

# TOWNSHIP OF MAPLEWOOD



## RESOLUTION NO. 142-14

### **AWARD OF CONTRACT PROFESSIONAL ENVIRONMENTAL SERVICES FOR FIRE DEPARTMENT HEADQUARTERS**

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**WHEREAS**, the Engineering Department of the Township of Maplewood (“the Township”) has a need to retain Professional Services by means of a non-fair and open contract pursuant to the provisions of N.J.S.A 19:44A-20.7 in order to complete professional environmental services for Fire Department Headquarters; and

**WHEREAS**, the value of these services will exceed \$17,500.00; and

**WHEREAS**, these services must be performed by a firm who is experienced in environmental investigations; and

**WHEREAS**, Matrix New World Engineering, Inc. was selected based on the quality of their prior work; and

**WHEREAS**, the firm of Matrix New World Engineering, Inc. has completed and submitted a Business Entity Disclosure Certification which certifies that Matrix New World Engineering, Inc. has not made any reportable contributions to a political or candidate committee in the Township of Maplewood and this resolution prohibits the firm of Matrix New World Engineering, Inc. from making any contributions through the term of its contract; and

**NOW, THEREFORE, BE IT RESOLVED**, by the Township Committee of the Township of Maplewood, County of Essex, State of New Jersey that:

1. Pursuant to N.J.S.A. 40A:11-5(1)(a)(i) Matrix New World Engineering, Inc. is hereby authorized to perform this work, Task 1 through Task 5, as set forth in the proposal dated June 12, 2014, copies of which are attached, for a lump sum fee in the amount of \$31,380.00; and
2. The firm of Matrix New World Engineering, Inc. is prohibited from making any contributions to a political or candidate committee during the term of its agreement;
3. The Business Administrator and the Township Clerk be and are hereby authorized to sign the services contract on behalf of the Township;
4. A copy of this resolution shall be printed once in the News Record of Maplewood and South Orange and is to be retained on file in the office of the Township Clerk;
5. The Business Entity Disclosure Certification, copy attached, be placed on file with this resolution.

I, Elizabeth J. Fritzen, Township Clerk of the Township of Maplewood, in the County of Essex and State of New Jersey, do hereby certify that the foregoing is a true and correct copy of a resolution adopted by the Township Committee at a regular meeting of said Committee held **July 1, 2014**.

**IN WITNESS WHEREOF**, I have hereunto set my hand and affixed the seal of the Township of Maplewood, in the County of Essex and State of New Jersey, this **1<sup>st</sup> day of July, 2014**.

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**Elizabeth J. Fritzen, R.M.C.**  
Township Clerk

June 12, 2014

Thomas Malavasi, P.E., P.P., C.M.E.  
Township Engineer  
Township of Maplewood  
Municipal Building  
574 Valley Street  
Maplewood, New Jersey 07040

Re: PROPOSAL FOR ENVIRONMENTAL SERVICES  
TOWNSHIP OF MAPLEWOOD, FIRE DEPARTMENT HEADQUARTERS  
105 DUNNELL ROAD  
BLOCK 17.16, LOT 12  
MAPLEWOOD, NEW JERSEY  
NJDEP SRP PI NO. 030050  
NJDEP CASE NO. 98-03-05-1243-04  
MATRIX NO. 13-400E

Dear Mr. Malavasi:

Matrix New World Engineering, Inc. (Matrix) is pleased to present this proposal to conduct additional remedial investigation (RI) activities at the Maplewood Fire Department Headquarters (Site). Based on our review of the project files and a telephone discussion with Mr. Steven Mason from the New Jersey Department of Environmental Protection's (NJDEP), Northern Regional Field Office, the former 2,000-gallon No. 2 heating oil underground storage tank (UST) associated with this cleanup is an unregulated UST.

Therefore, this proposed work will be completed under the direct oversight of a New Jersey-Licensed Subsurface Evaluator and remains under the oversight of the NJDEP in the Unregulated Heating Oil Tank (UHOT) program. The work will be completed in accordance with N.J.A.C. 7:26E, Technical Requirements for Site Remediation (TRSR), the *Underground Storage Tank (UST) Regulations*, N.J.A.C. 7:14B-1-13 and 15 and applicable NJDEP Guidance Documents.

Upon completion of the remaining remedial activities associated with this former UST, a report will be submitted to the NJDEP with a request for No Further Action (NFA). This proposal includes the assessment of existing conditions to determine if further soil and/or groundwater investigations are required and includes a vapor intrusion investigation, if required.

The Township of Maplewood retained Matrix to perform a review of the previous investigation activities completed to date. This work included filing an Open Public Records Act (OPRA) request and a review of the available files provided by the NJDEP. This work also included a review of the readily available online records and a telephone discussion with Mr. Steve Mason from the NJDEP.

#### PROJECT BACKGROUND

On March 5, 1998, a 2,000-gallon heating oil (No. 2) UST was removed from the Site under the oversight of DFH Environmental Services Inc. (DFH) of Dover, New Jersey. During UST closure activities, evidence of a release was observed; the NJDEP was notified and NJDEP Case No. 98-03-051243-04 was assigned. The Township entered into a Memorandum of Agreement in August 1998 to address the contamination. Light Non-Aqueous Phase Liquid (LNAPL) and groundwater was encountered within the excavation at approximately 12 feet, below ground surface (ft, bgs). Following the removal of the UST and soil excavation activities, six post-excavation soil samples (S1 through S6) were collected and analyzed for Total Petroleum Hydrocarbons (TPHC). Since the excavation extended horizontally to the building, no piping samples were collected. Based on the analytical results, four samples (S1 through S3 and S5) contained concentrations of TPHC greater than 1,000 milligrams per kilogram (mg/kg), with soil sample S3 containing the highest TPHC concentration of 13,000 mg/kg. Additional contingency analyses for volatile organic compounds plus a forward library search (VOCs+10) were performed on soil samples S1, S2 and S5. The results from the contingency analyses were below NJDEP's May 1999 Impact to Groundwater Soil Cleanup Criteria (IGWSCC). To address the TPHC hotspot at sample S3, an additional excavation to remove this petroleum-impacted soil was completed on March 13, 1998. Following the additional excavation activities, one additional post-excavation soil sample (S7) was collected and analyzed for TPHC. TPHC was not detected at S7; therefore, the contingent analysis for VOCs+10 was not required for this sample. The UST excavation was backfilled with certified clean fill material.

In January 1999, NJDEP directed the Township of Maplewood to perform a RI for groundwater since soil samples contained contaminants above the applicable soil remediation standards (SRS) pursuant to N.J.A.C. 7:26E-4.4(a)1. Haley & Aldrich Inc. (H&A) of Parsippany, New Jersey was retained by the Township to perform a groundwater investigation. In May 1999, H&A installed one temporary well point (TW-1) within the former UST excavation and benzene was detected in

groundwater at a concentration of 30 micrograms per liter (ug/L), above the NJDEP's Groundwater Quality Standard (GWQS) of 1 ug/L. Therefore, in July 1999, one permanent monitoring well (MW-1) was installed within the former UST excavation. Based on the initial well gauging event, LNAPL was encountered and monthly interim remedial measures (IRMs) (i.e. hand-bailing and the installation of absorbent socks) were implemented to recover the LNAPL.

Due to the presence of LNAPL, H&A performed additional soil delineation sampling to determine whether residual soil contamination was present at the Site and to determine the extent of the free product. In November 2000, ten soil borings were completed. Soil borings (B-1a through B-7) were advanced around the perimeter of the former UST and soil excavations and soil borings (C-1 through C-3) were advanced beneath the basement floor slab of the Fire Station building. One soil sample was collected from soil borings B-1a, B-2a, B-2b, B-3a, B-4a, C-1, C-2 and C-3 and analyzed for TPHC. Based on the analytical results, TPHCs were not detected in soil samples B-1a, B-2b and C-1 through C-3. However, TPHC was detected in the remaining samples at a concentration of 259 mg/kg in soil sample B-2a, 5,190 mg/kg in soil sample B-3a and 3,400 mg/kg in soil sample B-4a. Additional contingency analyses for VOCs+10 were performed on soil samples B-3a and B-4a. The results from the contingency analyses were below NJDEP's IGWSCC.

BEM Systems Inc. (BEM) of Chatham, New Jersey was retained by the Township of Maplewood to continue with groundwater investigation activities at the Site including monthly IRMs at MW-1 between June and November 2003. In September 2003, a LNAPL sample was collected for fingerprint analysis and confirmed the presence of diesel fuel/heating oil (No. 2). The fingerprinting also identified the presence of methyl tertiary butyl ether (MTBE), a constituent typically associated with gasoline.

In September 2003, NJDEP directed the Township of Maplewood to perform a more complete groundwater investigation and conduct soil delineation sampling to determine the extent of contamination at the Site. In June 2005, BEM installed three additional monitoring wells (MW-2 through MW-4) and advanced three soil borings (SB-1 through SB-3) to determine if the backfill used in the former excavation had become contaminated with the residual product encountered in the subsurface. Soil samples SB-1, SB-2 and SB-3 were analyzed for TPHC. Based on the analytical results, TPHC were detected in SB-1 at a concentration of 2,600 mg/kg, SB-2 at a concentration of 81 mg/kg and SB-3 at a concentration of 1,300 mg/kg. Additional contingency analysis for VOCs+10 was performed on SB-1 and SB-3. Ethylbenzene (0.65 mg/kg) and VOC tentatively identified compounds (TICs) (48 mg/kg) were detected in SB-1 at concentrations below NJDEP's RDCSCC and IGWSCC.

BEM performed a groundwater sampling event at all four monitoring wells in June 2005. The groundwater samples were analyzed for VOCs+10 and semi-volatile organic compounds plus a forward library search (SVOCs+15). Based on the analytical results, benzene, VOC TICs, and several SVOCs including SVOC TICs were detected in MW-1, MW-2 and MW-4 at concentrations above NJDEP's GWQS. There were no exceedances of GWQS in samples collected from MW-3.

During a subsequent groundwater sampling event conducted in August 2005, benzene and SVOCs were detected in MW-1, MW-2 and MW-4 above NJDEP's GWQS. LNAPL was observed in MW-4 during the sampling event. During a groundwater gauging event in September 2005, LNAPL was encountered in monitoring wells, MW-1, MW-2 and MW-4. BEM subsequently collected LNAPL samples from MW-2 and MW-4 for product fingerprint analysis. The results from the petroleum fingerprinting analysis confirmed the presence of diesel fuel/heating oil (No. 2). BEM stated that due to a relatively flat gradient, short distance between each well and apparent mounding in MW-1 installed within the former UST excavation, a definitive groundwater flow direction could not be determined; however, BEM assumed groundwater beneath the Site flows to the south.

To confirm the presence or absence of additional USTs, a geophysical survey was performed throughout the north, west and eastern portions of the Site in October 2005. The geophysical survey did not identify any UST-like anomalies or any utility corridors found in close proximity to any of the affected wells. In addition, since groundwater contamination was confirmed, a well records search was completed. The results of the well search identified one irrigation well at the Maplewood Country Club approximately 1/2-mile southwest of the Site. BEM's January 23, 2006 *Remedial Investigation Report (RIR) Addendum* concluded that there is an apparent upgradient and off-site source of groundwater contamination migrating onto the Site and affecting groundwater quality. BEM recommended that the Township discontinue further groundwater investigation activities until the off-site sources of groundwater contamination are identified and remediated by others. Furthermore, BEM concluded that soil contamination was localized to the vicinity of the former UST excavation at concentrations below NJDEP's IGWSCC, and will not adversely impact the groundwater. Therefore, no further action was recommended for soils at the Site.

In the NJDEP's July 12, 2012 *Notice of Deficiency* letter, the NJDEP stated that unless a background investigation for groundwater is conducted to support the off-site source of contamination, this claim cannot be supported. The NJDEP also noted that the Township must continue well gauging and groundwater monitoring. Finally, the NJDEP instructed the Township to remove the four 55-gallon drums used by BEM during their 2005 investigations.

## **SCOPE OF WORK**

Since the NJDEP promulgated new soil remediation standards and issued new guidance documents for the investigation and remediation of sites, Matrix re-evaluated all previous work conducted at the Site. Based on the soil and groundwater investigation activities completed to date, Matrix recommends the completion of the tasks described below. Results from these investigations are necessary to provide Maplewood Township with recommendations towards Site closure under NJDEP's UHOT program.

### **Task 1 - Baseline Groundwater Sampling (including Periodic Well Gauging and LNAPL Recovery, if Required)**

To determine existing groundwater concentrations since the last groundwater sampling event completed in August 2005, Matrix proposes to complete one groundwater sampling event. Prior to performing sampling activities, Matrix will assess and gauge all wells and collect of groundwater samples via volume average purging method. During purging, field measurements including depth to groundwater, dissolved oxygen content, pH, temperature, conductivity, and oxidation reduction potential will be collected at each monitoring well (Matrix Certification No. 14049). As part of Quality Assurance/Quality Control (QA/QC) requirements, one field blank and one trip blank will be collected to evaluate any impacts to the samples during sampling and transport. The samples and field blank will be analyzed for VOCs+15 and semi-volatile organic compounds plus a forward library search (SVOCs+15). The trip blank will be analyzed for VOCs+15.

As part of this task and in anticipation of the presence of LNAPL in any of the monitoring wells, Matrix has budgeted one Multi-Phase Recover (MPR) event to recover LNAPL, contaminated groundwater and soil gas vapor in an effort to reduce the source of groundwater contamination at the Site. The effectiveness of the MPR event will be determined based on the volume of water (in gallons) and soil gas (in pounds) recovered. This task includes disposal of up to 1,000 gallon of liquids generated during the MPR event. Finally, this task also includes the disposal of the four existing 55-gallon drums that are staged behind the building at the Site.

### **Task 2 - Confirmatory Soil Sampling and Soil Delineation**

Matrix compared historical soil data collected in March 1998, November 2000 and June 2005 at the Site to NJDEP's applicable soil standards including the November 2013 default Impact to Groundwater Soil Screening Level (IGWSSL) and the June 2008 Residential Direct Contact Soil Remediation Standards (RDCSRS) to determine if soil contamination still exists at the Site. Based on the comparison, there are no historic concentrations of TPHC in soil samples above the NJDEP's soil remediation standard of 5,100 mg/kg; however, there were eight soil samples with TPHC concentrations above 1,000 mg/kg, which requires contingent analyses for naphthalene and 2-methyl naphthalene (2-MN). Furthermore, based on an evaluation of the VOC data, there were no soil exceedances above the respective IGWSSL or RDCSRS; therefore, no further evaluation of VOCs in soil is recommended.

Since it appears that residual petroleum hydrocarbons remain in the subsurface, Matrix recommends advancing one soil boring adjacent to monitoring wells, MW-1, MW-2 and MW-4 where LNAPL was detected and collecting one soil sample for extractable petroleum hydrocarbons (EPH), Category 1, with contingent analyses for naphthalene and 2-MN.

Therefore, a total of seven soil borings are proposed; one adjacent to monitoring wells, MW-1, MW-2 and MW-4 (hot-spot samples) and one boring at each of the following sample locations, S1, S5, B-3a, B-4a, where TPHCs were previously detected in soil above 1,000 mg/kg. One soil sample will be collected from the initial three borings adjacent to the monitoring wells for EPH, Category 1, with contingent naphthalene and 2-MN analyses. For the remaining four soil borings, two soil samples will be collected from each boring (the second will be a contingent vertical soil sample). The initial sample will be analyzed for naphthalene and 2-MN corresponding to the sample depth where TPHCs were detected at concentrations above 1,000 mg/kg. The remaining four soil samples will be submitted on hold pending the results of the other samples. If 2-methylnaphthalene exceeds NJDEP's default IGWSSL of 8 mg/kg, then the sample will be analyzed using the Synthetic Precipitation Leaching Procedure (SPLP) to determine if the sample leachate criterion is less than or equal to 390 ug/L. If there are any soil exceedances, then the vertical contingent soil sample will be analyzed.

In anticipation of in-situ treatment as a viable option to remediate the remaining petroleum contamination, three soil samples will be collected and analyzed for total organic carbon (TOC). The results of the hot-spot sampling will determine if further soil remediation is necessary. However, if EPHC concentrations in soil are below the NJDEP's residual product/free product limit of 8,000 mg/kg and the extent of these soils as determined through confirmatory delineation sampling is seven cubic yards or less, these soils, could be deed restricted under NJDEP's UHOT program.

All samples will be analyzed by a NJDEP-certified laboratory on a normal TAT. This task includes utility air knifing, drilling fees and laboratory costs.

### Task 3 – Vapor Intrusion Investigation, If Required

Since VOC concentrations in groundwater exceeded the NJDEP's groundwater screening levels (GWSL) during the 2005 sampling event and LNAPL may be present in the existing monitoring wells, an on-site vapor intrusion (VI) is anticipated at the fire station building since it is located within 30 feet, horizontally, of the edge of the existing groundwater plume or monitoring wells. Following receipt of the groundwater sampling data from the sampling event described in Task 1 above and if groundwater concentrations or LNAPL is present in the on-site monitoring wells, Matrix will complete a pre-inspection of the fire station building approximately one week prior to the pending VI investigation. As part of the pre-inspection, the NJDEP's *Indoor Air Sampling* form will be completed and submitted to the NJDEP.

This task includes the completion of sub-slab soil gas and indoor air (contingent) sampling of the on-site building only. Based on the square footage of the building (~4,800 sq. ft.), three sub-slab soil gas and indoor air samples will be collected and analyzed for VOCs using USEPA Method TO-15 by a NJDEP-certified laboratory on a normal TAT.

The three proposed sub-slab soil gas samples will be obtained below the building's concrete slab. Each sub-slab sample will be collected from tubing inserted into a ½-inch diameter sample point created with a drill bit through the concrete floor/slab. The annulus between the tubing and the temporary sample point was sealed with non-volatile emitting and non-shrinking modeling clay. Matrix will perform a leak test (i.e., tracer test and shut-in test) on the soil gas probe and all fittings of the sample train prior to sample collection in a laboratory supplied and calibrated 1-liter stainless steel canister with a flow controller (1-liter Summa Canister) set to achieve a flow of less than 0.2 liters per minute and a sampling duration of approximately five minutes. Following the collection of the sub-slab soil gas, each drilled hole will be patched with hydraulic cement.

At the conclusion of the sampling event, the Summa Canisters will be collected and transported to a NJDEP certified laboratory under the proper chain of custody. The samples will be analyzed for VOCs utilizing EPA Method TO-15. The results will be compared to the NJDEP's Residential Soil Gas Screening Levels (RSGSL).

Following completion of the sub-slab soil gas sampling, two indoor air and one ambient blank (background) samples will be collected. The 6-liter Summa Canisters will be provided by the laboratory and set at various locations inside the building. The 24-hour samples will be collected from the breathing zone height utilizing a stand and Teflon lined tubing. At the conclusion of the 24-hour sampling event, Matrix will retrieve the Summa Canisters from within the building and the ambient blank. The canisters will be submitted to a New Jersey-certified laboratory for to be analyzed for VOCs utilizing EPA Method TO-15. The indoor air samples will only be analyzed if contaminants of concern for the Site are identified in the sub-slab soil gas samples at concentrations above NRSGL

Following the completion of the VI investigation and receipt of analytical results, Matrix will prepare a VI investigation letter. The letter will summarize the VI investigation activities, results, findings, conclusions and recommendations for the Site.

### Task 4 – Groundwater Remedial Investigation, If Required

Matrix proposes to install up to five temporary well points to determine the extent of the groundwater plume and/or the extent of LNAPL and vertical extent of groundwater contamination. Matrix will install three temporary well points downgradient of monitoring wells MW-1, MW-2 and MW-4, as well as two temporary well points upgradient of MW-3 and MW-4. Each temporary well point will be purged via the volume average purging method and field measurements (depth to groundwater, pH, conductivity, temperature, and dissolved oxygen content) will be collected before, during, and after purging. The groundwater samples will be collected using a dedicated bailer for VOCs+15 and SVOCs+15 by a NJDEP-certified laboratory on a normal TAT. Appropriate QA/QC samples including field and trip blanks will be collected during each sampling event. This task includes drilling fees and laboratory costs.

### Task 5 – Project Management and Project Updates

Matrix will oversee RI activities conducted at the Site and ensure the work performed is in accordance with the TRSR and applicable guidance documents. At the conclusion of the RI activities, Matrix will provide the Township of Maplewood with a progress report detailing the findings of the work performed. The progress report will include results from the soil and groundwater investigation, evaluation of VI issues (if required), and recommendations for additional work, if needed. The preparation of a RI Report and submission to the NJDEP will not be completed until the extent of contamination had been delineated and remediated. Matrix has not included costs for report preparation at this time.

**COSTS**

The costs associated with each of the tasks are summarized below.

**Task 1 - Baseline Groundwater Sampling (including Periodic Well Gauging and LNAPL Recovery, If Required)**

Labor.....\$2,900  
Subcontractor (MPR, Laboratory, Equipment, Travel).....\$5,640  
    **Subtotal Task 1           \$8,540**

**Task 2 - Confirmatory Soil Sampling and Soil Delineation**

Labor.....\$2,140  
Subcontractor (Driller, Laboratory, Equipment, Travel) .....\$4,810  
    **Subtotal Task 2           \$6,950**

**Task 3 - Vapor Intrusion Investigation, If Required**

Labor.....\$3,780  
Sampling (Laboratory, Equipment, Travel).....\$3,180  
    **Subtotal Task 3         \$6,960**

**Task 4 - Groundwater Remedial Investigation, If Required**

Labor.....\$1,640  
Subcontractor (Driller, Laboratory, Equipment, Travel).....\$5,370  
    **Subtotal Task 4         \$7,010**

**Task 5 - Report Preparation and Project Management**

Labor.....\$1,920  
    **Subtotal Task 5     \$1,920**

**Total Estimated Costs                                 \$31,380**

ASSUMPTIONS

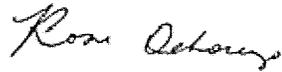
This proposal is based on the following assumptions:

- No additional assessment or investigation activities beyond the soil, groundwater and VI investigations and sampling activities identified in the scope of work are included;
- .....  
Costs do not include future soil or groundwater remediation;
- .....  
Costs assume that this work will be completed under the NJDEP's UHOT Program;
- Costs exclude the preparation of a deed notice and the Soil Remedial Action Permit Application;
- .....  
Costs assume all work to be completed on-site and in Level D-modified personal protection equipment;  
Costs do not include NJDEP fees; and
- Costs include disposal of the four existing drums, associated with previous environmental investigations at the Site.

All work will be conducted in accordance with our existing agreement with the Township. Matrix is prepared to implement the described Scope of Work upon receiving your authorization to proceed.

If you have any questions, please feel free to contact us at (973) 240-1800.

Sincerely,



Rose V. DeLorenzo, CHMM  
Project Manager  
Compliance



Russell C. Baer, CHMM, LSRP  
Director, Environmental Investigations and



Clare P. Sullivan, CHMM, CSP  
Vice President/Associate

Authorization to Proceed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Name/Title)