

TOWNSHIP OF MAPLEWOOD



RESOLUTION NO. 208-15

AWARD OF CONTRACT PROFESSIONAL ENVIRONMENTAL SERVICES FOR FIRE DEPARTMENT HEADQUARTERS

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 7, as set forth in the proposal dated August 31, 2015, copies of which are attached, for a lump sum fee in the amount of \$54,320.00; 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 **October 20, 2015**.

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 **20th' day of October, 2015**.

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

August 31, 2015

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 provide the Township of Maplewood (Township) with this proposal for environmental services to continue the soil and groundwater investigations associated with petroleum discharges from the former 2,000-gallon No. 2 heating oil underground storage tank (UST) at the above-referenced Site.

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 completion of the remedial investigation, provide the NJDEP case manager, Mr. Steve Mason with a project update and provide recommendations to remediate the remaining residual impacts associated with the former UST.

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 ½-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.

On July 10, 2014 Matrix conducted a groundwater sampling event and collected samples from MW-1 through MW-3 to determine existing groundwater conditions. During this work, it was noted that MW-4 was damaged and could not be gauged or sampled. A total of 0.01' of LNAPL was detected in MW-2. Groundwater analytical results revealed that benzene, SVOCs and tentatively identified

compounds (TICs) were detected in MW-1 and MW-2 above NJDEP's GWQS. No groundwater exceedances were detected in MW-3.

As part of our evaluation, 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 remains at the Site. Based on the comparison, there was one historic concentrations of TPHC in soil sample, S3/12.5-13 above the NJDEP's soil remediation standard of 5,100 mg/kg with seven other soil samples with TPHC concentrations above 1,000 mg/kg, that required contingent analyses for naphthalene and 2-methyl naphthalene (2-MN).

Therefore, Matrix returned to the Site on July 29, 2014 to conduct additional on-site soil and groundwater RI activities. Matrix advanced one soil boring adjacent to monitoring wells MW-1, MW-2 and MW-4. Borings were advanced at sample locations S1, S5, B-3a, B-4a and two soil samples were collected from each boring (the second being a contingent vertical soil sample). In addition, three soil samples were collected and analyzed for total organic carbon (TOC) in anticipation of in-situ treatment as a viable option to remediate the remaining petroleum contamination. The soil analytical results revealed that the previous TPH exceedance at S3/12.5-13 is no longer above NJDEP's RDCSRS of 5,100 mg/kg. Soil sample B-4a/8.5-9 showed a soil exceedance of 2-methylnaphthalene above the default IGWSSL; however, this sample was additionally analyzed for 2-MN using the Synthetic Precipitation Leaching Procedure that revealed the leachate concentration of 2-MN below the NJDEP default leachate criterion.

During the July 2014 investigation, four temporary wells were advanced to horizontally delineate the extent of VOCs in groundwater. Groundwater analytical results revealed that benzene and other SVOCs were detected in TW-1 (advanced in front of the engine bays) at concentrations exceeding the NJDEP's GWQS. In addition, benzene and other SVOCs were detected in TW-2 (advanced near the southeast property boundary) at concentrations exceeding the NJDEP's GWQS. Therefore, further delineation in groundwater is required.

Due to the presence of light non aqueous phase liquids (LNAPL) identified in two on-site wells, a multi-phase Recovery (MPR) event was conducted at the Site on August 26, 2014 by Mercury Environmental. Soil gas and groundwater were recovered from both MW-2 and MW-4, the two wells where LNAPL was identified during the previous groundwater sampling event. A total of 240.34 lbs. of soil vapor mass and 37 gallons of water/product mix were recovered from the Site.

A vapor intrusion (VI) investigation was triggered due to the identification of LNAPL within 30' of the building. On August 28, 2014, Matrix collected three sub-slab soil gas (SSGS) samples within the first floor of the building. The SSGS samples were collected in areas known to be slab-on grade (a small basement is present below the northern section of the building). Benzene and ethylbenzene were detected in SG-1 (located in between two main bays in the eastern part of the building) at concentrations that exceeded the NJDEP's Vapor Intrusion Residential Soil Gas Screening Levels (RSGSL) but were below the NJDEP's Vapor Intrusion Non-Residential Soil Gas Screening Levels (NRSGSL).

On October 6, 2014, Matrix collected four indoor air samples and one ambient sample. The purpose of the indoor air samples was to fully investigate the VI pathway based on sub-slab soil gas results and collect representative indoor air samples during the heating season (sub-slab samples were collected during the summer and not during heating season). Sample IA-2 was collected behind the ambulance bay and sample IA-3 was collected behind the storage area. Benzene was detected at a concentration of 3.8 $\mu\text{g}/\text{m}^3$ and ethylbenzene was detected at 4.0 $\mu\text{g}/\text{m}^3$, exceeding the NJDEP's Vapor Intrusion Residential Indoor Air Screening Levels (RIASL) of 2 $\mu\text{g}/\text{m}^3$ for both benzene and ethylbenzene. Benzene was detected at a concentration of 5.1 $\mu\text{g}/\text{m}^3$ and ethylbenzene was detected at 4.3 $\mu\text{g}/\text{m}^3$, exceeding the NJDEP's Vapor Intrusion Residential Indoor Air Screening Levels (RIASL) of 2 $\mu\text{g}/\text{m}^3$ for both benzene and ethylbenzene. The summa canister pressure for sample IA-1 fell below 1 PSI during the first indoor air sampling event thus invalidating the sample. Matrix returned to the Site on November 6, 2014 and re-collected sample IA-1 and one ambient sample. No exceedances were identified in sample IA-1.

At the time of the sub-slab sample data evaluation, Matrix compared the results to the NJDEP's RSGSLs. This comparison was made based on 24-hour shifts for firefighters employed by the township. Based on email correspondence to and from the NJDEP in January 2015, Matrix was informed that the results should have been compared to the NRSGSL which show that no exceedances were identified. Therefore, since no sub-slab soil gas exceedances were identified for the building, the vapor intrusion investigation is considered complete.

SCOPE OF WORK

Based on the soil, groundwater, and vapor intrusion 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. The intent of this next phase of work is to complete the remedial investigation at the Site.

Task 1 -Periodic Well Gauging and LNAPL Recovery

To determine existing groundwater concentrations since the last groundwater sampling event completed in July 2014, Matrix proposes to complete one groundwater gauging event in conjunction with a Multi-Phase Recovery (MPR) event to recover additional LNAPL, contaminated groundwater, and soil gas vapor in an effort to reduce the source of groundwater contamination at the Site. The MPR event shall be conducted at monitoring wells MW-2 and MW-4 which have historically displayed the highest impacts and presence of LNAPL. 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 250 gallon of liquids generated during the MPR event. This task also includes evaluation of MW-4 to make a determination if the well can be repaired or if it should be abandoned.

Task 2 - Soil Boring and Temporary Well Installation

This task focuses on the delineation of groundwater for the future placement of monitoring wells. Matrix will vertically profile the groundwater at monitoring well, MW-2. Matrix will also completed up to four temporary wells (two across Dunnell Road) to determine the horizontal extent of primarily benzene and TICs in groundwater. The exceedances of PAHs detected in the existing monitoring wells may be attributable to sediment in the sample and not representative of groundwater conditions.

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 if the temporary wells yield. Each monitoring well will be purged via the low-flow purging method and field measurements (depth to groundwater, pH, conductivity, temperature, turbidity, and dissolved oxygen content) will be collected every 5 minutes while purging until all measurements are within the stabilization parameters. The temporary well point samples will be collected using a dedicated bailer for benzene, VOC TICs, 2-methylnaphthalene, and SVOC TICs by a NJDEP-certified laboratory on a normal TAT. Appropriate QA/QC samples including field and trip blanks will be collected during the sampling event. This task includes drilling fees and laboratory costs.

If it is determined that MW-4 can be repaired the driller shall re-develop the well. If it has been previously determined that MW-4 is irreparable, it shall be abandoned as part of this scope of work.

Task 3 - Groundwater Monitoring Well Installation (Up to Five Shallow, Overburden Monitoring Wells, If Required)

Following the receipt of groundwater analytical results from the temporary well investigation described in Task 2 above, additional monitoring wells will be installed to monitor the groundwater plume. Up to five overburden monitoring wells will be installed. The horizontal overburden wells shall be advanced at the temporary well points where delineation in groundwater was achieved. If it was previously determined that MW-4 required abandonment, one of these wells shall be advanced adjacent to MW-4 (designated MW-4R). In addition, a minimum of one well shall be installed east across Dunnell Road co-located with one of the two previous temporary well points (one additional off-site monitoring well is budgeted). This well shall serve as a downgradient sentinel well and will be used to determine the effectiveness of monitored natural attenuation (MNA) if this remedy is chosen as a remedial option at the Site. The overburden wells will be installed to top of weathered rock and will be constructed of 4-inch diameter PVC and screened across the water table from approximately 10 to 18 feet below ground surface (bgs). A deep overburden well is not proposed at this time.

Task 4 - Groundwater Sampling

Approximately two weeks following the monitoring well installation activities, one round of groundwater sampling will be completed via low-flow purging and sampling for wells MW-1, MW-2, MW-3, and MW-4 (if repaired) or replacement well MW-4R (if installed), and newly installed wells MW-5, MW-6, MW-7 and/or MW-8. Water quality indicator parameters (dissolved oxygen, pH, temperature, conductivity, turbidity and ORP) will be monitored during the groundwater purging and sampling activities. The samples will be analyzed for benzene, VOC TICs, 2-methylnaphthalene, SVOC TICs, and PAHs by SIM mode on a normal turnaround time. One field blank shall be collected and analyzed for benzene, VOC TICs, 2-methylnaphthalene, and SVOC TICs and one trip blank will also be analyzed for VOCs+15. The samples will be analyzed on a standard turn-around time.

Drum disposal will be completed following the completion of the well installation and groundwater sampling activities. Please note that up to 20 drums (assumed as non-hazardous) are budgeted for disposal for the work associated with this task.

Task 5 - Off-Site Public Notification (if required)

In accordance with the TRSR, the person responsible for conducting the remediation of a

contaminated site is required to perform public notification and outreach. Matrix will prepare a public notification sign or letter and submit the required forms and notification letters to the NJDEP's Bureau of Case Assignment and Initial Notice and the Township of Maplewood.

Task 6 - Data Evaluation

This task includes the evaluation and presentation of the analytical data on a figure for discussion. This task also includes a fate and transport calculation to determine the edge of the contaminant plume for off-site delineation.

Task 7 - 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. 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 -Periodic Well Gauging and LNAPL Recovery (1 EFR Event)

Labor.....	\$1,100	
Subcontractor (MPR, Equipment, Travel)	<u>\$2,230</u>	
	Subtotal	Task
1	\$3,340	

Task 2 - Soil Boring and Temporary Well Installation

Labor.....	\$1,060	
Subcontractor (Driller, Laboratory, Equipment, Travel)	<u>\$7,060</u>	
	Subtotal	Task
2	\$8,110	

Task 3 - Groundwater Monitoring Well Installation (Up to Five Shallow, Overburden Monitoring Wells, If Required)

Labor.....	\$5,010	
Sampling (Driller, Equipment, Travel)	<u>\$23,380</u>	
	Subtotal	Task
3	\$28,390	

Task 4 - Groundwater Sampling

Labor.....	\$4,390	
Direct Expenses (Reproduction, Travel).....	<u>\$3,340</u>	
	Subtotal	Task
4	\$7,730	

Task 5 - Off-Site Public Notification

Labor.....	\$1,370	
Direct Expenses (Reproduction, Travel).....	<u>\$90</u>	
	Subtotal	Task
5	\$1,460	

Task 6 - Data Evaluation

Labor.....	\$2,000	
Direct Expenses (Reproduction, Travel).....	<u>\$60</u>	
	Subtotal	Task
6	\$2,060	

Task 7 - Project Management and Project Updates

Labor.....	\$3,140	
Direct Expenses.....	<u>\$90</u>	
	Subtotal	Task
5	\$3,230	

Total Estimated Costs for All Tasks
\$54,320

ASSUMPTIONS

This proposal is based on the following assumptions:

- No additional assessment or investigation activities beyond the soil and groundwater sampling activities identified in the scope of work are included;
- Costs assume that this work will be completed under the NJDEP's UHOT Program;
- Costs assume that no additional ecological evaluations are required for this site under the NJDEP's UHOT Program;
- Costs assume that off-site access within the public right of way and, if required, will be granted by the Township of Maplewood.
- Costs exclude the preparation of a Classification Exception Area or a Groundwater Remedial Action Permit Application;
- Costs assume all work to be completed on-site and in Level D-modified personal protection equipment; and
- Costs do not include NJDEP fees; and
- Costs exclude submittal of a Remedial Investigation Report to the NJDEP.

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, LSRP
Project Manager



Edward Sullivan, P.G., LSRP
Director of LSRP Program

Authorization to Proceed: _____ Date: _____
(Name/Title)