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February 19, 2014

Mr. David Szymanski
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203

RE: Corrective Measures Work Plan Addendum #3
Mineral Springs Road Former Manufactured Gas Plant Site

Dear Mr. Szymanski,

On September 26, 2013 National Fuel Gas Distribution Corporation (National Fuel) submitted a Corrective Measures Work Plan (CMWP) for the Fence Replacement Area at National Fuel's Mineral Springs Road Former Manufactured Gas Plant Site (Site). New York State Department of Environmental Conservation (NYSDEC) approved the CMWP in a letter dated October 1, 2013. Between November 4 and 15, 2013, National Fuel performed the field work described in the work plan and the related CMWP Addenda #1 and #2 dated November 1 and 6, 2013, respectively.

The CMWP and addenda included collection and analysis of 21 confirmatory soil samples and four residential soil samples along with required quality assurance samples. Sample locations are presented on Figure 1. The confirmatory soil samples were collected at the corrective measures excavation limits to characterize the soils along the National Fuel western property line for potential impacts from former manufactured gas plant (MGP) operations. The residential soil samples were collected to evaluate if pooling water on adjacent residential properties had any impacts on the surface soils in those areas. The laboratory analytical results indicated that cyanide, arsenic, lead, and cadmium concentrations exceed Title 6 NYCRR Part 375-6.8 Residential Use soil cleanup objectives (SCOs) in a number of the confirmatory soil sample locations, and only cyanide exceeded the Residential Use SCO in two of the residential samples. The data collected during the CMWP sampling was submitted to NYSDEC in a letter dated December 13, 2013.

The CMWP specified that if concentrations of MGP residuals exceeded SCOs for residential use, a plan for additional sampling would be developed and implemented. Possible elements of the sampling program were discussed in a conference call with participants from NYSDEC, New York State Department of Health (NYSDOH), National Fuel, and AECOM Technical Services, Inc. (AECOM) on December 20, 2013 and again on January 17, 2014. The purpose of this correspondence is to present CMWP Addendum #3, supplemental soil sampling and characterization for the Site and immediately adjacent areas of properties along the east side of Calais Street.

Site Conceptual Model

Soil observed in hand cores that were collected along the National Fuel property line at locations CS-3, CS-4, CS-6, CS-7, CS-8, and CS-9 during Corrective Measures implementation indicate that the soil at the property boundary consists of 10 to 20 inches of non-native soil (fill) underlain by an undisturbed silty clay layer (native). Figure 2 presents a cross-sectional view of the six hand borings collected along the National Fuel property line. During implementation of the Corrective Measures perched groundwater accumulated in the excavation. In addition, standing water has occasionally been observed in localized depressions along the property line and on neighboring properties during wet seasons. The occurrence of the perched/standing groundwater is presumably due to the low permeability soils observed in the area.

Sampling Objectives

The sampling program described in this CMWP Addendum #3 is intended to address the data needs pursuant to data collection efforts during the Corrective Measures work. These data needs / sampling objectives include:

- Determine if cyanide or other MGP related constituents are present in surface soil at the National Fuel property line and immediately adjacent areas of neighboring properties along Calais Street.
- Determine the presence or absence of non-native (fill) materials at the National Fuel property line and immediately adjacent areas of neighboring properties along the east side of Calais Street.
- If fill materials are present, determine they have been impacted from historical MGP operations.
- Determine if the perched groundwater has been impacted from historical MGP operations.

Sampling Scope of Work

Surface Soil - Primary Locations and Samples

To address the goal of determining if cyanide and certain metals are present in surface soil at the National Fuel property line and immediately adjacent areas of neighboring properties along Calais Street, a series of surface soil samples will be collected. The surface soil samples will be collected from the upper two inches beneath any vegetative layer/root zone, as recommended by NYSDEC Division of Environmental Remediation (DER) DER-10, Technical Guidance for Site Investigation and Remediation.. The sample locations and rationale are described in the following paragraphs.

During the Corrective Measures implementation, cyanide was detected above residential SCOs at residential surface soil sample locations RS-1 and RS-3. To further investigate these analytical results, four new residential surface soil samples will be collected. Surface soil samples will be re-collected from locations RS-1 and RS-3; and two additional surface soil samples will be collected from adjacent areas, one to the north of sample RS-1 and one to the south of sample RS-3. The sample locations are presented on Figure 3B.

In addition, surface soil samples will be collected from a series of soil borings installed parallel to the National Fuel property line to further evaluate soil conditions at (transect E2 shown on Figure 3A) and adjacent to the property line (transects W10 and W20 shown on Figure 3A and 3B). The E2 transect will be established two feet east of the National Fuel property line, will begin approximately 50 feet north of CS-1, and will run northward for approximately 300 feet. The W10 transect will be established approximately 10 feet west of the National Fuel property line, will start near CS-11 (the southernmost corrective measures confirmatory sample without an exceedance), and run northward for approximately 650 feet. The W20 transect will be established approximately 20 feet west of the National Fuel property line. Boring locations are spaced approximately 50 feet apart along each transect.

The RS, E2, W10, and W20 surface soil samples will be collected from the top two inches of soil below the vegetative layer. All surface soil samples from the RS, E2, and W10 locations will be analyzed. Analysis of these samples will be performed with a rapid turn-around time so that additional samples may be analyzed within 14 days, the allowable sample holding time, if necessary. The surface soil samples from W20 locations will be collected but held pending results of the W10 locations as explained in the Contingency Borings section. The samples will be analyzed for total cyanide, free cyanide, mercury, lead, cadmium, and arsenic. If additional impacts such as elevated PID readings, odors, or staining are observed in the soil borings; the samples will also be analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), and Target Analyte List (TAL) metals. The sample identification scheme and laboratory methods are presented on Table 1 and 2, respectively. Sample handling, packaging, and shipping will be performed as presented in the CMWP.

Presence or Absence of Fill Materials - Primary Locations and Subsurface Fill/Soil Samples

To address the goal of determining the presence or absence of non-native (fill) materials at the National Fuel property line and immediately adjacent areas of neighboring properties along Calais Street, a series of soil borings will be advanced to depths estimated at four feet. These depths are based on hand core information collected during the Corrective Measures implementation and shown on Figure 2. The sample locations and rationale are described in the following paragraphs.

The soil borings will be advanced along the E2 and W10 transects as shown on Figures 3A and 3B. Actual locations may vary depending on accessibility and the locations of gardens or structures. Samples will be collected at least five feet from any structure or garden to avoid soil associated with their placement.

The surface soil samples described in the previous section will be collected during the advancement of these borings.

Soil borings will be advanced to an approximate depth of four feet using direct-push technology. If native soil is not encountered at four feet, the boring will be extended to eight feet. Soil samples will be collected continuously from ground surface to terminal depth of the boring using a macro-core sampler, or similar. The recovered soil samples will be observed for visual or olfactory evidence of contamination, and screened with a photo-ionization detector (PID) for volatile organic vapors. The AECOM geologist will log the soil core on a soil boring log, indicating the intervals, types of soil observed, and any other defining characteristics such as olfactory or PID observations.

If fill materials are present below the surface soil sample, a subsurface sample will be collected from the interval below the surface soil sample to the top of native soil. If fill materials are encountered in a boring, a subsurface soil sample will also be collected from the top six inches of native soil and held for potential analysis as described below.

A minimum of thirty percent of the fill material (if present) samples collected along transects E2 and W10, will be analyzed upon collection. Selection of samples for analysis will be based on either the presence of visual impacts, odors, PID readings, differences in the types of fill, or location. Fill material samples selected for analysis based on location will be weighted heavily towards borings located adjacent to either confirmatory sample or residential sample locations with SCO exceedances. If differing types of fill materials are encountered, representative sample intervals from each will be analyzed. At a minimum, at least one fill sample will be analyzed from each property (National Fuel or respective neighboring properties), if present. Analysis of these samples will be performed with a rapid turn-around time so that additional samples may be analyzed within 14 days, the allowable sample holding time, if necessary. The remaining subsurface fill material samples will be held pending results of the initial analyses. The top of

native clay samples will be held pending analysis of the overlying fill samples. If contaminants are detected above SCOs in surface soil samples from a particular location, that fact will be taken into account when selecting additional samples to analyze.

Contingent Boring Locations - Surface/Subsurface Fill/Soil Samples:

Additional, soil borings may also be advanced along transects W20 (20 feet west of National Fuel property line) and the east-west transects at N7, N3, S3, and S6 as shown on Figures 3A and 3B. These soil borings are contingent locations that will be advanced if fill materials are encountered in the adjacent W10 soil boring location. The east-west transects shown on Figures 3A and 3B are shown to represent potential boring locations, and may be relocated adjacent to transect W10 boring locations where fill materials were encountered. The contingent borings will be advanced and sampled in the same manner and to the same depths as the primary locations. Samples will be held for analysis pending results of the adjacent soil borings.

A surface soil sample, subsurface fill material (if present), and top of native soil sample (if fill is observed above) will be collected at each boring location as summarized in Table 4. The surface/subsurface samples will be delivered to the analytical laboratory but held for analysis pending the results of the RS, E2, and W10 sample analyses. Contingent fill or soil samples will be analyzed from W20, N7, N3, S3, or S6 locations where the MGP constituents of concern are measured at concentrations greater than residential SCOs at primary locations along E2 or W10.

Perched Groundwater Quality

In addition to soil sampling, an attempt will be made to collect perched groundwater samples from two locations. If perched groundwater is observed in soil borings, a temporary one-inch inner diameter pre-pack well will be installed in up to two boring locations with the screen interval positioned at a depth sufficient to capture the perched groundwater. The groundwater samples will be considered grab samples as well development will not be possible and traditional well installation techniques are unlikely to be employed (e.g., bentonite seal, protective casing). Perched groundwater will be removed from the temporary well using a low-flow sampling method such as a peristaltic pump and dedicated polyethylene tubing.

The groundwater samples will be submitted for the same analyses as the soil samples, including total cyanide, free cyanide, mercury, lead, cadmium, and arsenic. Sample methods are provided in Table 5.

Analytical QA/QC

Soil and groundwater samples will be handled in accordance with the CMWP. Samples will be analyzed at a NYS Department of Health ELAP-certified laboratory. Analytical reporting limits will be at or below the residential SCOs for each parameter tested. Quality control samples for soil samples, including field duplicate and matrix/matrix-spike duplicates will be collected and analyzed at a frequency of 1 per 20 samples. Efforts will be made to collect QA/QC samples from the temporary wells; however, the nature of temporary well construction may limit recharge to the well and sample volumes. Chain of custody procedures will be followed to document that contamination of samples has not occurred during container preparation, shipment, and sampling. All analytical data will be reported in a Level B data package by the laboratory and a Data Usability Summary Report will be prepared for all samples.

Decontamination

Decontamination of field equipment such as DPT tools, stainless steel bowls and spoons, etc., will be accomplished using the following procedures:

- Alconox™ (or equivalent) and potable water wash;
- Potable water rinse;
- Distilled/deionized water rinse;

Solvents will not be used in the field decontamination of such equipment. Decontamination will include scrubbing/washing with a laboratory grade detergent (e.g. Alconox™) to remove visible contamination, followed by potable (tap) water rinse.

Waste Management, Health and Safety, and Community Air Monitoring

Provisions for waste management, health and safety, and community air monitoring during the sampling will be implemented as described in the original CMWP.

Reporting

Preliminary and validated analytical data will be provided to NYSDEC and NYSDOH as soon as it is received from the laboratory. If the results of laboratory analysis indicate that a concentration greater than Residential Use SCOs for any analyzed constituent is present on the residential properties, NYSDEC will be verbally notified immediately. If the results of this sampling program indicate that no additional action is required, National Fuel will prepare and submit a corrective measures report that fully documents all activities that have taken place at the site as part of the corrective measures. If the results indicate additional actions are required, another corrective measures work plan addendum will be prepared. Full documentation of all sampling will be provided in that document.

If you have any comments or questions regarding this Addendum, please call Brad Walker (National Fuel) at 716-667-5559 or Tom Clark (AECOM) at (978) 905-2161.

Regards,

Thomas P. Clark, P.E.
Senior Engineer

Attachments: Figures; Tables

cc: B. Walker – National Fuel
T. Alexander – National Fuel
S. McLaughlin – NYSDOH
M. Forcucci - NYSDOH
D. Ripstein - NYSDOH
T. Raby - AECOM
Project File

Table 1
Sampling Scheme
National Fuel Gas Mineral Springs Former Manufactured Gas Plant
Fence Replacement Area Corrective Measure
January 2014

Sample Location		Sample Type		
N/S	E/W[1]	Surface Soil	Fill	Native
N1	E2	S	C	C
	W10	S	C	C
N2	E2	S	C	C
	W10	S	C	C
N3	E2	S	C	C
	W10	S	C	C
	W20	C	C	C
	W30	C	C	C
	W50	C	C	C
	W70	C	C	C
	W90	C	C	C
N4	E2	S	C	C
	W10	S	C	C
N5	E2	S	C	C
	W10	S	C	C
N6	E2	S	C	C
	W10	S	C	C
N7	E2	S	C	C
	W10	C	C	C
	W20	C	C	C
	W30	C	C	C
	W50	C	C	C
	W70	C	C	C
	W90	C	C	C

Sample Location		Sample Type		
N/S	E/W[1]	Surface Soil	Fill	Native
S1	W10	S	C	C
	W20	C	C	C
S2	W10	S	C	C
	W20	C	C	C
S3	W10	S	C	C
	W20	C	C	C
	W30	C	C	C
	W50	C	C	C
	W70	C	C	C
	W90	C	C	C
S4	W10	S	C	C
	W20	C	C	C
S5	W10	S	C	C
	W20	C	C	C
S6	W10	S	C	C
	W20	C	C	C
	W30	C	C	C
	W50	C	C	C
	W70	C	C	C
	W90	C	C	C
S7	W10	S	C	C
	W20	C	C	C

Notes:

S - Sample will be collected and submitted for analysis.

C - Sample will be collected. A minimum of thirty percent of the fill samples will be submitted for analysis. The remainder of the samples will be held pending results of the initial surface soil and fill analyses.

1. Soil borings may be advanced along transects W20, N7, N3, S3, and S6. These soil borings are contingent locations that will be advaced if fill materials are encountered in the adjacent W10 soil boring locations.

Table 2
Soil and Water Analytical Methods
National Fuel Gas Mineral Springs Former Manufactured Gas Plant
Fence Replacement Area Corrective Measure
January 2014

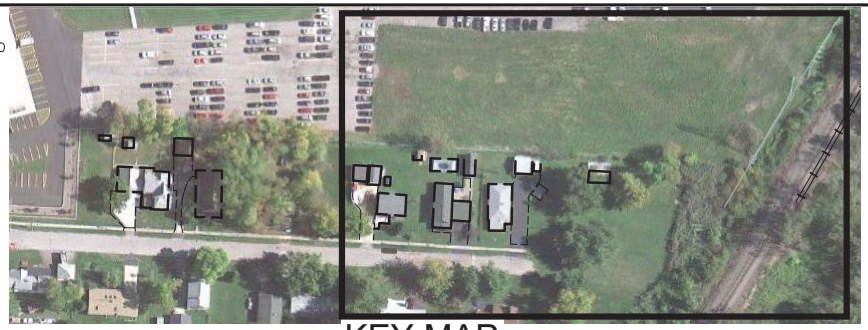
Analyte	Analytical Method[1]	
	Soil	Water
Primary Location Analyte List		
Total cyanide	9012B	9012A
Free cyanide	9016	9016
Mercury	7471B	7471A
Lead	6010C	6010C
Cadmium	6010C	6010C
Arsenic	6010C	6010C
Potentially Impacted Analyte List[2]		
TCL VOCs	8260	NA
TCL SVOCs	8270	NA
TAL Metals	6010C	NA

Notes:

1. All methods are EPA Methods.

2. Samples will be analyzed for the expanded analyte list where potential impacts are observed. Groundwater will not be analyzed for these analytes.

NA - Not Applicable



KEY MAP

LEGEND

- PARCEL LINE
- BUILDING OUTLINE
- DRIVEWAY
- FENCE
- UNDERGROUND ELECTRIC UTILITY
- CS-4 NOV. 2013 CONFIRMATORY SURFACE SOIL SAMPLE
- RS-2 NOV. 2013 RESIDENTIAL SURFACE SOIL SAMPLE

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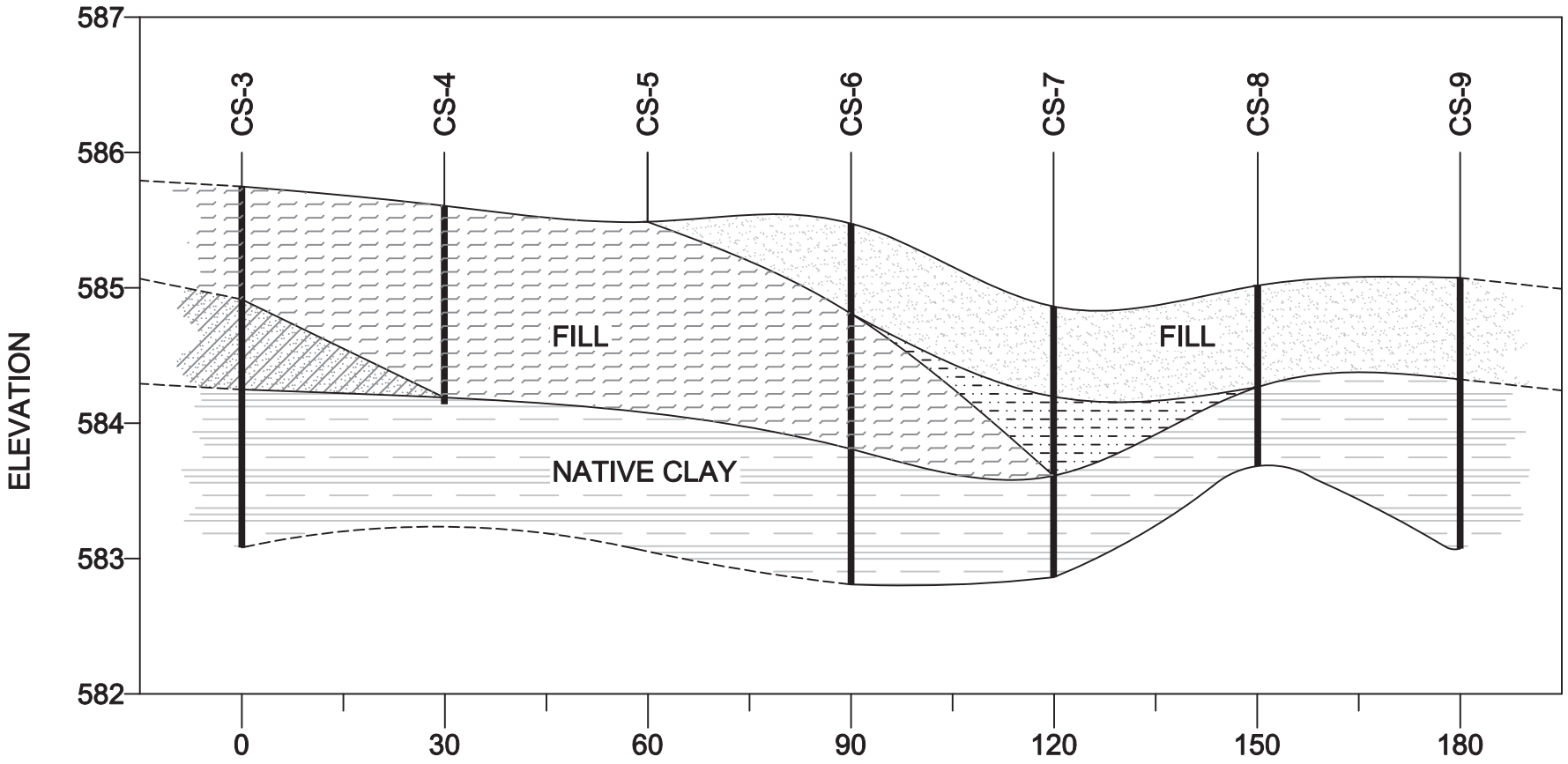
NATIONAL FUEL GAS MINERAL SPRINGS ROAD FORMER MANUFACTURED GAS PLANT		**FENCE REPLACEMENT AREA CORRECTIVE MEASURES ADDENDUM #3 CONFIRMATORY & RESIDENTIAL SAMPLES**
DATE: 01/20/2014	DRWN: LT 60250836.200	**FIGURE 1**



LEGEND

CS-4 — INVESTIGATION POINT LOCATION IDENTIFICATION

SOIL HAND CORE LOCATION

NATIVE MATERIALS

- SILTY CLAY

FILL MATERIALS

- SILT
- SILTY SAND
- SILTY CLAY
- SANDY SILT

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NATIONAL FUEL GAS MINERAL SPRINGS ROAD 60250836.200		**FENCE REPLACEMENT AREA CORRECTIVE MEASURES HAND CORE SOIL CROSS SECTION**
DATE: 01/2014	DRWN: LT/BcV	**FIGURE 2**

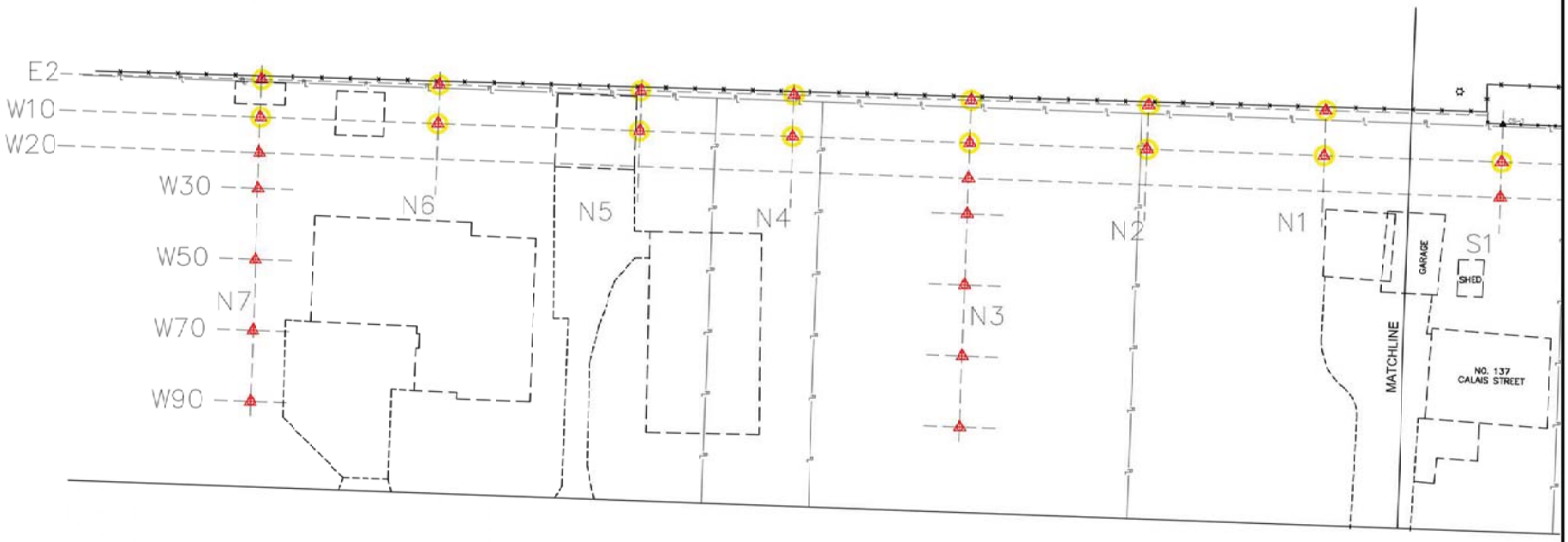
LEGEND

- PARCEL LINE
- BUILDING OUTLINE
- DRIVEWAY
- FENCE
- UNDERGROUND ELECTRIC UTILITY
- SAMPLING TRANSECT
- ▲CS-11 — NOV. 2013 SURFACE SOIL SAMPLE
- PROPOSED SOIL BORING WITH SURFACE, SUBSURFACE & NATIVE CLAY SAMPLES
- PROPOSED SURFACE SOIL SAMPLE
- INITIAL SURFACE SOIL SAMPLES TO BE ANALYZED
- N1 — EAST-WEST TRANSECT NORTH OF CMWP AREA
- S1 — EAST-WEST TRANSECT WITHIN CMWP AREA
- W10 — NORTH-SOUTH TRANSECT 10' WEST OF PROPERTY LINE
- E2 — NORTH-SOUTH TRANSECT 2' EAST OF PROPERTY LINE

50 0 100
GRAPHIC SCALE IN FEET

NOTE:
SHALLOW SOIL BORINGS MAY BE ADVANCED ALONG TRANSECTS W20, N7, N3, S3, AND S8. THESE SOIL BORINGS ARE CONTINGENT LOCATIONS THAT WILL BE ADVANCED IF FILL MATERIALS ARE ENCOUNTERED IN THE ADJACENT W10 SOIL BORING LOCATION.

KEY MAP



CALAIS STREET

15 0 30
GRAPHIC SCALE IN FEET

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NATIONAL FUEL GAS MINERAL SPRINGS ROAD FORMER MANUFACTURED GAS PLANT		FENCE REPLACEMENT AREA CORRECTIVE MEASURES ADDENDUM #3 PROPOSED SAMPLE LOCATIONS
DATE: 01/2014	DRWN: LT/BcV	60250836.200	FIGURE 3A

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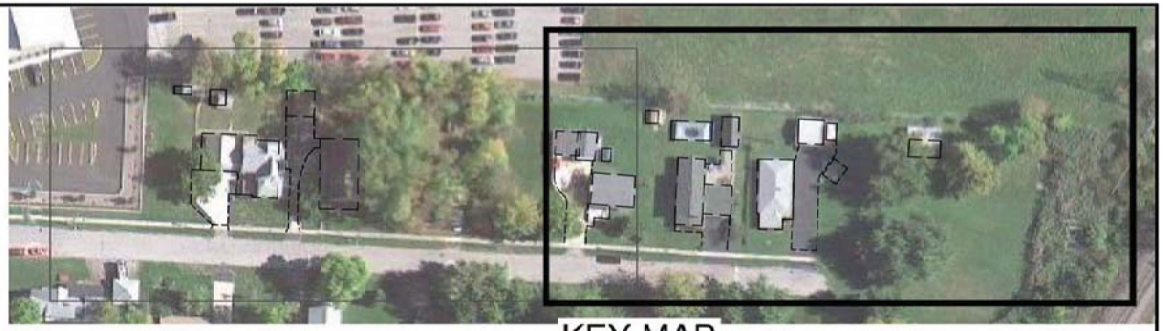
LEGEND

- PARCEL LINE
- BUILDING OUTLINE
- DRIVEWAY
- FENCE
- UNDERGROUND ELECTRIC UTILITY
- SAMPLING TRANSECT
- ▲CS-11 NOV. 2013 SURFACE SOIL SAMPLE
- PROPOSED SOIL BORING WITH SURFACE, SUBSURFACE & NATIVE CLAY SAMPLES
- PROPOSED SURFACE SOIL SAMPLE
- INITIAL SURFACE SOIL SAMPLES TO BE ANALYZED
- N1 EAST-WEST TRANSECT NORTH OF CMWP AREA
- S1 EAST-WEST TRANSECT WITHIN CMWP AREA
- W10 NORTH-SOUTH TRANSECT 10' WEST OF PROPERTY LINE
- E2 NORTH-SOUTH TRANSECT 2' EAST OF PROPERTY LINE

50 0 100
GRAPHIC SCALE IN FEET

NOTE:
SHALLOW SOIL BORINGS MAY BE ADVANCED ALONG TRANSECTS W20, N7, N3, S3, AND S8. THESE SOIL BORINGS ARE CONTINGENT LOCATIONS THAT WILL BE ADVANCED IF FILL MATERIALS ARE ENCOUNTERED IN THE ADJACENT W10 SOIL BORING LOCATION.



KEY MAP

AREA WHERE DARK STAINED SOIL WAS EXCAVATED

MINERAL SPRINGS FACILITY

FRAME SHED
POOL
POOL HOUSE
FRAME GARAGE
FRAME SHED
ELEC. OUTLT
GRAVEL AREA
INV. 8" CAST ELEV=92.77'
INV. 8" CAST ELEV=97.45'
GARAGE
SHED
MATCHLINE
NO. 137 CALAIS STREET
NO. 61 CALAIS STREET
GARAGE
NO. 121 CALAIS STREET
EDGE OF PAVEMENT
CALAIS STREET
STORM MAIN

S1 S2 S3 S4 S5 S6 S7
W10 W20 W30 W50 W70 W90

15 0 30
GRAPHIC SCALE IN FEET

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NATIONAL FUEL GAS MINERAL SPRINGS ROAD FORMER MANUFACTURED GAS PLANT			FENCE REPLACEMENT AREA CORRECTIVE MEASURES ADDENDUM #3 PROPOSED SAMPLE LOCATIONS
DATE: 01/2014	DRWN: LT/BcV	60250836.200	FIGURE 3B

File: J:\Rem_Eng\Project Files\National Fuel Gas\Mineral Springs 048070 NFG\CAD\CMWP #3\60250836-AsBuilt_2014-01-15.dwg Layout: SOUTH-2 User: townsendl Plotted: Jan 31, 2014 - 9:32am Xref's: