, 2014. NYSDE subsequently approved the IRM-CCR on March 11, 2014. Because the investigation work inside the former Bell Boy Cleaners was conducted and reported in the IRM-CCR, no soil or groundwater samples were collected as part of the RI described herein.

3.1 SUB-SLAB TEMPORARY WELL AND VAPOR PROBE INSTALLATION

In March 2012, Stantec oversaw the advancement of four Geoprobe® borings and the installation of three temporary wells in three of the lease units (Citibank, Ciros Pizza, and Liquor Warehouse). Borings and temporary wells were installed by Zebra Environmental utilizing a small, portable Geoprobe® rig. At each location, the Geoprobe® advanced a boring to two to three feet below the field identified water table, which was identified between 8 and 9 feet below top of concrete (feet BTOC). Soil samples were collected continuously, logged in the field for geologic characterization, and screened for total volatile organics with a miniRAE 3000 photoionization detector (PID). Temporary well points were set in three of the four borings as a means to collect groundwater samples for laboratory analysis of VOCs (8260B) and SVOCs (8720C). Results of these groundwater samples are described in Section 4.3.3.1.

At each of the four interior Geoprobe® locations, permanent sub-slab vapor probes were then installed. These sub-slab probes are identified as SVP-6, SVP-9, SVP-10, and SVP-11 on Figure 3. Please note that although the temporary wells are not specifically shown on Figure 3, their

locations are identified as SVP-6, SVP-9, and SVP-11 (a temporary well was not set at the SVP-10 location). The SVP-9 and SVP-10 sub-slab vapor probes were installed within the Liquor Warehouse unit on March 8, 2012. SVP-6 and SVP-11 were installed within the Citibank and Ciros Pizza units, respectively, on March 19, 2012.

After the groundwater samples were collected, the temporary wells were removed, the boreholes backfilled with clean filter sand, and the concrete slab patched. In the vacant unit, the Geoprobe® rig was moved over one foot and the two sub-slab vapor probes (SVP-9 and SVP-10) were then installed/constructed in separate borings. Due to time and access logistics in Citibank and Ciros Pizza, sub-slab vapor points SVP-6 and SVP-11 were constructed within the boring after the temporary well point had been removed. At these two locations, a bentonite seal was added from 7.5 to 5.5 feet BTOC, followed by filter sand. Each sub-slab probe was constructed of stainless steel with six inches of slotted steel set approximately 1.8 to 1.3 feet BTOC. This screened interval was about six inches to one foot below the bottom of the concrete slab. A small diameter road-box with locking cap was then set and grouted flush to the concrete floor. SVP-6 was located in the back portion (non-customer area) of the bank in the employee kitchen. SVP-11 was located in the back portion (non-customer area) of the Ciros Pizza unit. Once installed, Stantec confirmed there were no leaks at each probe utilizing a helium shroud technique.

As described in Section 3.0 above, Stantec submitted an IRM-CCR to NYSDEC in July 2013. Based on NYSDEC's subsequent comment letter dated July 25, 2013, Stantec returned to the Site and installed four additional sub-slab probes in the Sofia's Nail Salon unit on October 30, 2013 as a means to conduct quantitative pressure field tests (i.e., evaluating the SSDS capture zone by recording differential pressure measurements via micro-manometer) and to collect sub-slab soil gas samples. These four probes are identified as SV-101 to SV-104 on Figure 3.

As mentioned in Section 2.0 above, the vacant unit was renovated in January/February 2014 into a retail liquor store. During a site visit on February 14, 2014, Stantec ascertained that the two sup-slab probes (SVP-9 and SVP-10) that were installed in March 2012 were no longer viable. Therefore, Stantec replaced these two probes on March 18, 2014. The two replacement probes were installed within 10 feet of the initial probes and so for consistency in nomenclature, the two replacement probes will continue to be identified as SVP-9 and SVP-10. These two probes were also used to conduct quantitative pressure field test measurements and to collect sub-slab soil gas samples.

These additional and replacement probes were installed in the manner described above. Following installation, Stantec conducted tests at each probe utilizing a helium shroud technique to confirm there was no leakage.

3.2 SUB-SLAB AND INDOOR AIR QUALITY SAMPLING

The former Bell Boy Cleaners unit was vacated in late 2011 and a new tenant business called Sofia's Nail Salon moved in following renovations/construction activities conducted from January to April 2012. Therefore, due to logistics of the new tenant, access to the unit was limited. IAQ

samples (two 8-hour IAQ samples) were collected from within the subject unit on March 11, 2012, approximately 12 weeks after the installation and continuous operation of the SSDS (see Section 3.0 above). The two IAQ samples are identified as IAQ-1 and IAQ-2 on Figure 3. One exterior ambient background air sample was also collected from a location outside the building across the parking lot and against a fence in back of the nearby US Post Office Building.

On March 20, 2012, sub-slab vapor samples and IAQ samples were collected from the three other leased units (Citibank, Ciros Pizza, and the vacant unit). Prior to collecting any samples, each sub-slab soil gas probe was determined to be properly sealed (i.e. no leakage) by using a helium shroud testing technique. As shown on Figure 3, one sub-slab sample (SVP-6) and two IAQ samples (IA-6 and IA-7) were collected from the Citibank. Note that IA-6 was located adjacent to SVP-6 while IA-7 was located at the teller area of the Citibank, as requested by Citbank management. One sub-slab sample (SVP-11) and one IAQ sample (IA-11) were collected from Ciros Pizza. Two sub-slab samples (SVP-9 and SVP-10) and two IAQ samples (IAQ-9 and IAQ-10) were collected from the vacant unit. All sub-slab and IAQ samples were collected over an eight-hour time period.

During both the March 11 and 20, 2012 IAQ and soil vapor sampling events, Stantec completed an Indoor Air Quality Questionnaire and Building Inventory for each unit, in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). The questionnaires/inventories are presented in Appendix C. At the end of the eight-hour period, the sample Summa canisters were shipped under chain of custody to Air Toxics LTD of Folsom, California for analysis of VOCs by Method TO-15. The laboratory results, in New York State (NYS) Category B data deliverable format, were subsequently submitted to a third party for data validation and preparation of data usability summary report (DUSR). The DUSR and copies of pertinent laboratory report pages are also included in Appendix C. Results are discussed in Section 4.3.4.1.

In accordance with the IRM-CCR, Stantec conducted the Annual Operation, Maintenance, and Monitoring (OM&M) of the SSDS in March 2014. During this OM&M and based on the results from March 2012, additional sub-slab vapor and IAQ samples were collected from the Ciros Pizza, Sofia's Nail Salon, and vacant/Liquor Warehouse units on March 25, 2014. Note that the SSDS was turned off on March 18, 2014 (seven days before collecting the additional samples). Copies of pertinent laboratory report pages are also included in Appendix C. Results are discussed in Section 4.3.4.2.

3.3 MEMBRANE INTERFACE PROBE INVESTIGATION

Prior to the placement of proposed new groundwater monitoring wells, soil and groundwater screening was conducted between March 27 and 29, 2012. The purpose of this screening event was to collect in-situ field data that would assist in evaluating the proper siting and construction of new monitoring wells, so that the wells were properly located to intercept contamination in the potential source areas and downgradient areas under investigation. This screening event was conducted using a Membrane Interface Probe (MIP) advanced via a direct push (Geoprobe®) drill rig. The MIP system is designed to detect and qualitatively measure VOCs in the subsurface.

During this screening event, 463 vertical feet were logged at eleven locations (identified as MIP-1 through MIP-11 on Figure 2). The areas of the screening were selected near and around the potential source areas of the CVOC release. The final decision where to place the MIP borings depended upon review of previous data, and on the location of underground utilities, site features, available and allowed access, and other safety concerns. Stantec submitted to NYSDEC a preliminary report describing results and recommendations for locations of proposed monitoring wells on April 30, 2012. Follow-up discussions with NYSDEC resulted in the confirmation of eleven wells in the western portion of the Site. The wells (identified as MW-101S/D to MW-107S on Figure 2) include shallow (S-wells) and deep (D-wells) overburden wells. The results and recommendations from this screening event were submitted in Stantec's final report to NYSDEC entitled Supplemental Investigation Implementation of Work Plan Report of Membrane Interface Probe Study Results, May 7, 2012 (MIP Report). A copy of the MIP Report is presented in Appendix D.

3.4 SOIL BORINGS (WESTERN AND NORTHERN PORTIONS OF THE PROPERTY)

Based on the results of the MIP investigation, Stantec then oversaw the advancement of seven soil borings from May 8 to 11, 2012. Drilling was conducted by Zebra Environmental using a Geoprobe® rig. Prior to drilling for safety reasons, each location was cleared for shallow utilities using an air-knife to a depth of five feet. Borings were subsequently advanced to pre-determined depths described in the MIP Report and approved by NYSDEC. Soil samples were collected continuously for field characterization and field screening for VOCs using a properly calibrated PID. Boring logs are presented in Appendix E.

Two soil samples were selected from each boring and submitted to a New York-certified laboratory for analysis. The selected soil samples included one at a depth just above the field-identified water table and one at the approximate bottom to the boring. In the July 2011 SRIWP an additional soil sample was proposed if a soil sample exhibited a relatively high PID (over 50 ppm). However, PID readings were consistently well below 50 ppm, therefore two samples per location were submitted for laboratory analyses of VOCs (8260B), SVOCs (8270C), and TAL metals (6010B) as designed in the SRIWP. The laboratory results, in NYS Category B data deliverable format, were subsequently submitted to a third party for data validation and preparation of a DUSR. The DUSR and copies of pertinent laboratory report pages are included in Appendix F.

3.5 MONITORING WELL INSTALLATION

Following completion of the Geoprobe® boreholes to the selected depths, each deep boring was re-drilled with 4.25-inch (inner-diameter) Hollow Stem Augers (HSA) to allow for the construction of 2-inch polyvinyl chloride (PVC) wells. At locations where well couplets were installed, the shallow wells were drilled with HSA without sampling to the pre-determined depths described in the MIP Report. While attempting to drill MW-104D, fine sands were observed to be getting into the auger flights, plugging up the bottom of the auger flights, and preventing well MW-104D from being constructed at the selected depth interval of 38-33 feet below ground surface (bgs). With the approval of NYSDEC, a modification from the work plan was made for this

well location so that a pre-packed well screen could be utilized to construct MW-104D and overcome the limitations caused by the flowing fine sand. The wells (identified as MW-101S, MW-101D, MW-102S, MW-102D, MW-103, MW-104S, MW-104A-S, MW-104D, MW-105S, MW-106S, and MW-107) were installed to allow for the collection of field water level measurements and groundwater samples for laboratory analysis. Well completion details are presented in Table 1 and Appendix E. The newly installed wells were subsequently developed to reduce the amount of fines in the wells.

In September 2012, Control Point Associates, Inc. surveyed the horizontal locations of the MIP borings and the newly installed wells (i.e., the 100-series monitoring wells) and vertical elevations (ground surface and top of PVC riser measuring point) of each new well. The elevation data (in feet above mean sea level [MSL]) are incorporated into Tables 1 and 2.

Three additional monitoring wells (MW-108S, MW-109S, and MW-110S) were installed in the southeastern portion of the property in October 2012 and were surveyed in September 2013. The survey data for these three wells are incorporated into Tables 1 and 2.

3.6 GROUNDWATER SAMPLING

As mentioned in Section 3.1 above, groundwater samples were collected from three temporary well points installed inside three of the lease units (SVP-6 in the Citibank, SVP-11 in Ciros Pizza, and SVP-9 in the vacant unit). Groundwater samples were collected from the three temporary wells using disposable bailers. The samples were labeled, packaged together with ice packs, and delivered to Test America (a New York-approved laboratory) under standard chain of custody protocol. At the laboratory, the samples were analyzed for VOCs (8260B) and SVOCs (8270C). The laboratory results, in NYS Category B data deliverable format, were subsequently submitted to a third party for data validation and preparation of a DUSR. The DUSR and copies of pertinent laboratory report pages are included in Appendix G. Results of this groundwater sampling event are discussed in Section 4.3.3.1 below.

Groundwater samples were collected from the eleven newly installed wells (MW-101 to MW-107) and from six of the eight exiting wells (MW-1 to MW-8S) from June 26 to 29, 2012. Samples were not collected from existing wells MW-1, due the presence of DNAPL in the well, or at monitoring well MW-8D, due to the presence of an automobile parked on top of the well head. During the four days of sampling, Stantec was unable to locate the owner of this vehicle to have it moved. Each of the seventeen monitoring wells was purged and sampled using low-flow sampling techniques in accordance with USEPA Region II guidance document entitled "Groundwater Sampling Procedure, Low Stress (Low Flow) Purging and Sampling". The monitoring wells were low-flow purged prior to sampling by evacuating groundwater at a rate - between 120 and 280 milliliters per minute for a minimum of 55 minutes or until stabilization of the field parameters occurred. Purging was conducted using a submersible bladder-pump, which was connected to polyethylene tubing within each well. During this sampling event, separate disposable polyethylene bladders were used for the bladder pumps at each location sampled. The bladder pump housing was decontaminated between well locations. One equipment blank was

collected from the bladder pump housing during this sampling event. Low flow sampling data sheets are presented in Appendix H. Groundwater samples from wells MW-108S, MW-109S, and MW-110S were collected by GEI in a similar manner on January 23, 2012. The samples were analyzed by Test America for VOCs, SVOCs, TAL metals, and total cyanide. Results are presented in GEI's report included herein as Appendix A.

The groundwater samples were collected in laboratory-prepared glassware containing an appropriate amount of preservative. Samples were labeled, packaged in ice packs, and delivered to Test America under standard chain of custody protocol. At the laboratory, the samples were analyzed for VOCs (8260B) and SVOCs (8270C). Additional samples were collected from existing wells MW-4 and MW-4D and analyzed for total organic carbon, sulfate, nitrate, nitrite, metabolic acids (acetic, formic, lactic, butyric, propionic, and pyruvic), and dissolved gases (carbon dioxide, ethane, and ethene). As described in Section 2.1.1, Whitestone oversaw an injection of HRC© in the vicinity of MW-4/MW-4D. The tested analytical parameters can be used to evaluate the performance of the HRC© injection/process conducted in 2008.

For QA/QC purposes, additional samples consisting of one field equipment blank, two duplicates, and trip blanks were also collected and submitted. The duplicate samples ("Dup" and "Dup-2") were collected from MW-105 and MW-8S to evaluate the reproducibility of the laboratory analytical results. The trip blank samples accompanied the sample bottles during sampling activities to determine if samples and/or sample bottles were contaminated during shipment to and/or from the laboratory. The field equipment blank was used to evaluate whether field decontamination procedures affected analytical results. QA/QC results are described in Section 4.3 below. The laboratory results, in NYS Category B data deliverable format, were subsequently submitted to a third party for data validation and preparation of a DUSR. The DUSR and copies of pertinent laboratory report pages are included in Appendix I. Results of this groundwater sampling event are discussed in Section 4.3.3.2 below

3.7 DATA VALIDATION AND MANAGEMENT

The soil and groundwater samples and indoor air samples were analyzed by Test America and Air Toxics, respectively. Both labs, accredited under the NYSDOH environmental lab approval program, provided analytical results in a NYS Category B data deliverable format. The laboratory reports were subsequently submitted to Alpha Geoscience for validation in accordance with New York State Analytical Service Protocols (ASP). Data usability summary reports (DUSRs), which documented the adequacy of the analytical data, were subsequently prepared by Alpha. The DUSRs are included in Appendices C, F, G, and I.

3.8 TIDAL EVALUATION

To evaluate whether daily tidal fluctuations influence groundwater levels on Site, Stantec set pressure transducers/data loggers in shallow/deep well pairs to automatically record groundwater levels over a 24-hour tide cycle. Data loggers were set in MW-4/MW-4D from January 22 to 23, 2013 and in MW-102S/MW-102D from March 13 to 14, 2013. During the March

work, Stantec also measured water levels in Site wells during a low tide and high tide period. The recorded and measured water levels were then compared to Tide Charts provided by the National Oceanic and Atmospheric Administration (NOAA). Two NOAA locations (Barren Island and Beach Channel Bridge) within Jamaica Bay were selected due to their proximity to the Site. A map showing these locations is provided in Appendix J. Tide Charts for the two NOAA locations are also presented in Appendix J.

During the March 2013 evaluation, Stantec also measured water levels in on-Site wells during both a low tide and high tide period. Levels were measured on March 13, 2013 at 3:30 PM (approximately 45 minutes before low tide at Beach Channel Bridge) and on March 14, at 9:30 AM (approximately 1.5 hour before high tide at Beach Channel Bridge). Results of this evaluation are discussed in Section 4.2.

3.9 MGP RESIDUALS (SOUTHEAST PORTION OF THE PROPERTY)

As mentioned in Sections 1 and 2 above, previous soil and groundwater sample analytical data suggest the southeastern area of the subject property has apparently been impacted from the former operations of the MGP site located just east of property. This portion of the Site is periodically referred to as the southeastern area, rear parking lot area, and loading dock area. Periodic well gauging conducted at this portion of the Site during previous investigations identified the presence of dense non-aqueous liquid (DNAPL) tar at monitoring well MW-1, which is located in the southeastern portion of the property. Previous analytical data also show levels of PAHs in soils and groundwater above applicable standards. To further evaluate impacts in this portion of the Site, GEI was contracted by National Grid to conduct additional soil boring, soil sampling, and groundwater sampling (via temporary wells). A copy of GEI's report describing the work performed and results is presented in Appendix A.

Based on NYSDEC's comments on Stantec's Draft Supplemental Remedial Investigation Report (dated July 28, 2014), which included results of GEI's work, GEI conducted additional work at the Site in April and June 2015. In April 2015, GEI conducted a vapor intrusion investigation inside the Stop & shop. Three temporary sub-slab soil gas points (identified as SV-101 to SV-103) were installed and sampled and three indoor air samples (IA-101 to IA-103) were sampled. In June 2015, GEI conducted additional soil borings and soil sampling around boring B-110, located in the eastern portion of the Site near the egress to Wainwright Court. The purpose of the additional borings and sampling was to delineate the extent of cyanide, detected above SCOs at B-110.

3.10 NATURE AND EXTENT OF MGP CONTAMINATION

This section of the report describes the nature and extent of MGP-related contamination at the Site conducted by National Grid and GEI Consultants. Reference here to tables, figures and Appendices direct the reader to GEI's Report, which is presented as Appendix A of this report. Physical observations and summarized analytical results are included in Figures 3 and 4. Analytical data are provided in Tables 2 and 3. Soil boring logs are provided in Appendix B.

In accordance with NYSDEC regulations, subsurface soil analytical results in Table 2 are compared to Title 6, Chapter 100, Part 700-705, Subpart 375-6 of the 6NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs) (NYSDEC, 2006). The Unrestricted SCOs are the most stringent standards, protective of both human and ecological health. They are included here to provide a "baseline" of conditions with respect to human and ecological health. However, as described in the next paragraph, other Part 375 standards (Restricted Use Commercial) are most applicable.

Per Subpart 375, the Commercial SCOs are appropriate for land which shall only be considered for the primary purposes of buying, selling, or trading of merchandise services. Commercial use includes passive recreational uses, which are public uses with limited potential for soil contact. In general, the Commercial SCOs reflect non-full time use and limited contact. These standards are applicable to the Site. Therefore, subsurface soil analytical results are also compared in Table 2 with the Commercial SCOs (subparagraph 375-1.8(g) (2) (iii) of Part 375).

In accordance with NYSDEC regulations, groundwater analytical results in Table 3 are compared to the New York State Ambient Groundwater Quality Standards (NYS AWQS).

3.10.1 Air Monitoring

Air quality was monitored in the work zone during intrusive work for multiple parameters (VOCs, hydrogen cyanide, hydrogen sulfide, lower explosive limit, and oxygen) and at the upwind and downwind perimeters for dust and VOC concentrations. Dust, VOCs, hydrogen cyanide, hydrogen sulfide, lower explosive limit, and oxygen were within the limits set forth in the CAMP and Health and Safety Plan (HASP) during intrusive activities. There was one occasion, on May 23, 2013, after completing Boring B112, that the fifteen-minute average VOC concentrations were measured above 5 ppm at the downwind station. No intrusive work was occurring during this period. The PID was recalibrated and the no further elevated readings were observed.

3.10.2 Subsurface Soil

Tar-coated to tar-saturated soils were limited to depths between 9 and 14 ft. bgs at the two borings located immediately east and west of monitoring well MW-1 (B-104 and B-107, respectively). Physical impacts in borings to the north and northeast of monitoring well MW-1 were limited to soil staining and naphthalene-like odors. Physical impacts east of B-107 were limited to naphthalene-like odors at MW-110S. Borings located south of monitoring well MW-1 and east of borings B-107 and MW-110S did not exhibit any physical MGP impacts. Physical impacts observed in soil borings were limited to the upper 18 feet, with the exception of naphthalene-like odors noted at depth in boring B-107.

The physical impacts observed at each boring are included in the boring logs in Appendix B and are summarized in Figure 3 and the following table.

Boring ID	Date Complet	Total Dept	Physical Impacts Observed
B-103	5/17/12	40	~5.5-8 ft bgs – Staining ~8-17 ft bgs – Naphthalene-like Odors ~10-12 ft bgs – Staining
B-104	5/16/12	40	~9-10 ft bgs – Tar-Coated Soils
B-105	5/17/12	40	None
B-106	5/17/12	40	~8-25 ft bgs Naphthalene-like Odors
B-107	5/16/12	40	~7.5-8.5 ft bgs – Staining and Sheen ~11-13 ft bgs – Staining to Tar-Coated Soils ~13-15 ft bgs – Tar-Coated to Tar-Saturated Soils ~18-40 ft bgs – Naphthalene-like Odors
B-108	5/17/12	40	None
B-109	5/22/12	40	None
B-110	5/23/12	40	~1.5-2 ft bgs – Blue Stained Soil ~4.5-5 ft bgs – Purple Stained Soil
B-111	5/25/12	40	~9-19 ft bgs – Naphthalene-like Odors
B-112	5/23/12	40	None
B-113	5/22/12	40	None
B-114	5/19/12	20	~5-10 ft bgs – Naphthalene-like Odors
MW-110S	10/12/12	20	~7-9 ft bgs – Naphthalene-like Odors

Only five of the 42 samples collected in May and October 2012 contained compounds which exceeded the Commercial Use SCOs. The detections of compounds which exceeded the Commercial Use SCOs are summarized in Table 2, Figure 3, and the following table.

Boring ID	Sample Depth (ft bgs)	Compounds Detected Above Commercial Use SCOs
B-104	9-10	Benz[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Dibenz[a,h]anthracene
B-107	8.5-10	Benz[a]anthracene Benzo[a]pyrene
B-107	11-12	Benz[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Dibenz[a,h]anthracene
B-110	1-3	Benz[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Dibenz[a,h]anthracene T Cyanide
B-111	6.5-7.5	Benzo[a]pyrene

Other PAH compounds were detected at concentrations above the Unrestricted Use SCOs in each of the soil samples noted above. BTEX compounds were not detected in any of the soil samples at concentration above the Commercial Use SCOs. However, BTEX compounds were detected above Unrestricted Use SOCs in three samples, B-104 (9-10), B-107 (8.5- 10), and B-107 (11-12). Lead was also detected above the Unrestricted Use SCOs in two samples, B-104 (9-10) and B-107 (8.5-10).

Total cyanide was detected at each boring location. Total cyanide concentrations were highest at shallow intervals and generally decreased with depth. The concentration of total cyanide detected in sample B-110 (1-3) was 127 milligrams per kilogram (mg/kg), above the Commercial Use SCO (27 mg/kg). All other detections of total cyanide were below the Unrestricted Use SCOs. It is important to note that the SCOs for cyanide were developed based on the use of free cyanide in toxicological studies (NYSDEC, 2006). Free cyanide is the sum of molecular hydrogen cyanide and the anion CN- and is responsible for cyanide toxicity (NYSDEC, 2006). Free cyanide was detected in 18 samples and the highest concentration was 8.9 mg/kg in sample B-110 (1-3).

At MGP sites cyanide is typically found in metal-complexed cyanide compounds from spent oxide box residuals, most predominantly as ferric-ferrocyanide (Ghosh et al, 2004). Under normal

environmental conditions, these compounds are non-reactive and non-toxic. They are not solubilized except at a pH approaching 10 and higher, after which they must be exposed to ultraviolet light to liberate free cyanide (which is the toxic form of cyanide) (Dzombak et al, 2005; EPRI, 2010). The pH levels in groundwater samples collected from the site ranged from 6.09 to 8.69 (Table 1). The total cyanide analysis includes all forms of cyanide, including these non-toxic metal-complexed cyanide compounds as well as free cyanide. The free cyanide analysis (EPA Method 9016) is a more accurate measure of free cyanide, or hydrogen cyanide, in waste waters, ground waters, surface waters, drinking waters, soils and solid wastes. This test method reports the cyanide that dissociates from simple cyanides or weakly-bound metal cyanide complexes under normal environmental conditions (room temperature, from a solution of pH 6-6.5) (U.S. EPA, 2010). The comparison of total cyanide and free cyanide test results at MGP sites has shown that cyanide is a minor component of the total cyanide concentration.

3.10.3 Groundwater

Groundwater analytical data from samples collected from temporary probes and monitoring wells were compared to the NYS AWQS. Table 3 and Figure 4 present the analytical data.

Groundwater samples collected from depths between 16 and 40 ft bgs at temporary probes B-105GW to the south and B-109GW to the southwest of MW-1 either did not contain detectable concentrations of BTEX and PAHs or contained low levels of these compounds below the NYS AWQS (Table 3). Concentrations of 5 PAHs were detected above the NYS AWQS in groundwater sample B-105GW (6-10); the total PAH concentration in this sample was 3.64 micrograms per liter (µg/L).

Adjacent to B-109, a sample collected from monitoring well MW-109S, screened between 5 and 15 feet, did not contain concentrations of BTEX and PAHs above the NYS AWQS.

North of MW-1, four samples collected between 6 and 40 ft bgs at temporary probe B-106GW contained concentrations of BTEX above the NYS AWQS (Figure 4). Total BTEX concentrations ranged between 9,740 µg/L in sample B-106GW (12-16) and 41.8 µg/L in sample B-106GW (36-40) (Table 3). Acenaphthene, naphthalene, and styrene were detected above the NYS AWQS at intermediate depths (12 to 16 and 18 to 22 feet). Total PAH concentrations ranged between 8,890 µg/L in sample B-106 (12-16) and 22 µg/L in sample B-106 (36-40).

Adjacent to B-106, a sample collected from monitoring well MW-108S, screened between 5 and 20 feet, also contained acenaphthene, naphthalene, and styrene above the NYS AWQS. Concentrations at MW-108S were lower than the B-106GW (12-16) sample.

Similar to the soil analytical results, total cyanide concentrations in temporary probes were highest at shallow intervals and generally decreased with depth. North of MW-1, total cyanide was detected above the standard in two samples collected at B-106GW at depths cyanide was detected in sample B-109GW (6-10) at 1,300 µg/L, above the NYS AWQS (200 µg/L) (Table 3). Two other samples from temporary probes, B-106GW (5-9) and B-106GW (10-14), contained concentrations of total cyanide above the standard.

Cyanide was also detected in samples collected from monitoring wells MW-108S, MW- 109S, and MW-110S and in the sample collected from the existing well MW-8S by Stantec. Cyanide concentrations were above the NYS AWQS in samples MW-108S and MW-110S.

3.10.4 Conclusions

The area adjacent to the loading dock at the Site is impacted with MGP residuals that range from tar-saturated soil to naphthalene-like odors. Tar-coated to tar-saturated soil was observed between 9 and 15 ft bgs within approximately 15 feet of MW-1 where the presence of tar was first observed at the Site. The forensics report submitted in 2009 identified the samples from both properties as carbureted water gas tars. However, the compositional differences between the DNAPL on the former Rockaway Park MGP site and the Belle Harbor site indicate that the DNAPL's are from independent releases and are not part of one contiguous plume. This MGP source area has been delineated vertically and laterally to the north, east, and south. The soils to the west are under existing building footprint and inaccessible.

Total cyanide was detected in soil and groundwater at the Site. Total cyanide was detected in soil and the highest concentration was detected in B-110 in the northeastern portion of the Site near the former gas station. Free cyanide was detected at B-110 at a much lower concentration. The highest concentrations in groundwater were detected in groundwater probe B-106GW and confirmed in monitoring well MW-108S north of the MGP impacts observed near MW-1.

4.0 RESULTS

4.1 GEOLOGY

According to available maps and information, Long Island is part of the Atlantic Coastal Plain Geomorphic Province, which stretches north and south along the east coast. Long Island is primarily a ridge of direct contact glacial and glacial outwash sediments that almost completely cover the underlying Cretaceous sedimentary bedrock. Long Island topography, therefore, is glacial topography, with little or no influence from the underlying bedrock.

The Site is further located on an outer barrier beach that is part of the Long Island and New York City barrier islands. These are a string of barrier islands or beaches that divide the lagoons south of Long Island (i.e. Jamaica Bay) from the Atlantic Ocean.

The soils encountered at the Site consisted of fill material (fine to coarse sand and gravel with pieces of coal fragments and concrete) from ground surface to approximately 5 to 6 feet bgs. Underlying the fill, soils encountered consisted of fine sand. Bedrock was not encountered in any of the borings drilled at this site.

4.2 GENERAL SITE HYDROLOGY

The following provides a summary of nature and extent and site characteristics associated with the portion of the property not under investigation for MGP residuals. As discussed above, details on the MGP portion of the site and related investigation is provided in Appendix A prepared by National Grid, the co-responsible party, and their consultant GEI Consultants.

4.2.1 Shallow Horizontal Flow and Gradients

Depths to groundwater, as measured previously in Site monitoring wells, typically ranged from five to seven feet below ground surface. Historic groundwater elevation data indicated flow is influenced by tidal action. During low tides, groundwater has been shown to flow in a northerly direction. During high tides, groundwater is also shown to flow to the north.

Depths to groundwater measured during groundwater sampling activities (June 26, 2012) ranged from 5.09 to 6.37 feet bls in the shallow wells and from 5.60 to 6.93 ft bls in the deep wells (see Table 2). The corresponding measuring point elevations (top of PVC well riser in feet MSL) were used to derive groundwater elevations shown in Table 2 and the Groundwater Contour Map Figure 4. Note that groundwater elevations are not posted at MW-108S, MW-109S, or MW-110S due to the fact that these wells were not drilled in June 2012. As shown on Figure 4, groundwater flow is towards the north-northeast across the Site at a relatively flat hydraulic gradient of 0.004 ft/ft. A groundwater mound is depicted in the vicinity of MW-102S.

4.2.2 Tidal Influence

As mentioned in Section 3.8, Stantec evaluated water level fluctuations at the Site in response to daily tides. Pressure transducers were set in shallow/deep wells (MW-4/MW-4D) in January 2013 and in shallow/deep wells (MW-102S/MW-102D) in March 2013. The transducers were programmed to record water levels every hour. These data were then compared to tide charts at NOAA Stations located at Barren Island and Beach Channel Bridge. These charts are presented in Appendix J.

As shown on the Tide Charts, the tides ranged from approximately 0.50 ft to 4.5 ft at both Barren Island and Beach Channel Bridge locations in January and from approximately -0.5 to 6.0 feet at both locations in March. Plots of water levels over time from MW-4/4D in January and from MW-102S/102D in March derived from the data loggers are also presented in Appendix J. These plots show a definite tidal influenced fluctuation in groundwater levels in the deep overburden wells (MW-4D and MW-102D). Levels are shown to fluctuate about 1.5 feet at MW-4D in January and 2 feet at MW-102D in March. The Spring and Neap tide levels are also indicated on the deep overburden plots. Water levels recorded in the two shallow overburden wells, however, are not shown to be as influenced by the tides. Levels in both MW-4 and MW-102S are shown to fluctuate only by a few inches.

Depth to water was also measured in on-site wells, during a low tide period on March 13 and during a high tide event on March 14, 2014. These data are presented in Table 2A. The corresponding water level elevations were used to develop groundwater flow maps for shallow overburden wells, mid-level overburden wells, and deep overburden wells during low and high tide periods, (Figures 4A to 4F). Groundwater in the shallow overburden is shown to flow to the north-northeast during both low and high tides (Figure 4A and 4D). Both flow nets depict a groundwater mound in the approximate enter of the site (in the vicinity of MW-102S/MW-102D). The change in elevations, from low to high tide, is minimal and on the order of about one inch.

Groundwater in the mid-level overburden is shown to be somewhat radial in the center of the Site during both low tide (Figure 4B) and high tide (Figure 4E). Water level elevations are also shown to rise approximately one to two feet from low to high tide. Groundwater in the deep overburden wells is shown to flow towards the north during low tide (Figure 4C) and towards the northeast during high tide (Figure 4F). Water level elevation changes in the deep overburden wells are similar to the mid-level overburden wells, in that elevations rise about one to two feet from low to high tide. To further illustrate how water level elevations fluctuate during a tide cycle in the shallow, mid-level, and deep overburden wells, plots of water level elevations (measured in March 2013) vs well depths are presented in Appendix J. Water level elevations in the shallow wells are relatively consistent and in the range of 3 feet MSL during both low and high tide, indicating little change across the Site. However, elevations in the mid-level and deep overburden wells are in the range of 2 feet MSL during low tide and in the range of 3 to 3.5 feet MSL during high tide. The data indicate water level elevations in the mid-level and deep overburden respond more to tidal fluctuations than the shallow overburden. Note that elevation data in MW-106S indicate this well is an outlier.

4.2.3 Vertical Hydraulic Flow and Gradients

Water level elevations derived during the tidal evaluation in March 2013 have been used to calculate vertical gradients for the several well pairs at the Site and are presented in Table 3. As shown in Table 3, water level elevations in the shallow wells are consistently greater than elevations in the corresponding mid-level and deep wells during the low tide period on March 13th, which indicates downward vertical gradients. During the high tide period, water level elevations in the shallow wells remain fairly consistent while elevations in the mid-level and deep wells increase or rise by one to two feet. The rise in elevations in the mid-level and deep wells indicates upward vertical gradients during the high tide period.

At the single mid-level/deep well pair (MW-104A-S/MW-104D) vertical gradients are shown to be upwards during both low and high tide periods.

4.3 LABORATORY ANALYTICAL RESULTS

4.3.1 Identification of Standards, Criteria, and Guidance

Each media of concern (soil, groundwater, soil vapor, and (potentially) free product) was evaluated separately herein in comparison to the appropriate NYSDEC cleanup standard or guidance in place at this time.

Soil. In October 2010, NYSDEC issued CP-51/Soil Cleanup Guidance, which applies to each of the remedial programs administered by NYSDEC's Division of Environmental Remediation (including the Inactive Hazardous Waste Disposal Site Remediation Program, the Brownfield Cleanup Program, Voluntary Cleanup Program, and the Spill Response Program). The new guidance replaces Technical Administrative Guidance Memorandum ("TAGM") 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994.

Therefore, in accordance with NYSDEC Policy – CP-51/Soil Cleanup Guidance, dated 10/21/10, the reported analytical concentrations for the analyzed constituents detected in soil at the property were compared to the commercial Soil Cleanup Objectives (SCOs) provided in 6 NYCCR Table 375-6.8(b). As described in the CP-51/Soil Cleanup Guidance (Section V, F) "the SCOs may be used to identify areas of soil contamination and to determine the extent of soil contamination, and that the exceedance of one or more applicable SCOs or Supplemental SCOs (which is the lower of protection of public health, protection of groundwater, or protection of ecological resources soil cleanup objectives), alone does not trigger the need for remedial action, define "unacceptable" levels of contaminants in soil, or indicates that a site qualifies for any NYSDEC remedial program."

Groundwater. Groundwater samples analytical results were used to evaluate the groundwater quality at the Site. Groundwater standards from NYSDEC Part 703 and TOGS 1.1.1 (the "Standards") were used as the cleanup goals for groundwater at the Site.

Free Product. There are no promulgated free product cleanup standards in New York State. Therefore, the NYSDEC Division of Environmental Remediation Spill Response Guidance Policy – Spill Guidance Manual Section 1.6-Technical Field Guidance Corrective Action is used to evaluate investigation results and potential remediation of free product at MW-1. The primary action in this guidance is product recovery. The objectives of a product-recovery operation are to (i) recover as much product to the extent practical, (ii) to complete the recovery operation over a short duration, and (iii) to control the potential migration of product onto, or from, the Site. The presence and/or absence of free product will be evaluated based on gauging activities. The gauging of all monitoring wells will be used to evaluate the effectiveness of the remedial investigations described herein.

Soil Vapor. The current NYSDOH guidance document entitled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006 along with periodic updates (such as new ambient air guidelines for PCE and TCE, and soil vapor/indoor air decision matrices) were used to evaluate soil vapor, sub-slab vapor, and indoor air quality data and were used as an additional means to evaluate the need (or not) for vapor remedial action(s).

4.3.2 Soil Analytical Results

Analytical results for the soil samples collected during boring advancement are presented in Table 4. These exterior sampling locations are shown on Figure 2. Spider maps depicting exceedances of SCOs are presented as Figures 5 and 6. Soil analytical results from the southeastern portion of the Site are presented in Appendix A as Table 2 and Figure 3.

As shown on Table 4, only one soil sample [MW-103 (5.2 – 6.2 feet bls) had an elevated VOC concentration reported above laboratory detection limits. This sample, collected just above the field-identified water table, had a reported concentration of PCE at 16 mg/Kg, which is below its applicable Commercial SCO of 150 mg/Kg. As shown on Figure 5, although there are no exceedances of Commercial SCOs, MW-103 is located approximately 20 feet southwest of the MW-4/4D well pair and in the vicinity of the 2008 HRC© injection area. All other soil samples also had concentrations of VOCs reported at levels below SCOs or below laboratory detection limits. The data from the southeastern portion of the Site (Appendix A) indicate there were no CVOCs reported above either Unrestricted or Commercial SCOs. BTEX compounds, however, were reported at concentrations exceeding Unrestricted SCOs (but below Commercial SCOs) in samples collected from two borings (B-104 at depths of 9 to 10 feet bls and B-107 at depths of 8.5 to 12 feet bls.

Concentrations of SVOCs were reported at levels exceeding Commercial SCOs in five of the fourteen samples (Table 4 and Figure 6). These five samples were from the depth interval generally corresponding to just above the field-identified water table in MW-102, MW-103, MW-104, MW-105, and MW-107. SVOC concentrations in the samples collected at deeper intervals in these same five borings were reported at levels below laboratory detection limits or below Commercial SCOs. SVOCs were also report at levels below Commercial SCOs or below laboratory detection limits in both the shallow and deep interval samples collected from two other boring locations (MW-101

and MW-106). The individual SVOCs exceeding SCOs in the five soil samples correspond to PAHs with the highest Total PAH levels occurring in MW-102 (488 mg/Kg), MW-104 (86 mg/kg), MW-105 (45 mg/kg), MW-103 (36 mg/kg), and MW-107 (13 mg/kg). The data suggest that soils impacted by PAHs are located at relatively shallow depths (i.e., from 0 to 10 feet bls) in the vicinity of the former western portion of the original shopping center.

The data from the southeastern, loading dock area of the Site (Appendix A) indicate that PAHs were reported above SCOs in samples collected from four borings (B-104, B-107, B-110, and B-111). Concentrations of Total PAHs ranged from 50 mg/kg at B-111 to 1300 mg/kg at B-107. The sample depths at which these elevated levels were reported typically ranged from 7 to 12 feet bls. At B-110, however, Total PAHs were reported at 208 mg/kg at a depth interval of 1 – 3 feet bls. These data also suggest that soils impacted by PAHs are located at relatively shallow depths (i.e., from 0 to 12 feet bls) in the vicinity of the loading dock area.

Concentrations of metals were reported at levels exceeding Commercial SCOs in only one of the fourteen samples (Table 4). Similar to the distribution of SVOCs, the sample with metals exceeding SCOs was from the depth interval generally corresponding to just above the field identified water table at one location (MW-104). SCO exceedances were limited to:

- Copper: MW-104 (6.3-6.9)

Similar to the distribution of SVOCs, the metals data suggest that soils impacted by metals are located at relatively shallow depths in the vicinity of the former western portion of the original shopping center.

4.3.3 Groundwater Analytical Results

4.3.3.1 Interior Temporary Wells

Analytical results for the groundwater samples collected from three temporary borings, one each installed within the Citibank, Ciros Pizza, and vacant unit at the time, now occupied by the Liquor and Wine Warehouse are presented in Table 5. These interior sampling locations are shown on Figure 3. Spider maps depicting exceedances of Groundwater Quality Standards (GWQS) are presented on Figures 7 and 8.

As shown on Table 5 and Figure 7, VOCs were detected in each of the three samples. At SVP-6 (in the Citibank), exceedances of GWQS were reported for ethylbenzene (12 ug/L) and vinyl chloride (2.2 ug/L). At SVP-11 (in Ciros Pizza), exceedances of GWQS were reported for PCE (6.1 ug/L). At SVP-9 (in the vacant unit), exceedances of GWQS were reported for cis-1,2-Dichloroethene (7.1 ug/L), ethylbenzene (320 ug/L), isopropylbenzene (46 ug/L), o-xylene (170 ug/L), and toluene (41 ug/L). Reportable levels of CVOCs (PCE and breakdown products) were detected in each sample, with only PCE (6.1 ug/L at SVP-11) and VC (2.2 at SVP-6) being reported above GWQS. Total CVOC concentrations were 12.6 ug/L at SVP-6, 14.7 ug/L at SVP-11, and 12.8 ug/L at SVP-9. Total BTEX concentrations were 14.1 ug/L at SVP-6, 4.8 ug/L at SVP-11, and 645 ug/L at SVP-9.

Concentrations of SVOCs were reported at levels exceeding GWQS in the three interior groundwater samples (Table 5 and Figure 8). At SVP-6, exceedances of GWQS were reported for acenaphthene (67 ug/L), benzo(b)fluoranthene (0.26 ug/L), and indeno (1,2,3-cd) pyrene (0.15 ug/L). At SVP-11, exceedances of GWQS were reported for acenaphthene (110 ug/L), benzo(a)anthracene (0.96 ug/L), benzo(b)fluoranthene (0.65 ug/L), and indeno (1,2,3-cd) pyrene (0.15 ug/L). At SVP-9, the majority of the PAH analytes were reported at levels exceeding GWQS.

4.3.3.2 Exterior Groundwater Monitoring Wells

Analytical results for the groundwater samples collected from exterior monitoring wells at the Site are presented in Table 6. The sampling locations are shown on Figure 2. Spider maps depicting exceedances of Groundwater Quality Standards (GWQS) are presented on Figures 9 and 10. Groundwater analytical results from the southeastern portion of the Site are presented in Appendix A as Table 3 and Figure 4.

As shown on Table 6 and Figure 9, groundwater sample analytical results reported concentrations of CVOCs at levels exceeding GWQS at four shallow wells (MW-4, MW-5, MW-104S, and MW-106S), and BTEX compounds above GWQS at five shallow wells (MW-2, MW-5, MW-6, MW-102S, and MW-105S) and two deep wells (MW-4D and MW-102D). At the remaining wells, VOCs were reported at levels below GWQS or below laboratory detection limits. The horizontal distribution of CVOC and BTEX exceedances appears to be within, or downgradient of, the former western portion of the original shopping center. The vertical distribution appears to be primarily in the shallow water table zone, with the exception of wells MW-4D and MW-102D. At these two deep wells, only BTEX compounds were reported above GWQS. CVOCs are not reported above GWQS in the deep wells.

The data from the southeastern portion of the Site (Appendix A) indicate there were no CVOCs reported above GWQS. BTEX compounds, however, were reported at concentrations exceeding GWQS from samples collected via discrete sampling methods at the B-106 location as well as from samples collected from corresponding monitoring well MW-108S. The highest levels of total BTEX at this location were reported at a depth interval of 12 to 16 feet bls. Groundwater samples collected from 38 to 40 feet bls were reported at 42 ug/L, indicating decreasing concentrations with depth. BTEX compounds were reported at levels below standards at the B-105 and B-109 locations (discrete sampling methods) and at MW-109S and MW-110S.

Similarly, as shown in Table 6 and Figure 10, SVOCs (primarily PAHs) at levels exceeding GWQS are indicated in eight shallow wells (MW-2, MW-4, MW-5, MW-6, MW-102S, MW-105S, MW-106S, and MW-107S). Elevated total SVOCs, at levels ranging from 358 to 679 ug/L, were reported in MW-4, MW-6, MW-102S, and MW-105S. At these four shallow wells, concentrations of naphthalene ranged from 240 to 440 ug/L, which account for 60% to 80% of the total PAHs.

SVOCs at levels exceeding GWQS were reported in only two deep wells (MW-4D and MW-102D). At each of these two deep wells, naphthalene was reported at 1,500 and 440 ug/L, which account for 93% and 87% of total SVOCs in these wells. Like VOC impacts, the distribution of

exceedances appears to be within, or downgradient of, the former western portion of the original shopping center.

The data from the southeastern portion of the Site (Appendix A) indicate that PAHs were reported below GWQS in samples collected at the B-105, B-109, MW-109S, and MW-110S locations. PAHs were reported above GWQS from samples collected via discrete sampling methods at the B-106 location as well as from samples collected from corresponding monitoring well MW-108S. At the B-106 location, total PAHs were reported at each of the four discrete sampling intervals as follows:

Sampling Interval	Total PAHs (ug/L)	Naphthalene (ug/L)
5 to 9 feet	111	79
12 to 16 feet	8,890	7,400
18 to 22 feet	950	850
38 to 40 feet	22	22

Concentrations of naphthalene account for 71% to 100% of the total PAHs. Samples collected from MW-108S, which is screened from 20 to 5 feet bls, had Total PAHs reported at 1,650 ug/L, with naphthalene at 1,300 ug/L (79% of the total). The data indicate the highest levels of impacts are in the top 20 feet, and in the vicinity of the MW-1/loading dock area.

As mentioned in Section 2.1.1 above, an injection of Hydrogen Release Compound (HRC©) was conducted in the vicinity of MW-4/MW-4D in June 2008. Once injected into groundwater, HRC© slowly hydrolyzes and is broken down by microbial action. During this process, metabolic acids are released and utilized by microbes to produce hydrogen, which is then used in the remediation or breakdown of the CVOCs. As the process continues the metabolic acids are depleted, levels of PCE decrease, and levels of PCE breakdown products (TCE, 1,2-DCE, and VC) increase. Groundwater samples collected in June 2012 from wells MW-4/MW-4D were also analyzed for nitrate, nitrite, sulfate, metabolic acids, ethane, ethene, carbon dioxide and total organic carbon to evaluate the process from 2008. The analytical results (Table 6a) indicate the metabolic acids and dissolved gasses have been depleted. Levels of PCE and its breakdown products are also shown to be above GWQS in the shallow well (MW-4).

4.3.4 Sub-Slab Soil Gas and Indoor Air Quality Results

As described in Section 3.2, sub-slab soil gas (SSSG) and indoor air quality (IAQ) samples were collected at the Site in March 2012 and March 2014. During the March 2012 sampling event, the SSDS, which was installed in December 2011, was operating. During the March 2014 event, the SSDS had been turned off for seven days. Results from March 2012 are discussed in Section 4.3.4.1. Results from March 2014 are discussed in Section 4.3.4.2.

4.3.4.1 March 2012 Results

Analytical results for the SSSG and IAQ samples collected from the four lease units on March 11 and 20, 2012 are presented in Table 7. These interior sampling locations are shown on Figure 3.

As shown on Table 7, concentrations of VOCs were detected in each of the SSSG, IAQ, and ambient air samples. Concentrations of TCE were reported in sub-slab samples in Ciros Pizza (2.9 ug/m^3 in SVP-11) and in the vacant unit (0.18 ug/m^3 in SVP-9 and 3.8 ug/m^3 in SVP-10). Concentrations of PCE were reported in the Citibank (1.0 ug/m^3 in SVP-6), Ciros Pizza (160 ug/m^3 in SVP-11), and in the vacant unit (21 ug/m^3 in SVP-9 and 48 ug/m^3 in SVP-10). Note that the State of New York does not have standards, criteria, or guidance values for concentrations of VOCs in subsurface vapors (either sub-slab vapor or soil gas vapor). As described in Section 2.1.2 above, sub-slab vapor samples were collected in June 2004 from four locations in the former Bell Boy Cleaners unit and had TCE at levels ranging from non-detect to 440 ug/m^3 and PCE at levels ranging from 3,800 ug/m^3 to 160,000 ug/m^3. The 2012 sub-slab results suggest an overall decrease in sub-slab vapor levels. This may be due to a combination of several years of degradation as well as the positive effects from source material excavation and SSDS installation in December 2011.

Results of the IAQ samples (Table 7) also show levels of VOCs in each sample. Although no detections of TCE were reported in any of the IAQ samples, PCE was reported at levels of approximately 1.0 ug/m^3 in the Citibank, 0.45 ug/m^3 in Ciros Pizza, 3 ug/m^3 in Sofia's Nail Salon, and approximately 5.0 ug/m^3 in the Vacant Unit. Each of these results is well below the guidance value of 30 ug/m^3 for PCE. As described in Section 2.1.2 above, two IAQ samples collected in 2008 from the subject unit and from Ciros Pizza had reported concentrations of PCE at 310 ug/m^3 and 6.6 ug/m^3, respectively. The 2012 IAQ results indicate a decrease in PCE of about 99% (from 310 ug/m^3 to 3 ug/m^3) in the subject unit and 93% (from 6.6 ug/m^3 to 0.45 ug/m^3) in Ciros Pizza. Again, this decrease may be a result of several years of degradation occurring under the sub-slab as well as the positive effects from source material excavation and SSDS installation in December 2011. Micromanometer readings at the various SSSG points indicate that the SSDS is creating a vacuum beneath the entire slab at the Sofia's nail Salon unit and extending to the Ciros Pizza unit and Citibank unit to the north and to the Liquor Warehouse to the south. The data indicate the range of influence of the operating SSDS is estimated at 50 feet.

Stantec has also evaluated the sub-slab and IAQ results in accordance with Section 3.4 (Decision Matrices) of the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 revised May 2017). The decision matrices are another way to compare sub-slab vapor with indoor air concentrations in order to develop recommended actions. NYSDOH has developed three matrices – Matrix A for evaluating TCE, cis-1,2-DCE, 1,1-DCE, and carbon tetrachloride, Matrix B for evaluating PCE and 1,1,1-trichloroethane (1,1,1-TCA), and methylene chloride, and Matrix C for evaluating vinyl chloride.

As shown in Table 7, levels of carbon tetrachloride were only detected in sub-slab samples from the vacant/Liquor Warehouse unit (SVP-9 and SVP-10 at 1.0 and 2.4 ug/m^3 (estimated), respectively). The corresponding indoor air results for carbon tetrachloride from the vacant unit for IA-9 and IA-10 were non-detect. Therefore, utilizing Matrix A, the results would place the vacant/Liquor Warehouse unit within action Category 1 (i.e., No further action).

Similarly, levels of TCE (Table 7) were reported in the sub-slab samples from the Ciros Pizza unit and from the vacant unit at concentrations of < 5 ug/m^3. The corresponding indoor air results for TCE

from the same two units were non-detect, which would place these two units within action Category 1 (i.e., No further action).

Soil Vapor/Indoor Air Matrix A
TCE, cis-1,2-DCE, 11-DCE, Carbon Tetrachloride

	INDOOR AIR CONCENTRATION OF COMPOUND (UG/M3)		
SUB-SLAB VAPOR CONCENTRATION OF COMPOUND (UG/M3)	**< 0.2**	**0.2 to < 1**	**1 and above**
< 6	1. No further action	2. No further action	3. IDENTIFY SOURCES(S) and RE-SAMPLE or MITIGATE
6 to < 60	4. No further action	5. Monitor	6. MITIGATE
60 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

The results for 1,1,1-TCA and PCE from Table 7 were also evaluated in terms of the concentrations and recommended actions depicted in Matrix 2 shown below. As shown in Table 7, levels of 1,1,1-TCA were only reported in one sample (2.9 ug/m^3 in sub-slab sample SVP-10), whereas levels of 1,1,1-TCA were reported as non-detect in the corresponding indoor air sample. Therefore, the vacant/Liquor Warehouse can be placed in action Category 1 (No further action) in Matrix B.

PCE concentrations, in contrast, were detected in each of the sub-slab and indoor air samples, although at different concentrations (Table 7). In the Citibank unit, PCE was reported in the sub-slab sample at 1.0 ug/m^3 and in the two indoor air samples at 1.0 and 1.1 ug/m^3, which would place the Citibank unit in action Category 1 (No Further Action). In the Ciros Pizza unit, PCE was reported in the sub-slab sample at 160 ug/m^3 and in the indoor air sample at 0.45 ug/m^3, which would place Ciros Pizza in action Category 4 (No Further Action). In the vacant/Liquor Warehouse unit, PCE was reported in the sub-lab samples at 21 and 48 ug/m^3 and in the indoor air samples at 5.2 and 5.0 ug/m^3, which would place the vacant unit in action Category 2 (No Further Action). Further description of Stantec's conclusions and rationale for additional work related to these various Categories is presented below.

Soil Vapor/Indoor Air Matrix B
(PCE, 1,1,1-TCA, and Methylene Chloride)

	INDOOR AIR CONCENTRATION OF COMPOIND (UG/M3)		
SUB-SLAB VAPOR CONCENTRATION OF COMPOUND (UG/M3)	**< 3**	**3 to < 10**	**10 and above**
< 100	1. No further action	2. No further action	3. IDENTIFY SOURCES(S) and RE-SAMPLE or MITIGATE
100 to < 1,000	4. No further action	5. Monitor	6. MITIGATE
1,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

As described in the 2006 NYSDOH SVI Guidance, the three action Categories are described as follows:

Category 1. No further action. Given that the compound was not detected in the indoor air sample and that the concentration detection in the sub-slab vapor sample is not expected to significantly affect indoor air quality, no additional actions are needed to address human exposures.

Category 2. No further action. Same as above.

Category 4. No further action. Same as above

Category 5. Monitor. Monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences is recommended. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

4.3.4.2 March 2014 Results

Stantec took into account the results and conclusions from the March 2012 sampling event (i.e., No Further Action at Citibank and vacant/Liquor Warehouse, Monitor at Ciros Pizza) along with the additional and replacement sub-slab soil gas probes installed in Sofia's Nail Salon and in the vacant/Liquor Warehouse units during the March 2014 sampling event. As mentioned in Section 3.2 above, the March 2014 sampling event was conducted seven days after the SSDS system had been turned off. After the samples were collected, the system was turned back on and observed to be operating. The analytical results for the SSSG and IAQ samples collected from the Ciros Pizza, Sofia's Nail Salon, and Liquor Warehouse units on March 25, 2015 are presented in Table 7a. The sampling locations are shown on Figure 3.

As shown on Table 7a, concentrations of VOCs were detected in each of the SSSG, IAQ, and ambient air samples. The highest concentration reported was for acetone in the indoor air sample from within Sofia's Nail Salon (16,000 ug/ m^3 at IAQ-1). This high concentration is likely due to the products (nail polish, hair spray, etc.) being used in this business. In terms of the contaminants of concern, levels of TCE were reported in sub-slab samples in Ciros Pizza (0.56 ug/m^3 in SVP-11), Sofia's Nail Salon (0.52 ug/ m^3 in SVP-102), and in the Liquor Warehouse (2.5 ug/m^3 in SVP-9 and

1.0 ug/m^3 in SVP-10). Concentrations of PCE were reported in Ciros Pizza (34 ug/m^3 in SVP-11), in Sofia's Nail Salon (140 ug/m^3 in SVP-102), and in the Liquor Warehouse (8.8 ug/m^3 in SVP-9 and 14 ug/m^3 in SVP-10). The March 2014 results indicate decreasing levels of PCE and TCE in sub-slab soil gas compared to the March 2012 results.

Results of the IAQ samples (Table 7a) also show levels of VOCs in each IAQ sample. Similar to the March 2012 event no detections of TCE were reported in any of the IAQ samples. PCE was only reported at levels of 0.67 ug/m^3 in Ciros Pizza and 0.94 ug/m^3 in the Liquor Warehouse. PCE was not detected in the indoor air sample (IAQ-1) from Sofia's Nail Salon. Each of these results is well below the guidance value of 30 ug/m^3 for PCE. The March 2014 results indicate decreasing levels of PCE in indoor air compared to the March 2012 results.

Stantec also evaluated the March 2014 SSSG and IAQ results in terms of NYSDOH Decision Matrices to further compare sub-slab vapor with indoor air concentrations and to further develop recommended actions.

As shown in Table 7a, levels of carbon tetrachloride were reported as non-detect in each SSSG and IAQ sample. Therefore, utilizing Matrix A, the results would place the three lease units within action Category 1 (i.e., No further action).

Levels of TCE (Table 7a) were reported in the SSSG samples from each of the three lease units at concentrations of < 5 ug/m^3. The corresponding indoor air results for TCE from the same three units were non-detect, which would the three lease units within action Category 1 (i.e., No further action).

The results for 1,1,1-TCA and PCE from Table 7a were also evaluated in terms of the concentrations and recommended actions depicted in Matrix 2. As shown in Table 7a, levels of 1,1,1-TCA were reported in only one sample (0.93 ug/m^3 in sub-slab sample SVP-10), whereas levels of 1,1,1-TCA were reported as non-detect in the corresponding indoor air sample. Therefore, all three units can be placed in action Category 1 (No further action) in Matrix B.

PCE concentrations, in contrast, were detected in each of the sub-slab and indoor air samples, although at different concentrations (Table 7a).

- In the Ciros Pizza unit, PCE was reported in the sub-slab sample at < 100 ug/m^3 (34 ug/m^3) and in the indoor air sample at < 3 ug/m^3 (0.67 ug/m^3). This would place Ciros Pizza in action Category 1 (No further action).

- In the Sofia's Nail Salon unit, PCE was reported in the sub-slab sample at 100 to < 1,000 ug/m^3 (140 ug/m^3) and in the indoor air sample at < 3 ug/m^3 (non-detect levels). This would place Sofia's in action Category 4 (No further Action).

- In the Liquor Warehouse unit, PCE was reported in the sub-lab samples at < 100 ug/m^3 (8.8 and 14 ug/m^3) and in the indoor air sample at < 3 ug/m^3 (0.94 ug/m^3). This would place the vacant unit in Category 1 (No further action).

The March 2014 SSSG and IAQ results indicate a continuing decreasing trend in sub-slab vapor and indoor air levels. Again, this decrease may be a result of several years of degradation occurring under the sub-slab as well as the positive effects from source material excavation and SSDS operation since December 2011.

4.4 MGP RESIDUAL ANALYTICAL RESULTS

A report describing results from the soil and groundwater samples is presented in Appendix A. The data showed MGP impacts, in the form of elevated levels of PAHs and cyanide, in a band of soil running northeast to southwest from boring B-110 toMW-1, with the highest observed impacts in close proximity to MW-1 (i.e., in B-103, B-104, B-106, and B-107). Borings B-105, B-108, B-109, B-113, and B-114, located to the south, southwest, and east of the MW-1 area are shown to have no observed impacts. Total cyanide was detected at boring B-110 at 127 mg/kg, which is above its Commercial SCO. Groundwater impacts, also in the form of elevated PAHs and cyanide, are indicted in the vicinity of existing well MW-1 and the loading dock area.

As mentioned in Section 3.9 above, in June 2015, GEI conducted additional soil borings and soil sampling around boring B-110 to delineate the horizontal and vertical extent of cyanide, detected above SCOs at B-110. Four additional borings (identified as B-115 to B-118) were drilled and sampled north-south-east-and west of B-110. The soil samples were tested for VOCs, SVOCs, total cyanide, and free cyanide. Based on the results, which showed levels below Commercial SCOs, GEI has been able to develop a preliminary conceptual plan to excavate the impacted soils in this area. Details of this plan, along with other proposed remedial actions, will be presented under separate cover.

In April 2015, GEI conducted a vapor intrusion investigation in the grocery store. Gas samples were collected from three sub-slab vapor points (SV-101 to SV-103) and from three indoor air locations (IA-101 to IA-103). The results indicated low levels or non-detect levels of PCE and TCE at the SV-101/IA-101 and SV-102/IA-102 locations, placing these two locations within action Category 1 (No Further Action). Levels of PCE were reported in SV-103 at 115,000 ug/m^3 and in IA-103 at 1.57 ug/m^3, placing this location within action Category 7 (Mitigate).

4.5 QA/QC SUMMARY

The analytical results for QA/QC samples are summarized in Table 8. Two duplicate samples ("Dupe") were collected during the groundwater sampling event from MW-105S and from MW-8S. The duplicates showed relative percent differences (RPDs) of +/- 20% for all of the reported VOCs and SVOCs.

Duplicate samples were also collected during the sub-slab vapor/indoor air sampling events (from SVP-9 in March 2012 and from SVP-102 in March 2014). The duplicates also showed RPDs of +/- 20% for the majority of the reported VOCs. Note that RPD analyses were not conducted on those

analytes with estimated values. For these reasons, the analytical results appear acceptable for their stated purpose.

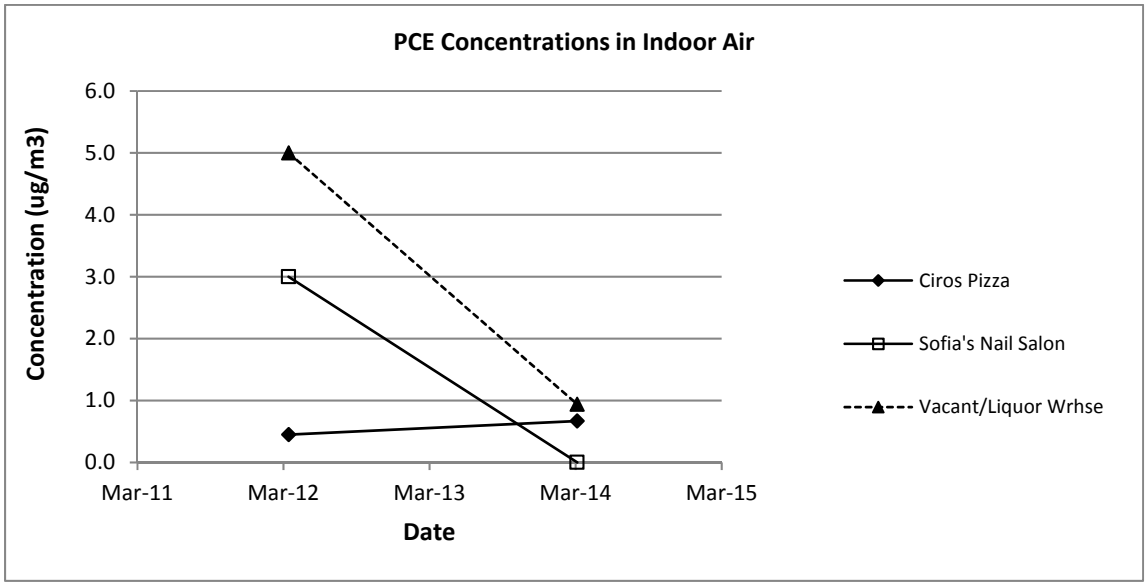
5.0 CONCLUSIONS

The overall soil, groundwater, and vapor quality data continue to show that these media in the western portion of the Site are impacted by VOCs (chlorinated and BTEX), SVOCs (primarily PAHs), and metals. The soils and groundwater impacted by VOCs appear to be within, or downgradient, of the former western portion of the original shopping center. Perhaps these impacts are due to fill used to underlie this area of the property, historic processes that were utilized in that former building, and/or to the actual demolition of the building. CVOC impacts in this area are shown to have decreased over time, most likely due to the injection of HRC© material that was conducted in 2008. The impacts also appear to be relatively shallow, near the water table that is approximately 5 to 6 feet below ground surface. CVOC impacts to sub-slab soil gas are also indicted under the grocery store (SV-103/IA-103) in close proximity to this same area of the Site.

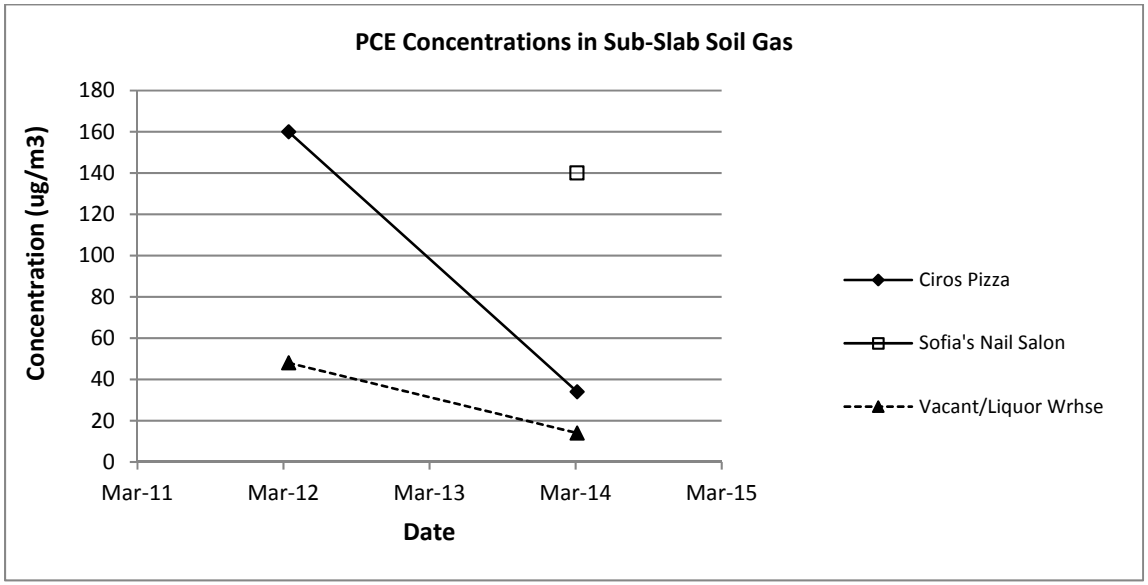
The sporadic nature of BTEX compounds may also be a result of storm water running off into leaching-catch basins located throughout the parking lot. These leaching-catch basins, or storm drains, are designed to allow storm water to infiltrate through the bottom and into the underlying soils and groundwater.

Soils and groundwater in the southeastern/loading dock portion of the Site are shown to be impacted with MGP residuals. The investigation work in this area indicated the impacts are also relatively shallow, at or near the water table and in close proximity to MW-1 and around B-110. Visible staining and tar coated/saturated soils were observed in this area.

Although described more fully in the IRM-CCR (Stantec, 6/28/13), the work conducted within the former Bell Boy Cleaners unit (now Sofia's Nail Salon) appears to be resulting in an improvement in indoor air quality in that unit and in the abutting units. The work included excavating approximately 30 cubic yards of impacted soils from under the concrete slab and installing a sub-slab depressurization system. Comparing post-installation (March 2012 and March 2014) indoor air levels to levels reported in June 2008, indicates PCE concentrations in the indoor air within the subject unit have decreased from 310 ug/m^3 In June 2008 to 3.0 ug/m^3 in March 2012 to < 2.1 ug/m^3 in March 2014. Levels of PCE in indoor air reported during this investigation (March 2012 and March 2014) are plotted below. The data show decreasing trends in Sofia's Nail Salon and the vacant/Liquor Warehouse and relatively stable levels at Ciros Pizza.



The overall decreasing trends are likely due to the source material excavation and SSDS installation conducted in December 2011. Evaluating the annual OM&M (March 2014) sub-slab and indoor air results indicates that levels of PCE and TCE continue to decrease in both the sub-slab and indoor air, while levels of PCE in the sub-slab soil gas continue to remain at levels of approximately 15 ug/m^3 at the Liquor Warehouse to 140 ug/m^3 at Sofia's Nail Salon (see chart below). These data indicated that no further action is required.



6.0 RECOMMENDATIONS

Based on the results of these supplemental remedial investigations potential recommendations or follow up activities related to the Site include:

- Conduct additional groundwater quality samples for VOCs and SVOCs – semi-annually;
- Inspect and measure SSDS pressure on an annual basis (to occur under the approved IRM-CCR);
- Conduct additional round of sub-slab and indoor air quality samples and analyze for VOCs by TO-15 on an annual basis, during winter heating season (in February/March);
- Evaluate and report on the SSDS and need to maintain system operations on an annual basis to occur under the approved IRM-CCR); and
- Evaluate institutional/engineering controls to prevent exposure to underlying soils and groundwater (i.e., routine maintenance of paved parking lot areas).
- Evaluation of remedial options for MGP contaminated soil and groundwater.

LIMITATIONS

1. The conclusions presented in this report are based on soil and air data collected from widely-spaced explorations targeting areas of suspected contamination based on Stantec's site reconnaissance and review of available information.

2. Soil and air samples were analyzed for suspected parameters based on available information indicating the types of operations that have been performed and the suspected types of chemicals used and stored at the Site. Other operations or uses may have occurred at the Site that were not identified in our review of available information or were not communicated during interviews with knowledgeable individuals at the site.

3. Soil contaminant concentrations may fluctuate due to subsurface heterogeneities, variations in moisture content, biodegradation, natural attenuation, seasonal variations, and other factors.

4. Sampling methods employed were selected to meet the objectives of identifying the potential presence of subsurface contamination and are consistent with standard industry practice.

5. No environmental site assessment can wholly eliminate uncertainty regarding the existence of contamination in connection with a property. This study was designed to reduce, but not wholly eliminate, uncertainty regarding the existence of such conditions in a manner that recognizes reasonable limits of time and cost. Based on the scope of work, Stantec cannot warrant subsurface conditions in areas not tested.

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Appendix A

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A.1 HEADING 8

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A.1.1 Heading 9

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Table 1

Well Construction Details

Belle Harbor Shopping Center, Belle Harbor, New York

Well No	Well Type	Date of Installation	Grnd Surf Elev (ft MSL)	Top of PVC (ft MSL)	total Depth (ft bls)	Well Diameter (in)	Depth to Screened Interval Bot (ft bls)		Depth to Screened Interval Top (ft bls)	Elevation of Screened Interval Bot (ft bls)		Elevation of Screened Interval Top (ft bls)
MW-1	WT	3/12/2003	8.85	8.45	17	2	17	-	2	-8.15	-	6.85
MW-2	WT	3/12/2003	8.46	8.20	17	2	17	-	2	-8.54	-	6.46
MW-2D	DOB	5/25/2004	8.44	8.21	40	2	40	-	35	-31.56	-	-26.56
MW-3	WT	3/13/2003	8.95	8.57	17	2	16	-	2	-7.05	-	6.95
MW-4	WT	3/13/2003	8.85	8.60	16	2	16	-	2	-7.15	-	6.85
MW-4D	DOB	5/25/2004	8.88	8.55	40	2	40	-	35	-31.12	-	-26.12
MW-5	WT	3/14/2003	8.76	8.38	16	2	16	-	2	-7.24	-	6.76
MW-6	WT	3/14/2003	8.51	8.18	16	2	16	-	2	-7.49	-	6.51
MW-7	WT	5/24/2004	8.90	8.45	18	2	18	-	3	-9.10	-	5.90
MW-8S	WT	5/24/2004	8.82	8.49	17	2	17	-	2	-8.18	-	6.82
MW-8D	DOB	5/24/2004	8.90	8.57	40	2	40	-	35	-31.10	-	-26.10
MW-101S	WT	5/10/2012	9.12	8.65	10	2	10	-	5	-0.88	-	4.12
MW-101D	MLOB	5/10/2012	9.04	8.66	30	2	28	-	23	-18.96	-	-13.96
MW-102S	WT	5/9/2012	9.63	9.27	12	2	10	-	5	-0.37	-	4.63
MW-102D	MLOB	5/9/2012	9.57	9.26	24	2	22	-	17	-12.43	-	-7.43
MW-103	MLOB	5/11/2012	9.01	8.47	28	2	26	-	21	-16.99	-	-11.99
MW-104S	WT	5/8/2012	9.06	8.51	14	2	12	-	7	-2.94	-	2.06
MW-104A -S	MLOB	5/9/2012	9.09	8.69	24	2	22	-	17	-12.91	-	-7.91
MW-104D	DOB	6/20/2012	9.19	8.93	40	2	38	-	33	-28.81	-	-23.81
MW-105S	MLOB	5/11/2012	8.80	8.54	24	2	22	-	12	-13.20	-	-3.20
MW-106S	MLOB	5/11/2012	9.61	9.13	20	2	18	-	8	-8.39	-	1.61
MW-107	MLOB	5/10/2012	9.47	9.01	28	2	25	-	20	-15.53	-	-10.53
MW-108S	WT	10/24/2012	8.52	8.36	20	2	20	-	5	-11.48	-	3.52
MW-109S	WT	10/24/2012	9.81	9.61	15	2	15	-	5	-5.19	-	4.81
MW-110S	WT	10/24/2012	8.3	8.04	20	2	20	-	5	-11.70	-	3.30

Notes:

ft MSL = Feet ablove Mean Sea Level

ft bls = feet below land surface

WT = Water Table

MLOB = Mid-Level Overburden

DOB = Deep Overburden

MW-1 through MW-8D installed by Whitestone Associates, Inc

MW-101S through MW-107 installed by Stantec Consulting Services

MW-108S through MW-110S installed by GEI Consultants, Inc. Subsequent survey arranged by GEI.

Table 2

Water Level Data

Belle Harbor Shopping Center, Belle Harbor, New York

Well No	Well Type	Date of Installation	Grnd Surf Elev (ft MSL)	Top of PVC (ft MSL)	Elevation of Screened Interval Bot (ft bls)		Top (ft bls)	Depth to Water * (ft bls)	Water Level Elev. (ft MSL)
MW-1	WT	3/12/2003	8.85	8.45	-8.15	-	6.85	5.32	3.13
MW-2	WT	3/12/2003	8.46	8.20	-8.54	-	6.46	5.85	2.35
MW-2D	DOB	5/25/2004	8.44	8.21	-31.56	-	-26.56	6.58	1.63
MW-3	WT	3/13/2003	8.95	8.57	-7.05	-	6.95	5.13	3.44
MW-4	WT	3/13/2003	8.85	8.60	-7.15	-	6.85	5.60	3.00
MW-4D	DOB	5/25/2004	8.88	8.55	-31.12	-	-26.12	6.08	2.47
MW-5	WT	3/14/2003	8.76	8.38	-7.24	-	6.76	5.55	2.83
MW-6	WT	3/14/2003	8.51	8.18	-7.49	-	6.51	5.35	2.83
MW-7	WT	5/24/2004	8.90	8.45	-9.10	-	5.90	5.51	2.94
MW-8S	WT	5/24/2004	8.82	8.49	-8.18	-	6.82	6.07	2.42
MW-8D	DOB	5/24/2004	8.90	8.57	-31.10	-	-26.10	NM	NM
MW-101S	WT	5/10/2012	9.12	8.65	-0.88	-	4.12	5.09	3.56
MW-101D	MLOB	5/10/2012	9.04	8.66	-18.96	-	-13.96	6.58	2.08
MW-102S	WT	5/9/2012	9.63	9.27	-0.37	-	4.63	5.83	3.44
MW-102D	MLOB	5/9/2012	9.57	9.26	-12.43	-	-7.43	6.45	2.81
MW-103	MLOB	5/11/2012	9.01	8.47	-16.99	-	-11.99	6.93	1.54
MW-104S	WT	5/8/2012	9.06	8.51	-2.94	-	2.06	5.33	3.18
MW-104A -S	MLOB	5/9/2012	9.09	8.69	-12.91	-	-7.91	5.62	3.07
MW-104D	DOB	6/20/2012	9.19	8.93	-28.81	-	-23.81	5.70	3.23
MW-105S	MLOB	5/11/2012	8.80	8.54	-13.20	-	-3.20	6.23	2.31
MW-106S	MLOB	5/11/2012	9.61	9.13	-8.39	-	1.61	6.37	2.76
MW-107	MLOB	5/10/2012	9.47	9.01	-15.53	-	-10.53	5.60	3.41
MW-108S	WT	10/24/2012	8.52	8.36	-11.48	-	3.52	NI	NI
MW-109S	WT	10/24/2012	9.81	9.61	-5.19	-	4.81	NI	NI
MW-110S	WT	10/24/2012	8.3	8.04	-11.70	-	3.30	NI	NI

Notes:

ft MSL = Feet ablove Mean Sea Level

ft bls = feet below land surface

MW-1 through MW-8D installed by Whitestone Associates, Inc

MW-101S through MW-107 installed by Stantec Consulting Services

MW-108S through MW-110S installed by GEI Consultants, Inc.

* = Water levels measured on June 26, 2012

WT = Water Table

MLOB = Mid-Level Overburden

DOB = Deep Overburden

NI = Not Installed at time of well gauging.

NM = Not Measured, not accessible

Table 2a

Tidal/Water Level Data

Belle Harbor Shopping Center, Belle Harbor, New York

Well No		Date of Installation	Grnd Surf Elev (ft MSL)	Top of PVC (ft MSL)	Depth to Screened Interval Bot (ft bls)		Top (ft bls)	Mid Pt. Screen (ft bls)	Depth to Water Low Tide 3/13/13 3:30 PM (ft bls)	Depth to Water High Tide 3/14/13 10:00 AM (ft bls)	Water Level Elevations Low Tide 3/13/13 3:30 PM (ft MSL)	Water Level Elevations High Tide 3/14/13 10:00 AM (ft MSL)
MW-1	WT	3/12/2003	8.85	8.45	17	-	2	9.5	5.62	NM	2.83	
MW-2	WT	3/12/2003	8.46	8.20	17	-	2	9.5	5.52	5.59	2.68	2.61
MW-2D	DOB	5/25/2004	8.44	8.21	40	-	35	37.5	7.04	5.17	1.17	3.04
MW-3	WT	3/13/2003	8.95	8.57	16	-	2	9	5.42	5.43	3.15	3.14
MW-4	WT	3/13/2003	8.85	8.60	16	-	2	9	5.63	5.52	2.97	3.08
MW-4D	DOB	5/25/2004	8.88	8.55	40	-	35	37.5	6.38	5.33	2.17	3.22
MW-5	WT	3/14/2003	8.76	8.38	16	-	2	9	5.49	5.58	2.89	2.80
MW-6	WT	3/14/2003	8.51	8.18	16	-	2	9	5.41	5.47	2.77	2.71
MW-7	WT	5/24/2004	8.90	8.45	18	-	3	10.5	NM	NM	NM	NM
MW-8S	WT	5/24/2004	8.82	8.49	17	-	2	9.5	5.59	5.75	2.90	2.74
MW-8D	DOB	5/24/2004	8.90	8.57	40	-	35	37.5	6.44	5.48	2.13	3.09
MW-101S	WT	5/10/2012	9.12	8.65	10	-	5	7.5	5.39	5.43	3.26	3.22
MW-101D	MLOB	5/10/2012	9.04	8.66	28	-	23	25.5	6.53	5.24	2.13	3.42
MW-102S	WT	5/9/2012	9.63	9.27	10	-	5	7.5	5.83	5.94	3.44	3.33
MW-102D	MLOB	5/9/2012	9.57	9.26	22	-	17	19.5	6.62	5.89	2.64	3.37
MW-103	MLOB	5/11/2012	9.01	8.47	26	-	21	23.5	6.68	5.26	1.79	3.21
MW-104S	WT	5/8/2012	9.06	8.51	12	-	7	9.5	5.51	5.52	3.00	2.99
MW-104A -S	MLOB	5/9/2012	9.09	8.69	22	-	17	19.5	6.94	5.49	1.75	3.20
MW-104D	DOB	6/20/2012	9.19	8.93	38	-	33	35.5	7.04	5.60	1.89	3.33
MW-105S	MLOB	5/11/2012	8.80	8.54	22	-	12	17	6.18	5.33	2.36	3.21
MW-106S	MLOB	5/11/2012	9.61	9.13	18	-	8	13	6.51	6.24	2.62	2.89
MW-107	MLOB	5/10/2012	9.47	9.01	25	-	20	22.5	6.83	5.54	2.18	3.47

Notes:

ft MSL = Feet ablove Mean Sea Level

ft bls = feet below land surface

MW-1 through MW-8D installed by Whitestone Associates, Inc

MW-101S through MW-107 installed by Stantec Consulting Services

MW-108S through MW-110S installed by GEI Consultants, Inc.

WT = Water Table

MLOB = Mid-Level Overburden

DOB = Deep Overburden

NM = Not Measured, not accessible

TABLE 3
Vertical Hydraulic Gradients at Well Pairs
Belle Harbor Shopping Center, Belle Harbor, New York

Well No.	Well Type	Mid Pt. Screen (ft MSL)	Water Level Elevations		Vertical Hydraulic Gradients	
			3/13/2013 Low Tide (ft MSL)	3/14/2013 High Tide (ft MSL)	3/13/2013 Low Tide (ft/ft)	3/14/2013 High Tide (ft/ft)
MW-2	WT	-1.04	2.68	2.61	-5.39E-02	1.53E-02
MW-2D	DOB	-29.06	1.17	3.04		
MW-4	WT	-0.15	2.97	3.08	-2.81E-02	4.92E-03
MW-4D	DOB	-28.62	2.17	3.22		
MW-8S	WT	-0.68	2.90	2.74	-2.76E-02	1.25E-02
MW-8D	DOB	-28.60	2.13	3.09		
MW-101S	WT	1.62	3.26	3.22	-6.25E-02	1.11E-02
MW-101D	MLOB	-16.46	2.13	3.42		
MW-102S	WT	2.13	3.44	3.33	-6.63E-02	3.32E-03
MW-102D	MLOB	-9.93	2.64	3.37		
MW-104S	WT	-0.44	3.00	2.99	-1.25E-01	2.11E-02
MW-104A -S	MLOB	-10.41	1.75	3.20		
MW-104A -S	MLOB	-10.41	1.75	3.20	8.81E-03	8.18E-03
MW-104D	DOB	-26.31	1.89	3.33		

NOTES
ft MSL = ft above Mean Sea Level Datum
NM = Not Measured
- = Downward vertical gradient

Table 4
Summary of Soil Analytical Results:
Belle Harbor Shopping Center, Belle Harbor, New York

Analyte/Method[1]	units[2]	NYSDEC Commercial Soil Cleanup Objectives [3]	MW-101	MW-101	MW-102	MW-102	MW-103	MW-103	MW-104	MW-104
Sample Depth	feet		(5.0 - 6.0)	(27.6 - 28.6)	(6.6 - 7.2)	(22 - 23)	(5.2 - 6.2)	(25 - 26)	(6.3 - 6.9)	(37 - 38)
Laboratory ID			460-40154-5	460-40154-6	460-40154-3	460-40154-4	460-40261-1	460-40261-2	460-40154-1	460-40154-2
Sample Collection Date			05/10/12	05/10/12	05/09/12	05/09/12	05/11/12	05/11/12	05/08/12	05/08/12
Volatile Organic Compounds (VOCs) by EPA Method 8260B										
2-Butanone (MEK)	mg/Kg	500	0.00060 U	0.00070 U	0.00064 U	0.00069 U	0.220 U	0.00070 U	0.0038 J	0.00073 U
Benzene	mg/Kg	44	0.00077 J	0.00017 U	0.00015 U	0.00016 U	0.014 J	0.00017 U	0.002	0.00017 U
Carbon disulfide	mg/Kg	NS	0.00055 J	0.0016	0.00015 U	0.0012	0.012 U	0.00028 J	0.00064 J	0.00017 U
Chloroform	mg/Kg	350	0.00023 U	0.00027 U	0.00024 U	0.00026 U	0.0074 U	0.00027 U	0.00029 U	0.00028 U
Cis-1,2-Dichloroethene	mg/Kg	500	0.00011 U	0.00012 U	0.00011 U	0.00012 U	0.049 U J	0.00012 U	0.0056	0.00013 U
Ethylbenzene	mg/Kg	390	0.00016 U	0.00019 U	0.00017 U	0.0011	0.0090 U	0.000019 U	0.00032 J	0.00020 U
Isopropylbenzene	mg/Kg	NS	0.00011 U	0.00012 U	0.00011 U	0.00017 J	0.0072 U	0.00012 U	0.00013 U	0.00013 U
Methylene Chloride	mg/Kg	500	0.0066 B	0.014 B	0.0027 B	0.0063 B	0.017 U	0.011	0.0057 B	0.0048 B
MTBE	mg/Kg	500	0.00011 U	0.00012 U	0.00011 U	0.00022 J	0.013 U	0.00012 U	0.00013 U	0.00038 J
Styrene	mg/Kg	NS	0.00027 U	0.00031 U	0.0011	0.00031 U	0.014 J	0.00031 U	0.0012	0.00033 U
Tetrachloroethene (PCE)	mg/Kg	150	0.00094 J	0.00013 U	0.0019	0.00013 U	16.00	0.00013 U	0.120	0.00014 U
Toluene	mg/Kg	500	0.0013	0.00044 J	0.00035 J	0.00033 J	0.026 J	0.00047 U	0.0028	0.00026 J
Total Xylenes	mg/Kg	500	0.00064 U	0.00074 U	0.00068 U	0.0017 J	0.034 U	0.00074 U	0.0016 J	0.00078 U
Trans-1,2-Dichloroethene	mg/Kg	500	0.00012 U	0.00014 U	0.00013 U	0.00014 U	0.012 U	0.00014 U	0.0013	0.00015 U
Trichloroethene (TCE)	mg/Kg	200	0.00011 U	0.00013 U	0.00012 U	0.00013 U	0.034 J	0.00013 U	0.0055	0.00014 U
TOTAL VOCS			0.0102	0.0160	0.0061	0.0110	16.088	0.0113	0.1505	0.0054
Semi Volatile Organic Compounds (SVOCs) by EPA Method 8270C										
2-Methylnaphthalene	mg/Kg	NS	0.047 U	0.052 U	1.2 J	0.053 U	0.140 J	0.052 U	0.47 J	0.050 U
Acenaphthene	mg/kg	500	0.054 U	0.059 U	1.1 U	0.060 U	0.110 J	0.059 U	0.28 J	0.056 U
Acenaphthylene	mg/kg	500	0.170 J	0.048 U	8.4	0.049 U	0.950	0.048 U	2.1	0.046 U
Anthracene	mg/kg	500	0.074 J	0.049 U	5.7 J	0.050 U	1.4	0.049 U	2.6	0.047 U
Benzo(a)anthracene	mg/kg	5.6	0.710	0.0028 U	**53**	0.0029 U	3.3	0.0028 U	**6.4**	0.0027 U
Benzo(a)pyrene	mg/kg	1	0.620	0.0029 U	**40**	0.0029 U	**3.1**	0.0029 U	**6.0**	0.0027 U
Benzo(b)fluoranthene	mg/kg	5.6	0.580	0.0026 U	**34**	0.0026 U	3.1	0.0026 U	5.6	0.0024 U
Benzo(g,h,i)perylene	mg/kg	500	0.550	0.030 U	25	0.030 U	2.2	0.030 U	4.6	0.029 U
Benzo(k)fluoranthene	mg/kg	56	0.260	0.0031 U	14	0.0031 U	0.990	0.0031 U	2.0	0.0029 U
Bis(2-ethylhexyl) phthalate	mg/kg	NS	0.120 U	0.140 U	**2.4 U**	0.140 U	0.120 U	0.130 U	2.9	0.130 U
Butyl benzyl phthalate	mg/kg	NS	0.034 U	0.037 U	0.67 U	0.038 U	0.032 U	0.037 U	3.7	0.035 U
Carbazol	mg/kg	NS	0.043 U	0.048 U	0.87 U	0.049 U	0.041 U	0.048 U	0.1 J	0.046 U
Chrysene	mg/kg	56	0.860	0.047 U	55	0.048 U	4.0	0.047 U	7.4	0.045 U
Dibenz(a,h)anthracene	mg/kg	0.56	0.120	0.0051 U	**7.2**	0.0052 U	0.550	0.0051 U	**1.3**	0.0049 U
Dibenzofuran	mg/Kg	350	0.043 U	0.048 U	0.86 U	0.048 U	0.0041 U	0.048 U	0.0094 U	0.045 U
Diphenyl	mg/kg	NS	0.049 U	0.054 U	0.98 U	0.055 U	0.047 U	0.054 U	0.16 J	0.052 U
Flourene	mg/kg	500	0.047 U	0.052 U	1.8 J	0.053 U	0.570	0.052 U	1.7	0.049 U
Fluoranthene	mg/kg	500	0.510	0.054 U	66	0.055 U	4.6	0.054 U	7.9	0.042 U
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	0.450	0.0075 U	**23**	0.0076 U	2.0	0.0075 U	4.1	0.0072 U
Naphthalene	mg/kg	500	0.043 U	0.047 U	0.85 U	0.048 U	0.100 J	0.047 U	0.19 J	0.045 U
Phenanthrene	mg/kg	500	0.160 J	0.052 U	14	0.052 U	3.2	0.052 U	9.5	0.049 U
Pyrene	mg/kg	500	1.3	0.040 J	140	0.034 U	5.9	0.034 U	17	0.032 U
TOTAL SVOCS			6.4	0.040	488.3	0.000	36.21	0.00	86.00	0.0
Total Metals by EPA Method 6010B										
Aluminum	mg/Kg	NS	1,200 J	374 J	455 J	208 J	1,940	577	4,730 J	177 J
Antimony	mg/kg	NS	1.3 U	1.5 U	1.2 U	1.4 U	1.2 J	1.4 J	3.2	1.4 U
Arsenic	mg/kg	16	1.1	1.1 U	1.8	1.1 U	1.7	1.0 U	5.6	1.1 U
Barium	mg/kg	400	12.6 J	1.8 J	1.9 J	3.3 J	59.9	2.6 J	168	1.3 U
Beryllium	mg/kg	590	0.15 U	0.17 U	0.14 U	0.16 U	0.69	0.16 U	1.7	0.17 U
Cadmium	mg/kg	9.3	0.16 U	0.17 U	0.15 U	0.17 U	0.14 U	0.16 U	0.23 J	0.17 U
Calcium	mg/kg	NS	12,400	354 J	6,790	31,000	19,400 J	694 J	19,500	777 J
Chromium	mg/kg	1,500	3.3	2.3 J	5.5	0.96 U	24.1	2.9	75	0.99 U
Cobalt	mg/kg	NS	1.0 J	1.0 U	0.85 U	0.95 U	21.5	0.93 U	59	0.98 U
Copper	mg/kg	270	8.4	2.3 U	5.0	2.2 U	247	2.1 U	**783**	2.2 U
Iron	mg/kg	NS	2,930	892	5,840	491	12,600	1,230	34,500	448
Lead	mg/kg	1,000	16.9	1.4	1.5	0.96 U	211	1.7	611	0.99 U
Magnesium	mg/kg	NS	1,550	192 J	128 J	129 J	2,530	305 J	2,870	82.8 U
Manganese	mg/kg	10,000	37.9	12.3	6.9	5.7	121	16.1	396	4.3
Nickel	mg/kg	310	3.9 J	1.0 U	1.0 J	0.98 U	36.5	0.96 U	113	1.0 U
Potassium	mg/kg	NS	175 J	126 U	106 U	120 U	238 J	166 J	592 J	123 U
Silver	mg/kg	1,500	0.21 U	0.24 U	0.20 U	0.22 U	0.19 U	0.22 U	0.29 J	0.23 U
Sodium	mg/kg	NS	183 J	187 U	157 U	341 J	286 J	172 U	447 J	182 U
Vanadium	mg/kg	NS	6.5 J	2.0 J	5.9 J	1.2 J	7.6 J	2.6 J	12.5	0.88 U
Zinc	mg/kg	10,000	30.9	2.2 J	7.5	1.4 J	2,640 J	4.5 J	7,930	1.2 U
Mercury	mg/kg	2.8	0.023 U	0.025 U	0.024 U	0.025 U	0.072	0.026 U	0.091	0.025 U
TOTAL METALS			18560.5	1834.0	13,250	32,181	40,366	3,004	72,798	1,406

Notes:
[1] Only detected compounds listed - all others below respective laboratory detection limits are marked with U
[2] mg/Kg = miligrams per kilogram = parts per million (ppm)
[3] Commercial Soil Cleanup Objectives from 6 NYCCR Table 375-6.8(b).

NS= No standards in table 375-6.8(b) or the supplemental table 1
Bold = concentration exceeds Commercial Soil Cleanup Objectives

J = Concentration is an approximate value.
B = Compound found in the blank and sample
** Positive and "not detected" VOC results for MW-105 (21-22) should be considered estimated (J)

U = Analyzed for but not detected

Table 4
Summary of Soil Analytical Results:
Belle Harbor Shopping Center, Belle Harbor, New York

Analyte/Method[1]	units[2]	NYSDEC Commercial Soil Cleanup Objectives [3]	MW-105	MW-105 **	MW-106	MW-106	MW-107	MW-107
Sample Depth	feet		(5.0 - 5.8)	(21- 22)	(6.0 - 7.0)	(16.0 - 17.0)	(6.0 - 6.9)	(25.0 - 26.0)
Laboratory ID			460-40154-11	460-40154-12	460-40154-9	460-40154-10	460-40154-7	460-40154-8
Sample Collection Date			05/11/12	05/11/12	05/11/12	05/11/12	05/10/12	05/10/12
Volatile Organic Compounds (VOCs) by EPA Method 8260B								
2-Butanone (MEK)	mg/Kg	500	0.00065 U	0.00067 J	0.00064 U	0.00072 U	0.0017 J	0.0012 J
Benzene	mg/Kg	44	0.00064 J	0.00016 J	0.0017	0.00017 U	0.00018 J	0.00017 U
Carbon disulfide	mg/Kg	NS	0.00032 J	0.0025 J	0.0018	0.0035	0.00022 J	0.0025
Chloroform	mg/Kg	350	0.00025 U	0.00026 J	0.00025 U	0.00028 U	0.00024 U	0.00028 U
Cis-1,2-Dichloroethene	mg/Kg	500	0.00011 U	0.00012 J	0.00011 U	0.00013 U	0.00011 U	0.00013 U
Ethylbenzene	mg/Kg	390	0.00018 U	0.00018 J	0.00052 J	0.056	0.00017 U	0.00020 U
Isopropylbenzene	mg/Kg	NS	0.00011 U	0.00012 J	0.00011 U	0.0032	0.00011 U	0.00013 U
Methylene Chloride	mg/Kg	500	0.0016 U	0.0011 J	0.0047 B	0.013 B	0.0058 B	0.0044 B
MTBE	mg/Kg	500	0.00011 U	0.00012 J	0.00011 U	0.00013 U	0.00011 U	0.00013 U
Styrene	mg/Kg	NS	0.00029 J	0.00030 J	0.021	0.00032 U	0.00099 J	0.00033 U
Tetrachloroethene (PCE)	mg/Kg	150	0.00084 J	0.00013 J	0.032	0.00014 U	0.0019	0.00014 U
Toluene	mg/Kg	500	0.00094 J	0.00015 J	0.0025	0.0021	0.00071 J	0.00022 J
Total Xylenes	mg/Kg	500	0.00070 U	0.00072 J	0.0020 J	0.025	0.00068 U	0.00078 U
Trans-1,2-Dichloroethene	mg/Kg	500	0.00013 U	0.00014 J	0.00013 U	0.00015 U	0.00013 U	0.00015 U
Trichloroethene (TCE)	mg/Kg	200	0.00012 U	0.00013 J	0.0015	0.00014 U	0.00012 U	0.00014 U
TOTAL VOCS			0.0030	0.0068	0.0677	0.1028	0.0115	0.0083
Semi Volatile Organic Compounds (SVOCs) by EPA Method 8270C								
2-Methylnaphthalene	mg/Kg	NS	0.820	0.052 U	0.044 U	0.052 U	0.0051 U	0.053 U
Acenaphthene	mg/kg	500	0.100 U	0.059 U	0.050 U	0.059 U	0.058 U	0.061 U
Acenaphthylene	mg/kg	500	1.20	0.048 U	0.130 J	0.048 U	0.270 J	0.049 U
Anthracene	mg/kg	500	1.10	0.049 U	0.042 U	0.049 U	0.060 J	0.051 U
Benzo(a)anthracene	mg/kg	5.6	3.80	0.0028 U	0.290	0.0028 U	1.50	0.0029 U
Benzo(a)pyrene	mg/kg	1	**3.20**	0.0029 U	0.037	0.0029 U	**1.40**	0.0029 U
Benzo(b)fluoranthene	mg/kg	5.6	3.10	0.0026 U	0.230	0.0026 U	1.40	0.0026 U
Benzo(g,h,i)perylene	mg/kg	500	2.10	0.030 U	0.110 J	0.030 U	0.85	0.031 U
Benzo(k)fluoranthene	mg/kg	56	1.00	0.0031 U	0.085	0.0031 U	0.38	0.0032 U
Bis(2-ethylhexyl) phthalate	mg/kg	NS	0.240 U	0.130 U	0.110 U	0.140 U	0.130 U	0.140 U
Butyl benzyl phthalate	mg/kg	NS	0.066	0.037 U	0.031 U	0.037 U	0.036 U	0.038 U
Carbazol	mg/kg	NS	0.085 U	0.048 U	0.041 U	0.048 U	0.047 U	0.049 U
Chrysene	mg/kg	56	4.60	0.047 U	0.440	0.047 U	1.70	0.049 U
Dibenz(a,h)anthracene	mg/kg	0.56	**0.620**	0.0051 U	0.0043 U	0.0051 U	0.24	0.0052 U
Dibenzofuran	mg/Kg	350	0.089 J	0.048 U	0.040 U	0.048 U	0.046 U	0.049 U
Diphenyl	mg/kg	NS	0.120 J	0.054 U	0.046 U	0.054 U	0.053 U	0.056 U
Flourene	mg/kg	500	0.850	0.052 U	0.091 J	0.052 U	0.051 U	0.053 U
Fluoranthene	mg/kg	500	4.00	0.054 U	0.560	0.054 U	1.10	0.055 U
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	2.00	0.0075 U	0.110	0.0076 U	0.78	0.0077 U
Naphthalene	mg/kg	500	0.370 J	0.047 U	0.097 J	0.047 U	0.046 U	0.048 U
Phenanthrene	mg/kg	500	6.20	0.052 U	1.70	0.052 U	0.050 U	0.059 J
Pyrene	mg/kg	500	10.00	0.034 U	1.10	0.054 J	3.40	0.035 U
TOTAL SVOCS			45.24	0.00	4.98	0.054	13.1	0.059
Total Metals by EPA Method 6010B								
Aluminum	mg/Kg	NS	2,500 J	630 J	78.2 J	669 J	437 J	466 J
Antimony	mg/kg	NS	1.2 U	1.4 U	1.2 U	1.4 U	1.5 U	1.4 U
Arsenic	mg/kg	16	3.3	1.0 U	0.94 U	1.1 U	1.8	1.1 U
Barium	mg/kg	400	62.6	2.8 J	4.9 J	2.8 J	3.1 J	1.9 J
Beryllium	mg/kg	590	3.3	0.16 U	0.14 U	0.17 U	0.17 U	0.17 U
Cadmium	mg/kg	9.3	0.18 J	0.16 U	0.15 U	0.17 U	0.17 U	0.17 U
Calcium	mg/kg	NS	16,400	1,050 J	1,340	882 J	2,480	511 J
Chromium	mg/kg	1,500	16.7	2.7	1.5 J	3.0	6.8	2.4
Cobalt	mg/kg	NS	12.9	0.93 U	0.85 U	**0.99 U**	**1.0 U**	0.99 U
Copper	mg/kg	270	187	2.1 U	1.9 U	2.3 U	7.0	2.3 U
Iron	mg/kg	NS	10,300	1,340	3,110	1,500	10,200	1,020
Lead	mg/kg	1,000	203	1.3	12.0	1.7	8.9	1.0 U
Magnesium	mg/kg	NS	3940	354 J	71.9 U	344 J	172 J	235 J
Manganese	mg/kg	10,000	145	15.4	3.8	16.9	9.1	12.1
Nickel	mg/kg	310	32.2	0.96 U	0.88 U	1.0 U	1.1 J	1.0 U
Potassium	mg/kg	NS	285 J	194 J	143 J	182 J	126 U	132 J
Silver	mg/kg	1,500	0.19 U	0.22 U	0.20 U	0.23 U	0.24 U	0.23 U
Sodium	mg/kg	NS	312 J	173 U	158 U	184 U	186 U	184 U
Vanadium	mg/kg	NS	14.7	2.6 U J	2.7 J	2.8 J	6.5 J	2.1 J
Zinc	mg/kg	10,000	1,930	3.6 J	1.2 J	3.8 J	8.8	2.8 J
Mercury	mg/kg	2.8	0.023 U	0.025 U	0.033	0.027 U	0.024 U	0.028 U
TOTAL METALS			36348	3594	4697	3608.0	13342	2385

Notes:
[1] Only detected compounds listed - all others below respective laboratory detection limits are marked with U = Analyzed for but not detected
[2] mg/Kg = miligrams per kilogram = parts per million (ppm)
[3] Commercial Soil Cleanup Objectives from 6 NYCCR Table 375-6.8(b).

* Supplemental Soil Cleanup Objectives from CP-51/Soil Cleanup Guidance Table 1.
Bold = concentration exceeds Soil Cleanup Objectives
Bold = concentration exceeds Supplemental Soil Cleanup Objectives

J = Concentration is an approximate value.
B = Compound found in the blank and sample
** Positive and "not detected" VOC results for MW-105 (21-22) should be considered estimated (J)

TABLE 5
Summary of Groundwater Quality Samples - Interior
Belle Harbor Shopping Center, Belle Harbor, New York

Sample Location		**Citi Bank**		**Ciros Pizza**		**Vacant Unit**		**Trip Blank**
Medium		Groundwater		Groundwater		Groundwater		Blank
Laboratory ID		460-38105-3		460-38105-2		460-37719-1		460-38105-1
Sample ID		SVP-6		SVP-11		SVP-9		Trip
Sample Date		03/19/12		03/19/12		03/08/12		03/19/12
Units		ug/L		ug/L		ug/L		ug/L
VOCs (Method 8260B)	Groundwater							
Analyte	Quality Std (ug/L)							
Acetone	50	2.7 U		16		13 U		2.7 U
Benzene	1	0.73	J	0.52	J	0.75	J	0.080 U
Carbon disulfide	60	3.0		2.0		2.7	J	0.13 U
cis-1,2-Dichloroethene	5	3.6		1.7		**7.1**		0.18 U
1,2 Dichlorobenzene	3	NR		NR		1.1 U		NR
1,4-Dioxane	NS	NR		NR		180	J	NR
Ethylbenzene	5	**12**		3.8		**320**		0.10 U
Isopropylbenzene	5	NR		NR		**46**		NR
m&P-Xylene	NS	NR		NR		67		NR
Methylene chloride	5	0.39	J	0.64	J	0.90 U		0.18 U
o-Xylene	5	NR		NR		**170**		NR
Styrene	5	0.38	J	0.25	J	0.60 U		0.12 U
Tetrachloroethene (PCE)	5	2.7		**6.1**		1.2	J	0.10 U
Toluene	5	0.47	J	0.43	J	**41**		0.15 U
trans-1,2-Dichloroethene	5	2.1		1.6		2.8	J	0.13 U
Trichloroethene (TCE)	5	2.0		4.7		0.45 U		0.090 U
Vinyl chloride	2	**2.2**		0.64	J	1.7	J	0.14 U
Xylenes, Total	NS	0.90	J	0.36 U		NR		0.36 U
Total VOCs		30.5		38.4		840.3		0.0

Notes:
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
ug/L = micrograms per liter
Groundwater Quality Standard from: 6 NYCRR Part 703
NS = No Standard
* = Guidance Value from: NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1) groundwater standards.

Bold: concentration exceeds Groundwater Quality Standards
Bold: concentration exceeds Guidance Value
J = Detected above the Method Detection Limit but below the Reporting Limit; therefore, result is an estimated concentration.
D = Sample results are obtained from a dilution
U = Analyzed for but not detected
NR = Not Reported

TABLE 5
Summary of Groundwater Quality Samples - Interior
Belle Harbor Shopping Center, Belle Harbor, New York

Sample Location		**Citi Bank**		**Ciros Pizza**		**Vacant Unit**		**Trip Blank**
Medium		Groundwater		Groundwater		Groundwater		Blank
Laboratory ID		460-38105-3		460-38105-2		460-37719-1		460-38105-1
Sample ID		SVP-6		SVP-11		SVP-9		Trip
Sample Date		03/19/12		03/19/12		03/08/12		03/19/12
Units		ug/L		ug/L		ug/L		ug/L
SVOCs (Method 8270B) Analyte	Groundwater Quality Std (ug/L)							
Acenaphthene	20	**67**		**110**		**300**	D	NA
Acenaphthylene	NS	2.7 U		2.7	J	34	J D	NA
Anthracene	NS or 50*	2.8 U		3.9	J	**84**	J D	NA
Benzo(a)anthracene	NS or 0.002*	0.27 U		**0.96**	J	**44**	D	NA
Benzo(a)pyrene	ND	0.14 U		**0.54**	J	**27**	D	NA
Benzo(b)fluoranthene	NS or 0.002*	**0.26**	J	**0.65**	J	**20**	D	NA
Benzo(k)fluoranthene	NS or 0.002*	0.26 U		0.26 U		**8.2**	J D	NA
bis(2-Ethylhexyl)phthalate	5	2.0 U		2.66	J	20 U		NA
Carbazole	NS	3.2 U		4.6	J	32 U		NA
Chrysene	NS or 0.002*	3.1 U		3.1 U		**52**	J D	NA
Dibenz(a,h)anthracene	NS	0.091	J	0.091	J	0.90 U		NA
Dibenzofuran	NS	2.8 U		8.7	J	28 U		NA
Diphenyl	5	NR		NR		**86**	J D	NA
Flouranthrene	NS or 50*	3.2 U		3.2 U		**87**	J D	NA
Flourene	NS or 50*	2.8 U		16		**160**	D	NA
Indeno(1,2,3-cd)pyrene	NS or 0.002*	**0.15**	J	**0.15**	J	**7.7**	J D	NA
2-Methylnaphthalene	NS	3.0 U		3.0 U		96	J D	NA
Naphthalene	NS or 10*	2.7 U		2.7 U		**2100**	D	NA
Phenanthrene	NS or 50*	3.1 U		13		**330**	D	NA
Pyrene	NS or 50*	2.9 U		2.9 U		**160**	D	NA
Total SVOCs		67.5		164.0		3596		

Notes:
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
ug/L = micrograms per liter
Groundwater Quality Standard from: 6 NYCRR Part 703
NS = No Standard
* = Guidance Value from: NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1) groundwater standards.
ND = Not Detectable

Bold: concentration exceeds Groundwater Quality Standards
Bold: concentration exceeds Guidance Value
J = Detected above the Method Detection Limit but below the Reporting Limit; therefore, result is an estimated concentration.
D = Sample results are obtained from a dilution
U = Analyzed for but not detected
NR = Not Reported
NA = Not Applicable

Table 6
Summary of Groundwater Quality - Exterior
Belle Harbor Shopping Center, Belle Harbor, New York

	Medium	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
	Laboratory ID		460-41884-7	460-41884-6	460-41785-6	460-41879-3	460-41879-4	460-41884-5	460-41785-5	460-41884-2	460-42023-3		
	Sample ID	MW-1	**MW-2**	**MW-2D**	**MW-3**	**MW-4**	**MW-4D**	**MW-5**	**MW-6**	**MW-7**	**MW-8S**	**MW-8D**	
	Sample Date		06/28/12	06/28/12	06/26/12	06/29/12	06/29/12	06/27/12	06/26/12	06/27/12	06/29/12		
	Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
VOCs (Method 8260B) Analyte	Groundwater Quality Std (ug/L)	Not Sampled										Not Sampled	
Benzene	1		0.080 U	0.080 U	0.080 U	0.099 J	0.080 U	0.18 J	0.76 J	0.080 U	0.080 U		
Carbon disulfide	60		0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U		
Chloroform	7		0.080 U	0.080 U	0.080 U	0.40 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U		
cis-1,2-Dichloroethene	5		2.5	0.18 U	0.18 U	**220**	0.23 J	0.58 J	0.18 U	0.18 U	0.18 U		
1,1-Dichloroethene	5		0.090 U	0.090 U	0.090 U	0.33 J	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U		
Ethylbenzene	5		**6.7**	0.10 U	0.10 U	0.56 J	**300**	**28**	**180**	0.10 U	0.10 U		
Isopropylbenzene	5		4.9	0.080 U	0.080 U	1.0	**5.4**	3.8	**33**	0.080 U	0.080 U		
MTBE	NS		0.14 U	1.4	0.14 U	0.14 U	0.14 U	0.14 U	0.73 J	0.14 U	0.14 U		
Styrene	5		0.12 U	0.12 U	0.12 U	1.2	**240**	0.12 U	0.12 U	0.12 U	0.12 U		
Tetrachloroethene (PCE)	5		0.35 J	0.10 U	1.5	**310**	1.2	0.78 J	0.10 U	0.10 U	0.10 U		
Toluene	5		0.16 J	0.15 U	0.15 U	0.15 U	**9.2**	2.0	2.0	0.15 U	2.5		
trans-1,2-Dichloroethene	5		1.9	0.13 U	0.13 U	4.7	0.13 U	2.1	0.13 U	0.13 U	0.13 U		
trans-1,3-Dichloropropene	0.4		0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U		
Trichloroethene (TCE)	5		0.79 J	0.090 U	0.090 U	**200**	0.43 J	0.20 J	0.090 U	0.090 U	0.090 U		
Vinyl chloride	2		0.88 J	0.14 U	0.14 U	**47**	0.14 U	**3.0**	0.14 U	0.14 U	0.14 U		
Xylenes, Total	NS		0.36 U	0.36 U	0.36 U	30	440	27	130	0.36 U	0.36 U		
Total VOCs			18.2	1.4	1.5	815.3	996.5	67.6	346.5	0.0	2.5	0.0	
SVOCs (Method 8270B) Analyte	Groundwater Quality Std (ug/L)	Not Sampled	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Acenaphthene	20		**130**	2.7 U	2.7 U	3.3 J	**27 U**	**23**	**110**	2.7 U	2.7 U		
Acenaphthylene	NS		4.7 J	2.7 U	2.7 U	48	31 JD	32	5.5 U	2.7 U	2.7 U		
Benzo(a)anthracene	NS or 0.002*		0.27 U	0.27 U	0.27 U	0.27 U	2.7 U	0.27 U	0.55 U	0.27 U	0.27 U		
Benzo(a)pyrene	ND		0.14 U	0.14 U	0.14 U	**0.27** J	1.4 U	0.14 U	0.28 U	0.14 U	0.14 U		
Benzo(b)fluoranthene	NS or 0.002*		0.26 U	0.26 U	0.26 U	**0.29** J	**2.6 U**	0.26 U	**0.53 U**	0.26 U	0.26 U		
Dibenzofuran	NS		2.8 U	2.8 U	2.8 U	2.8 U	28 U	2.8 U	5.7 U	2.8 U	2.8 U		
Diphenyl	5		2.8 U	2.8 U	2.8 U	**6.0** J	28 U	2.8 U	**5.7** J	2.8 U	2.8 U		
Flourene	NS or 50*		5.0 J	2.8 U	2.8 U	8.8 J	28 U	2.8 U	13 J	2.8 U	2.8 U		
2-Methylnaphthalene	NS		3.0 U	3.0 U	3.0 U	60	72 JD	3.0 U	140	3.0 U	3.0 U		
Naphthalene	NS or 10*		5.2 J	2.7 U	2.7 U	**240**	**1500** D	**34**	**410**	2.7 U	2.7 U		
Phenanthrene	NS or 50*		3.2 U	3.2 U	3.2 U	3.1 U	31 U	3.2 U	6.3 U	3.2 U	3.2 U		
Total SVOCs			144.9	0.0	0.0	366.7	1603.0	89.0	678.7	0.0	0.0	0.0	

Notes:
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
ug/L = micrograms per liter
Bold: concentration exceeds Groundwater Quality Standards
Bold: concentration exceeds Guidance Value
Groundwater Quality Standard from: 6 NYCRR Part 703
NS = No Standard
* = Guidance Value from: NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1) groundwater standards.
ND = Not Detectable
J = Detected above the Method Detection Limit but below the Reporting Limit; therefore, result is an estimated concentration.
U = Analyzed for but not detected

Table 6
Summary of Groundwater Quality - Exterior
Belle Harbor Shopping Center, Belle Harbor, New York

Medium		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Laboratory ID		460-41785-3	460-41785-2	460-41785-11	460-41785-7	460-41879-5	460-41884-3	460-41884-4	460-41879-2	460-41785-10	460-41884-1	460-41785-4
Sample ID		**MW-101S**	**MW-101D**	**MW-102S**	**MW-102D**	**MW-103**	**MW-104S**	**MW-104A-S**	**MW-104D**	**MW-105S**	**MW-106S**	**MW-107S**
Sample Date		06/26/12	06/26/12	06/27/12	06/26/12	06/29/12	06/27/12	06/27/12	06/28/12	06/27/12	06/27/12	06/26/12
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs (Method 8260B) Analyte	Groundwater Quality Std (ug/L)											
Benzene	1	0.080 U	0.080 U	0.61 J	**2.1**	0.16 J	0.080 U	0.080 U	0.080 U	0.080 U	0.56 J	0.27 J
Carbon disulfide	60	0.13 U	1.5	0.40 J	0.13 U	0.57 J	0.13 U	0.45 J	0.52 J	0.13 U	0.13 U	0.13 U
Chloroform	7	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
cis-1,2-Dichloroethene	5	0.18 U	0.18 U	1.0	0.18 U	0.18 U	1.1	0.53 J	0.24 J	0.18 U	**6.4**	0.18 U
1,1-Dichloroethene	5	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U
Ethylbenzene	5	0.10 U	0.10 U	**270**	**140**	0.17 J	0.10 U	0.10 U	0.10 U	**40**	**69**	0.95 J
Isopropylbenzene	5	0.080 U	0.080 U	**20**	**10**	1.5	0.080 U	0.080 U	0.088 J	4.5	2.3	0.52 J
MTBE	NS	0.14 U	0.14 U	0.14 U	0.30 J	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Styrene	5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.39 J	0.12 U
Tetrachloroethene (PCE)	5	0.61 J	0.10 U	0.45 J	0.10 U	0.63 J	**23**	2.9	1.4	0.10 U	2.7	0.10 U
Toluene	5	0.15 U	0.15 U	**29**	1.6	0.15 U	0.15 U	0.15 U	0.15 U	3.1	**9.5**	0.15 U
trans-1,2-Dichloroethene	5	0.13 U	0.13 U	3.4	0.14 J	0.39 J	0.13 U	0.13 U	0.13 U	0.13 U	2.9	0.13 U
trans-1,3-Dichloropropene	0.4	0.24 U	0.24 U	0.24 U	0.24 U	0.24 J	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Trichloroethene (TCE)	5	0.090 U	0.090 U	0.34 J	0.090 U	0.12 J	0.96 J	2.1	0.37 J	0.090 U	0.85 J	0.090 U
Vinyl chloride	2	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	**6.5**	0.14 U
Xylenes, Total	NS	0.36 U	0.36 U	120	79	15	0.36 U	0.36 U	0.36 U	39	42	1.2 J
Total VOCs		0.6	1.5	445.2	233.1	18.8	25.1	6.0	2.6	86.6	143.1	2.9
SVOCs (Method 8270B) Analyte	Groundwater Quality Std (ug/L)	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Acenaphthene	20	2.8 U	2.8 U	**110**	15 **J**	2.7 U	2.7 U	2.7 U	2.7 U	**21**	**43**	2.8 U
Acenaphthylene	NS	2.8 U	2.8 U	40	5.5 U	2.7 U	2.7 U	2.7 U	2.7 U	5.5 U	24	2.8 U
Benzo(a)anthracene	NS or 0.002*	0.28 U	0.28 U	**1.0** J	**1.2** J	0.27 U	0.27 U	0.27 U	0.27 U	0.55 U	0.27 U	**0.42** J
Benzo(a)pyrene	ND	0.14 U	0.14 U	0.28 U	**0.72 J**	0.14 U	0.14 U	0.14 U	0.14 U	0.28 U	0.14 U	0.14 U
Benzo(b)fluoranthene	NS or 0.002*	0.27 U	0.27 U	0.53 U	**0.70 J**	0.26 U	0.26 U	0.26 U	0.26 U	0.53 U	0.26 U	0.27 U
Dibenzofuran	NS	2.9 U	2.9 U	7.5 J	5.7 U	2.8 U	2.8 U	2.8 U	2.8 U	5.7 U	2.8 U	2.9 U
Diphenyl	5	2.9 U	2.9 U	**30**	5.7 U	2.8 U	2.8 U	2.8 U	2.8 U	5.7 U	2.8 U	2.9 U
Flourene	NS or 50*	2.9 U	2.9 U	35	5.7 U	2.8 U	2.8 U	2.8 U	2.8 U	5.7 U	2.8 U	2.9 U
2-Methylnaphthalene	NS	3.1 U	3.1 U	6.1 U	48	3.0 U	3.0 U	3.0 U	3.2 U	47	3.0 U	3.1 U
Naphthalene	NS or 10*	2.8 U	2.8 U	**320**	**440**	**14**	6.8 J	2.7 U	2.8 U	**290**	**18**	2.8 U
Phenanthrene	NS or 50*	3.2 U	3.2 U	23	6.3 U	3.2 U	3.2 U	3.2 U	3.3 U	6.3 U	3.2 U	3.2 U
Total SVOCs		0.0	0.0	574.5	505.6	14.0	6.8	0.0	0.0	358.0	85.0	0.42

Notes:
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
ug/L = micrograms per liter
Groundwater Quality Standard from: 6 NYCRR Part 703
NS = No Standard
* = Guidance Value from: NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1) groundwater standards.
ND = Not Detectable
J = Detected above the Method Detection Limit but below the Reporting Limit; therefore, result is an estimated concentration.
U = Analyzed for but not detected

Bold: concentration exceeds Groundwater Quality Standards
Bold: concentration exceeds Guidance Value

TABLE 7
Summary of Sub-Slab Vapor and Indoor Air Analytical Results: March 2012
A&P Shopping Center
Belle Harbor, New York

Sample Location	NYSDOH Standards [1]		Citibank			Ciros Pizza		Sofias Nail Salon		Vacant Unit				Ambient	
Medium	Subsurface Vapors	Indoor Air	Sub-Slab Vapor	Indoor Air		Sub-Slab Vapor	Indoor Air	Indoor Air		Sub-Slab Vapor		Indoor Air		Outdoor Air	
Sample ID			SVP-6	IA-6	IA-7	SVP-11	IA-11	IAQ-1	IAQ-2	SVP-9	SVP-10	IA-9	IA-10	AMB-1	Ambient
Collection Date			03/20/12	03/20/12	03/20/12	03/20/12	03/20/12	03/11/12	03/11/12	03/20/12	03/20/12	03/20/12	03/20/12	03/11/12	03/20/12
Units	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
Analyte															
1,1,1-Trichloroethane	NS	NS	<0.18	<0.17	<0.18	<0.17	<0.18	<0.64	<0.64	<0.17	2.9	<0.70	<0.88	<0.17	<0.18
1,1,2,2-Tetrachloroethane	NS	NS	<0.23	<0.22	<0.23	<0.22	<0.23	<0.80	<0.80	<0.22	<0.22	<0.88	<1.1	<0.22	<0.22
1,1-Dichloroethane	NS	NS	<0.14	<0.13	<0.14	0.20	< 0.14	<0.47	<0.47	<0.13	0.21	<0.52	<0.66	<0.13	<0.13
1,1-Dichloroethene	NS	NS	<0.067	<0.063	<0.067	0.077	< 0.067	<0.23	<0.23	<0.063	<0.064	<0.26	<0.32	<0.063	<0.064
1,2,4-Trimethylbenzene	NS	NS	<0.84	<0.78	<0.82	1.6	<0.83	<2.9	<2.9	1.6	1.2	<3.2	<4.0	<0.78	<0.79
1,2-Dichloroethane	NS	NS	<0.14	<0.13	<0.14	<0.13	<0.14	<0.47	<0.47	0.29	0.15	<0.52	<0.66	<0.13	<0.13
1,3-Butadiene	NS	NS	<0.38	<0.35	<0.37	<0.35	2.8	<1.3	<1.3	<0.35	<0.36	<1.4	<1.8	<0.35	<0.36
1,4-Dioxane	NS	NS	<0.61	4.4	<0.60	<0.58	<0.61	<2.1	<2.1	<0.58	<0.58	<2.3	<2.9	<0.57	<0.58
2-Butanone (MEK)	NS	NS	<2.5	<2.3	<2.5	4.0	<2.5	<8.6	<8.6	<2.4	<2.4	<9.5	<12	<2.3	<2.4
2-Propanol	NS	NS	40	40	52	4.5	81	<7.2	<7.2	<2.0	<2.0	<7.9	<10	<1.9	<2.0
4-Ethyltoluene	NS	NS	<0.84	<0.78	<0.82	1.4	<0.83	<2.9	<2.9	1.2	0.90	<3.2	<4.0	<0.78	<0.79
Acetone	NS	NS	16	20	19	85	21	230	280	26	16	29	23	4.4	2.9
Benzene	NS	NS	1.0	1.1	0.97	2.6	23	< 0.94	< 0.94	1.4	1.6	1.6	1.5	0.48	0.66
Carbon Disulfide	NS	NS	<2.6	<2.5	<2.6	7.8	<2.6	<9.1	<9.1	2.6	3.8	<10	<13	<2.5	<2.5
Carbon Tetrachloride	NS	NS	<1.1	<0.99	<1.0	<1.0	<1.1	<3.7	<3.7	1.0 J	2.4 J J	<4.0	<5.1	<0.99	<1.0
Chloroform	NS	NS	<0.83	<0.77	<0.82	3.3	1.8	2.9	<2.9	2.1	56	<3.1	<4.0	<0.77	<0.79
Chloromethane	NS	NS	1.1	1.0	0.88	<0.33	1.4	< 1.2	1.2 J	0.94	<0.33	<1.3	<1.7	0.96 J	0.82
cis-1,2-Dichloroethene	NS	NS	<0.13	<0.12	<0.13	<0.13	<0.13	<0.46	<0.46	<0.13	0.21	<0.51	<0.64	<0.12	<0.13
Cyclohexane	NS	NS	0.80	0.65	1.1	5.1	0.62	53	71	0.74	<0.56	< 2.2	<2.8	<0.54	<0.55
Ethanol	NS	NS	980 J	940 J	1100 J	120	3100 J	470 J	440	250 J	180 J	2,100 J	1,800 J	3.4	3.9
Ethyl Benzene	NS	NS	0.24	0.23	0.26	1.4	0.41	<0.51	<0.51	1.0	1.3	<0.56	<0.70	<0.14	0.26
Freon 11	NS	NS	1.6	1.6	1.6	2.2	1.6	< 3.3	< 3.3	9.9	5.9	9.0	9.5	1.1	1.4
Freon 12	NS	NS	4.0	3.9	3.8	200	2.6	< 2.9	< 2.9	4.9	11	5.0	<4.0	2.1	2.7
Heptane	NS	NS	<0.70	1.1	1.5	2.4	3.2	75	85	1.8	0.98	<2.6	<3.3	<0.65	<0.66
Hexane	NS	NS	<0.60	<0.56	<0.59	1.6	1.6	3.3	4.4	0.68	<0.57	<2.3	<2.8	<0.56	<0.57
m,p-Xylene	NS	NS	0.55	0.51	0.54	4.2	0.60	<1.0	<1.0	3.5	3.9	1.1	<1.4	<0.27	0.63
Methylene Chloride	NS	60	<1.2	<1.1	<1.2	3.1 J	<1.2	<4.1	<4.1	<1.1	<1.1	<4.5	<5.6	<1.1	<1.1
o-Xylene	NS	NS	0.21	0.18	0.18	1.6	0.23	<0.51	<0.51	1.4	1.4	<0.56	<0.70	<0.14	0.24
Styrene	NS	NS	<0.72	<0.67	<0.72	<0.68	0.84	<2.5	<2.5	< 0.68	<0.69	<2.7	< 3.4	<0.67	<0.68
Tetrachloroethene (PCE)	NS	30	1.0	1.0	1.1	160	0.45	2.8	3.1	21	48	5.2	5.0	<0.21	<0.22
Toluene	NS	NS	4.0	4.0	4.7	15	4.9	350	320	7.8	8.4	5.8	5.0	0.88	1.2
Trichloroethene (TCE)	NS	2	<0.18	<0.17	<0.18	2.9	<0.18	< 0.63	< 0.63	0.18	3.8	<0.69	<0.87	<0.17	<0.17
Vinyl Chloride	NS	NS	<0.043	<0.040	<0.043	<0.041	<0.043	<0.15	<0.15	<0.041	0.049	<0.16	<0.21	<0.40	<0.041
Total VOCs			1050.5	1019.7	1187.6	630.0	3248.1	1187.0	1204.7	340.0	347.7	2156.7	1844.0	13.3	14.7

Notes:
[1] Standards from Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, NYSDOH October 2006
NS = No Standard
ug/m3 = micrograms per cubic meter (aka part per billion)
Only those analytes detected in one or more samples are presented above
Bold = Concentration exceeds Standards
J = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method
< = Compound analyzed for but not detected above the reporting limit

TABLE 7a
Summary of Sub-Slab Vapor and Indoor Air Analytical Results: March 2014
A&P Shopping Center
Belle Harbor, New York

Sample Location	NYSDOH Standards [1]		Citibank			Ciros Pizza		Sofias Nail Salon		Vacant Unit/Liquor Warehouse				Ambient
Medium	Subsurface Vapors	Indoor Air	Sub-Slab Vapor	Indoor Air		Sub-Slab Vapor	Indoor Air	Sub-Slab Vapor	Indoor Air	Sub-Slab Vapor		Indoor Air		Outdoor Air
Sample ID			SVP-6	IA-6	IA-7	SVP-11	IA-11	SVP-102	IAQ-1	SVP-9	SVP-10	IA-9	IA-10	Ambient
Collection Date			03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14	03/25/14
Units	ug/m3	ug/m3	Not Tested	Not Tested	Not Tested	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	Not Tested	ug/m3	ug/m3
Analyte														
1,1,1-Trichloroethane	NS	NS				< 0.34	< 0.35	< 0.17	< 1.7	<0.18	0.93		< 0.18	< 0.16
1,1,2,2-Tetrachloroethane	NS	NS				< 0.43	< 0.44	< 0.21	< 2.2	<0.22	<0.23		< 0.22	< 0.21
1,1-Dichloroethane	NS	NS				< 0.25	< 0.26	< 0.12	< 1.3	<0.13	< 0.14		< 0.13	< 0.12
1,1-Dichloroethene	NS	NS				< 0.12	< 0.13	< 0.061	< 0.62	<0.064	<0.066		< 0.065	< 0.060
1,2,4-Trimethylbenzene	NS	NS				< 1.5	< 1.6	1.4	< 7.7	0.90	1.4		< 0.81	< 0.75
1,2-Dichloroethane	NS	NS				< 0.25	< 0.26	< 0.12	< 1.3	< 0.13	< 0.14		< 0.13	< 0.12
1,3-Butadiene	NS	NS				< 0.69	< 0.72	< 0.34	< 3.5	<0.36	<0.37		< 0.36	< 0.34
1,4-Dioxane	NS	NS				< 1.1	< 1.2	< 0.55	< 5.6	< 0.58	< 0.60		< 0.59	< 0.55
2-Butanone (MEK)	NS	NS				< 4.6	< 4.8	3.0	< 23	4.1	3.6		< 2.4	< 2.2
2-Propanol	NS	NS				5.4	42	18	460	2.9	15		7.6	< 1.9
4-Ethyltoluene	NS	NS				< 1.5	< 1.6	1.2	< 7.7	0.93	1.0		< 0.81	< 0.75
4-Methyl-2-pentanone	NS	NS				< 1.3	< 1.3	< 0.63	< 6.4	< 0.66	3.2		< 0.67	< 0.62
Acetone	NS	NS				27	690 E	650 E	16000 E	26	52		76	21
Benzene	NS	NS				< 0.50	4.4	0.49	< 2.5	1.6	0.59		0.46	0.52
Carbon Disulfide	NS	NS				< 4.8	< 5.0	< 2.4	< 24	5.5	3.0		< 2.6	< 2.4
Carbon Tetrachloride	NS	NS				< 2.0	< 2.0	< 0.97	< 9.9	< 1.0	< 1.0		< 1.0	< 0.96
Chloroform	NS	NS				4.7	< 1.6	2.1	< 7.7	< 0.79	12		< 0.80	< 0.74
Chloromethane	NS	NS				< 3.2	< 3.3	< 1.6	< 16	< 1.7	< 1.7		<1.7	< 1.6
cis-1,2-Dichloroethene	NS	NS				< 0.25	< 0.26	< 0.12	< 1.2	0.14	< 0.13		< 0.13	< 0.12
Cyclohexane	NS	NS				< 1.1	< 1.1	< 0.53	< 5.4	< 0.55	<0.57		< 0.56	< 0.52
Ethanol	NS	NS				61	2500 E	140 E	2100 E	39	180 E		490 E	7.9
Ethyl Benzene	NS	NS				0.49	< 0.28	0.80	< 1.4	0.68	0.98		0.28	< 0.13
Freon 11	NS	NS				< 1.8	< 1.8	1.2	< 8.8	1.1	1.1		0.95	1.1
Freon 12	NS	NS				260	2.7	130	< 7.8	6.1	20		2.0	1.7
Heptane	NS	NS				< 1.3	< 1.3	1.1	< 6.4	0.72	< 0.68		< 0.67	< 0.62
Hexane	NS	NS				< 1.1	< 1.1	< 5.4	< 5.5	< 0.57	0.60		< 0.58	< 0.54
m,p-Xylene	NS	NS				1.6	< 0.56	2.6	< 2.7	2.2	3.3		0.69	0.28
Methylene Chloride	NS	60				< 2.2	< 2.2	< 1.1	< 11	<1.1	8.4		3.1	< 1.0
o-Xylene	NS	NS				0.68 J	< 0.28	0.94 J	< 1.4	0.83 J	1.4 J		0.27 J	< 0.13
Styrene	NS	NS				< 1.3	< 1.4	< 0.66	< 6.7	< 0.68	< 0.71		< 0.70	< 0.65
Tetrachloroethene (PCE)	NS	30				34	0.67	140	< 2.1	8.8	14		0.94	< 0.21
Toluene	NS	NS				2.6	5.8	6.2	11	6.1	5.8		4.9	0.98
trans-1,2-Dichloroethene	NS	NS				< 1.2	< 1.3	< 0.61	< 6.2	0.69	< 0.66		< 0.65	< 0.60
Trichloroethene (TCE)	NS	2				0.56	< 0.35	0.52	< 1.7	2.5	1.0		< 0.18	< 0.16
Vinyl Chloride	NS	NS				< 0.080	< 0.083	< 0.039	< 0.40	<0.041	< 0.043		< 0.042	< 0.039
Total VOCs			0.0	0.0	0.0	398.0	3245.6	1099.6	18571.0	110.8	329.3	0.0	587.2	33.5

Notes:
[1] Standards from Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, NYSDOH October 2006
NS = No Standard
ug/m3 = micrograms per cubic meter (aka part per billion)
Only those analytes detected in one or more samples are presented above
Bold = Concentration exceeds Standards
J = Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method
< = Compound analyzed for but not detected above the reporting limit
E = Exceeds instrument calibration range

Table 6a
Summary of Groundwater Quality: Bioremediaiton Constituents
Belle Harbor Shopping Center, Belle Harbor, New York

	Medium	Groundwater		Groundwater	
	Laboratory ID	460-41879-3		460-41879-4	
	Sample ID	MW-4		MW-4D	
	Sample Date	6/29/2012		6/29/2012	
	Units	ug/L		ug/L	
	GWQS (ug/L)				
GENERAL CHEMISTRY					
Total Organic Carbon	NS	8,400		2,600	
Sulfate	250,000	61,000		30,700	
Nitrate as N	10,000	680		70	J
Nitrite as N	1,000	49	J	12 U	
METABOLIC ACIDS					
Acetic acid	NS	150 U		150 U	
Butyric acid	NS	160 U		160 U	
Formic acid	NS	110 U		110 U	
Lactic acid	NS	1,200		410	J
Propionic acid	NS	170 U		500	J
Pyruvic acid	NS	80 U		80 U	
DISSOLVED GASSES					
Carbon dioxide	NS	7,500		1,400	
Ethane	NS	4.0 U		4.0 U	
Ethene	NS	3.0 U		3.0 U	
CHLORINATED VOCs					
cis-1,2-Dichloroethene	5	**220**		0.23	J
Tetrachloroethene (PCE)	5	**310**		1.2	
trans-1,2-Dichloroethene	5	4.7		0.13 U	
Trichloroethene (TCE)	5	**200**		0.43	J
Vinyl chloride	2	**47**		0.14 U	

Notes:
Groundwater Quality Standard from: 6 NYCRR Part 703
NS = No Standard
ug/L = micrograms per liter
Bold: concentration exceeds Groundwater Quality Standards
J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U = Indicates the analyte was analyzed for but not detected.

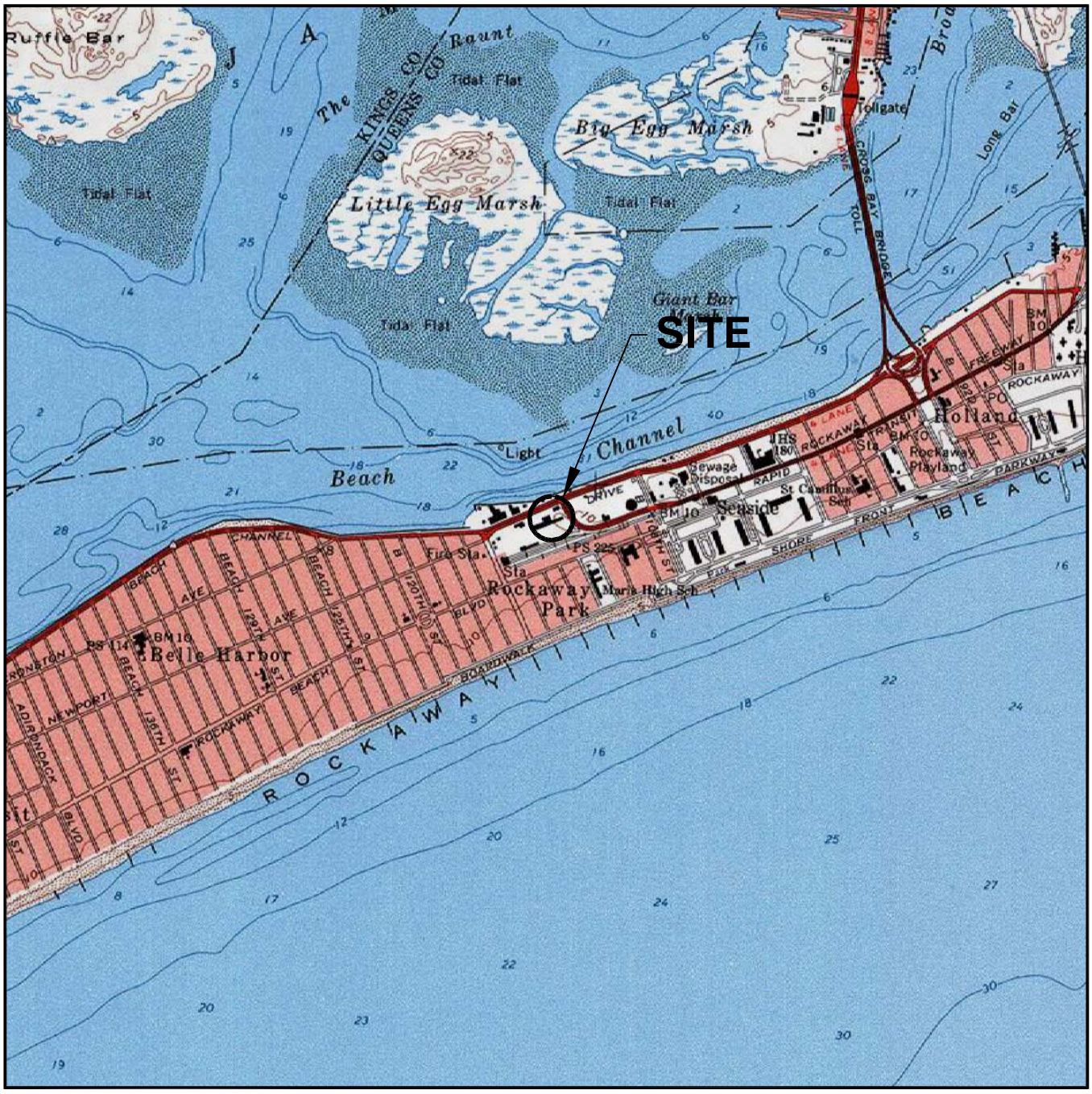
Table 8
Summary of QA/ QC Analytical Results
A&P Shopping Center
Belle Harbor, New York

		Duplicate Comparison (Groundwater)					
	Field-Equip Blank	MW-105	MW-105 Dupe	RPD	MW-8S	MW-8S Dupe	RPD
Date	6/27/2012	06/27/12	06/27/12		06/27/12	06/27/12	
VOCs							
cis-1,2-Dichloroethene	0.18 U	< 0.18	0.27 J	ND	0.18 U	0.18 U	ND
Ethylbenzene	0.10 U	40	38	5.1%	0.10 U	0.10 U	ND
Isopropylbenzene	0.080 U	4.5	4.2	6.9%	0.080 U	0.080 U	ND
Toluene	0.15 U	3.1	2.6	17.5%	2.5	2.3	8.3%
Xylenes, Total	0.36 U	39	37	5.3%	0.36 U	0.36 U	ND
SVOCs							
2-Methylnaphthalene	3.0 U	47	46	2.2%	3.0 U	3.0 U	ND
Acenaphthene	2.7 U	21	21	0.0%	2.7 U	2.7 U	ND
Naphthalene	2.7 U	290	280	3.5%	2.7 U	2.7 U	ND

		Duplicate Comparison (Sub-slab vapor)					
	Field-Equip Blank	SVP-9	SVP-9 Dupe	RPD	SVP-102	SVP-102 Dupe	RPD
Date	NA	03/20/12	03/20/12		03/25/14	03/25/14	
VOCs							
1,1,2,2-Tetrachloroethane	NA	< 0.22	0.26	ND	< 0.21	< 0.23	ND
1,2,4-Trimethylbenzene	NA	1.6	1.3	20.7%	1.4	1.3	7.4%
1,2-Dichloroethane	NA	0.29	0.25	14.8%	< 0.12	< 0.13	ND
2-Butanone (MEK)	NA	< 2.1	< 2.1	ND	3.0	< 2.4	ND
2-Propanol	NA	< 2.0	< 2.0	ND	18	18	0.0%
4-Ethyltoluene	NA	1.2	1.1	8.7%	1.2	1.2	0.0%
Acetone	NA	26	23	12.2%	650 E	680 E	ND
Benzene	NA	1.4	1.4	0.0%	0.49	0.49	0.0%
Carbon Disulfide	NA	2.6	< 2.5	ND	< 2.4	< 2.6	ND
Carbon Tetrachloride	NA	1.0 J	1.1 J	ND	< 0.97	< 1.0	ND
Chloroform	NA	2.1	1.9	10.0%	2.1	2.0	4.9%
Chloromethane	NA	0.94	< 0.33	ND	< 1.6	< 1.7	ND
Cyclohexane	NA	0.74	1.0	-29.9%	< 0.53	< 0.57	ND
Ethanol	NA	250 J	170 J	ND	140 E	140 E	ND
Ethyl Benzene	NA	1.0	1.0	0.0%	0.80	0.73	9.2%
Freon 11	NA	9.9	8.9	10.6%	1.2	1.1	8.7%
Freon 12	NA	4.9	4.8	2.1%	130	130	0.0%
Heptane	NA	1.8	1.7	5.7%	1.1	1.2	-8.7%
Hexane	NA	0.68	0.70	-2.9%	< 0.54	< 0.58	ND
m,p-Xylene	NA	3.5	3.6	-2.8%	2.6	2.2	16.7%
o-Xylene	NA	1.4	1.4	0.0%	0.94 J	0.90 J	ND
Tetrachloroethene (PCE)	NA	21	21	0.0%	140	140	0.0%
Toluene	NA	7.8	7.5	3.9%	6.2	6.2	0.0%
Trichloroethene (TCE)	NA	0.18	0.17	5.7%	0.52	0.54	-3.8%

Notes:

* = Only detected compunds listed - all others below laboratory detection limits
NA = Not applicable
U = Analyzed for but not detected
< = Compound analyzed for but not detected above the reporting limit
J = Indicates an Estimated Value below the Laboratory Reporting Limit
E = Exceeds instrument calibration range
RPD = Relative Percent Difference. Acceptable limits ± 20%.
ND = Not Determined due to U, <, J, and/or E values.



MAP SOURCE:

NORTH

DeLORME 3D TOPOQUADS

USGS FAR ROCKAWAY [NY] QUAD
1992
40.34.923"N, 73.34.923"W (NAD83/WGS84)

2000 0 2000

Scale in feet

Stantec Consulting Services Inc.

STANTEC OFFICE LOCATION: AUBURN, NEW HAMPSHIRE				DRAWING TITLE: SITE LOCATION
DATE PREPARED: 8-02-12	DESIGNED BY: JJW	DRAWN BY: JJW	CHECKED BY: DFM	REVIEWED BY: DFM
REVISION DATE:	REVISION NO:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
PROJECT NAME/FILE NAME: A&P ALOCUS		PROJECT NUMBER/PHASE: 191710624	SCALE: 1:24000	PREPARED FOR: A&P

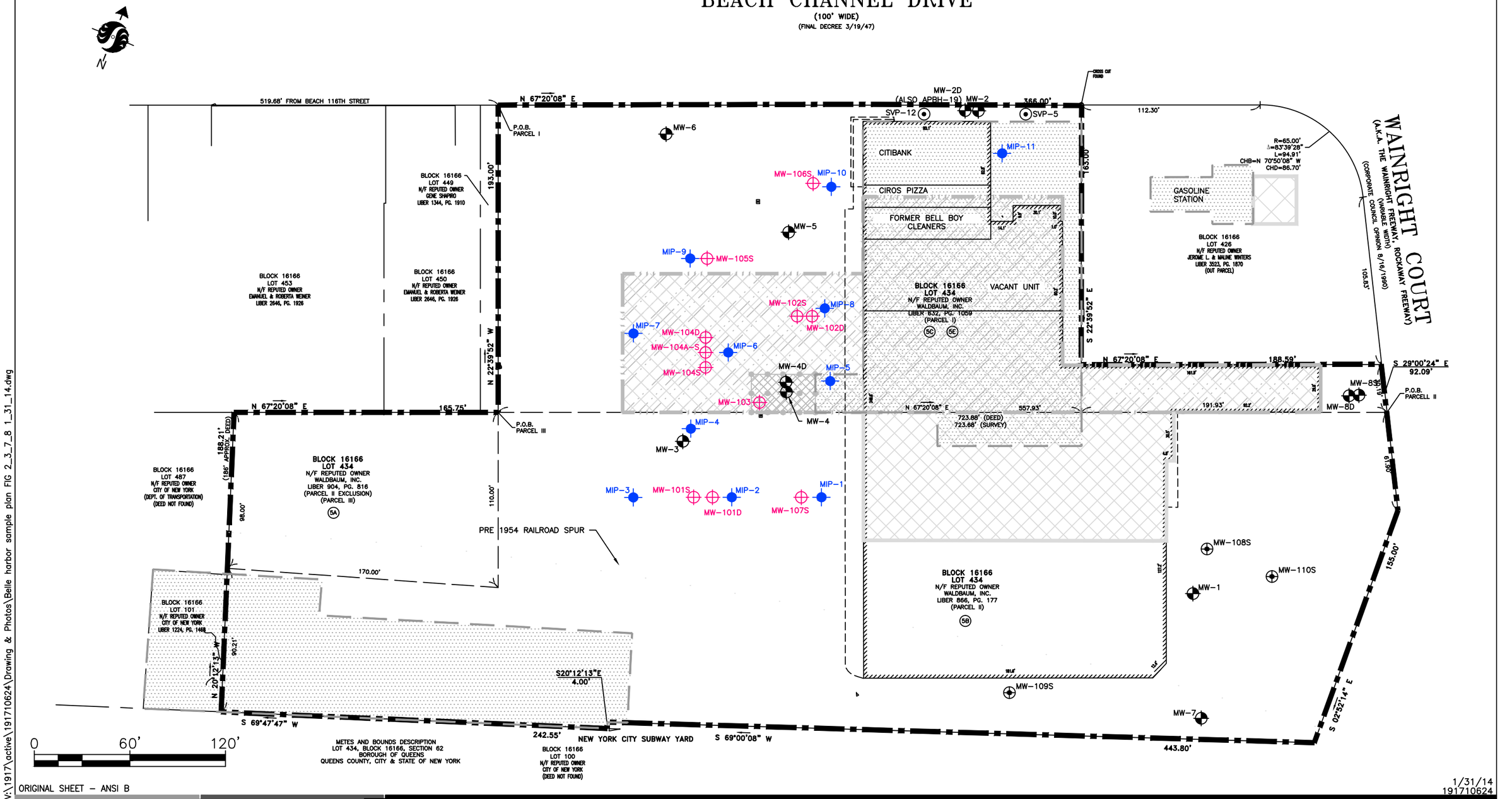
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
BELLE HARBOR, NY

FIGURE NO. 1

BEACH CHANNEL DRIVE

(100' WIDE)

(FINAL DECREE 3/19/47)



METES AND BOUNDS DESCRIPTION
LOT 434, BLOCK 16166, SECTION 62
BOROUGH OF QUEENS
QUEENS COUNTY, CITY & STATE OF NEW YORK

BLOCK 16166
LOT 100
N/F REPUTED OWNER
CITY OF NEW YORK
(DEED NOT FOUND)

ORIGINAL SHEET – ANSI B

1/31/14
191710624

V:\1917\active\191710624\Drawing & Photos\Belle harbor sample plan FIG 2_3_7_8 1_31_14.dwg

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Fax. 603.669.7636
www.stantec.com

Legend

- MW-3 — MONITOR WELL (INSTALLED BY OTHERS)
- MW-101 — MONITORING WELL (INSTALLED BY STANTEC)
- MIP GEOPROBE®
- SV-5 — SOIL VAPOR PROBE
- MW-108S — MONITORING WELL (INSTALLED BY GEI)
- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

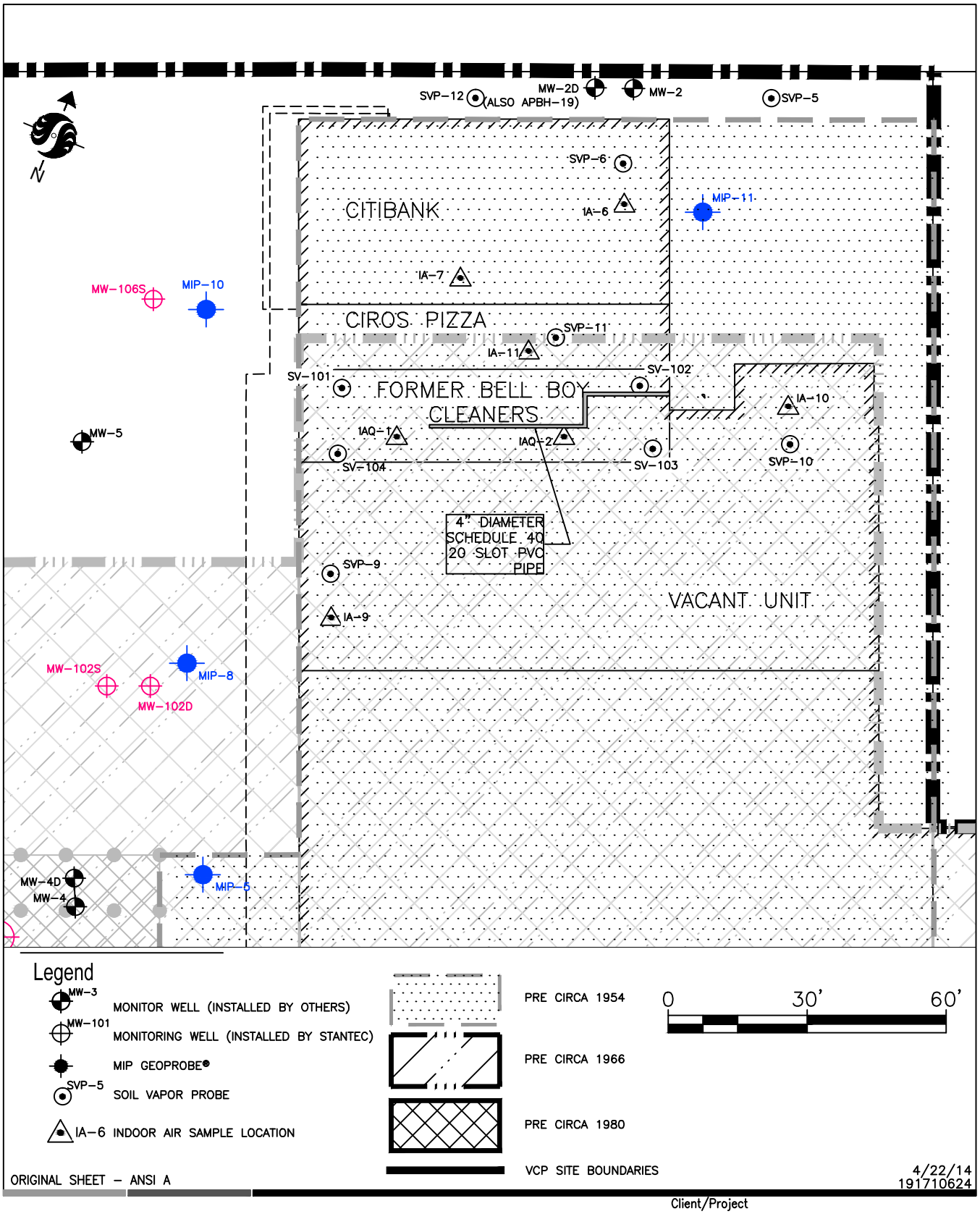
Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
2

Title
SITE MAP WITH
SAMPLE LOCATIONS-EXTERIOR



V:\1917\active\191710624\Drawing & Photos\Belle harbor interior sample plan FIG 3 4-22-14 .dwg

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Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRAIVE
QUEENS (FAR ROCKAWAY), NEW YORK

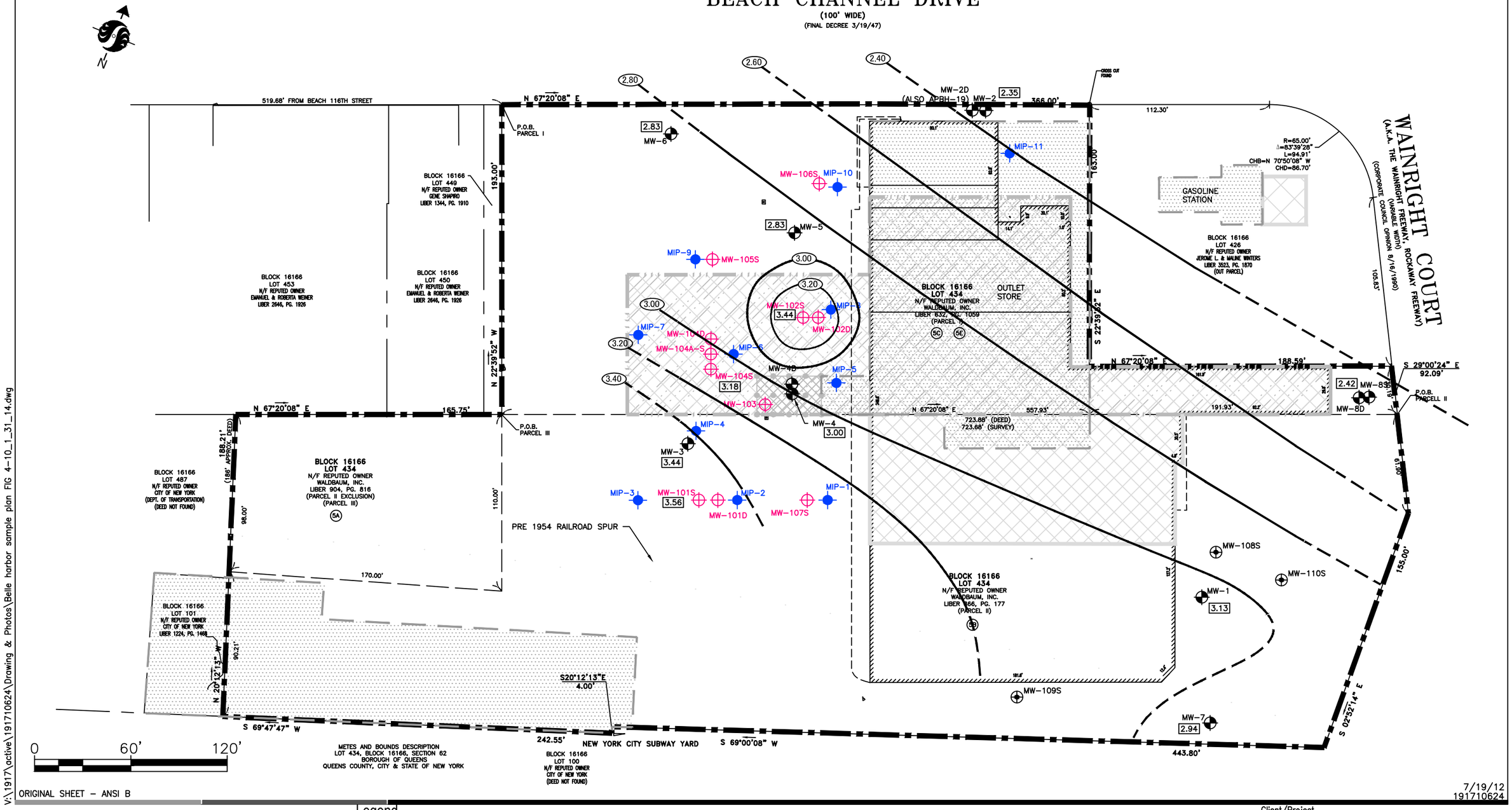
Figure No.
3

Title
INTERIOR
SAMPLE LOCATIONS

BEACH CHANNEL DRIVE

(100' WIDE)

(FINAL DECREE 3/19/47)



V:\1917\active\191710624\Drawing & Photos\Belle harbor sample plan FIG 4-10_1_31_14.dwg

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7/19/12
191710624

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- NM – NOT MEASURED
- 2.40 – GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project

BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.

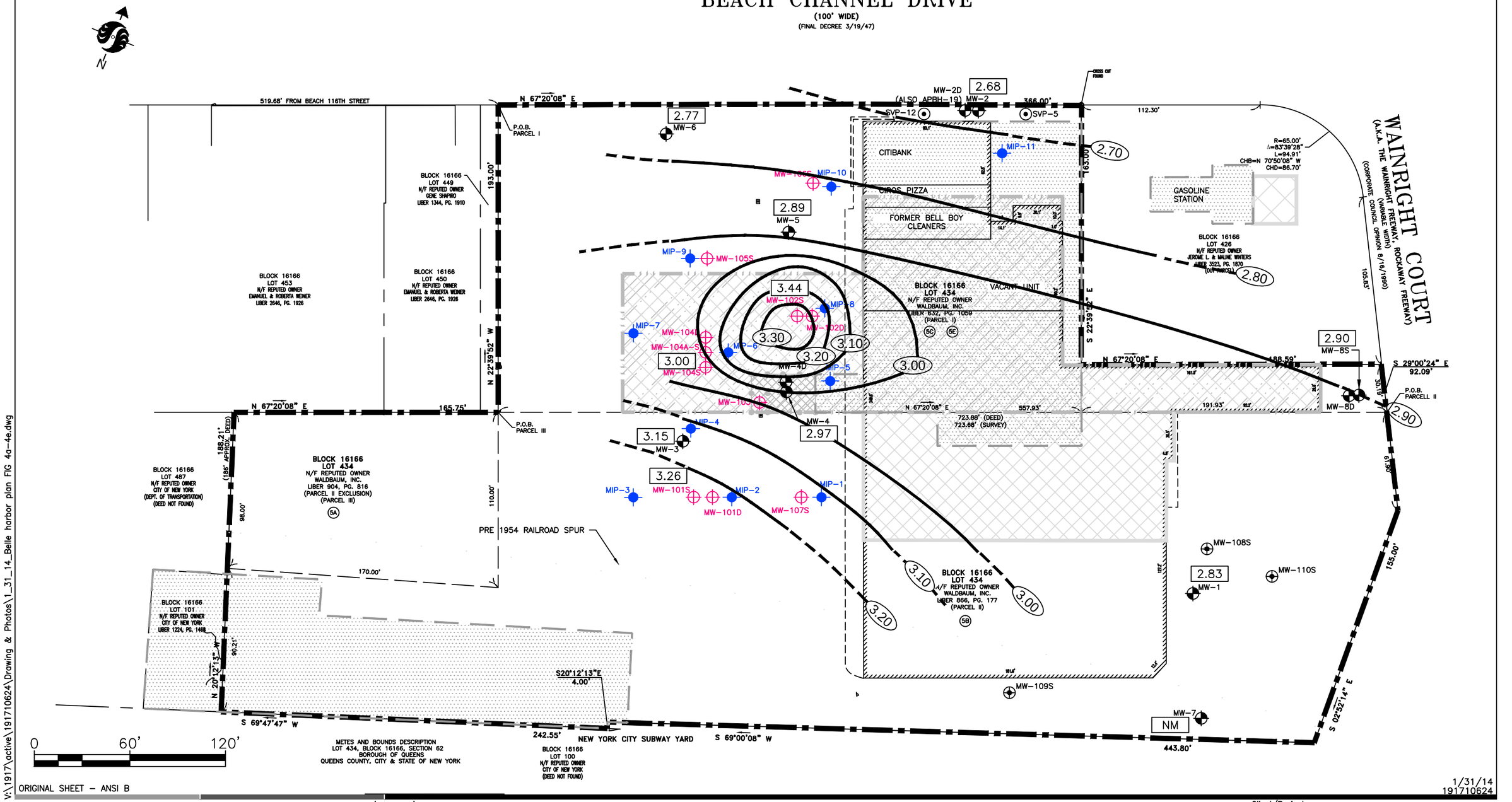
4

Title

GROUND WATER CONTOUR PLAN

BEACH CHANNEL DRIVE

(100' WIDE)
(FINAL DECREE 3/19/47)



V:\1917\active\191710624\Drawing & Photos\1_31_14_Belle harbor plan FIG 4a-4e.dwg

ORIGINAL SHEET – ANSI B

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- NM – NOT MEASURED

- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

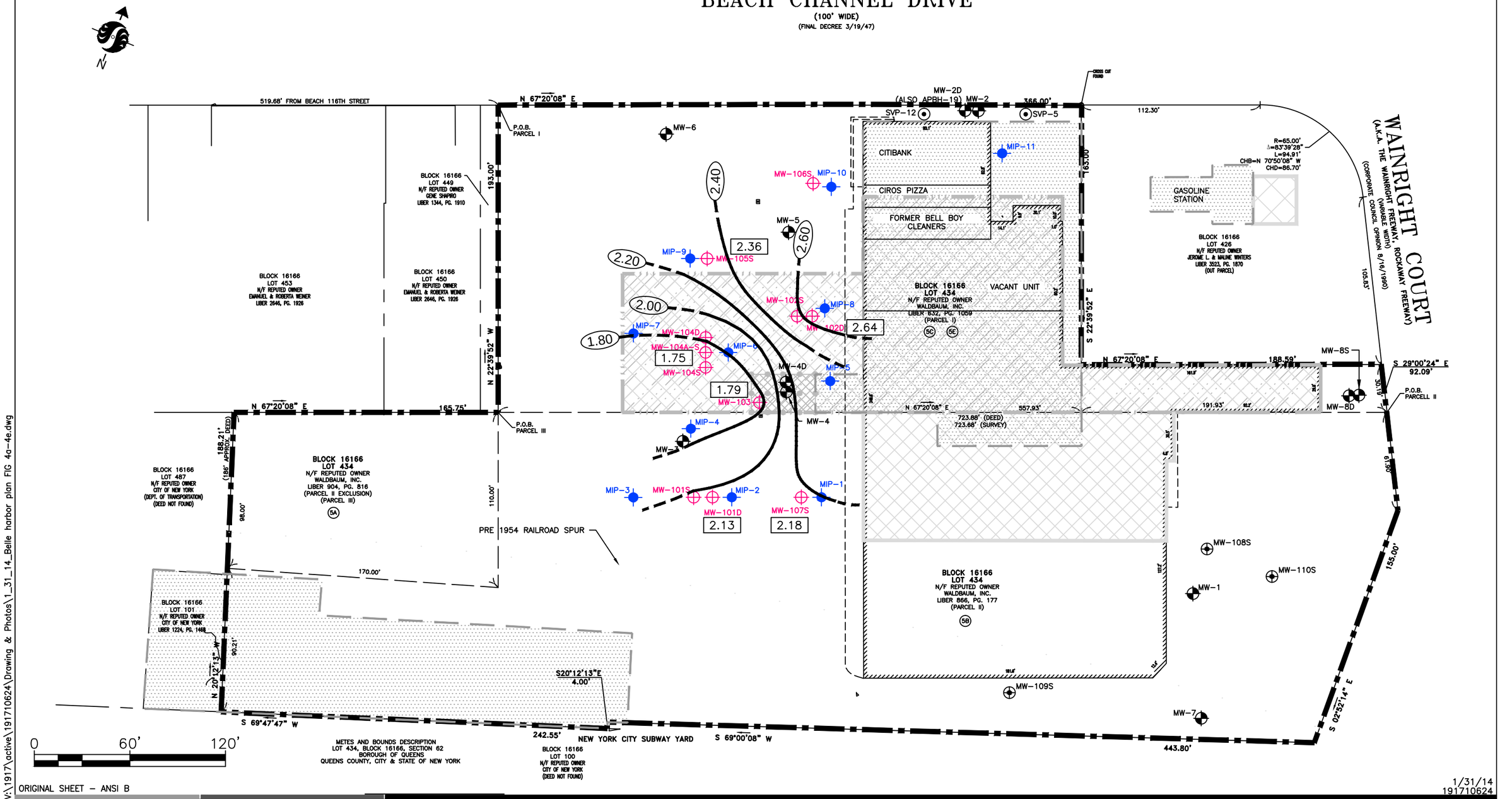
Figure No.
4a

Title
GROUNDWATER CONTOUR MAP
SHALLOW WELLS, LOW TIDE

BEACH CHANNEL DRIVE

(100' WIDE)

(FINAL DECREE 3/19/47)



V:\1917\active\191710624\Drawing & Photos\1_31_14_Belle harbor plan FIG 4a-4e.dwg

ORIGINAL SHEET – ANSI B

1/31/14
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- NM – NOT MEASURED

- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

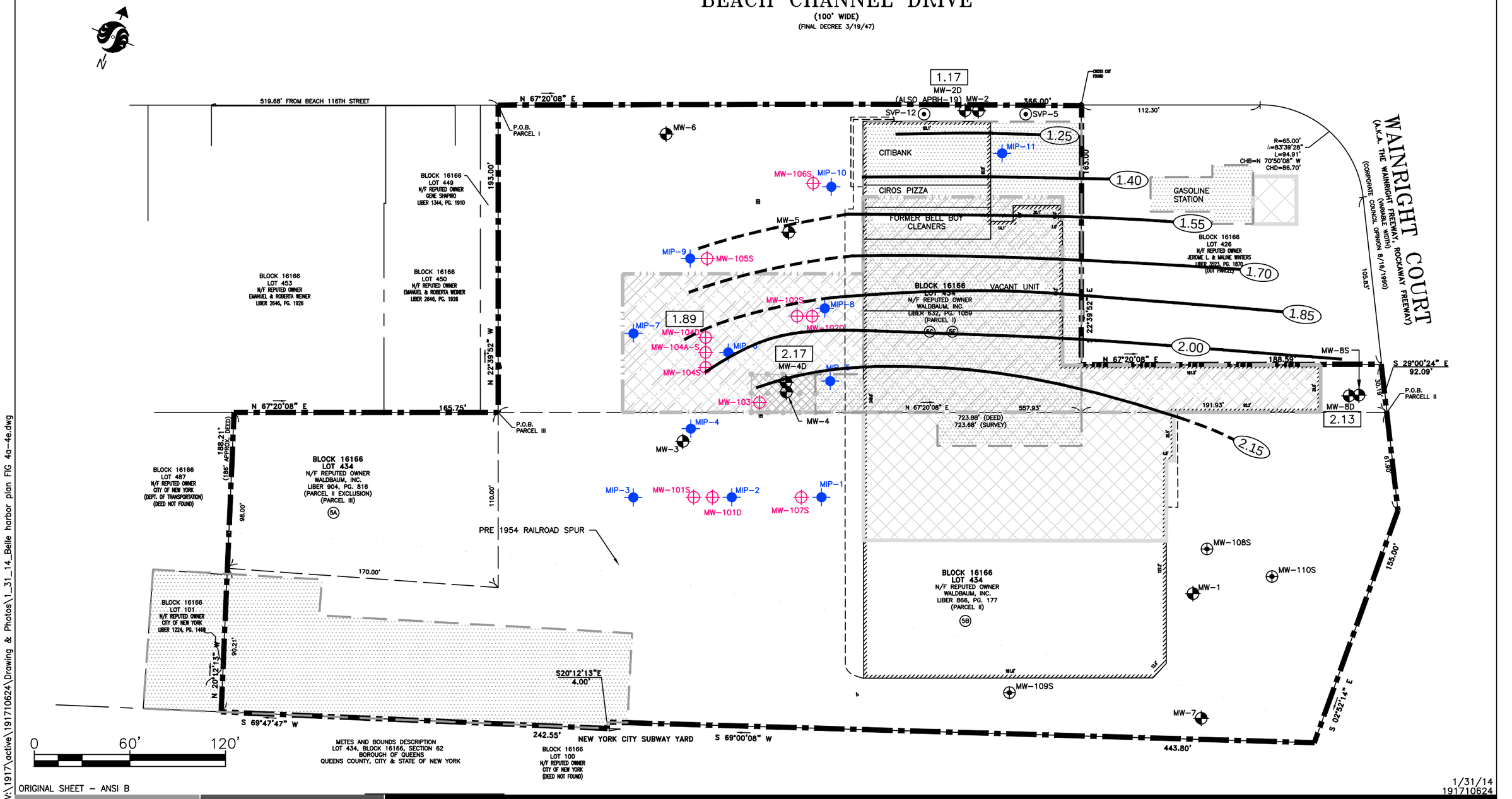
Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
4b

Title
GROUNDWATER CONTOUR MAP
MID-LEVEL WELLS, LOW TIDE

BEACH CHANNEL DRIVE

(100' WIDE)
(FINAL DECREE 3/19/47)



V:\1917\active\191710624\Drawing & Photos\1_31_14_Belle harbor plan FIG 4a-4e.dwg

ORIGINAL SHEET – ANSI B

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- 2.40 – GROUNDWATER CONTOUR (DASHED WHERE INFERRED)
- NM – NOT MEASURED

- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

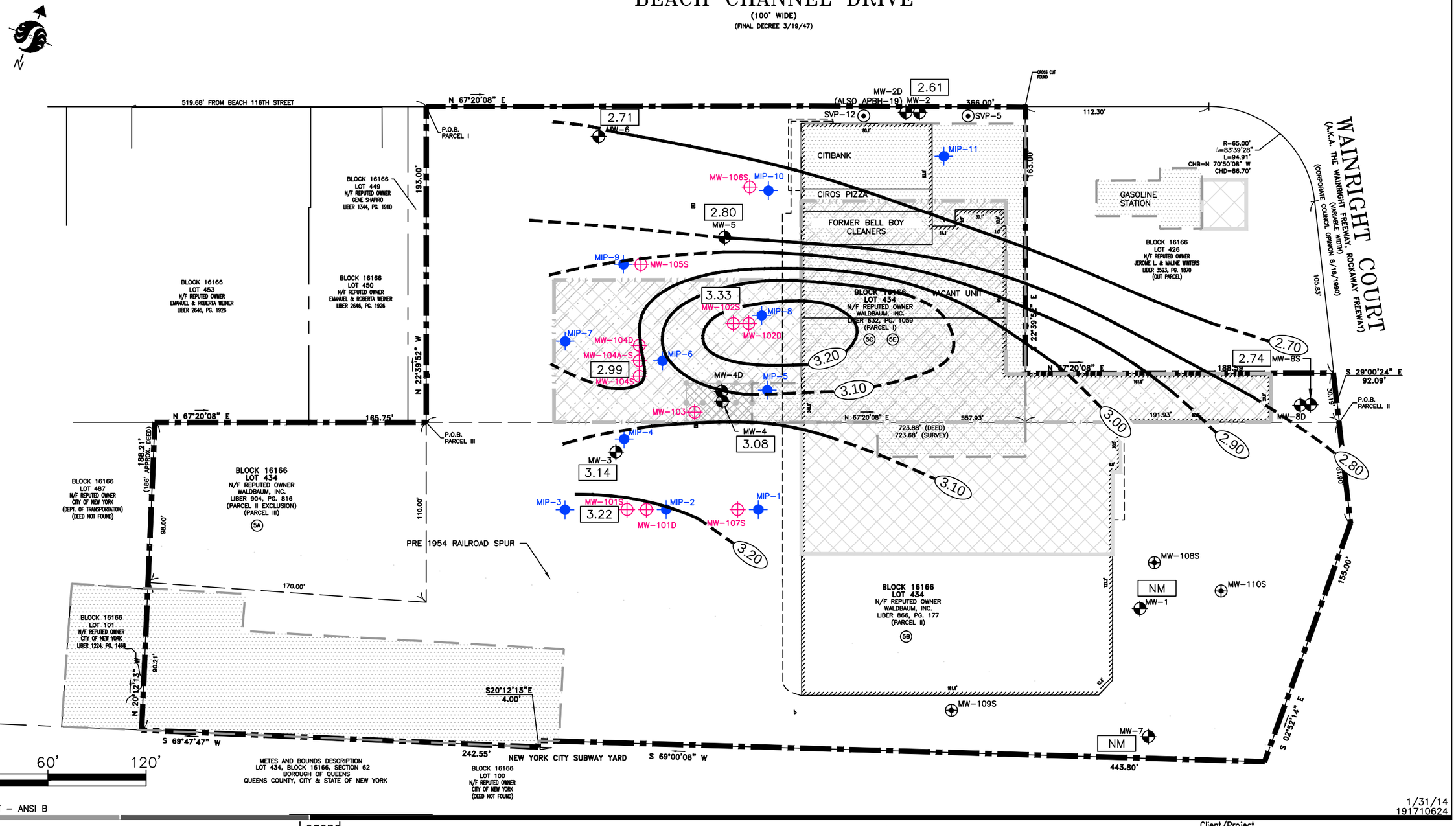
Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
4c

Title
GROUNDWATER CONTOUR MAP
DEEP WELLS, LOW TIDE

BEACH CHANNEL DRIVE

(100' WIDE)
(FINAL DECREE 3/19/47)



ORIGINAL SHEET – ANSI B

1/31/14
191710624

V:\1917\active\191710624\Drawing & Photos\1_31_14_Belle harbor plan FIG 4a-4e.dwg

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- NM – NOT MEASURED

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- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project
BELLE HARBOR SHOPPING CENTER
112–15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

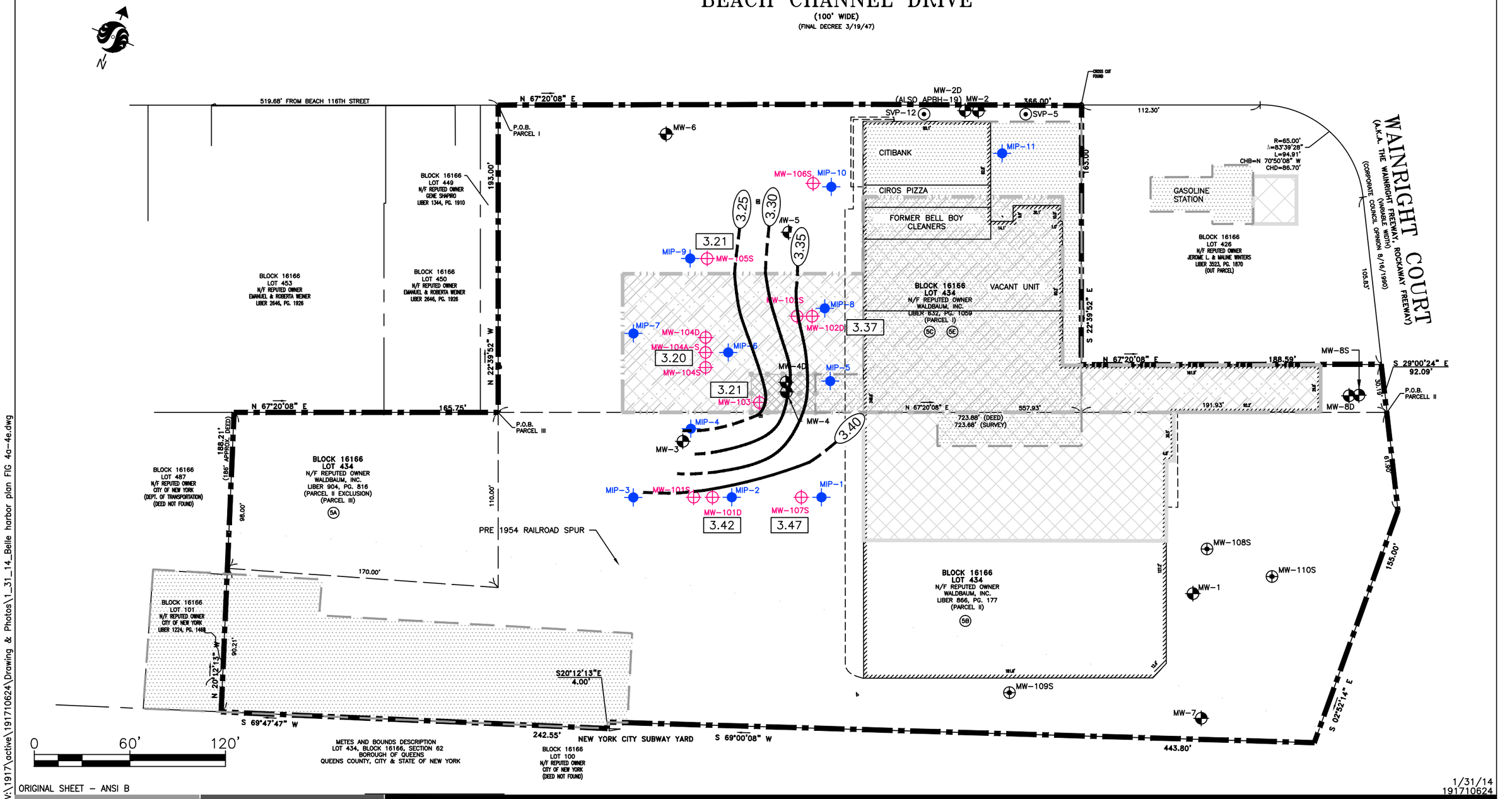
Figure No.
4d

Title
GROUNDWATER CONTOUR MAP
SHALLOW WELLS, HIGH TIDE

BEACH CHANNEL DRIVE

(100' WIDE)

(FINAL DECREE 3/19/47)



V:\1917\active\191710624\Drawing & Photos\1_31_14_Belle harbor plan FIG 4a-4e.dwg

ORIGINAL SHEET – ANSI B

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- NM – NOT MEASURED

- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

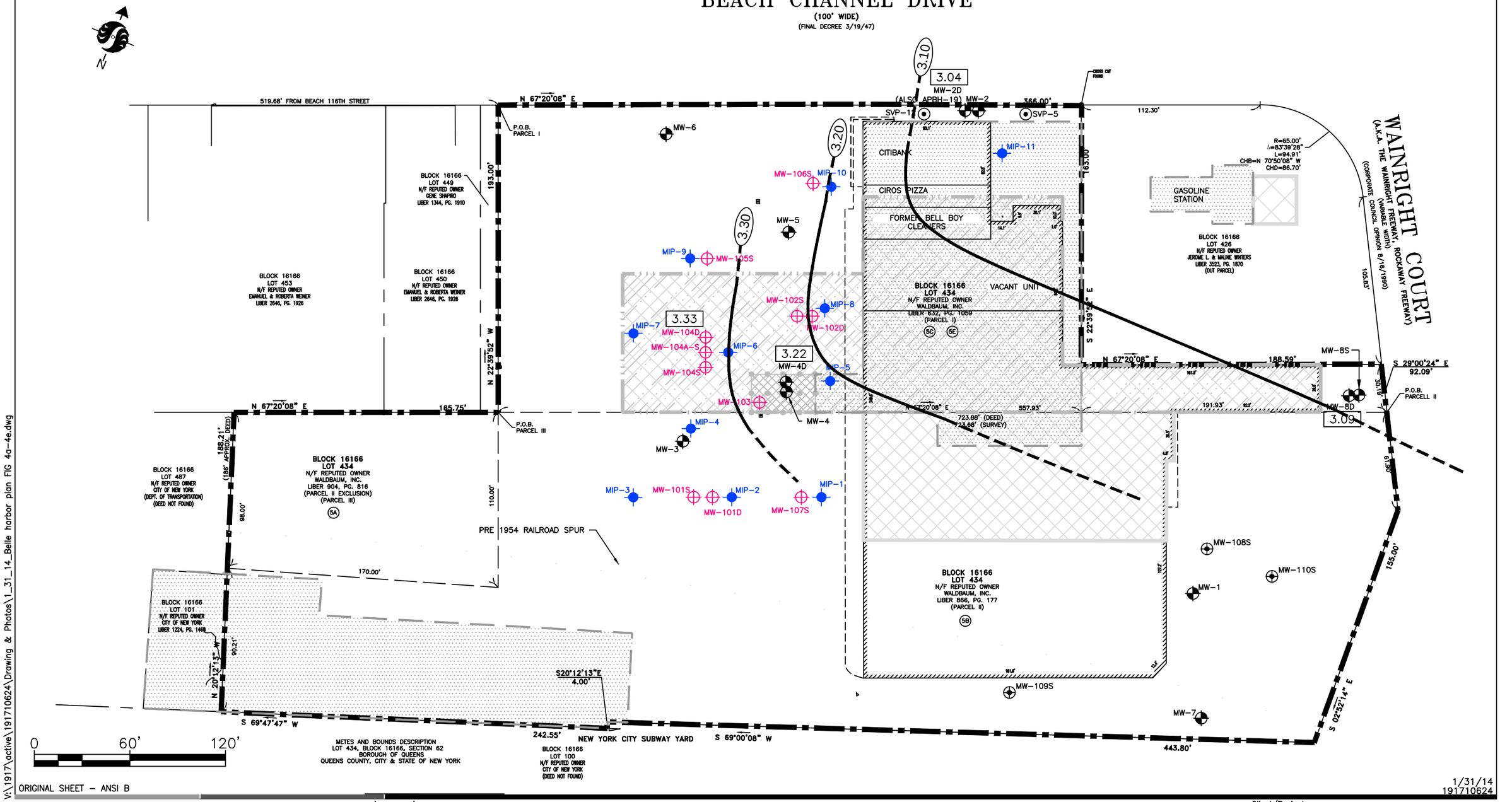
Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
4e

Title
GROUNDWATER CONTOUR MAP
MID-LEVEL WELLS, HIGH TIDE



V:\1917\active\191710624\Drawing & Photos\1_31_14_Belle harbor plan FIG 4a-4e.dwg

ORIGINAL SHEET – ANSI B

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- PRE CIRCA 1980
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Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

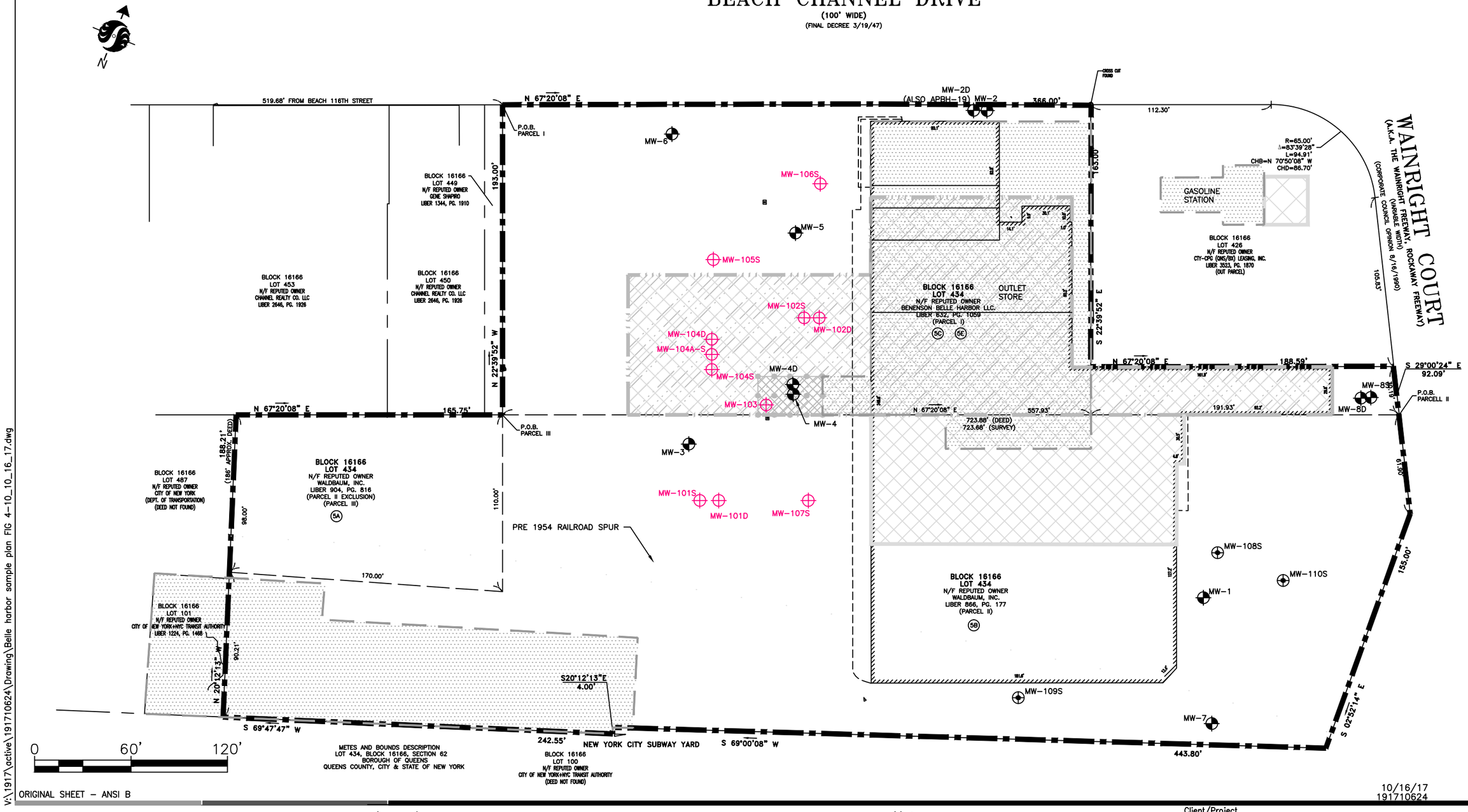
Figure No.
4f

Title
GROUNDWATER CONTOUR MAP
DEEP WELLS, HIGH TIDE

BEACH CHANNEL DRIVE

(100' WIDE)

(FINAL DECREE 3/19/47)



V:\1917\active\191710624\Drawing\Belle harbor sample plan FIG 4-10_10_16_17.dwg

ORIGINAL SHEET – ANSI B

10/16/17
191710624

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Legend

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- MW-101 — MONITORING WELL (INSTALLED BY STANTEC)
- SCO — SOIL CLEANUP OBJECTIVE (FROM 6NYCRR 375)
- MW-108S — MONITORING WELL (INSTALLED BY GEI)
- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

NO VOC EXCEEDANCES

Client/Project

BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.

5

Title

VOCS IN SOILS EXCEEDING COMMERCIAL SOIL CLEAN UP OBJECTIVES

BEACH CHANNEL DRIVE

(100' WIDE)
(FINAL DECREE 3/19/47)

MW-105 (5.0 - 5.8 ft)			
Sample Date	Analyte	Concentration (ppm)	Commercial SCO (ppm)
May 2012	Benzo(a)pyrene	3.2	1
	Dibenz(a,h)anthracene	0.62	0.56

MW-104 (6.3 - 6.9 ft)			
Sample Date	Analyte	Concentration (ppm)	Commercial SCO (ppm)
May 2012	Benzo(a)anthracene	6.4	5.6
	Benzo(a)pyrene	6.0	1
	Dibenz(a,h)anthracene	1.3	0.56

MW-102 (6.6 - 7.2 ft)			
Sample Date	Analyte	Concentration (ppm)	Commercial SCO (ppm)
May 2012	Benzo(a)anthracene	53	5.6
	Benzo(b)fluoranthene	34	5.6
	Benzo(a)pyrene	40	1
	Indeno(1,2,3-cd)pyrene	23	5.6
	Dibenz(a,h)anthracene	7.2	0.56

MW-103 (5.2 - 6.2 ft)			
Sample Date	Analyte	Concentration (ppm)	Commercial SCO (ppm)
May 2012	Benzo(a)pyrene	3.1	1

MW-107 (6.0 - 6.9 ft)			
Sample Date	Analyte	Concentration (ppm)	Commercial SCO (ppm)
May 2012	Benzo(a)pyrene	1.4	1

N 67°20'08" E
366.00'
P.O.B. PARCEL I
MW-6
MW-2D (ALSO APBH-19) MW-2
CROSS CUT FOUND
MW-106S
MW-5
MW-105S
MW-102S
MW-102D
MW-104D
MW-104A-S
MW-104S
MW-4D
MW-103
MW-4
MW-3
MW-101S
MW-101D
MW-107S
MW-108S
MW-110S
MW-1
MW-8S
MW-8D
P.O.B. PARCEL II
P.O.B. PARCEL III
193.00'
N 22°39'52" W
165.75'
163.00'
S 22°39'52" E
N 67°20'08" E
188.59'
S 29°00'24" E
92.09'
105.83'
191.93'
557.93'
723.88' (DEED)
723.66' (SURVEY)
110.00'
98.00'
188.21' (185' APPROX. DEED)
170.00'
PRE 1954 RAILROAD SPUR
155.00'
S 02°32'14" E
443.80'
S 69°47'47" W
242.55'
S 69°00'08" W
NEW YORK CITY SUBWAY YARD
0°12'13"E
4.00'
N

BLOCK 16166 LOT 449 N/F REPUTED OWNER GENE SHAPIRO LIBER 1344, PG. 1910

BLOCK 16166 LOT 453 N/F REPUTED OWNER CHANNEL REALTY CO. LLC LIBER 2646, PG. 1926

BLOCK 16166 LOT 450 N/F REPUTED OWNER CHANNEL REALTY CO. LLC LIBER 2646, PG. 1926

BLOCK 16166 LOT 426 N/F REPUTED OWNER CITY-CPC (OHS/BX) LEASING, INC. LIBER 3523, PG. 1870 (OUT PARCEL)

BLOCK 16166 LOT 434 N/F REPUTED OWNER BENENSON BELLE HARBOR LLC. LIBER 832, PG. 1059 (PARCEL I) (5C) (5E) OUTLET STORE

BLOCK 16166 LOT 434 N/F REPUTED OWNER WALDBAUM, INC. LIBER 904, PG. 516 (PARCEL II EXCLUSION) (PARCEL III) (5A)

BLOCK 16166 LOT 434 N/F REPUTED OWNER WALDBAUM, INC. LIBER 866, PG. 177 (PARCEL II) (5B)

BLOCK 16166 LOT 487 N/F REPUTED OWNER CITY OF NEW YORK (DEPT. OF TRANSPORTATION) (DEED NOT FOUND)

BLOCK 16166 LOT 101 N/F REPUTED OWNER CITY OF NEW YORK+NYC TRANSIT AUTHORITY LIBER 1224, PG. 1468

BLOCK 16166 LOT 100 N/F REPUTED OWNER CITY OF NEW YORK+NYC TRANSIT AUTHORITY (DEED NOT FOUND)

METES AND BOUNDS DESCRIPTION LOT 434, BLOCK 16166, SECTION 62 BOROUGH OF QUEENS QUEENS COUNTY, CITY & STATE OF NEW YORK

ROCKAWAY FREEWAY (VARIABLE WIDTH) (CIL OPINION 6/16/1950)

BEACH CHANNEL DRIVE COURT

0 60' 120'

V:\1917\active\191710624\Drawing\Belle harbor sample plan FIG 4-10_10_16_17.dwg

ORIGINAL SHEET – ANSI B

1/31/14
191710624

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- PRE CIRCA 1980
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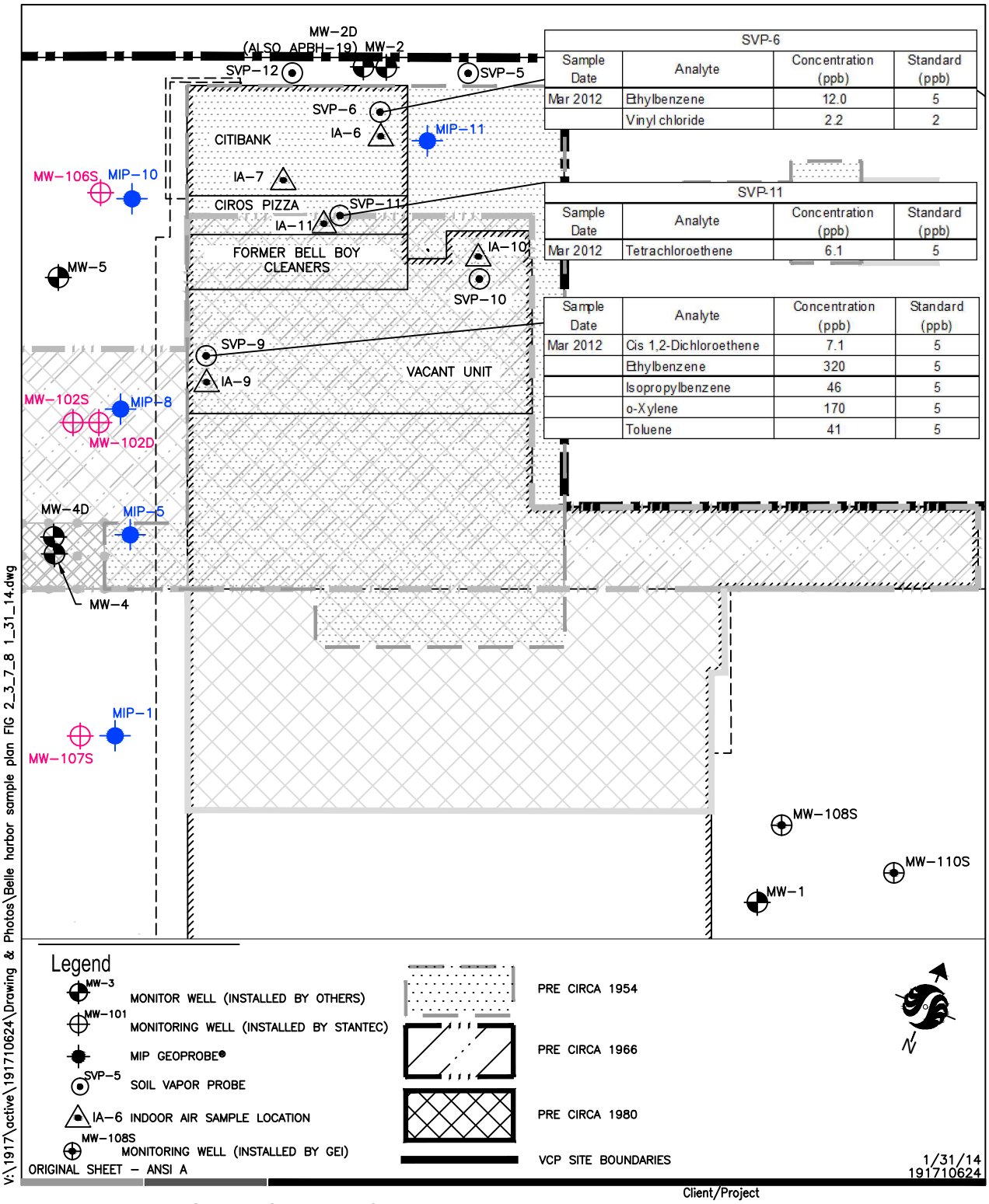
Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
6

Title
SVOCS IN SOILS EXCEEDING COMMERCIAL SOIL CLEAN UP OBJECTIVES



SVP-6			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Mar 2012	Ethylbenzene	12.0	5
	Vinyl chloride	2.2	2

SVP-11			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Mar 2012	Tetrachloroethene	6.1	5

Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Mar 2012	Cis 1,2-Dichloroethene	7.1	5
	Ethylbenzene	320	5
	Isopropylbenzene	46	5
	o-Xylene	170	5
	Toluene	41	5

Legend

- MW-3 — MONITOR WELL (INSTALLED BY OTHERS)
- MW-101 — MONITORING WELL (INSTALLED BY STANTEC)
- MIP GEOPROBE®
- SVP-5 — SOIL VAPOR PROBE
- IA-6 — INDOOR AIR SAMPLE LOCATION
- MW-108S — MONITORING WELL (INSTALLED BY GEI)

ORIGINAL SHEET – ANSI A

- PRE CIRCA 1954
- PRE CIRCA 1966
- PRE CIRCA 1980
- VCP SITE BOUNDARIES

1/31/14
191710624

V:\1917\active\191710624\Drawing & Photos\Belle harbor sample plan FIG 2_3_7_8 1_31_14.dwg

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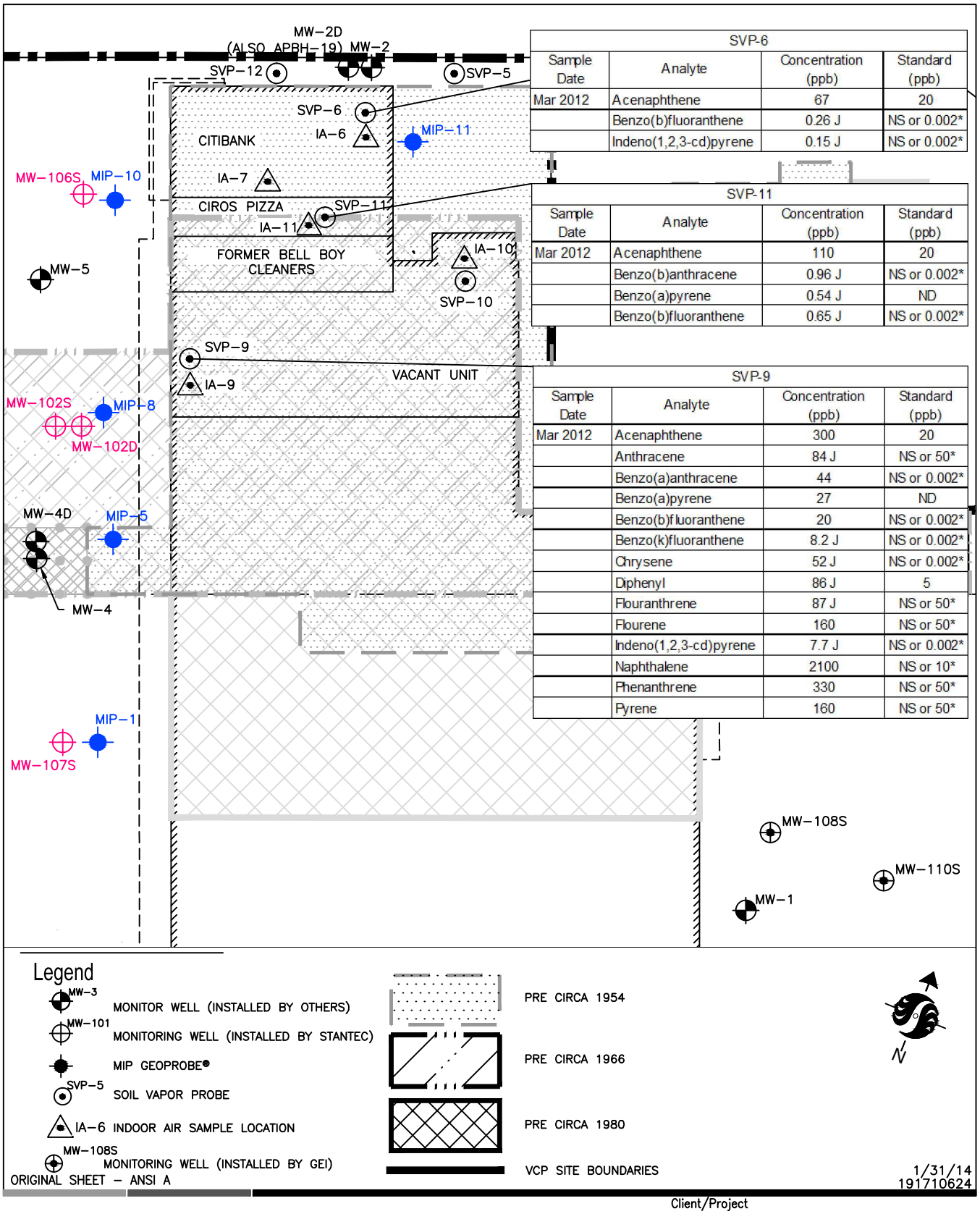
Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRAIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
7

Title
VOCs IN GW EXCEEDING GW QUALITY STANDARDS INTERIOR



SVP-6

Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Mar 2012	Acenaphthene	67	20
	Benzo(b)fluoranthene	0.26 J	NS or 0.002*
	Indeno(1,2,3-cd)pyrene	0.15 J	NS or 0.002*

SVP-11

Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Mar 2012	Acenaphthene	110	20
	Benzo(b)anthracene	0.96 J	NS or 0.002*
	Benzo(a)pyrene	0.54 J	ND
	Benzo(b)fluoranthene	0.65 J	NS or 0.002*

SVP-9

Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Mar 2012	Acenaphthene	300	20
	Anthracene	84 J	NS or 50*
	Benzo(a)anthracene	44	NS or 0.002*
	Benzo(a)pyrene	27	ND
	Benzo(b)fluoranthene	20	NS or 0.002*
	Benzo(k)fluoranthene	8.2 J	NS or 0.002*
	Chrysene	52 J	NS or 0.002*
	Diphenyl	86 J	5
	Flouranthrene	87 J	NS or 50*
	Flourene	160	NS or 50*
	Indeno(1,2,3-cd)pyrene	7.7 J	NS or 0.002*
	Naphthalene	2100	NS or 10*
	Phenanthrene	330	NS or 50*
	Pyrene	160	NS or 50*

Legend

- MW-3 — MONITOR WELL (INSTALLED BY OTHERS)
- MW-101 — MONITORING WELL (INSTALLED BY STANTEC)
- MIP GEOPROBE®
- SVP-5 — SOIL VAPOR PROBE
- IA-6 INDOOR AIR SAMPLE LOCATION
- MW-108S — MONITORING WELL (INSTALLED BY GEI)

PRE CIRCA 1954

PRE CIRCA 1966

PRE CIRCA 1980

VCP SITE BOUNDARIES

ORIGINAL SHEET – ANSI A

V:\1917\active\191710624\Drawing & Photos\Belle harbor sample plan FIG 2_3_7_8 1_31_14.dwg

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Figure No.
8

Title
SVOCs IN GW EXCEEDING GW QUALITY STANDARDS INTERIOR

MW-6			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Ethylbenzene	180	5
	Isopropylbenzene	33	5

MW-106S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	cis-1,2-Dichloroethene	6.4	5
	Ethylbenzene	69	5
	Toluene	9.5	5
	Vinyl chloride	6.5	2

MW-2			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Ethylbenzene	6.7	5

MW-102S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Ethylbenzene	270	5
	Isopropylbenzene	20	5
	Toluene	29	5

MW-5			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Ethylbenzene	28	5
	Vinyl chloride	3.0	2

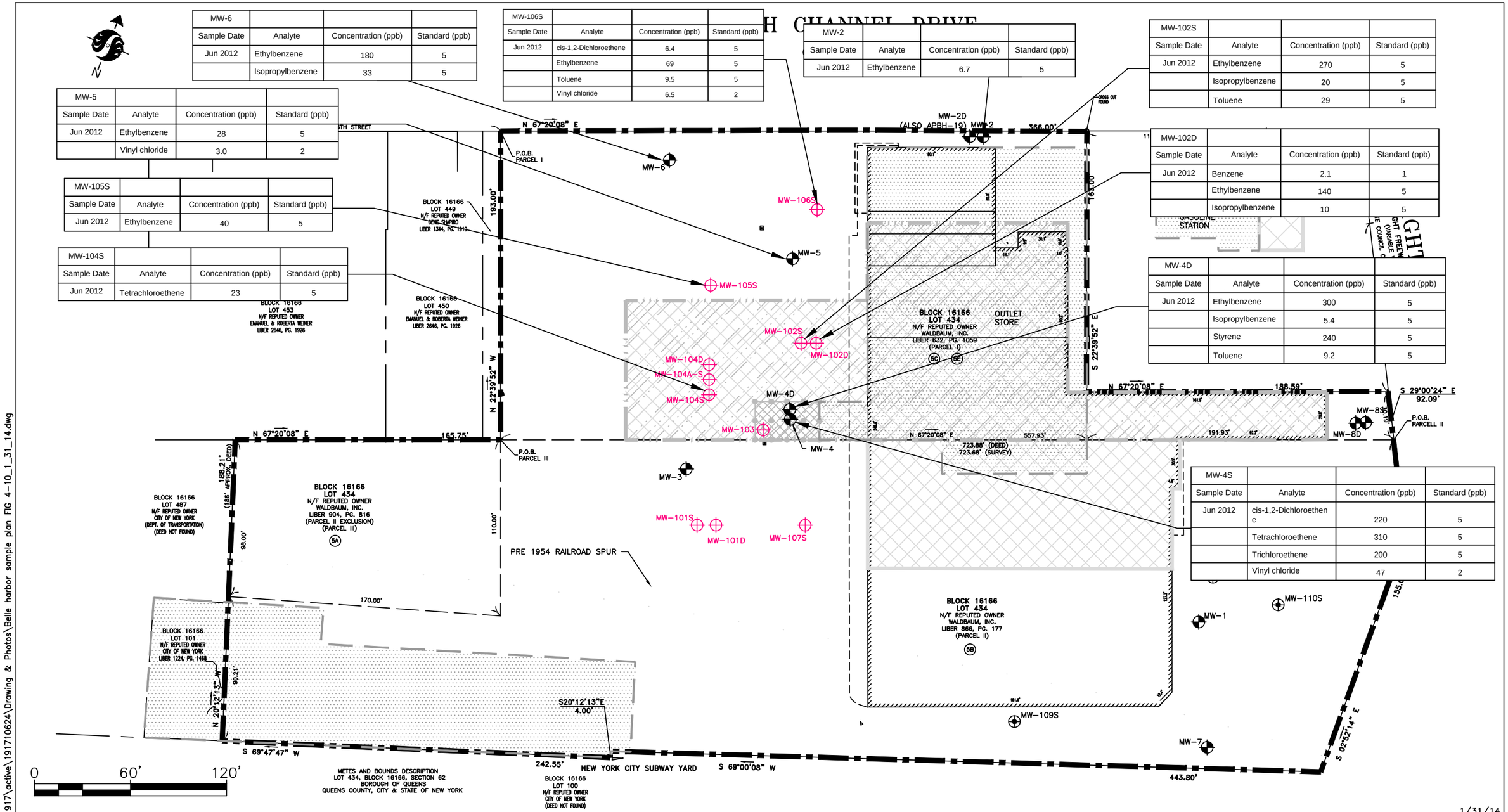
MW-102D			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Benzene	2.1	1
	Ethylbenzene	140	5
	Isopropylbenzene	10	5

MW-105S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Ethylbenzene	40	5

MW-104S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Tetrachloroethene	23	5

MW-4D			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Ethylbenzene	300	5
	Isopropylbenzene	5.4	5
	Styrene	240	5
	Toluene	9.2	5

MW-4S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	cis-1,2-Dichloroethene	220	5
	Tetrachloroethene	310	5
	Trichloroethene	200	5
	Vinyl chloride	47	2



V:\1917\active\191710624\Drawing & Photos\Belle harbor sample plan FIG 4-10_1_31_14.dwg

ORIGINAL SHEET – ANSI B

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Notes

SURVEY COMPLETED BY CONTROL POINT ASSOCIATES, INC.

STANDARD FROM 6 NYCRR PART 703

GUIDANCE VALUE FROM TOGS 1.1.1

Client/Project
BELLE HARBOR SHOPPING CENTER
112-15 BEACH CHANNEL DRIVE
QUEENS (FAR ROCKAWAY), NEW YORK

Figure No.
9

Title
VOCS IN GROUNDWATER EXCEEDING GW QUALITY STANDARDS - EXTERIOR

MW-6			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Acenaphthene	110	20
	Diphenyl	5.7 J	5
	Naphthalene	410	NS or 10*

MW-5			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Acenaphthene	23	20
	Naphthalene	34	NS or 10*

MW-106S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Acenaphthene	43	20
	Naphthalene	18	NS or 10*

MW-2			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Acenaphthene	130	20

MW-105S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Acenaphthene	21	20
	Naphthalene	290	NS or 10*

MW-102S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Acenaphthene	110	20
	Naphthalene	320	NS or 10*
	Benzo(a)anthracene	1.0 J	NS or 0.002*
	Diphenyl	30	5

MW-102D			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Benzo(a)anthracene	1.2 J	NS or 0.002*
	Benzo(a)pyrene	0.72 J	ND
	Benzo(b)flouranthene	0.70 J	NS or 0.002*
	Naphthalene	440	NS or 10

MW-103S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Naphthalene	14	NS or 10*

MW-4D			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Naphthalene	1500	NS or 10*

MW-4S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Benzo(a)pyrene	0.27 J	ND
	Benzo(b)fluoranthene	0.29 J	NS or 0.002*
	Diphenyl	6.0J	5
	Naphthalene	240	NS or 10*

MW-107S			
Sample Date	Analyte	Concentration (ppb)	Standard (ppb)
Jun 2012	Benzo(a)anthracene	0.42 J	NS or 0.002*

N 67°20'08" E

P.O.B. PARCEL I

MW-6

MW-2D (ALSO APBH-19) MW-2

366.00'

112.30'

CROSS CUR FIRING

MW-106S

MW-5

MW-105S

BLOCK 16166 LOT 449 N/F REPUTED OWNER GENE SHAPIRO LIBER 1344, PG. 1910

193.00'

BLOCK 16166 LOT 453 N/F REPUTED OWNER EMANUEL & ROBERTA WEINER LIBER 2646, PG. 1926

BLOCK 16166 LOT 450 N/F REPUTED OWNER EMANUEL & ROBERTA WEINER LIBER 2646, PG. 1926

MW-102S

MW-102D

MW-104D

MW-104A-S

MW-104S

MW-103S

MW-4D

MW-4

BLOCK 16166 LOT 434 N/F REPUTED OWNER WALDBAUM, INC. LIBER 832, PG. 1059 (PARCEL I)

OUTLET STORE

5C 5E

163.00'

S 22°39'52" E

N 22°39'52" W

N 67°20'08" E 165.75'

N 67°20'08" E 188.59'

S 29°00'24" E 92.09'

MW-8S

MW-8D

P.O.B. PARCEL II

P.O.B. PARCEL III

N 67°20'08" E 557.93'

723.88' (DEED) 723.88' (SURVEY)

191.93'

MW-3

MW-101S

MW-101D

MW-107S

PRE 1954 RAILROAD SPUR

188.21' (186' APPROX. DEED)

BLOCK 16166 LOT 487 N/F REPUTED OWNER CITY OF NEW YORK (DEPT. OF TRANSPORTATION) (DEED NOT FOUND)

BLOCK 16166 LOT 434 N/F REPUTED OWNER WALDBAUM, INC. LIBER 904, PG. 816 (PARCEL II EXCLUSION) (PARCEL III)

5A

98.00'

110.00'

170.00'

BLOCK 16166 LOT 101 N/F REPUTED OWNER CITY OF NEW YORK LIBER 1224, PG. 148

90.21'

N 20°12'13" W

S20°12'13"E 4.00'

S 69°47'47" W

242.55'

NEW YORK CITY SUBWAY YARD

S 69°00'08" W

443.80'

BLOCK 16166 LOT 434 N/F REPUTED OWNER WALDBAUM, INC. LIBER 866, PG. 177 (PARCEL II)

5B

MW-109S

METES AND BOUNDS DESCRIPTION LOT 434, BLOCK 16166, SECTION 62 BOROUGH OF QUEENS QUEENS COUNTY, CITY & STATE OF NEW YORK

BLOCK 16166 LOT 100 N/F REPUTED OWNER CITY OF NEW YORK (DEED NOT FOUND)

0 60' 120'

ORIGINAL SHEET – ANSI B

V:\1917\active\191710624\Drawing & Photos\Belle harbor sample plan FIG 4-10_1_31_14.dwg

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Figure No.
10

Title
SVOCS IN GROUNDWATER EXCEEDING GW QUALITY STANDARDS