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June 9, 2011

Mr. R. Scott Deyette
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233

Subject: Revised Summary Work Plan Letter - Supplemental Remedial Investigation Activities
Former Inwood Gas Holder Site
Inwood, New York
NYSDEC Site No.: 1-30-121
Order on Consent Index #: A2-0552-0606

Dear Mr. Deyette:

On behalf of National Grid USA (Grid), AECOM is pleased to provide you this revised summary work plan letter describing the additional field investigation activities to be undertaken as part of the Remedial Investigation at the Former Inwood Gas Holder Site in Inwood, New York. The additional services to be provided are based upon our meeting on November 22, 2010 with Mr. Thomas Campbell and Mr. Ted Leissing of National Grid, Mr. Scott Olson of AECOM, and me, as well as your comments to Mr. Leissing via email dated May 17, 2011. Based upon our discussions, it was determined that the following areas at the site required further delineation:

- The extent of soil contamination which exists on the eastern portion of the site located west of the concrete saddles for the former propane tanks and south of the former gas holder foundation;
- The area of soil contamination detected in test pits TP-14, TP-15, and soil boring SB-17 which appears to contain contamination that is different from that found on the eastern portion of the site;
- Evaluate the potential migration of contaminated ground water from offsite sources located to the north and east of the site.
- Evaluate potential contamination via soil vapors from the eastern and southwestern portions of the site.

To further evaluate these areas, AECOM will be performing the following field activities:

ADVANCEMENT OF ADDITIONAL SOIL BORINGS

An additional 15 soil borings will be advanced at the site to assist in evaluating the depth and extent of contamination at the site. Five soil borings (SB-38 through SB-42) will be advanced in the area where petroleum contamination and free phased NAPL was encountered in monitoring well GW-9 and in test pits TP-14 and TP-15. Seven soil borings (SB-43 through SB-49) will be advanced around the area of known contamination located on the eastern portion of the site. Three additional soil borings will be advanced to address the following areas of concern:

- Two soil borings (SB-50, SB-51) will be advanced in the northwest corner of the site to assist in the evaluation of chlorinated solvents detected in SB-6. SB-50 will be located to the south of SB-6 while SB-51 will be advanced north of SB-6 along Nassau Avenue.

- One borings (SB-52) will be advanced in the northeast corner of the site near the intersection of Sheridan Boulevard and Nassau Avenue to evaluate the potential for offsite migration of contamination onto the site.

The locations of the proposed soil borings are shown on Figure 1. Table 1 provides summary information regarding the borings, including their designations, sampling rationale, anticipated completion depth, and the laboratory analyses to be performed. Out of the 15 proposed soil borings, eight locations will be converted into monitoring wells. Select locations have been identified for shallow/intermediate well pairs as shown. Depending on the subsurface soil and hydrogeologic conditions encountered during the RI field work, installation of shallow/intermediate/deep well triplets may be considered.

Based upon the previous sampling activities conducted at the site, it is anticipated that the borings completed in the overburden soil will be advanced to varying depths (a maximum of 40 feet bgs) to delineate the vertical extent of fill, residual holder operation related material, and petroleum residuals previously observed in the soils at the site. If impacts are observed at the proposed termination depth in any boring, National Grid will consult with NYSDEC to determine the appropriate course of action, with a goal of obtaining additional information for the vertical delineation in this effort. In the event that impacts are observed on a base confining layer, such as the competent clay encountered at the site, isolation casing will be used at select locations to investigate soil conditions beneath the confining layer.

Based on previous investigation methods, the subsurface borings will be advanced using a direct-push (Geoprobe™) drilling rig equipped with Macro-Core™ samplers. Continuous soil samples will be collected from the ground surface to the bottom of the borehole for both field characterization (photoionization detector screening and observations) and for the collection of samples for chemical analyses.

Soil samples obtained will be logged by a geologist who will record such data as the presence of fill material or subsurface structures, the nature of each geologic unit encountered, observations regarding moisture content, the results of PID soil headspace readings, and visual and olfactory observations regarding the presence of hydrocarbon-like or other residuals. The soils will be logged in accordance with the National Grid protocols (KeySpan, 2005) as detailed in the Field Sampling and Analytical Plan (FSAP) located in Appendix C of the approved February 2010 Remedial Investigation (RI) Work Plan.

Three subsurface soil samples are proposed for laboratory analysis from each soil boring. The first sample will be collected at the depth of greatest apparent contamination from the 0 to 5 feet bgs interval. It is anticipated that two soil subsurface samples will be collected from depths greater than 5 feet bgs in each soil boring. Samples will be collected from the most apparently impacted intervals based on PID screening and field observations. If impacts are not encountered, a sample will be collected from the 1-foot interval above the peat layer encountered at the site. The final sample will be collected at the first clean interval (if impacts are encountered) or at the bottom of the boring to confirm “non-impacted” conditions.

As per our November 22, 2010 discussions and as outlined on Table 1, the subsurface soil samples will be analyzed for VOCs (USEPA Method 8260B); SVOCs (USEPA Method 8270C); RCRA 8 Metals (USEPA Methods 6010 and 7000-series); and free cyanide (extraction by EPA method 9013A and analysis by Microdiffusion, ASTM International method D4282-02). Samples of grossly impacted soil containing visible tar-like or oil-like NAPL will not be sampled for laboratory analyses. These “residual holder operation related or other source” materials will be assumed to be impacted to the extent that management will be required by the NYSDEC. Samples of NAPL material may be collected for forensic analysis (i.e., petroleum fingerprinting) to identify and/or better evaluate the potential source of the impacts.

INSTALLATION OF ADDITIONAL MONITORING WELLS

An additional 13 monitoring wells with 10 feet of screen will be installed at the site to assist in both the delineation of ground water contamination at the site as well as to evaluate possible impacts from offsite sources. Eight of the wells will be installed with soil borings previously identified as well as at five additional locations. The depths of the monitoring wells will vary based upon the contamination encountered during the previously two rounds of ground water sampling from the existing monitoring wells. Four of the monitoring wells will be considered shallow and will be screened at depths between 7 to 20 feet bgs. Seven of the wells are considered intermediate wells and will be screened at depths between 14 to 30 feet below ground surface. The remaining two wells are considered deep wells and will be installed at depths between 30 to 40 feet bgs. The monitoring well locations are shown on Figure 2 and detailed in Table 1. Depths and screen placement for the wells are approximate and will be adjusted, as needed, to account for geologic conditions and depths of impacts encountered during advancement of the soil borings. If required, the deeper wells will be installed with isolation casing in areas where shallower impacts are noted. Actual well design will depend on site conditions encountered, such as: thickness of the saturated zone; observed stratigraphy; and the presence, location, and thickness of NAPL, if any. Significant changes to the design presented in the approved February 2010 RI Work Plan and will be discussed with NYSDEC prior to implementation.

All wells will be constructed using a 2-inch diameter Schedule 40 PVC well riser with a 0.01-inch slotted screen (0.02-inch, if NAPL present) and a 2-foot long sump for monitoring the presence of any DNAPL. Grout will be tremied into the borehole annulus above the sand pack and the bentonite seal to complete the well to grade. Additional details for monitoring well installation are provided in the FSAP located in Appendix C of the approved February 2010 RI Work Plan.

WELL DEVELOPMENT

Each of the new monitoring wells will be developed not sooner than 24 hours after their installation to evacuate fine-grained sediments that may have accumulated within the well during installation. Well development methods are presented in the FSAP located in Appendix C of the approved February 2010 RI Work Plan.

GROUNDWATER SAMPLING

Two additional rounds of groundwater samples will be obtained from the new and existing monitoring wells. Sampling will not occur for a minimum of two weeks after the installation of the new wells to allow the wells to stabilize and recover. All the existing wells will be checked for the presence of light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquid (DNAPL). Water levels will be measured in all the wells, and a groundwater flow direction map will be prepared and included in the RI Report. Groundwater samples will be collected from all wells by low-flow purge and sample methods using either a peristaltic pump or submersible pump (bladder, Redi-flo$_{TM}$, or equivalent) with the down-well tubing or the pump placed at the approximate midpoint of the screened interval. At the ground surface, the water will pass through a sealed chamber containing probes which will measure the water temperature, pH, specific conductivity, oxidation-reduction potential, and dissolved oxygen. Samples of water discharging from the chamber will be collected at regular intervals and analyzed for turbidity using a hand-held field meter. After passing through this chamber, the water will be discharged to a calibrated five-gallon bucket where the pumping rate will be calculated. When this bucket is full, the water will be transferred into 55-gallon drums and temporarily stored awaiting offsite disposal. Purging rates will be set below the maximum sustainable flow rate in order to minimize drawdown within the well.

Groundwater analytical samples will be collected when water quality parameters have stabilized as detailed in the FSAP located in Appendix C of the approved February 2010 RI Work Plan. As per our November 22, 2010 discussions and as outlined on Table 1, the groundwater samples will be analyzed for VOCs (USEPA Method 8260B); SVOCs (USEPA Method 8270C); RCRA 8 metals (USEPA Methods 6010 and 7000-series); and total cyanide (extraction by EPA method 9013A and analysis by Microdiffusion, ASTM International method D4282-02).

SOIL VAPOR AND AMBIENT AIR SAMPLING

The approved February 2010 approved RI Work Plan identified that a single soil vapor soil sample would be collected between the former holder location and the existing warehouse in order to evaluate subsurface soil conditions in the area. This was not conducted during the initial RI activities as the depth to ground water in the area of the proposed sample location was encountered at a depth of less than 2 feet bgs. Based upon our November 22, 2010 discussions, the soil vapor sample will be collected as part of the additional RI activities even if ground water is encountered at shallow depths (i.e. less than 3 feet bgs). In addition, based upon our previous discussions and your comments dated May 15, 2011, a total of three additional soil vapor samples will be collected. The location of these samples is as follows:

- Along Sheridan Boulevard adjacent to monitoring well MW-11 (SV-2);
- In the southeast corner in the vicinity of the offsite structures associated with the sand and gravel operation (SV-3); and,
- In the northwestern corner of the site near SB-6 (SV-4).

The purpose of these additional samples is to determine the potential for indoor impacts of VOCs in the subsurface from offsite sources. An ambient air sample will be collected concurrently with each of the soil vapor sample. The results of the soil vapor and ambient air analyses will be used to determine whether a soil vapor intrusion survey is warranted.

The samples will be collected in general accordance with *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006) and the USEPA document entitled *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Office of Solid Waste and Emergency Response* (USEPA, 2002). Methods also are consistent with National Grid's Draft Standard Operating Procedure for Soil Vapor Intrusion Evaluations at National Grid Sites in New York State (National Grid, 2007). Collection of indoor air and sub-slab soil vapor samples are not proposed at this time.

The approximate sampling location for the soil vapor and ambient air samples are shown on Figure 3. The soil vapor sample is to be collected from a vegetated area with no impervious cover (concrete, asphalt or other) from a depth of approximately 3-5 feet bgs, depending on depth to water table. The samples will still be obtained even if ground water is encountered at shallower depths.

As previously discussed in the approved February 2010 RI Work Plan, the soil vapor and ambient air samples will be collected into batch certified clean 6 Liter SUMMA canisters through regulators set for an eight-hour sample duration, which conforms to the NYSDOH Guidance. A helium tracer will be used to test the soil vapor point for leaks. The ambient air and soil gas samples will be shipped overnight to a H2M Labs, Inc. in Melville, New York, NY ELAP-certified laboratory and analyzed for VOCs (including naphthalene) by USEPA SW846 Method TO-15, with an extended analyte list. The minimum reporting limit for the analysis will be at most one part per billion (1 to 7 micrograms per cubic meter depending on the molecular weight for each compound). Helium analysis will be performed using modified method ASTM D1945. The ambient air results will be evaluated by first comparing the VOC concentrations to typical background values published by NYSDOH. If compounds are detected above the typical range, the data will be evaluated to determine the sources of these compounds. For example, benzene may be associated with residual holder operation related

material but is also widely found in urban soil gas and ambient air due to gasoline. To distinguish between these sources, and prevent the false attribution of the benzene to residual holder operation related materials, compound ratios and the presence or absence of indicator compounds will be examined.

In addition to the standard TO-15 list of compounds, several additional compounds will be analyzed, including: 1,2,3-trimethyl benzene, 1-methylnaphthalene, 2-methylnaphthalene, tetramethylbenzene, indene, indane, thiophene, 2-methylpentane, isopentane, and 2,3-dimethylpentane. This list of additional compounds was developed specifically for use in evaluation of soil vapor intrusion at former holder sites. Indane, indene, and thiophene are usually associated with residual holder operation related impacts. The presence or absence of these indicator compounds will be used as a line of evidence to distinguish between residual holder operation related material and non-holder related material sources in the soil vapor and indoor air. Similarly, inclusion of the pentane compounds and MTBE will allow the presence of gasoline sources to be identified. In some cases, statistical analysis of the data may be used to distinguish among the sources. Additional information regarding the methods to be used for the soil vapor sampling is presented in the FSAP located in Appendix C of the approved February 2010 RI Work Plan.

COMPLAINCE WITH APPROVED RI WORK PLAN

Any additional sampling and quality assurance protocols, along with supplemental field activities not describe above (such as waste classification sampling and surveying activities) will be in accordance with the approved February 2010 RI Work Plan. The results obtained from this additional sampling will be included with the previous field and analytical results and submitted as a single RI Results Report.

If you have any questions, comments or require any additional information, please do not hesitate to contact me at (212) 798-8545 or via electronically at nelson.abrams@aecom.com .

Very Truly Yours,
AECOM

Nelson J. Abrams, P.G.
Senior Project Manager

Enclosures

Cc: T. Leissing, National Grid

Table 1
Proposed Supplemental RI Sample Location, Rationale, and Analytical Sample Summary
Inwood Former Gas Holder Site,
Inwood, New York

Location ID	Sample ID	Completion Depth*	Sample Depth	No. of Samples	Analyses	Rationale
Subsurface Soil (15 SBs)						
SB-38	SB-38 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils downgradient of petroleum impacts at GW9, MW9S/9I and GW15 locations. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-39	SB-39 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils north of limited NAPL lens encountered in SB35. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-40	SB-40 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils north of petroleum impacts at GW9. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-41	SB-41 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate sois between petroleum impacts at GW9 and mixed coal tar and petroleum related impacts located beneath the cleared area onsite. Borings to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-42	SB-42 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils north of petroleum impacts at GW9. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-43	SB-43 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils north of SB19 where free phase NAPL has been encountered. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-44	SB-44 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils to the south-southwest of the mixed coal tar and petroleum subsurface impacts located beneath the cleared area onsite. Borings to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-45	SB-45 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils to the south-southwest of the mixed coal tar and petroleum subsurface impacts located beneath the cleared area onsite. Borings to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-46	SB-46 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils to the south-southwest of SB32 and the mixed coal tar and petroleum subsurface impacts located beneath the cleared area onsite. Borings to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-47	SB-47 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils to the south/southeast of the mixed coal tar and petroleum subsurface impacts located beneath the cleared area onsite. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-48	SB-48 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils to the north/northeast of the mixed coal tar and petroleum subsurface impacts located beneath the cleared area onsite. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-49	SB-49 (depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils in the vicinity of the Pump House and Engine Room in the northeastern portion of the site. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-50	SB-50 depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils in the northwest corner of the site, upgradient of dissolved phase chlorinated solvent impacts at SB-6. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-51	SB-51 depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils in the northwest corner of the site, downgradient of dissolved phase chlorinated solvent impacts at SB-6. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.
SB-52	SB-52 depth)	Est. 30-40 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils at the northeast corner (upgradient) of the site. Boring to be advanced to silty-clay layer anticipated at 30-40 feet bgs.

Table 1
Proposed Supplemental RI Sample Location, Rationale, and Analytical Sample Summary
Inwood Former Gas Holder Site,
Inwood, New York

Location ID	Sample ID	Completion Depth*	Sample Depth	No. of Samples	Analyses	Rationale
Groundwater (13 MWs)			**Estimated Screen Interval (ft)**			
MW-5I	MW- 5I (date)	Intermediate; est.28 ft	est. 18 - 28 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality downgradient of dissolved phase impacts in MW-1I.
MW-5D	MW-5D (date)	Deep; est. 38 ft,	est. 28 - 38 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate deep groundwater quality downgradient of dissolved phase impacts in MW-1D.
MW11I	MW-11I (date)	Intermediate; est. 24 ft	est. 14 - 24 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality from potential upgradient offsite sources along Sheridan Boulevard.
MW-12S	MW-12S (date)	Shallow; est. 17 ft	est. 7 - 17 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate shallow groundwater quality downgradient of MW19S where DNAPL is present.
MW-13I	MW-13I (date)	Intermediate; est. 27 ft;	est. 17 - 27 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality from potential upgradient offsite sources along Nassau Avenue.
MW-38I (SB-38)	MW-38I (date)	Intermediate; est. 30 ft;	est. 20 - 30 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality downgradient of the dissolved phase impacts in MW9I.
MW-38D (SB-38)	MW-38D (date)	Deep; est. 40 ft	est. 30 - 40 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate deep groundwater quality downgradient of the dissolved phase impacts in MW9I.
MW-50S (SB-50)	MW-50S (date)	Shallow; est. 20 ft	est. 10 - 20 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate shallow groundwater quality downgradient of dissolved phase chlorinated solvent impacts detected at SB-6.
MW-50I (SB-50)	MW-50I (date)	Intermediate; est. 30 ft;	est. 20 - 30 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality downgradient of dissolved phase chlorinated solvent impacts detected at SB-6.
MW-51S (SB-51)	MW-51S (date)	Shallow; est. 20 ft	est. 10 - 20 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate shallow groundwater quality upgradient of dissolved phase chlorinated solvent impacts detected at SB-6.
MW-51I (SB-51)	MW-51I (date)	Intermediate; est. 30 ft;	est. 20 - 30 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality upgradient of dissolved phase chlorinated solvent impacts detected at SB-6.
MW-52S (SB-52)	MW-52S (date)	Shallow; est. 20 ft	est. 10 - 20 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate shallow groundwater quality at the northeastern (upgradient) corner of the site.
MW-52I (SB-52)	MW-52I (date)	Intermediate; est. 30 ft;	est. 20 - 30 ft	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Evaluate intermediate groundwater quality at the northeastern (upgradient) corner of the site.

Table 1
Proposed Supplemental RI Sample Location, Rationale, and Analytical Sample Summary
Inwood Former Gas Holder Site,
Inwood, New York

Location ID	Sample ID	Completion Depth*	Sample Depth	No. of Samples	Analyses	Rationale
Soil Vapor						
SV-1	SV-1 (date)	Immediately adjacent to existing warehouse building formerly part of property		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Screen soil vapor conditions between former holder location and existing warehouse building to determine potential for indoor air impacts within warehouse. Note: known upgradient potential sources of VOCs in soil exist (gas stations).
AMB-1	AMB-1 (date)	Ambient Air		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Ambient air sample will be taken in representative background/ambient location concurrent with collection of the SV-1 soil vapor sample.
SV-2	SV-2 (date)	Adjacent to Existing well GW-11 on the eastern portion of the site by Sheridan Boulevard		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Screen soil vapor conditions adjacent to existing well GW-11 to determine potential for indoor air impacts within future site buildings (if developed) from potential offsite sources of VOCs in subsurface. Note: known upgradient potential sources of VOCs in soil exist (gasoline and service stations).
AMB-2	AMB-2 (date)	Ambient Air		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Ambient air sample will be taken in representative background/ambient location concurrent with collection of the SV-2 soil vapor sample.
SV-3	SV-3 (date)	Southeastern portion of the site near the offsite sand and gravel operations.		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Screen soil vapor conditions to determine potential for indoor air impacts within offsite buildings (if developed) associated with the adjcent sand and gravel operations from potential offsite sources of VOCs in subsurface. Note: known potential sources of VOCs in soil exist along Sheridan Boulevard (gasoline and service stations).
AMB-3	AMB-3 (date)	Ambient Air		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Ambient air sample will be taken in representative background/ambient location concurrent with collection of the SV-3 soil vapor sample.
SV-4	SV-4 (date)	Northwestern portion of the adjacent to soil boring SB-6.		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Screen soil vapor conditions adjacent to boring SB-6 to determine potential for indoor air impacts within future site buildings (if developed) from potential offsite sources of VOCs in subsurface. Note: known upgradient potential sources of VOCs in soil exist (gasoline and service stations, industrial operations).
AMB-4	AMB-4 (date)	Ambient Air		1	VOCs (TO-15) + Naphthalene, select indicator compounds, and helium	Ambient air sample will be taken in representative background/ambient location concurrent with collection of the SV-4 soil vapor sample.

Notes

No. - number
ID - identification
NA - Not applicable
RCRA - Resource Conservation and Recovery Act
SS - Surface Soil
SB - Soil Boring (Subsurface Soil)
MW - Monitoring Well (Groundwater Sample)
SV - Soil Vapor
AMB - Ambient Air
VOCs - volatile organic compounds
SVOCS - semi-volatile organic compounds
CN - cyanide
TBD - To Be Determined in the field based on field observations.
* - Depths may be adjusted shallower if 10 feet into clean achieved.

LEGEND

- ACCESS ROAD
- MAJOR CONTOUR (10 FT INTERVALS)
- MINOR CONTOUR (2 FT INTERVALS)
- HISTORIC GAS HOLDER STRUCTURES
- WATERFRONT
- PROPERTY LINE
- APPROXIMATE LIMIT OF CLEARING
- INITIAL SOIL BORING
- PROPOSED SUPPLIMENTAL RI SOIL BORING

NASSAU AVENUE

SHERIDAN BOULEVARD

MOTT BASIN

FORMER GAS HOLDER (4,000,000 CUBIC FEET CAPACITY)

FORMER BOILER HOUSE

NATURAL GAS TRANSFER STATION

FORMER ENGINE ROOM

FORMER PUMP HOUSE

FORMER PROPANE TANKS

SB-51 SB-52 SB6 SB25 SB7 SB26 SB30 SB31 SB2 SB1 SB3 SB-50 SB4 SB29 SB18 SB24 SB-42 SB-43 SB-49 SB5 SB-39 SB-40 SB16 SB19 SB-48 SB11 SB35 SB17 SB-41 SB37 SB20 SB21 SB14 SB15 SB27 SB36 SB34 SB22 SB-38 SB23 SB-44 SB-45 SB13 SB32 SB-47 SB33 SB9 SB-46 SB28 SB10 SB12 SB8

14.0 12.0 10.0 8.0 6.0 4.0 2.0 0.0

1 INCH = 125 FEET

0 62.5 125 250 FEET

N

AECOM

NATIONAL GRID FORMER INWOOD GAS HOLDER SITE NASSAU AVE/SHERIDAN BLVD INWOOD, NY			SOIL BORING LOCATIONS PROPOSED & EXISTING
DATE: 2/2011	DRWN: HKM		FIGURE 1

J:\Rem_Eng\Project Files\National Grid\National Grid Inwood\GIS\Projects\NYSDEC_Submittal_2010_08\Update_2012_02\Figure_1_Soil_Borings_Proposed_and_Existing.mxd

AVENUE
NASSAU
BOULEVARD
SHERIDAN
MOTT BASIN
MW-13I
GW13
MW-51S/I
GW10
MW-52S/I
GW14
MW14I
FORMER GAS HOLDER (4,000,000 CUBIC FEET CAPACITY)
FORMER BOILER HOUSE
NATURAL GAS TRANSFER STATION
MW-50S/I
MW4I
MW4S
FORMER ENGINE ROOM
FORMER PUMP HOUSE
MW11S
MW11I
MW16S
MW16I
MW19S
GW9
GW12
MW21S
MW9S
MW-38I/D
MW9I
GW15
MW-12S
GW11
FORMER PROPANE TANKS
MW-11I
MW1D
MW1I
GW6R
GW1
GW5
GW2
MW8I
GW8
GW7
MW-55I/I
MW3I
GW3
MW15S
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0

LEGEND

- ACCESS ROAD
- MAJOR CONTOUR (10 FT INTERVALS)
- MINOR CONTOUR (2 FT INTERVALS)
- HISTORIC GAS HOLDER STRUCTURES
- WATERFRONT
- PROPERTY LINE
- APPROXIMATE LIMIT OF CLEARING
- HISTORIC GROUNDWATER MONITORING WELL
- NEW GROUNDWATER MONITORING WELL
- PROPOSED LOCATION OF INTERMEDIATE WELL
- PROPOSED LOCATION OF INTERMEDIATE AND DEEP WELL
- PROPOSED LOCATION OF SHALLOW WELL
- PROPOSED LOCATON OF SHALLOW & INTERMEDIATE WELL

AECOM

1 INCH = 125 FEET

0 62.5 125 250 FEET

N

NATIONAL GRID
FORMER INWOOD GAS HOLDER SITE
NASSAU AVE/SHERIDAN BLVD
INWOOD, NY

GROUNDWATER MONITORING WELL LOCATIONS
PROPOSED AND EXISTING

DATE: 2/2011 | DRWN: HKM | | | FIGURE 2

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NASSAU AVENUE

SV-1

SV-2

SV-3

SV-4

FORMER GAS HOLDER (4,000,000 CUBIC FEET CAPACITY)

FORMER BOILER HOUSE

NATURAL GAS TRANSFER STATION

FORMER ENGINE ROOM

FORMER PUMP HOUSE

FORMER PROPANE TANKS

BOULEVARD

SHERIDAN

MOTT BASIN

10.0

14.0

12.0

10.0

8.0

6.0

4.0

2.0

0.0

LEGEND

- ACCESS ROAD
- MAJOR CONTOUR (10 FT INTERVALS)
- MINOR CONTOUR (2 FT INTERVALS)
- HISTORIC GAS HOLDER STRUCTURES
- WATERFRONT
- PROPERTY LINE
- APPROXIMATE LIMIT OF CLEARING
- LOCATION OF SOIL VAPOR SAMPLE

AECOM

1 INCH = 125 FEET

0 62.5 125 250 FEET

N

NATIONAL GRID
FORMER INWOOD GAS HOLDER SITE
NASSAU AVE/SHERIDAN BLVD
INWOOD, NY

SOIL VAPOR SAMPLE LOCATIONS

DATE: 5/2011 | DRWN: HKM | | | FIGURE 3

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