New York State Department of Environmental Conservation
Regional Administration, Region One
Stony Brook University
50 Circle Road, Stony Brook, NY 11790-3409
Phone: (631) 444-0375 • **Fax:** (631) 444-0231
Website: www.dec.ny.gov

Joe Martens
Commissioner

August 25, 2014

Eric M. Hofmeister, Commissioner
Town of Islip
Department of Environmental Control
401 Main Street
Islip, NY 11751

Re: Roberto Clemente Town Park
400 Broadway, Brentwood, NY 11717

Dear Commissioner Hofmeister:

The New York State Department of Environmental Conservation (Department) staff has reviewed the work plan dated August 18, 2014, prepared by Enviroscience Consultants, for installation and sampling of monitoring wells at the above-referenced site. The following are our comments:

Proposed Well Locations-

1. The groundwater flow direction should be confirmed after well installation. In the event that the local groundwater flow direction is significantly different than the estimated regional groundwater flow direction, a replacement well(s) may be required.

Proposed Well Construction-

1. A 10' long screen with 0.020-inch slotted openings and a number 2 graded gravel set one foot below the well sump to a point 3 feet above the well screen is preferred. In any event, we require 10-foot screens, instead of the proposed 15-foot screens.

2. The bentonite seal should be 2 feet thick above one foot of fine sand. The slurry should consist of 2 pounds of bentonite per gallon of water.

3. Use of dry bentonite chips is not recommended.

4. A 6-inch thick concrete pad around the protective covers is recommended.

Proposed Well Development-

1. Prior to drilling, equipment should be decontaminated. Purging and development pumps should be cleaned with alconox after each sampling event.

Proposed Groundwater Sampling –

1. The Department will review results of the two rounds of sampling to determine whether further monitoring will be required.

The work plan is approved with the above comments. You may schedule installation of the wells. If there are any questions, please contact me.

Sincerely,

Ajay R. Shah, P.E.
Regional Engineer

cc: Greg Menegio, Enviroscience Consultants
Syed Rahman, P.E., Regional Materials Management Engineer

ENVIROSCIENCE CONSULTANTS, INC.
ENVIRONMENTAL, ASBESTOS & LEAD CONSULTANTS
2150 SMITHTOWN AVENUE, SUITE 3, RONKONKOMA, NY 11779
PHONE 631.580.3191 FAX 631.580.3195

August 18, 2014

Mr. Syed Rahman, P.E.
NYSDEC
Division of Materials Management
50 Circle Road
Stony Brook, NY 11790-3409

Re: Roberto Clemente Town Park
400 Broadway, Brentwood, NY 11717

Dear Mr. Rahman:

Introduction

On behalf of our client, the Town of Islip ("Town"), Enviroscience Consultants, Inc. is providing this Work Plan for the installation and sampling of three groundwater monitoring wells at the above-referenced site. The installation and sampling of these wells are required by the New York State Department of Environmental Conservation ("NYSDEC") prior to any remedial activities that involve removal of the illegally disposed soils from the former soccer field and within the recharge basin. Since the Town wants to perform the remediation later this year, we are providing this Work Plan to facilitate the installation and sampling of the wells so that it's not a hindrance to implementing the remedial action.

Figure 1 shows the site's location, and Figure 2 shows the general site layout, including the proposed locations of the three groundwater monitoring wells.

Methods

Proposed Well Locations

Prior to the start of remediation activities, a total of three groundwater monitoring wells will be installed at the site to establish baseline groundwater conditions and to evaluate whether there may be significant impacts to the groundwater beneath the site and its immediate vicinity from the illegal dumping. The groundwater monitoring wells will be installed using a subcontracted drilling company with oversight by Enviroscience personnel.

Based on information obtained from the Suffolk County Department of Health Services ("SCDHS") Water Table Contours Map (March 2002), along with topographic elevation information from a U.S. Geological Survey ("USGS") Topographic Map, the approximate depth to the regional groundwater table beneath the site is 15 feet. The estimated regional groundwater flow direction is to the southeast.

Two of the wells will be installed as downgradient wells, and one well will be installed as an upgradient well. Mr. Eric Hofmeister from the Town and I visited the site on August 11, 2014 to review the proposed well placements. Figure 2 shows the proposed well installation locations.

The upgradient well is proposed in a location that is sufficiently north of the impacted areas such that it's unlikely to be adversely affected by the impacted soils. For the downgradient wells, one well is proposed immediately south of the impacted portion of the recharge basin. This well is proposed in the only reasonably accessible general location for a drill rig for the well's installation, which is downgradient of the recharge basin. The second of the downgradient wells is proposed on a grassy parking lot island, immediately southeast of the former soccer fields. This location is proposed since its highly likely to be downgradient of the former soccer fields and it would identify possible adverse impacts to groundwater earlier than a groundwater monitoring well further downgradient. Furthermore, a well that's installed further away from the potential contamination source area is more likely to be ineffective as a downgradient well based on the actual site-specific groundwater flow direction, which will be calculated as part of the well installations.

Proposed Well Construction

Prior to the installation of the groundwater monitoring wells, the one-call utility markout service will be contacted to request identification of subsurface utilities in the proposed drilling locations. Information regarding the presence and locations of subsurface utilities will also be requested from the Town. At each groundwater monitoring well installation location, manual techniques, including the use of a post-hole digger and a hand auger, will be used to hand-clear the locations to a depth of five feet.

For the well installation, a drill rig will utilize 4.25-inch diameter augers to a total boring depth of approximately 31 feet. The anticipated depth of the wells will be 30 feet below grade, however, the total depth of the borings and the wells will be based on the actual depth-to-water at each location in order to have the wells installed to a depth of 15 feet into the regional groundwater.

During the well installations, the soil cuttings will be continuously characterized for composition and texture, along with field screening for indications of impacted soil by using visual methods and a photo-ionization detector ("PID"). No soil samples for laboratory analysis are anticipated during well installations, although soil sampling supplies will be available to obtain samples, if necessary.

The borings will be completed as two-inch diameter Schedule 40 PVC groundwater monitoring wells that will be screened with 20 feet of 2-inch diameter Schedule 40 PVC flush joint #10 slot screen. The wells will be gravel-packed from one foot below the maximum depth of the screen to two feet above the maximum height of the screen with a Morie #1 gravel pack. A fine sand-seal of Morie #00 sand and a 2-foot flexible bentonite-seal will be installed over the gravel. The wells will be backfilled from the

bentonite-seal to grade with drill cuttings that contain no indications of impacted soil, and the groundwater monitoring wells will be finished at grade with locking caps, locks that will be keyed alike, and 8-inch diameter manholes. Well construction logs, including soil characterization results, will be submitted with the initial groundwater monitoring report.

Proposed Well Development & Surveying

Subsequent to installation, the total depth of the wells and their depth-to water levels will be measured using a Solinst water level indicator to the nearest one-hundredth of a foot. The wells will then be developed by pumping groundwater from the wells. The groundwater will be discharged to the ground surface.

Based on an estimated 15 linear feet of groundwater in the wells, the well casing volume will be approximately 2.5 gallons. The development of the three wells will be performed by Enviroscience personnel using a Grundfos variable-speed RediFlow 2 submersible pump, and the following parameters will be measured using real-time instruments after each casing volume: temperature; pH; conductivity; and turbidity.

The development of the wells will be considered complete when there is a 10% or less difference in two consecutive parameter measurements, along with turbidity readings of less than 50 nephelometric turbidity units ("NTUs"). After their development, the groundwater monitoring wells will be surveyed for location and relative elevation in order to calculate the site-specific groundwater flow direction based on water level measurements that will be obtained during groundwater sampling events.

Proposed Groundwater Sampling

At least 48-hours after the development of the wells, the three groundwater monitoring wells will be purged and sampled. Prior to purging, the depths to groundwater in the wells will be measured to the nearest one-hundredth of a foot using a water level indicator.

During well purging, standard parameters (temperature, pH, conductivity, and turbidity) will be measured after each casing volume using real-time field-measuring equipment. The purge water will be discharged to the ground surface. The groundwater from each well will be sampled after at least three well casing volumes of water are purged from each well and there is a 10% or less difference in two consecutive parameter measurements, along with turbidity readings of less than 50 NTUs. A maximum five casing volumes will be purged from each well. If five casing volumes are reached prior to achieving stability, the wells will be sampled.

All of the groundwater samples for laboratory analysis will obtained using dedicated polyethylene bailers, collected in laboratory-supplied containers, preserved properly, placed in an ice-filled cooler, and transported to York Analytical Laboratories, Inc., which is a National Environmental Laboratory Approval Program (NEVLAP)-accredited laboratory, New York Certification No. 10854. The samples will be analyzed for NYSDEC Part 375 parameters, which include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs),

pesticides, and an herbicide. The groundwater sampling event that will be performed immediately following the remedial activities will include NYSDEC Part 375 parameters, as well. After sample collection, the locking j-plugs and well covers were replaced to protect the wells. Also, a chain-of-custody form will be completed to document the sequence of sample possession.

Reporting
Subsequent to receiving the laboratory report, a report will be prepared to summarize the methods, results and conclusions of the groundwater sampling event. Also, the report will include well construction figures and soil characterization descriptions.

If this proposed Work Plan is acceptable to the NYSDEC, please notify us and the installation of the wells will be scheduled. The NYSDEC will be notified in advance of the well installations so that a representative from your office will have an opportunity to be present.

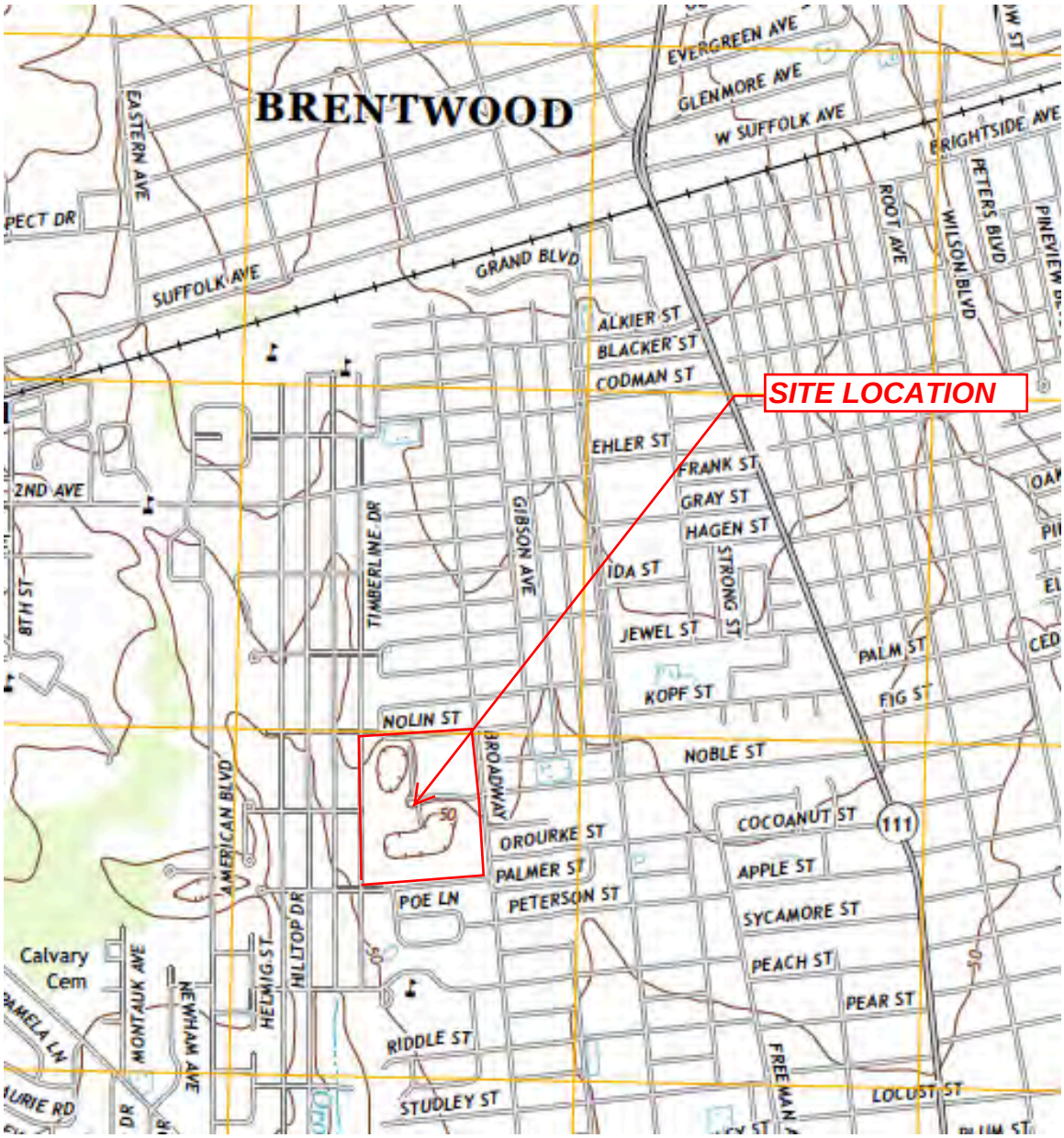
If there are any questions, please contact me.

Very truly yours,

Greg Menegio

Greg Menegio
Department Manager/Sr. Scientist

Figure 1
Site Location
Roberto Clemente Park
400 Broadway, Brentwood, NY



Source: U.S. Geological Survey, 7.5-Minute Topographic Map, Central Islip, 2013

FIGURE 2: PROPOSED GROUNDWATER MONITORING WELL LOCATIONS
ROBERTO CLEMENTE TOWN PARK, 400 BROADWAY, BRENTWOOD, NY