IMPACT7G

Professional Services Agreement

Project:	Clinton Engines Groundwater Monitoring Network Installation and Monitoring		
Property:	City of Maquoketa, Iowa	Date:	11/24/2020

Client:	City of Maquoketa
Contact:	Gerald Smith and Frank Ellenz
Address:	201 E Pleasant St
City/State/Zip:	Maquoketa, Iowa 52060
Phone:	563-652-2484
Email:	gcsmith@maquoketaia.com

AGREEMENT made this 24th day of November, 2020, by and between the service provider, Impact7G, Inc. ("Impact7G") and the City of Maquoketa ("Client").

WHEREAS, the Client intends to engage the services of Impact7G to: install groundwater monitoring wells at the Property and offsite properties for the purpose of monitoring chlorinated solvent plume dynamics in groundwater.

WHEREAS, Impact7G agrees to provide said services pursuant to the terms of this Agreement.

NOW THEREFORE, the parties agree as follows:

1. **Project**

Impact7G agrees to construct a groundwater monitoring well network for the purpose of monitoring chlorinated solvent (TCE) plume dynamics. The scope of work is based on the Iowa Department of Natural Resources (IDNR) September 26, 2019 letter and verbal e-mail correspondence between the IDNR and Impact7G.

2. **Scope of Services**

Task 1: Monitoring Well Network

Impact7G will advance up to 14-permenant groundwater monitoring wells at the depths and screen intervals listed in Table 1 for the purpose of monitoring TCE and chlorinated solvent plume dynamics in unconsolidated sediments associated with the historic operations of the Clinton Engine Site. Each monitoring well will be advanced using a CME® drill rig equipped with 6.75" inside diameter (ID) hollow stem augers equipped with a split spoon soil core sampler. Each well will be completed with 2" (ID) SCH 40 PVC pipe packed in 3/8" hydrated bentonite chips and 2" SCH 40 0.01' slotted PVC pipe packed in clean quartz sand filter pack spanning the depth representing the highest known concentrations of TCE in groundwater.

Table 1: Proposed Well Locations, Depths, and Screen intervals

Well ID	Well Depth	Screen depth
MW-1R	55	25-55
MW-2R	55	35-55
MW-3B	55	25-55
MW-4B	55	25-55
MW-5B	55	25-55
MW-6B	55	22-55
MW-8B	55	25-55
MW-32	60	35-60
MW-48	55	35-55
MW-43	40	30-40
MW-38	60	30-60
MW-36	55	35-55
MW-35A	80	59-79
MW-35B	50	30-50

Soil samples will be collected continuously at one-foot intervals divided into two aliquots with a split spoon core sampler. One aliquot will be collected from each interval for field screening purposes and one aliquot for potential laboratory analysis. Soil samples will be screened in the field for the presence of volatile organic compounds (VOCs) using a photo-ionization detector (PID) equipped with an 11.7 electronvolt (eV) lamp. The PID will be utilized per the manufacturer's recommendations for methods and procedures. All non-disposable soil sampling equipment will be decontaminated with a detergent solution and double rinsed with organic free tap water before and after each soil sampling location to prevent cross contamination. In all borings, the corresponding soil sample(s) exhibiting the highest PID reading will be collected and submitted for laboratory analysis. Given the confirmed release of TCE chlorinated solvents at the Clinton Engines site, soil samples will be submitted to Eurofins/TestAmerica of Cedar Falls, Iowa for analysis of VOCs using EPA Method 8260C. Each monitoring well will be protected with a steel above ground well vault and labeled with well identification and depth. Prior to collecting groundwater, each well will be purged of at least three well volumes by inserting a Proactive SS Mega Typhoon® submersible pump and Diver® pressure transducer into each well. The Diver office software will be utilized to monitor and collect well recovery data at two second intervals in real time. Recovery data will be collected and the hydraulic conductivity (K) from each monitoring well will be estimated using Bower Rice software. The test will be repeated three times at each permanent monitoring well location and the results will be averaged. It is estimated that Task 1 will take approximately three weeks to complete. The Task 1 cost summary is presented on the following table:

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Item #	Description	Qty	Unit Cost	Total
1	Work plan submittal to the IDNR, drilling oversight, soil core logging, soil sampling, monitoring well development and K analysis, GIS, personal protection equipment, materials, expenses, and project management	1	$20,000	$20,000
2	Soil sampling and analysis. 14 soil samples for analysis of VOCs by EPA method 8260C.	14	$81	$1,134
3	Drilling rig and crew mobilization and expenses	1	$3,500	$3,500
	Drilling and well installation cost per vertical foot for 14 groundwater monitoring wells	785	$26	$20,410
4	Steel above ground well vaults	14	$250	$3,500
Task 1 Estimated Time and Materials				**$48,544**

Task 2: Bedrock Monitoring Well Network

Impact7G will advance four (4) groundwater monitoring wells into the underlying bedrock to further define the vertical extent of groundwater TCE contamination. Monitoring wells will be advanced in the City right-of-way near the northeast (B-32), southeast (B-48) and west (B-24) and north (B-28) extents of the mapped TCE Plume. Each monitoring well will be advanced to the first occurrence of groundwater in the underlying Silurian bedrock aquifer (to be determined). Each bedrock monitoring well will be advanced using a rotary drilling rig equipped with an 8.5-inch inside diameter (ID) hollow stem auger (HAS). The 8.25-inch HAS will be advanced to the soil and bedrock interface. A 6" ID SCH 80 PVC casing will be installed from the top of the surface to the top of the bedrock and the angular space between the 6-inch casing and the outside of the borehole will be sealed with grout to prevent intrusion of shallow groundwater. A tri-cone air rotary head attachment will be placed through the 6" SCH 40 to advance through the bedrock. Air rotary advancement is accomplished by injecting high flow compressed air into the drill string thus cooling the tri-cone drill bit and excavating rock cuttings while stabilizing the borehole. When groundwater in penetrated and the desired boring depth is achieved, a 2" ID SCH 80 0.01" slotted PVC pipe and solid section riser will be installed to span the water column depth and will be completed using clean quartz, 12/20 gradation sand to one foot above the saturated interval. The riser portions of each well will be sealed with grout to the surface. The annular space between the 6" outer PVC casing and the 2" PVC casing will also be sealed with grout to avoid cross contamination of the shallow groundwater source and the deeper aquifer. It is anticipated that the installation of the four groundwater monitoring wells will take four days to complete. The Task 2 cost summary is presented on the following table:

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Item #	Description	Qty	Unit Cost	Total
1	Mobilization	1	$19,550	$19,550
2	Site Specific Setup	4	$2,070	$8,280
3	8.5" Bore Hole	160	$39	$6,240
4	6" PVC Casing grouted in place to bedrock	160	$20	$3,200
5	6" Drill Hole through bedrock	200	$28	$5,600
6	2" Slotted PVC Screen	200	$18	$3,600
7	2" PVC Casing	160	$14	$2,240
8	Gravel Pack	200	$38	$7,600
9	Bentonite grout	160	$12	$1,920
10	Above ground well vaults	4	$250	$1,000
11	Vacuum truck rental (per day)	3	$2,875	$8,625
12	Frac Tank rental delivery and pickup	1	$863	$863
13	Frac tank rental	10	$144	$1,440
14	Restoration	4	$1,035	$4,140
15	Impact7G well construction oversight, monitoring well development, K analysis and equipment.	5	$1,000	$5,000
Task 2 Estimated Time and Materials				**$79,298**

Task 3: Groundwater Sampling, Analysis and Reporting

Prior to groundwater sampling and analysis, the static groundwater level will be measured from each monitoring well for the purpose of discerning the groundwater flow direction and groundwater elevation contours. Each monitoring well will be purged of at least three well volumes prior to groundwater collection. Field parameters including pH, ORP, temperature, conductivity, dissolved oxygen, and turbidity will be measured until field parameters have stabilized. As part of this collection method, groundwater will be purged at a rate not to depress the water table. Each groundwater sample will be submitted for laboratory analysis of VOCs using EPA Method 8260C. The groundwater analytical results will be presented in a Site Monitoring Report (SMR) with appropriate tables, figures, and groundwater plume contour maps for each chemicals of concern. The initial SMR will include soil boring and well construction diagrams and the results of the hydraulic conductivity analysis. The Task 3 cost summary is presented on the following table:

Item #	Description	Qty	Unit Cost	Total
1	Groundwater sampling. Cost includes field work, equipment, and subcontract analytical laboratory analysis of VOCs by EPA Method 8260C	25	$250	$6,250
2	Initial SMR includes well logs, K analysis groundwater plume contour maps	1	$5,500	$5,500
3	Subsequent SMRs	1	$2,500	$2,500
Task 3 Lump Sum				**$14,250**

At a minimum, annual groundwater monitoring will be required to meet IDNR LRP requirements. Subsequent annual SMRs will be completed for a time and materials basis not to exceed **$8,750**.

3. **Impact7G Responsibilities** Impact7G hereby agrees to:

   (i) Provide the professional services as set forth in this Agreement; and
   (ii) Perform said services in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing at the same time and in the same or similar locality. Impact7G will submit a utility locate request to Iowa One Call 72-hours prior to monitoring well installation. Impact7G will mark the well locations prior to calling Iowa One Call. If utility conflicts arise the marked well locations will be moved at least three feet from the nearest utility.

4. **Client Responsibilities** Client hereby agrees to:

   (i) Provide unrestricted access to the proposed well locations for Impact7G to perform the services.

5. **Schedule**

The Project will be scheduled immediately upon receipt of the executed Professional Services Agreement (PSA) from the Client.

6. **Project Cost, Payment and Termination**

The estimated time and material cost for each Task 1 through Task 3 are presented in the preceding Tables. Monitoring well installation and groundwater sampling and analysis is expected to take approximately three weeks to complete. The SMR will be presented within 25 business days after receiving analytical results from the laboratory.

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Invoices for Impact7G's services will be submitted upon project completion. Invoices shall be due and payable upon receipt. If any invoice is not paid within 30 days, Impact7G may, without waiving any claim or right against the Client, and without liability whatsoever to the Client, suspend or terminate the performance of services.

7. **Work Product** All reports, plans, specifications, field data, field notes, laboratory test data, calculations, estimates and other documents including all documents on electronic media prepared by Impact7G as instruments of service shall remain the property of Impact7G.

All project documents including, but not limited to, plans and specifications furnished by Impact7G under this project are intended for use on this project only. Any reuse, without specific written verification or adoption by Impact7G, shall be at the Client's sole risk, and Client shall defend, indemnify and hold harmless Impact7G from all claims, damages and expenses including attorney's fees arising out of or resulting therefrom.

Under no circumstances shall delivery of electronic files for use by the Client be deemed a sale by Impact7G, and Impact7G makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall Impact7G be liable for indirect or consequential damages as a result of the Client's use or reuse of the electronic files.

Because electronic file information can be easily altered, corrupted, or modified by other parties, either intentionally or inadvertently, without notice or indication, Impact7G reserves the right to remove itself from its ownership and/or involvement in the material from each electronic medium not held in its possession. Client shall retain copies of the work performed by Impact7G in electronic form only for information and use by Client for the specific purpose for which Impact7G was engaged. Said material shall not be used by Client or transferred to any other party, for use in other projects, additions to this project, or any other purpose for which the material was not strictly intended by Impact7G without Impact7G's expressed written permission. Any unauthorized use or reuse or modifications of this material shall be at Client's sole risk. Furthermore, the Client agrees to defend, indemnify, and hold Impact7G harmless from all claims, injuries, damages, losses, expenses, and attorney's fees arising out of the modification or reuse of these materials.

8. **Project Site** The Client agrees that it shall be solely responsible for job site safety and warrants that this intent shall be made evident in the Client's agreements with any third parties. The Client also agrees that Impact7G and Impact7G's consultants shall be indemnified and shall be made additional insureds on the Client's general liability policies on a primary and non-contributory basis.

9. **Claims and Disputes** Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Client or Impact7G. Impact7G's services under this Agreement are being performed solely for the Client's benefit, and no other party or entity shall have any claim against Impact7G because of this Agreement or the performance or nonperformance of services hereunder. The Client and Impact7G agree to require a similar provision in all contracts with contractors, subcontractors, subconsultants, vendors and other entities involved in this Project to carry out the intent of this provision.

The Client shall make no claim for professional negligence, either directly or in a third party claim, against Impact7G unless the Client has first provided Impact7G with a written certification executed by an independent professional currently practicing in the same discipline as Impact7G and licensed in the State in which the claim arises.

10. **Limited Liability** The Client agrees, to the fullest extent permitted by law, to limit the liability of Impact7G and Impact7G's officers, directors, partners, employees, shareholders, owners and subconsultants to the Client for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, including attorneys' fees and costs and expert witness

fees and costs, so that the total aggregate liability of Impact7G and its officers, directors, partners, employees, shareholders, owners and subconsultants to all those named shall not exceed $50,000. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

11. **Mediation** In an effort to resolve any conflicts that arise during the project or following the completion of the project, the Client and Impact7G agree that all disputes between them arising out of or relating to this Agreement shall be submitted to non-binding mediation unless the parties mutually agree otherwise. The Client and Impact7G further agree to include a similar mediation provision in all agreements with independent contractors and consultants retained for the Project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with subcontractors, sub-consultants, suppliers or fabricators so retained, thereby providing for mediation as the primary method for dispute resolution between the parties to those agreements.

12. **Attorney's Fees** If litigation arises for purposes of collecting fees or expenses due under this Agreement, the Court in such litigation shall award reasonable costs and expenses, including attorney fees, to the prevailing party. In awarding attorney fees, the Court shall not be bound by any Court fee schedule, but shall, in the interest of justice, award the full amount of costs, expenses, and attorney fees paid or incurred in good faith.

13. **Controlling Law** This Agreement shall be construed and enforced in accordance with the laws of the state of Iowa.

14. **Assignment** Neither the Agreement nor any of the rights or obligations arising under the Agreement may be assigned without prior written consent.

This agreement is approved and accepted by the Client and Impact7G upon both parties signing and dating the agreement. The effective date of the agreement shall be the last date entered below.

City of Maquoketa, Iowa		Impact7G, Inc.	
Accepted by:	_____	Project Manager:	_____
Printed/ Typed Name:	_____	Printed/ Typed Name:	James Goodrich
Title:	_____	Date:	11/24/2020
Date:	_____		

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