

**Brownfield Cleanup Program Application**  
***4 Fulton Square***  
***35-32 College Point Boulevard, Flushing, New York***

---

**APPENDIX C3**

Remedial Action Work Plan and Health and Safety Plan  
prepared by G.C. Environmental, Inc., dated April 14, 2016



**G. C. ENVIRONMENTAL, INC.**

CONSULTANTS    CONTRACTORS

April 15, 2016

Mr. Dean Devoe  
Willeys Point Asphalt Corp.  
127-50 Northern Boulevard  
Flushing, New York 11368

Subject:       Remedial Action Work Plan and Health & Safety Plan  
                  35-32 College Point Boulevard  
                  Queens, New York 11354  
                  NYSDEC Spills: 8704514 & 8705123  
                  GCE Project No: 12-384-00 / 16-028-00

Dear Mr. Devoe:

Enclosed please find the Remedial Action Work Plan and Health & Safety Plan prepared by G. C. Environmental, Inc. (GCE) for the subject site.

If you have any questions concerning this project, please feel free to call me at (631) 206-3700, ext. 111.

Very truly yours,

Gregory Collins  
President

Enclosures

Figures: 1: Site Locus Map  
          2: Well Location Map  
          3: Topographic Map

Appendices: A: Health and Safety Plan- by G C Environmental, Inc. dated April 10, 2016  
              B: NYSDEC Order on Consent R2-20100628-177A dated March 18, 2016



**G. C. ENVIRONMENTAL, INC.**

CONSULTANTS    CONTRACTORS

**REMEDIAL ACTION WORK PLAN &  
HEALTH & SAFETY PLAN**

**FOR  
35-32 COLLEGE POINT BOULEVARD  
QUEENS, NEW YORK 11354  
NYSDEC SPILLS: 8704514 & 8705123  
GCE PROJECT NO: 12-384-00 / 16-028-00**

**PREPARED FOR:**

**MR. DEAN DEVOE  
WILLETS POINT ASPHALT CORPORATION  
127-50 NORTHERN BOULEVARD  
FLUSHING, NEW YORK 11368**

**DATE ISSUED: APRIL 14, 2016**

**GCE PROJECT NUMBER: 12-384-00 / 16-028-00**



## **1.0 INTRODUCTION**

This document presents the Remedial Action Work Plan (RAWP) for the Site located at 35-32 College Point Boulevard, Flushing, New York, in accordance with the New York State Department of Environmental Conservation (NYSDEC) requested scope of work as stated in the NYSDEC's Corrective Action Plan of Order on Consent dated March 18, 2016. The Property is located on College Point Boulevard, Flushing, Queens County, New York, approximately 700 feet to the southwest of the intersection formed by College Point Boulevard and Northern Boulevard.

The Plan has been prepared on behalf of Willets Point Asphalt Corp (WPA) by G. C. Environmental, Inc. (GCE) to address possible subsurface environmental impacts resulting from previous activities in the Site.

The Plan includes the following sections:

Section 1: Introduction—including the purpose of the investigation and background information.

Section 2: Site History and Description- includes NYSDEC Facts about the Site, site location, legal description, geology and hydrogeology of the Site.

Section 3: Summary of Previous Environmental Reports- includes summary of previous environmental reports, recommendations, results, and recommendations achieved etc

Section 4: Remedial Action Work Plan- which includes scope of work, well installations, well survey, groundwater characterization, sampling protocols etc

Section 5: Quality Control- which includes sampling and laboratory protocols etc

Section 6: Groundwater Monitoring Report- which includes schedule for field work and reporting.

Section 7: Health and Safety Plan (HASP).

### **1.1 Purpose**

In 2016, Willets Point Asphalt Corp. requested GCE to perform a Remedial Action Work Plan (RAWP) at the Site to investigate in conformance with NYSDEC's scope of work. The RAWP study will focus on 35-32 College Point Boulevard, Flushing, New York adhering to DEC's scope of work Corrective Action of Order on Consent, dated March 18, 2016.

The purpose of this RAWP is required to determine if any onsite potential contamination exists and to ascertain, if present, if the source was derived from onsite or offsite. If evidence of a release is identified in this investigation, supplemental investigations may be necessary to further define the ultimate magnitude, extent, and source of any releases and to evaluate appropriate response actions.



This RAWP has been prepared in accordance with NYSDEC scope of work Corrective Action of Order on Consent, dated March 18, 2016.

The RAWP includes the following:

- Install a total of up to five (5) monitoring wells to investigate the potential for offsite migration of contaminants and to verify horizontal and vertical extent of contamination. Out of five wells, three (3) wells are proposed to be installed along the Flushing Creek property boundary (MW-1, MW-2 & MW-3) and two (2) wells along the Site sidewalk (MW-5 & MW-6).
- The wells will be installed by a NY-licensed well driller to a depth of approximately 25 feet below grade surface (bgs). Screens will be placed across the water table to provide groundwater recharge. The wells will consist of 4" Schedule 40 PVC casing and screens and completed with a flush-mount steel protective casing.
- The new wells will be developed to ensure adequate connection between the aquifer and surrounding soil formation. In order to determine the direction of groundwater flow, GCE will retain a NY licensed surveyor to survey the new wells for exact locations and elevations.
- Gauge free product thickness measurements (if identified) from newly installed wells MW-1, MW-2, MW-3, MW-5, MW-6 and existing well MW-41A.
- Monitoring free product recovery if separate phase product is identified in the wells. This will be done initially on a weekly basis and adjusted accordingly with Department approval and based on the presence or absence of such product.
- Any measurable product will be removed using passive means (absorbent socks) or by manual bailing.
- Monitoring if no separate phase product is identified in the wells, will be done on a quarterly basis and adjusted accordingly with Department approval and based on the presence or absence of such product.
- Summarize the results of the Remedial investigation in Groundwater Monitoring Reports (Remedial Action Progress Reports), including results of the above scope, and providing, where appropriate, recommendations for future investigation (additional wells if free product is detected) and response actions.
- The remedial activity will continue until such time as product is no longer measurable in the wells for a period of 12 months or the current site owner begins site development and soil excavation at which time the onsite wells will be abandoned.
- The product/purged water will be stored in labeled 55-gallon drums for periodic removal and disposal by GCE.



## **2.0 SITE HISTORY AND DESCRIPTION:**

### **2.1 NYSDEC Facts:**

GCE reviewed the historical documents provided by Willets Point Asphalt Corp. Based on the GCE's review, the following were referenced in NYSDEC Department Facts (received by Willets Point Asphalt Corp dated December 20, 2010). Please refer to NYSDEC Facts attachment enclosed in Appendix B.

Willets Point Asphalt Corp. owned and operated a Petroleum Bulk Storage (PBS) facility at the site registered with the department as facility number 2-032182 (the PBS Facility). The PBS Facility included two successive sets of UST's, all storing No. 2 Fuel oil: a set of 2 UST's installed in 1956 and closed on or about July 1988, consisting of one 10,000 gallon tank and one 1,500 gallon tank and a set of three UST's installed in 1988 and removed in 2007, consisting of one 10,000 gallon tank and two 1,000 gallon tanks. The 1988 10,000 gallon UST was installed in or around the same location as the 1956 10,000 gallon UST and the two 1988 10,000 gallon UST's were installed approximately 50 feet from the new 10,000 gallon UST, one to the northwest and the other to the southwest of the tank.

On August 6, 1987, while monitoring a New York State funded gasoline spill remediation project originating at an offsite property, Department staff observed up to 8.95 feet of petroleum product in groundwater monitoring wells located immediately adjacent to the 10,000 gallon 1956 UST. The wells were in the sidewalk at the front of the site, then an asphalt plant, along College Point Boulevard.

On August 20, 1987, the State's remediation contractor collected samples from two wells along College Point Boulevard adjacent to the 10,000 gallon UST. Analysis identified both samples as No 2 fuel oil.

On August 28, 1987, the State's remediation contractor collected a product sample from the monitoring well next to the 10,000 gallon 1956 UST, and another sample of the product in the tank. Subsequent lab analysis of the samples for fingerprint identification indicated a match, with no asphaltic compounds present.

On August 31, 1987, the 10,000 gallon 1956 UST failed three hydrostatic tightness tests performed by a qualified professional technician and witnessed by the department staff. In the course of three failing tests, approximately 18 gallons of petroleum product was released from the tank. The monitoring well next to the tank was gauged before and after the tests, and showed an increase in product thickness. The technician reported the system failure and petroleum releases to the NYSDEC spills hotline, opening NYSDEC spill number 8704514.

According to department records, the 1956 USTs were simply closed on or about July 1, 1988 and replaced with the 1988 UST's.

Regular monthly monitoring of wells along College Point Boulevard, including wells directly adjacent to the 10,000 gallon 1956 UST location, revealed the continuous presence of free



petroleum product thickness of up to 26 inches both before and after the tank was closed.

In addition to the two discharges associated with the 10,000 gallon 1956 UST, an October 1, 1991 Phase I ESA noted surface petroleum staining at the site, including the areas around both 1000 gallon 1988 UST's and beneath an unregistered 550 gallon AST storing kerosene, indicating three additional unreported spills at the site.

In the area around the 1000 gallon UST by the office building, approximately 50 feet northwest of the 10,000 gallon UST, analysis of subsurface samples taken on October 9, 1991 at a shallow depth of two to four feet exhibited significant petroleum contamination.

In the area around the unregistered 550 gallon kerosene tank, analysis of soil and groundwater samples taken on October 9, 1991 exhibited significant petroleum contamination. Sampling attempts on October 9, 1991, in the area of the other 1000 gallon UST, supplying an electrical generator approximately 50 feet southwest of the 10,000 gallon UST, failed due to subsurface refusal. Later attempts, confirmed the presence of heavy petroleum contamination at this location.

The October 1991, Phase II Subsurface sampling report concluded, "Field observation and lab results indicate significant amounts of hydrocarbons are present in the soil and groundwater beneath the property, the extent and origin of which remain undetermined"

In May 1992, a soil boring in the area of the 1956 and 1988 10,000 gallon UST's exhibited a petroleum odor at a shallow depth of 0.5 to 1.5 feet, indicating the continuing presence of a recent discharge in that area.

In May 1992, a soil boring in the area of the 1000 gallon office building UST exhibited a strong petroleum odor, look, feel throughout.

In May 1992, a soil boring in the area of the 550 gallon kerosene tank exhibited a strong petroleum odor, look, feel throughout and petroleum product was observed coming out of the sampling bore hole.

On August 25, 1992, the State's contractor again identified petroleum product in the well adjacent to the 10,000 gallon UST as No. 2 fuel oil, again indicating a discharge from the UST.

On September 1, 1992, the states contractor recommended further subsurface investigation to confirm the source of the persistent No 2 fuel oil in the onsite monitoring wells.

In February 1993, the States' contractor installed monitoring wells up gradient to the site to determine whether an offsite source was causing or contributing to the onsite contamination nearest to the property line at the 1000 gallon UST. No petroleum product was detected in soil or groundwater samples taken from the new wells. The plume that has been identified as No 2 fuel oil is in close proximity to a 1000 gallon fuel oil tank that supplies the generators that provide electrical power for the asphalt plant. Data collection has produced results strongly implicating the 1000 gallon fuel oil tank.



In April 1993, hydrogeologists were able to sample the area directly around the 1000 gallon generator UST, where they had earlier met subsurface refusal. According to a May 27, 1993 subsurface investigation report, soil samples taken on April 28, 1993 from monitoring well FN-13 showed extensive petroleum contamination, as follows; a sample taken from a depth of 2 to 5 feet exhibited heavy petroleum odor, a sample taken from a depth of 5 to 10 feet was oil saturated and a sample taken from a depth of 10 to 15 feet was petroleum contaminated.

On May 16, 1994, samples from 4 monitoring wells adjacent to and near the 10,000 gallon UST and the 1000 gallon generator UST exhibited petroleum odors at every depth below the surface asphalt from 6 inches to 15 feet.

In June 1995, the state contractor prepared a floating product plume map showing a petroleum plume encompassing the area of the 10,000 gallon UST and the 1000 gallon generator UST. In addition sampling results detected the highest concentrations of total petroleum hydrocarbons in a separate zone around the other 1000 gallon UST near the office building.

On February 28, 1997, product samples were taken from three monitoring wells in the area of the UST's and from the contents of all the three UST's. All six samples were determined to be No. 2 fuel oil.

On April 2, 1998, the States contractor reported that monitoring data from the area wells" indicate that groundwater flows from the center of the asphalt plant to neighboring properties" and the measurements of product thickness placed the 10,000 gallon UST in the middle of the subsurface plume of No 2 oil.

On February 25, 2000, Department staff inspected the site and observed numerous buckets of oil overflowing onto the ground and various surface stains from petroleum discharges on the ground.

Throughout this period and up to 2009 when the offsite spill remediation project was closed, the spatial and temporal distribution of soil and groundwater contamination documented pursuant to that offsite site investigation revealed onsite discharges from sources including but not limited to onsite storage tanks the extensive piping lines associated with those tanks and the documented areas of surface spills noted above. Moreover, throughout this period no free phase product was detected in upgradient wells, confirming the onsite source of the remaining contamination.

On September 5, 2007, the Departments contractor informed the department that during a site visit it observed that nine onsite State owned monitoring wells had been destroyed including the wells adjacent to the UST locations. Department staff subsequently visited the site and confirmed the destruction of wells.





## 2.2 Site Description

### 2.2.1 Location and Legal Description

The Property is located in the College Point Boulevard, Flushing, Queens County, New York, approximately 700 feet to the southwest of the intersection formed by College Point Boulevard and Northern Boulevard. The Property consists of approximately 1.2 acres and is an irregular-shaped parcel of vacant land.

The subject Property is currently vacant land with no structures onsite and is located on Block 4963 and consists of Lots 212 and 249. The Property is bounded to the north by 35-20 College Point Boulevard, to the south by 36-28 College Point Boulevard, to the east by College Point Boulevard and to the west by the Flushing River.

According to New York City Zoning maps, the subject Property is zoned as M2-1, which corresponds to a manufacturing zoning district.

### 2.2.2 Site Geology

According to the 1970 Bedrock Geologic Map of New York, Lower Hudson Sheet and the 1989 Surficial Geologic Map of New York, Lower Hudson Sheet prepared by the University of the State of New York, the geology in the area of the Property consists of Till (clay, silt-clay, boulder clay) usually poorly sorted diamict, deposition beneath glacier ice, relatively impermeable (loamy matrix) with variable clast content and Hartland Formation (schist's, amphibolites).

According to prior Phase I report submitted by Gannett Fleming Engineers in August 2005, the general geology of Queens County, as part of Long Island, is comprised of unconsolidated sediments deposited upon south easterly dipping consolidated bedrock. The bedrock is crystalline and of Precambrian age. The overlying sediments range from upper cretaceous to Pleistocene age.

Based on the prior Phase I report submitted by Gannett Fleming Engineers in August 2005, depth to groundwater in the vicinity of the Property is approximately 10 feet below grade.

Based on the information gathered during the soil borings during the Phase II investigation, the geology in the area of the Site to the explored depth of approximately 10 feet below grade consists of approximately 2 to 3 feet of fill, represented by dark-gray silt with asphalt stones, underlain by approximately 7 feet of yellow-brown medium to fine-coarse sand with dark clay.

According to prior Phase I report submitted by Gannett Fleming Engineers in August 2005, the general geology of Queens County, as part of Long Island, is comprised of unconsolidated sediments deposited upon south easterly dipping



consolidated bedrock. The bedrock is crystalline and of Precambrian age. The overlying sediments range from Upper Cretaceous to Pleistocene age.

### 2.2.3 Site Hydrogeology

Based on the prior Phase I report submitted by Gannett Fleming Engineers in August 2005, depth to groundwater in the vicinity of the Property is approximately 10 feet below grade.

### 2.3 Sensitive Environmental Receptors

According to the Digital US Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Map for Flushing, Flushing Quadrangle, the nearest designated wetland is located approximately 0.01 miles to the northeast of the Property, which is designated as Estuarine, Subtidal, Unconsolidated Bottom water regime (E1UBL). According to the Digital New York State Department of Environmental Conservation (DEC) Freshwater Wetlands Map for Flushing, Flushing Quadrangle, the nearest designated wetland is located approximately 1.26 miles to the north of the Property.

## 3.0 **PREVIOUS ENVIRONMENTAL REPORTS**

This section contains a summary of several previous investigations and interim remedial actions that have been undertaken. The recommended measures have been implemented as stated.

### 3.1 Summary of the Phase I ESA Reports (GFE 2005 & HTEC 2007)

According to the prior Phase I Environmental Site Assessment (ESA) report submitted by Gannett Fleming Engineers (GFE) in August 2005, the Property formerly was an asphalt production facility and was in operations since 1987 producing hot mix paving materials. Historically the subject Property has been in use as an asphalt production facility since the late 1950's. According to Historical Sanborn Fire Insurance Maps, the subject Property had been utilized as a coal storage and distribution facility through 1951. The subject Property is currently scrap metal recycling with two (2) story office building and is located on Block 4963 and consists of Lots 212 and 249. The Property is bounded to the north by 35-20 College Point Boulevard, to the south by 36-28 College Point Boulevard, to the east by College Point Boulevard and to the west by the Flushing River.

According to New York City Zoning maps, the subject Property is zoned as M2-1, which corresponds to a manufacturing zoning district.

The Phase I report for the Property prepared by Gannett Fleming Engineers in August 2005 and Phase I report submitted by Hydro Tech Environmental, Corp (HTEC) in January 2007 did not identify any open spill files associated with this site other than 0105316 (this spill case is closed as of 10/24/2005) and 7900995 (this spill case was closed as of 08/03/2009), both of which were subsequently closed. The previous Phase I reports outlined the following:



- The review of the federal databases did not identify any sites or issues that are considered a recognized environmental condition (REC) to the subject Property.
- The review of the state databases identified several sites and incidents which may present a de minimus environmental concern to the subject property due to their inferred upgradient groundwater flow path but are not considered RECs.
- The adjacent site, 36-30 College Point Boulevard, presents a concern due to the reported spill and location adjacent to the subject Property. The subject Property's reported Spill Case (#0105316) is a REC since it is currently listed as an active case by the NYSDEC (this spill case is closed as of October 26, 2005).
- The various 55-gallon drums and containers of petroleum products located outdoors within the subject property represent a de minimus environmental concern due to their potential to spill or leak onto the ground.
- Based on the age of the building, ACM's and LBP are suspected in the administrative building.

Based on the above findings, the following recommendations are made:

- A storm water management system and storm water pollution prevention plan should be developed for the subject Property.
- The various outdoor 55-gallon drums and containers of petroleum products should be consolidated into a proper code compliant drum storage area with spill protection and weather protection.
- Appropriate assessment, investigative and remedial measures should be implemented to satisfactorily obtain case closure for the NYSDEC active spill case (this spill case was closed as of October 26, 2005).

### 3.2 Phase II Environmental Site Assessment- SPECTRA (2007)

The Phase II report for the Property prepared by Spectra Environmental Group, Inc. (SPECTRA) in February 2007 outlined the following:

On January 31, 2007, SPECTRA directed Zebra Environmental Corp. (Zebra) to advance eight soil borings (SB-1 through SB-8) at the site using a geoprobe direct push drill rig. Soil borings were advanced to a maximum depth of fifteen (15) feet bgs or until the soil-groundwater interface was located. One soil sample was collected for laboratory analysis from the soil increment that



exhibited the highest PID reading at each of the eight soil boring locations. Soil samples were analyzed for VOC's, SVOC's and Priority Pollutant Metals. Sol samples from soil borings SB-1, SB-4, SB-5, SB-6 and SB-7 were also analyzed for TPH for soil disposal purposes. In addition to the soil samples addressed above, one composite soil sample was also collected from containerized soil cuttings and was analyzed for TCLP metals, PCB's, Flashpoint, Ignitability, pH, Reactivity and TPH.

On January 31, 2007, SPECTRA directed Zebra Environmental Corp. (Zebra) to install three monitoring wells MW-1, MW-2 and MW-3. Groundwater monitoring wells were advanced to a depth of 15 feet bgs. On February 1, 2007, groundwater samples were collected from the three monitoring wells and analyzed for VOC's, SVOC's and Priority Pollutant Metals.

On February 1, 2007, a GPR survey was conducted by SPECTRA at the facility to identify and locate any unknown UST's that may be present at the site. On February 12, 2007, Willets Point Asphalt personnel conducted excavation activities in the area where the GPR survey identified an underground feature. Excavation activities revealed that the underground feature was a buried steel sheet (which was found about 2 feet bgs).

#### Summary of Site Soil and Groundwater Analytical Results

Soil analytical results were compared to NYSDEC cleanup levels identified in the Division of Environmental Remediation TAGM # 4046/STARS-1, Recommended Soil Cleanup Objectives. Groundwater analytical results were compared to NYSDEC Title 6 NYCRR Part 703, Water Quality Standards for surface water and groundwater.

Soil sample results indicate that none of the borings have reportable concentrations of VOC's that exceed NYSDEC TAGM # 4046 Guidance Values or Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives.

With regard to SVOC's, soil boring SB-1 had two parameters (2- Methylanthalene and Naphthalene) that exceed NYSDEC TAGM# 4046 Guidance Values; however, only Naphthalene exceeded Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives. Additionally, soil boring SB-3 had one parameter (3& 4 Methylphenol (m & p cresol) that exceeded Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives; however, this parameter did not exceed TAGM# 4046 Guidance Values.

Soil boring SB-1 results had one metal (Nickel), exceed the NYSDEC TAGM # 4046 Guidance Value and one metal (chromium) that exceeded the Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives. Soil Borings SB-2, SB-5, SB-6, SB-7 and SB-8 results had one metal (Zinc), exceed TAGM# 4046 Guidance Value; however, none of the concentrations exceeded Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives. Soil boring SB-3 results had two metals (Mercury and Zinc), exceed TAGM# 4046 Guidance Value; however, only Mercury exceeded Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives. Soil boring SB-4 results had one metal (chromium), exceed Title 6 NYCRR Subpart 375- Restricted Use Soil Cleanup Objectives; however, the concentration did not exceed NYSDEC TAGM # 4046 Guidance Value.



TPH, TCLP Metals, PCB's, Flashpoint, Ignitability, pH and Reactivity analysis was completed for disposal purposes only. Unidentified TPH levels in the soil samples ranged from 2, 400 ppm to 17, 000 ppm. PCB's were not detected, flashpoint was greater than 200 degrees F, Ignitability was reported as passing, pH was reported at 7.55, Reactivity was reported as less than the reporting limits and the following TCLP Metals were detected at less than the regulatory criteria for hazardous waste- Arsenic at 0.04 ppm (TCLP Regulatory Level for arsenic is 5ppm), Barium at 0.83 ppm (TCLP Regulatory Level for barium is 100 ppm) and Lead at 0.056 ppm (TCLP Regulatory Level for lead is 5 ppm)

New monitoring well groundwater sample results indicate that 2 locations (MW-1 and MW-2) have a concentration of one VOC (MTBE and 1,2,4- Trimethylbenzene, respectively) that exceeds Title 6 NYCRR Part 703- Water Quality Standards, and 2 locations (MW-2 and MW-3) have a reportable concentration of one metal (lead) that exceed Title 6 NYCRR Part 703- Water Quality Standards. SVOC's were not detected in any of the three monitoring wells.

With regard to the ASTM REC's identified in the Phase I reports prepared by GFE and HTEC;

#### Phase I REC's- GFE

Adjacent site located at 36-30 has an active NYSDEC Spill No. 01-05316- The NYSDEC Database indicates this spill was closed on October 24, 2005; therefore no further action is recommended with regard to this REC.

#### Phase I REC's- HTEC

Historical presence of gasoline UST- Excavation activities revealed that the underground feature was a buried steel plate. Since it has been confirmed that the only underground feature identified by the GPR survey is not a UST, no further action is recommended with regard to this REC.

Current presence of fuel oil UST's- According to the Willets Point Asphalt personnel, the following UST's currently exist at the site:

A 10,000 gallon UST that stores No.2 fuel oil for site process activities

A 1000 gallon UST that stores No.2 fuel oil to heat product in the AC tanks

A 1000 gallon UST that stores No. 2 fuel oil for generators.

Current UST's are not registered with the NYSDEC- No further action is recommended with regard to this REC except to continue tank tightness testing in accordance with applicable regulatory requirements.



### 3.3 Roux Associates- UST Removal (2007)

In August 2007, Roux Associates personnel visually observed the removal of the three UST's from the site. Upon their excavation, no holes, leaking product, or other visible tank integrity issues were observed by Roux Associates personnel. Based on the soil sampling done by Roux Associates in the UST excavation pits, it does not appear that the former oil containing UST's impacted the soils at the site. Also Roux Associates installed three groundwater monitoring wells identified as MW-1 through MW-3. The groundwater results revealed that no VOC's or metals (filtered) were detected at concentrations exceeding their standards. Several SVOC's were detected at concentrations exceeding their standards. TPH was 0.6 mg/kg. Based on the presence of floating product in two of the three monitoring wells and elevated PAH's in the groundwater sample from MW-3, groundwater beneath the site was impacted by product.

### 3.4 Limited Phase II Investigation- G C Environmental, Inc. (2011)

On May 19, 2011, GCE performed a Phase II ESA, which consisted of the geophysical survey, advancement of twelve (12) soil borings (SB-1 through SB-12) with subsequent soil sampling, to address the supplemental soil sampling required by NYSDEC related to the 1987 spills. GCE's investigation revealed the following:

Visual and olfactory contamination (petroleum odor) and elevated PID readings were detected in most of the soil borings.

Petroleum stains were detected in soil borings SB-4, SB-5, SB-7, SB-9, SB-11 and SB-12.

Laboratory results of one (1) analyzed soil sample (SB-8, hydrologically cross/down gradient from former 10,000 gallon UST and former 1,000 gallon UST) indicated one of the B/N's namely; Benzo (a) pyrene (4.7 milligram per kilogram (mg/kg) was detected above the soil cleanup objectives of 1.1 mg/kg for this compound. The remaining VOC's and B/N's detected were below the soil cleanup objectives. It should be noted that Benzo (a) pyrene is a high molecular weight, 5-ring PAH, and an EPA Priority Pollutant and EPA-classified carcinogen. Twelve samples were analyzed, one from each boring and eleven samples met the NYSDEC Part 375 6.8(b) Restricted Use Soil Cleanup Objectives for Industrial Zoned land use.

### Recommendations by GCE in 2011

Based on the general observation that petroleum staining, odors and elevated PID readings increased with depth of the samples, GCE recommends that additional investigation of upgradient locations be conducted to determine if offsite sources have impacted the subject Property. Based on our observations, analysis of documents provided and the current data, there are no on-site sources of petroleum contamination and incidental spills from the former asphalt plant operation have since been remediated and closed as shown in the closure of NYSDEC spill numbers 0105316, 0008962 and 7900995. In addition, the sampling results taken in the former location of the removed underground storage tanks and associated piping in August 2007 indicate no contamination exceeding regulatory limits; therefore offsite sources of contamination are the most probable source of the product that continues to impact the subject Property.





GCE recommends to excavate the area and collect post excavation samples near soil boring SB-8 (hydrologically cross/down gradient from former 10,000 gallon UST and former 1,000 gallon UST) where Benzo (a) pyrene (4.7 milligram per kilogram (mg/kg)) was detected above the soil cleanup objectives of 1.1 mg/kg.

### 3.5 Excavation of impacted soils- G C Environmental (2011) /Recommendations achieved

As per the recommendation, on July 27, 2011 GCE arrived on site at 11:00 am following the completed excavation of approximately 15 cubic yards of impacted soils by which a cavity of thirteen foot wide by thirteen foot long by 30 inches deep was created. GCE collected end point samples from this excavation for 8270 analysis, documented as end points (EP) 1 -5. A sample was collected from the center of the excavation at a depth of thirty inches (EP-5), as well as from the center of each sidewall (North/East/South/West) at a depth of twenty inches (EP 1-4). Additionally, one (1) sample was collected of the composite material from the excavation and analyzed for disposal facility requirements. In total, six (6) samples were collected and analyzed.

As per the recommendation, on August 3, 2011 GCE arrived on site at 11:00 am following the completed further excavation of approximately 11 cubic yards of impacted soils by which the existing cavity was extended by five feet on the eastern wall and five feet on the southern wall to create a cavity approximately eighteen foot wide by eighteen foot long by 30 inches deep (see Figure 2). GCE collected sidewall samples for 8270 analysis from this excavation at a depth of twenty inches on the east (EP-1) and south (E-2) walls. Upon review of analysis it was determined that the sample from the South wall (EP-2) of the cavity exceeded target values and further excavation was recommended.

As per the recommendation, on August 9, 2011 GCE arrived on site at 3:00 pm following the backfill of the existing cavity with clean sand and completed further excavation of approximately 11 cubic yards of impacted soils, by which a new cavity of approximately eighteen foot long by six foot long by thirty inches deep had been created. GCE collected sidewall samples from the cavity for 8270 analysis, at a depth of twenty inches in the center of the south (EP-1) wall. Upon review of analysis it was determined that the sample from the South wall (EP-1) of the cavity did not exceed target values and this portion of the recommendation is complete. This excavation was subsequently backfilled with clean sand. All contaminated soil was disposed of at the Residuals Management Services Facility in Deer Park, New York.

On September 08, 2011, GCE installed three temporary monitoring wells (MW-4, MW-5 & MW-6) and gauge existing monitoring well MW-41A for product thickness, located hydrologically upgradient of the subject Property in order to determine if the offsite sources of contamination are the most probable source that may have impacted the subject Property.

Prior to commencement of the work, GCE arranged for a public underground utility mark out to be performed at the Site. One (1) monitoring well (MW-4) was installed on the south eastern portion of the Property (west side of College Point Boulevard, on the side walk, near auto body shop), hydrologically up/ cross gradient and approximately 45 feet from the subject Property. One (1) monitoring well (MW-5) was installed on the north eastern portion of the Property (east



side of College Point Boulevard, on the side walk), hydrologically upgradient and approximately 85 feet from the subject Property. One (1) monitoring well (MW-6) was installed on the south eastern portion of the Property (east side of College Point Boulevard, on the side walk), hydrologically up gradient and approximately 145 feet from the subject Property. Additionally, existing monitoring well MW-41A was gauged for free product thickness, which is located on the south eastern portion of the Property (outside the property fence, west side of College Point Boulevard) hydrologically up gradient and approximately 5 feet from the subject Property.

### Groundwater Sampling

Prior to sampling, the newly installed wells were allowed to stabilize and equilibrate with the aquifer for approximately 15-20 minutes. The water sample was obtained by utilizing half (1/2)-inch diameter disposable polyethylene tubing.

All groundwater samples were logged and transferred under a chain-of-custody protocol to the Phoenix Environmental Laboratory (PEL), Manchester, Connecticut, a New York State ELAP-approved laboratory. Ground water samples collected were analyzed for the presence of VOC's using EPA Method 8260 and B/N's using EPA Method 8270. Groundwater sample MW-5 (for semivolatiles (B/Ns)) was accidentally lost by PEL during their extraction process, so MW-5 monitoring well was sampled again, logged and transferred under a chain-of-custody protocol to PEL for EPA Method 8270 analysis.

### Groundwater Sampling Results

The groundwater analytical results were compared to the DEC Ambient Water Quality Standards & Guidance Values (Groundwater Standards).

#### Monitoring well MW-4 (Temporary Well Point - TWP)

Laboratory results of analyzed MW-4 groundwater sample indicated four (4) of the volatiles and nine (9) of the B/Ns namely; Isopropylbenzene (13 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 5 ug/l for this compound, N-Butylbenzene (16 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 5 ug/l for this compound, N-Propylbenzene (15 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 5 ug/l for this compound, Sec-butyl benzene (34 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 5 ug/l for this compound, Acenaphthene (21 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 20 ug/l for this compound, Benz (a) anthracene (2.1 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Benz (b) fluoranthene (1.9 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Benzo (k) fluoranthene (0.5 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Bis (2-ethylhexyl) phthalate (53 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 5 ug/l for this compound, Chrysene (3.9 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Indeno (1,2,3-cd) pyrene (0.38 microgram per litre (ug/l)) was detected above the Groundwater





Quality Standards of 0.002 ug/l for this compound, Naphthalene (48 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 10 ug/l for this compound and Phenanthrene (330 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 50 ug/l for this compound.

#### Monitoring well MW-5 (TWP)

Laboratory results of analyzed MW-5 groundwater sample indicated four (4) of the B/Ns namely; Benz (a) anthracene (0.1 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Benz (b) fluoranthene (0.14 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Chrysene (0.008 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound and Indeno (1,2,3-cd) pyrene (0.38 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound.

#### Monitoring well MW-6 (TWP)

Laboratory results of analyzed MW-6 groundwater sample indicated five (5) of the B/Ns namely; Benz (a) anthracene (2.2 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Benz (b) fluoranthene (3.3 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Benzo (k) fluoranthene (0.8 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound, Chrysene (1.9 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound and Indeno (1,2,3-cd) pyrene (1.1 microgram per litre (ug/l)) was detected above the Groundwater Quality Standards of 0.002 ug/l for this compound.

The remaining VOCs and B/Ns were either non detected or detected below their detection limit. It should be noted that Isopropylbenzene is an aromatic hydrocarbon and is a constituent of crude oil and refined fuels. It should be noted that n-butyl benzene is highly flammable, less dense and insoluble in water, and is used to make plastics and as solvent. It should be noted that n-propylbenzene and sec-butyl benzene is highly flammable, less dense and insoluble in water, and is mildly toxic by ingestion and inhalation. Acenaphthene is a polycyclic aromatic hydrocarbon (PAH) and is a constituent of coal tar. Naphthalene is classified as a benzenoid polycyclic aromatic hydrocarbon (PAH). It should be noted that Benz (a) anthracene is a high-molecular-weight, 4-ring polycyclic aromatic hydrocarbon (PAH) and an EPA Priority Pollutant, Benz (a) anthracene is an EPA classified probable human carcinogen. It should be noted that Benzo (b) fluoranthene is a high-molecular-weight, 5-ring Polycyclic Aromatic Hydrocarbon PAH and an EPA Priority Pollutant, Benzo (b) fluoranthene is an EPA classified carcinogen for regulatory purposes. It should be noted that Benzo (k) fluoranthene is a polycyclic aromatic hydrocarbon and anticipated human carcinogen. It should be noted that Bis (2-ethylhexyl) phthalate is an organic compound and is used as a plasticizer. It should be noted that Chrysene is a polycyclic aromatic hydrocarbon, constituent of coal tar and suspected human carcinogen. It should be noted that Indeno (1, 2, 3-cd) pyrene is a high molecular weight, 5-ring PAH, and an EPA Priority Pollutant and EPA-classified carcinogen. Naphthalene is the most abundant single



component of coal tar. The International Agency for Research on Cancer (IARC) classifies naphthalene as possibly carcinogenic to humans and animals. It should be noted that Phenanthrene is a poly cyclic aromatic hydrocarbon and is used in making plastics, dyes and pesticides.

#### Free Product

MW-41A was gauged for free product thickness, which is located on the south eastern portion of the Property (outside the property fence, west side of College Point Boulevard) hydrologically upgradient and approximately 5 feet from the subject Property. Free product thickness was measured using Solinst oil/water interface probe equipped with a fiberglass measuring tape. The depth of free product from top of the well was measured as 6.70 feet and the depth of water was measured as 7.30 feet. The difference between depth of water and depth of free product gives the free product thickness which is 0.6 feet (7.2 inches). Petroleum stains and odor were detected.

### **4.0 REMEDIAL ACTION WORK PLAN (RAWP)**

#### Remedial Action Work Plan

The RAWP is being required by the NYSDEC. The objective of the Remedial Action Work Plan is to characterize the subsurface groundwater at the Site. This is required to determine if onsite contamination was from an offsite source have resulted in any environmental impacts to the Site.

This work plan provides a summary of history of land use, any prior environmental assessments or information, a proposed RAWP sampling program, sampling protocols and associated Health and Safety Plan (HASP).

The Remedial Action Work Plan includes the following:

- Install a total of up to five (5) monitoring wells to investigate the potential for offsite migration of contaminants and to verify horizontal and vertical extent of contamination. Out of five wells, three (3) wells are proposed to be installed along the Flushing Creek property boundary (MW-1, MW-2 & MW-3) and two (2) wells along the Site sidewalk (MW-5 & MW-6).
- The wells will be installed by a NY-licensed well driller to a depth of approximately 25 feet below grade surface (bgs). Screens will be placed across the water table to provide groundwater recharge. The wells will consist of 4" Schedule 40 PVC casing and screens and completed with a flush-mount steel protective casing.
- The new wells will be developed to ensure adequate connection between the aquifer and surrounding soil formation. In order to determine the direction of groundwater flow, GCE will retain a NY licensed surveyor to survey the new wells for exact locations and elevations.



- Gauge free product thickness measurements (if identified) from newly installed wells MW-1, MW-2, MW-3, MW-5, MW-6 and existing well MW-41A.
- Monitoring free product recovery if separate phase product is identified in the wells. This will be done initially on a weekly basis and adjusted accordingly with Department approval and based on the presence or absence of such product.
- Any measurable product will be removed using passive means (absorbent socks) or by manual bailing.
- Monitoring if no separate phase product is identified in the wells, will be done on a quarterly basis and adjusted accordingly with Department approval and based on the presence or absence of such product.
- Summarize the results of the Remedial investigation in Groundwater Monitoring Reports (Remedial Action Progress Reports), including results of the above scope, and providing, where appropriate, recommendations for future investigation (additional wells if free product is detected) and response actions.
- The remedial activity will continue until such time as product is no longer measurable in the wells for a period of 12 months or the current site owner begins site development and soil excavation at which time the onsite wells will be abandoned.
- The product/purged water will be stored in labeled 55-gallon drums for periodic removal and disposal by GCE.

#### 4.1 Groundwater Characterization

This section of the work plan provides detailed procedures for collecting and analyzing samples. The Remedial investigation includes: collecting groundwater samples in response to NYSDEC scope of work to determine if potential contamination from historic offsite/ surrounding land uses has impacted the Site.

##### 4.1.1 Groundwater Characterization

A public utility mark-out will be obtained on the subject property prior to drilling activities.

Permanent groundwater wells will be constructed to extract groundwater samples using a Hollow Stem Auger (HSA) drilling system. The wells will be constructed of with a Schedule 40, 4.0 inch diameter, 0.10- slotted PVC well screens (20 foot screen and 5 foot riser).

The purging and sampling of the monitoring wells will follow USEPA's Low Stress/Flow Groundwater Sampling Protocol (SOP# GW0001). Prior to sampling, each well will be developed to remove residual sediments and



ensure good hydraulic connection with the water-bearing zone. Sampling of groundwater will be conducted after the standard groundwater parameters have stabilized.

Groundwater samples will be collected with dedicated disposable polyethylene tubing suspended in the well and connected to a low-flow peristaltic pump. Three-to-five well bore volumes will be purged from the each permanent monitoring well before the groundwater sample is collected. Each of the groundwater samples will be appropriately containerized when collected and immediately maintained in an ice-packed cooler. After each day's sampling is done, the samples will be transported under strict chain-of-custody to an NYSDOH-ELAP certified laboratory for the presence of Environmental Protection Agency (EPA) Test Method 8260 for Volatile Organic Compounds (VOC's) and EPA Method 8270 for Semi Volatile Organic Compounds (SVOC's) analysis. Please find enclosed Figure 2 for Sampling Location Map.

#### 4.1.2 Investigation-Derived Waste

All investigation-derived waste (e.g., drill cuttings, decontamination water, etc.) will be containerized in a NYSDOT-approved 55-gallon drum temporarily staged on-site for future sampling and off-site disposal. All disposable personal protective equipment used during the site investigation will be appropriately containerized prior to off-site disposal.

## 5.0 **QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES**

Appropriate Quality Assurance/Quality Control (QA/QC) Procedures were developed to ensure that suitable and verifiable data results from sampling and analysis are maintained. To achieve this objective, the quality, the quality assurance procedures detailed in this section were adopted from the NYSDEC, DER "Technical Guidance for Site Investigation and Remediation," dated May 2010 and will be followed for all sampling and laboratory analysis activities.

### 5.1 Quality Assurance Requirements

The person responsible for conducting the investigation and/or remediation will ensure suitable and verifiable data results from sampling and analysis. To achieve this objective, the quality assurance procedures detailed in this section will be followed for all the sampling and laboratory analysis activities. Quality Assurance/Quality Control procedures were developed to ensure that suitable and verifiable data will result from prescribed sampling and analysis programs. The procedures to be implemented during the investigation are summarized below.



#### 5.1.1 Sampling Personnel

The activities associated with the field sampling and analysis program will be performed under supervision of a Quality Assurance Officer, in accordance with the NYSDEC, DER “Technical Guidance for Site Investigation and Remediation,” May 2010. The samplers assigned will possess a minimum of two or more years’ experience in environmental field work.

Additionally, all samplers will have received the mandatory forty-hour Occupational Safety and Health Administration (OSHA) training on working with potentially hazardous materials and appropriate Hazard Communication Program and Right-To-Know training.

#### 5.1.2 Sampling Equipment

Individual QA/QC measures will be implemented for each of the types of equipment, field screening instruments, sample containers, etc used in the sampling program.

#### 5.1.3 Hollow Stem Auger or Manual Sampling Equipment

Prior to arrival on the site and between sample locations, all equipment associated with the drilling system or manual sampling equipment will be decontaminated by a physical scrub with detergent (Alconox) and potable water solution and rinse with potable water.

#### 5.1.4 Glassware

All sample glassware will be "Level A" certified-decontaminated containers supplied by a NYSDOH-Certified Commercial Laboratory. Samples analyzed VOCs/BNs will be placed in Teflon-lined containers. All samples will be preserved by cooling them to a temperature of approximately four degrees Celsius prior to transport to the laboratory.

#### 5.1.5 Sample Documentation

The following sample identification and chain-of custody procedures will be followed to establish and maintain proper sample documentation control:

##### 5.1.5.1 Sample Identification

A sample tag, log book and chain-of-custody forms will be used to identify samples. The following information will be recorded: 1) the project code; 2) the sample laboratory number; 3) the sample preservation; 4) the date the sample was secured from the source



media; 5) the time the sample was secured from the source media; and 6) the person who secured the sample from the source media.

#### 5.1.5.2 Chain-of Custody Procedures

Due to the evidential nature of samples, possession will be traceable from the time the samples are collected until they are received by the testing laboratory. A sample is considered under custody if it: is in a person's possession; it is in a person's view, after being in possession; if it is in a person's possession and they locked it up; or, it is in a designated secure area. When transferring custody, the individuals relinquishing and receiving the samples will sign, date and note the time on the Chain-of-Custody Form.

#### 5.1.5.3 Laboratory-Custody Procedures

A designated sample custodian will accept custody of the delivered samples and verify that the information on the sample tags matches that on the Chain-of-Custody Records. Pertinent information as to delivery, pick-up, courier, etc., will be entered in the "remarks" section. The custodian will enter the sample tag data into a bound logbook. The laboratory custodian will use the sample tag number, or assign a unique laboratory number to each sample tag, and assure that all samples will be transferred to the proper analyst or stored in the appropriate source area. The laboratory custodian will distribute the samples to the appropriate analysts. Laboratory personnel will be responsible for the care and custody of samples, from the time they are received, until the sample is exhausted or returned to the sample custodian. All identifying data sheets and laboratory records will be retained as part of the permanent documentation. Samples received by the laboratory will be retained until after analysis and quality assurance checks are completed.

### 5.2 Groundwater Sample Collection

The groundwater sampling will be conducted using new dedicated disposable polyethylene tubing inserted into the dedicated new temporary well screen, installed via Geoprobe or similar equipment. The groundwater will be extracted through the polyethylene tubing by a low-flow peristaltic pump until 3 to 5 times the approximate volume in the polyethylene tubing and well screen have been purged. The retrieved samples will be placed in new laboratory-supplied 40 ml Teflon-lined cap glass vials for VOC's and 1 Liter brown glass containers for SVOCs. The samples will be stored in a cooler containing ice to maintain a temperature of 4° Celsius and delivered under strict chain-of-custody to an NYSDOH ELAP-certified Laboratory.



The drilling equipment used to install the wells will be decontaminated before each sampling location according to NYSDEC Sampling Guidelines & Protocols, 1991. The cleaning procedure will include the use of a standard laboratory grade phosphate-free detergent (Alconox) followed by a municipal-supplied potable water rinse.

### 5.3 Laboratory Analysis Requirements

#### 5.3.1 Certified and Data Acceptance

The laboratories used on this project will conform to the following specifications: For the analysis of any aqueous samples for a parameter or category of parameters for which laboratory certification exists pursuant to NYSDOH ELAP Certification, the laboratory will be certified for that specific parameter or category of parameters pursuant to NYSDOH ELAP Certification.

For the analysis of non-aqueous samples using specific analytical methods contained in the EPA Publication SW-846, "Test Methods for Evaluating Solid Waste," fourth edition, update IV, January 2008, as amended and supplemented, for a parameter or category of parameters for which certification exists pursuant to NYSDOH ELAP Certification, the laboratory will be certified for that specific parameter or category of parameters pursuant to NYSDOH ELAP Certification or, at a minimum, have obtained temporary approval to analyze regulatory samples pursuant to NYSDOH ELAP Certification.

#### 5.3.2 Specific Requirements

Laboratories will follow all quality assurance/quality control procedures specified in the analytical methods. Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks should conform to the appropriate analytical services protocol, unless an alternate method/procedure has been approved. Results from analysis of soils and sediments will be reported on a dry weight basis, except for those results required by the method to be otherwise reported.

## 6.0 **GROUNDWATER MONITORING REPORT**

Upon receipt of the laboratory analytical data, Groundwater Monitoring Reports/Remedial Action Progress Reports (RAPR) on a timely basis will be prepared for submission to the NYSDEC. The Groundwater Monitoring Reports will include data summary tables, field notes, sample log sheets, inventory forms, chain of custody, laboratory data summary sheets, a photographic log and a sampling location map.





The results of the groundwater analysis will be compared to NYSDEC Ambient Water Quality Standards.

The report will also include recommendations and conclusions, based on the analytical results, with an opinion on the need for any further action, if warranted. If required, a separate Work Plan will be prepared to address environmental issues during construction and submitted for NYSDEC review.

## 7.0 HEALTH AND SAFETY PLAN

A site specific Health and Safety Plan has been developed and is attached to this document as Appendix A. The plan will be adhered to by all personnel involved in the Remedial investigation.

### G.C. ENVIRONMENTAL, INC. APPROVALS

This Work Plan has been prepared for the following project:

35-32 College Point Boulevard  
Queens, New York 11354  
GCE Project No. 12-384-00

This Work Plan has been completed by the following G. C. Environmental personnel:

04/14/16

---

Ravi Kumar Kolaventi  
Project Manager

Date

This Work Plan has been approved by the following G. C. Environmental personnel:

04/14/16

---

Gregory Collins  
President

Date





**G. C. ENVIRONMENTAL, INC.**  
CONSULTANTS CONTRACTORS

22 OAK STREET  
BAY SHORE, NEW YORK 11706

TEL: (631) 206-3700  
FAX: (631) 206-3729

## LOCUS MAP

35-32 COLLEGE POINT BOULEVARD  
FLUSHING  
NY 11354

GCE PROJECT NO.: 12-384-00

FIGURE I  
STREET  
MAP

EXHIBIT B



**LEGEND**

- Proposed Monitoring Well Locations
- Existing Monitoring Well Location
- Property Line

GW Flow Direction  
↓  
West

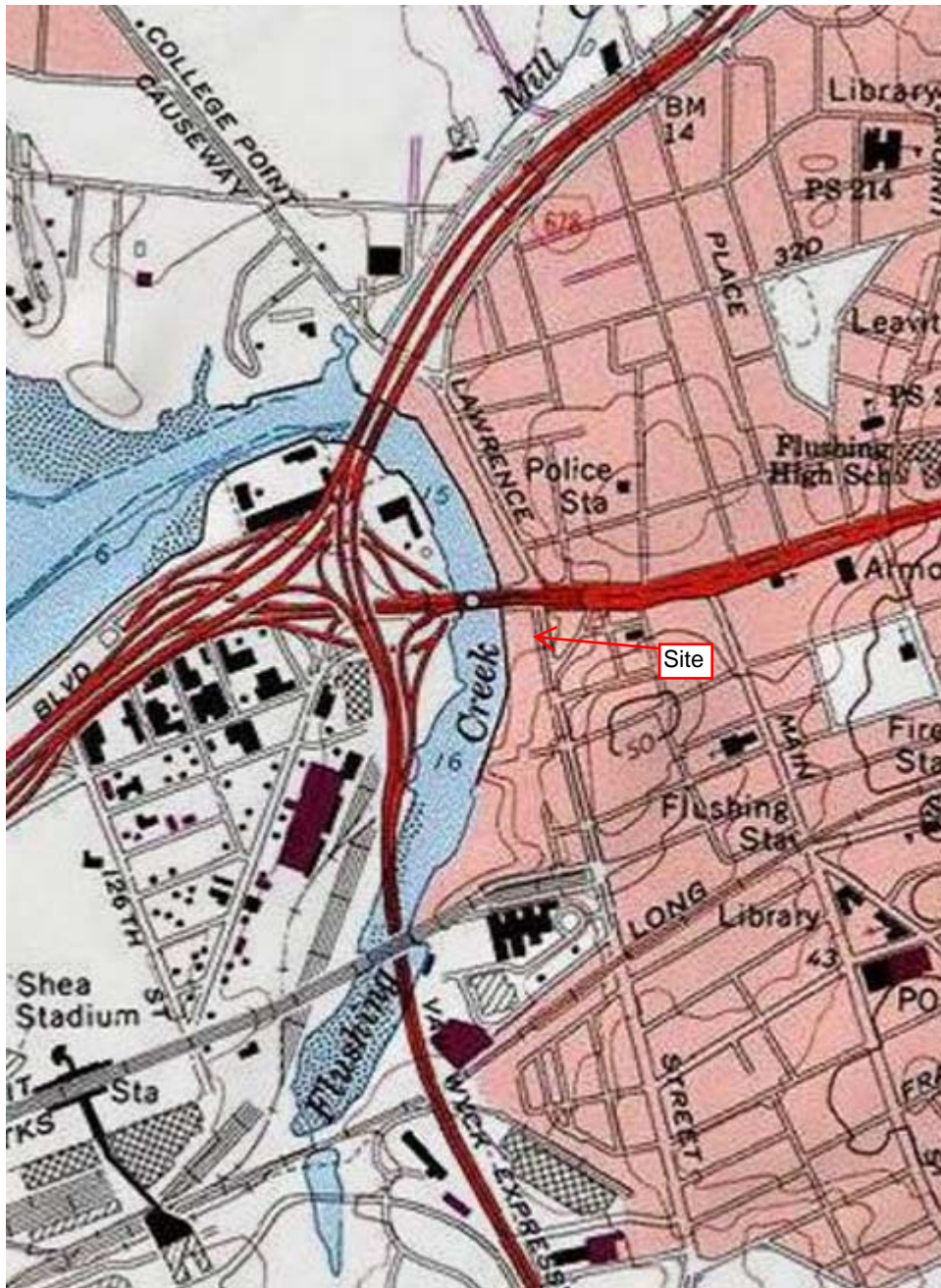


**G. G. ENVIRONMENTAL, INC.**  
CONSULTANTS CONTRACTORS  
22 OAK STREET  
BAY SHORE, NEW YORK 11706  
TEL: (631) 206-3700  
FAX: (631) 206-3729

**MONITORING WELL LOCATIONS**  
WILLETS POINT ASPHALT  
35-32 COLLEGE POINT BOULEVARD  
FLUSHING, NY 11354  
GCE PROJECT NO.: II-215-00

**EXHIBIT B**  
**PROPOSED**  
**MONITORING**  
**WELL LOCATIONS**





**G. C. ENVIRONMENTAL, INC.**  
CONSULTANTS CONTRACTORS

22 OAK STREET  
BAY SHORE, NEW YORK 11706

TEL: (631) 206-3700  
FAX: (631) 206-3729

## TOPO MAP

35-32 COLLEGE POINT BOULEVARD  
FLUSHING  
NY 11354

GCE PROJECT NO.: 12-384-00

FIGURE 3

TOPO  
MAP

# **APPENDIX A**



**G. C. ENVIRONMENTAL, INC.**

CONSULTANTS CONTRACTORS

**Health and Safety Plan  
for Remedial Action Work Plan**

**35-32 College Point Boulevard  
Queens, New York 11354**



Prepared for:

**Mr. Dean Devoe  
Willets Point Asphalt Corp  
127-50 Northern Boulevard  
Flushing, New York 11354**

**GCE Project No: 12-384-00 / 16-028-00**



## CONTENTS

<b>1.0 INTRODUCTION .....</b>	<b>1</b>
<b>2.0 SITE ORGANIZATION AND COORDINATION .....</b>	<b>1</b>
2.1 Site Safety and Health Officer	
2.2 Site Supervisor	
2.3 Principal Investigator and Field Project Personnel	
<b>3.0 INTEGRATED SAFETY MANAGEMENT SYSTEM .....</b>	<b>4</b>
<b>4.0 TASK SPECIFIED HAZARD EVALUATION AND CONTROLS.....</b>	<b>4</b>
4.1 Field Sampling and Analysis of Soil, Vapor and Ground water	
<b>5.0 OTHER HEALTH AND SAFETY PLAN ELEMENTS.....</b>	<b>6</b>
5.1 Revisions/Modifications to the HASP	
5.1.1 Modifications Allowed	
5.2 Monitoring	
5.3 Site and Spill Control	
5.4 Personal Protective Equipment	
5.5 Temperature Extremes and Site Characteristics	
5.5.1 Effects and Prevention of Heat Stress	
5.5.2 Cold Exposure	
5.6 Decontamination	
<b>6.0 TRAINING/MEDICAL REQUIREMENTS.....</b>	<b>11</b>
6.1 Site Specific Hazard Communication and Access Briefing	
6.2 Medical Surveillance	
<b>7.0 G C ENVIRONMENTAL, INC, APPROVALS.....</b>	<b>12</b>
<b>SIGNATURE PAGE .....</b>	<b>13</b>



APPENDICES:

- A. Chemical Descriptions
- B. G.C. Environmental, Inc. Forms
  - Daily Tailgate Safety Meeting Form*
  - Site Safety Checklist*
- C. Hospital Route Map





## **1.0 INTRODUCTION**

### **1.1 Purpose and Policy**

This Construction Health and Safety Plan (HASP) has been developed to comply with the regulations under Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120(b)(4), Hazardous Waste Operations and Emergency Response. It addresses foreseeable activities associated with the site work activities to be conducted at 35-32 College Point Boulevard in Queens, New York (see Figure 1). This HASP establishes personnel protection standards and mandatory safety practices and procedures.

GCE personnel involved with inspection of site work activities which involve monitoring well installations on the Flushing Creek property boundary and in the Site sidewalk during the proposed work shall comply with the requirements of this HASP. All GCE personnel engaged in onsite activities will read this document carefully and complete the Safety Briefing Form (Attachment A), a copy of which will be provided to GCE's Project files. Personnel who have any questions or concerns regarding implementation of this plan are encouraged to request clarification from the GCE Project Manager. Field personnel must follow the designated health and safety procedures, be alert to the hazards associated with working close to vehicles and equipment, and use common sense and exercise reasonable caution at all times.

The levels of protection and procedures specified in this HASP are based on the best information available from historical data and recent evaluations of the Site. Therefore, these recommendations represent the minimum health and safety requirements to be observed by all personnel engaged in work at the site. Unforeseeable site conditions, changes in scope of work, or hazardous conditions not previously considered will warrant a reassessment of the protection levels and controls stated. Refer to below sections for requirements pertaining to field modifications and changes to the HASP.

## **2.0 SITE ORGANIZATION AND COORDINATION**

Remedial Investigation activities will be performed by G C Environmental, Inc. All work will be performed under the direction of the Site Supervisor and support staff.

The following section describes the organizational structure for GCE during the Remedial Investigation. Key personnel and their responsibilities are listed below:

Personnel Name	Title/Responsibility	Contact Information
Mr. Gregory Collins	Site Safety and Health Officer	T: 631-206-3700 Email: <a href="mailto:gc@gcenvironmental.com">gc@gcenvironmental.com</a>
Mr. Thomas Becker	Site Supervisor	T: 631-206-3700 Email: <a href="mailto:tbecker@gcenvironmental.com">tbecker@gcenvironmental.com</a>
Mr. Fulya Toylular	Principal Investigator	T: 914-588-8851 Email: <a href="mailto:ftoylular@gcenvironmental.com">ftoylular@gcenvironmental.com</a>

### **2.1 SITE SAFETY AND HEALTH OFFICER**

The SSHO advises the Site Supervisor on safety and health issues and conducts briefings prior to initiation of site activities. The SSHO assesses the potential for worker exposures to hazardous agents, recommends appropriate hazard controls for protection of task site personnel, and will





require personnel to obtain immediate medical attention in the event of a work-related injury or illness. The SSHO ensures any necessary monitoring of potential chemical hazards is performed, reviews the effectiveness of monitoring and personal protective equipment, and recommends upgrades or downgrades in protective safety and health measures. The SSHO ensures that appropriate fall protection measures are available and that needed work permits are obtained. The SSHO notifies the Office of Radiation Protection when radiological support is required. The SSHO has stop work authority and advises emergency response personnel of an emergency. The SSHO authorizes the return to work following resolution of any safety and health hazards or other stop work issues. The SSHO ensures that this HASP is revised and approved if there are changes in site conditions or tasks. The SSHO will be available for consultation when required and will be aware of project-related work occurring on-site.

## **2.2 SITE SUPERVISOR**

The Site Supervisor has primary responsibility for directing and managing all site investigation field activities, including coordination with any support organizations. The Site Supervisor ensures that all on-site project personnel meet the required level of training, have reviewed the HASP, and are instructed in safe work practices. The Site Supervisor also ensures that a qualified SSHO is designated, maintains a current copy of the HASP, and documents field changes to the HASP in the project logbook. In addition, the Site Supervisor and staff perform oversight of field activities, maintain awareness of site operations, and ensure that all project personnel adhere to ES&H requirements in order to prevent potential accidents from occurring.

The Site Supervisor is responsible for ensuring that the following five core functions of the Integrated Safety Management System (ISMS) are fulfilled appropriately:

- Define the work, roles and responsibilities. Allocate resources to ensure that research goals are balanced with safe work practices.
- Identify and analyze the hazards using the ESH&Q evaluation, consultation with subject matter experts, material safety data sheet information, Work Smart Standards (WSS), lessons learned by other Principal Investigators (PIs) and staff, and other resources.
- Develop and implement hazard controls tailored to the work being performed.
- Resources include contractors' staff, subject matter experts, the Hazardous Materials Inventory System, project procedures, Training Needs Assessment process, Laboratory Operating Manuals, Laboratory Stewards, and Lessons Learned and Alerts.
- Examples of actions and tools include optimization of engineering controls and procedural approaches with training, HAZCOM job-specific training, job pre-briefings, compliance-based and project-specific training, ES&H permits (e.g., RWP, Lockout/Tagout process), and protective equipment.

Perform work within controls to ensure the work is done safely:

- Communicate expectations to project staff.
- Ensure that the controls identified in the ESH&Q evaluation and this HASP are carried out.
- Ensure opportunity for procedure modification to respond to unanticipated situations.



- Stop work if imminent danger exists.

Provide feedback and continuous improvement:

- Solicit feedback from project staff regarding ESH&Q issues and act on that input.
- Communicate concerns to and seek help from supervisors and the ESH&Q group.
- Reallocate resources to address issues that arise.
- Ensure safety meetings and site briefings are performed.

## **2.3 PRINCIPAL INVESTIGATORS (PI) AND FIELD PROJECT PERSONNEL**

PIs and field project personnel involved in onsite operations are responsible for understanding the intent of the principles of Integrated Safety Management and are to be knowledgeable of the processes in place to satisfy the intent of Integrated Safety Management Plan.

- Define the Scope of Work
- Understand the expectations they are to meet in their particular work assignment.
- Understand the responsibilities of the Site Supervisor and SSHO.
- Provide documentation of training to the Site Supervisor.
- Identify and Analyze the Hazard
- Notify the SSHO of any special medical conditions (i.e., allergies, diabetes, etc.).
- Actively participate in identification of hazards prior to beginning work.
- Ensure that potential work hazards have been evaluated by subject matter experts and are accounted for in all work practices.
- Develop and Implement Hazard Controls
- Seek the help of the SSHO and other subject matter experts, as appropriate, to analyze the hazards.
- Ensure that control strategies are developed and implemented, as appropriate, before work begins.
- Ensure safety measures are incorporated into activities (i.e., through HASP addendums or amendments, work aides, or standard operating procedures).
- Perform Work within Controls



- Perform only those tasks that they believe they can do safely.
- Meet the responsibilities and safely perform the tasks that are delegated to them.
- Take all reasonable precautions to prevent injury to themselves and to their fellow employees; be alert to potentially harmful situations.
- Suspend work if unexpected concerns arise and modify plans to address concerns before resuming work.
- Comply with the work plan and HASP as well as postings and rules at the project site.
- Provide Feedback and Continuous Improvement
- Keep the SSHO and Site Supervisor informed of any issues, problems, or concerns regarding all aspects of their work.
- Notify appropriate management personnel or the facility point of contact of any unsafe condition, violation, noncompliance, or an environmental threat discovered in a facility.
- Report to the SSHO any changes in site conditions that may affect safety and health.
- Immediately notify the SSHO of symptoms or signs of exposure potentially related to any chemical, physical, or biological hazards present at the site and immediately report any accidents, injuries, and/or unsafe conditions to the SSHO.
- If unsafe conditions develop, task site personnel are authorized and expected to stop work and notify the SSHO and Site Supervisor of the unsafe condition.

### **3.0 INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS)**

The ISMS process systematically integrates safety into management and work practices at all levels so work objectives are accomplished while protecting the public, the worker, and the environment. Direct involvement of workers during the development and implementation of safety management systems is essential for success. Therefore, all personnel are expected to incorporate the following basic ISMS core functions during all work activities:

- Defining the scope of work;
- Identifying and analyzing hazards associated with the work;
- Developing and implementing hazard controls;
- Performing work activities within these controls; and
- Providing feedback on the adequacy of the controls to continue improving safety management.



## 4.0

## TASK SPECIFIC HAZARD EVALUATION AND CONTROLS

The purpose of this task is hazard evaluation to identify and assess potential hazards that personnel might encounter and to prescribe methods of hazard control. Given the past uses at the Site (industrial), the potential environmental concerns associated with either possible fuel oil use and/or the historic land use of the surrounding area and according to the requirements of the NYSDEC, chemicals to be potentially encountered during investigation activities may be petroleum-related compounds, and typical generic contaminants in urbanized areas such as VOCs, SVOCs, and heavy metals.

A description of sampling procedures and the activities to be conducted at the Site during the required Remedial Investigation are described below.

### 4.1 FIELD SAMPLING AND ANALYSIS OF SOIL & GROUNDWATER

**Task Description:** Procedures for field sampling and analysis of surface soils, subsurface soils and groundwater are described in the Remedial Investigation Work Plan.

Samples will be handled and transported according to regulatory requirements and procedures outlined in the Site Investigation Work Plan. Samples will be preserved and stored as required by the analytical protocols (e.g., cooled, preservative added). Storage on site may occur for short periods of time in ice chests containing “blue ice” but will be quickly transferred to refrigerator storage in the fixed base laboratory at the appropriate temperatures. All storage of contaminated samples will follow procedures and relevant regulations.

**Equipment Used:** Equipment used during investigation activities may include Hollow Stem Auger (HAS), slam bars, shovels, etc.

#### Task Hazards and Controls:

##### Chemical and Radiological Hazards

- **Soil Contact:** As no specific soil or groundwater sample data is available, the risk of chemical exposure from short-term exposure to soil or other environmental media samples is minimal. However, direct contact with contaminated materials should be avoided; therefore, disposable latex or nitrile gloves and safety glasses will be worn when conducting soil and sediment sampling to prevent eye and skin contact.

##### Physical Hazards

- **Direct contact with equipment:** Precautions will be made to keep a minimum of ten feet from the maximum reach of the drilling equipment during its operation. Furthermore, all on-ground personnel will wear hard hats, leather work gloves, construction boots and safety glasses as necessary.
- **Tripping/Falling:** Precautions should be taken to avoid trip, slip, and fall accidents when climbing irregular or slippery surfaces. Before changing location visually survey the area for slippery surfaces and tripping hazards.



- Heat/Cold Stress: Wear clothing appropriate for environmental and weather conditions. Temperature extremes may be a hazard for consideration depending on the timing of the activity. Refer to below sections for discussion of recognition of symptoms and controls.

### **Biological/Vector Hazards**

- Ticks/Snakes/Rodent/Pathogens: Be cautious of snakes, and vector carriers such as ticks. Check clothing and skin for ticks after walking in brush. Wash hands before eating and drinking.

### **Personal Protective Equipment Required to Address General Site Hazards**

- Level of Protection: D
- Protective Clothing: Issued work clothes or disposable tyvek
- Head Gear: Safety glasses
- Gloves: Latex or nitrile (when conducting groundwater sampling or handling corrosive or oxidizing reagents)
- Footwear: Sturdy work shoes

## **5.0 OTHER HEALTH AND SAFETY PLAN ELEMENTS**

### **5.1 REVISIONS/ MODIFICATIONS TO THE HASP**

The following actions will warrant revision and approval of this plan by the appropriate health and safety disciplines:

- Change in tasks (or previously unidentified tasks) that could impact employee health and safety.
- Changes in hazards (unknown or not previously addressed) which require a significant change in, or addition to, respiratory protection (as defined in exemptions to the plan modifications), physical/barrier protection features, or other engineering controls.

#### **5.1.1 Modifications allowed**

The SSHO may upgrade PPE. These changes must be documented in the field logbook. The change and reason or evidence for the change must also be documented in the field logbook. For upgrades to include respiratory protection (including air-purifying and supplied air) for previously unidentified non-radiological issues or contaminants such as VOCs, the appropriate health and safety disciplines must be contacted. The SSHO will approve and document changes in PPE in the field logbook. Upgrades to include respiratory protection will require the SSHO to ensure workers have 40 Hour HAZWOPER Training and to assess any additional medical surveillance requirements.

### **5.2 MONITORING**

Historical site data indicate that chemical exposure of site personnel will not be a significant concern within the scope of this project. However as only limited site information is available,



monitoring may be required for all field activities. Site monitoring requirements may change based on site conditions. All changes must be documented in the site logbook.

### **5.3 SITE AND SPILL CONTROL**

Site access will be controlled by the developer. An exclusion zone may be required for drilling operations and other field activities if required to reduce the accidental distribution of hazardous substances from contaminated areas to clean areas. The SSHO will determine, as needed, the locations of the support zone, contamination reduction zone, and the exclusion zone. Personnel accessing the zones must meet access requirements as stated in this plan.

### **5.4 PERSONAL PROTECTIVE EQUIPMENT**

Level D protection is normally used when the potential for personnel contamination is low, as is the case with this project. Level D protection will include work clothing or disposable tyvek overalls. Details and special requirements have been covered in the hazard control sections of the specific tasks in above sections. Unexpected new hazards will require a reassessment of the specified PPE.

### **5.5 TEMPERATURE EXTREMES AND SITE CHARACTERISTICS**

The effect of temperature extremes on personnel is a primary hazard associated with the activities conducted at the site. Symptoms and controls related to temperature extremes are considered in detail in this section.

Field activities conducted during the summer or winter pose a hazard because of temperature extremes. Since the project site is located in a relatively open area, workers will dress appropriately for environmental conditions, wearing clothing that provides reasonable protection against winter cold and summer sun. Although extreme physical exertion will not be likely within the scope of this project, during hot weather workers are encouraged to be aware of their own symptoms of heat stress (headaches, dizziness, increased heart rate), to drink plenty of water, and to take breaks as needed. Heat stress symptoms, remedies, and monitoring are discussed in below sections. Cold exposure effects are discussed in below sections.

Workers are also encouraged to apply insect repellent and/or sunscreen as needed prior to field activities. Workers should exercise caution by visually inspecting their immediate area of activity for presence of poisonous/harmful plant, insect, and animal species as well as any hazard resulting from previous human activity.

#### **5.5.1 Effects and Prevention of Heat Stress**

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur. They can range from mild symptoms such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement, to death.

Heat-related health concerns can include the following:

**Heat rash:** Caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat and is a nuisance.





**Heat cramps:** Caused by profuse perspiration combined with inadequate fluid intake and chemical replacement, particularly salts. Signs include muscle spasm and pain in the extremities and abdomen.

**Heat exhaustion:** Caused by increased stress on various organs to meet increased demands to cool the body. Signs include shortness of breath; increased pulse rate (120-200 beats per minute); pale, cool, moist skin; profuse sweating; dizziness; and lassitude.

**Heat stroke:** Is the most severe form of heat stress. Body must be cooled immediately to prevent severe injury and/or death. Signs include red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; and possibly coma. Medical help must be obtained immediately.

Medical attention must be obtained for the more serious symptoms of heat stress. One or more of the following methods are recommended to help reduce the potential for heat stress:

- Provide plenty of liquids. To replace body fluids (water and electrolytes) lost due to sweating, use a 0.1 percent saltwater solution, more heavily salted foods, or commercial mixes. The commercial mixes may be preferable for those employees on a low-sodium diet.
- Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency.
- Wear long cotton underwear, which acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
- Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
- In extremely hot weather, conduct non-emergency response operations in the early morning or evening.
- Ensure that adequate shelter is available to protect personnel against sun, heat, or other adverse weather conditions that decrease physical efficiency and increase the probability of accidents.
- In hot weather, rotate workers wearing protective clothing.
- Maintain good hygiene frequently changing clothing and showering daily. Clothing should be permitted to dry during rest periods. Workers who notice skin problems should immediately consult medical personnel.



### 5.5.2 Cold Exposure

Persons working outdoors in temperatures at or below freezing may suffer from cold exposure. During prolonged outdoor periods with inadequate clothing for protection, the effects of cold exposure may occur even at temperatures well above freezing. Cold exposure may cause severe injury due to freezing of exposed body surfaces (frostbite), or profound generalized cooling (hypothermia), possibly resulting in death. Areas of the body which have high surface area-to-volume ratios such as fingers, toes, and ears are the most susceptible to frostbite.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

**Frost nip or incident frostbite:** characterized by sudden blanching or whitening of skin.

**Superficial frostbite:** skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.

**Deep frostbite:** tissues are cold, pale, and solid; extremely serious injury.

Systemic hypothermia, or lowering of the core body temperature, is caused by exposure to freezing or rapidly dropping temperatures. Symptoms are usually exhibited in five stages: 1) shivering and loss of coordination; 2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95°F (35°C); 3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; 4) freezing the extremities; and 5) death.

## 5.6 DECONTAMINATION

Contactors and its subcontractors will maintain on-site decontamination equipment such as potable water,alconox and water reservoir tank. Groundwater sampling and drilling equipment will be decontaminated between well installation, sampling event, and prior to mobilization on or off site.

Decontamination of personnel will be conducted only in the unexpected event that contamination is detected. At a minimum, personnel who have conducted work at the site will wash their hands prior to eating or drinking. Contractors personnel will supervise, assist, and document incidents involving personnel contamination

## 5.7 EMERGENCY PREPAREDNESS/RESPONSE

The first worker who notices that a medical emergency or personal injury has occurred will immediately make a subjective decision as to whether the emergency is life threatening and/or otherwise serious.

### Life-Threatening and/or Otherwise Serious Incident

If a life-threatening incident occurs, those persons recognizing the situation should do whatever actions in their capabilities to reduce the threat and then the SSHO will be contacted. The SSHO



will immediately notify the Emergency Medical Services (EMS) and implement emergency action procedures to have someone meet and guide EMS to the incident location.

The SSHO will be kept apprised of the situation and the location of the victim(s). As the SSHO proceeds to the accident scene, communications channels will be opened and kept on standby until the SSHO has surveyed the scene and performed a primary survey of the victim. The SSHO will provide emergency action guidance consistent with the injury and will relay the appropriate information to the site person meeting the EMS.

Depending on the nature of the injury and the location at which the injury occurred, the SSHO will determine whether the person can be moved or whether the EMS team will need to come into the work area to assist the victim. Should the victim be injured in the work zone, all appropriate life-saving methods will be exercised in that area before attempting decontamination (if required) of the victim. The extent of emergency decontamination performed will depend on the severity of the injury or illness and the nature of the contamination. If the emergency is such that emergency decontamination cannot be performed safely, the victim will be given necessary first-aid treatment and wrapped in a blanket prior to transportation by EMS.

If heat stress is a factor in a victim's injury/illness, all protective clothing will be removed from the victim immediately.

#### Non-Life-Threatening Incident

Should it be determined that no threat to life is present, a co-worker will assist the injured person and contact the SSHO as soon as reasonably possible. The SSHO will notify the Contractor of the incident. For all non-life threatening injuries, all medical assistance will be provided outside the work zone to reduce the spread of contamination to medical personnel or equipment.

All emergency services can be reached by dialing 911 from any facility or mobile telephone. Access to phones and/or radios will be provided to onsite personnel. The Emergency Response Coordinator (ERC) will coordinate all emergency response operations.

If an injury occurs at the site, the route to the hospital is shown in Figure 2. Emergency telephone numbers are given below.

### **EMERGENCY CONTACTS**

Ambulance:	911
Police:	911
Fire Department:	911
Hospital:	911



G.C. Environmental, Inc, 22 Oak Street, Bay Shore, New York

(631) 206-3700

Nearby Hospital:

(718) 670-5000

Flushing Hospital Medical Center  
4500 Parsons Boulevard  
Flushing, Queens, New York 11355

A hospital route map is presented in Appendix C.

## **6.0 TRAINING/MEDICAL REQUIREMENTS**

### **6.1 SITE-SPECIFIC HAZARD COMMUNICATION AND ACCESS BRIEFING**

Since different training requirements may be needed based on the nature of different tasks to be performed, specific training requirements may be identified. However, generally applicable training requirements are presented here. Visitors not entering any exclusion zone or contamination reduction zone who have very limited potential for exposure to contaminants require:

#### **1. Site-specific hazard communication and access briefing.**

- All project personnel performing hands-on work that could potentially expose them to hazardous substances, safety, or health hazards will meet the following training requirements:

#### **2. General Employee Training (GET)**

- 10 hour OSHA training, or equivalent (Note: for certain types of low risk work, 8 or 24 hour training is acceptable)
- Site-specific hazard communication and access briefing

Prior to beginning work at the project site, all personnel will review this Health and Safety Plan and sign the training acknowledgment form (Appendix C). The site-specific hazard communication and access briefing is documented in the project logbook. If site conditions change or other hazards are detected, the training and access requirements will be revised accordingly.

### **6.2 MEDICAL SURVEILLANCE**

A medical surveillance program will be conducted in accordance with the requirements of 29 CFR 1910.120 for:

- All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.
- All employees who wear a respirator for 30 days or more a year or as required by 29 CFR 1910.134.



- All employees who are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.
- Members of HAZMAT teams.




All contractors' employees receive periodic medical examinations. Because of the low potential for exposure to hazardous agents, it is not expected that additional medical surveillance will be required for any personnel undertaking this project. If necessary, non-contractors personnel will be required to acknowledge coverage by a medical surveillance program sufficient to satisfy the requirements of 29 CFR 1910.120 (Appendix C).

## 7.0 G.C. ENVIRONMENTAL, INC. APPROVALS

This HASP has been prepared for the following project:

35-32 College Point Boulevard  
Flushing, New York 11354  
GCE Project Number: 12-384-00

This HASP has been reviewed and approved by the following G. C. Environmental personnel:

	04/14/16
Thomas Becker Site Supervisor	Date
	04/14/16
Fulya Toylular Principal Investigator	Date
	04/14/16
Gregory Collins Site Safety and Health Officer	Date

[illegible]

This Health and Safety Plan has been prepared solely for the use of GCE personnel. It is supplied to you for informational purposes only and may not be relied upon for protection of your employees. The Subcontractor is responsible for providing, at its cost, all personal protective clothing and equipment required for its employees to perform their work in a safe manner and in compliance with all applicable state and federal OSHA regulations. Subcontractor is responsible for ensuring that such equipment is in good condition and is properly inspected and maintained. Subcontractor must, at a minimum, use the equipment and follow the procedures described in this HSP. Failure to do so may result in immediate termination of Subcontractor's services. This does not relieve Subcontractor of the responsibility to provide equipment and institute procedures affording a greater degree of protection than those specified in this HSP should Subcontractor determine such measures are necessary to protect the health and welfare of its employees, second-tier subcontractors or others under its control or direction.



## **APPENDIX A**

### **CHEMICAL DESCRIPTIONS**

## CHEMICAL DESCRIPTIONS

The following general chemical descriptions are presented for chemicals that are of importance. Each chemical description includes physical and odor recognition characteristics, health effects associated with exposure, and exposure limits expressed as an eight-hour time weighted average (TWA). Provided are federal OSHA ("OSHA") permissible exposure limits (PELs; located in 29 CFR 1910.1000).

Acenaphthene is a polycyclic aromatic hydrocarbon (PAH) consisting of naphthalene with an ethylene bridge connecting positions 1 and 8. It is a colorless solid. Coal tar consists of about 0.3% of this compound.

Phenanthrene is a polycyclic aromatic hydrocarbon composed of three fused benzene rings. The name *phenanthrene* is a composite of phenyl and anthracene. In its pure form, it is found in cigarette smoke and is a known irritant, photosensitizing skin to light. Phenanthrene appears as a white powder having blue fluorescence.

Naphthalene is an organic compound with formula C<sub>10</sub>H<sub>8</sub>. It is the simplest polycyclic aromatic hydrocarbon, and is a white crystalline solid with a characteristic odor that is detectable at concentrations as low as 0.08 ppm by mass.

### Effects with Exposure:

**Eyes:** Moderate irritant. Contact with liquid or vapor may cause irritation.

**Skin:** Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

**Ingestion:** The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death. Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

**Inhalation:** Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**Chronic Effects and Carcinogenicity:** PAH compounds have the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity.

**Medical Conditions Aggravated by Exposure:** Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

### Exposure Limits:

#### Components:

Naphthalene 10 ppm	Benzo pyrene 0.02 ppm
Benz (a) anthracene 0.02 ppm	Fluorene: no limits setup
Benz (b) fluoranthene 0.02 ppm	Acenaphthene: no limits setup

## **APPENDIX B**

### **G.C. ENVIRONMENTAL FORMS**

Date \_\_\_\_\_ GCE Project No. \_\_\_\_\_

Project Name \_\_\_\_\_ Type of Activities \_\_\_\_\_

Type of PID/FID \_\_\_\_\_ Serial No. \_\_\_\_\_

Initial Calibration Reading \_\_\_\_\_ End-of-Use Calibration Check \_\_\_\_\_

Calibration Standard/Concentration \_\_\_\_\_

Mini-RAM Serial No. \_\_\_\_\_ Zeroed in Z-Bag? ☐ Yes ☐ No

Time	Activity/Location	PID/FID (ppm)	Mini-RAM (mg/m³)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Name (print) \_\_\_\_\_ Signature \_\_\_\_\_

Project Name \_\_\_\_\_ GCE Project No. \_\_\_\_\_

Project Activities \_\_\_\_\_

	YES	NO	N/A
<i>Written Health and Safety Plan (HSP) is on site</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Addenda to the HSP are documented on site</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Information in the HSP matches conditions and activities at the site</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>HSP has been read and signed by all site personnel, including visitors</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Daily tailgate safety meetings have been held and documented</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Site personnel have appropriate training and medical clearance</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Air monitoring is performed and documented as described in the HSP</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Air monitoring equipment has been calibrated daily</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Site zones are set up and observed where appropriate</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Access to the work area limited to authorized personnel</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Decontamination procedures are followed and match the requirements of the HSP</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Decontamination stations (including hand/face wash) are set up and used</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Personal protective equipment used matches HSP requirements</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Hearing protection used where appropriate</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Respirators are properly cleaned and stored</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Trenches and excavations are in compliance with federal, state, and local safety requirements before worker entry</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Spoils are placed no closer than 2 feet from the edge of an excavation</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Emergency and first aid equipment is on site as described in the HSP</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Drinking water is readily available</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Accessible phone is readily available for emergency use</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Proper drum and material handling techniques are used</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Drums and waste containers are labeled appropriately</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Extension cords are grounded and protected from water and vehicle traffic</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Ground-fault circuit interrupters (GFCI) are used with electrical equipment</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Tools and equipment are in good working order</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Lighting is adequate</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Compressed gas cylinders are upright and secured</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes (All "no" answers must be addressed and corrected immediately. Note additional health and safety observations here): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Conducted By: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_ GCE Project No. \_\_\_\_\_

*Project Name* \_\_\_\_\_ *Specific Location* \_\_\_\_\_

Type of Work \_\_\_\_\_

*Chemicals Present* \_\_\_\_\_

## SAFETY TOPICS DISCUSSED

*Protective Clothing/Equipment* \_\_\_\_\_

*Hazards of Chemicals Present* \_\_\_\_\_

---

*Physical Hazards*

*Special Hazards* \_\_\_\_\_

*Other Topics* \_\_\_\_\_

## ATTENDEES

*Name (please print)*

*Signature*

[illegible]

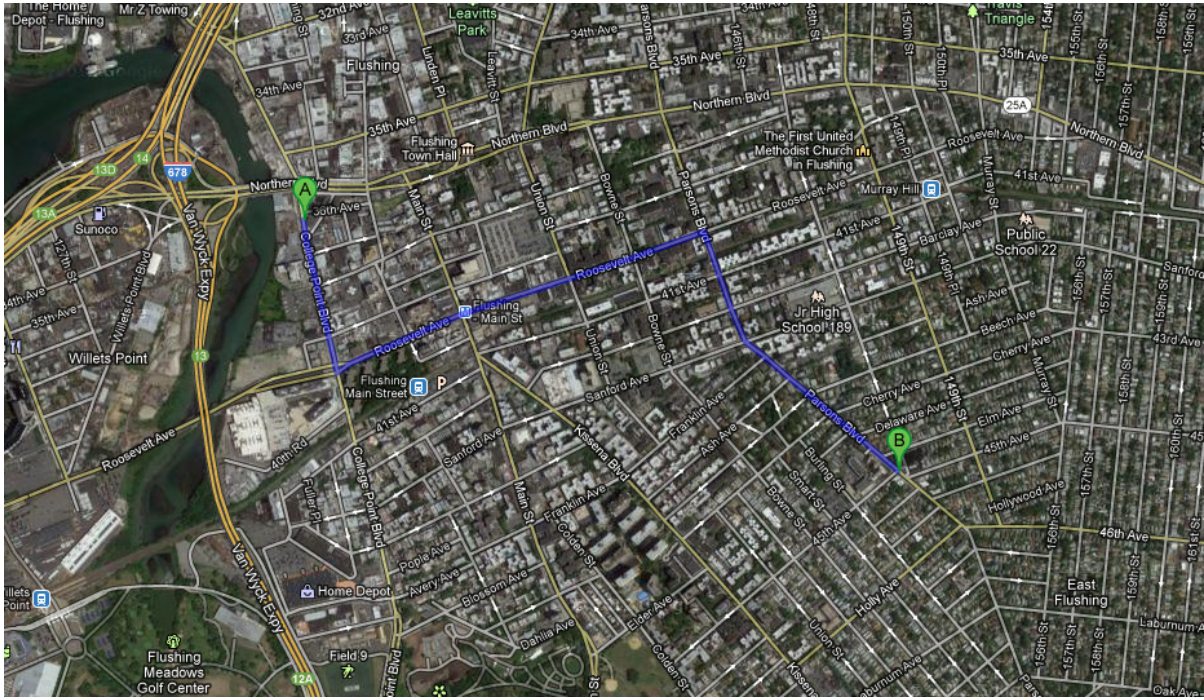


## **APPENDIX C**

### **HOSPITAL ROUTE MAP**



## ROUTE TO HOSPITAL



### Driving Directions to New York Downtown Hospital

4500 Parsons Boulevard,  
Flushing, New York 11355  
from 35-32 College Point Boulevard, Flushing, New York 11345:

1. Head south on College Point Blvd toward King Road (0.3mi)
2. Turn left on Roosevelt Avenue (0.7mi)
3. Turn right on Parsons Blvd (0.6 mi)  
Destination will be on the right.